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Conserving Biodiversity in Africa

The Agency for International Development (USAID) African Bureau's Biodiversity Program

Conserving Biodiversity in Africa: A Review of USAID Africa Bureau's Biodiversity Program

Biodiversity Support Program

A Consortium of World Wildlife Fund,
The Nature Conservancy, and World Resources Institute

WWF

The Nature Conservancy

Report Funded by Division of Food,
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Biodiversity Program

Prepared by Jim Webster

for

The Biodiversity Support Program
A USAID - funded consortium of World Wildlife Fund,
The Nature Conservancy, and World Resources Institute

Prepared for the USAID Bureau for Africa
Office of Analysis, Research, and Technical Support
Division of Food, Agriculture, and Resources Analysis

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The report was conducted as part of the Biodiversity Support Program's[1] Biodiversity Analysis for Africa (BAA) project. The goal of the BAA project is to advance the conservation of biological diversity in Africa while enhancing human livelihoods through the analysis of biodiversity conservation initiatives, strategies, and approaches. This report complements the principal product of the BAA project, a report entitled *African Biodiversity: Foundation for the Future. A Framework for Integrating Biodiversity Conservation and Sustainable Development* (BSP 1993).

Tim Resch, Tropical Forestry and Biodiversity Advisor for the USAID Africa Bureau (ARTS/FARA), provided overall guidance and support for this report. In addition to supplying most of the background literature and information for the report, Tim participated in the review of the Conservation of Biological Diversity Project (CBDP) in Niger and prepared a number of the report's exhibits.

I would like to extend a special thanks to all of the individuals who assisted with the two visits of project activities. In Kenya, Deborah Snelson and Peter Lembuya of the African Wildlife Foundation helped coordinate the visit to the Tsavo West Community Conservation Project. Peter Lembuya's tour and description of project activities were especially appreciated. Jim Dunn, USAID/Kenya, and George Frame, BSP consultant, also contributed to the review of the Bureau activities in Kenya. In Niger, a large number of people deserve special acknowledgement for their assistance with the review of the CBDP, including Robert Friedman, Lenny Garden, Tom Clark, Kelly Johnson, Ed Keturakis, Sarah Martin, Diane Stram, Tilda Leahey, and Thomas Price of Peace Corps/Niger; Ahmed Oumarou and Nakata Bello Ibrahim from Park "W"; and Barry Rands, Hamadou Bourahima, and George Taylor from USAID/Niger.

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[1] The Biodiversity Support Program is a consortium of World Wildlife Fund, World Resources Institute, and The Nature Conservancy funded by USAID.

EXECUTIVE SUMMARY

In Africa, the United States Agency for International Development (USAID) support for biodiversity efforts has grown rapidly from $750,000 in 1987 (USAID 1988) to $21.4 million in 1990 (USAID 1992). Many of the initial biodiversity activities, which were funded by the USAID Bureau for Africa, have recently been completed. This report reviews these Africa Bureau biodiversity grants and examines some of the lessons learned from these efforts. In order to place these project activities and lessons into a larger perspective, this report also reviews the Africa Bureau's biodiversity strategy and related congressional, USAID, and Africa Bureau strategies and programs. Together, this review of projects and strategies is intended to provide a base of practical information that will advance people's understanding of what is being done to conserve biodiversity in the field and to help improve future biodiversity conservation programs.

Between 1987 and 1990, the Africa Bureau supported nine field projects totalling $2,676,455. Additional biodiversity activities funded by the Africa Bureau from 1987 to 1990 totaled $1,073,500. The nine Bureau projects are located in eight countries and managed by five different organizations. Three United States-based, international conservation organizations--World Wildlife Fund, the African Wildlife Foundation, and the Wildlife Conservation Society of the New York Zoological Society--received the majority of Bureau biodiversity funds. These groups have been undertaking conservation efforts in Africa for many years, and the Bureau projects often supplemented or followed already existing initiatives. The U.S. Peace Corps also received a significant amount of Bureau funding, and, in addition to the Peace Corps projects in Burundi and Niger, Peace Corps Volunteers worked with Bureau projects in Cameroon and Rwanda.

A review of the Bureau biodiversity grants shows that they contain similar objectives and activities. As a result, the Bureau's projects can be broken down into the following six components: community activities, protected area management, training, research, tourism development, and environmental education. In addition to providing summaries of all of the Bureau grants and discussing two Bureau projects in detail, this report examines each of these six project components to assess what progress has been achieved and what difficulties have been encountered as a result of Bureau grants.

Community Activities: Community activities, ranging from general community development activities to more targeted natural resource management initiatives, play a central role in the Bureau's biodiversity projects. Examples of community activities include constructing schools and repairing roads around Beza Mahafaly Reserve in Madagascar; carrying out gardening and beekeeping activities around Park "W" in Niger; establishing cooperative tree nurseries and on-farm agroforestry demonstration plots in southwestern Uganda; and holding village level meetings and setting up a Community Conservation Committee in the periphery of Tsavo West National Park in Kenya.

Protected Area Management: The most common protected area management activity found in Africa Bureau biodiversity projects is the development of and contribution to protected area management plans. Results from the Bureau projects show that developing effective management plans is an extremely challenging undertaking. There are often many, sometimes conflicting, issues associated with developing a protected area management plan. Relevant information, local community

involvement, quick action, effective implementation, and sustainability are all important factors to consider when developing these plans.

Training: Training is an important component of most of the Africa Bureau biodiversity projects. Individuals receiving training include park guards and guides, conservation extension agents, community wildlife officers, park managers, undergraduate and master's students, Ph.D. candidates, and postgraduate researchers. One reason for the high profile of training efforts within these grants is the lack of qualified individuals available to implement biodiversity conservation projects in Africa. There are several reasons for the short supply of trained personnel. Many individuals prefer living in the city to carrying out project activities in remote areas. In addition, the financial incentives to work in conservation are often very poor. Thus, the challenge of providing adequate training to a sufficient number of people to implement biodiversity projects is compounded by the challenge of attracting and retaining enough top candidates.

Research: Research represents an essential component of the Bureau's biodiversity efforts. For many projects, research precedes and is the catalyst for additional project activities. For others, research takes place alongside and complements other components. The proper role of research in biodiversity conservation efforts, however, is a controversial subject. Project managers at Beza Mahafaly in Madagascar argue that more basic research is needed and complain that the "eagerness for quick results coupled with skepticism about the value of basic research on the part of the funding agencies has made it difficult if not impossible to secure support for basic research" (Richard and Sussman 1991). The director of the Nyungwe project in Rwanda felt that the presence of expatriate researchers, despite their good relationship with and training of Rwandan counterparts, considerably changed how some government collaborators and local officials viewed the project--classifying it, more than ever, as just another expatriate conservation endeavor rather than the widely supported tourism development program it was developing into (Clausen 1991).

Tourism Development: Nature-based or ecotourism is one of the activities the Africa Bureau endorses as being consistent with its strategy of integrating biodiversity into USAID's development goals (see Appendix A). Nonetheless, tourism development was the least common of the six components among the Bureau biodiversity projects. On-the-ground tourism development efforts were limited to the Nyungwe project in Rwanda and the Burundi project. There are several possible reasons for this inconsistency. Given that a number of project implementors mentioned an interest in developing tourism programs in the future or were involved in the assessment of tourism programs, tourism development efforts may best follow after a number of the other components within biodiversity projects have already been initiated.

Environmental Education: As part of its biodiversity projects and activities, the Africa Bureau has supported a wide range of environmental education efforts. Various conservation messages and methods of distribution have been developed, tested, and refined. Posters, newsletters, slide show presentations, guidebooks, calendars, T-shirts, radio programs, songs, interpretive centers, mobile education units, and educational materials such as learner's and teacher's guides have been developed and produced. Programs have involved many different audiences, including school children, nature clubs, villagers, and tourists.

This review of the Africa Bureau's biodiversity portfolio contains many findings and conclusions of particular interest for future conservation efforts. Some of the key lessons learned from the review include the following:

- Africa Bureau's biodiversity grants served as a primary catalyst in the development of USAID's biodiversity program in Africa.

- The effectiveness of the Africa Bureau biodiversity grants is difficult to evaluate; nonetheless, these grants have accomplished impressive results that need to be shared among a larger audience.

- Project objectives have been more difficult to achieve than originally envisioned.

- There are no easy answers or set solutions for conserving biodiversity in Africa.

- Biodiversity initiatives are complex, long-term endeavors. Two or three years is not a sufficient amount of time to make real progress in conserving biodiversity.

- The Africa Bureau needs to produce a new biodiversity strategy.

Given USAID's substantial commitment to biodiversity conservation initiatives in Africa, the Africa Bureau's biodiversity grants--with initial results to take into consideration--represent a vitally important group of on-the-ground biodiversity conservation efforts. Results from these efforts should be used to inform the design and implementation of new programs and strategies and serve as a strong rationale for continued donor support for this type of biodiversity grants.

ACRONYMS

ARTS	Office of Analysis, Research, and Technical Support
API	Assessment of Program Impact
AWF	African Wildlife Foundation
BSP	Biodiversity Support Program
BDP	Biological Diversity Project
CBDP	Conservation of Biological Diversity Project
CEA	Conservation Extension Agents
CFA	Communauté Financière Africaine
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
COBRA	Conservation of Biodiversity Resource Areas Project
CWS	Community Wildlife Service
EC	European Community
DFA	Development Fund for Africa
DTC	Development Through Conservation Project
FAA	Foreign Assistance Act
FARA	Food, Agriculture, and Resource Analysis Division
FY	Fiscal Year
INECN	Institute for the Environment and Nature Conservation
ITF	Interagency Task Force
KWS	Kenya Wildlife Service
MP	Member of Parliament
NFCP	Nyungwe Forest Conservation Project
NGO	Nongovernmental organization
NPS	U.S. National Park Service
NRM	Natural Resources Management
NRMAA	Natural Resources Management Analytical Agenda
NRMS	Natural Resources Management Support Project
OTA	Office of Technology Assessment
PACD	Project Assistance Completion Date
PARCS	Protected Area Conservation Strategy Project
PARTS	Policy, Analysis, Research, and Technical Support Project
PCV	U.S. Peace Corps Volunteer
PNRM	Plan for Supporting Natural Resources Management in Sub-Saharan Africa
PVO	Private Voluntary Organization
RSSA	Resources Support Service Agreement
TCCP	Tsavo West National Park Community Conservation Project
TWNP	Tsavo West National Park
USAID	U.S. Agency for International Development

WCS	Wildlife Conservation Society of the New York Zoological Society (formerly Wildlife Conservation International (WCI)
WCMC	World Conservation Monitoring Center
WWF	World Wildlife Fund

1. USAID AND BIODIVERSITY CONSERVATION IN AFRICA

The United States Agency for International Development (USAID) is a new yet increasingly important player in biodiversity conservation efforts around the world. Ten years ago, USAID had little involvement in conservation programs. By fiscal year (FY) 1992, however, USAID obligated a total of $72 million for biodiversity conservation activities. In addition, USAID has adopted an environmental strategy for the 1990s that embraces biodiversity conservation efforts (see Appendix A). In Africa, USAID support for biodiversity efforts has also grown rapidly, increasing from $750,000 in 1987 (USAID 1988) to $21.4 million in 1990 (USAID 1992). (See Exhibit 1 for details on USAID biodiversity expenditures by year.)

A number of key events and initiatives contributed to the growth of USAID's biodiversity program in Africa and around the world.[2] In 1981, USAID, in collaboration with the Council on Environmental Quality; the Smithsonian Institution; the National Science Foundation; the U.S. Man and the Biosphere Program; and the Departments of State, Agriculture, Commerce, and Interior, sponsored the U.S. Strategy Conference on Biological Diversity in Washington, D.C. Conference participants concluded that an interagency task force should be established to review current programs, develop comprehensive long-term goals and strategies, and recommend integrated national and international programs to carry out these strategies (USAID 1986).

In 1983, the U.S. Congress amended the Foreign Assistance Act, adding Section 119 entitled Endangered Species. Among its provisions, Section 119 calls on the USAID Administrator to develop a United States strategy--including specific policies and programs--to protect and conserve biodiversity in developing countries. In response to this amendment, USAID helped establish the Interagency Task Force (ITF) on Biological Diversity in 1984, which presented its report *U.S. Strategy on Conservation of Biological Diversity: An Interagency Task Force Report to Congress*, in 1985. The major conclusion of the ITF report was that provisions for conserving biological diversity must be incorporated into development planning and that a concern for biological diversity should be an integral part of all development programs. The report contains 67 recommendations for the enhancement of biodiversity conservation in developing countries (USAID 1985) through the efforts of the U.S. government and other public and private institutions.

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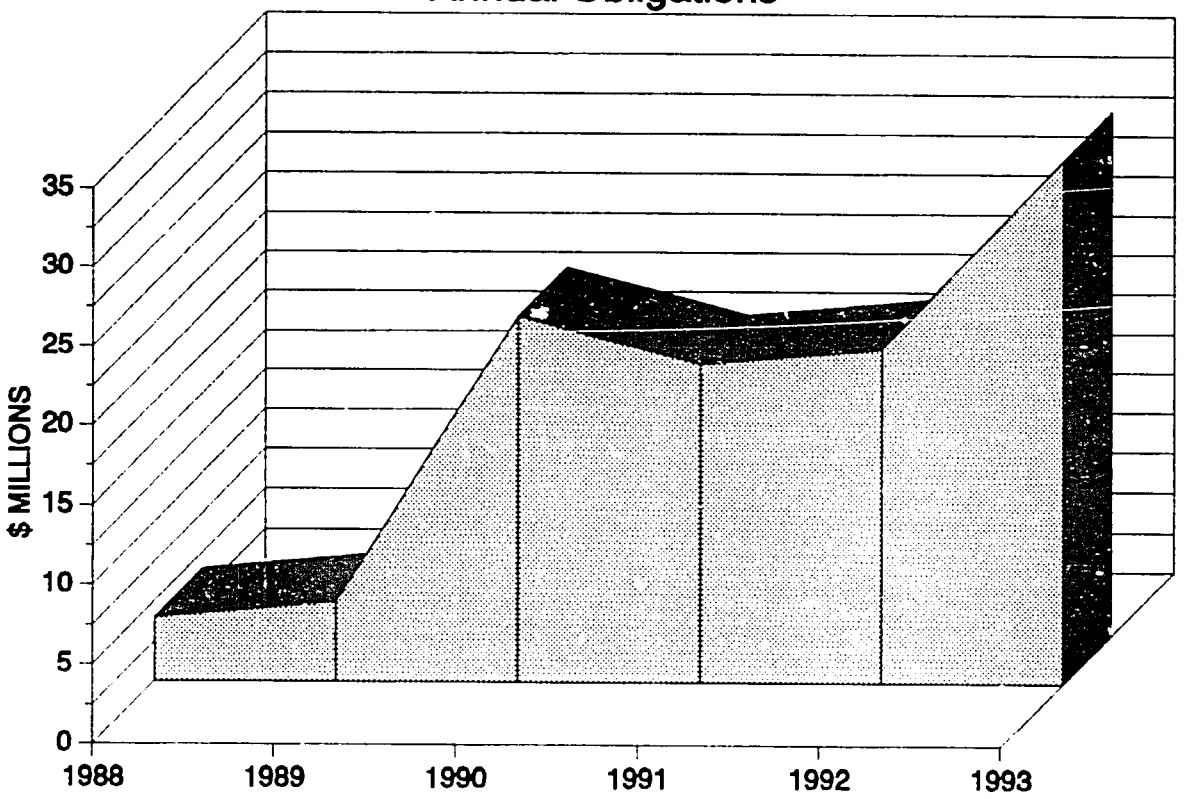
[2]See Appendix A for a detailed description of the events and initiatives related to USAID's biodiversity efforts in Africa. Appendix A reviews (1) the laws governing the Bureau's efforts, (2) the strategies developed to fulfill these laws, (3) the mechanisms devised for implementing the strategies, and (4) evaluations of the effectiveness of these laws, strategies, and mechanisms.

Exhibt 1

AID-FUNDED BIODIVERSITY PROGRAMS IN AFRICA

Annual Obligations



source: USAID/AFR/ARTS 1992

Substantive USAID funding of biodiversity efforts in Africa, however, did not occur immediately. Prior to 1987, it is difficult to distinguish USAID biodiversity projects from general natural resources management efforts. For example, in USAID's biodiversity report to Congress for fiscal year (FY) 1985 (USAID 1986), titles of the major (greater than $100,000) projects in Africa included the following:

- Mobile Extension Education Course on Natural Resources Management in Zimbabwe;
- National Cereals Research and Extension Project in Cameroon;
- African Termite Microbial Resources in East and Southern Africa;
- Regional Remote Sensing in East and Southern Africa;
- Support for the Fisheries Committee of the Eastern and Central Atlantic in the West Africa Region;
- and Ruhengeri Resource Analysis and Management in Rwanda.

In an attempt to ensure that USAID comply with Section 119, Congress amended the Foreign Assistance Act again in 1986, mandating that USAID spend not less than $2.5 million in FY 1987 foreign-aid appropriations for new activities to assist countries in protecting and maintaining wildlife habitats and in developing sound wildlife management and plant conservation programs. As a result, specific biodiversity conservation activities were funded in Africa, beginning in FY 1987, and, in general, the types of projects listed in the 1985 report were no longer classified as biodiversity projects. In 1987, USAID reported that it had supported five biodiversity projects in Africa totalling $750,000 (USAID 1988) that were consistent with Section 119.

Despite this modest beginning, USAID annual biodiversity obligations in Africa expanded rapidly and reached $21.4 million by 1990. The Africa Bureau's Natural Resources Management Support (NRMS) project, authorized in 1987, was one of the primary mechanisms used to help expand USAID biodiversity efforts in Africa. As part of its activities, the NRMS project provided funding for a series of biodiversity grants before there was any substantial involvement from USAID missions in this area.

In 1989, in order to guide the growing number of USAID biodiversity activities in Africa, the Africa Bureau issued its biodiversity conservation strategy in cable form (State 101683). The strategy defines biodiversity; outlines USAID's role in biodiversity conservation; and establishes geographical priorities, priority subject areas and approaches, and criteria for selecting biodiversity proposals. The strategy states that the Africa Bureau's biological diversity/tropical forests program will initially focus on two subregions (1) Madagascar and (2) Tropical Highlands. The afromontane forests of central East Africa (Uganda, Rwanda, Burundi, and Zaire) were selected as the foci within the Tropical Highlands subregion. The Bureau's strategy "strives to integrate management of biological diversity/tropical forests within the Agency's development goals."

While the rapid growth in USAID's biodiversity obligations is impressive, this growth in expenditures in itself provides little insight about what progress is being made to conserve biodiversity in the field. Ten years after the U.S. Congress amended the Foreign Assistance Act and required USAID to become involved in biodiversity conservation efforts, it is no longer enough for USAID to endorse biodiversity conservation in its strategy statements and to report that it has obligated a certain amount of money for biodiversity projects. As momentum builds to halt the loss of biodiversity around the world, USAID should take advantage of its past support of biodiversity conservation efforts and examine the actual results it has supported in the field. Rather than simply reporting that it has achieved its financial obligation in this area, USAID should take an in-depth look at its past projects and communicate the lessons learned from these efforts so that the effectiveness of ongoing and future biodiversity efforts can be improved.

In this context, the purpose of this report is to review the efforts of the USAID Bureau for Africa to conserve biological diversity. The report's objectives are as follows:

- to review key biodiversity conservation projects and activities funded by the Africa Bureau's Office of Technical Resources;
- to examine some of the lessons learned from these efforts;
- and to describe the Africa Bureau's biodiversity strategy and related Congressional, USAID, and Africa Bureau strategies and programs.

This report examines the Africa Bureau biodiversity grants funded between 1987 and 1990. These grants, which constitute USAID's initial biodiversity efforts in Africa, now have initial results to examine. Although these grants were relatively small and represent short-term efforts, they often preceded and contributed to the development of the larger USAID mission projects that currently make up the vast majority of USAID's biodiversity portfolio in Africa. Now that the Bureau-funded grants are coming to an end, it is essential that the wealth of information generated by these grants is captured and synthesized to assist future biodiversity conservation efforts. When the larger USAID mission projects have initial results to be examined, additional research will be needed to synthesize and communicate their results and the lessons learned.

This report is based primarily on a review of the literature associated with the Africa Bureau's biodiversity efforts. Field visits were made to two projects--The Tsavo West Community Conservation project in Kenya and the Park "W" Conservation of Biological Diversity project in Niger.

This report contains two additional chapters and two appendices based on the report's objectives. Chapter 2 describes biodiversity grants funded by the Africa Bureau between 1987 and 1990, Chapter 3 discusses lessons learned from these efforts, Appendix A reviews the Africa Bureau's biodiversity strategy and related initiatives, and Appendix B gives individual summaries of the projects and activities reviewed.

2. AFRICA BUREAU'S BIODIVERSITY POKTFOLIO

For the purpose of this report, the Africa Bureau biodiversity portfolio[3] can be divided into two categories: (1) multifaceted, long-term projects focused on a specific site (sometimes referred to as integrated conservation and development projects), and (2) single-issue, discrete activities such as research efforts, training programs, and short-term technical assistance. While this review discusses both Bureau projects and activities, special attention is given to the projects because they more closely resemble the larger, Mission-funded initiatives; thus lessons learned from these efforts are especially pertinent to USAID.

Between 1987 and 1990, the Africa Bureau supported nine field projects totalling $2,676,455 (see Exhibit 2). Biodiversity activities funded by the Africa Bureau from 1987 to 1990 totaled $1,073,500 (see Exhibit 3). The nine Bureau projects are located in eight countries and managed by five different organizations. The location of the nine projects reflects the Africa Bureau's biodiversity strategy that establishes geographic priorities based on endemism and threat. The center of project activity is in eastern Africa--Kenya, Uganda, Burundi, and Rwanda. Bureau projects, however, extend to Madagascar and West Africa. Three United States-based, international conservation organizations--World Wildlife Fund, the African Wildlife Foundation, and the Wildlife Conservation Society of the New York Zoological Society (formerly Wildlife Conservation International)--received the majority of Bureau biodiversity funds. These groups have been undertaking conservation efforts in Africa for many years, and the Bureau projects often supplemented or followed already existing initiatives. The U.S. Peace Corps also received a significant amount of Bureau funding, and, in addition to the Peace Corps projects in Burundi and Niger, Peace Corps Volunteers worked with Bureau projects in Cameroon and Rwanda.

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[3]The Africa Bureau's biodiversity portfolio between 1987 and 1990 includes (1) the five 1987 grants listed in USAID's report to Congress and (2) those initiatives categorized by the Africa Bureau as biodiversity grants under its Natural Resource Management Support (NRMS) project from 1988 to 1990. Although a few of these biodiversity grants were supported by missions channeling funds through the NRMS project, they are considered to be part of the Africa Bureau's biodiversity portfolio for the purpose of this report. This report does not include a number of other activities undertaken or supported by the Africa Bureau that affect the conservation of biodiversity, such as programming support to missions, country biodiversity assessments, and special studies related to biodiversity. This review also does not address those Africa Bureau development projects that negatively impact on biodiversity. **As a result, this report is not an exhaustive description of what the Africa Bureau has done to promote or discourage biodiversity conservation efforts in Africa, and it does not attempt to evaluate the overall effectiveness of the Africa Bureau's program.**

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EXHIBIT 2

PROJECTS

Africa Bureau Biodiversity Conservation Projects, 1987-1990

Year	Country	Number	Title	Amount	Lead Organization
1988	Burundi	AFR-PROJ-1A	Biodiversity Project I	180,600	U.S. Peace Corps
1990	Burundi	AFR-PROJ-1B	Biodiversity Project II	302,893	U.S. Peace Corps
1988	Cameroon	AFR-PROJ-2A	Korup National Park I	210,000	Wildlife Conservation Int'l
1990	Cameroon	AFR-PROJ-2B	Korup National Park II	312,900	Wildlife Conservation Int'l
1988	Kenya	AFR-PROJ-3	Tsavo Community Conservation	71,500	African Wildlife Foundation
1987	Madagascar	AFR-PROJ-4A	Beza Mahafaly and Andohahela	200,000	World Wildlife Fund
1989	Madagascar	AFR-PROJ-4B	Beza Mahafaly and Andohahela	100,000	World Wildlife Fund
1987	Mali	AFR-PROJ-5	Niger River Inner Delta	150,000	World Conservation Union
1990	Niger	AFR-PROJ-6	Park "W" Construction	128,000	U.S. Peace Corps
1988	Rwanda	AFR-PROJ-7	Nyungwe Forest Conservation	128,000	Wildlife Conservation Int'l
1988	Uganda	AFR-PROJ-8A	Development thru Conservation	246,000	World Wildlife Fund
1990	Uganda	AFR-PROJ-8B	Development thru Conservation	108,500	World Wildlife Fund
1989	Uganda	AFR-PROJ-9	Kibale Forest	237,000	Wildlife Conservarion Int'l
			Total	2,676,455	

EXHIBIT 3

ACTIVITIES

Africa Bureau Biodiversity Conservation Activities, 1987-1990

Year	Country	Number	Title	Amount	Lead Organization
1988	Kenya	AFR-ACT-1	Wildlife and Adult Education	68,500	African Wildlife Foundation
1987	Kenya	AFR-ACT-2A	Rhino Conservation I	50,000	World Wildlife Fund
1988	Kenya	AFR-ACT-2B	Rhino Conservation II	40,000	World Wildlife Fund
1989	Kenya	AFR-ACT-2C	Rhino Conservation III	85,000	World Wildlife Fund
1989	Kenya	AFR-ACT-3	Masai Mara National Reserve	100,000	Wildlife Conservation Int'l.
1990	Kenya	*	Special Studies	80,000	Energy Development Int'l.
1987	Regional	AFR-ACT-4A	U.S. NPS RSSA I	200,000	National Park Service
1988	Regional	AFR-ACT-4B	U.S. NPS RSSA II	100,000	National Park Service
1988	Regional	AF4-ACT-5	CITES Ivory Quote System	50,000	World Wildlife Fund
1989	Rwanda	**	PVO/Park and Forest Mngmnt.	150,000	USAID/Rwanda
1987	Tanzania	AFR-ACT-6	Wildlife Management Training	150,000	African Wildlife Foundation
			Total	1,073,500	

* Although listed as a NRMS biodiversity grant, this activity is more appropriately categorized as a NRMS special study and thus is not included in this report.

** This activity was managed by USAID/Rwanda rather than the Africa Bureau; this, is also not discussed in this review.

2.1 Portfolio Overview

The following brief descriptions provide an introduction to the nine Bureau-supported projects. The descriptions are taken from the various project proposals to illustrate the enormous wealth of biological diversity found in Africa, the growing threats to these resources, and some of the critical issues that the Bureau's biodiversity projects are attempting to address. Taken as a whole, these nine descriptions represent the complex, formidable challenges facing efforts to conserve biodiversity in Africa. In addition, this overview helps set the stage for a review of the various project activities that have been undertaken to address these problems. (A more detailed summary of each project is provided in Appendix B.)

Burundi: Biodiversity Project I and II

Burundi has the second highest population density in Africa. Roughly 95 percent of the country's five million people live as subsistence farmers in an area about the size of Maryland. Burundi's forests are biologically rich and play a critical role in the regulation of the region's hydrology. Yet these forests are now threatened by the needs of a growing human population. In 1980, Burundi's National Institute for the Environment and Nature Conservation (INECN) was established by presidential decree to create and preserve nine natural areas. As a relatively young institute, the INECN has many pressing problems, including a lack of trained personnel and monetary resources and a need to become less dependent on the central government's budget and international funding (Peace Corps/Burundi 1990).

Cameroon: Korup National Park Project I and II

The Korup forest in southwestern Cameroon has extremely high levels of species diversity. The forest contains more than 400 species of trees and provides critical habitat for more than 250 bird species and one fourth of all African primate species. Given its known richness and highly pristine condition, the forest is believed to offer great potential for the discovery of new plant and animal species and has received international recognition as a site of primary conservation importance. Yet much remains to be learned about the identity, status, abundance, and distribution of Korup's key fauna and flora as well as the nature of their ecological relationships--baseline information that is of critical importance for the effective long-term conservation and management of Korup National Park and surrounding areas (Wildlife Conservation International 1987 and 1990).

Kenya: Tsavo West Community Conservation Project

Tsavo West National Park (TWNP) in Kenya, gazetted in 1948, represents critical habitat for the protection of the endangered elephant and black rhinoceros. Livestock incursions, however, have been a problem in TWNP for several years. As many as 50,000 head of cattle have used TWNP as their main grazing area, compromising both the park's ecological integrity and its appeal to the numerous tourists who visit the park. Outside of the park, encounters between elephants and the local residents result in damage to crops and property--even the loss of human life (African Wildlife Foundation 1990).

Madagascar: Beza Mahafaly and Andohahela Reserves

Established in 1939, the Andohahela Reserve is the third largest protected area in Madagascar. The reserve has received national and international attention as Madagascar's richest center of biodiversity (O'Conner 1990). About 40 percent of the reserve, however, has been deforested (Wells and Brandon 1992). In a village neighboring the reserve, the retired Chef de Post de Reserve explained that the only reason the people in his area left the reserve alone was because for them the Wasa "Whiteman" was like God; if the Wasa said to leave the area alone, they obeyed. When asked what they would do if the Wasa gave it back to them, the Chef de Post de Reserve said that most of the forested areas in the flat lands would be cut over for rice fields (DeGeorges 1992a).

Mali: Niger River Inner Delta

The desert wetlands of Mali's Niger River inner delta are a wonderfully productive ecosystem. For a thousand years these wetlands have supported an intricate mix of wildlife, pastoralists, fishermen, and farms, each of which moves in discrete cycles through space and time according to the rise and fall of the river. Half a dozen ethnic groups worked out elaborate protocols for sharing this common ground--as it cycles from flood plain to pasture--for a million cattle and three million sheep and goats, the highest density of herds in all of Africa. The social arrangements that once governed the area, however, are collapsing. The government's system of permits and fines, with its peculiar mix of motives and power, actually encouraged people to chop down the forest. Following a string of bad years that began in the late 1960s, the annual flooding of the delta failed completely in 1984. By the summer of 1985, three fourths of the livestock in the area had died for lack of pasture. How many people died is unknown (Bass 1991).

Niger: Park "W" Conservation

The traditional methods of resource preservation in Niger--soldiers on roving antipoaching, antigrazing, antifarming, and antibrushfire guard--have failed for two decades within "W" National Park (Peace Corps/Niger 1989), the country's most important area in terms of biological diversity (Millington and Tiega 1991). Subsequent penalties more often alienate local people than impress upon them the long-term value of sound natural resources management. Illegal hunting by the government elite also undercuts the credibility of park enforcement efforts. Local farmers and herders in the areas surrounding Park "W", faced with diminishing field fertility and declining grazing resources, would like to profit from the park's "abundant" resources (Peace Corps/Niger 1989, 1991, and Price n.d.).

Rwanda: Nyungwe Forest Conservation Project

The Nyungwe Forest in Rwanda, the largest lower montane forest in Africa, is the subject of a laudable management plan devised by the Rwandan Forest Service. The plan apportions 40 percent of the forest to be protected as wilderness. Nothing in the management plan, however, indicates that the government of Rwanda will take the responsibility of conserving this area; a task complicated by the fact that there were no qualified Rwandan biologists or natural forest managers available to participate in any of this work (Wildlife Conservation International 1988).

Uganda: Development Through Conservation Project I and II

Home to the mountain gorilla, the Impenetrable Forest in southwestern Uganda is also the richest area in East Africa for trees, birds, and many other taxa including mammals and butterflies. The forest, however, is under threat from the uncontrolled exploitation of its flora and fauna. The human activity most prevalent in the Impenetrable Forest--and common in the two other small forest reserves in the area--is pit-sawing. This activity, more than any other, is altering the structure and composition of the reserve's vegetation. Pit-sawing is species specific; since only the largest and most valuable trees are extracted, this activity is detrimental to biological diversity if not controlled.

The land outside of the forest reserves is also under enormous pressure. The area of natural tree cover on lands within 15 km of the reserves has decreased by 83 percent in the last 30 years. Little if any reforestation has been carried out. Virtually no trees remain on farm land for fuelwood, poles, and timber. This situation has led to the exploitation of the forest reserves, an increases in time spent collecting wood products, and an increased risk of soil erosion (World Wildlife Fund 1988).

Uganda: Kibale Forest Project

Given planned levels of investment in forestry activity, the future of the remaining forests in Uganda--now less than three percent of Uganda's land area--is in doubt. Traditional definitions of sustainable harvesting are considered outdated or inappropriate, and there is interest in the forestry sector in redefining these terms. Without scientific information, however, managers and policy makers will not be able to develop ecologically sustainable management plans for Uganda's remaining forests. As one of Africa's main sites of long-term research into varied aspects of rain forest ecology and management, the Kibale Forest Reserve in Uganda is an ideal site for gathering the necessary scientific information for managing Uganda's remaining forest areas (Wildlife Conservation International 1989).

2.2 Project Components

Many of the Africa Bureau's biodiversity projects contain similar objectives and components. To assist in making comparisons and distinctions among projects, the Bureau's biodiversity projects can be broken down into the following six components: community activities, protected area management, training, research, tourism development, and environmental education. (See Exhibit 4 for a summary of the various components contained in each of the individual projects.)

For the purpose of this analysis, these six categories are broadly defined. While some project implementors distinguish between biological inventories, basic research, and socioeconomic surveys, all of these activities are classified as research in this report. Training, tourism development, and environmental education are sometimes viewed as part of protected area management or community activities but have been singled out here as separate components because they figure prominently in many of the Bureau projects. Looking at these six categories, it is interesting to note what areas did not receive significant attention from the Bureau projects. Policy reform, for example, was not an important part of these projects. Monitoring and evaluation also did not play a prominent role, although a few projects include ecological monitoring as part of their research efforts.

A review of Exhibit 4 shows that most of the Bureau projects contain five of the six components, with tourism development being the least common of the six. While all of the projects except the project in Mali are centered around protected areas, there is a good balance between activities taking place within and outside of protected areas. In Burundi, Cameroon, and Rwanda, the projects' primary emphasis is within the reserves. In Kenya, Mali, and Niger, the projects' focus is outside of reserves. In Madagascar and both Uganda projects, there are major efforts within and outside of the protected areas in question.

The breakdown of the Bureau activities is similar to that of the Bureau projects except that a number of the Bureau activities were focused on the conservation of elephant and rhinoceros populations (see Exhibit 5 for a breakdown of the biodiversity activities supported by the Africa Bureau).

EXHIBIT 4

PROJECTS

Africa Bureau Biodiversity Projects by Component

	Component					
Projects	Community Activities	Protected Area Management	Training	Research	Tourism Development	Environmental Education
Burundi Parks and Reserves		X	X	X	X	X
Korup National Park	X	X	X	X		X
Tsavo West Community Conservation	X		X		X	
Beza Mahafaly & Andohahela Reserves	X	X	X	X		X
Niger River Wetlands	X	X		X		
Park "W"	X	X		X		X
Nyungwe Forest			X	X	X	X
Development Through Conservation	X	X	X	X		X
Kibale Forest	X	X	X	X	X	X

EXHIBIT 5

ACTIVITIES

Africa Bureau Biodiversity Activities by Component

	Component						
Activities	Community Activities	Protected Area Management	Training	Research	Tourism Development	Environ. Education	Endang. Species
Wildlife & Adult Education			X			X	
Rhino Conservation		X	X	X			X
Masai Mara National Reserve		X		X	X		
U.S. NPS RSSA I		X	X	X	X	X	X
U.S. NPS RSSA II		X	X	X	X		X
Ivory Quota System							X
Wildlife Management Training			X				

>4

These activities included conducting a survey of black rhinos in Kenya, establishing Aberdares Rhino Sanctuary in Kenya, conducting rhinoceros and ecosystem monitoring in Zaire, providing support for the CITES Ivory Control Unit, providing support for the ivory trade database, and providing support for the first meeting of the African Elephant Working Group. (See Appendix B for a description of these activities.)

To assess what the Bureau projects and activities have accomplished and to evaluate what difficulties they have encountered, this report will analyze highlights from the six project components.

2.2.1 Community Activities

Traditionally biodiversity conservation programs have often failed to work with local people, although there is a growing realization that efforts must be directed at the very people who use and depend on those resources targeted for conservation in order to effectively conserve biodiversity. As suggested by the brief descriptions of the nine Bureau projects, there are several reasons why biodiversity efforts should work with local people: (1) the growing competition between people and wildlife for scarce resources; (2) the conflicting values and perspectives associated with conservation among local people, national governments, and the international community; (3) the lack of recognition of the values and the long-term benefits associated with ecological services and conservation of resources; and (4) a history of conservation programs where local people have born the brunt of the costs and received few of the benefits associated with conservation. In addition, many traditional systems that effectively conserved biological resources in the past have fallen apart (see Box 1 on the Niger River Wetlands Conservation project in Mali.)

Community activities play a central role in the Bureau's biodiversity projects as a number of project implementors are working with the local communities to address these issues. These efforts range from general community development activities to more targeted natural resource management initiatives. Examples of community activities include constructing schools and repairing roads around Beza Mahafaly Reserve in Madagascar; carrying out gardening and beekeeping activities around Park "W" in Niger; establishing cooperative tree nurseries and on-farm agroforestry demonstration plots in southwestern Uganda; and holding village level meetings and setting up a Community Conservation Committee in the periphery of Tsavo West National Park in Kenya.

A number of these projects have produced impressive results. The evaluation of the Development Through Conservation (DTC) project in southwestern Uganda, for example, concluded that farmers will respond if new options are presented through a peer network. Through the project, 4,465 farmers have been contacted on-farm with an agroforestry message; 2,235 of those contacted adopted some form of agroforestry practice. More than 75 cooperative/farmer nurseries have been established; an estimated 412,000 seedlings have been raised and distributed (Hart et.al. 1990).

The evaluation of the Andohahela project in Madagascar, however, found that, "As currently being undertaken, it is not evident that providing villages with tree and vegetable nurseries and mini-barrage repairs will change their attitude towards the forest and natural resources in general" (DeGeorges 1992). The project's technical advisor acknowledged that

> many people cannot be reached by the dams and irrigation works which have been the main focus of the [Andohahela] development component so far, so they have no alternative to continuing their slash-and-burn cultivation of the forested hillsides. There is also the question of functional linkage between the development benefits provided and the conservation activities. Once any given individual has his irrigation dam there would appear to be little direct incentive for him or her to continue to cooperate with conservation efforts. Furthermore, because they have contributed little of their own labor or resources to carrying out the micro-development projects, the beneficiaries appear to regard their maintenance as the responsibility of the project or the government (O'Conner 1991).

A review of the Bureau's projects shows that it is indeed critical to make strong, direct linkages between community activities and conservation goals. Without clear linkages, community activities such as the construction of schools, clinics, and roads--even village gardens and woodlots--will not necessarily lead to conservation. As the Andohahela case suggests, people can benefit from a project's community activities and still undertake practices that are detrimental to biodiversity. As a result, biodiversity projects need to develop mechanisms, such as promoting the sustainable use of biological resources by local people, providing appropriate compensation to local people for not using certain resources, and/or developing viable alternatives to destructive practices, that will create incentives for local people to conserve biological resources.

With the exception of the tourism development programs in Burundi and Nyungwe, Bureau projects did not undertake programs for the sustainable use of biological resources. Even the Burundi and Nyungwe tourism programs catered to a national and international audience, rather than a local audience and involved the nonconsumptive rather than consumptive use of biological resources. Some Bureau projects did contribute to the establishment and management of buffer zones around the protected areas where they were working. These zones, however, did not serve as multiple-use areas where biological resources were harvested on a sustainable basis; instead, they served as the site of the various community activities discussed above such as the construction of schools, roads, gardens, and woodlots. These community activities are designed to alleviate pressure on the resources within the protected area and to help compensate local people for reduced access to certain resources. Thus Bureau projects adopted the general strategy of keeping protected areas under strict protection and then attempting to provide local people with alternatives to and/or compensation for reduced access to these resources, rather than attempting to establish systems for the sustainable use and management of biological resources.

In addition to the different ways used to link community activities and the conservation of biodiversity, Bureau-supported community activities also differ in that some projects emphasize developing processes, while others focus on delivering specific products. Some Bureau-supported community activities have focused on responding to a list of community needs (such as roads, irrigation dams, and employment opportunities), while others have concentrated on building the capacity of local people to undertake conservation and development activities. Some of the most noteworthy community activities are those that have focused on process and capacity building. In Kenya, providing people with information about the natural resource problems facing their community helped local people make more informed decisions about how they would like to manage their land (see section 2.3.1). In Niger, community development activities have helped foster goodwill among the Peace Corps Volunteers and the local communities, where the creation of local capacity to identify

and implement self-reliant sustainable initiatives is expected to be more important than the products of the specific initiatives assisted by the project (see section 2.3.2). In Mali (see box), the process of giving local people control over the forest helped them conserve the natural resource base and increase the benefits they received from the area.

In a literature review, it is difficult to compare the effectiveness of various community activities undertaken by Bureau biodiversity projects. For example, projects focusing on products may produce early tangible benefits, whereas efforts concentrating on process may be more sustainable over the long term. It is possible, however, to identify key questions that require additional research from the Africa Bureau and increased attention on the part of project implementors. These questions include:

- Do the community activities in Africa Bureau projects that include reduced access to key resources leave people better off than before the project or protected area was initiated?
- Are the alternatives offered viable and/or is the compensation provided adequate?
- If people have benefited from project activities, do they understand the linkages these activities have to conservation and refrain from destructive practices?
- What are the factors keeping biodiversity projects from initiating and successfully implementing programs where local communities can use biological resources on a sustainable basis?

These questions need to be explored in further detail so that biodiversity projects can more effectively address the needs of local people.

2.2.2 Protected Area Management

While research, training, and tourism development are important components of protected area management, they are treated as separate categories in this report. In accordance with these categories, the most common protected area management activity found in Africa Bureau biodiversity projects is the development of and contribution to protected area management plans. While the Bureau has also supported the development of park infrastructure--for example it helped purchase a fence for the Aberdares Rhino Sanctuary in Kenya--the development of protected area infrastructure has usually been funded by USAID missions with Public Law 480 local currency allocations as in Korup, Kibale, Madagascar, and southwestern Uganda.

Results from the Bureau projects show that developing effective management plans is an extremely challenging undertaking. Management plans are often expected to provide comprehensive solutions to the many problems threatening biodiversity. In southwestern Uganda, for example, it is anticipated that the management plans will determine how these reserves will be managed and exploited in the future in a sustainable manner. The goal of the management plans is to provide economic benefit to communities living in the peripheral areas, as well as protecting the biological

Box 1. **Niger River Wetlands Conservation in Mali**

The desert wetlands of the Niger River's inner delta in Mali are a highly productive ecosystem that for a thousand years have supported an intricate mix of wildlife, pastoralists, fishermen, and farmers, each of them moving in discrete cycles through space and time, according to the rise and fall of the river. A half-dozen ethnic groups worked out elaborate protocols for sharing this common ground as it cycles from flood plain to pasture that support a million cattle and three million sheep and goats--the highest density of herds in all of Africa.

To explain how these protocols worked, one has to mention Cheikou Ahmadou, the Moslem marabout who organized a theocratic state in the delta in the nineteenth century. Ahmadou established a Dina system, which divided the flood plain into thirty-seven districts, controlled by village elders. They maintained fishing and woodland reserves, organized access to resources, and managed their own indigenous, highly effective forms of conservation. Rules governing cattle crossings, fishing rights, and other activities were codified in Arabic texts known as Tariki. As decreed under the Dina, a Master of the Water controls a forest when it is wet, and a Dioro--the nominal head of an old fighting family--controls it when it is dry.

The authority over grazing rights has made the Dioros rich. But the migrant goat herders who pay the Dioros to use their forests also have to buy cutting permits from the Government's "*Service des Eaux et Forets*". A permit costs 2,500 CFA and allows the goat herders to construct thorn enclosures for guarding their animals at night. Anyone who builds an enclosure without a permit or who cuts live trees to feed his goats risks paying a stiff fine, fifteen percent of which, by law, goes to the agent levying the fine.

This system of permits and fines, with its peculiar mix of motives and power, actually encouraged people to chop down the forests. The goat herders expected to be fined no matter what they did. Slight damage to one forest could result in a collective fine of 40,000 CFA, while heavy damage only cost 10,000 CFA more. Regarding these fines as a supplementary tax, the herders thought it prudent to pay them and fatten their goats at the same time. The Dioro, as an absentee landlord, was content with his rent check, while the agent from Eaux et Forest was happy to collect his salary on the job.

Goat herders know better than anybody that tree cutting and overgrazing damage their livelihood, but they lack the internal organization necessary to police the woodlands and mete out punishment to wrongdoers. The matter is further complicated by class differences. The goat herders, a mix of Peul, Bella, and Serifi tribesmen, occupy the bottom rung of the social ladder.

...continued

integrity of these forest reserves (Hart et.al. 1990). In Mali's Niger River inner delta, the Bureau project was charged with drafting a management plan for the project area based on the idea of overlapping zones of multiple use (Bass 1990). As representatives from the United States Forest Service can attest, developing and implementing management plans for the multiple use of a protected area is an extremely challenging task. There are often many, sometimes conflicting, issues associated with developing a protected area management plan. Relevant information, local community involvement, quick action, effective implementation, and sustainability are all important factors to consider when developing these plans.

In order to address these problems, the Bureau-supported wetlands conservation project drew up a plan for getting the Bouna forest declared a "*foret villageoise*". Newly created under Malian law, this status allows forests to be run by a committee of users. From the perspective of "Eaux et Forets", this is like giving the fox the key to the chicken coop. But for the goat herders and Dioros, it represents a rare chance for grassroots democracy. Eight people sat on the management committee; three fishermen, two Dioros, two elected goat herders, and the local agent of "Eaux et Forets".

The first problem encountered in setting up the foret villageoise lay in deciding who "owned" the forest. Next, the ground rules for using the forest were laid down. It was decided that the Dioros would retain their traditional rights to the area. No acacias would be cut either for enclosing or feeding goats. Herders would have to make their fences out of mimosa and other weedy shrubs. The number of animals would be limited. This would give herders better pasture and a potentially useful sanction, because someone violating the rules could be expelled. Arguments would be settled by elected camp leaders and the larger management committee. Anyone going against communal decisions would be delivered to "Eaux et Forets", whose agents would enter the area only on request.

Everyone stood to gain from the arrangement. The Dioros would conserve a rent-paying resource. The herders would pay fewer fines for better pasture. "Eaux et Forets" would maintain its position of ultimate authority in the area. And the herons would have a place to sleep at night.

Source: Bass 1990

Relevant information

Development of management plans requires adequate biological and socioeconomic information from the protected area and the surrounding region. Collection of these data is not a trivial matter--it requires a significant investment of time and resources. Many of the Africa Bureau's biodiversity projects are collecting biological and socioeconomic information; however, the amount of available information, often associated with research activities, varies. Some of the project implementors have many years of biological research to draw on, as is the case in Kibale, Beza Mahafaly, and Park "W". Others have relatively little biological data available. The collection of socioeconomic data is a new activity for most projects, but some are beginning to collect it. In Niger, for example, a socioeconomic survey was conducted before project activities were begun. Collecting sufficient quantity of these data, however, is only part of the problem. Too often there is a great deal of data available, but the data is not pertinent to the management problems a project is trying to solve. Deciding what data to collect and then figuring out how to analyze and present it so that the information is actually used are key issues that need to receive more attention. While it is difficult to anticipate future information needs, thoughtful planning and learning from past experiences should help projects meet their management planning information needs more efficiently and effectively.

Local communities

Just as community activities represent an important component within Bureau biodiversity projects, many people believe local communities living around a protected area should be involved in the development of its management plan. In practice, however, this idea has been more difficult to accomplish than to advocate. Even when projects explicitly call for local participation in management planning, this participation often does not get carried out. One reason for this difficulty is that the traditional orientation of government parks departments is toward policing rather than listening to local people. In southwestern Uganda, Niger, and Burundi, for example, there are long-standing conflicts and a great deal of mistrust between park guards and the communities around the protected areas. In addition, some project implementors may question whether or not communities should be involved in the planning process. Before local people can effectively participate in the management planning process, these problems need to be addressed.

Quick action

Given data requirements and the need for participation, management plans take time to develop. There is, however, often a rush to complete them. For example, there was a rush to set park boundaries and devise management plans for the Mgahinga Reserve in southwestern Uganda with virtually no socioeconomic data on the local communities' interaction with the forest (Hart et.al. 1990). During its initial two years, the Burundi project was responsible for developing the first set of management plans for each of the nation's parks and reserves. Project personnel rushed to complete a number of the plans, and the external project evaluation was able to report that the project was successful in meeting this "contract requirement" (Reynolds and Booth 1990). While this evaluation helped the project receive a second grant from the Africa Bureau, these hastily drafted management plans were not adopted by Burundi's National Institute for the Environment and Nature Conservation (INECN), and the entire management planning process needed to be revisited during phase two of the project (Glowacki and Pfeifer 1992). These examples suggest that management plans are often long-term undertakings, and project implementors and funding agencies should recognize that plans drafted in haste are likely to be of limited use.

Effective implementation

It is worth emphasizing that the development of a management plan in itself does not ensure the conservation of biodiversity. Effective implementation of the plan is required to ensure conservation. For example, an objective of the Development Through Conservation project in Uganda is the development of multiple-use, sustainable management plans for the three remaining afromontane forests. However, according to the project evaluation, "it is uncertain who is to implement them in the reserves or coordinate them with the local land use plans" (Hart et.al. 1990). In Rwanda, a management plan for the Nyungwe Forest was drafted prior to the initiation of the Bureau's project. The mere presence of an impressive management plan, however, was doing little to ensure the conservation of Nyungwe's biodiversity (Wildlife Conservation International 1988); this situation contributed to the development of the Bureau's project, which was intended to help modify the plan.

Thus, the existence of a management plan by itself is not necessarily a good indicator of project success or effective biodiversity conservation.

Sustainability

While the development of management plans is often an objective of internationally assisted biodiversity projects, it may not be a high priority for African parks departments and government agencies concerned with rural land use outside of parks. As a result, project personnel rather than park staff are often the ones responsible for developing the management plans. During phase one of the Burundi project, the development of management plans was not a high priority for INECN employees, and project personnel ended up drafting the plans to meet their contract requirement. Recognizing that this was a problem, management planning workshops were held with INECN employees to help them develop an understanding of the planning process and get them involved in rewriting the initial plans during phase two of the project (Glowacki and Pfeifer 1992). Given the lack of resources and personnel, there is a strong tendency for projects to step into the planning process. While assistance from international projects may be warranted in this area, as the Burundi case illustrates, national park officials rather than project personnel need to assume responsibility for developing and updating management plans if these plans are to be sustained over the long run.

Taken together, these issues suggest that developing and implementing a protected area management plan is an extremely complex and challenging undertaking. Indeed, developing a management plan can be thought of as an entire project in itself, as was the case for the USAID-funded Kiang West National Park Integrated Conservation and Development project in The Gambia (Gilbert, Camara, and Wilkie 1992). While project implementors can learn from this effort, developing a management plan is just one of four or five objectives that the multifaceted Bureau projects are supposed to accomplish. These projects are often not in a position to undertake such a comprehensive planning process.

Given that many biodiversity projects are unable to meet all of the demands associated with developing and implementing comprehensive management plans, new models and alternative approaches for protected area management planning should be explored. New models should consider limitations on time, funds, and training and find ways of sustaining good management practices in the face of these limitations. For example, in Niger the objective of the Bureau project, rather than develop a full-blown management plan, is to recommend both short- and long-term management steps that are feasible, given limited resources of all parties, and reflect the aspirations of local, national, and international parties. At Tsavo West, the Bureau project worked with the local communities to address the park's and communities' specific management problems rather than to work through a comprehensive management planning process. Such targeted, problem-oriented planning needs to receive more attention.

2.2.3 Training

Training was an important component of most of the Africa Bureau biodiversity projects. Trainees included park guards and guides, conservation extension agents, community wildlife officers,

park managers, undergraduate and master's students, Ph.D. candidates, and postgraduate researchers. The Africa Bureau also supported specific training activities such as support for the College of African Wildlife Management at Mweka, Tanzania. Even those projects without a formal training component often included training as part of their efforts.

A review of project reports and interviews with project managers suggests that project staff devote a great deal of time to training, especially when the training is for individuals with higher skill levels. Much of this advanced training is done on a one-to-one basis over a long period of time. As a result, the cumulative numbers of individuals trained through the Bureau project may not be a good indicator for success, especially if no distinction is made between the training of park guards versus the training of upper-level managers.

One reason for the high profile of training efforts within these projects is the lack of qualified individuals available to implement biodiversity conservation projects in Africa. Those individuals who are qualified are in high demand. There are several reasons for the short supply of trained personnel. Many individuals prefer living in the city to carrying out project activities in remote areas. In addition, the financial incentives to work in conservation are often very poor. Thus, the challenge of providing adequate training to a sufficient number of people is compounded by the challenge of attracting and retaining top candidates. The emphasis on training among the Bureau's biodiversity projects indicates that project implementors have a long-term approach to the problems they are facing and recognize the need to build national capacity in order to sustain project activities; however, it is apparent that devoting significant resources to training individuals only to lose them to more attractive positions in the city or in other sectors of the economy will do little to increase the effectiveness of biodiversity projects. Proper incentives also need to be provided to increase the supply of individuals interested in working with biodiversity projects in the field.

While training efforts such as those in Burundi have improved staff morale (Glowacki and Pfeifer 1992), it is difficult to accurately evaluate the effectiveness of training activities because their benefits are often realized over the long term. However, the common need for training, the significant amount of one-on-one training, and the large amount of time project personnel devote to training efforts suggest that efforts to increase the efficiency and effectiveness of training efforts should be explored.

Fortunately, the Africa Bureau has already begun to address this critical issue. As part of its 1992 biodiversity portfolio, the Africa Bureau is funding the Protected Area Conservation Strategy (PARCS) project. This project is currently assessing training opportunities, constraints, needs, skill levels, and priorities for protected area managers in east, central, and southern Africa. The project will then establish pilot programs to implement recommendations from this assessment. The PARCS assessment and pilot projects will provide important insights into the training needs of biodiversity projects like those funded by the Africa Bureau. Future USAID biodiversity activities should draw on the findings of this project to improve their training efforts.

2.2.4 Research

Research represents an essential component of the Bureau's biodiversity efforts. While most of the projects include a research component, the role of research within projects varies considerably. For many projects, research precedes and is the catalyst for additional project activities. For others, research takes place alongside and complements other components. Even projects without a specific research component are often engaged in a variety of informal research efforts.

Examples of the larger research programs funded by the Africa Bureau include the Korup and Kibale projects, where Bureau funds helped establish and expand permanent research facilities, in Korup and Kibale forests, respectively. The Kibale field station, which began operating in 1970, is the site of numerous research studies and "is becoming one of the most comprehensively staffed and equipped field stations located in a tropical forest" (Johns and Isabirye-Basuta 1991).

The proper role of research in biodiversity conservation efforts, however, is a controversial subject. Project managers at Beza Mahafaly argue that more basic research is needed and complain that the "eagerness for quick results coupled with skepticism about the value of basic research on the part of the funding agencies has made it difficult if not impossible to secure support for basic research" (Richard and Sussman 1991). Although some of the Africa Bureau biodiversity projects, such as the Park "W" project in Niger (Price n.d.), are conducting socioeconomic research, biological studies remain the primary research activity. Some, like the evaluators of the DTC project, feel that too much emphasis has been given to collecting in-forest ecological data and too little time is devoted to examining the interactions between the protected area and local inhabitants (Hart et.al. 1990).

The Nyungwe project[4] provides an example of how USAID and biodiversity project implementors have struggled to find an appropriate role for research within their biodiversity activities. Even though research played a primary role in earlier conservation activities at Nyungwe, the focus shifted away from research and towards tourism, training, and conservation education with the entry of the Bureau-funded project. The research component of the Nyungwe project has proven difficult in implementation, and therefore has been criticized for a number of reasons. Although conceived as a program for collection of information for management planning (selected floral and faunal inventory, and monitoring of primates for tourism and impact assessment purposes), research intentions were not fully understood, nor were they in full operation. When observed during an initial site visit by USAID the project was criticized because the research being conducted did not fit into an objective framework and was being determined by the special interests of individual scientists (Gibson 1989). The review recommended restructuring the research program, and, as a result, the project's research efforts moved away from primate studies and turned to gathering basic information that would quickly provide useful management tools (a forest trail map, human use indicators, the location of major floral and faunal species) (Clausen 1991). Although many viewed this as a positive change, research efforts at Nyungwe continued to generate controversy when an international research

[4]In the project's second phase supported by USAID/Rwanda, the Nyungwe Project was able to hire a well-qualified Rwandan field biologist, and has since increased expatriate staff to levels where the original conception of inventory and management-oriented research has been renewed. This research is now beginning to be conducted with the support of project personnel, USAID, and host government institutions.

organization and its expatriate researchers joined with the project. The project director felt that the presence of these expatriate researchers, despite their good relationship with and training of Rwandan counterparts, considerably changed how some government collaborators and local officials viewed the project--classifying the project, more than ever, as just another expatriate conservation endeavor as opposed to the widely supported tourism development program it was developing into (Clausen 1991).

Opinions differ over the value and appropriateness of research within the Bureau's biodiversity projects, but research is often justified in project proposals as contributing to future management efforts. The actual contribution of research results to management efforts, however, often occurs over the long run and tended not to be realized during the course of the Africa Bureau grants. Some research was also justified for monitoring efforts; however, monitoring is also a long-term proposition that does not produce funding agencies with immediate results. Because of the long time frame involved, project implementors who justify research on these grounds need to make a concerted effort to ensure and demonstrate the linkages between research and management and between research and monitoring activities.

Despite the Africa Bureau's programmatic focus on monitoring the impact of its projects, monitoring and assessment of project activities have not been a focus of the Africa Bureau-supported research efforts. Several reasons may help explain this situation. Project monitoring programs require a long time horizon, and most of the Africa Bureau projects have a time frame of two or three years. Many of the projects are overextended because they are attempting to address numerous, ambitious objectives. The pressure--and recommendation of some evaluators--is to reduce the number of project activities rather than add new activities such as monitoring. In addition, many of the projects have lacked adequate baseline information and appropriate impact indicators in order to begin monitoring. While these reasons help explain why project monitoring efforts have not been a part of Bureau projects, the research conducted under these projects over the last two to four years now puts these projects in an ideal position to begin project monitoring programs. Monitoring efforts, however, are unlikely to occur without dedicated funding and personnel and the appropriate structure within each project. The initial DTC project evaluation, for example, recommended that any extension of the project should include the establishment of a monitoring and evaluation unit attached to the project management team (Hart et.al. 1990).

The Africa Bureau has supported a significant quantity and diversity of research as part of its biodiversity portfolio. The proper role of research within the Bureau's biodiversity portfolio, however, is still unclear. Since the Africa Bureau selected its biodiversity projects, it has developed an analytical agenda and organizing framework (see Appendix A) for better organizing and targeting its research activities. However, these mechanisms are general and do not address what role research should play in biodiversity projects.

This shortcoming is not unique to the Africa Bureau. In its September 1991 report, USAID's Research Advisory Committee examined biodiversity activities at USAID, with special attention to its research program, and made recommendations for future action. In its report, the committee found that the various offices within USAID do not have a strategic plan for biodiversity activities, which was viewed as a deficiency in the Agency's efforts toward protecting biodiversity and promoting development. However, the committee recognized that the Agency's biodiversity emphasis had grown so rapidly and with such disparate earmarking of funds by Congress that a coordinated effort had been

difficult. In the end, the committee recommended that a strategic plan for biodiversity research within USAID should be developed (USAID 1991).

2.2.5 Tourism Development

Nature-based or ecotourism is one of the activities the Africa Bureau endorses as being consistent with its strategy of integrating biodiversity into USAID's development goals (see Appendix A). Nonetheless, tourism development was the least common of the six components among the Bureau biodiversity projects. There are several possible reasons for this inconsistency. Given that a number of project implementors mentioned an interest in developing tourism programs in the future or were involved in the assessment of tourism programs, one explanation may be that tourism development best follows after a number of the other components within biodiversity projects have already been initiated.

Among the Bureau's projects, on-the-ground ecotourism development efforts were limited to the Nyungwe project in Rwanda and the Burundi project. The construction of trail networks and campsites, along with the development of interpretative materials, were important components of both projects. Tourism was discussed as part of a number of other Bureau projects, but these projects did not undertake tourism development programs at the time of the Africa Bureau grant.

Tourism was viewed as the most important initial activity of the Nyungwe project (see Box 2). Through the project's tourism program, Nyungwe was commercially exploited in an ecologically nondestructive fashion for the first time. Prior to the project, Nyungwe was known only by a small group of specialists. This, however, radically changed over the course of the project as evidenced by the wide cross section of individuals who visited the forest, including the President of Rwanda, Juvenal Habyarimana, and his family. By increasing visitation to the forest, Nyungwe's tourism program has been successful in helping to convey the critical message that the conservation of the forest is in the best interest of the resident population (Clausen 1991).

Box 2 **Low-cost nature tourism in Rwanda**

A combination of natural and human resources have made the USAID-funded "Le Projet de Conservation de la Foret de Nyungwe" (PCFN) in Rwanda one of the very few projects to link conservation to development through tourism that nationals can afford. These resources include animal and forest attractions for visitors, easy access from population centers, safe and salubrious conditions, and a history of technical assistance from biologists and park development specialists.

Like many conservation and development projects in Africa, PCFN's development has been tied to primary research. During ecological study on primates at Nyungwe, the groundwork for the conservation project in this mountain forest was established. The forest, which represents 90% of the remaining forest in Rwanda, contains a high variety and density of primates. An international NGO, NYZS/The Wildlife Conservation Society, undertook a project to maintain Nyungwe, which attracted support from the Africa Bureau. Technical assistance from Peace Corps Volunteers trained in the design and construction of visitor facilities such as trails and campsites completed the U.S. support.

Unlike most lowland tropical forests and savanna reserves in Africa, Nyungwe has a pleasant climate and is relatively free of disease and large predators. Visitors can camp and hike with or without guides as they wish. Equally unusual is the presence of a paved, all-weather road that bisects the primary forest. The project visitor center and trail system are accessible by public transportation. This brings a visit to Nyungwe within the financial reach of some, if not all, Rwandans. In contrast to most African reserves, Nyungwe receives a significant percentage of visitors from within the country.

Perhaps the main disadvantage of the Nyungwe project is that low-cost tourism has to date generated only modest revenues. Receipts from visitors approximately cover the cost of visitor facilities, including support for Rwandan staff and guides. This does not leave enough to share with neighboring communities, and Nyungwe has been slow to provide benefits for local development. It is hoped that locally run lodging and restaurant services will be added to a fledgling trade in handicrafts. One obstacle to this development has been that services, to be accessible to other attractions, would have to be located within the reserve. The government has been reluctant to permit new construction.

Nyungwe has also suffered from the political instability that plagues much of Africa. Civil fighting in the early 1990s caused turnover in staff and depressed the number of visitors. Poverty has brought hopeful gold miners to the fringes of the forest, where their methods of surface mining pollute streams and promote erosion. Hunting has eliminated buffalo from the forest and decreased forest elephant populations to very small numbers. Government patrols provide improved security for remaining wildlife.

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In recent years, the project has expanded its research function, taking advantage of two other USAID programs. The Rwandan director of research is monitoring diversity of birds with the support of a biodiversity research grant from the Biodiversity Support Program. Project research now provides professional development and employment for graduates of a nearby Rwandan university. Although indirectly tied to the project, a U.S.-based study on animal dispersal of forest plant seeds has helped to train local people as guides and research assistants. This study is partially funded by a grant through the Research & Development Bureau of USAID.

It is interesting to contrast Nyungwe with the more famous project in the other corner of Rwanda at Volcanoes National Park. That project, which has also received USAID support, centers around high-cost tourism made possible by the draw of the park's mountain gorillas. Thanks to much higher tourist revenues, the Volcanoes National Park was able to become much more self-supporting. On the other hand, the park is effectively accessible only to foreigners. For those natural areas that have a high conservation value but no spectacular tourist draw, low-cost tourism at Nyungwe is a promising model.

Both the Burundi and Nyungwe projects led to a significant increase in the number of tourists visiting the protected areas during the project period. In the Teza region of Kibira National Park in Burundi, visitors increased from 300 to 3,000 between 1989 and 1991, with revenue going from $0 to approximately $5,000 (Glowacki and Pfeifer 1992).

The Nyungwe project, however, also demonstrates the volatility in the tourism industry. In 1991, as a result of political unrest in the country, Nyungwe received only 2,480 paying visitors compared with 3,327 in 1990. However, due to an increase in entrance fees, total tourist income for 1991 remained above 1,170,000 Rwandan Francs, almost $10,000 (Williamson 1992).

In the Burundi and Rwanda cases, tourism is helping to provide much needed revenue for the operation and management of the protected areas in question. (Tourists also contribute to the national economy through their use of restaurants, hotels, and in-country transportation.) In Kibira National Park, the tourism revenue in 1991 was enough to cover one month's operating expenses for the park (Glowacki and Pfeifer 1992). Though this revenue is important, it is still relatively small--especially when it is compared to the amount of money involved in internationally funded biodiversity projects. Depending on the potential for growth and on the priority for distributing tourism revenue among the national government, parks department, local government, and local people, it is unclear whether tourism development can provide significant benefits to the local people in these areas and the corresponding incentive to help conserve biodiversity.

While Bureau-funded efforts around Tsavo West National Park were not devoted to tourism development, the Kenyan park receives a much larger volume of tourists--85,000 in 1989--than either Nyungwe or Kibira. As a result, the Kenya government's policy of sharing tourism revenues with local people is expected to provide local people with tangible incentives to conserve wildlife. Around Tsavo West, the neighboring communities are already eager to obtain some of

this revenue and have demonstrated considerable interest in developing their own tourism activities as an alternative income-generation strategy.

Ecotourism has also received a great deal of attention from the Africa Bureau outside of the biodiversity activities included in this report. Under its special studies category, the Natural Resources Management Support (NRMS) project funded an array of reports examining ecotourism in great detail. These reports included the following:

- Ecotourism: A Viable Alternative for Sustainable Management of Natural Resources in Africa;
- The 1989 Economic Impact of Wildlife Based Tourism in Northern Botswana; and
- Low Impact Tourism: Sustaining Indigenous Natural Resource Management and Diversifying Economic Development in Botswana.

As a result, lessons learned about ecotourism opportunities and constraints need to be drawn from the Bureau's natural resources portfolio as well as from its biodiversity grants.

2.2.6 Environmental Education

As part of its biodiversity projects and activities, the Africa Bureau has supported a wide range of environmental education efforts. Various conservation messages and methods of distribution have been developed, tested, and refined. Posters, newsletters, slide show presentations, guidebooks, calendars, T-shirts, radio programs, songs, interpretive centers, mobile education units, and educational materials such as learner's and teacher's guides have been developed and produced. Programs have involved many different audiences, including school children, nature clubs, villagers, and tourists.

In Burundi, the Africa Bureau project facilitated the development of a national environmental education strategy to guide how environmental education will be incorporated into the nation's schools and nature clubs and how to reach decision makers, the rural population, and urban dwellers. The development of the national program was a long process. However, because of its participatory nature, all participants felt they played an active role in the conceptualization and development of the program, and the project evaluation concluded that the ownership of the program felt by INECN should stand as a model for other programs (Glowacki and Pfeifer 1992).

The Conservation Education and Extension Program for the Mountain Gorilla Project (MGP) in Rwanda received a two-year grant from the Africa Bureau through the National Parks Service. A primary focus of this activity was to facilitate visits by Rwandan school children and local communities into the park. In order to structure such visits, a nature trail was developed that included strategic stopping points with benches where children could sit and observe. A guide to the trail explaining the important features at each stopping point was also developed.

However, the project encountered a number of problems as a result of the placing of management responsibility with the Office Rwandais du Tourisme et des Parcs Nationaux (ORTPN), the subsequent withdrawal of the MGP personnel, and the onset of civil disturbances. Although the two project staff from ORTPN continued to make presentations at schools and some school groups visited the park, the number of visits could have been higher over the project period--despite the civil disturbances in 1991--according to the final project report. In addition, the report states that there were no quantifiable methodological advances in the education outreach program, and the plans to develop a teachers' newsletter never materialized despite educational material that could easily have been adapted for the Rwandan situation (AWF 1991) having been available to the team. The report suggests that even ten years after the formation of the MGP and after Rwandan personnel attended international training courses, project activities suffered, at least initially, during the transition from expatriate to Rwandan management.

The Development Through Conservation project in Uganda links its environmental education activities with its conservation extension component. Fifty-three Conservation Extension Agents (CEAs), at least 14 of whom are female, are in place in 26 parishes in southwestern Uganda. The CEAs have conducted 2,500 community rallies, which were attended by approximately 75,000 persons. Many of the CEAs are or were primary school teachers who also farm a plot of land or come from local farm families. The part-time CEAs often play a dual role of informing farmers and educating school children. The project evaluation concluded that the CEAs have been an effective mechanism for reaching the local people in the area but require training in the concepts of natural resources management in order to improve their effectiveness (Hart et.al. 1990).

As part of its biodiversity conservation portfolio, the Africa Bureau has supported an impressive quantity and variety of environmental education activities. However, the impact of these efforts on the conservation of biodiversity is difficult to measure. As part of its 1992 biodiversity activities, the Africa Bureau is funding a study of the impact of efforts to increase and improve conservation education and awareness and the possible influence they have had on local level activity change and policy level decision making. The long-term objective of this analysis is to understand the process of attitude and activity change in order to design and implement more effective conservation education and natural resource management programs. Results of this initiative will be useful in designing future biodiversity projects, particularly those with environmental education components.

2.3 Project Descriptions

Two of the Bureau biodiversity projects are highlighted below. They are building on site visits conducted in May and June 1992,

2.3.1 Tsavo West Community Conservation

Building on the principle that local communities should be involved in and benefit from the conservation of protected areas, the African Wildlife Foundation (AWF) has developed a program called "Protected Areas: Neighbors as Partners." As part of this program, AWF initiated the Tsavo West National Park Community Conservation Project (TCCP) in 1988. The project addresses problems confronting Tsavo West National Park and the neighboring communities.

Livestock incursions have been a problem in Tsavo West for at least 15 years. Park authorities have tried to keep livestock out of the park by arresting and fining local herders. These enforcement efforts, however, have failed to stop grazing in the park. At one time, as many as 50,000 head of cattle used the park as their main grazing area, significantly compromising the park's ecological integrity.

Under the TCCP, AWF has attempted to solve the grazing problem as well as other problems in Tsavo West through dialogue rather than through fines and detention. The AWF project officer spent a large proportion of his time in the first year researching why cattle were being grazed in the park and who owned the cattle. The project officer held numerous meetings with the members of the Masai group ranches, park authorities, and district officials to discuss the problems facing the park and the group ranches. Local leaders were taken on reconnaissance flights over the area to see from the air the impact of grazing in the park. Workshops were held to discuss the problem of grazing resources in the area. All of these efforts led to a more sophisticated understanding of the problems facing the group ranches and provided information that was necessary for pursuing potential solutions. Through this process, participants discovered that:

(1) political differences among local leaders played a big part in creating the current problems;

(2) the leasing of large tracts of high potential group ranch land to outsiders led to the current shortage of grazing land;

(3) there were a large number of squatters on the group ranches;

(4) dry season grazing areas were no longer being managed as in the past due to availability of grazing in the park;

(5) hay was being sold to people bordering the group ranch rather than being used to feed the group ranch's livestock;

(6) and almost all of the available river water was being used by the non-Masai for irrigation, forcing the livestock owners to depend on rivers within the park.

In addition to holding meetings and workshops, AWF established a community wildlife committee for the group ranches, and selected committee members who represented a wide array of interests and perspectives. The committee took an active role in the project and in 1990 called for the removal of all cattle from the park and the establishment of a five-kilometer buffer zone bordering the park where settlement would be prohibited. The area chief then issued a "Chief's Order" formally adopting the committee's action. As a result of this action, the cattle were removed from the park in the area bordering the Masai group ranches; some cattle, however, were moved to the southern part of the park where the Chief's Order did not apply.

In addition to the Chief's order, there were a number of factors that contributed to the removal of most of the cattle from the park. In addition to the dialogue and educational efforts initiated under the project, AWF worked with the group ranches to develop alternative activities outside the park where the Masai could benefit from wildlife. Options discussed included introducing bird-hunting safari operations and establishing campsites and a "cultural village" to attract tourists. The Kenya Wildlife Service's (KWS) program of sharing future tourist revenues with communities neighboring parks was also viewed as an important incentive for the Masai to remove their cattle from Tsavo West.

Because of its experience with the Tsavo West project, AWF worked with the Kenya Wildlife Service (KWS) under a consultancy funded by USAID/Kenya to design an overall community conservation program for KWS. Based on the team's recommendations, KWS decided to establish a Community Wildlife Service (CWS) Unit within KWS.

In turn, KWS's community conservation program has received major support from USAID/Kenya. Under its five-year, $7 million Conservation of Biodiverse Resource Areas (COBRA) Project, USAID/Kenya will assist KWS in developing a functioning CWS Unit and in implementing its new community conservation approach to wildlife management in order to demonstrate that it is in people's financial and social interest to protect wildlife resources. Tsavo West is one of four target areas for the COBRA project.

In Tsavo West, despite the TCCP's initial success in convincing people to remove their livestock from the park, the livestock have returned. In 1991, over the objections of AWF project personnel, Dr. Leakey, director of KWS, gave members of the Kuku and Rombo group ranches permission for limited grazing in the park because of drought conditions. Dr. Leakey's order was granted following strong political pressure exerted by the local member of parliament (MP), Sing'aru, who then used the permission allowing grazing in the park to win votes among the local people.

KWS's permission for limited grazing in the park created a great deal of confusion and controversy. First, the Tsavo West park warden, who was not informed of his superior's decision, arrested 75 group ranch members. After group ranch members travelled to Nairobi to complain to KWS, the park warden was obliged to write a letter to the magistrate to have those arrested released. There was also confusion over where in the park the group ranch members could graze their cattle. There was no grass in the areas designated because of previous

overgrazing by cattle from the group ranches, causing the group ranch members to move further into the park beyond the 20 kilometers allowed to them. In addition, other communities living around the park demanded permission for their livestock to graze in the park.

In all of this chaos, the group ranches took advantage of the ruling to fatten additional livestock, and, when KWS's permission expired, they kept their livestock in the park. Settlement also started in the buffer zone. In 1992, livestock grazing was once again the park's biggest problem according to John Kagwi, Senior Park Warden at Tsavo West.[5]

There is a long list of reasons why people failed to remove their cattle from the park once the rains resumed. USAID and future biodiversity projects should learn from the lessons provided by the Tsavo example. These lessons include the following:

(1) Project results change over time. Even the most successful projects are susceptible to a great deal of uncertainty. A host of events that are difficult to predict and avoid, such as climatic and political change, have potentially large impact on the outcome of projects.

(2) People's good will should not be taken for granted. Promises of future benefits may encourage local people to participate in project activities. Projects, however, must deliver on their promises. Delays in funding, long start-up periods, and inadequate budgets can leave projects in the extremely awkward position of promising great things but delivering few tangible benefits. For example, while waiting for phase II funding from USAID, project activities at Tsavo were cut back for eight months at a crucial time in the grazing problem. In addition, the COBRA project, with community-based conservation activities slated for the Tsavo West area, has labored through lengthy conceptualization, design, approval, and start-up efforts.

(3) Local people, while very important, are not the only target audience. As in the case of Tsavo, important stakeholders in biodiversity projects can also include members of parliament and directors of park departments. Even though the project officer spent 67 percent of his time organizing and attending meetings (and 25 percent travelling within the project area), his efforts could not compete with the advent of multiparty elections and the subsequent bidding war for votes among the potential candidates.[6]

(4) Biodiversity projects are often stretched too thin. Having arranged for the cattle to be removed from the park, AWF shifted its attention to the important issues of designing an overall community conservation program for KWS and providing community conservation training to KWS personnel. The project was responsible for so many other issues, it did not have the time to provide the considerable amount of follow-up that was needed to see that its agreement with the group ranches was carried through. This problem is not unique

[5]Kagwi personal communication

[6]Lembuya personal communication

to the Tsavo project--the passage of a law or signing of a decree is often inappropriately equated with the successful outcome of a problem. Real results on the ground often depend on how the law or order is implemented over time. While initial removal of cattle from the park may be a good indicator of success, a more reliable indicator would be the rejuvenation of the overgrazed area.

(5) Project monitoring and evaluation efforts need to be sustained over time. If a final evaluation of the Tsavo project had taken place in early 1991, it probably would have declared the project an enormous success and completely missed the quick return of the livestock to the park. External evaluations tend to be a limited snapshot in time. It is possible, for example, that in 1993 the cattle have once again been removed from Tsavo West. If true, it is possible that they may return at a future date. Internal project monitoring efforts are needed to track key issues over the long run and to provide feedback to adjust project activities to changing conditions.

Despite the return of livestock to Tsavo West, The Tsavo Community Conservation Project turned out to be invaluable in the development of the COBRA project and the community conservation approach that KWS seeks to employ. The use of a project's ideas and experience to develop and institutionalize a nationwide program with substantial financial backing is an impressive achievement for a small demonstration project. With the establishment of a Community Wildlife Service Unit within KWS, the next task will be to ensure that the CWS Unit functions effectively. It should be kept in mind that community conservation is still a relatively new approach in Kenya and that the CWS Unit comprises only a small fraction of KWS's overall program. It will take a significant amount of time and effort to change the way park personnel view local people and institute constructive rather than confrontational approaches for addressing conflicts between people and wildlife. Thus, the ultimate success of community conservation efforts in Kenya will depend in large part on the effectiveness, popularity, and growth of the CWS Unit.

The Tsavo Community Conservation Project illustrates both the potential and the complexities of attempting to break down the existing barriers between local people and government authorities and of ensuring that local people are involved in and benefit from conservation. This project should be viewed as one attempt to explore integrated approaches for conserving wildlife and promoting economic development. More projects with this focus need to be initiated and reviewed before the efficacy of this approach can be adequately evaluated.

2.3.2 Park "W" Biodiversity Conservation

Located in southwestern Niger, Park "W" is considered Niger's most important area in terms of biodiversity (Millington and Tiega 1991). U.S. Peace Corps Volunteers (PCVs) have been working in Park "W" since 1969. PCVs' efforts in Park "W" have concentrated on ecological studies and recommendations for better management. The annual prescribed burns and

annual road census of large mammals, for example, are among the activities that have been spearheaded by PCVs.

Despite these efforts, many of the problems that confronted the first PCVs in Park "W" still existed in the late 1980s. These problems include illegal grazing, poaching, and low morale among park staff. Several reasons have been offered to explain why problems confronting Park "W" have persisted, including (1) meager resources available for implementing management recommendations, (2) lack of consultation with local people, (3) unfavorable government policies, (4) climatic change, (5) increasing human pressures, and (6) ineffective traditional methods of preservation.

Recognizing the need for a new approach to address the park's problems, the Park Conservator argued in the late 1980s that research alone was useless without recommendations that were relevant to local populations and that could be implemented effectively within the extremely limited means of the park budget and local village infrastructures.

With this mandate from the Conservator, Peace Corps and the government of Niger initiated the Conservation of Biological Diversity Project (CBDP) with funding from the Africa Bureau in 1990. The project's goal is to facilitate the coexistence of human populations and the flora and fauna of Park "W" and surrounding areas so that the region's biodiversity is conserved for future generations. The project's strategy is to formulate approaches for combining environmental conservation and rural development, based on a dialogue with rural communities. Project activities focus on four themes: environmental education, community development, research and monitoring, and natural resource management planning.

While past PCVs worked inside the park, the CBDP volunteers have focused their attention on the communities surrounding the park. The project's new emphasis on working with these communities has received widespread support; however, implementing the project's new strategy of (1) establishing a dialogue with rural communities and (2) formulating approaches for combining environmental conservation and rural development has been a challenging undertaking.

Dialogue with Rural Communities

In order to establish a dialogue with rural communities, PCVs first devoted their attention to identifying and responding to community development priorities. Within that process, PCVs have done a good job of establishing positive relationships with the local communities. Villagers, for example, have actively participated in activities such as gardening, constructing wells, taking literacy classes, beekeeping, and establishing tree nurseries.

Developing a dialogue between the local people and park staff, however, has been much more problematic. Traditionally, relations between park staff and the members of the adjacent communities have been confrontational. A couple of decades ago, families in some villages were chased from their former homes within the park without receiving any compensation. Individuals

from the neighboring communities are periodically arrested and fined for infractions due to illegal grazing, gathering, or hunting. Government officials, including park staff, tend to look down on the local people. They believe that local people are unable to use natural resources such as wildlife on a sustainable basis. Park "W" staff point to the degraded land bordering the park and argue that it is their enforcement efforts that have enabled the remaining wildlife to survive in the park in spite of, not because of, the local people.

Despite these difficulties, PCVs are playing an important role in sensitizing park staff to the importance of working with the local people, and PCVs are effectively filling the crucial role of working with local villages at the grassroots level. The project has increased the credibility of the volunteers and their message in the eyes of the park staff and local villagers. While the project has succeeded in initiating a dialogue, the barriers to creating meaningful interaction between the park staff and the local community will not be overcome easily. PCVs are in a unique position to play this difficult but critical role as mediator between the two distinct groups, but additional time and effort are needed to ensure that this dialogue is genuine and meaningful.

Combining Environmental Conservation and Rural Development

The second component of the project's strategy, integrating conservation and development, has been a popular theme in the conservation community in recent years. Applying this idea to specific locations such as the areas surrounding Park "W", however, remains an enormous challenge.

In other parts of Africa, tourism has been a concrete activity that provided incentives that link conservation and development. However, unlike Kenya, Park "W" staff is in no position to promise to share tourist revenues with the local communities as a way to interest them in conservation. In Park "W", tourist revenues are limited, and the park itself does not even receive any of the money it generates through tourism, because of the severe financial situation facing the central government.

The sustainable use of biological resources has been another method used to combine conservation and development. On the national front, efforts are under way to reform Niger's rural code, which governs the use of natural resources, in order to facilitate activities such as the sustainable use of biological resources. While the lands surrounding the park are legally protected as reserves or buffer zones, in practice this land is not much different than nonreserve land. Around Park "W", both the local herders and farmers would like to profit from what they see as abundant resources within the park. There are some signs of progress in this area. For example, PCVs are attempting to organize local villages to harvest grasses in the park prior to the annual burning program. These grasses are used for thatch roofing and are woven into mats that are used to construct fences and compound walls. In general, however, the idea of people using park resources is still alien to the staff's concept of a park. In addition, park staff currently lack the necessary capacity and expertise to organize, monitor, and enforce the sustainable use of park resources by local people.

With a realistic understanding of the problems associated with tourism and sustainable use, the CBDP volunteers are focusing on identifying concrete incentive packages for village-supported resource management. Their idea is to improve the use of neighboring lands to help take pressure off park resources. While this is a worthwhile objective, it is extremely difficult to identify viable alternatives to exploiting the abundant resources that are seen as lying idle within the park. As a result, concrete incentives that will sway local communities toward conservation are difficult to develop. In this situation, PCVs face an uphill battle to make people see the need to conserve park resources.

At present, local villagers are often more interested in having PCVs help them obtain fertilizer for their fields than hearing why they should be interested in maintaining the park. The challenge facing the project is how to link these two issues. In response, the PCVs' are working hard to test and disseminate a conservation education message, explore key research and monitoring questions, assist with park management activities, and identify village-supported resource management activities.

In the final analysis, the successful combination of conservation and development may best be achieved by creating local capacity to identify and implement self-reliant sustainable initiatives. It may be the most important achievement of the CBDP. Fortunately, the PCVs understand the importance of building this capacity and have made it a focus of their efforts.

The Future of the CBDP

Based on the initial successes of the CBDP, Peace Corps/Niger proposed expanding the program to other important sites for biodiversity conservation throughout Niger. As part of this proposal, USAID/Niger has provided funding to expand the CBDP to the Babin Rafi Forest in south-central Niger.

The Africa Bureau's funding for the CBDP, however, ends in 1993. Peace Corps' efforts in and around Park "W" were envisioned as a ten-year program, but future involvement will, at least in part, depend upon the amount of outside financial support the project receives.

Further donor assistance of this kind is needed in order to strengthen efforts to conserve the highly threatened Park "W". At the time the CBDP project was designed, it was assumed that a larger European Community (EC) project would be implemented to provide significant support for the management of the park. The CBDP, with its efforts to involve the local population in park activities, was seen at that time both as an interim and complimentary measure to the larger project. Due to unresolved political issues, the EC project never got off the ground, leaving the CBDP as the major project in the park with consequential pressures to undertake more activities than were originally intended.

The CBDP has made progress in introducing a new approach to conservation in Niger. New approaches, however, are not easy to implement--they require major changes in institutions

and individuals as well as adequate time and financial resources. The CBDP has helped demonstrate the complexities of integrating conservation and development and has built a foundation for future activities in the region. If this approach is going to show tangible benefits for conserving biodiversity, however, project activities need to be carried on beyond 1993.

3. LESSONS LEARNED FROM THE AFRICA BUREAU'S BIODIVERSITY PORTFOLIO

3.1 Africa Bureau's biodiversity grants served as a primary catalyst in the development of USAID's biodiversity program in Africa.

The Africa Bureau's biodiversity grants were successful as part of an initial strategy to get USAID involved in biodiversity conservation efforts in Africa. The grant program deserves a great deal of credit for assisting in USAID's increased commitment to African biodiversity efforts, a commitment that increased from essentially nothing in 1986 to $22 million in 1993.

As this review of the Africa Bureau biodiversity portfolio suggests, the Bureau has made significant progress in developing its biodiversity program and in implementing its biodiversity strategy.

- As requested by Congress, the Africa Bureau has supported the biodiversity conservation efforts of other U.S. government agencies, such as the U.S. Peace Corps and National Parks Service, and nongovernmental organizations such as the African Wildlife Foundation, Wildlife Conservation International, and World Wildlife Fund.

- Five of the Bureau's nine biodiversity projects were located in its strategic focus areas Madagascar and the Afromontane highlands (Uganda, Burundi, and Rwanda) and large-scale mission projects have also been developed in these areas.

- The Bureau's target biome, tropical forests, also received a significant amount of attention. (The precise amount of support cannot be quantified because the Bureau's strategy does not define what it means by tropical forest [Blumgart, Freeman, and Hagen 1990].)

Pressure from the U.S. Congress, as well as pressure and technical support from the Africa Bureau, was crucial in developing the mission biodiversity projects that constitute the vast majority of USAID funding for biodiversity conservation in Africa. Africa Bureau staff played an important role in encouraging missions that at times were reluctant to undertake biodiversity projects. (Because of the Congressional mandate, some mission staff viewed biodiversity as a special interest issue. They were skeptical that the conservation of biodiversity meets the most pressing needs of African people.) In Kenya, for example, Congressional and Africa Bureau pressure on the mission to get involved in elephant and rhino conservation efforts played an important role in convincing the mission to undertake a large-scale biodiversity project.

The Bureau biodiversity grants, however, also played a crucial role in getting missions involved in biodiversity projects. Bureau projects provided missions with tangible examples of what could be done in the field. They provided a base of experience that future initiatives could build on, and they helped demonstrate the links between biodiversity conservation and USAID's economic development goals. Africa Bureau projects in Madagascar, Uganda, Rwanda, and

Kenya contributed to the development of large, multiyear USAID mission projects in these countries. Bureau projects in Niger and Cameroon prompted smaller amounts of mission support for biodiversity conservation activities.

The Tsavo West project, for example, is viewed as having been instrumental in the development of the USAID/Kenya's COBRA project. The community conservation approach being pursued under the project "draws extensively on the pioneer work" that the African Wildlife Foundation accomplished with communities bordering Tsavo West National Park (USAID/Kenya 1991). Among other examples, experience gained from the Beza Mahafaly project in Madagascar has been important in developing the large number of integrated conservation and development projects supported by USAID/Madagascar. In Rwanda, the mission's Natural Resources Management project has built on Africa Bureau-supported efforts at Nyungwe Forest and *Parc des Volcans*. USAID/Uganda's Action Program for the Environment (APE) has also benefited enormously from the Bureau-supported efforts in the Kibale Forest and southwestern Uganda.

In light of an impressive record of follow-on activity and the advantages of starting small, USAID should continue to support small biodiversity grants as catalysts and bridges for larger mission biodiversity programs. It is not clear what office within USAID should fund such grants, however. The new Office of Analysis, Research, and Technical Support within the Africa Bureau has not continued the biodiversity grants program funded under the NRMS project because it supports analytical activities, not project implementation (see Appendix A). Some argue, given the Africa Bureau's initial effort, that missions should now be the ones responsible for funding these types of grants. Missions, however, have a difficult time finding an appropriate mechanism to provide small biodiversity grants or justifying small-scale involvement in a new sector. Given these constraints on missions and the regional and global benefits associated with biodiversity projects, new sources of central funding should be made available for biodiversity field projects like those discussed in this report.

3.2 The effectiveness of the Africa Bureau biodiversity grants is difficult to evaluate; nonetheless, these grants have accomplished impressive results that need to be shared among a larger audience.

As discussed throughout this report, the problems that confront attempts to conserve biodiversity in Africa are complex and formidable. Funding agencies should not expect these problems to be solved simply or quickly. Therefore, evaluations of biodiversity efforts need to adopt an appropriate perspective. The Bureau's biodiversity grants have not yet solved the problems they were designed to address; however, this does not mean that these efforts have not been successful or worthwhile. It should be recognized that Bureau projects were relatively small, short-term efforts, although implementing NGOs frequently have been or remain involved on a longer-term basis. Many projects were new initiatives or experimental in nature. Given this context, it is not surprising that these efforts have encountered and will continue to experience difficulties in their uphill battle to conserve biodiversity and promote sustainable development.

How then should the Bureau biodiversity projects be evaluated? It is difficult to measure the impact of a biodiversity project, and it is even more difficult to compare these results with other development projects, various investment options, or alternative biodiversity conservation initiatives. Placing a relative value on activities associated with biodiversity projects, such as research, training, environmental education, and management planning--even community activities and tourism development--is problematic. It is also difficult to assess the success of the Bureau biodiversity projects because, in general, they lack baseline information and built-in provisions for regularly monitoring a project's impact on the biological systems it is attempting to conserve and the human population it is trying to benefit.

As a result, external project evaluations are often based on a review of project documents, select interviews, site visits, and the individual evaluator's perspective and experience. Some evaluators are probably guilty of overstating the impact that a particular project activity has had; on the other hand, many unintentional or indirect benefits associated with a project go unreported. External evaluations can be extremely useful, but they are not ideal because they tend to be a partial view or snapshot of a project rather than an objective, ongoing assessment. As the case of the removal of livestock from Tsavo West National Park illustrates, the timing of an external evaluation can have a major impact on its findings.

Despite the shortcomings of evaluation methods, the limited number of external evaluations of Bureau biodiversity projects that were conducted have been, in general, positive. According to project evaluators, "USAID may have gotten one of the best returns for its investment that it has ever seen from the Development Through Conservation project in Uganda" (Hart et.al. 1990). A review of the Nyungwe Forest Conservation Project (NFCP) in Rwanda concluded that "with adequate attention to planning the NFCP could be the most successful endeavor of its type in the Africa Region" (Gibson 1989). In Burundi, the project was evaluated as having "made great strides in conserving biological diversity in Burundi...." (Glowacki and Pfeifer 1992). The Beza Mahafaly Reserve has been called "an important model of community involvement in conservation in Madagascar" (Wells and Brandon 1992).

While the improvement of monitoring and evaluation efforts is essential, the successes and shortcomings highlighted in the evaluations of Bureau biodiversity projects constitute important lessons that funding agencies and project implementors should consider in their attempts to improve future as well as ongoing initiatives. While some of these lessons are summarized in this report, interested parties need to read the evaluations from as many projects as possible, in addition to the actual project proposals, progress reports, and final reports. This, however, is difficult to do if projects have not been evaluated. To correct this situation, the Africa Bureau should make sure that all its projects are properly evaluated.

In addition, project information needs to be more readily available, and project implementors need to do a better job of sharing information with each other and the general public. Efforts to bring together the relatively exclusive group of biodiversity project implementors to share their knowledge and experiences is also an excellent way to advance conservation efforts. As an example of such action, the Nyungwe project conceived and hosted

an Afromontane workshop in 1989 that brought together people working on projects in Rwanda, Burundi, Zaire, and Uganda. A second Afromontane workshop was held in Burundi in 1992. Personnel from the Nyungwe project, for example, have exchanged site visits with personnel from the DTC, Kibale, and Burundi projects among others. In general, much greater exchange and dissemination of information is needed if all the relevant lessons are to be extracted from past efforts.

3.3 Project objectives have been more difficult to achieve than originally envisioned.

In designing Bureau projects, a number of implementors underestimated the problems they were facing and promised to deliver more than they were able to achieve during the granting period. There are a number of reasons for the difference between project proposals and final results. In part, it reflects the gap between designing a project and implementing it. Project designs tend to represent the ideal situation and are often based on theory and a number of assumptions; project implementation efforts must deal with the realities of everyday life in rural Africa.

In addition, Bureau biodiversity projects often employed new approaches for conserving biodiversity. Because such approaches have not been thoroughly tested in the field, it is difficult to predict the eventual outcomes of such action. As the project implementors at Beza Mahafaly concluded, "While this emerging prescription for "integrated conservation and development" is attractive, and morally as well as practically compelling, in reality it has turned out to be much more difficult to follow then first envisaged (Richard and Sussman 1991)."

Bureau projects were also attempting to address several different objectives simultaneously. Integrating these various objectives remains a major challenge. In the past, activities inside of a protected area have been separated from events occurring just outside their boundaries. Although it is now evident that the two areas are interconnected, the best way of integrating the various project components is not always clear. As the evaluation of the Andohahela Project noted,

> These are no longer small simple park/reserve projects but extremely complex attempts at innovative ideas combined with classical approaches to rural development, natural resources management and park/reserve management. Traditionally, each of these have been dealt with sectorially as separate projects. Now we are asking almost the impossible, to link them together and we are trying it with what might be considered skeleton crew. This will have to change if there is to be any hope for success (DeGeorges 1992).

In addition to integration, the proper balance between development and conservation activities is also difficult to achieve. The evaluation of the Development Through Conservation project warned that it may be easy to lose sight of the project's conservation goals in the rush to improve the income of the farmer families (Hart et.al. 1990). On the other hand, some argue that biodiversity conservation efforts have tended to focus on preserving biological resources at the

expense of local people (BSP 1993). While the emphasis will vary according to the situation, project staff should clearly indicate how their various activities fit together and clearly state how they will address the goals of conserving biodiversity and improving human livelihoods.

In response to these challenges, biodiversity project implementors need to set realistic objectives and timeframes, and they need to receive adequate funding for accomplishing all of their objectives. Funding agencies should carefully scrutinize the feasibility of what project proposals promise to achieve, looking at the practicality of implementation plans as well as the theoretical correctness of project designs. At the same time, evaluators must recognize that project objectives may have been overambitious or poorly written and that they should not base their assessment simply on how well the project has achieved its stated objectives. Evaluations that are too narrowly focused will fail to acknowledge unintended yet significant project accomplishments.

For example, in Niger, the Peace Corps Volunteers stated that the project's short-term plan was overambitious and did not take into account the difficulties associated with working at the village level. They suggested changes in the plan to more accurately reflect these difficulties (Peace Corps/Niger 1992). In order to improve the chances that biodiversity projects will succeed, similar grassroots-level "reality checks" must become more prevalent.

3.4. There are no easy answers or set solutions for conserving biodiversity in Africa.

Africa Bureau biodiversity projects show that solutions for conserving biodiversity will vary. In Rwanda, for example, project implementers state that the Mountain Gorilla Project has demonstrated that "education and tourism development alone, without a strong rural development focus, can generate considerable grassroots support for conservation" (AWF 1991). Tourism development, however, is not a viable option in many parts of Africa, and others argue that some environmental education programs being supported by the Africa Bureau carry inappropriate western and urban biases (DeGeorges 1993).

The creation of national parks has been an important strategy for conserving biodiversity. Even creating a national park, however, is not necessarily the most effective solution for conservation, as illustrated by the situation in southwestern Uganda. The Development Through Conservation project identified human encroachment--pit-sawing in particular--as a major threat to the biodiversity of three forest reserves in southwestern Uganda: Bwindi, Mgahinga, and Echuya (World Wildlife Fund 1988). In 1991, the Bwindi and Mgahinga Forests were made national parks, and all uses of the forest, especially pit-sawing, have been banned (Ogwang and DeGeorges 1992). On the surface, the upgrading of the reserves to national parks appears to be a good strategy for addressing the threats to the region's tremendous biodiversity. A closer examination of the situation, however, illustrates some of the problems associated with this approach.

It turns out that many of the local people, believing that they would be cut off from the very resources on which they depend so heavily, were opposed to the creation of a national park. In a draft evaluation, 82% of the local people interviewed had negative feelings about gazetting the park (Scott 1992 cited in Ogwang and DeGeorges 1992). When the head of the Uganda Park's Board explained to the people that they would be compensated for not being able to use the park's resources by having schools, clinics, and roads built for them, the local community pointed out that the forest yielded resources that provided money. As one pit-sawyer explained, "Your schools, clinics and roads are well and good but they don't fill empty bellies or pay school fees. We want access to the forest." (DeGeorges 1992b)

It is possible that with vigorous enforcement efforts the park staff will be able to prevent people from using the forests in the short term. Depending on the particular circumstances, however, it is unclear if they will be able to sustain this situation over time. In order to effectively resolve this dilemma, mechanisms should be considered that either enable the local people to sustainably use the forest resources, assist the local people in developing viable income-generating activities as alternatives to use of the forests, or provide the local people with what they see as adequate compensation for reducing their access to the forests.

In reviewing the Africa Bureau biodiversity activities, there is no obvious solution or clearly preferential approach that can be held up as the model for effectively conserving biodiversity in Africa. All of the methods employed and solutions proposed have shown promise and difficulties. Some of the new, innovative strategies for conservation, such as sustainable use, have not been tested as part of the Bureau's portfolio. The lack of straightforward answers suggests that biodiversity conservation efforts are still in the learning or experimental stage. As a result, it is important for donor agencies and project implementors to pay special attention to clearly defining assumptions, putting project monitoring and evaluation programs in place, and documenting and disseminating lessons learned. Funding agencies need to continue to support biodiversity conservation efforts and set realistic expectations for their projects. Conservationists should keep an open mind to new ideas and continue to test how best to achieve conservation objectives. The appeal for urgent action to respond to a crisis situation should be balanced with methodical, well-crafted programs that are given sufficient flexibility to achieve their goals over the long run.

There is a tendency to look for quick, simple solutions to a problem such as the loss of biodiversity. The Bureau biodiversity grants, however, suggest that this is not always possible. There is growing recognition of the complexities associated with conserving biodiversity, and, as a result, there are an increasing number of objectives and activities being attached to biodiversity projects. These multifaceted initiatives present many challenges for conceptualizers and implementors alike. At present, ideas are being generated in academia and in the headquarters of conservation and funding organizations much more quickly than they can be field tested to determine if they have merit and are worth pursuing. Better ideas and strategies are clearly necessary, but there is also a pressing need for more on-the-ground efforts to test and implement conservation initiatives. In this context, the Africa Bureau's biodiversity grants represent a vitally important group of on-the-ground biodiversity conservation efforts with initial results to take into

consideration. Results from these efforts should be used to inform the design and implementation of new programs and strategies and to serve as a strong rationale for continued donor support of field-based projects.

3.5 Biodiversity initiatives are complex, long-term endeavors. Two or three years is not a sufficient amount of time to make real progress in conserving biodiversity.

The components that make up the Bureau's biodiversity projects require long-term commitments. Research, training, and environmental education take time to conduct and many years to produce results. The same is true of protected area management, community activities, and tourism development. To effectively address the problems they are designed to address, biodiversity conservation initiatives also need more than a few years to produce a positive impact.

The basic foundation and capacity to implement new, multiple-objective biodiversity projects must be developed before results can be achieved. According to project implementors at Beza Mahafaly,

> One to three years is scant time in which to 1) undertake the basic ecological and anthropological research needed to determine how best to focus project activities, 2) carry out those activities and 3) build the local relationships of mutual respect and trust that are vital to the long-term effectiveness of the those activities (Richard and Sussman 1991).

The pressure to meet multiple objectives in a limited time frame can create problems. The review of Le Projet de Conservation de la Foret de Nyungwe (PCFN), for example, found that

> The most impressive aspect of current activities is the fervor with which they are all being simultaneously attacked by the Project Manager, counterpart staff, visiting students and scientists, and concerted environmentalists. With concurrent start-up of all activities, and no appreciable increase in staff and management capacity, the Project Manager works seven days a week.... Frankly, the Project Manager is stretched much too thinly and is unable to get ahead of the crisis management mode which has characterized the PCFN since its inception (Gibson 1989).[7]

The process by which projects are funded also presents problems. Short funding cycles force project implementors to focus on the short term, creating a disincentive for innovation and open discussion of the problems associated with their efforts. With short funding cycles, project implementors need to demonstrate positive results fast to obtain a favorable evaluation and the necessary follow-up funding. In this environment, there is the tendency to hide or avoid

[7]The project added a senior biodiversity scientist (Rwandan) in 1991, and in 1993 added an international forest scientist (specialty in restoration). It only now seems to be adequately staffed.

important problems instead of acknowledging them and experimenting with various approaches to see what works best.

Some fear that the current increase in funding for biodiversity conservation initiatives will be a short-term phenomenon and that funding agencies will stop supporting conservation projects if positive results are not produced quickly. This fear adds to the difficulties facing biodiversity conservation efforts. Just as it is important for local people to have secure land tenure in order to sustainably use biological resources over time, it is important that funding agencies provide conservation organizations with long-term funding commitments so that conservation projects do not simply focus on short-term outputs. With a long-term commitment towards biodiversity conservation, funding agencies could create an environment where experimentation and constructive criticism were welcomed instead of feared. People's energy could be devoted to addressing the question of how best to conserve biodiversity rather than spending their time figuring out how to obtain funding for another two years of work.

Short funding cycles can also negatively influence the continuity and stability of a project. Project implementors devote a great deal of time and energy gaining the trust, understanding, and involvement of the community. Stoppage or long delays in project activities brings the project's credibility into question. In addition, it is difficult for projects to keep up with all the changes at the funding agencies. At Beza Mahafaly, the project implementors found that their renewal proposals, which were prepared for one set of guidelines, were read and found wanting in relation to a whole new set of guidelines (Richards and Sussman 1991). This seemingly constant struggle to obtain funding could be reduced with longer funding cycles and better communication between funding agencies and project implementors. While funding agencies employ short funding cycles in order to maintain control, they may find that their projects produce better results if they develop alternative methods of control, such as requiring project monitoring.

In addition, people should not forget that biodiversity projects are closely tied to events and realities in African society. At Tsavo West, the project officer stressed that a great deal of time is required to work in rural Africa, that funding agencies do not give projects enough time, and that a community cannot be pushed into action.[8] Civil wars, strikes, and corruption, for example, can affect project outcomes. The lack of basic infrastructure causes project personnel to spend a great deal of time dealing with logistical difficulties. Examples, available from all of the Bureau projects, illustrate just how long it takes to accomplish basic tasks. For the Development Through Conservation (DTC) project in Uganda, seven months elapsed between the drafting of the project proposal and the effective date of the grant agreement, four months were required to formalize relations between World Wildlife Fund-US and CARE-Uganda, and thirteen months were needed to execute a contract between CARE-Uganda and the government of Uganda's Ministry of Environmental Protection (Hart et.al. 1990).

[8]Lembuya, personal communication 1992

In the end, the need for continued funding is consistent with all of the Africa Bureau biodiversity projects. Thus, even experimental or pilot biodiversity initiatives take longer than two to three years to conduct. To USAID's credit, most of the Bureau's projects have received continued USAID support, either from the Africa Bureau or USAID missions in Africa. Nonetheless, obtaining additional funding to continue project activities can be a long and painstaking process. At Tsavo West, for example, funding for continuing the project was delayed for eight months, seriously compromising the project's progress and momentum.

If biodiversity field projects are stopped after two or three years, few--if any--long-term results should be expected. Given the time it takes to get things accomplished and the complex problems that have led to the loss of biodiversity in Africa, a brief insertion of funding and technical expertise will rarely be sufficient to successfully conserve biodiversity. What is needed is sustained efforts over many years.

In its report summarizing the results from five years of USAID support for improved natural resources management in Africa, the Africa Bureau emphasizes the need for a longer-term approach. It states, for example, that the long-term benefits from biodiversity conservation can only be fully assessed in terms of decades, not years (USAID/ARTS 1993). Recognizing the need for an expanded time frame, the Africa Bureau should now work to put together a long-term program for conserving biodiversity in Africa.

3.6 The Africa Bureau needs to produce a new biodiversity strategy.

Despite the success of the Africa Bureau biodiversity grants, the need for an new Africa Bureau biodiversity strategy has been recognized for several years (Blumgart, Freeman, and Hagen 1990). The existing strategy is outdated and provides few details to missions on how to pursue biodiversity conservation programs (see Appendix A). The suggestion in the Africa Bureau's current biodiversity strategy that missions should consider conservation education, ecotourism, and agroforestry activities is of little help.

Acknowledging the need for a new strategy, the Bureau provided funding to the Biodiversity Support Program (BSP) to implement the Biodiversity Analysis for Africa project as part of the Bureau's 1991 biodiversity activities. Under this project, BSP produced the report *African Biodiversity: Foundation for the Future. A Framework for Integrating Biodiversity Conservation and Sustainable Development* to serve as an analytical basis for a revised strategy (BSP 1993). Based on the contribution of an African Biodiversity Consultative Group, the report examines the critical issues and presents an action program for conserving biodiversity in Africa. In developing its new biodiversity strategy, the Africa Bureau will draw from the guiding principles, recommendations, and actions contained in this report.

The Africa Bureau's new biodiversity strategy will be based on USAID's current environmental strategy that targets the "loss of tropical forests and other critical habitats for biological diversity" as a key problem to be addressed by USAID assistance efforts. In order to be consistent with the Agency strategy, the Africa Bureau revised its environmental strategy, the

Plan for Natural Resources Management (PNRM), in 1992 and called on all Category I missions to develop projects and policy reform programs to halt the loss of tropical forests and other critical habitats for biodiversity. The PNRM also instructs all Category II missions to choose one priority problem area to focus on--either unsustainable agricultural practices or the loss of critical habitats. (Since the 1992 PNRM was published, the Africa Bureau has changed its system for prioritizing its country-level programming--instead of Category I, II, and III countries, there are now focus, watch list, unique, other, small, and administratively fixed countries. See Exhibit 6 for a current list of these countries.) The PNRM instructs missions to conduct policy dialogue, build institutional capacity, compile baseline data, promote grassroots participation, support PVOs and NGOs, develop Geographic Information Systems, study the link between environment and development, and integrate natural resources issues into development projects. The PRNM, however, gives USAID missions few details on how to implement its directives (see Appendix A).

In order to effectively pursue its 1992 environmental strategy, the Africa Bureau needs to develop a more detailed strategy and program specifying how missions can effectively address its two priority problem areas, including the loss of tropical forests and other critical habitats for biodiversity.

There are a number of strategic questions that the Africa Bureau needs to clarify, including what role it will play in this effort. Whether to focus on helping missions develop new biodiversity programs or on providing additional support to existing initiatives is an important strategic question that the Bureau should make clear in its revised biodiversity strategy. While the Bureau could decide that existing biodiversity projects do not require any further support, it could also make a concerted effort to assess existing projects, build on their accomplishments, and learn from their shortcomings. Whatever priorities are established, the Africa Bureau has an important role to play given its past efforts in helping to develop the Agency's biodiversity program in Africa. More missions are likely to make significant progress in addressing the problem of habitat loss if the Africa Bureau takes a more proactive role in addressing this issue.

EXHIBIT 6

Focus Countries	Watch List Countries	Unique Countries	Other Countries	Small Countries	Administratively Fixed
Benin	Cameroon	Angola	Botswana	Comoros	Burkina Faso
Burundi	Chad	Ethiopia	Cape Verde	Congo	Liberia
Ghana	Cote d'Ivoire	South Africa	The Gambia	Central African Republic	Mauritania
Guinea	Kenya		Guinea-Bissau	Equatorial Guinea	Somalia
Madagascar	Malawi		Lesotho	Gabon	Sudan
Mali	Niger		Namibia	Mauritius	Zaire
Mozambique			Swaziland	Sierra Leone	
Nigeria			Togo		
Rwanda					
Senegal					
Tanzania					
Uganda					
Zambia					
Zimbabwe					

While the loss of critical habitats has been selected as a key problem, additional direction is now needed on how USAID should address this loss in Africa. The Bureau needs to provide missions with analyses of the critical issues and with promising techniques--for both project and policy reform program approaches--to halt the loss of critical habitats for biodiversity. The Africa Bureau should also provide missions with technical support and supplemental funding to help them develop and refine their biodiversity conservation initiatives.

While the Africa Bureau needs a new strategy to pull together and direct USAID biodiversity efforts in Africa, the development of a new strategy just to meet some bureaucratic requirement or placate some political demand will do little to help conservation efforts in the field. As the Bureau biodiversity grants demonstrate, the effectiveness of the new Bureau strategy will depend on how it is actually implemented. Thus, in addition to producing a new strategy, the Bureau needs to demonstrate a strong commitment to pursuing a new strategy and to provide details on how it will be implemented.

Appendix A.

THE AFRICA BUREAU'S BIODIVERSITY PROGRAM

An important role of the Africa Bureau is to support USAID missions in the field. Given its position in Washington, D.C., the greatest contribution the Bureau makes to biodiversity conservation efforts may well rest in the strategies and programs it develops rather than the actual projects it supports. As a result, this chapter makes recommendations to improve Africa Bureau's biodiversity strategy and the implementation of the strategy's goals and objectives.

For readers who are not familiar with the Africa Bureau's current biodiversity strategy or the key documents that have shaped USAID's biodiversity conservation efforts, a summary of this information is contained below. In order to summarize the Africa Bureau's biodiversity conservation program, this Appendix reviews (1) the laws governing the Bureau's efforts, (2) the strategies developed to fulfill these laws, (3) the mechanisms devised for implementing the strategies, and (4) existing evaluations of the effectiveness of these laws, strategies, and mechanisms. This summary of important documents and actions helps illustrate how the Bureau's biodiversity program originated and developed. As a historical overview, the summary provides a necessary frame of reference for developing new strategies and programs and for improving the effectiveness of the Africa Bureau's efforts to conserve biodiversity.

A.1 Laws Governing Africa Bureau's Involvement in Biodiversity Conservation

A.1.1 Section 119 of the Foreign Assistance Act

In 1983, the U.S. Congress amended the Foreign Assistance Act, adding Section 119 entitled Endangered Species. This amendment was the primary catalyst that initiated USAID's involvement in efforts to conserve biodiversity in Africa.

Amended in 1986, Section 119 mandated that USAID spend not less than $2.5 million in FY 1987 foreign-aid appropriations for new activities "to assist countries in protecting and maintaining wildlife habitats and in developing sound wildlife management and plant conservation programs." Section 119, as amended, also states that

"(a)...the preservation of animal and plant species through the regulation of hunting and trade in endangered species, through limitations on the pollution of natural ecosystems, and through the protection of wildlife habitats should be an important objective of the United States development assistance."

"(d) COUNTRY ANALYSIS REQUIREMENTS.--Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of--

1) the actions necessary in that country to conserve biological diversity, and
2) the extent to which the actions proposed for support by the Agency meet the needs thus identified."

"(e) LOCAL INVOLVEMENT.--To the fullest extent possible, projects supported under this section shall include close consultation with and involvement of local people at all stages of design and implementation."

"(f) PVOs AND OTHER NONGOVERNMENTAL ORGANIZATIONS.--Whenever feasible, the objectives of this section shall be accomplished through projects managed by appropriate private and voluntary organizations, or international, regional, or national nongovernmental organizations, which are active in the region or country where the project is located."

A.1.2 The Development Fund for Africa

The Development Fund for Africa (DFA), a special development assistance program for Sub-Saharan Africa, was established by Congress in 1987. The DFA provided USAID with a specific mandate, a stable funding source, and more flexibility in spending funds. USAID was directed to determine how and where resources could best be used to make a difference in improving the lives of Africa's people. The overall goal of the DFA is to encourage economic growth that is broad based, market oriented, and sustainable. In addition, the DFA contains a 10 percent target for natural resource programs.

To address the DFA requirements, the Africa Bureau drew up the DFA Action Plan in 1989. The Bureau's Action Plan includes four strategic objectives and a series of targets for each objective. The strategic objective related to biodiversity conservation is to develop the potential for long-term increases in productivity in all sectors. The Action Plan identifies agriculture as the sector in which long-term increases in productivity are currently most threatened. It also sets as a target the conservation of the natural resources on which Africa's agricultural productivity depends.

A.1.3 Related Congressional Acts

Tropical Forests

Section 118 to the Foreign Assistance Act specifically addresses tropical deforestation. Just as Section 119 has helped address biodiversity, Section 118 has helped elevate the status of tropical forest conservation within USAID. Section 118, which contains even stronger language than Section 119, mandates that the President undertake a long list of actions, including placing a high priority on the conservation and sustainable management of tropical forests in providing assistance to developing countries. For example, Section 118 requires that the President undertake the following actions:

To the fullest extent feasible, conserve biological diversity in forest areas by--

(A) supporting and cooperating...efforts to identify, establish, and maintain a representative network of protected tropical forest ecosystems on a worldwide basis;
(B) whenever appropriate, making the establishment of protected areas a condition of support for activities involving forest clearance or degradation; and
(C) helping developing countries identify tropical forest ecosystems and species in need of protection and establish and maintain appropriate protected areas.

In the FY 1991 Foreign Assistance Appropriations Act, Congress prohibited USAID from supporting activities that would result in any significant loss of tropical forests or involve commercial timber extraction in primary tropical forest areas. Congress later amended this prohibition to permit commercial logging activities in USAID projects as long as an environmental assessment is conducted that identifies potential impacts to biological diversity, demonstrates that all timber extraction will be environmentally sound, and demonstrates that the activity will contribute to reducing deforestation.

African Elephants

In 1988, Congress established the African Elephant Conservation Fund to support approved projects for research, conservation, management, or protection of African elephants. Congress directed USAID to spend not less than $2 million for the protection of African elephants in FY 1990. In FY 1991, Congress earmarked $5 million to support African elephant conservation. Africa Bureau's elephant conservation activities focus on managing wildlife habitat and associated rural development activities on a sustainable basis.

A.2 Strategies Directing Africa Bureau's Involvement in Biodiversity Conservation

A.2.1 The U.S. Biodiversity Strategy

In 1984, USAID helped establish the Interagency Task Force (ITF) on Biological Diversity, which presented its report *U.S. Strategy on Conservation of Biological Diversity: An Interagency Task Force Report to Congress* in 1985. The major conclusion of the ITF is that provisions for conserving biological diversity must be incorporated into development planning and that a concern for biological diversity should be an integral part of all development programs (USAID 1985).

The strategy identifies 67 recommendations, grouped in seven major strategy elements, for the U.S. government, and other public and private institutions and organizations to enhance the conservation of biological diversity in developing countries. The seven elements include the following:

1. Continue an ongoing policy dialogue within federal agencies and with developing countries on international biological diversity and help countries to establish and implement national policies for conserving, managing, and developing genetic resources;

2. Increase public awareness of the need to conserve biological diversity through education programs in developing countries;

3. Strengthen developing-country conservation institutions and increase conservation training;

4. Support research related to biological diversity conservation and inventories of species and ecosystems;

5. Promote balanced resource management and the designation and maintenance of protected areas;

6. Encourage developing countries to recognize the effects of and deal with human population pressures on natural resources;

7. Increase coordination among development assistance agencies and support nongovernmental conservation organizations (NGOs);

In order to address the 33 out of 67 action recommendations identified with USAID involvement, the Agency produced *Draft Action Plan on Conserving Biological Diversity in Developing Countries* (USAID 1986). For each of the recommendations involving USAID, the Draft Action Plan identified specific actions for implementation, assigned responsibility in the form of lead and support offices within the Agency, and categorized the action as either a near-term or long-term endeavor.

A.2.2 USAID's Environmental Strategy

The USAID Mission Statement (September 1990) includes six objectives that underpin the Agency's activities in providing economic assistance to developing countries so that they may realize their full national potential. Objective 4 is to promote "responsible environmental policies and prudent management of natural resources."

USAID's positions on the environment are articulated in two policy papers, "Environment and Natural Resources" (1988) and "Initiative on Environment" (1990). USAID's strategies seek to incorporate environmental concerns into all of its development programs. The Agency's current environmental strategy focuses on five long-term constraints to development worldwide:

1. loss or degradation of tropical forests and other critical habitats for biological diversity;

2. urban and industrial pollution;

3. degradation and depletion of water and coastal resources;

4. environmentally unsound energy production and use;

5. and unsustainable agricultural practices.

USAID's environmental strategy for the 1990s emphasizes three approaches to deal with these long-term constraints to development:

- encourage and support efforts of countries to adopt policies that are both economically and environmentally sound;

- help strengthen the capacity of environmental institutions by providing training and technical assistance and by encouraging grassroots efforts to protect the environment;

- and help countries determine an appropriate role for both the private and public sectors in protecting the environment, particularly encouraging innovative private sector responses.

A.2.3 Africa Bureau's 1987 Plan for Supporting Natural Resources Management in Sub-Saharan Africa

First written in 1986 and revised in 1987, the "Plan for Supporting Natural Resources Management in Sub-Saharan Africa" (the PNRM) is the Africa Bureau's natural resources sector strategy. The PNRM also serves as the basis for the Bureau's biodiversity activities.

The PNRM guides USAID efforts to improve natural resources management by (1) making natural resources management an important component of USAID's overall development strategy for Africa and (2) establishing priorities to best use limited resources. The PNRM identified the following priorities:

- technical problem areas--(1) vegetation loss or degradation, (2) soil erosion and fertility decline, and (3) declines in biological diversity;

- priority agro-ecological subregions--(1) Arid/Semi-Arid Tropics, (2) Tropical Highlands, and (3) Madagascar;

- and country priorities based on three groupings--(1) Group I countries were to have a focused natural resource program, (2) Group II countries were to limit their technical priority areas, and (3) Group III countries were to work to integrate natural resources management into their existing programs.

The Africa Bureau's decision to include "declines in biological diversity" as a priority problem area within the PNRM is significant and helped launch USAID's biodiversity programs in Africa.

The PNRM grew out of a series of analyses and reviews carried out by and under the auspices of an Intra-Agency Working Group on Environment and Natural Resources in Africa. A basic tool of the planning process was the technical analysis volume *Resources in Sub-Saharan African: Review of Problems and Management Needs.* The 1986 analysis outlined possible USAID actions to conserve biodiversity that were later incorporated, in part, into the Bureau's biodiversity strategy.

Based on the combination of endemism and risk of loss, the analysis identified the following geographical priorities for biodiversity conservation.

(1) Madagascar/Indian Ocean Islands - due to the highest rate of endemism and second highest risk of loss.

(2) African Highlands (East and West) - due to the second highest rate of endemism and third highest risk of loss.

(3) Arid/Semi-Arid - due to the potential loss of crop genetic diversity and national and international importance of freshwater and coastal wetlands.

(4) Coastal Humid Lowlands - due to the imminent loss of the subregion's tropical forest ecosystems.

The analyses and reviews carried out by and under the auspices of the Intra-Agency Working Group included several potential actions for USAID support. These actions include the following:

- establish a consensus among donor groups and NGO/PVO organizations as to priorities and responsibilities in conserving biodiversity;
- assess biological conservation needs in planning and strategy statements;
- support appropriate entities for the collection of crop, grass, browse, and tree varieties according to defined needs;
- assess the needs of local seed banks for adequacy of storage and data management;
- increase host country capabilities in biodiversity conservation through short courses, workshops, and field tours, as well as distribution of publications and education materials;

- provide technical support to missions to perform, commission, and review environmental analyses of projects, so as to better account for biological diversity and review possible impacts of projects on endangered species;

- establish a regional project to support local NGOs and university research centers or scholars who are working on biodiversity conservation;

- improve the legislative and organizational structure to establish positive links between conservation and development, including intersectoral analyses, planning studies, and strengthening of educational institutions with experience in biological or resource planning;

- increase the emphasis placed on biodiversity conservation in USAID's program development process and country development strategies;

- strengthen the technical capabilities of the Bureau, missions and host countries to identify opportunities for addressing biodiversity conservation, particularly through the multisectoral planning process;

- support the establishment of local data centers to help establish programs and support environmental assessment activities;

- actively support the management of protected areas, particularly in natural forest management for multiple use; endangered species management; and *in-situ* conservation of genetic resources;

- and continue to work closely with NGO/PVO groups to lessen the pressure on critical areas through projects that stabilize resource exploitation in lands immediately adjacent to them.

A.2.4 The Africa Bureau's Biodiversity Strategy

In April 1989, the Africa Bureau issued its biodiversity conservation strategy in cable form (State 101683). The strategy defines biodiversity; outlines USAID's role in biodiversity conservation; and establishes geographical priorities, priority subject areas and approaches, and criteria for selecting biodiversity proposals.

Definition of Biodiversity and USAID's Role

The Africa Bureau's strategy defines biological diversity as the great variety of the world's living organisms and the ecological systems in which they occur. It commits USAID to protect and maintain wildlife habitats and to develop wildlife and plant conservation programs as mandated in the Foreign Assistance Act. The strategy places "Particular concern...on tropical

forests (home of 50% of the world's plant and animal species) which are being destroyed at an unprecedented rate."

Geographic Priorities

The strategy states that the Africa Bureau's biological diversity/tropical forests program will initially focus on two subregions: (1) Madagascar and (2) Tropical Highlands. The afromontane forests of central East Africa (Uganda, Rwanda, Burundi, and Zaire) were selected as the foci within the Tropical Highlands subregion.

Goals and Hypothesis

The biodiversity strategy includes three general statements that can be interpreted as goals, objectives, or hypotheses.

- "The Africa Bureau strives to integrate management of biological diversity/tropical forests within the Agency's development goals."

- "The Africa Bureau believes that there is an important interrelationship between sustainable agricultural production that enables increased incomes and the protection and preservation of biological diversity. Consequently, the Bureau believes it must pay greater attention to the long-term condition of soil, vegetation and important habitats."

- "The Africa Bureau believes biological diversity/tropical forests can and must be part of the Agency's economic development process."

As examples of ongoing biodiversity activities that are consistent with the outlined strategy, the strategy refers to Africa Bureau-supported activities in conservation education and tourism development in the Parc des Volcans National Park in Rwanda as well as agroforestry projects surrounding protected areas that increase rural incomes and reduce population pressure from rural farmers and grazers.

Criteria for Selecting Biodiversity Proposals

The final section within the strategy lists the following criteria for selecting unsolicited biodiversity proposals:

- degree of human threat to species and habitat richness, and the intrinsic vulnerability of the species in the area (i.e., particularly fragile ecosystems);

- level of species endemism and habitat richness within the country or target area;

- the importance of the habitat in maintaining species diversity in other regions (i.e., seasonal habitats serving as breeding sites for migratory species); and

- importance of natural ecosystems to the human needs of a given country.

A.2.5 Africa Bureau's 1992 Plan for Supporting Natural Resources Management in Sub-Saharan Africa

In May 1992, the Africa Bureau published an update of their natural resources sector strategy, the "Plan for Supporting Natural Resources Management in Sub-Saharan Africa." The Africa Bureau revised its priority areas and implementation plan to be fully consistent with congressional guidance, USAID's environmental strategy, and the DFA.

- Priority problem areas in the 1992 PNRM are (1) unsustainable agriculture practices and (2) loss of tropical forests and other critical habitats for biological diversity.

- The humid tropical forest region of Central Africa was added as a fourth priority agro-ecological subregion;

- Country programs are categorized by the DFA groupings, and the 1992 mandate for each grouping has changed--(1) Category I countries will have comprehensive programs in natural resources addressing both the PNRM's priority problem areas through project and policy reform program approaches, (2) Category II countries will have more limited natural resources programs concentrating on one priority problem area, and (3) Category III countries will not be undertaking bilateral natural resources management programs.

With these changes, the 1992 PNRM further elevates the importance of conserving biodiversity within USAID assistance programs in Africa. The Africa Bureau has stated that biodiversity conservation is one of its primary focuses by (1) requiring all Category I countries to address the loss of critical habitats through project and policy reform program approaches and (2) requiring all Category II countries to address either the problem of unsustainable agriculture or loss of critical habitats.

Since the 1992 PNRM was published, the Africa Bureau has changed its system for prioritizing its country-level programming. Instead of Category I, II, and III countries, there are now focus, watch list, unique, other, small, and administratively fixed countries (see Exhibit 6 for a current list of these categories).

A.3 Projects, Agendas, and Frameworks for Implementing the Africa Bureau's Biodiversity Strategy

A.3.1 The NRMS Project

The Natural Resources Management Support (NRMS) project was authorized in August 1987 to increase the quality and level of natural resources management activity in USAID's

country and related regional programs in sub-Saharan Africa and in private voluntary organizations (PVO) programs supported by USAID.

The NRMS project was the Africa Bureau's primary vehicle for implementing the PNRM and the Bureau's biodiversity conservation strategy. NRMS was originally designed as a three-year, $8.51 million project. The project was amended in June 1989; funding for biological diversity activities was added and the project was extended until September 30, 1993. In April 1991, life-of-project funding was increased to a total of $27.87 million.

According to the mid-term evaluation of the NRMS project completed in February 1990, the project:

> played a significant direct implementation role [in biodiversity conservation]. The NRMS Project took initiative in biodiversity and began to fund activities in 1987 before there was any real bilateral involvement....Although mission involvement in biodiversity was minimal at the beginning, the situation has evolved very rapidly to the point where 96% of total funding in FY 1990 was bilateral (Walter, Parker, and Lichte 1990).

In order to review the Africa Bureau's experience in implementing the PNRM and the NRMS project and to help shape USAID's future support for natural resources management in Africa, the NRMS project contractor hosted a week-long workshop, in Lome, Togo, in April 1990.

The "Sub-Saharan Regional Natural Resources Management Workshop" discussed and issued recommendations relating to the Bureau's biodiversity program. The workshop chose to examine four technical themes: natural forest management, buffer zone management, low-impact tourism, and soil and moisture conservation. The first three themes directly relate to the Bureau's biodiversity activities and were said to hold promise.

The workshop emphasized the importance of treating biodiversity within the framework of overall development. It recognized that basic human needs depend on the ecosystem viability and that sustainable development is crucial to the conservation of biological diversity. It also recommended that the management of wildlife for consumptive and nonconsumptive uses should be considered where the opportunity exists, and efforts should be made to link wildlife management with local communities where they coexist (Christophersen and McKay 1990).

A.3.2 ARTS/FARA

On October 1, 1991, the reorganization of the Africa Bureau took effect. The former Office of Technical Resources was scaled down and reconstituted as the Office of Analysis, Research, and Technical Support (ARTS). ARTS is now the Bureau's and field's primary source of analytical and technical expertise. The Agriculture and Natural Resources Division was also reorganized and became the Division of Food, Agriculture, and Resources Analysis (FARA).

ARTS/FARA's analytical focus is deliberate. The office no longer funds field projects like the biodiversity grants reviewed in Chapter 2 of this report. With a 50 percent staff reduction under reorganization, ARTS/FARA also no longer provides the same level of country-level support to missions in the field. With the reorganization, Africa Bureau is focusing its efforts on analysis, and USAID missions are largely responsible for implementing project activities.

Biodiversity conservation is housed in FARA's natural resources management analytical unit. The FARA Division exercises its leadership in the five areas working through and for the Bureau and field missions by:

- identifying and conducting research on critical issues;
- synthesizing cross-national experiences;
- monitoring, evaluating, and measuring project and program impact;
- disseminating lessons learned;
- developing sectoral data bases;
- assisting missions to establish systems for effective Assessments of Program Impact (API); and
- assisting missions to obtain technical support services.

A.3.3 Africa Bureau's Analytical Agenda and Organizing Framework

In order to address the question of whether its natural resources program was achieving "people level impacts" as required by the DFA, the Africa Bureau developed the Natural Resources Management Analytical Agenda (NRMAA) and the Natural Resources Management (NRM) organizing framework.

The NRMAA

The NRMAA is a priority ordering of technical and programmatic questions against which NRM and other resources are focused. The NRMAA is a systematic approach for evaluating the relevance of actions and constraints in the promotion of the sustainability of the natural resource base. Its ultimate purpose is to support field programs of USAID in Africa and to assist the Agency to track those investments in terms of "people level impact."

The 1992 NRMAA includes five units: food security and productivity, technology development and transfer, agricultural marketing and agribusiness, natural resources management, and environmental protection. There are three analytical themes within the natural resources management unit where biodiversity conservation is considered.

NRM-I: Policies, Institutions, and Socioeconomic Conditions for Improving Natural Resource Management

NRM-II: NRM practices and their impact on natural resource base productivity

NRM-III: Environmental quality issues in Sub-Saharan Africa

A series of questions is identified for each theme (see Exhibit 8). While all ten questions relate indirectly to biodiversity conservation, only Question 3b focuses specifically on the subject. It reads as follows:

> How does one analyze biodiversity projects in Africa so that, over time, the impact on DFA and Agency objectives can be assessed?

This question was selected because biodiversity projects represent a significant part of USAID's natural resources budget in Africa, little is known about the impact of these projects, and a number of missions have requested assistance from the Africa Bureau in developing indicators for Assessment of Program Impact (API) reporting.

The NRM Organizing Framework

The NRM organizing framework is an analytical tool used by the Africa Bureau to better understand natural resources management initiatives. It attempts to help link Bureau activities with the DFA strategic objective of sustained increases in agricultural productivity. Because most natural resources activities do not produce immediate or direct increases in agricultural productivity, the framework consists of a five-level continuum that focuses on how to monitor impacts and how to understand the cause-and-effect relationships between levels (see Exhibit 9).

In the framework, biodiversity is listed as one of five elements within level IV (biophysical changes that produce sustainable increases in productivity). Other elements in level IV include (1) water, (2) soils/land, (3) natural vegetation, and (4) wildlife. The prominent position of biophysical change within the framework highlights the principle that African nations need to maintain a healthy, diverse environment in order to achieve sustained increases in agricultural productivity.

With the adoption of the NRM organizing framework and the inclusion of biodiversity in level IV, the Africa Bureau has made a link between the DFA goal of economic growth, the Bureau objective of sustained increases in agricultural productivity, and the congressional mandate to conserve biodiversity.

A.3.4 The PARTS Project

In May 1992, the Africa Bureau initiated the Policy, Analysis, Research, and Technical Support (PARTS) Project. The goal of the project is to increase the utilization and influence of information and analysis for agriculture and natural resources policies, programs, and projects in Sub-Saharan Africa. Beginning in FY 1992, PARTS has been approved as a $46.1 million project. The project takes the place of the NRMS project, which has a Project Assistance Completion Date (PACD) of September 30, 1993. Over the life of the project, PARTS contains a $5.05 million innovative research grants program; during the project's first year, this program supported biodiversity research, biodiversity monitoring research, and global climate change research.

A.4 Reviews of USAID and Africa Bureau's Biodiversity Activities

A.4.1 Office of Technology Assessment Reports

In 1987, the Office of Technology Assessment (OTA), an analytical arm of Congress, published *Technologies to Maintain Biological Diversity*. In 1992, OTA reprinted this report with the 1984 study *Technologies to Sustain Tropical Forest Resources* and an introduction to the changes that have occurred since the 1987 publication (U.S. Congress 1992).

The 1987 report came up with a number of findings related to USAID's biodiversity conservation programs.

- FINDING 6: The United States has begun to abdicate leadership in international conservation efforts, with the result that international initiatives are weakened or stalled in the tropical regions where diversity losses are most severe. Renewed U.S. commitment could accelerate the pace of international achievements in conservation.

- FINDING 7: Constraints on international exchange of genetic resources could jeopardize future agricultural production and progress in biotechnologies. Such constraints are becoming more likely because developing countries with sovereignty over most such resources believe the industrial nations have benefitted at their expense. Debate on the issue could benefit from a more informed and less impassioned approach.

- FINDING 8: Existing legislation may be inadequate and inappropriate to address U.S. interests in maintaining biological diversity in developing countries.

- FINDING 9: USAID could benefit from additional strategic planning and conservation expertise in promoting biological diversity projects.

- FINDING 10: A major constraint to developing and implementing diversity-conserving projects in developing countries is the shortage of funds. Present funding levels are insufficient to address the scope of the problem adequately.

The OTA report also discusses a number of options to address their findings, such as the following:

- Option 8.1: Restructure existing sections of the Foreign Assistance Act to reflect the full scope of U.S. interests in maintaining biological diversity in developing countries;

- Option 9.1: Direct USAID to adopt a more strategic approach in promoting initiatives for maintenance of biological diversity;

- and Option 9.2: Direct USAID to acquire increased conservation expertise in support of biological diversity initiatives.

The 1992 OTA reprint recognizes USAID's rapid increase in funding biodiversity programs. OTA, however, concludes that

> A few apparently successful conservation efforts suggest that deforestation and biodiversity loss are not wholly intractable problems. However, existing problems largely result from complex institutional, political, social, and technical causes. The international assistance agencies and concerned developing country governments have not yet demonstrated general solutions, nor have they learned how to reverse deforestation and extinction trends. Thus, continued leadership by Congress is likely to be necessary to sustain the momentum already achieved (U.S. Congress 1992).

A.4.2 USAID Reports to Congress on Biodiversity

USAID has produced four reports to Congress summarizing its activities to conserve biodiversity in FY 1985, 1986-87, 1988-89, and 1990-91. In the last three reports, USAID combined its reports on tropical forests and biodiversity. These reports contain important background information and a general overview of Agency biodiversity activities. The reports have highlighted a handful of projects in each region rather than providing a critical review of USAID programs to conserve biodiversity.

Appendix B.

AFRICA BUREAU'S BIODIVERSITY PROJECT SUMMARIES

PROJECT NUMBER:	AFR-PROJ-1A
TITLE:	The Biological Diversity Project: Peace Corps/Burundi
TYPE OF ACTIVITY:	
PRIMARY:	Protected Area Management
SECONDARY:	Training
MINOR:	Environmental Education
MINOR:	Tourism
MINOR:	Research
FUNDING:	$180,600
START DATE:	1988
END DATE:	1990
PRIMARY IMPLEMENTOR:	U.S. Peace Corps
COLLABORATOR(s):	Burundi National Institute for the Environment and Nature Conservation (INECN)
COUNTRY:	Burundi
SITE:	All Burundi's parks/reserves
BIOME:	Tropical Montane Forest

PURPOSE: The goal of the project is to assist the INECN, through the help of project personnel and Peace Corps Volunteers (PCVs), to manage and conserve the country's parks/reserves.

DESCRIPTION: Burundi, a small mountainous country in central Africa, has the second highest population density on the continent. Roughly 95% of the country's five million people live as subsistence farmers in an area about the size of Maryland. The parks and reserves of Burundi include several afromontane forest blocks, which help regulate the region's hydrology and harbor a high proportion of rare and regionally endemic species.
In December 1987, the Peace Corps and the INECN cohosted a workshop to identify the most important problems that need to be addressed in each park/reserve in Burundi, to learn how to write management plans, and to develop action plans aimed at solving these problems for each area. This project is based on the priority problems and action plans developed at this workshop.

Project activities include:

(1) developing and implementing management plans for all five of the parks/reserves in Burundi;
(2) training of park/reserve guards and technicians;
(3) developing a conservation education program involving secondary schools and the national media; and
(4) conducting plant and animal inventories.

SIGNIFICANCE: The training program has fostered an improved *esprit de corps* and self confidence among the technicians and guards. Nine training sessions were conducted and 78 percent of the park/reserve guards received training during 1989. One training of trainers was held for park/reserve technicians who later conducted the guard training. The guards were trained in data collection, reporting methods, and development of flora and fauna field survey techniques. The guards were also trained to conduct monitoring patrols and to design and construct trails and campgrounds.

PROJECT NUMBER:	AFR-PROJ-1B
TITLE:	The Biological Diversity Project: Peace Corps/Burundi
TYPE OF ACTIVITY:	
PRIMARY:	Tourism
SECONDARY:	Training
MINOR:	Protected Area Management
MINOR:	Environmental Education
MINOR:	Research
FUNDING:	$302,893
START DATE:	1990
END DATE:	1992
PRIMARY IMPLEMENTOR:	U.S. Peace Corps
COLLABORATOR(s):	The Burundi National Institute for the Environment and Nature Conservation (INECN)
COUNTRY:	Burundi
SITE:	Kibira National Park and the Southern Reserves (Bururi and Kigwena)
BIOME:	Tropical Montane Forest

PURPOSE: The project's goal is to assist the INECN to manage and conserve the country's parks and reserves.

DESCRIPTION: In 1988, USAID funded the first, two-year phase of the Biological Diversity Project (BDP) with Peace Corps (see AFR-PROJ-1A). In 1990, USAID funded a two-year amendment to the earlier project. Project activities for phase II include the following:

(1) develop park and reserve management plans;
(2) train park technicians, guards, guides and Peace Corps Volunteers (PCVs);
(3) generate income through tourism development;
(4) inventory and monitor flora and fauna;
(5) create an environmental education strategy.

Tourism development was a primary focus during phase II. Interpretive centers, guided tours, camping facilities, and advertising helped increase the number of visitors to the Teza region of

Kibira National Park from 300 to 3,000 between 1989 and 1991, with revenues going from 0 to approximately $5,000. A graded fee system was established, and villagers began making wooden animals and toys to sell to tourists. In addition, training activities have been extended to park guides. The INECN and the BDP drafted a national Environmental Education Program to help focus the environmental education activities. The management planning process has been revisited and endorsed by INECN. Monitoring of animal populations are now a part to the Bururi guards' monthly reports.

SIGNIFICANCE: The BDP, according to Peace Corps, USAID, and the INECN, has significantly contributed to the conservation of Burundi's natural resources. Through the BDP, INECN personnel--from park guards and guides to chiefs and technicians--have acquired new skills and knowledge, implemented new programs, and developed an improved *esprit de corps* and self-confidence. The training of park guards is one of the stronger accomplishments of the project. Park guards have learned how to make field observations, record their observations in useable form, and compile their daily records to write monthly reports. These reports are used to create maps that delineate areas where infractions occur. With this information, the park chief will be able to focus guard activities on areas with greatest need.

PROJECT NUMBER:	AFR-PROJ-2A
TITLE:	Biological Inventory and Training in Korup National Park I
TYPE OF ACTIVITY:	
PRIMARY:	Research
SECONDARY:	Training
MINOR:	Environmental Education
MINOR:	Protected Area Management
MINOR:	Tourism
FUNDING:	$210,000
START DATE:	July 1988
END DATE:	January 1991
PRIMARY IMPLEMENTOR:	Wildlife Conservation International (WCI)
COLLABORATOR(s):	U.S. Peace Corps
COUNTRY:	Cameroon
SITE:	Korup National Park
BIOME:	Tropical Moist Forest

PURPOSE: To provide assistance to the government of Cameroon through its existing project structure in the areas of tropical forest research, inventory, and training, with the objectives of better understanding the Korup ecosystem and assuring the presence of qualified national scientists who can continue this activity in the long run.

DESCRIPTION: This grant is targeted at the planned "scientific research and training" component of the multifaceted Korup project plan. Project activities include the following: (1) establish a base camp in the park; (2) coordinate biological inventory activities; (3) conduct ecosystem research; (4) train Cameroonian researchers; (5) advise park personnel on tourism development; (6) pursue conservation education activities; and (7) contribute to an updated park management plan.

SIGNIFICANCE: The forests of southern Cameroon and Gabon are recognized as the most biologically rich subunit of the Congolian province. Due to their role as *pleistocene refugia* for forest flora and fauna, these forests are characterized by high species diversity and high rates of endemism. Korup itself contains more than 400 species of trees and provides critical habitat for more than 250 bird species and one fourth of all African primate species. It is considered to offer

great potential for the discovery of new plant and animal species, given its known richness and highly pristine condition.

In 1986, the government of Cameroon decreed 1,259 square kilometers of the Korup forest to be fully protected as the country's first rain forest national park. A collaborative project to help manage the new park and surrounding buffer zone--one of the most ambitious plans for tropical forest conservation in Africa--was initiated in 1987.

PROJECT NUMBER:	AFR-PROJ-2B
TITLE:	Biological Inventory, Training, and Reserve Management in Korup National Park II
TYPE OF ACTIVITY:	
PRIMARY:	Research
SECONDARY:	Training
MINOR:	Environmental Education
MINOR:	Community Activities
FUNDING:	$312,900
START DATE:	1990
END DATE:	1992
PRIMARY IMPLEMENTOR:	Wildlife Conservation International (WCI)
COLLABORATOR(s):	U.S. Peace Corps
COUNTRY:	Cameroon
SITE:	Korup National Park
BIOME:	Tropical Moist Forest

PURPOSE: To provide assistance to the government of Cameroon through its existing project structure in the areas of tropical forest research, inventory, and training, with the objectives of better understanding the Korup ecosystem and assuring the presence of qualified national scientists who can continue this activity in the long run.

DESCRIPTION: This grant is an extension of the original project initiated in 1988 (see AFR-PROJ-2A). The grant provides additional support in the core areas of biological inventory and training and funds new activities, including research on the forest elephant and community outreach to villages within the park. The purpose of the forest elephant program is to determine the numbers and distribution of forest elephants in Korup National Park, investigate their ecological role in Central African rain forest, and apply findings to forest management both in Korup and elsewhere in Cameroon and Central Africa. The purpose of the outreach component is to work with the villagers living in the park to reduce their hunting of the most endangered species, develop more sustainable approaches to hunting of other species, identify alternative employment and income-generating activities within the park, and seek appropriate training opportunities for new skills to be used after eventual resettlement outside of the park.

SIGNIFICANCE: Two subspecies of African elephants are recognized: the forest elephant and the savanna elephant. Although it is estimated that nearly half the elephants still extant are forest elephants, very little it known about the status or ecology of this subspecies. Few animals have a more significant impact on their environment than the elephant. Initial work suggests that elephants may be the most important seed dispersal agents for a number of rain forest tree species. This phenomenon is likely to be a major determinant of tree species composition. In some areas, elephants appear to play an important role in creating and maintaining tree-fall gaps in the rain forest that are crucial to other species living there. Thus, the elephant is thought to be a keystone species, one that is central to the continued ecological integrity and biodiversity of its habitat.

The human population of the park comprises approximately 500 people. Under the initial project design and Cameroonian law, these people were to be relocated to the surrounding buffer zone. Delays in the preparation of alternative sites and problems with compensation, however, have left these people within the park. The presence of this population is a significant factor in park ecology because the people are almost entirely dependent on hunting and other forms of forest use for both subsistence and income generation.

PROJECT NUMBER:	AFR-PROJ-3
TITLE:	Tsavo West National Park Community Conservation Project
TYPE OF ACTIVITY:	
PRIMARY:	Community Activities
SECONDARY:	Tourism
MINOR:	Protected Area Management
FUNDING:	$71,500
START DATE:	1988
END DATE:	1990
PRIMARY IMPLEMENTOR:	African Wildlife Foundation (AWF)
COLLABORATOR(s):	Kenya Wildlife Service
COUNTRY:	Kenya
SITE:	Tsavo West National Park and adjacent areas
BIOME:	Tropical Seasonal Woodlands & Grasslands

PURPOSE: The purpose of the grant is to support the activities of the Tsavo West National Park Community Conservation Project (TCCP). The objectives of the project were to (1) establish an extension program that would encourage people to participate in the conservation and management of wildlife; (2) identify the needs and problems perceived by the communities adjacent to wildlife areas and seek methods to help people solve these problems on their own; (3) set up communication channels between government authorities and local communities to increase understanding and the potential for reconciling differences; (4) assist local communities in learning the direct benefits of wildlife so that wildlife conservation seems worthwhile; (5) help promote sustainable development through activities that involve local people; (6) train local leaders in community organization; and (7) lay the foundation for an extension program within the Kenya Wildlife Service (KWS).

DESCRIPTION: Recognizing that there are no quick solutions to produce voluntary and lasting changes in attitudes when working with local communities, TCCP has been a process-oriented and problem-oriented project. The project's process focused on holding numerous meetings with target communities, park staff, and KWS headquarters personnel to establish channels of communication and to break down barriers of misunderstanding among the various parties. The project targeted a number of problems, including illegal grazing in TWNP, subdivision of Masai

group ranches, buffer zone use, revenue-sharing schemes, poaching of wildlife, and human/elephant conflicts.

SIGNIFICANCE: The TCCP has been a crucial catalyst in the formal establishment of a Community Wildlife Service within KWS by demonstrating the benefits of taking the community conservation approach. In August 1990, AWF was requested by KWS to develop its new policy on community conservation and wildlife management outside protected areas. In turn, USAID/Kenya has made KWS's Community Wildlife Service and its new policy on community conservation central components of their new Conservation of Biodiverse Resource Areas Project (COBRA), a five-year, $7 million initiative that is designed to increase socioeconomic benefits to communities living adjacent to parks/reserves from conservation and sustainable management of wildlife and natural resources.

Activities initiated under this grant continued as part of TCCP Phase II. Tsavo West is also one of the four project areas of the COBRA project; thus, community conservation activities will continue in the area through 1995.

PROJECT NUMBER:	AFR-PROJ-4A
TITLE:	Southern Madagascar I
TYPE OF ACTIVITY:	
PRIMARY:	Community Activities
SECONDARY:	Protected Area Management
MINOR:	Training
MINOR:	Research
MINOR:	Environmental Education
FUNDING:	$200,000
START DATE:	1987
END DATE:	1990
PRIMARY IMPLEMENTOR:	World Wildlife Fund-US
COLLABORATOR(s):	Yale University, University of Antananarivo, Washington University, Ministry of Waters and Forests
COUNTRY:	Madagascar
SITE:	Andohahela and Beza Mahafaly Reserves
BIOME:	Tropical Seasonal Woodlands & Grasslands

PURPOSE: The overall objectives of this grant are to help develop an integrated strategy for development and conservation in and around the Beza Mahafaly and Andohahela Nature Reserves of southern Madagascar and to develop specific approaches for implementing this strategy. The project will serve both as a basis for specific interventions in the target areas and also as a model for similar projects around other major reserves in Madagascar.

DESCRIPTION: The Beza Mahafaly Project began in 1977; project activities began in Andohahela in 1985. This three-year, $200,000 grant from the Africa Bureau represents only portion of the larger, long-term conservation initiative funded by WWF and USAID. This initiative received a total of $1,235,000 from USAID and $1,457,297 from WWF for activities undertaken between 1985 and 1990.

Objectives for the southern Madagascar program between 1985 and 1990 included the following: (1) to maintain and expand the Beza Mahafaly Reserve and to strengthen the Andohahela Reserve; (2) to provide further support for training and education of Malagasy staff and students involved in the project; (3) to continue the biological inventory and conservation and the development-

related studies at Beza Mahafaly and initiate similar efforts in Andohahela; and (4) to identify and implement small-scale development activities in buffer zones around the two reserves.

To achieve these objectives, five tasks will be addressed under this grant: (1) biological inventory; (2) training; (3) studies of sustainable use of resources; (4) oversight of development interventions in the Beza Mahafaly area; and (5) development of a plan to improve sustainable agriculture and fuelwood production in areas surrounding the two target reserves.

Development activities in the Beza Mahafaly area include construction of a school which opened in 1989; rehabilitation of the area's principal road; establishment of market gardens; rehabilitation of a 10-kilometer irrigation canal; construction of wells; provision of technical assistance to local farmers; and distribution of farming tools and seeds.

Development activities in the Andohahela area include construction and repair of small irrigation canals or other water diversions, establishment of market gardens, distribution of seeds and tools, and establishment of village tree nurseries.

Research and training activities at Beza Mahafaly were well established at the time of this grant.

SIGNIFICANCE: Andohahela is the third largest protected area in Madagascar and includes rain forest, transitional forest, and spiny bush forest ecosystems. It has received national and international attention as Madagascar's richest center for biodiversity.

PROJECT NUMBER:	AFR-PROJ-4B
TITLE:	Southern Madagascar II
TYPE OF ACTIVITY:	
PRIMARY:	Community Activities
SECONDARY:	Protected Area Management
MINOR:	Training
MINOR:	Research
MINOR:	Environmental Education
FUNDING:	$100,000
START DATE:	October 1989
END DATE:	September 1990
PRIMARY IMPLEMENTOR:	WWF-US
COLLABORATOR(s):	Yale University, University of Antananarivo, Washington University, Ministry of Waters and Forests
COUNTRY:	Madagascar
SITE:	Andohahela and Beza Mahafaly Reserves
BIOME:	Tropical Seasonal Woodlands & Grasslands

PURPOSE: The purpose of this project is to (1) maintain and consolidate efforts at Beza Mahafaly; (2) expand conservation efforts at Andohahela; (3) initiate development activities at Andohahela; (4) continue development activities at Beza Mahafaly; (5) upgrade training and educational activities for the reserves; and (6) provide for continuation and expansion of research related to project goals and activities.

DESCRIPTION: The two reserves listed have separate operational management plans and budgets. The activities for both sites provided a bridge between activities of the conservation science program in southern Madagascar, which had been supported by WWF-US since 1977, with new activities currently underway. The conservation science program had three goals, particularly with respect to Beza Mahafaly: (1) creation of natural reserves both as a practical conservation measure and as a field station for conservation-related research and training; (2) creation of a training program for Malagasy students of conservation biology; and (3) training of technical staff abroad.

Activities for Andohahela included mapping of boundaries; upkeep and improvement of headquarters; provision of guard unifo. ns and wages; extension activities; and agriculture, forestry, and biodiversity conservation in the buffer zone.

SIGNIFICANCE: Madagascar is one of the areas of highest conservation priorities on earth. Its long-isolated flora and fauna contain species not found anywhere else, resulting in possibly the highest level of species endemism of any country.

PROJECT NUMBER:	AFR-PROJ-5
TITLE:	Niger Delta Wetlands Conservation
TYPE OF ACTIVITY:	
PRIMARY:	Community Activities
SECONDARY:	Research
FUNDING:	$150,000
START DATE:	1987
END DATE:	1989
PRIMARY IMPLEMENTOR:	IUCN
COLLABORATOR(s):	WWF-US, The German Federal Ministry for Economic Cooperation
COUNTRY:	Mali
SITE:	Niger River Inner Delta
BIOME:	Wetlands

PURPOSE: The purpose of this project is to improve the use and productivity of natural resources in the Niger Delta, using ecologically suitable management techniques and local involvement. The specific goal of the project is conflict resolution of overlapping "common" property rules by reciprocal access agreements and the formation of management committees composed of all local interest groups. These groups will manage the common property and are dedicated to the regeneration and conservation of each specific area's local natural resource.

DESCRIPTION: The inner Niger Delta is one of the most important areas of human settlement in the African Sahel. While it is considered among the areas with the greatest development potential in the western Sahel, a breakdown in many traditional controls on resource use has resulted in serious biological resource degradation over the past decade. Two thirds of the colonies of water birds in the inner delta have disappeared because of recent changes in the ecology of the river, rainfall, and the economy of the surrounding peoples. Of twenty sites, seven still had bird colonies; six were no longer in use because the drought had prevented flooding, and seven had been destroyed by forest cutting. Fish populations, grasslands, and woodlands are all in serious states of decline as human population pressures and changes in resource use have coincided with extended drought.

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The project is designed around a series of seven heronries, seasonally flooded woodland, within the inner delta. Activities include information networking with the local communities, conflict resolution in areas of disagreement, natural resource surveys of the flooded woodlands, and development of management plans for specific woodland areas, that focus on the maintenance of habitat while producing sustained yields.

In one woodland, the conflict resolution (called the "Bouna Agreement") includes the following: (1) establishing rights of forest ownership to traditional villages; (2) placing the power of local management into the hands of the traditional managers; (3) formalizing fishing rights that already exist; (4) prohibiting cutting of trees for enclosures or browse;
(5) restricting the entry of herds; (6) forbidding harvesting of nestlings for two years; and (7) obtaining backing for the agreement from the various governmental entities.

SIGNIFICANCE: While Eaux et Forets and the Mali government remain the ultimate power of natural resource management, the agreement is important because it gives significant control of the natural resources back to the local and traditional managers. On the contrary, the nationalization and privatization of natural resources practiced by the government led to the situation where income gained by a resource (especially fish) was in the of outsiders who did not reinvest it in the community. Local control of a natural resource can be more effective because of the continuous presence of the controllers, their greater ability to monitor conditions, and internal versus external methods of policing.

PROJECT NUMBER:	AFR-PROJ-6
TITLE:	The Park "W" Conservation of Biodiversity Project
TYPE OF ACTIVITY:	
PRIMARY:	Community Activities
SECONDARY:	Environmental Education
MINOR:	Protected Area Management
MINOR:	Research
FUNDING:	$429,062
START DATE:	1990
END DATE:	1993
PRIMARY IMPLEMENTOR:	U.S. Peace Corps
COLLABORATOR(s):	IUCN
COUNTRY:	Niger
SITE:	Park "W" and surrounding areas
BIOME:	Tropical Seasonal Woodlands & Grasslands

PURPOSE: The project goal is to facilitate the co-existence of human populations and the flora and fauna of "W" National Park and its reserves such that the biodiversity of this unique region is conserved for future generations. The project strategy is to formulate approaches, based on a dialogue with rural communities, for combining environmental conservation and rural development.

DESCRIPTION: Park "W" is a 10,520 square-kilometer, tri-national park in Niger, Benin, and Burkina Faso. This project focuses exclusively on the Niger portion of the park and two contiguous reserves in Niger. Project objectives include (1) making conservation education available to the local population; (2) identifying incentive packages for village-supported resource management; (3) assessing the status of the flora and fauna; (4) recommending feasible management steps; and (5) preparing the groundwork for future projects that would have the goal of a full scale management plan.

SIGNIFICANCE: Biodiversity in the area is very high by Sahelien standards; of particular interest, it is the last protected habitat for the African elephant within the West African savanno-sahelien zone. However, Park "W" is currently perceived as an inconvenience by surrounding farmers. This project will address the lack of commitment to a conservation ethic and propose a

number of activities that may encourage local farmers to change their view toward conservation and thus change their role in natural resource management.

PROJECT NUMBER:	AFR-PROJ-7
TITLE:	Conservation of Nyungwe Forest
TYPE OF ACTIVITY:	
PRIMARY:	Tourism
SECONDARY:	Environmental Education
MINOR:	Training
MINOR:	Research
FUNDING:	$128,000
START DATE:	1988
END DATE:	1990
PRIMARY IMPLEMENTOR:	Wildlife Conservation International (WCI)
COLLABORATOR(s):	Office Rwandais du Tourisme et Parcs Nationaux; U.S. Peace Corps
COUNTRY:	Rwanda
SITE:	Nyungwe Forest Reserve
BIOME:	Tropical Montane Forest

PURPOSE: The purpose of "Le Projet de Conservation de la Foret de Nyungwe" (PCFN) is to assist the government of Rwanda through the provision of technical assistance in the areas of forest ecology and management to better understand and manage the critically important forest. The project will (1) concentrate on training and educational aspects of forest conservation; 2) continue and expand applied ecological research and monitoring; 3) evaluate and promote non-consumptive uses of the forest, especially tourism; and 4) play an advisory role with the government and donor agencies.

DESCRIPTION: The PCFN follows on two and one-half years of work undertaken by WCI's "Conservation of the Afromontane Forest of Rwanda" project. As part of this project, studies were conducted on primate densities with respect to available vegetation and the feeding ecology of Colobus angolensis, a monkey species of great scientific and touristic interest. Principal recommendations from this project led to the development of the PCFN.

Nyungwe, a national forest reserve, is the subject of a laudable management plan devised by the Rwandan Forest Service. The plan establishes three sectors: one to be protected as wilderness (40%), one to be cleared and replanted (10%), and the last to be surveyed and managed on an

experimental, sustainable basis. Four major donor agencies agreed to fund the management of a block of forest without assuming responsibility for key aspects of conservation. The PCFN fills this gap by providing much-needed technical assistance in the areas of applied research, training, and multiple-use forest management.

The PCFN received $550,000 for a five-year, phase II of the project from USAID/Rwanda through its Natural Resource Management Project.

SIGNIFICANCE: Nyungwe Forest is the largest true montane forest reserve in east-central Africa. The reserve covers the full altitudinal range (1600m-3000m) of the afromontane forest zone--a zone which IUCN has ranked among the top four priority areas for conservation in Africa. The forest's biological diversity is very high as it contains nearly one fifth of all African primate species (11). Unfortunately, Nyungwe Forest is under severe and growing threat from illegal and unsustainable human activity such as poaching of animals, illegal extraction of timber, and gold mining.

PROJECT NUMBER:	AFR-PROJ-8A
TITLE:	Development Through Conservation I
TYPE OF ACTIVITY:	
PRIMARY:	Community Activities
SECONDARY:	Research
MINOR:	Environmental Education
MINOR:	Training
MINOR:	Protected Area Management
FUNDING:	$246,000
START DATE:	1988
END DATE:	1990
PRIMARY IMPLEMENTOR:	World Wildlife Fund-US
COLLABORATOR(s):	CARE
COUNTRY:	Uganda
SITE:	Southwestern Uganda
BIOME:	Tropical Montane Forest

PURPOSE: The goal of the Development Through Conservation Project (DTCP) is to enhance the environmental quality of life for approximately 86,500 subsistence farmers in southwest Uganda over a ten-year period. This is to be done by (1) protecting the biodiversity of three remnant Afromontane forests located in the Bwindi, Echuya, and Mgahinga Forest Reserves and (2) promoting environmental awareness and sustainable agricultural production on adjacent land. The four intermediate goals of the project are (a) strengthening the institutional and technical capabilities of the appropriate government of Uganda agencies, Makerere University, and subsistence farmers; (b) increasing communications and involvement among land users, government agencies, and NGOs; (c) promoting and supporting improved planning; and (d) maintaining the natural resource base of the three forests.

DESCRIPTION: The DTCP is located in a region once known as the breadbasket of Uganda, but it is presently characterized by a rapidly increasing population and a corresponding reduction in available land. The area also contains the most biologically diverse tropical forests in East Africa, which harbors thousands of species of plants and animals, including the rare mountain gorilla, an endemic species in danger of extinction.

The project strategy is to establish and operate an infrastructure that will provide administrative, advisory, technical and financial support to the participating land users and to GOU agencies and NGOs concerned with natural resources development and conservation in southwestern Uganda. The project is to develop a model that will link natural resource management with human needs to ensure that soil, water, species diversity, and forests are conserved. The strategy entails the following activities: inventory and research, training, community organization, conservation activities, planning, and evaluation.

This initial grant received a two-year extension. (See AFR-PROJ-8B.) In addition, USAID/Uganda secured the approval of the GOU to use local currency to further support the project.

SIGNIFICANCE: The project is to develop a model that will link natural resource management with human needs to ensure that soil, water, species diversity, and forests are conserved.

PROJECT NUMBER:	AFR-PROJ-8B
TITLE:	Development Through Conservation II
TYPE OF ACTIVITY:	
PRIMARY:	Community Activities
SECONDARY:	Research
MINOR:	Environmental Education
MINOR:	Training
MINOR:	Protected Area Management
FUNDING:	$108,500
START DATE:	1990
END DATE:	1992
PRIMARY IMPLEMENTOR:	World Wildlife Fund-US
COLLABORATOR(s):	CARE
COUNTRY:	Uganda
SITE:	Southwestern Uganda
BIOME:	Tropical Montane Forest

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This grant is a two-year extension of an earlier grant (see AFR-PROJ-8A). In addition, USAID/Uganda secured the approval of the GOU to use local currency to further support the project.

SIGNIFICANCE: The project is to develop a model that will link natural resource management with human needs to ensure that soil, water, species diversity, and forests are conserved.

PROJECT NUMBER:	AFR-PROJ-9
TITLE:	Conservation and Management of the Kibale Forest, Uganda
TYPE OF ACTIVITY:	
PRIMARY:	Research
SECONDARY:	Training
MINOR:	Community Activities
MINOR:	Environmental Education
FUNDING:	$237,000
START DATE:	1989
END DATE:	1991
PRIMARY IMPLEMENTOR:	Wildlife Conservation International
COLLABORATOR(s):	Makerere University
COUNTRY:	Uganda
SITE:	Kibale Forest Reserve
BIOME:	Tropical Moist Forest

PURPOSE: The purpose of the project is to assist governmental agencies in understanding and managing the remaining forest areas of Uganda. The project is designed to expand research activities into more applied aspects of forest management and to increase the effort in training Ugandan nationals. The area surrounding the reserve is also targeted as an experimental site for development of out-forest activities, including agroforestry and community education programs.

DESCRIPTION: The greatest diversity of plant and animal species occurs in the tropical rain forest. The pressure on tropical rain forests has escalated everywhere, and, as a consequence, opportunities for total protection are likely to remain exceptional. Alternative uses compatible with the conservation of biological diversity and natural forest regeneration must be developed. Forest management practices in the tropics, however, have been derived largely from temperate zone forests, and little is known about the long-term effects these practices have on tropical rain forests. The Kibale Forest Reserve in western Uganda is an ideal place to monitor such management practices.

The Kibale Reserve is one of Africa's main sites of long-term research into varied aspects of rain forest ecology and management. A field station has operated in the reserve since 1970. The forest is divided into compartments, each with differing logging management histories. There is a

core area in the form of a nature reserve that is in principle protected from human exploitation. Each of these areas allow detailed comparison for studying the effects of human activities on the tropical rain forest.

The project, centered on the existing Biological Field Station of Makerere University, has the following major objectives: (1) to continue monitoring key wildlife species and ecological processes within undisturbed forest; (2) to study the influence of human activities on the forest, particularly timber logging, collection of natural forest products, forest fragmentation, and the incidence of crop raiding and crop damage by wildlife populations; (3) to ensure the effective protection of a representative forest community and evaluate multiple-use options for buffer zones surrounding the protected area; (4) to develop effective liaison with local communities and to help establish alternative sources of wood outside the reserve, through the examination and demonstration of appropriate agroforestry techniques; and (5) to assist in the training of Ugandan scientists and technicians in the subjects of natural forest ecology and management.

SIGNIFICANCE: This research project aims to broaden our understanding of the impact of human activities on the biological diversity and ecological processes of the tropical rain forest. The project will provide the only major body of scientific information in Uganda that specifically addresses the problem of how human activities affect the tropical rain forest and its biological diversity. Without this information, managers and policy makers lack a sufficient scientific basis for developing tropical rain forest conservation and management plans.

PROJECT NUMBER:	AFR-ACT-1
TITLE:	Integrating Wildlife Education into Adult Education Programs
TYPE OF ACTIVITY:	
PRIMARY:	Environmental Education
SECONDARY:	Training
FUNDING:	$68,500
START DATE:	1988
END DATE:	1990
PRIMARY IMPLEMENTOR:	African Wildlife Foundation (AWF)
COLLABORATOR(s):	Kenya Wildlife Service; Kenyan Department of Adult Education
COUNTRY:	Kenya
SITE:	Various
BIOME:	Nonspecific

PURPOSE: The purpose of this grant was to allow the AWF to support activities of the Kenya government education and extension service. The education and extension service provides information from the national parks to local communities. The extension program assists the communities to address conflicts with wildlife and also helps people in wildlife areas start their own projects. The objectives of this project were to (1) produce wildlife conservation learning materials to be used in adult literacy classes and wildlife extension groups and (2) train adult education and the wildlife extension staff on the use of the materials.

DESCRIPTION: The project included (1) testing the learner's and teacher's guide manuscript on *"Let Us Conserve our Wildlife"* (produced in 1987); (2) editing and redrafting the books; (3) preparing teaching aids, including posters, wall maps and charts to accompany the books; (4) translating the books from English to Kiswahili; (5) printing the books; (6) evaluating the Department of Adult Education (DAE) book *"Wildlife as a Natural Resource"* as a teaching resource book for use by extension officers; (7) training of teachers and wildlife extension staff on the proper use of materials; (8) distributing the books to target groups; and (9) monitoring and evaluating the progress and any impact felt by the readers. The project was implemented by AWF, the Kenyan Department of Adult Education (DAE), and the Kenya Wildlife Service. Six

districts with protected areas and large wildlife populations living outside of protection were chosen to be the focus of the project.

SIGNIFICANCE: This project has made--and will continue to make--a positive contribution to the Kenya Wildlife Service goal of delivering benefits from wildlife resources directly to rural communities. The main participants in adult education classes are rural adults--one of the most important and difficult target groups to reach. These people are the ones bearing the costs of having wildlife on their land and, in turn, should be the group to learn how to benefit from wildlife. The books produced in the project would be useful in informing local people and giving them an opportunity to share experiences through class discussions and class outings.

PROJECT NUMBER:	AFR-ACT-2A
TITLE:	Kenya Rhino Conservation I
TYPE OF ACTIVITY: PRIMARY:	Research
FUNDING:	$50,000
START DATE:	1987
END DATE:	1988
PRIMARY IMPLEMENTOR:	World Wildlife Fund-US
COLLABORATOR(s):	The Kenya Wildlife Conservation and Management Department (WCMD)
COUNTRY:	Kenya
SITE:	Various
BIOME:	Tropical Seasonal Woodlands & Grasslands

PURPOSE: This grant assisted with the implementation of the Kenya Rhino Conservation Plan by supporting a survey of rhino populations in Kenya.

DESCRIPTION: The purpose of the rhino survey is to identify and census the remaining rhino populations in the country. The survey has the following objectives: (1) to assess the security of each rhino population and the possibilities for improving security; (2) to assess the degree of breeding isolation of each population and the population's long-term viability, and to assess the feasibility of translocating rhinos from each population site to rhino sanctuaries.

SIGNIFICANCE: Over the last decade, Kenya's black rhino population has experienced a decline of over 95 percent. In response to this rapid and severe decline, in 1984 the Kenya government initiated an action plan to conserve the country's rhino population. The goals of the plan are to (1) protect endangered and scattered rhinos by capture and translocation to secure sanctuaries; (2) develop new sanctuaries within parks and reserves, in addition to the existing private sanctuaries; (3) build up viable breeding stocks; (4) repopulate parks and reserves; and (5) train Kenyan specialists in the future management and development of secure rhino sanctuaries.

PROJECT NUMBER:	AFR-ACT-2B
TITLE:	Kenya Rhino Conservation II
TYPE OF ACTIVITY:	
PRIMARY:	Protected Area Management
SECONDARY:	Research
FUNDING:	$40,000
START DATE:	1988
END DATE:	1989
PRIMARY IMPLEMENTOR:	World Wildlife Fund-US
COLLABORATOR(s):	The Kenya Wildlife Conservation and Management Department (WCMD)
COUNTRY:	Kenya
SITE:	Aberdares National Park
BIOME:	Tropical Seasonal Woodlands & Grasslands

PURPOSE: This grant assisted with the implementation of the Kenya Rhino Conservation Plan by supporting (1) the consolidation of the Aberdares National Park as an officially designated rhino sanctuary with appropriate infrastructure and means for effectively protecting rhinos and (2) the completion of a survey of rhino population in Kenya that was initiated in 1987 with partial support from USAID.

DESCRIPTION: Project activities included erecting an electric fence around the 42-kilometer perimeter of the sanctuary, completing the rhino census, producing a report with a full accounting of rhino distribution in Kenya, and developing management recommendations for each population of rhinos identified through the survey.

The proposed Aberdares sanctuary is the most recent in a series of sanctuaries established to protect the species. It is potentially the most important of all Kenya's sanctuaries because of the substantial resident population of rhinos and the excellent habitat available. Support from USAID would be used specifically to purchase and erect fencing.

The rhino survey is a continuation of an ongoing effort to identify and census the remaining rhino populations in the country (see AFR-ACT-2A). The survey has the following objectives: (1) to assess the security of each rhino population and the possibilities for improving security; (2) to

assess the degree of breeding isolation of each population and each population's long-term viability; and assess the feasibility of translocating rhinos from each population site to rhino sanctuaries.

SIGNIFICANCE: Over the last decade, Kenya's black rhino population has experienced a decline of over 95 percent. In response to this rapid and severe decline, in 1984 the Kenya government initiated an action plan to conserve the country's rhino population. The goals of the plan are to (1) protect endangered and scattered rhinos by capture and translocation to secure sanctuaries; (2) develop new sanctuaries within parks and reserves in addition to the existing private sanctuaries; (3) build up viable breeding stocks; (4) repopulate parks and reserves; and (5) train Kenyan specialists in the future management and development of secure rhino sanctuaries.

PROJECT NUMBER:	AFR-ACT-2C
TITLE:	Kenya Rhino Conservation III
TYPE OF ACTIVITY: PRIMARY:	Training
FUNDING:	$85,000
START DATE:	1989
END DATE:	1991
PRIMARY IMPLEMENTOR:	World Wildlife Fund-US
COLLABORATOR(s):	The Kenya Wildlife Conservation and Management Department (WCMD); Friends of Conservation
COUNTRY:	Kenya
SITE:	Various
BIOME:	Nonspecific

PURPOSE: This grant will support the government of Kenya's commitment to the protection and reestablishment of rhinoceros populations. Kenya's rhino conservation program is translocating scattered rhino to fenced sanctuaries in order to provide better protection for rhinos and increase rhino breeding. The objectives of this activity are to (1) provide Kenya's Wildlife Conservation and Management Department (WCMD) with veterinary competence; (2) set up a training program so that the WCMD will have a trained veterinary team composed of its own nationals; and (3) ensure, where veterinary needs are concerned, that Kenya's black rhino conservation program continues to be successful.

DESCRIPTION: As part of Kenya's Rhino Rescue Project, the capture and translocation of rhino has been carried out by veterinarians on a voluntary basis. This approach has been reasonably effective, but full-time veterinarian assistance is needed if the rescue project is to continue to be successful. A Kenyan veterinarian has been identified to carry out the long-term responsibilities of the program, but he needs additional training and equipment. The grant will support the work of two veterinarians and will be used to purchase diagnostic and immobilization equipment.

In fiscal year (FY) 1987, the Africa Bureau of USAID provided $50,000 to WWF-US to support a black rhino management project in Kenya (see AFR-ACT-2A). In FY 1988, the Bureau

provided an additional $40,000 for funding rhino management activities and extended the life of project by one year (AFR-ACT-2B).

SIGNIFICANCE: The Kenya government's Rhino Recovery Plan involves capturing scattered rhinos and translocating them to fenced sanctuaries to provide better protection and increased opportunities for breeding. Proper veterinary care is critical to the survival of the species. Veterinary support is needed during the capture and translocation of rhinos and also to supervise Kenya's wildlife orphanages. Upon completion of the grant, there will be a Kenyan veterinarian who can lead the project under supervision for three years and on his own after five years.

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PROJECT NUMBER:	AFR-ACT-3
TITLE:	Masai Mara National Reserve: Visitor Attitudes/Use Survey and Management Plan Workshop
TYPE OF ACTIVITY:	
PRIMARY:	Research
SECONDARY:	Tourism
MINOR:	Protected Area Management
FUNDING:	$100,000
START DATE:	1989
END DATE:	1992
PRIMARY IMPLEMENTOR:	Wildlife Conservation International (WCI)
COLLABORATOR(s):	University of Nairobi; Kenya Wildlife Service
COUNTRY:	Kenya
SITE:	Masai Mara National Reserve
BIOME:	Tropical Seasonal Woodlands & Grasslands

PURPOSE: This grant will help to (1) conserve the diversity of habitats and populations of faunal life in the Masai Mara National Reserve; (2) continue to support economic development through the returns generated by tourism in the reserve; and (3) develop a detailed management plan with clearcut objectives for the reserve.

DESCRIPTION: The Masai Mara National Reserve, Kenya's richest savanna reserve, has the highest number of visitor days of any conservation area in East Africa, a total of approximately 250,000 visitor days annually. Heavy use, visitor congestion, and associated ecological impacts on habitats and wildlife species are problems of much concern. To the financial detriment of Mara and Kenya's tourist industry, reduced visitor enjoyment, together with the reduction of resource capability, might send visitors elsewhere.

A detailed study will be undertaken to investigate visitor attitudes about the reserve, and a workshop will be held to receive input from local Masai, government officials, NGOs, and other interested parties to help reconcile conservation and development goals. An overall management plan incorporating results of the studies and output of the workshop will be drawn up.

SIGNIFICANCE: The major output will be the development of a policy and management plan for the Masai Mara Reserve. This will include aspects such as improved visitor viewing patterns, interpretive services, location of infrastructure for the tourist industry that is compatible with conservation, and the improved welfare of the surrounding Masai ranchers.

The results of these activities will supplement an ongoing WCI study of the ecological impact of tourism on habitats and pressure-point animal species (see AFR-ACT-4A and 4B).

PROJECT NUMBER:	AFR-ACT-4A
TITLE:	U.S. NPS RSSA I
TYPE OF ACTIVITY:	
PRIMARY:	Environmental Education
SECONDARY:	Training
MINOR:	Research
MINOR:	Protected Area Management
MINOR:	Tourism
FUNDING:	$200,000
START DATE:	1987
END DATE:	1991
PRIMARY IMPLEMENTOR:	U.S. National Park Service
COLLABORATOR(s):	Wildlife Conservation International, African Wildlife Foundation, World Wildlife Fund, University of Arizona
COUNTRY:	Rwanda, Kenya, Zaire
SITE:	Various
BIOME:	Nonspecific

PURPOSE: This agreement enabled USAID to draw on the expertise and institutional linkages of the U.S. National Park Service to support biodiversity activities in Africa.

DESCRIPTION: The 1987 RSSA Amendment supported five distinct activities.

A Conservation Education and Extension Program for the Mountain Gorilla Project in Rwanda: The purpose of the grant to the African Wildlife Foundation was to support education outreach efforts and establish an extension component for the existing project activities. The role of the project was to establish communication channels with local communities surrounding the Parc des Volcans and to help community leaders, organizations, and local people take advantage of the opportunities created by and solve the problems associated with living adjacent to a national park.

Arid and Semi-Arid Lands Seminar: The First International Seminar on Arid and Semi-Arid Parks and Protected Areas was attended by managers and resource management specialists, who were primarily from land management agencies. Thirty-three participants from 28 countries

around the world attended the National Park Service/University of Arizona seminar in the southwestern United States.

Workshop for the Conservation and Management of Afromontane Forest in Rwanda: Objectives of the workshop were to: (1) outline the values of Afromontane forests; (2) discuss the current state of research, conservation, and management alternatives; (3) identify subjects for further research and promising technologies for sustainable forms of conservation and development; and, (4) establish regional links for continued communication and cooperation.

Study of Tourist Impacts on the Masai Mara Reserve in Kenya: The Wildlife Conservation International study was comprised of three activities: (1) an onsite evaluation of the ecological impacts of tourism on the reserve; (2) the monitoring of visitor use and surveying of visitors and tourism interests; and (3) production and distribution of management reports that summarized research findings.

Rhinoceros and Ecosystem Monitoring in Garamba National Park in Zaire: A white rhino monitoring, protection, and research program was pursued. Activities and techniques included aerial and ground surveys; habitat monitoring; spatial use, feeding patterns, and movement studies; vegetation sampling; fire block census; and training of park staff.

SIGNIFICANCE: Several important biodiversity activities were supported through this grant. The Conservation Education and Extension Program for the Mountain Gorilla Project in Rwanda built on ten years of conservation activities in Parc des Volcans. The project staff made presentations to school children and developed a variety of educational materials, including a newsletter for secondary schools, a booklet describing a nature trail developed by the project, a series of posters, and a new audiovisual presentation. The Arid and Semi-Arid Lands Seminar and the Afromontane Workshop helped facilitate the exchange of information among conservationists from several countries. The Afromontane Workshop brought together a number of biodiversity project implementors and gave them an opportunity to share experiences and discuss issues of common concern. The Afromontane Workshop was held for a second time in Burundi in 1992. Activities in the Masai Mara Reserve and Garamba National Park helped strengthen conservation efforts at these two internationally significant protected areas.

PROJECT NUMBER:	AFR-ACT-4B
TITLE:	U.S. NPS RSSA II
TYPE OF ACTIVITY:	
PRIMARY:	Endangered Species
SECONDARY:	Training
MINOR:	Research
MINOR:	Protected Area Management
MINOR:	Tourism
FUNDING:	$100,200
START DATE:	1988
END DATE:	1990
PRIMARY IMPLEMENTOR:	U.S. National Park Service
COLLABORATOR(s):	Wildlife Conservation International; World Wildlife Fund
COUNTRY:	Various
SITE:	Various
BIOME:	Nonspecific

PURPOSE: This agreement enables USAID to draw on the expertise and institutional linkages of the U.S. National Park Service to support biodiversity activities in Africa.

DESCRIPTION: The 1988 RSSA Amendment supported five distinct activities.

African Elephant Working Group Conference: The World Wildlife Fund (WWF-US) helped organize and hold the first meeting of the African Elephant Working Group in Nairobi, Kenya. The working group addressed the revision of the manual on Ivory Trade Control Procedures, the disposition of proceeds from illegal ivory sales, and cooperation with the IUCN African Elephant and Rhinoceros Specialist Group. The working group also established the group as the African forum to decide on future African elephant conservation initiatives.

African Elephant Ivory Trade Projects: WWF-US assisted the African Elephant Working Group in the revision of ivory trade computer databases, a study and review of the economics of the ivory trade, a study of trade patterns, a study and review of the biological status of elephants within protected environments in East Africa, and the organization of and participation in meetings of East African countries to review and discuss appropriate future actions to protect the

elephant and to assist East African nations in the consideration of feasible options for controlling trade in elephant ivory.

Natural Area Heritage Management Training: Under World Heritage provisions, intensive technical training in natural heritage management and preservation was provided. The following themes were addressed: resource management, native peoples, tribal park management and operation, adjacent development, and visitor use management. Additional training in natural heritage management and preservation was provided for a park and protected area specialist from Tanzania.

Study of Tourist Impacts on the Masai Mara Reserve in Kenya: The National Park Service provided a technical expert to work with the Wildlife Conservation International study funded through the National Park Service's 1987 RSSA. The technical assistance included an onsite review of project achievements, training of technical assistants, and implementation of computer-aided data collection and sampling equipment.

Resource Management Seminar: The National Park Service designed and implemented a U.S.-based technical training in natural heritage management and operations for three Kenyans from Narok County Council. The following themes were addressed: resource management, native peoples, tribal park management and operation, adjacent development, and visitor use management.

SIGNIFICANCE: The African Elephant Working Group Conference and the African Elephant Ivory Trade Projects made a significant contribution to elephant conservation efforts in Africa. Given the enormous importance and heated debate associated with elephant conservation, these initiatives played an important role by bringing the interested parties together to formulate conservation strategies and by providing critical information on key elephant conservation issues. The Natural Area Heritage Management Training and Resource Management Seminar provided intensive training to several Africans in a number of critical areas.

PROJECT NUMBER:	AFR-ACT-5
TITLE:	CITES Ivory Quota System
TYPE OF ACTIVITY: PRIMARY:	Endangered Species
FUNDING:	$50,000
START DATE:	1988
END DATE:	1989
PRIMARY IMPLEMENTOR:	World Wildlife Fund-US
COLLABORATOR(s):	World Conservation Monitoring Center
COUNTRY:	Various
SITE:	Various
BIOME:	Nonspecific

PURPOSE: The purpose of the grant is to support activities of (1) the Ivory Control Unit, which was established to maintain annual ivory quotas from producer countries and provide advice on the conservation status of African elephants and (2) the Ivory Trade Database that is used to monitor raw ivory trade.

DESCRIPTION: Ivory Control Unit: The CITES Ivory Control Unit at the CITES Secretariat in Lausanne, Switzerland, coordinates the operation of the ivory export quota system. The unit is responsible for collection, analysis and interpretation of data; receipt and notification of annual export quotas; authentication of documents; coordination of information flow to CITES Parties; initiation of enforcement action; and provision of advice and assistance to governments and traders. This grant supported the work of the control unit and travel of African delegates to the second meeting of the CITES African Elephant Working Group.

Ivory Trade Database: The Wildlife Trade Monitoring Unit of the World Conservation Monitoring Center (WCMC) in Cambridge, England, collects, processes, and analyzes the data on the raw ivory trade. The grant enabled the WCMC to continue its monitoring of the ivory trade. In 1989, the database underwent a major redesign so as to link the trade statistics with the elephant population data. In addition, WCMC produced a major analysis of the ivory trade undertaken for the Ivory Trade Review Group, a review of the Appendix I proposal prepared for the Conference of the Parties, and an overview of the post-conference ivory trade.

SIGNIFICANCE: Over the past decade, illegal poaching for ivory has caused a massive and widespread decline among populations of African elephants. Recognizing this threat, in 1985 the Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) adopted Resolution 5.12, "Trade in Ivory from African Elephants." The resolution established procedures, collectively referred to as the "ivory export quota system," to control legitimate international trade in ivory from African elephants. To coordinate the implementation of the quota system, the CITES Secretariat created a special ivory control unit whose responsibilities included maintaining a central database on ivory tusks, receiving and disseminating annual quotas from producer countries, and providing advice on the conservation status of African elephants.

PROJECT NUMBER:	AFR-ACT-6
TITLE:	Support for Training and Educational Efforts at the College of African Wildlife Management
TYPE OF ACTIVITY: PRIMARY:	Training
FUNDING:	$150,000
START DATE:	1987
END DATE:	1992
PRIMARY IMPLEMENTOR:	African Wildlife Foundation (AWF)
COLLABORATOR(s):	
COUNTRY:	Various
SITE:	Mweka, Tanzania
BIOME:	Nonspecific

PURPOSE: The purpose of this grant is to allow AWF to develop and implement selected training activities with the College of African Wildlife Management at Mweka, Tanzania, over a period of five years. These activities are specifically designed to increase the effectiveness of the college to train students and faculty in subject matter related to integrating conservation of biological resources with rural development.

DESCRIPTION: AWF support for the College of African Wildlife Management falls into four categories:

- fourteen scholarships for students
- improvement of college library facilities
- purchase of equipment
- sponsorship of curriculum development and an African instructor to teach a new course, "Man & Wildlife"

SIGNIFICANCE: The future of Africa's wildlife rests in the hands of people who are trained in wildlife and protected area management and administration. The College of African Wildlife Management opened its doors in 1963 to provide this training primarily for middle-level managerial staff in the field of wardens and assistant wardens in anglophone Africa. In its 25

years, the college has produced over 1500 graduates from 18 African and 11 non-African countries.

All of the students sponsored by AWF were satisfied with the level of scholarship support and acknowledged that the training was appropriate and effective. Scholarship support covered 22 person-years; AWF sponsored students from Uganda, Ethiopia, Tanzania, Botswana, Ghana, Nigeria, Malawi, and Zambia.

Over 200 texts and countless reprints of journal articles have been purchased and forwarded by AWF to the college's library. A full range of equipment was provided under the grant. In addition, the most recent aspect of the college's curriculum, the "Man and Wildlife" course, was designed by an AWF consultant.

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