

PDBCH 574

CAMEROON
PROJECT ASSISTANCE COMPLETION REPORT

97619

A. BASIC PROJECT IDENTIFICATION DATA

1. **PROJECT TITLE:** Korup Forest Research Project
2. **PROJECT NUMBERS:** AID/W Regional Projects: Natural Resour Management. 698-0467 (September 1988-September 1992) and Conservation of Biodiversity 936-5554 (September 1992-Sep 1993). USAID/Cameroon: National Cereal Research and Exte Project 631-0052 (August 1993-June 1994).
3. **MODE OF IMPLEMENTATION:** AID/W and USAID/Cameroon direct grants to the Wildlife Conservation Society/New York Zoological Society (WCS) (formerly called Wildlife Conser International).
4. **PROJECT DESIGNERS:** AID/W, USAID/Cameroon, and WCS.
5. **PROJECT GRANT AMOUNTS:**

a. Project No. 698-0467	\$522,900
b. Project No. 936-5554	\$150,000
c. Project No. 631-0052	\$280,000

6. **TOTAL PROJECT FUNDING -actual:**

a. Project No. 698-0467	\$522,900
Personnel	150,400
Staff Support	96,500
General Operating Cost	82,500
Commodities & Supplies	112,600
Research Cost	40,000
Publications & Reports	25,000
Indirect Cost	16,900
b. Project No. 936-5554	\$150,000
Personnel/Support	56,959
General Operating Cost	25,610
Research Cost	48,627
Commodities	5,450
Publication & Reports	750
Other Cost	12,604
c. Project No. 631-0052	\$280,000
Personnel	88,200
Staff Support	45,645
General Operating Cost	22,880
Commodities & Supplies	9,300
Research Cost	87,925
Publications & Reports	750
Indirect Cost	25,300

d.	WCS contribution (total)	\$150,000
	Personnel	52,000
	General Operating Cost	26,000
	Operating cost (research)	16,000
	Commodities	16,000
	Small Research Grants	15,000
	Training	25,000

7. **RESPONSIBLE MISSION OFFICIALS (Life of Project):**

a. Mission Directors: Jay P. Johnson
Peter Benedict

b. Project Officers: David Songer
Elzadia Washington
Ambe Tanifum

8. **EVALUATION DATE:** N/A

B. PROJECT GOAL/OBJECTIVE, ACCOMPLISHMENTS, LESSONS LEARNED, ETC

9. **PROJECT BACKGROUND AND OBJECTIVES:**

Background of the Korup Forest Research Project:

Cameroon is considered by the international conservation and scientific community to be one of the most biologically important areas in Central Africa, in terms of diversity and relative abundance of species. The country contains an estimated 9,000 known species of plants, 297 species of mammals, 29 species of primates, and 848 species of birds. There is a high degree of species endemism due to habitat diversity, and biologically rare and important species are well represented. It is estimated that there are at least 156 endemic species of plants, 63 amphibians, 3 rodents and 1 bat. The number of threatened or endangered species is estimated at 40 including 18 mammals, 16 birds and 5 reptiles.

Data to assess the extent to which biodiversity and other natural resources are being destroyed or threatened and the type of measures that need to be put in place to combat this destruction is inadequate. A better understanding is needed of the dynamics of the natural resources base and of the role that local socio-cultural and institutional relationships play in resource use.

The biological importance of the Korup forest was recognized by the Government of the Republic of Cameroon (GRC) in 1986 when it decreed 1,259 km² of the forest as Cameroon's first rain forest national park (the Korup National Park). The Korup forest, one of the world's oldest and finest tropical rain forests, is thought to have originated at least 60 million years ago. Despite the changes of climate over this time, the forest has survived and has evolved into one of the earth's richest ecosystems. With over 500 cm of rain per year-- more than 16 feet-- this ancient forest contains at least one fourth of all primate species in

Africa and more than 342 species of birds. Of its more than 600 species of trees and shrubs, 5% are endemic to the region. Because of Korup's biological diversity, the GRC and foreign donors are committed to conserving the region.

In 1988 the GRC signed an agreement with the World Wide Fund for Nature (WWF-United Kingdom) for technical assistance in establishing and managing the Korup National Park. A master plan to manage the park was drawn up. One of the objectives of the plan is putting into place natural resource management/sustainable agriculture practices and policies to encourage alternatives to slash-and-burn farming, extensification and hunting. The development effort depends on an understanding that Korup's long-term survival is based on the well-being of the 12,000 people living in or near the park. Reducing their dependence on the forest in terms of agriculture and hunting will relieve future pressure on the forest. Foreign donors and international organizations providing support to the Korup Project include WWF as the lead agency responsible for overall management, British Overseas Development Administration (ODA), Gesellschaft für Technische Zusammenarbeit (GTZ), European Economic Community (EEC), CARE International, U.S. Department of Defense, and the NYZS Wildlife Conservation Society (through funds from AID/W, USAID/Cameroon, the Liz Claiborne and Art Ortenberg Foundation).

Objectives of the Project:

The NYZS Wildlife Conservation Society (WCS) is responsible for the biological research component of the Korup Project. The overall goals of the Korup Forest Research Project (referred to by some as the Cameroon Biodiversity Project) are to:

- carry out biological research and provide information for the development of a sustainable management plan for Korup; and
- develop national capabilities which will help in the conservation and protection of Cameroon's and other countries' rain forest biodiversity.

The specific objectives are:

- a. **Institutional development:** to carry out institutional development through training Cameroonian biologists in rain forest research and management; developing a center for field research; assisting the GRC in the development of a natural resource management/environmental strategy based on research information; and liaising with the Ministry of Scientific and Technical Research to develop an appropriate depository of existing research materials and reports on biodiversity and ecological research in Cameroon;
- b. **Determination of elephant ranging and migration patterns:** to determine the numbers and distribution of forest elephants in the Korup National Park, investigate elephants ecological role in rain forests, and apply findings to forest management both in Korup and elsewhere in Central Africa;

- c. Other biological inventory and monitoring: to conduct quantitative biological inventory and monitoring of forest reserves, and socio-economic assessments, leading to a conservation management plan for the Korup National Park and the Banyang-Mbo Forest Reserve;
- d. Policy advocacy: to become involved in policy advocacy activities pertaining to environmental management and biodiversity protection at local levels complemented by (1) rural public awareness through schools and to the general public; (2) small-scale sustainable agro-business oriented toward providing alternative sources of protein and forest product based income; (3) facilitating processes for community governance over forest resources; and (4) extension of these approaches to other rich, forest reserves of Cameroon.
- e. Geographic information system (GIS): to develop a GIS for the Korup region.

Funding for this activity was originally provided by a grant from AID/W central funds to WCS/New York Zoological Society through project 698-0467. The first phase of this grant (AFR-0467-G-SS-8050-00), September 1, 1988, through September 30, 1990, was funded at \$210,000 and managed by USAID/Cameroon. The second phase, September 30, 1990, through December 30, 1992, was funded at \$312,000 and managed by AID/W. The total amount of the grant was \$522,900. In October 1992, USAID/Cameroon provided \$150,000 through R&D Bureau's Conservation of Biodiversity Project 936-5554 to support the WCS biodiversity activities from October 1992 to September 1993.

Based on USAID's recognition of the national, regional and global importance of Cameroon's natural resources, along with the urgent need to address accelerating environmental degradation, USAID Cameroon's FY 94-96 strategy included as one of its three strategic objectives "improved conditions for sustainable natural resources utilization". The Mission's intention of having local NGOs play a major role in the implementation of this strategy, plus the need for biodiversity research, led the Mission to award a direct grant of \$280,000 to WCS through the National Cereal Research and Extension Project (631-0052). The purpose of the grant was to continue biodiversity research activities through August 1994, pending startup of a new USAID bilateral environmental project.

In November 1993, the USAID Administrator announced the closure of USAID Cameroon along with 20 other missions worldwide over a three-year period. This announcement led to the immediate termination of the development of a major new natural resources management (NRM) program, which would have assisted the GRC in developing and implementing a long-term strategy for the management and conservation of its biological diversity and renewable natural resources. It would have built upon the biodiversity research work of WCS, discussed below, which had been supported by AID/W and USAID/Cameroon over a six year period.

Because of Cameroon's commitment to long-term protection of its natural resources and the global importance of these resources, AID/W has agreed to continue interim support to WCS biodiversity research activity after the closure of USAID/Cameroon pending the startup of a planned centrally-funded Central African Program for the Environment (CARPE) which will include Cameroon.

10. STATUS OF COMPLETION OF PROJECT ELEMENTS:

Based on information from the WCS Country Representative and other information available to USAID/Cameroon, all elements of the regional projects, bilateral activity and WCS contribution were completed. But because of the nature of these elements, which in many cases were integral parts of the objectives, they will be discussed in more detail in the following section. A list of all commodities procured and transferred to WCS is attached.

11. REVIEW OF PROJECT ACCOMPLISHMENTS AND STATUS IN ATTAINING OBJECTIVES:

Specific Objective A -Institutional Development

In an effort to enhance local institutional capabilities, the Project has provided formal on-the-job training (field experience) to ten Cameroonians. Two Cameroonians, seconded from the GRC/Institute of Zoological and Veterinary Research to the project, were trained in biological field techniques. Two Cameroonians who were trained to the Ph.D. level in wildlife biology at the University of Ibadan, Nigeria received training in design, implementation, and analysis of biological diversity inventories. Both have been instrumental in carrying out the biological and elephant surveys. Five individuals from the park and buffer zone of Korup were trained as research guides.

Training of research scientists has resulted in strengthening Cameroonians' skills in conducting biodiversity research and raising the level of awareness and interest in rainforest management. This interest has led to stronger linkages among the Ministry of Environment and Forests, Ministry of Scientific and Technical Research, Garoua Wildlife School, University of Dschang and the University of Yaounde, all of which are involved in managing Cameroon's natural resources. To assist the University of Dschang (UD) in developing a wildlife ecology program in the Department of Forestry, WCS provided input into the development of the curricula and research projects. Additional assistance was provided by visiting WCS scientists who offered seminars to UD's faculty and students. Both the faculty and the students at UD are qualified and interested in participating in programmatic biological surveys and other research activities.

To facilitate the training, funds were provided to WCS to construct a center for forest research within Korup. The center, the Ikenge Research Station, also serves as a base for long-term ecological monitoring. The station was sited in the north, near the Ikenge village, since it was felt that the forest was biologically richer and

had been poorly sampled compared to the southern region. By early 1990, a laboratory/office, eating area, rustic kitchen, guest house, and workers' quarters had been constructed. A research grid of permanent transect was begun. Unfortunately, due to the high levels of tension between the villagers of Ikenge and the WWF-Korup Project, use of the station as a training center and a base was stopped in April 1992. Construction of a dormitory was postponed.

In April 1994, WCS together with the Ministry of Scientific and Technical Research (MINREST) hosted a seminar/workshop on biodiversity research and conservation in Cameroon. The workshop had five major aims: (1) to bring together researchers and wildlife managers to discuss on-going projects and research activities; (2) to increase communication and collaboration between national researchers and managers; (3) to develop mechanisms for increased cooperation and communication between the various GRC ministries and NGOs; (4) to designate a central repository for documents and reports pertaining to conservation and environmental issues; and (5) to provide a forum for the establishment of a professional wildlife society for Cameroon. Overall, the workshop was successful and informative. Approximately 70 individuals from all areas of Cameroon participated, including GRC officials, NGO representatives, and universities. Topics discussed ranged from research on primates to indigenous rights over medicinal plants. The outcome of the workshop was: (1) the creation of joint projects between researchers; (2) the creation of liaison offices at MINREST and the Ministry of Environment and Forests to facilitate the issuance of research permits and authorization, and to keep both ministries informed of research activities; (3) the creation of a central repository at MINREST for documents and reports; and (4) the formation of the Cameroon Wildlife Society. It is hoped that this Society will provide assistance and guidance to the GRC in soliciting funding and making management decisions and in developing initiatives aimed at environmental protection. WCS will assist with this endeavor.

Specific Objective B -Determination of Elephant Ranging and Migration Patterns

In order to obtain the basic information needed to identify, delineate, and prioritize areas of critical biological importance, it is necessary to determine faunal diversity and abundance throughout Cameroon. Over the last six years, information has been gathered on the movements, habitat preferences, food species, social and reproductive behavior, and ranging of individual forest elephants. The two methods used to collect this information have been on-ground "un-aided" tracking of elephants and radio tracking of collared individuals via the state-of-the-art satellite and VHF telemetry.

Three elephants have successfully been collared with satellite telemetry. Two females (Isabel and Angelina) were tagged in the Banyang-Mbo Forest Reserve (which is adjacent to Korup) and one male (Billy) was tagged in Korup. Transmissions from the satellite collars are being received at the New York Zoological Society (NYZS) bio-telemetry laboratory. These are the first and only elephants tagged

with satellite transmitters in Africa. Based on the information collected through the satellite telemetry, the home range of the three elephants averages approximately 320 sq km and seems to be centered around river basins. The telemetry has also allowed direct on-ground tracking which has provided valuable information on defecation rates which is needed to extrapolate elephant density from dung density for elephant census surveys.

Estimates of dung density are determined by conducting standard line transect counts. Line transects 5-10 km long were cut on a predetermined compass bearing. A total of 10 transects were cut for a total of 100 km surveyed in Korup for the 1993 dry season survey. A minimum of three observers walked along the transect looking for elephant spoor. All elephant dung piles seen by observers were noted and the age category of the pile was determined. Distance along the transect was measured using a hipchain and topofile. Data on other types of species and human activities were also observed. Density of dung was estimated using a linear correlation between actual dung density and the number of .05 transect segments found to contain elephant dung. This method is based on the relationship between density and frequency using a calculated equation relating dropping density to frequency of occurrence. To determine elephant density from dung density it was necessary to use a conversion factor based on known dung decay rate and elephant defecation rate where elephant density $E = D$ (decay rate/defecation rate). For Korup, WCS uses a dung decay rate of .3 and defecation rate of 17 dung piles per day per elephant. These data give a conversion factor of .0018.

Based on this methodology, elephant density during the dry season in Korup is estimated at .34 per sq km and individual transect elephant densities ranged from 0 to per 1.33 per sq km. Data suggest that the northern sector of the park has a higher density of elephants than the southern sector. It also appears that the region southeast of Baro, which was logged between 1987 and 1990, is an important elephant habitat. This is, perhaps, due to the new and secondary growth in the area which forest elephants seem to exploit when possible. In the nearby Banyang-Mbo Forest Reserve, the wet season elephant density was estimated at .86 per sq km and individual transect elephant densities ranged from .07 to 2.75 per sq km which is among the highest reported for central Africa. This may be due to the isolation of the area, the low level of human activity, and the abundance of preferred fruit trees. In general, elephants avoid villages and elephant densities seem to increase as distances away from villages increase.

In order to determine the role of elephants in rain forest ecology, elephant dung is systematically collected from the field. When a dung pile is found, it is marked and two boli are collected. At the research station, one bolus is washed, dried, and examined to determine the number and types of seeds that the elephant consumed. The other bolus is taken to the "elephant nursery" where it is carefully cultivated to observe what plants germinate ("elephant plants"). By comparing seeds which germinate with those seeds that do not, but have been found in the

elephant dung, one can determine those plants for which elephants are seed predators versus those for which elephants may contribute to seed dispersal and growth. The project has identified over 62 species of plants that germinated after passing through the digestive system of elephants. Another 22 species have been found to germinate, but identification is pending. These data support the premise that elephants are important seed dispersers and affect forest species composition.

Nevertheless, elephant poaching remains a considerable problem in Korup. The total of known elephants killed in the northern region of Korup since 1989 is 147. WCS has been providing information to the local commander of the gendarmerie and other local officials in Nguti about poaching activities. This information has led to the seizure of four high-powered elephant guns.

Based on the work of WCS, Korup has an excellent foundation to monitor its elephant population through continued elephant census surveys. It is one of the few areas in central Africa where surveys have been replicated over several years.

Specific Objective C -Biological Inventory and Monitoring

Biological inventories were initiated to assess the relative importance of Korup to other forested areas in central Africa. The taxa that were chosen for the inventories were thought to best represent taxa that had been well surveyed in other regions. Inventories were carried out for mammals, herpetofauna, birds, vegetation and habitats, and diurnal primates. Attachment 1 lists the names of species that are of particular concern and are threatened.

A survey of small mammals (i.e., bats, insectivores and rodents) was carried out in May and June of 1991. Two areas were surveyed, one near the research station and the other near Mundemba. The purpose was to ascertain the species diversity of small mammals and assess as much as possible the habitat requirements, general population numbers, reproductive biology and any other data on natural history. During the survey three genera and nine species of shrews were found. Three species, Crocidura crenata, C. cf Grandiceps, and C. lamottei were found for the first time in Cameroon. A new specie of the genus Sylvisorex was discovered and described. The specie was named by Hutterer and Schlitter, Sylvisorex pluvialis, in allusion to the torrential rains of Korup. This survey added four new species of shrews to the list of 38 species also known to Cameroon. A single otter shrew was observed. The Magalaglossus woermanni, a fruit bat that feeds on nectar and pollen, was found to be common throughout the forest. Four other fruit bats were frequently taken. However, it is reported that Korup could contain up to 71 species of bats. Insectivorous bats were not frequently seen. Fourteen rodent species were captured during the survey. The most frequent specie caught was the Mt. Cameroon forest rat (Praomys morio), which was considered to be rare and restricted to

forests on Mt. Cameroon above 1000 m. The pygmy forest mouse (Hylomyscus parvus) was previously reported to be only in southern Cameroon, northern Gabon, Congo, northwest Zaire, and southwest Central Africa Republic (CAR). However, it was commonly seen in areas near the IRS and near Mundemba. It was reported that Korup could contain up to 45 species of rodents.

A survey of nocturnal mammals was conducted by Breader and Honess in early 1992. The emphasis of the survey was on prosimian primates: number of species, distribution and abundance, ecological and behavioral distinctions between species, and abundance with other nocturnal species. Survey methodology included walking trails, roadside or established transects at night with a headlamp and making sightings with binoculars or recording calls. There appear to be six species of prosimian primates in the Korup National Park, two of which had not been recorded in Korup previously (Thomas's bush baby/Galago thomasi and the flightless scaly-tailed flying squirrel/Zenkerall insignis). Breader and Honess concluded that hunting was a considerable threat to the survival of primates in Korup. They found that in the southern sector of the park, where hunting was high, the number of animals encountered per hour was .20 as compared to .69 around IRS where hunting had been reduced.

The initial herpetofauna survey conducted by Lawson in 1992 indicates that Korup is "one of the most herpetologically diverse sites known". With the exception of diversity of snakes, Korup has more amphibians than any other known African site. Though positive identification and taxa description are still pending, this survey appears to have found eight new species of frogs. A total of three species of caecilians, 89 frogs, four turtles, 20 lizards, three crocodiles, and 55 snakes were found making a total of 174 herps known for Korup. There are a number of species endemic to Korup. Like primates, reptile and amphibian species are regularly hunted in Korup and at times experience severe predation pressure.

The bird surveys conducted by DeJaifve (1991-92) and Rodewald (1993) found 326 species of birds, of which 238 are considered only rain forest species. One species, Kemp's Longbill (Macrosphenus kempii), was not previously known to exist in Cameroon. Cameroon now ranks second among lowland rain forest bird diversity, with Makokou, Gabon, ranking first with 250 species. A total of 50 families are known from Korup. Four species are considered as "rare", four are listed as "near threatened", and 40 are considered as "threatened".

A general vegetation and habitat survey was conducted by the project in 1990, but analysis of these data has not been completed. A general survey of large trees near the research station was conducted and analysis completed.

In 1990 Edward conducted a study of diurnal primates in Korup. The study found that the biomass and primate density in Korup was low compared to other surveyed forests, however, the number of primate species is high. Data on estimated rates of production suggest that all primates in northern Korup, except for C. pogonians, are hunted at unsustainable levels.

Specific Objective D -Policy Advocacy

The Korup Project Master Plan (1989) demands and the GRC law requires that villages located inside the boundaries of Korup be relocated outside the park. According to the law, no assistance of a permanent nature can be provided to villagers remaining in the park. The master plan stated that the GRC would be responsible for the resettlement of the 600 or so people living inside Korup. The WCS-outreach activities were designed to complement the government's resettlement scheme. For instance, it was hoped that the individuals receiving vocational training would assist in the development of their resettled villages. Unfortunately, due to various political issues, people have yet to be relocated. With assistance from the U.S. Department of Defense (\$800,000) through the Cameroonian military engineering branch, the GRC and WWF are making the necessary provisions to move one village by the end of 1994. Overall, due to the impact of extensive hunting in the park, resettlement has been identified as the key issue to conserving the parks fauna.

The community and extension and outreach component, which was mentioned earlier, was aimed at encouraging and promoting community involvement in conservation while reducing the dependency on hunting and trapping. The main impetus for hunting and trapping is the need for cash income. It was, therefore, necessary to develop alternative sources of income. But because of legal constraints that prevent development assistance to villages in the park, it was impossible to implement a more integrated approach to conservation in the park while waiting for resettlement. WCS was limited to only hiring inhabitants of the park to build the research station and develop the research grid. As another source of employment, construction companies building a nearby road were approached and asked if they would make a special effort to hire laborers from the park. In addition to generating employment, vocational training has been focused specifically on developing alternative skills for hunters to reduce hunting levels in the northern sector of Korup. Three villagers received training in carpentry, three in building construction, one in mechanics, and three in animal husbandry and agriculture.

Outside the park, the WCS community extension officer in collaboration with the rural training officer, WWF and the GRC services initiated a farmers' cooperative. The Baro Farmers Union (BA-FU) was started in 1991 with financial assistance from the U.S. Ambassador's Self Help Fund and WWF. BA-FU was conceived as a community based agri-business. The aim of the group is to develop an animal husbandry project which utilizes existing marketing, distribution and transport system presently used for the export of bush meat. The short term objective of the project is to replace a portion of the bush meat supply with locally raised small livestock, while the long term objective is to develop an integrated livestock and farming system for the village.

Overall, the BA-FU has been successful. The farm has provided alternative sources of income and dietary protein to the people of Baro who before depended exclusively on hunting and bushmeat trade for meat and income. Livestock production has begun and there is regular production of poultry and eggs from the farm. Four permanent buildings and a well have been constructed, which will provide freshwater to the village during the dry season. Even with importing feed into the village as local production has not yet started, BA-FU is financially self-sufficient. The members of the cooperative are now introducing husbandry of other small livestock on a trial basis. In addition, the farm is introducing agro-forestry techniques and the practice of composting to restore soil fertility as well as supporting and encouraging the practice of animal husbandry.

The farm is the result of a positive conservation intervention aimed at providing alternative sources of income and protein to reduce hunting in the Korup National Park. The farm has also helped to foster an increased spirit of cooperation.

WCS has also begun working closely with the villages surrounding the Banyang-Mbo Forest (BMF) (forest near Korup) to strengthen their governance over their community territories and promote community controlled management of their living resources. The program is still in its early stages, but the initial results in some villages have been very promising, while in others they have been discouraging. For example, the village of Tangang in the northern sector of the forest, now patrols its territory against outside hunters and has assisted government authorities in arresting an elephant poacher who penetrated their area. In the southern sector at the village of Ntali, a small-scale eco-tourism project was started with excellent potential. The adjacent forest has many elephants, nearby waterfalls and spectacular views. However, Ntali also suffers crop damage by raiding elephants. Because of this problem, and the perception that WCS was not addressing the crop damage issue effectively, an elephant poacher was invited by the community to drive off the raiding elephants. This particular hunter killed four elephants in one day and apparently an accomplice wounded two others. Both examples have provided important lessons and illustrate the need for adaptive conservation policies specific to each village in the area.

The new Cameroon Forestry law provides for the establishment of community forest reserves that allow for management by council of forest resources. Income generation and the terms of management are determined by the joint community council. The WCS Cameroon staff sociologist has begun preliminary surveys of the villages surrounding BMF to obtain information on current attitudes and wildlife exploitation. He is also exploring what cultural mechanisms exist that promote conservation practices such as sacred forests, hunting taboos, etc. These cultural constraints will be integrated into a conservation plan for the area. The concept of community based resource management and the terms of the new forestry law as it pertains to community forests are being explained to the villagers. Additionally, preliminary steps necessary to have the BMF declared Cameroon's first community forest reserve are being made.

Concurrently, WCS has begun to make arrangements for the BMF to be designated by presidential decree as a project area to be called Banyang-Mbo Biodiversity Project Area, under the terms of the Government of Cameroon/WCS agreement. Article 3, paragraph 4 of the Agreement provides for pilot projects to be established to study effects of community extension and outreach as a conservation intervention. BMF will become a focal area and the Decree will give complete authority to WCS to manage the area according to policies and approaches developed by the project. The Decree has been drafted and the project area has been determined. A legal description is now needed and then the Decree will be ready for transmittal from the Minister of Scientific and Technical Research to the Prime Ministers' office for signature. The initial response to this proposal (to have the BMF designated a community forest and to make it a project site with authority given to WCS) was received extremely well by the government and local communities.

As a result of project activities, several other villages have taken an active role in managing their village territories by working with authorities to arrest elephant poachers, commercial hunters, and outsiders that poison village streams to catch fish.

The project has also been instrumental in conservation education and vocational training through its community extension/outreach program. The aim of the program was to encourage and promote community involvement in conservation. To manage the program, the project (in collaboration with the U.S. Information Agency) sponsored one Cameroonian's short-term training in environmental education in the U.S. The Education Specialist along with a Peace Corps volunteer developed the education conservation component of the project, which focused on village level participation and dialogue. Numerous meetings were held in all the villages in the northern sector of Korup. To guide these discussions, the Education Specialist produced a Teacher's Guide on environmental conservation, a play on local conservation issues entitled "Beware", a play on resettlement called "Professor Adoniah", a short-story entitled "You are the Cause", and a cartoon story "I'm Going To Korup". The plays have been produced by local schools and the University of Yaounde has expressed interest in producing them in Yaounde. They are also used to promote discussions in the villages. This indirect approach has produced a more positive impact than lectures or formal talks, which seem to arouse suspicion.

Specific Objective E -Geographic Information System

The elephant tracking data is now being entered into a Geographical Information System for analysis. This work, including periodic censusing of the elephant population, identifying critical habitat, assessing the role of elephants in forest structure and dynamics, and monitoring poaching is vital to sound management of the forest ecosystem.

Overall Accomplishments:

A fundamental tenet of the development philosophy is the belief that a change of values and attitudes among the members of a community is often as important as the physical output achieved by a project. Because of the participatory approach to development, values and attitudes and subsequently policies are changing to support conservation of Korup's natural resources. Populations within and adjacent to the Park are gradually beginning to realize that benefits can be derived by the whole community through village development activities and village-based management of resources rather than unsustainable exploitation. However, because of the prevailing economic situation in Cameroon, unsustainable exploitation continues.

The information collected on the biological systems of the Korup National Park and its environs is contributing to the management planning of the park, identification of threats to forest conservation, socio-economic needs and aspirations of in-park villages, protection/enforcement requirements, tourism possibilities, and training opportunities. The initial results of the biological inventories have shown that, in general, Korup has high biological diversity, but low animal abundance. It is believed that this low abundance is due to hunting and poaching which seems to be increasing because of the declining population of animals in other regions and the need for cash. Even though the price of ivory in Cameroon has dropped from about \$80 per kilo in 1989 to about \$24 per kilo in 1994, ivory is still considered a symbol of wealth and traditional power and is in high demand. The decline in animal population outside of Korup and the traditional concept of ivory coupled with the worsening economy of Cameroon will most likely continue to increase hunting pressures on Korup. If this happens, the conservation consequences will be serious.

12. LESSONS LEARNED:

- a. The WCS experience shows that many of the villagers are willing to give up hunting in exchange for employment. Until relocation of those living in the park takes place, more job opportunities or income generating activities would have to be created within the park in order to reduce hunting and poaching. If this is not forthcoming, the compromise would be to allow hunting by villagers living in the park of certain species and at particular times. Hunters from outside the park would be heavily fined. Village administrative authorities would be required to enforce this law.
- b. Due to the economic crisis in the Cameroon, many projects such as the WWF/Korup Project, the WCS activities and other donor projects/activities are playing increasingly important roles in supporting local governments. Transport and logistic assistance is in great demand. There is a real danger that project activities will not be sustainable if local funding for structural maintenance, salaries and mobility does not radically improve.

- c. However, as Cameroon and international political and economic pressures make Korup's resources appear more valuable over time, Korup and other reserves must continue to be supported by a global community that recognizes rare primate species and other resources as global resources. It is only in this context, through continued support of parks and reserves, that the long-term survival of Korup's uniqueness can be assured.
- d. The Korup Project was designed as an integrated conservation and development program. To be successful it relies on certain prerequisites such as resettlement of villagers living in the park, access roads to the hinterland villages and a coordinated rural development strategy. Unfortunately, none of these prerequisites have been developed due to various reasons. The Project activities have been skewed in favor of general park development without many successes in rural development. This type of discrepancy leads to increased antagonism between villagers and Project staff due to villagers perception of broken promises and frustration with apparent lack of progress.
- e. There are currently eight donors and/or international organizations providing assistance to the Korup Project. Many of the problems encountered have been due to the lack of adequate coordination among these donors in terms of setting project priorities and providing needed assistance to implement those priorities in a timely manner. Better coordination and collaboration is needed in order to ensure not only successes in park structural development, but also in changing customs, habits, beliefs, values and attitudes of the 12,000 persons living in or near the Park, which are essential for rural development.

13. FUTURE ACTIVITIES:

AID/W has agreed to continue support to WCS biodiversity research activity for an interim period of 18 months pending the start-up of the planned centrally-funded "Central Africa Regional Program for the Environment" (698-0548). The proposed purpose of the project is to identify and begin to establish the conditions and practices required for the conservation and sustainable use of the natural resources of the Congo Basin, in a manner which addresses local, national, regional, and international concerns. One of the proposed activities is to support NGO efforts in the sustainability of the Congo Basin's natural resources, which includes biodiversity research and rural development.

AID/W interim funding to WCS would be used to:

- a. assist the GRC in the development of natural resources management and environmental strategies based on research information and WCS expertise;

- b. continue the training of Cameroon nationals in rain forest research and management, computer and geographic information system (GIS) skills, and provide opportunities for field work in Cameroon and regionally;
- c. conduct biological and sociological assessments of key threatened forest reserves;
- d. continue ecological monitoring of forest dynamics and research on the role of elephants in rain forest dynamics;
- e. conduct biological and anthropological studies in Lake Lobeke in preparation for development of a management plan and possible designation as a national park;
- f. continue directed research on species of special concern, such as bongo and gorilla, in order to provide basic information for their protection throughout the Congo Basin;
- g. continue initiatives to strengthen community governance and management of local natural resources;
- h. facilitate development at the local level of sustainable, small-scale agribusiness and other activities which provide alternatives to slash-and-burn agricultural practices and commercial hunting;
- i. continue the development of a GIS for the region; and
- j. assist the GRC in establishing a technical environmental reference center, and assist with development of a professional wildlife society.

14. REFERENCE DOCUMENTATION:

- Hutterer & Schlitter, "A survey of small Mammals in Korup Rainforest National Park", June 1991
- Breder & Honess, "A Survey of Nocturnal Primates and Other Mammals in Korup Rainforest National Park, Cameroon" April 1992
- Lawson, Dwight "Inventory and Status of Herpetofauna of Korup Rainforest National Park, Cameroon", May 1992
- Edwards, Ann "The Diurnal Primates of Korup National Park, Cameroon: Abundance, Productivity and Polyspecific Association" 1992
- Powell & Powell, "Korup National Park: Report on Research and Conservation Activities of the Cameroon Biodiversity Project", December 1993.

Clearance:ARD:JMcMahon JM Date 5/26/94
CONT:RJacobs RJ Date 5/27/94
PMPD:TBratrud TB Date 6/6/94
D/DIR:RHarvey RH Date JUN 13 1994
DIR:PBenedict PB Date JUN 13 1994

EJ
ARD:EWashington;cea:5/6/94
ATanifum Tan Date 5/27/94

Attachment 1
 Project Assistance Completion Report
 Korup Biodiversity Research Project

List of species of particular concern

Common Names

Status

Mammals

Drill	Endangered
Preuss' guenon	Vulnerable
Red-eared guenon	Vulnerable
Preuss' Red Colobus	Endangered
Chimpanzee	Vulnerable
Otter shrew	Uncommon
"Korup rain" shrew	New Species
Scaly-tailed squirrel	Uncommon
Long tailed pangolin	Heavily hunted
White bellied pangolin	Heavily hunted
Giant pangolin	Rare
Leopard	Rare and vulnerable ¹
Golden cat	Rare
Forest elephant	Uncommon and vulnerable ¹
Water chevrotain	Uncommon
Sitatunga	Rare
Bushbuck	Uncommon and hunted
Yellow-backed duiker	Rare and hunted
Ogilby's duiker	Heavily hunted
Bay duiker	Heavily hunted
African manatee	Vulnerable ¹
Hippopotamus	Rare

Herpetofauna

	Conraua robusta	Heavily hunted
	Trichobatrachus robustus	Heavily hunted
Dwarf forest crocodile	Osteolaemus tetraspis	Append I ² hunted
Nile crocodile	Crocodylus niloticus	Vulnerable ¹ , rare
Slendersnouted crocodile	Crocodylus cataphractus	Append I ² , rare

Tortoise
Tortoise
Cameroon toad

Nile monitor lizard

Python

Kinixys erosa
Kinixys homeana
Bufo superciliaris

Varanus niloticus

Python sabae

Heavily hunted
Heavily hunted
Append_{1,2},
uncommon.

Append_{1,2},
hunted

Hunted

Birds

Yellow-footed
honeyguide
Green-breasted bush-
shrike

White-throated
mountain-babbler

Red-headed rock fowl

White-naped pigeon

Cameroon montane
greenbul
Ursula's mouse
colored sunbird

Melignomon eisentrauti

Malaconotus gladiator

Lioptils gilberti

Picathartes oreas

Columba albinucha

Andropadus montanus

Nectarinia ursulae

Threatened³

Threatened³
rare

Threatened³
rare

Threatened³,
uncommon

Near
threatened³

Near threatened³

Near threatened³

-
1. IUCN Red Data Book
 2. CITIES
 3. ICBP/IUNC



UNITED STATES ADDRESS:
 USAID
 YAOUNDE (AID)
 DEPARTMENT OF STATE
 WASHINGTON, D.C. 20521-2520

Y.A.O.U.N.D.E. C.A.M.E.R.O.O.N
 TEL: (237) 22 05 81
 FAX: (237) 22 18 90

TRANSFER OF TITLE
 BY THE GOVERNMENT OF THE UNITED STATES OF AMERICA
 PROPERTY TRANSFER OF TITLE NO. 94-001

Effective April 1, 1994, the Government of the United States of America, through the Agency for International Development represented by the Director of the United States AID Mission to Cameroon, hereby transfers title of the commodities described below to the New York Zoological Society/The Wildlife Conservation Society for the implementation of the Korup Natural Resources Management Project under Grant No. 631-0052-G-00-3565-00. The commodities were purchased under the Program for the Reform in the Agriculture Marketing Sector (PRAMS I) Project No. 631-0083:

<u>NO.</u>	<u>DESCRIPTION OF COMMODITIES</u>	<u>QUANTITY</u>
1.	Bed, wooden, king size	1
2.	Bed, wooden, twin size	1
3.	Mattress, dunlop, king size	1
4.	Mattress, dunlop, twin size	2
5.	Tables, night, wooden	2
6.	Refrigerator, Singer, white	1
7.	Refrigerator, Indesit, tropical, yellow	1
8.	Stove, gas, four burners, with oven, Indesit, white	1
9.	Lawnmower, Schlemper Ultra 15 push	1
10.	Curtains/draperies for	six rooms
11.	Furniture, portio (three chairs, one couch and one table.	-one set
12.	Bottle, gas	1
13.	Suppressor, surge	1

It is mutually understood that the use and subsequent disposition of the above commodities will be in accordance with the provisions of the Grant cited above.

The Government of the United States of America

Name and Title by: Peter Benedict MAR 21 1994
 PETER BENEDICT, DIRECTOR

The New York Zoological Society/The Wildlife Conservation Society

Name and Title by: James Powell
 JAMES POWELL, COUNTRY REPRESENTATIVE

BEST AVAILABLE COPY

AI

The Commodities were verified on (date) March 25 1994
By D.M. Greene
DANIEL GREENE, CHIEF OF PARTY, PRAMS Research

The commodities described above were delivered on (date) 3-25/94
By K. S. P. N. [Signature]
USAID/Cameroon Project Officer

MAR 25 1994

The commodities described above were received on _____
By [Signature]
JAMES POWELL

Concurrence of MINPAT ALINGA ATEBA INNOCENT, CHAIRMAN, APCC/MINPAT



**UNITED STATES
AGENCY FOR INTERNATIONAL DEVELOPMENT
YAOUNDE**

UNITED STATES ADDRESS:
USAID
YAOUNDE (AID)
DEPARTMENT OF STATE
WASHINGTON, D.C. 20521-2520

INTERNATIONAL
USAID
B.P. 817
YAOUNDE, CAMEROON
TEL: (237) 23 05 81
FAX: (237) 22 18 90

**TRANSFER OF TITLE
BY THE GOVERNMENT OF THE UNITED STATES OF AMERICA
PROPERTY TRANSFER OF TITLE NO. 94-08**

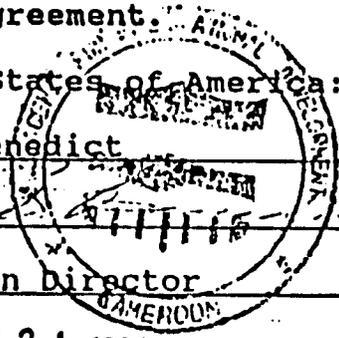
Effective April 30, 1994, the Government of the United States of America, through the Agency for International Development represented by the Director of the United States AID Mission to Cameroon, hereby transfers title of the two (2) vehicles described below to the NYZS/The Wildlife Conservation Society. These vehicles were purchased under the Natural Resources Management (KORUP) Project No. 698-0467.31.

<u>NO.</u>	<u>Description</u>	<u>Plate No.</u>	<u>Serial No.</u>
01	Toyota Land Cruiser	IT 01025 RC	6000965317
02	Isuzu Trooper	IT 04186 RC	7100079

It is mutually understood that the use and subsequent disposition of the above vehicles will be in accordance with the terms and conditions of the Project Grant Agreement.

For the Government of the United States of America:

By: Peter Benedict
Signature: _____
Title: Mission Director
Date: MAR 21 1994



For the NYZS/The Wildlife Conservation Society:

By: James Powell
Signature: _____
Title: Chief of Party
Date: MAR 25 1994

BEST AVAILABLE DOCUMENT

BEST AVAILABLE COPY

The above vehicles were delivered on:

By James Powell
Signature: *J. Powell*
Title: Chief of Party
Date: MAR 25 1994

The above vehicles were received on:

By James Powell
Signature: *J. Powell*
Title: Chief of Party
Date: MAR 25 1994

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