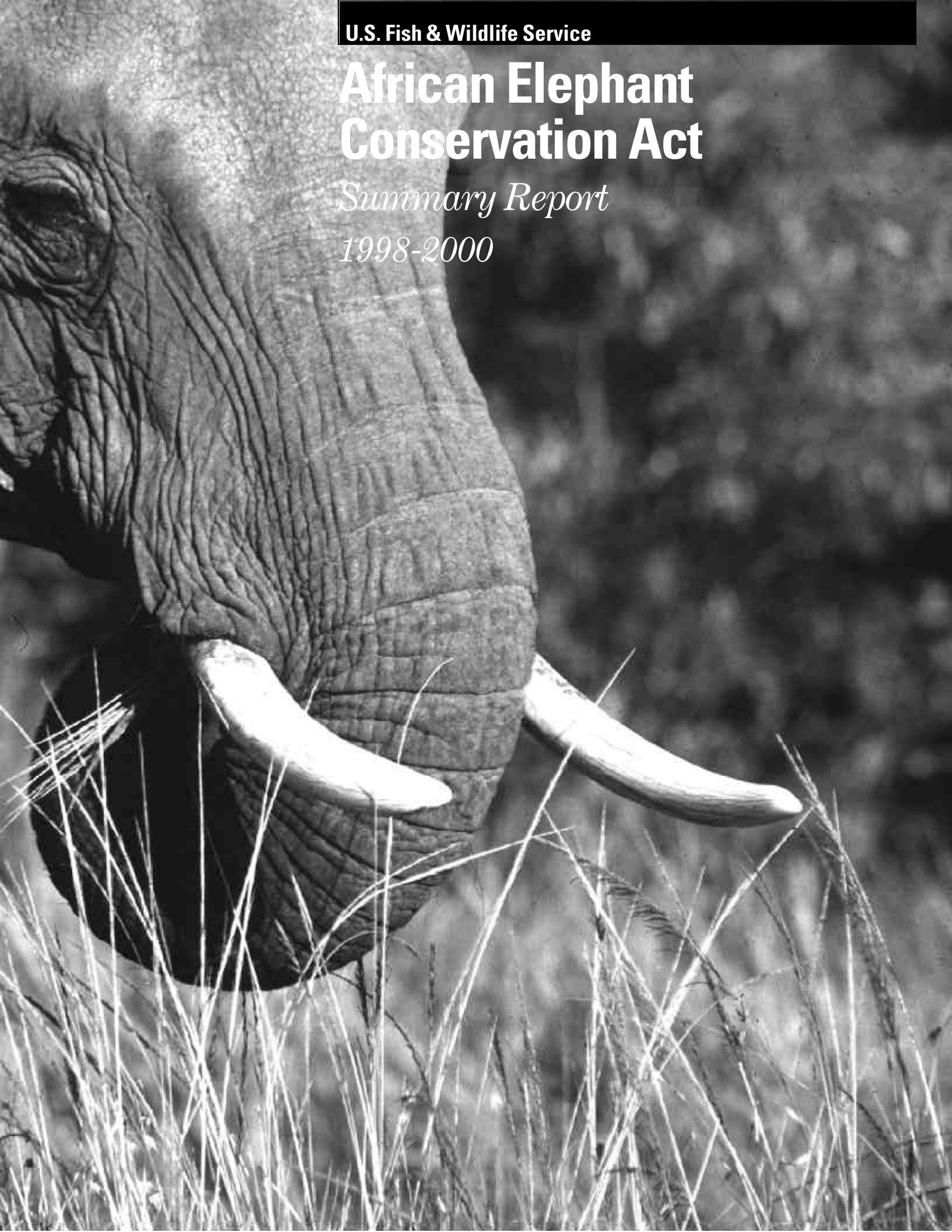
U.S. Fish & Wildlife Service

African Elephant Conservation Act

Summary Report

1998-2000



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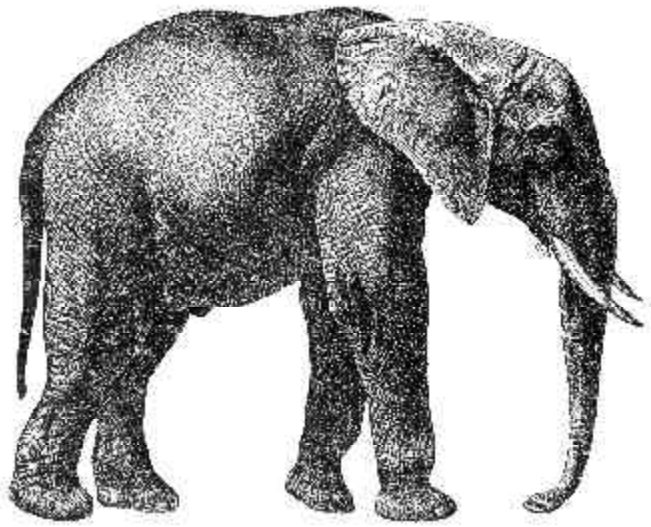


"The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people."

Cover:
Savanna elephant

Introduction

A popular symbol of size and power, the image of the elephant has been used by people through recorded history. Few species evoke the imagination and emotions, as does the African elephant. Today, a wide range of opinions and philosophies exists as to whether this great beast is a threat to human life and property and should be eliminated; or a representative of a natural ecosystem that should be preserved at all costs; or something in between requiring enlightened management and conservation. Elephant numbers appear to have stabilized and even grown in some areas of the African continent during the last decade. In other parts of their range, civil war, rampant poaching, and loss of habitat have caused populations to crash. Over much of their range, the ever-increasing human population is coming into greater conflict with elephants. A growing commercial bushmeat trade also is pushing some elephant populations toward regional extinction.

The complexities of the current status of the African elephant defy simple solutions. Practical management and conservation strategies, based on solid scientific information, and an understanding of the human element in elephant conservation, offer the best hope for the future of Africa's greatest living mammal.

This report presents a summary and highlights of the work supported by the African Elephant Conservation Fund (Fund) from 1998 to 2000. The Fund is administered and coordinated by the Division of International Conservation, U.S. Fish and Wildlife Service (Service), Department of the Interior.

The African elephant is considered a "keystone species": that is, one that plays a pivotal role in the ecosystem. As modifiers of their habitat, elephants are second only to humans. Many scientists believe that the ecological integrity of African savannas and forests depends, to a large extent, on the presence of elephants. Their disappearance may produce a cascade of changes in the environment that are as yet poorly understood.

Forest elephants

Background:
Elephant poached
© Richard Ruggiero
Left:
Detached elephant tusk
© Richard Ruggiero
Right:
Ivory Products
U.S. Fish & Wildlife Service

Background

The African elephant *(Loxodonta africana)* and humans have had a profound association throughout recorded history. Sometimes feared, and often revered, elephants have been an integral part of African life and culture for millennia. Sought as a source of food and skins, they have played an important role in the lives of innumerable civilizations. But the value of their ivory is thought to have led to the first case of their overexploitation by Romans. By A.D. 50, the Romans had exhausted most of the elephant populations in North Africa, and were forced to turn to East Africa and Asia for large tusks. Later, as trade with Africa developed, ivory became one of that continents most sought-after commodities.

It is difficult to overestimate the role of ivory trade in African history and economics. In recent history, the price of ivory climbed steeply, particularly in the 1970's when ivory was collected as a hedge against inflation. The price of a kilogram (kg) hovered at approximately $5.50 and moved up slightly to about $7.50 by 1970. However, by 1978 the price had skyrocketed to almost $75 per kg and, by 1989, it fetched $150 per kg in Africa and up to $400 per kg in Japan. This stimulated an enormous upsurge in organized poaching and ivory trafficking networks. In the late 1970's, Africa is thought to have been the home of about 1.3 million elephants; the total elephant population can only be estimated in decades prior to the 1970's. By the end of the 1980's numbers fell by 50 percent, mostly as a result of ivory poaching.

In response to this crisis, the Convention on the International Trade in Endangered Species (CITES) listed the African elephant first on Appendix III in 1976, and then on Appendix II shortly thereafter, which allows commercial trade of a species with a series of permits. In 1978, the African elephant was listed as threatened under the U.S. Endangered Species Act. As evidence of the species' population decline continued to accumulate, the African elephant was raised to CITES Appendix I in 1989—a status that listed *Loxodonta africana* as a species threatened with extinction and allows for no commercial trade. This change, with some minor exceptions, legally banned trade of live elephants or their products for commercial purposes between CITES signatory countries.

At the time of the ESA listing, the United States accounted for about 30 percent of the world's carved ivory. Because some experts believed that nearly 80 percent of all ivory was attributable to poaching, consumer purchases in the United States equated to thousands of dead elephants as the population declined by nearly 9 percent a year. Had that trend continued, the African elephant would have been annihilated throughout much of its range by the end of the 20th century.

The Congress of the United States passed the African Elephant Conservation Act (AfECA) in October 1988. The AfECA provides for: (1) the review of African elephant conservation programs in each ivory producing country and the establishment of a moratorium on ivory from any country that fails to maintain an adequate elephant conservation program; and (2) the development of a grant program to provide financial assistance to support protection, conservation, and management of African elephants. In accordance with the first provision, United States President George H. Bush established a moratorium on all ivory imports in June 1989. Although several range countries maintain adequate conservation programs, no effective mechanism exists to control international trade in ivory products. To this day the moratorium remains in effect.

In 1997, successful management of elephants and their population growth in some southern African countries was recognized by down-listing elephant populations in Botswana, Namibia, and Zimbabwe to CITES Appendix II. A monitored one-time sale to Japan of registered ivory stocks took place in April 1999. At the April 2000 CITES Conference of the Parties in Nairobi, Kenya, the elephant population of the Republic of South Africa was also down-listed to Appendix II, but further sales of ivory were not authorized.

The current threat to African elephant populations varies significantly from one area to another. During a period when some areas in southern Africa have stable or increasing populations, East Africa has lost 65 percent of its elephants, generally due to civil wars and political instability. This is particularly true in central Africa, where poaching elephants for "bushmeat" may be a greater threat than ivory poaching. The proliferation of weapons and displacement of large numbers of people contribute to this rapidly increasing threat. The economic plight of many African nations undermines the ability of range countries to support their national parks and protected areas. Drought and other natural cycles also place increase demands on an already stressed environment.

Development and human population growth also impact the future of elephants and other wildlife in Africa. As rural populations grow, the need for new agricultural lands and water also grows. This often results in competition between humans and elephants for common resources. Human-elephant conflict invariably results.

As more pressure is put on the environment and elephant populations, the greater the demand for effective protection and management. It is essential to know and understand how many elephants there are, where and why they move the long distances they do, and what are the threats to them. In the short term, protection of threatened elephant populations is of utmost importance. In the longer term, effective land-use planning and protected area management, conservation education, and wise international policy are crucial. The scientific knowledge necessary for all these activities must continue to develop. The needs of local people, who live alongside elephants, are also of paramount importance. Meeting the complex challenge of elephant conservation in the new millennium demands a multi-faceted approach. Through the African Elephant Conservation Fund and in cooperation with governments of elephant range states, as well as non-governmental organizations and local individuals, the United States seeks to play an important role in helping this magnificent species survive for future generations to enjoy and celebrate.

Many forested regions in central Africa are being altered by large-scale logging. As new roads cut into previously inaccessible forest, wildlife harvesting begins to occur at unsustainable rates. Elephants are among the first species impacted by these activities.

Top to Bottom:
Commercial bushmeat truck in Central Africa
Shotguns confiscated from poachers
Stacks of tropical hardwood for export

African Elephant Conservation Fund

The AfECA created the African Elephant Conservation Fund (Fund) as the mechanism through which the United States provides financial assistance to protect and conserve African elephants. This act authorized an amount not to exceed $5 million for each fiscal year from 1989 to 1993, to be appropriated to the Fund, thereby establishing a grant program. The AfECA was re-authorized in 1996 to continue this level of authorization through the year 2002. Congress appropriated $2,994,000 from 1998-2000. During this period, the Fund has supported 48 grants (51 projects) in 18 countries, leveraging $6,454,604 in matching and in-kind support.

The AfECA established specific criteria for project proposals, as well as project review and approval. Additionally the Conference Report, adopted with passage of the AfECA, identified priority funding actions. The Service uses these criteria and direction in administering the Fund. Projects are evaluated for funding based on the following criteria:

Projects with African Government Agencies

The Fund encourages African government agencies responsible for African elephant conservation to submit proposals. Proposals submitted by non-governmental organizations or the private sector must include evidence of support by governmental entities of countries where the projects are to be conducted. The Service works through the U.S. Department of State to coordinate local government participation.

Projects Directed at Anti-Poaching

Assistance to halt the poaching of elephants was identified by the AfECA as most urgently needed for African countries.

Projects that Address Country Elephant Conservation Plans

The Fund encourages development of biologically sound conservation programs. It also establishes criteria that prioritize projects leading to effective management and conservation strategies. An international coordination group has assisted some range countries to develop country conservation plans, while other countries have produced theirs independently. The goal is to provide African governments with a strategy to maintain ecologically viable elephant populations. Elephant conservation plans identify country-specific actions required to maintain elephant populations at sustainable levels.

Projects in each Sub-region

The Fund recognizes that elephants help maintain the biological diversity of Africa and encourages all range states in the four geographic African sub-regions to support its conservation. It also recognizes that some African countries have effective elephant conservation programs, but many others lack sufficient resources to properly manage, conserve, and protect elephant populations.

Projects with Matching Funds

The Fund accepts donations to provide assistance to projects funded under the grant program. Priority is given to cooperative projects with matching funds or in-kind support from other sources, and/or interim support for projects with future funding secured.

The concept of prioritizing projects that have matching or in-kind funds was mandated by the congressional action that created the Fund. As a result, the $11,129,766 provided by the Fund, since its inception, has been supplemented by $51,743,750 in matching and in-kind support. This synergy permits the creation of projects with more diversified and sustainable support over the life of their field activities, and enables a wider scope of projects to be funded.

Savanna elephant

On-the-Ground Results

Protection of Elephants and their Habitats

Garamba National Park, one of Africa's greatest parks, is best known for its population of the last remaining northern white rhinos *(Ceratotherium simum cottoni)*. It also is the home of an important elephant population in a mosaic of forests and grasslands that produces a rich diversity of habitats and wildlife communities. The park faces severe threats due to civil unrest in the Democratic Republic of Congo and organized, large-scale poaching for ivory and bushmeat. Present conditions make working in the park complicated and difficult. To address these conservation problems, the African Elephant Conservation Fund cooperates with the *Institut Congolais pour la Conservation de la Nature* and the International Rhino Foundation to augment park protection and surveillance efforts.

Besides being the largest land animal, they comprise the majority of biomass in some areas. In the equatorial forest, elephants create pathways through dense vegetation that may otherwise be impenetrable to smaller animals. They knock down trees and form openings in the canopy that allow sunligh to reach the ground, thereby stimulating the growth of vegetation. They consume large quantities of fruits and disperse seeds over great distances.

Seedlings in elephant droppings

Training and Capacity-Building

One of the greatest impediments to conserving elephants in West Africa is the lack of trained field biologists. To address this problem, the Fund supported Conservation International's West Africa Program and two host countries to conserve and manage populations of African forest elephants in Kakum National Park (Ghana) and Marahoue National Park (Côte d'Ivoire). This initiative provided advanced training for biologists in survey techniques, population estimation, habitat analysis, and other essential management skills. Field work by researchers in Kakum NP also tested and compared two methodologies used to estimate forest elephant numbers—the conventional dung count methods and an innovative technique using genetic analysis (under an additional project supported by the Fund to the University of California at San Diego). The resulting information on elephant numbers and movements is used to determine the relationship between elephant habitat use within the parks and human land use in surrounding areas. Based on this program, current elephant management and conservation issues, as well as future research may now be addressed in both parks.

Dense forest vegetation makes it difficult to find elephant carcasses even at close range, therefore conventional transect techniques are often inadequate to address elephant mortality.

Decomplosing forest elephant skull

Surveys and Monitoring of Elephant Populations

CITES-Mandated Monitoring of the Illegal Killing of Elephants [MIKE]
This agreement provides support to conduct the CITES-Mandated Monitoring of Elephants and Illegal Elephant Killing (MIKE) Central African Pilot Program, in cooperation with the Wildlife Conservation Society and the CITES Secretariat. The project builds capacity at the local and national levels in the Central African sub-region. It provides training, equipment, and development of methodology, which produces field data in selected sites. When extended over the full range of MIKE sites, these and other techniques will be used to detect trends in the distribution of elephants, their relative numbers, and the factors affecting them, in particular, illegal killing. This pilot elephant-monitoring project is conducted in selected forested areas in the Republic of Gabon, Republic of Congo, Democratic Republic of the Congo, Central African Republic, and the Republic of Cameroon.

Forest Elephant Study-Dzanga Clearing
The forest elephant population in the area of Dzanga-Sangha Reserve and the Dzanga-Ndoki National Park, Central African Republic, is considered one of the most important on the continent. It is the subject of the most extensive study of forest elephant ecology and social behavior ever undertaken. The long-term monitoring aspect of this work produces detailed and accurate information on population trends that guide conservation efforts in the national park and the region. To date, more than 2,600 elephants have been individually identified. Records of births, deaths, and social behavior permit conservationists to accurately estimate population numbers and growth rates, as well as study elephant movements into the other protected areas in the Sangha River Tri-national Conservation Area.

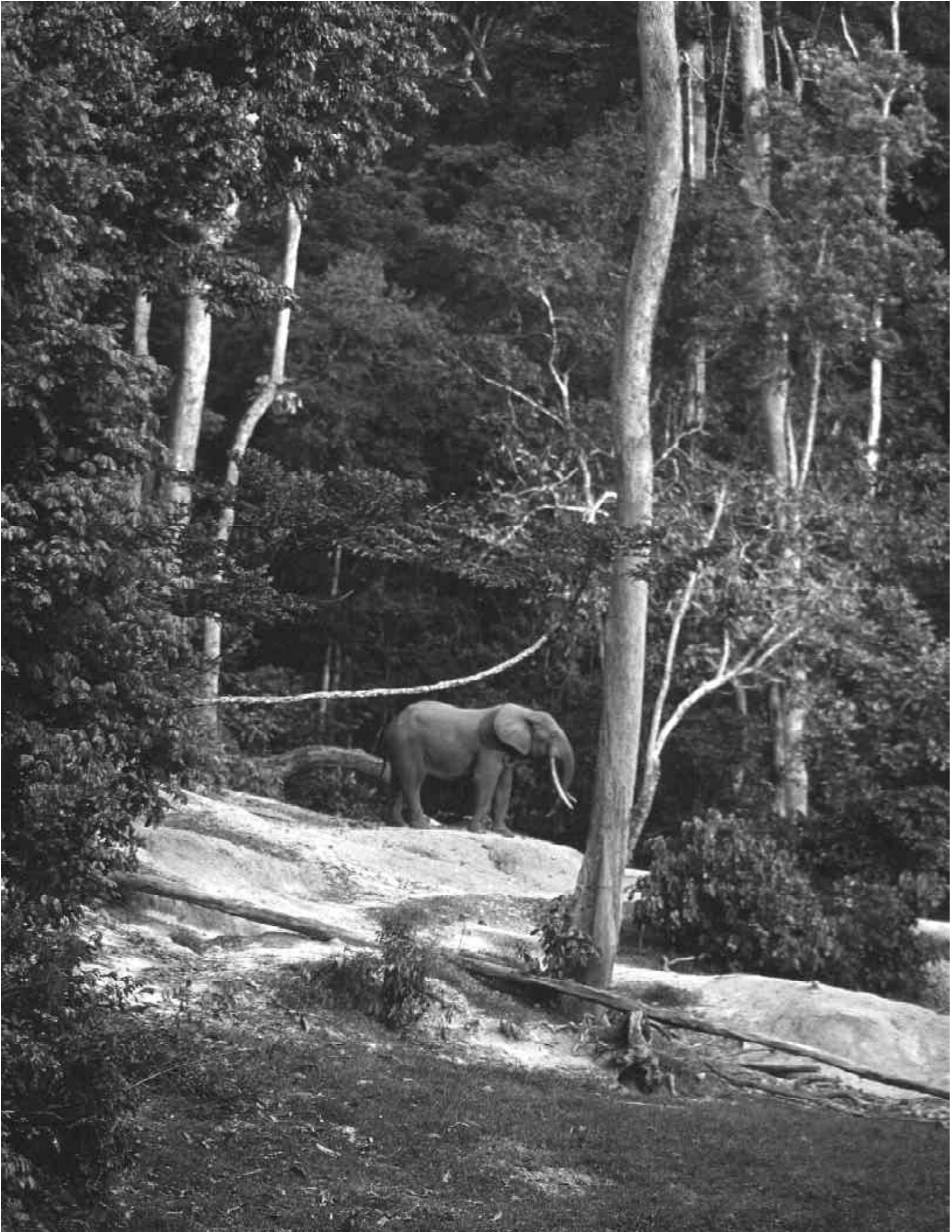
Elephants excavate soil for water and minerals, making them available to smaller animals. Their activities are believed to maintain forest openings that are rich in minerals and provide terrestrial forage for numerous species. These large openings in dense forest canopy play an essential role in the ecology of some central African forests. Without elephants to keep these areas open, they are quickly overgrown by trees and shrubs and may no longer provide nutritious vegetation and minerals to other forest fauna.

Forest elephants

Applied Research-Movements and Behavior

Nouabalé-Ndoki Forest Elephant Project
This partnership facilitates applied research on African forest elephant *(Loxodonta africana cyclotis)* populations in and around Nouabalé-Ndoki National Park, Republic of the Congo. It provides detailed information on seasonal movements and distribution of elephants, particularly in relation to ecological and human interference factors such as logging, poaching, and human settlement. The project goal is accomplished by tracking elephants with global positioning system and radio collars; extensive groundwork following and mapping elephant trails; and noting the appearance of elephant forage species. Researchers use aircraft to facilitate location of collared elephants and downloading data stored in their collars. Overflights also produce useful videographic data in areas important to elephants. There is an extensive training component in this project to enhance the ability of Congolese conservation biologists and park ecoguards to manage elephants. The information gained in this study will increase the government of Congo's capacity to conserve elephants and their habitat in this important area in Central Africa.

Elephant trails in dry grasslands form a sort of "fire break" that may limit the extent and severity of grass fires—thereby favoring regeneration of tree seedlings. But elephants also damage or destroy trees and shrubs. This is part of the natural cycle—except where elephant numbers have become artificially concentrated due to human activity. In these places, elephants are capable of transforming woodlands into grasslands with considerable effects on other wildlife species, to the benefit of some and the detriment of others.



Non-invasive Genotyping of African Elephants in Ghana

The Fund collaborates with researchers from the University of California and their associates in the field to conduct applied genetic research on non-invasive genotyping of African elephants *(Loxodonta africana)* based on dung samples. This technique is purported to be 100 times more informative than previously applied methods. It will enable researchers to refine methodologies and develop new applications for population census and genetic profiling. Population genetics information will provide wildlife managers with baseline data for monitoring genetic erosion and inbreeding, and help plan translocations when necessary. Current research uses population samples from Ghana's forest elephants in Kakum National Park and savanna elephants in Mole National Park. Comparing data from these discrete populations will help establish whether African elephants should be managed as one or two taxa and estimate the extent of hybridization between the two subspecies in Ghana and elsewhere in Africa.

Acoustic Monitoring of Forest Elephants

Methodologies currently available to monitor forest elephants are expensive and, in many cases, only provide rough population estimates. The purpose of this project is to develop and conduct applied research on infrasonic communication by elephants and its application for research and monitoring of elephants in the forests of west and central Africa. Research and monitoring are difficult or impossible in the dense tropical forests. Such technology represents an extremely valuable tool that may permit conservationists to determine elephant movements and relative habitat occupancy, behavior (including reproductive and other social activities), monitor poaching activities, and estimate elephant numbers. Currently, data is collected using autonomous recording devices that are deployed in the forest at strategic locations and then analyzed in the laboratory. A goal of this project is to develop the ability to analyze data in real time. This information could be used to warn park security forces about dangers to elephants, as well as indicate the presence and activities of crop-raiding elephants. In addition, analysis of stored data could denote particular circumstances experienced by elephants *(i.e.* movements, stress, reproductive activity), and relative numbers and distribution. Work is being conducted in Kakum National Park, Ghana, and Dzanga-Sangha National Park, Central African Republic (both sites of other AfECF supported projects). The resulting technology may form the basis of a much-needed new way to monitor forest elephants in Africa and Asia.

Non-lethal Control of African Elephant Populations in South Africa

In order to reduce damage to the environment caused by over-abundant elephant populations, several management tools exist. Translocation may be of value in certain circumstances, but its applications are limited. Some countries have previously resorted to culling elephants to reduce populations. The purpose of this grant is to support applied research in Kruger National Park, Republic of South Africa, to development a non-lethal control of African elephant populations by means of immuno-contraception. The technique under development uses Porcine Zona Pellucida(PZP) vaccination to inhibit fertility among female elephants. This technique may provide a humane method of limiting reproduction in areas where other population control measures are inappropriate or undesirable. The study is a technical collaboration between ZooMontana (Billings, MT), the University of Georgia (Athens, GA), and Kruger National Park (Republic of South Africa).

Forest elephant

People, Elephants, and Conservation in the Greater Amboseli Ecosystem

The African Wildlife Foundation, in partnership with the Fund and host country conservationists, is conducting applied research and community conservation activities in support of the conservation and management of African elephant populations in the area around Amboseli National Park, Kenya. The project provides detailed information on seasonal movements and distribution of elephants, particularly in relation to human settlements. Researchers are studying these subjects and attempting to resolve elephant-human conflicts in the greater Amboseli Ecosystem. These goals will be accomplished by tracking GPS-collared elephants, conducting aerial surveys, and implementing outreach program with local Maasai communities. These activities will enhance elephant range by reducing competition with humans for common resources and thereby help relieve elephant overcrowding within the national park.

Survival of elephants will be determined by humans and whether we will control our appetites for more land and wildlife products.

Massai women and children

Reduction of Human-Elephant Conflict

Elephants pose enormous problems to subsistence farmers in many places. The *Ecology and Deterrence of Crop-Raiding Elephants in the Mid-Zambezi Valley, Zimbabwe,* initiative is a program to study and manage human-elephant conflict in the Muzarabani Rural District, Zimbabwe. Communities in this area have agricultural holdings subject to depredations by resident and migrant elephant herds. The Fund supported research on the movements, behavior, and habitat use of crop-raiding elephants, with the goal of developing effective prevention and deterrent strategies. It extends work performed under previous grants by the Fund and supports Rural District Councils, which manage elephant herds and create management plans based on extensive data on the behavior of crop-raiding elephants. Local partners are also experimenting with their recently developed elephant deterrant, which contains a harmless product made of an extract of locally grown peppers.

Mitigating human-elephant conflict may ultimately determine the survival of the African elephant.

Women working agricultural field next to forest habitat in the Congo

Summary of Grants 1998-2000

Bold/italic type within individual summary indicates project matching funds.

NP=National Park

Monitoring and Mitigating the Impact of Elephant on Agriculture in Southern Gabon III
World Wildlife Fund US, $79,000 + ***$88,942***—An investigation into all aspects of crop raiding by elephants in the Gamba Protected Area Complex, Gabon, with the goal of producing an effective management and conservation plan.

Applied Elephant Research in the Nouabalé-Ndoki Forest for Management and Conservation
Wildlife Conservation Society, $91,800 + ***$103,100***—Research project on the seasonal elephant migration patterns, upon which future elephant management and conservation decisions will be based in the Nouabalé-Ndoki NP and surrounding Sangha River Tri-national Region.

Post-War Rehabilitation of Minimal Infrastructure in the Reserve de Faune d'Okapi, (RFO) Democratic Republic of the Congo
Wildlife Conservation Society, $60,000 + ***$60,000***—A project for the rehabilitation of the infrastructure of the Reserve de Faune d'Okapi that was destroyed during the Congolese civil war. Elephant security activities are included in this project.

Support to the African Elephant Specialist Group
The African Elephant Specialist Group/ IUCN, $122,000 + ***$122,000***—Support to enable the African Elephant Specialist Group (AfESG) to serve more effectively as technical advisors on the conservation and management of the African elephant and its habitat.

Non-lethal Control of African Elephant Populations By Means of Immuno-contraception I
Humane Society of the United States, $75,000 + ***$28,350***—A feasibility study to measure the efficacy of an immuno-contraceptive vaccine in the inhibition of reproduction among African elephants in Kruger NP, South Africa.

Supplemental Anti-poaching Assistance to Zimbabwe for the Lower Zambezi Valley
Southern Africa Wildlife Trust $74,849 + ***$136,024***—A grant to provide Zimbabwe's anti-poaching personnel with adequate non-lethal equipment with which to interdict heavily-armed elephant ivory poachers.

Elephant Crop Damage Control in Red Volta Valley, Ghana
Ghana Wildlife Department, $23,000 + ***$36,230***—A program to monitor the distribution and numbers of elephants in the Red Volta Valley, Ghana, and evaluate

various elephant deterrence techniques to reduce crop raiding.

Forest Elephant Study, The Dzanga Clearing III, Central African Republic
The Wildlife Conservation Society, $43,500 + **$43,500**—Research and data collection including the size, demographics, morphometrics, genetics, social structure, social behavior and ecology for an important forest elephant population in the Dzanga-Sangha Reserve.

Tracking the Origin of African Elephant Ivory through Geographic Mapping of Allele Frequencies
Woodland Park Zoological Society, $61,908 + **$134,090**—A study to produce a method for tracking the geographical origin of African elephant ivory and to develop geographic maps of allele frequency distributions.

Continuing Dialogue Among African Elephant Range States - Dialogue III
IUCN/Species Survival Programme $86,795.23 + **$176,350**—The administration of the Third Dialogue of the Range States of the African Elephant, in Arusha, Tanzania, September 1998.

Confiscated ivory and an AK-47 used to poach elephants

Projects Funded By Program Area

(continued)

National Elephant Planning Workshop and Drafting of the National Elephant Management Plan for Mozambique
IUCN—The World Conservation Union, $13,825 + **$20,738**—Conduct a workshop, in close cooperation with the Mozambican Wildlife Department, to formulate a framework and strategy for the national elephant management plan, and to produce a list of prioritized activities required to implement the plan.

Non-invasive Genotyping of African Elephants in Ghana
University of California, San Diego, $34,897 + **$35,071**—A program of applied genetic research for non-invasive genotyping of African elephants based on dung samples.

Support to CAMPFIRE II in Zimbabwe
Safari Club International, $63,166 + **$63,182**—Assistance to community activities to conserve elephants through the CAMPFIRE Program (Communal Areas Management Program for Indigenous Resources).

Economics of Elephant-Human Conflict in Caprivi, Namibia
University of California-Davis, c/o Directorate of Environmental Affairs, Ministry of Environment and Tourism, $13,300 + **$15,635**—An applied research program on the socio-economic aspects of conflict between elephants and people in the Caprivi Region of Namibia.

Management and Conservation of Forest Elephants in West Africa
Conservation International, $99,545 + **$146,693**—A biologist training program and research project to conserve and manage populations of African elephants in Kakum National Park (Ghana) and Marahoue National Park (Côte d'Ivoire).

Non-lethal Control of African Elephant Populations by Means of Immuno-contraception in South Africa II
Humane Society of the United States, $50,418 + **$50,418**—Applied research in Kruger NP, Republic of South Africa, for the development of non-lethal control of African elephant populations by means of immuno-contraception.

Aerial Monitoring of Elephants in the Maasai-Mara National Reserve, Kenya
Worldwide Fund for Nature, $33,240 + **$13,170**—A series of aerial surveys of elephant populations and training to the Kenya Wildlife Service aerial monitoring team in the Maasai-Mara Game Reserve, Kenya.

People, Elephants, and Conservation in the Greater Amboseli Ecosystem, Kenya
African Wildlife Foundation, $105,515 + **$187,788**—A community conservation and management project for elephant populations in the area around Amboseli NP, Kenya.

Forest Elephant Study, the Dzanga Clearing, Central African Republic
Wildlife Conservation Society, $38,500 + **$14,500**—A long-term study of a large population of forest elephants in the Dzanga-Sangha Reserve and the Dzanga-Ndoki NP, Central African Republic.

Nouabalé-Ndoki Forest Elephant Project: Applied Research for Conservation in Congo
Wildlife Conservation Society, $60,500 + **$68,800**—Applied research to produce detailed information on elephants' seasonal movements and distribution, particularly in relation to ecological and human interference factors such as logging, poaching, and human settlement, in and around Nouabalé-Ndoki NP, Republic of the Congo.

Elephants are a primary source of bushmeat in Africa

Projects Funded By Program Area

(continued)

Conservation for the African Elephant on Lewa Wildlife Conservancy and Affiliated Community Projects in Kenya
Lewa Wildlife Conservancy, $49,940 + **$843,690**—A protection program through improved intelligence and security efforts, as well as management of elephant populations in and around Lewa Downs Ranch, Il Ngwesi Group Ranch, and the Namunyak Wildlife Conservation Trust in central Kenya.

Support to the Niassa Game Reserve, Mozambique
Niassa Game Reserve, $76,175 + **$641,242**—The provision of assistance to anti-poaching teams and park management by supporting aerial surveys and purchase of materials for elephant exclusion fences in and around the Niassa Game Reserve.

Collaborative Assessment of Elephant Impacts on Plant and Habitat Biodiversity in the Kruger NP, South Africa
University of Witwatersrand, Center for African Ecology, $45,500 + **$168,100**—A research project to provide vital information for the management the African elephant and its habitat.

Elephants are a favorite attraction and provide revenue from ecotourism

Daily Activities, Habitat Use and Movements of Elephants on Mt. Kenya, Kenya
Kenya Wildlife Service/Mt. Kenya Project, $22,000 + **$27,050**—A grant to assist the field scientists of the Kenya Wildlife Service in the formulation of management plans and related conservation activities, such as reduction of human-elephant conflict in the peripheral areas of Mt. Kenya.

Support for the Protection and Rehabilitation of Garamba National Park, Democratic Republic of Congo
The International Rhino Foundation, $67,750 + **$443,500**—An anti-poaching and surveillance project for the protection of the African elephant and other wildlife species in the Garamba NP, Democratic Republic of Congo (DRC).

Restoration of the Tembe-Futi-Maputo Elephant Population in South Africa & Mozambique
The Southern Africa Wildlife Trust and Peace Parks Foundation, $98,963 + **$139,306**—An effort to promote the establishment of a Trans-frontier Conservation Area in an area of high ecological importance and value as elephant habitat between the Maputo Region of Southern Mozambique and northern KwaZulu Natal in South Africa.

Community Conservation at Mkomazi Game Reserve, Tanzania
The Tony Fitzjohn/George Adamson African Wildlife Preservation Trust, $45,985 + **$50,375**—A community conservation program to reduce human-elephant conflict and to manage habitat of the African elephant in and around the Mkomazi Game Reserve.

Support to Activities of the African Elephant Specialist Group
IUCN—The World Conservation Union, $216,000 + **$281,858**—Support for two years of the activities of the African Elephant Specialist Group to provide technical advice for the long-term conservation of African elephants throughout their range.

Elephant Crop Damage Control: A Pilot Study
Zambia National Parks and Wildlife Service and the Wildlife Conservation Society, $9,000 + **$20,000**—A pilot study on the effectiveness of electric fencing as a deterrent for elephants that may raid crops and grain storage areas in small communities in elephant habitat.

Projects Funded By Program Area

(continued)

Fourth Dialogue Meeting of the African Elephant Range States
IUCN—The World Conservation Union, $100,000 + **$96,992**—Fourth Dialogue Meeting of the African Elephant Range States, 6-7 April 2000 in Nairobi, Kenya.

Anti-Poaching in Zakouma National Park, Chad (Part I)
Department of State, American Embassy, N'Djamena, $50,000 + **>$50,000**—Communications equipment for park security forces in Zakouma NP, Chad.

CITES-Mandated Monitoring of Elephants and Illegal Elephant Killing [MIKE]
Wildlife Conservation Society, $337,450 + **$404,392**—A pilot project to implement the MIKE Central African Program to build capacity through training at local and national levels, methodological development, and data production at selected sites in the Central African sub-region to detect trends in elephant distribution, relative numbers, and the factors affecting illegal killing.

Mother forest elephant chases great white egret from her calf

Sahelian Elephant Ecology Research and Conservation Program in Gourma, Mali
Save the Elephants, $47,054 + **$123,375**—A grant to support the Timbuktu Elephant Project's study of movements and ecology to provide a scientific basis for managing and conserving arid-land elephants.

Elephant, Crops and People, Uganda,
African Wildlife Trust, $31,050 + **$21,145**—A program to reduce current and future conflicts between the recovering elephant population of Queen Elizabeth NP and the growing human communities neighboring the park.

Zambian Game Management Area Game Scout Anti-Poaching Support Project
The Southern Africa Wildlife Trust, $15,658 + **$31,300**—Assistance to anti-poaching teams in the Lunga/Busanga and Chizela Game Management Areas of Zambia by furnishing necessary non-lethal equipment to protect populations of elephants and other wildlife.

Ecology and Deterrence of Crop-Raiding Elephants in the Mid-Zambezi Valley, Zimbabwe
The Cambridge University/Mid-Zambezi Elephant Project, $29,900 + **$41,200**—A study of the movements and habitat use of crop-raiding elephants, to develop effective prevention and deterrent strategies in the Muzarabani Rural District.

Acoustic Monitoring of Forest Elephants
Cornell University Bioacoustics Research Program, $100,741 + **$294,256**—A pilot study to develop and conduct applied research on infrasonic communication by elephants and its application for research and monitoring of elephants in dense tropical forests.

Anti-Poaching in Zakouma NP, Chad (Part II)
Department of State, American Embassy, N'djamena, $40,000 + **>$40,000**—Support for anti-poaching teams through the provision of clothing, camping gear, binoculars, a boat for rainy season patrols, and a needs-assessment study to advise and direct training for park ecoguards.

Development of the African Elephant Database (Part II)
IUCN/SSC African Elephant Specialist Group, $78,100 + **$148,598**—A grant to continue production of the African Elephant Database (AED), which is a computerized bank of information stored in a Geographic Information System (GIS) on elephant numbers and distribution throughout the African continent.

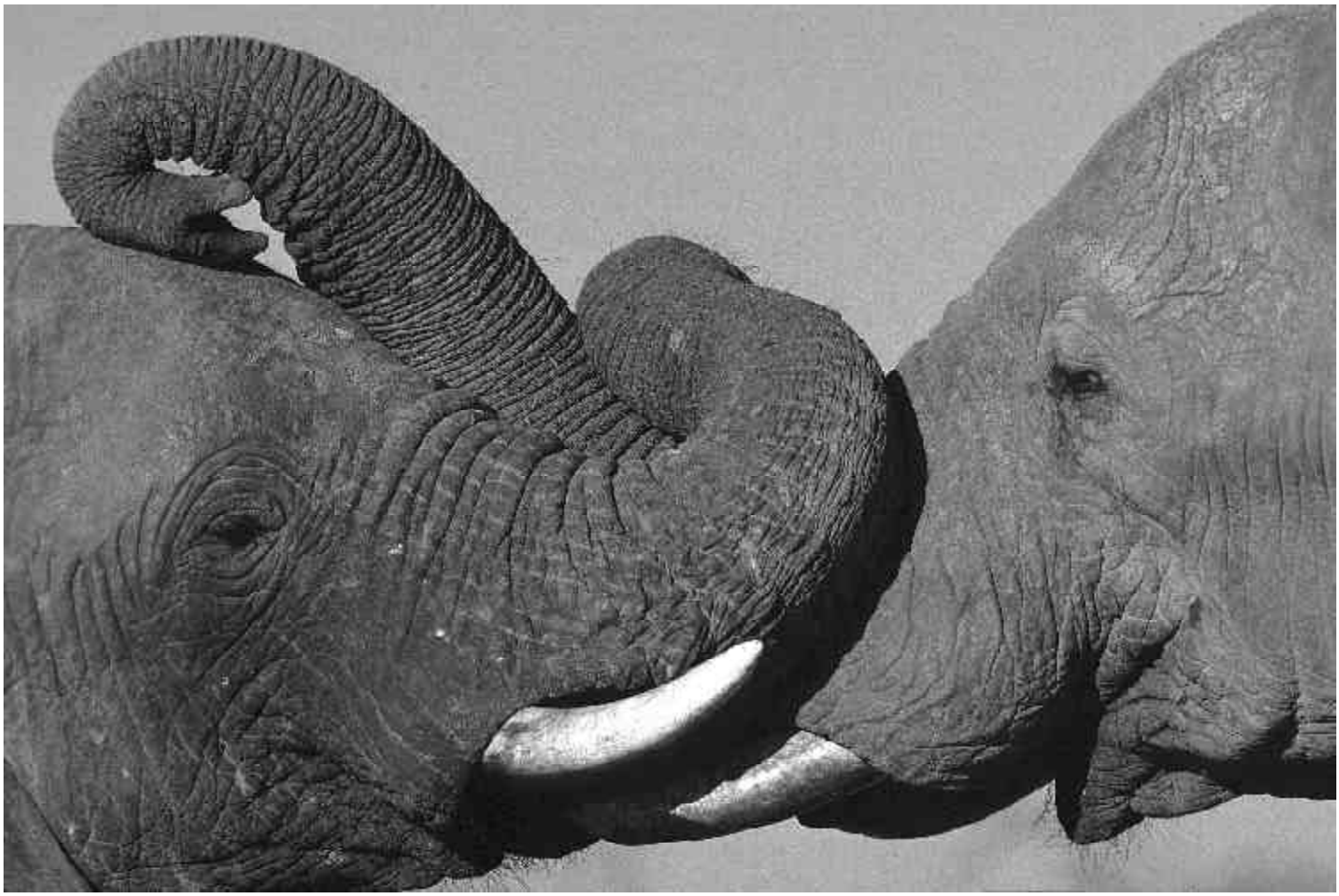
Projects Funded By Program Area

(continued)

Meritorious Awards Program for African Elephant Conservation (Part II)
Southern African Wildlife Trust, $142,450 + **$142,450**—Program to award field personnel who face heavily-armed poachers while executing their duty to protect and manage wildlife in Tanzania, Botswana, Zimbabwe, Zambia, Namibia, and the Republic of South Africa.

Suivi de la Dynamique des Populations et des Déplacements Saisonniers des Eléphants du Sud Est du Tchad
Projet de Conservation de l'Environnement dans le Sud-est du Tchad, $30,000 + **$29,400**—A system of monitoring the seasonal movements and habitat use of African elephants in and around the Zakouma NP, Chad.

Kunene West Elephant Monitoring Project
Save the Rhino Trust-Elephant Project, $30,400 + **$41,484**—Identification and



Elephant greeting

monitoring of desert elephants and community wildlife conservation training in Namibia.

Elephant Conservation and Monitoring in the Multiple-use Forests of the Sangha/Likouala Regions of Northern Congo
Wildlife Conservation Society, $98,250 + **$451,960**—Protection efforts, community conservation, and monitoring of population trends in a logging area that forms part of the Sangha River Tri-national Conservation Area.

Appui à la Promotion de la Mise en Oeuvre de la Stratégie pour la Conservation des Eléphants en Afrique de l'Ouest
IUCN African Elephant Specialist Group, $19,016 + **$37,000**—Support to West African Program Officer to assist in capacity-building to implement the West Africa Conservation Strategy.

Monitoring Elephants in the Meru Ecosystem
Save the Elephants, $16,800 + **$20,000**—Applied research on the seasonal movements of elephants in the Meru Ecosystem in north central Kenya.

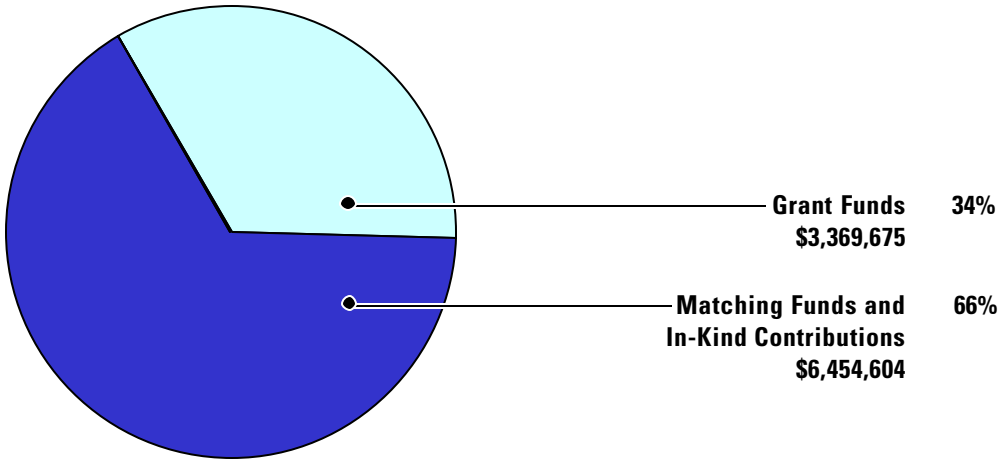
Control of Elephant Poaching in the Okapi Faunal Reserve, Democratic Republic of Congo (DRC)
Wildlife Conservation Society, $59,980 + **$77,425**—The rehabilitation of infrastructure and procurement of materials to conduct protection and monitoring activities in eastern DRC.

Community-based Conservation of the African Elephant in Sarara-Sabache and Surrounding Areas
Namunyak Wildlife Conservation Trust, $37,455 + **$50,975**—Protection and monitoring activities on group ranches and other community conservation activities in north central Kenya.

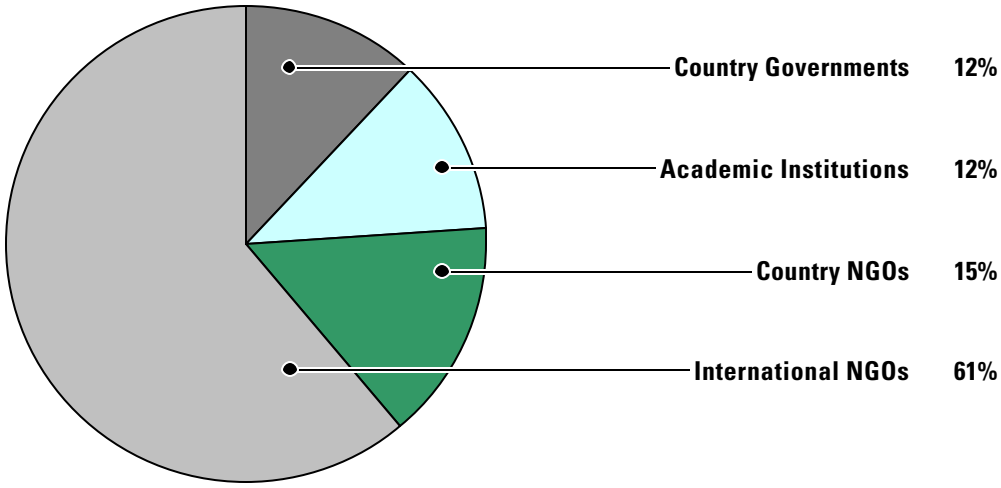
Long-term Monitoring, Research, and Protection of Elephants in the Nouabalé-Ndoki NP and Surrounding Areas
Wildlife Conservation Society, $162,300 + **$189,950**—Long-term protection, applied research, and monitoring of elephants in and around the national park, which is part of the Sangha River Tri-national Conservation Area.

Distribution of Funds

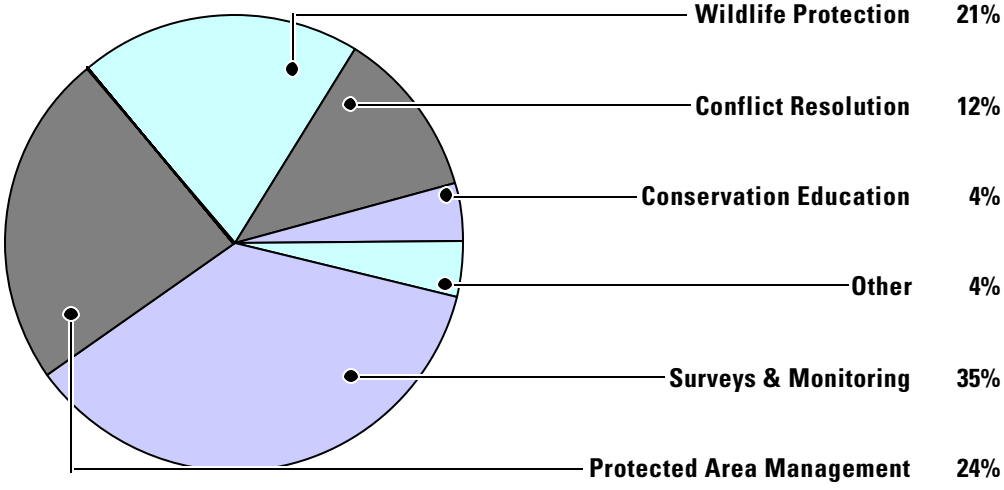
Grant and Matching Funds



Organizational Funding

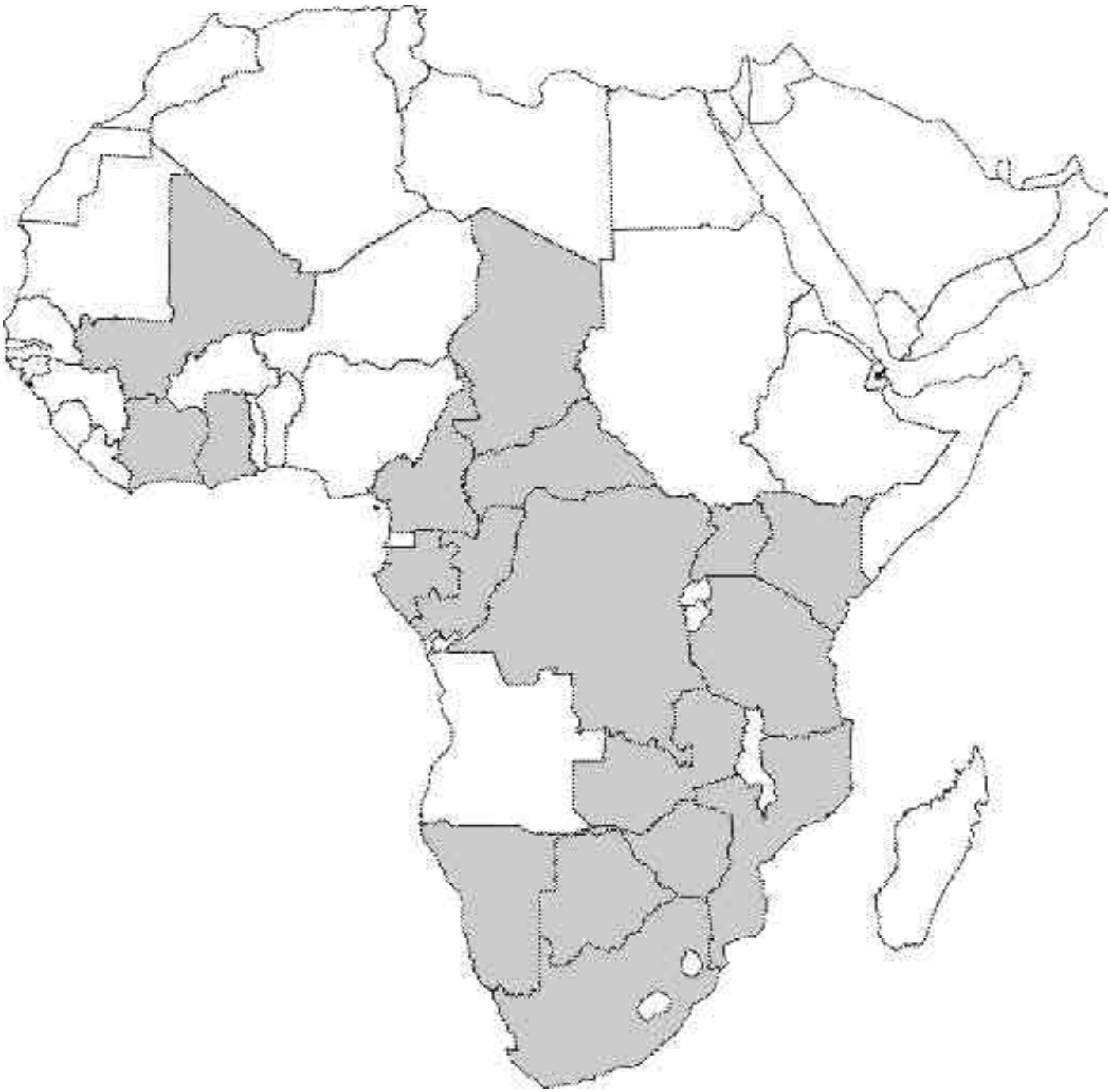


Program Areas



Countries with Grants

Fiscal Years 1998-2000



For more information about the Fund, please contact:

Chief, Division of International Conservation
U.S. Fish & Wildlife Service
4401 N. Fairfax Drive, Room 730
Arlington, VA 22203
703.358.1754

U.S. Department of the Interior
U.S. Fish & Wildlife Service
Division of International Conservation
Washington, DC 20240

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Spring 2001