



# ACTION UPDATE

JULY 1997

CARPE is a collaborative effort to reduce deforestation and biodiversity loss in the Congo Basin. *CARPE Action Update* informs CARPE's partners about current and planned activities. We hope these updates will encourage the involvement of Central Africans in this collaborative initiative.

## KEY THEMES

**Community Conservation**  
Forestry  
Agriculture  
Infrastructure  
Non-Timber Forest Product  
Wildlife Use  
Protected Areas  
Gaps in Protected Area Network  
*For information on all CARPE themes, visit our web site at <http://carpe.gecp.virginia.edu>.*

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The Biodiversity Support Program and Peace Corps are also involved in the design and implementation of this CARPE theme.

# Community Conservation

## EXPECTED RESULT

Indigenous forest resource management and conservation practices are better understood and strengthened

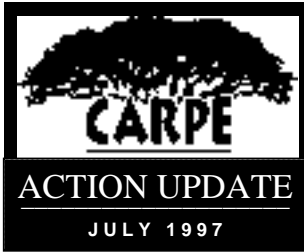
## BACKGROUND

More than 95% of the world's biological resources lie outside of protected areas, and human populations within these landscapes continue to expand. The traditional view that local communities are a threat to biodiversity conservation is changing. Many now argue that open access to resources, not the local communities, is the primary threat to biodiversity. There is growing belief that if local communities have formal and secure land tenure, and control over resources, they will manage their resources sustainably and thus conserve biodiversity.

Increased concern over biodiversity loss and land degradation and shrinking funds for strict protection have led the conservation community and donors to advocate devolving responsibility for biodiversity conservation to local communities. It is clear that local communities ultimately determine the fate of biodiversity outside of protected areas. Yet, it remains unclear what political, economic, socio-cultural, and ecological conditions are required for community-based biodiversity conservation work.

## OBJECTIVES

The community Conservation of CARPE builds on the work of ongoing initiatives in the region to a) enhance the capacity of local communities to manage their natural resources through an extended and multi-faceted rural appraisal and community mobilization process that includes participatory mapping of community use of natural resources, and b) identify key opportunities for promoting community-based conservation in forested areas of the Congo Basin. To ensure that the results of this component of CARPE are applicable across the region, the communities that will participate in these activities will be chosen such that, as a set, they are as representative as possible of the ecological, political and socio-cultural variability present in the Congo Basin. To help ensure that the impact of this component continues after CARPE all communities will be located at sites that offer the potential to link up to other conservation initiatives.



# Community Conservation

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## LINKS TO OTHER CARPE ACTIVITIES

These activities will contribute directly to other components of CARPE by characterizing the factors likely to promote alternatives to local community consumption and trade of bushmeat, and identifying the conditions necessary for the local community members to intensify agricultural production through the cultivation of high value non-timber forest products.



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The Forest Service of the United States Department of Agriculture, the University of Maryland and University of Virginia, the National Aeronautics and Space Administration, World Wildlife Fund and Wildlife Conservation Society are also contributing to the design and implementation of this CARPE action.

# Forestry

## EXPECTED RESULT

Strategies to assess and reduce negative environmental consequences of logging are identified and piloted

## BACKGROUND

Industrial scale logging has historically, and remains today, an important component of GDP in all nations of the Congo Basin including those heavily dependent on the sale of fossil fuels. Traditionally, logging has been dominated by European companies that felled a few select tree species to satisfy the European furniture industry's demand for high quality hardwoods. More recently, Asian logging companies have entered the region in search of any trees suitable for their lumber, and wood fiber markets. As a result of a shift in demand a greater variety of tree species and exploited and a larger proportion of the biomass is harvested. Poorly written and implemented policies and legislation, rampant corruption, and lack of financial and human capacity have led to forestry sector that offers high returns to international profiteers, little income to African governments, and minimal benefits to local communities. Unless changes in the forestry sector are forthcoming the future of the Congo Basin forests as a source of revenue and as a harbor of globally important biodiversity is grave.

## OBJECTIVES

This component of CARPE is designed to build on the work of ongoing initiatives in the region to a) map the present extent and status of logging concession within the region, and characterize the likely future extent of concessions based on trends in the logging sector; b) synthesize the present state-of-knowledge on the ecological impacts of logging practices on the forest; c) synthesize the lessons learned regarding the role that past, present and potential policies play in managing the use of the region's forests; and d) assist "stakeholders" to take action to promote implementation of best logging practices.



# Forestry

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## LINKS TO OTHER CARPE ACTIVITIES

This component will contribute directly to other CARPE actions by making available maps that can be used to quantify the area of relatively intact forest in the region that remains outside of logging concession. By helping to build regional capacity to monitor the implementation of logging sector regulations this component will contribute to other CARPE actions that require a cadre of individuals and institutions to monitor implementation of other environmental legislation, and to raise national awareness of environmental issues.

## ONGOING ACTIVITIES

WRI is working with the CARPE members and other organizations active in the region to compile and map all available information on the location and status of logging concessions within the region.

WCS will take the lead on implementing a study to characterize the ecological impacts of both selective, and high density logging practices, with the goal of developing a set of best practices.

WRI is looking for central Africans to assist in the design and implementation of a study to examine the potential impact of a policy trend toward "area taxation" as an approach to rational forest management.

WRI with assistance of the CARPE field office will begin the process of establishing a network of central Africa individuals and organizations with the capacity to monitor the activities of the logging sector and increase national awareness of the effectiveness of logging policy implementation.



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The Biodiversity Support Program and the USDA Forest Service are also contributing to the design and implementation of this CARPE action.

# Agriculture

## EXPECTED RESULT

Strategies to promote and evaluate small-holder agricultural practices that help reduce deforestation and biodiversity loss are identified and tested

## BACKGROUND

Poor rural farmers are the primary source of agricultural production in the Congo Basin, and are the primary suppliers of agricultural and forest-based commodities to urban consumers. Over the next 20 years the population of most Congo Basin countries is likely to double and urban populations will increase even faster. A doubling of demand without a change in agricultural productivity will result in an increase in the rate of forest clearing for small-scale agriculture. Intensification of small-holder agriculture and the enhanced capacity to market agricultural produce will have the two-fold benefit of reducing pressure to convert forest lands to agriculture, and will reduce the reliance of poor rural farms on exploiting forest resources, such as bushmeat, for income. The latter benefit will only accrue if the rate of return from labor and capital investments in agriculture exceed the rate of return from forest resource exploitation, otherwise agricultural intensification will merely augment present activities rather than substituting them.

## OBJECTIVES

This component of CARPE is designed to build on the lessons learned from ongoing initiatives of IITA, ICRAF/IRA and CIRAD in the agricultural sector in the region by a) helping small-holders in urban-forest interface areas to increase their agricultural productivity and their ability to market agricultural produce; b) promoting the cultivation of high value NTFPs that are overexploited in the wild, and c) monitoring the impacts of these interventions on rural livelihoods and on forest conservation. This component will also undertake an analysis of national agricultural policies and development plans that examines present and projected contribution of the agricultural sector to GDP and to deforestation and loss of biodiversity.

## LINKS TO OTHER CARPE ACTIVITIES

Raising agricultural productivity by promoting the husbandry of high value forest products such as Gnetum and Cane rats will directly contribute to the Protected Areas, Wildlife Use and Forest Sector components of CARPE.



# Agriculture

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## ONGOING ACTIVITIES

Peace Corps is developing and testing agricultural extension activities that mitigate against forest degradation. Programs in Cameroon and Gabon are being implemented by Peace Corps Volunteers and local-level development and extension agents.

Peace Corps is developing field-based tools to monitor the impact of extension on adoption of agricultural intensification methods, and on the extent of forest conversion by farmers.

Peace Corps will be working with the Limbe Botanical Gardens in Cameroon to evaluate the viability of incorporating Gnetum and rattan cultivation into the suite of extension services being offered to small-holders.

BSP is working with the Policy Consultative Group and IITA to develop a proposal to document the role of past and present agricultural sector policies on determining agricultural land use within the region, and the impact of agricultural land use on forest cover and biodiversity.



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The University of Maryland, University of Virginia, the National Aeronautics and Space Administration, World Wildlife Fund and Wildlife Conservation Society are also contributing to the design and implementation of this CARPE action.

# Infrastructure

## EXPECTED RESULT

Infrastructure reconstruction strategies that maximize social and economic benefits while minimizing adverse environmental impacts are developed

## BACKGROUND

Infrastructure, comprising roads, railways and river transport, is needed to spur economic growth and reduce poverty. In much of the Congo Basin, this infrastructure is either poorly developed or deteriorating because of lack of investment. The ruined road network isolates poor rural producers from markets, and results in extremely high transportation costs, both of which have profound impact on subsistence and commercial land use, and have contributed to the very low rate of deforestation in most of the region. Infrastructure investment is an important, complex and controversial component of economic development strategies for the region.

## OBJECTIVES

This component of CARPE is designed to help ensure that policy makers have access to the information and technical expertise necessary to devise infrastructure reconstruction plans that are economically and environmentally desirable. To accomplish this it will be necessary to a) document ongoing and projected infrastructure development schemes, and estimate the total cost of reconstructing the road system in the region, b) characterize the relationship between population density, access to markets and forest degradation, c) evaluate how road transportation costs and implementation of "area taxation" would influence logging practices in the region, d) help establish an experts group of central Africans to develop land cover/land use models that help characterize the role of infrastructure in land use patterning and land cover change.

## LINKS TO OTHER CARPE ACTIVITIES

Information generated by these activities is designed to contribute to the Forestry Sector and the Gaps in the Protected Area Network components of CARPE.



# Infrastructure

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## ONGOING ACTIVITIES

### *Infrastructure development planning in the region*

WRI has begun to compile and synthesize information on major multilateral and bilateral infrastructure development projects underway or planned in the region

### *GIS-based modeling of the role of infrastructure in forest resource use*

WRI is collecting and updating regional road, mining, and population data to convert to a GIS format at a nominal scale of 1:1,000,000

WRI is developing a GIS-based gravity model to generate a more realistic distribution of population using census data in combination with distance to, and size of, market, and the quality of the road network.

WRI is developing of a GIS-based model to estimate the relationship between infrastructure density and access to market on the distribution of fragmented forest.

WRI is developing a GIS-based model to produce a regional cost surface for the transport of logs to port. The cost surface will be used as an input to the analysis of the potential economic and environmental impacts of area taxes and other changes in the logging concession royalty system.

WRI is will update the attributes of the regional road GIS database using expert opinion, and the alignment and density of the road network in selected areas using available optical and radar-based satellite imagery.

WRI will present preliminary results and products of these and other WRI activities at the upcoming START meeting to be held in Accra, Ghana, November 3-5, 1997.





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The Peace Corps, World Wildlife Fund, Wildlife Conservation Society and the World Resources Institute are also contributing to the design and implementation of this CARPE action.

# Non-Timber Forest Product

## EXPECTED RESULT

Potential for NTFPs to contribute to forest conservation is assessed and the most promising strategies are piloted

## BACKGROUND

Small-holder livelihood activities are considered the single greatest cause of forest resource degradation in the Congo Basin. Alternatives to present practices that augment household income and reduce the pressure on the forest must be identified and promoted. Marketing of sustainably harvested and domestically produced non-timber forest products may be one such strategy.

## OBJECTIVES

This component of CARPE is working very closely with the Agricultural and Community components to a) identify the potential of the NTFP sector to mitigate adverse effects of small-holder livelihood strategies on forest resources, b) identify high value NTFPs that could either be grown or sustainably harvested for sale by small-holders in national and international markets, and c) determine whether additional studies are needed.

## LINKS TO OTHER CARPE ACTIVITIES

Results from this component will directly contribute to the design of activities to be implemented within the Agricultural Sector and Wildlife Use components of CARPE.

## ONGOING ACTIVITIES

USDA Forest Service is planning a survey of NTFPs sold in population center markets in Cameroon and Gabon, to identify which NTFPs have a high value, which are becoming progressively scarce in the wild, which could be cultivated, and which can only be wild harvested.

USDA Forest Service is planning a workshop in the region to establish central African priorities for the NTFP sector activities of CARPE.



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The World Wildlife Fund and the Peace Corps are also contributing to the design and implementation of this CARPE action.

# Wildlife Use

## EXPECTED RESULT

Consumptive and non-consumptive use of wildlife is assessed and conservation strategies piloted

## BACKGROUND

Wildlife in the forests of the Congo Basin are important seed dispersers and thus are essential to the long-term structure and function of the forest. They are also the basic resource for subsistence and market hunting, safari hunting, live animal trade, ecotourism, and small livestock raising. Wildlife contribute not only to local diets and local livelihoods (both as sources of income and as agricultural pests), they can also help defray the costs of managing protected areas. Though forest wildlife have significant dietary and economic value little effort has been made to synthesize our knowledge of the impact of subsistence and market utilization on wildlife populations, and the role that different wildlife uses can play in sustainable economic development and sustainable management of the forest.

## OBJECTIVES

This component of CARPE is designed to a) assess our state-of-knowledge regarding the biological and socio-economic sustainability of the extractive and non-extractive use of animals (including subsistence hunting, market-based hunting, safari hunting, ecotourism, animal rearing, and live animal trade) in the region, and b) design and pilot conservation strategies that enhance conservation practices and provide incentives for sustainable use.

## LINKS TO OTHER CARPE ACTIVITIES

Results of this activity will contribute directly to the Agriculture Sector, Forestry Sector, and Protected Area components of CARPE.



# Wildlife Use

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## ONGOING ACTIVITIES

WCS in conjunction with Fauna and Flora International and the Ape Alliance is in the process of conducting a state-of-knowledge survey of the role of wildlife use in the conservation and degradation of forest resources in the Congo Basin.

WCS is working with private sector logging companies to encourage them to voluntarily prohibit the use of concession vehicles to transport hunters into the forest and bushmeat out to markets.

BSP in conjunction with WCS and WWF has developed a preliminary proposal to the International Foundation for Animal Welfare for a three or four site pilot program to implement and evaluate a standard suite of interventions designed to reduce or stop market hunting of bushmeat. The key interventions that to be evaluated are as follows: 1) demand management via taxation, social marketing, and small livestock breeding; and 2) supply management via interdiction, monitoring logging companies, and establishment of alternative management systems (e.g. local authority over and responsibility for wildlife resources).

WCS is also collaborating with GEF-Gabon and GEF-Cameroon on their bushmeat activities.



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The Wildlife Conservation Society and the Biodiversity Support Program are also contributing to the design and implementation of this CARPE action.

# Protected Areas

## EXPECTED RESULT

Conservation status of biodiversity within protected areas is enhanced

## BACKGROUND

Establishment and management of protected areas are an important and effective part of all national or international strategies to conserve biological resources. Protected areas provide nations with the opportunity to control consumptive use of plants and animals deemed too important or too vulnerable to lose as a result of unrestricted use for subsistence or commercial purposes. Protected areas constitute reservoirs that can help to replenish plant and animal populations in bordering areas depleted by over use, and can, under certain circumstances, generate income for bordering communities through non-consumptive uses such as tourism.

## OBJECTIVES

This component of CARPE is designed to help improve the systems used to manage protected areas in the region by a) exploring ways to ensure that protected areas have sustainable sources of funding, b) developing systems for monitoring and evaluating the threats to, and status of protected areas, c) designing and implementing activities that enhance the capacity of individuals and institutions to manage protected areas; d) and exploring regional linkages that facilitate the conservation of biodiversity within protected areas.

## LINKS TO OTHER CARPE ACTIVITIES

Activities implemented by the Community Conservation, Forestry Sector, Agriculture Sector, Infrastructure Sector, NTFP Sector and Wildlife Use Sector will all contribute to efforts by the Protected Area team to explore regional linkages that facilitate biodiversity conservation within protected areas.



# Protected Areas

## ONGOING ACTIVITIES

Activities are clustered under the four objectives listed above:

### *Sustainable Funding*

CARPE funds are being used help cover the operating costs of the Nouabalé-Ndoki, Gamba and Dzanga-Sangha protected areas.

WCS is assessing the feasibility of establishing a trust fund for the Nouabalé-Ndoki National Park.

WWF is completed an analysis of the past and present role of donor in protected area management in the Congo Basin.

WCS and WWF are exploring opportunities for income generation through ecotourism in the Lope, Nouabalé-Ndoki, Gamba and Dzanga-Sangha protected areas.

### *Developing system to monitor and evaluate the threats to, and status of, protected areas*

WCS and WWF are designing and implementing aerial video-monitoring for the NNNP and Dzanga-Sangha.

WCS is conducting phenological and biological monitoring studies in Lope.

WWF is conducting economic assessment of NTFPs in intact forest within Dzanga-Sangha, Korup, Gamba, and Minkebe protected areas.

WWF is conducting biological monitoring in Dzanga-Sangha, Gamba, and Minkebe protected areas.

WWF is conducting a literature review and assessment of the threats to protected areas and their underlying driving factors.

WWF is monitoring sea-turtle breeding areas in Gamba protected area; Grey parrot ecology and live-animal trade in Lobeke, and lowland gorilla ecology and response to bushmeat hunting in Dzanga-Sangha.

WWF has just completed a series of field assessment of threats to protected areas using PRA methods.

WWF has developed a model to organize information on threats and prioritize interventions.

### *Undertake activities that enhance the capacity of individuals and institutions to manage protected areas*

WCS is continuing forestry officer training biological inventory techniques.

WCS and WWF are training biological monitors in collaboration with the GEF Gabon.

WCS is developing management plans and policies for NNNP, Lope and Gamba.

WCS is conducting tourist guide training at Lope.

WWF is training of parataxonomists in Dzanga-Sangha.

WCS is training a group of Gabonese graduate students in ecological monitoring techniques.

WWF is providing GIS training for protected area staff.

### *Explore regional linkages that facilitate biodiversity conservation in protected areas*

WCS and WWF are working with national governments and the private sector to encourage the establishment of policies and practices favorable to biodiversity conservation.

WCS has reached a draft conservation planning and management agreement with the Kabo logging concession in northern Congo.

WCS is organizing multi-use landscape planning exercises for the Kabo and Mokabi logging concessions in northern Congo.



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The University of Maryland, University of Virginia, the National Aeronautics and Space Administration, Wildlife Conservation Society, and the World Resources Institute are also contributing to the design and implementation of this CARPE action.

# Gaps in the Protected Area Network

## EXPECTED RESULT

Areas of high biodiversity are mapped and gaps in the protected area system identified.

## BACKGROUND

The protected area system in the Congo Basin confers management control over many areas of intact forest that appear to represent, at least geographically, the range of habitat types characteristic of the region. However, selection of protected areas was made in a piecemeal, largely ad-hoc manner, partly out of opportunism and partly for lack of a more systematic approach. To ensure that the protected area system does indeed protect the key areas of biodiversity value in the region it is important to map the areas of high biodiversity, overlay the present network of protected areas and identify gaps, if any, in the system that warrant protected status.

## OBJECTIVES

This component of CARPE aims to a) use predictive models to identify areas of potential high biodiversity within the region, b) assess relative status of these areas using the TREES forest cover map and information from the WRI Forest Frontiers Initiative, and c) locate gaps in the protected area network that warrant field surveys and possible protection efforts.

## LINKS TO OTHER CARPE ACTIVITIES

GIS data layers created by the Logging and Infrastructure components of CARPE will contribute directly to this action.



# Gaps in the Protected Area Network

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## ONGOING ACTIVITIES

WWF is in the process of using a linear regression model to stratify the landscape in the Congo basin into areas of high expected biodiversity value based on a select set of geophysical factors. This factor set has proven predictive of tree and liana diversity in the Americas and serves as a proxy for species richness in other taxa.

WWF will use the results from these activities with additional data from other components of CARPE to identify which areas of high potential biodiversity value remain relatively undisturbed.

WWF is updating the map of protected areas in the Congo Basin.

WWF will conduct a GIS analysis to identify gaps in the protected area network, by overlaying the updated map of protected areas with the map of intact areas of potential high biodiversity. Results of this activity will help decision makers to identify areas of high biodiversity value that fall outside of the present protected area network and that may warrant protection efforts.

WWF will assess the accuracy of their biodiversity mapping activities by consulting experts in the region, and where appropriate conduct field surveys.