GLOBAL CLIMATE CHANGE, NATURAL RESOURCES MANAGEMENT, AND BIODIVERSITY CONSERVATION IN THE CONGO BASIN: A PRELIMINARY LITERATURE REVIEW.

For The
Central African Regional Program for the Environment (CARPE)

Damon A. Job[1]

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[1]Biodiversity Conservation and Natural Resources Management Consultant
Present Address: 5921 Avon Dr., Bethesda, MD. 20814-2201.
Home:301-530-0751; FAX: 301-897-1489; E-Mail: NZPZR010@SIVM.BITNET

PREFACE

This literature review was commissioned by the International Forest Section of the USDA's Forest Service and the Africa Bureau of the U.S. Agency for International Development to assist in the development of the Central African Regional Program for the Environment (CARPE). The aim of this report was not to produce an exhaustive bibliography on natural resources management, biodiversity conservation, and global climate change as they relate to the tropical moist forests of the Congo Basin. Rather, emphasis has been placed upon bringing to light the content of relevant documents that best can be regarded as "grey literature". This includes un-published and published manuscripts, documents, and reports of independent contractors or institutions, and national and international NGOs and government agencies. Also included were papers and speeches presented at relevant conferences, and books. For practical reasons, the literature review was confined to the period from 1984-1994.

Having been researched, compiled, and written in three weeks, there are limitations to the number of abstracts and to the volume of literature surveyed. Had there been more time in which to complete the research, this document could have been more comprehensive, with greater emphasis being paid to searching internationally for in-house publications and un-published manuscripts. As a result, this document should be viewed as a preliminary examination of the literature available on Global Climate Change, Natural Resources Management, and Biodiversity Conservation with respect to Moist Tropical Rain Forests in the Congo Basin.

Initial research suggests that there is a substantial relevant, albeit peripheral, literature and a variety of 'grey literature'. However, procuring the documents could be very time consuming and costly. Wide and wisely thought out use of the Internet may help in finding and obtaining documents within and outside the United States.

Acknowledgements

I wish to thank Mr. Timothy Resch, (USAID/AFR/ARTS/FARA), Mr. Mark Buccowitch (USDA/USFS/IF), and Mrs. Robin Maille (USDA/USFS/IF) for guidance and assistance in acquisition of material for this document. I am grateful to Mr. Roberto Martin (USAID/CDIE) for the time he spent in performing on-line searches for relevant literature to include in this bibliography. Thanks also to Ms. Kim Mahling Clarke (USAID/ABIC) for initial assistance with electronic searches. I appreciate very much the cooperative manner in which I was received and afforded access to relevant information in the offices of Mr. Richard Carroll (US-WWF); Mr. Peter Veit, (WRI), and Mr. Simon Reitbergen, (World Bank). My thanks are extended to many others, often in more remote locations, who provided information and assistance, and to the support staff of USAID/AFR in Rosslyn, Virginia and USFS/IF in Washington, D.C. Finally, sincere thanks to my wife, Maryclare Job who seems so often to give up our free time to my work.

Damon A. Job
Bethesda, MD.

TABLE OF CONTENTS

INTRODUCTION

In the last decade there has been an increase in understanding of tropical rain forest ecosystems and greater recognition of the interdependence of the environment and the economy. Concern over the loss of tropical rain forests and their biodiversity, and its implications for potential global climate change, has led to increasing political awareness of the serious consequences of human development and forest mismanagement.

Recently, attention has spread from the tropical forests of Amazonia to those of Central Africa[1]. In few places in the world are natural resources and their management so intricately linked to the livelihood and survival of the indigenous populous as in sub-Saharan Africa. Concomitantly, the state of the environment and availability of resources also present considerable constraints to their effective development and conservation. The Congo Basin in Central Africa is the second largest contiguous lowland tropical forest in the world. Within this basin are the nations of Cameroon, the Central African Republic, the Congo, Equatorial Guinea, Gabon, and Zaire. This ecosystem contains vast natural resources and great biodiversity. It is estimated that there are over 8,000 species of plants in the basin, 80% of which are endemic[2] . The global significance of the basin ecosystem is obvious from experiences with deforestation in Amazonia and West Africa and the fact that 75 to 95 percent of the it's rainfall is recycled. This contrasts with 50% in the Amazon Basin (Brinkman, 1983). With the anticipated attendant growth of population and the social and political problems already faced by Congo Basin nations comes the threat of deforestation. Deforestation would lead to increased release of greenhouse gas emissions, alteration of soil structure, loss of biodiversity, and changes in rainfall patterns. Such activity, if left unchecked, would de catastrophic for the region and have serious consequences globally. By and large, today deforestation and greenhouse gas emissions are not a serious problem within the basin[3]. This affords an unprecedented opportunity to limit the increase in rates of loss of tropical forests and biodiversity and to conserve a unique and vital ecosystem.

The U.S. Congress has considered a variety of legislation to limit the ever increasing rates of deforestation and greenhouse gas emissions and the U.S. government has supported a number of bilateral and multilateral initiatives to assist other countries in sustainably managing their forest and other natural resources. The USAID has chosen to use this opportunity to provide direct and indirect assistance to the nations of the Congo Basin through the 'Central African Regional Program for the Environment' (CARPE). The proposed objectives of the program are to contribute to the minimization of emissions responsible for global climate change, concurrent to identifying and developing mechanisms to conserve and sustainably utilize the natural resources of the Congo Basin, in a manner which addresses local, national, regional, and international concerns. The program will be designed to provide an analytical focus with the capacity to support field activities through the funding of national governmental and non-governmental institutions. It will draw upon experiences gained through previous collaborations, such as the USAID-funded initiatives in the Korup Forest of Cameroon and the Dzanga-Sangha Reserve of the Central African Republic.

How to Use This Document

This document has been divided into three sections. In the first section are abstracts of

bibliographic citations drawn from a variety of sources, the majority of which are in-house publications and un-published manuscripts of researchers, NGOs, and government agencies in the US and Central Africa. Some are from conference proceedings, while others review books of interest. These are sorted alphabetically by primary author or institution. The second section includes a list of bibliographic references secondary to the annotated citations provided in section 1. The final section is a group of indices to the annotated abstracts. Alphabetical indices by author, geographical region, institution, and subject have been provided to facilitate searching for specific information.

Citations include the following fields: author(s) or supporting institution, year of publication or completion; title in English, or in French with English translation, serial, series, or journal, volume or issue number, publisher and or place of publication, and number of pages in the document.

Other Sources of Information

Frequently bibliographies are produced and soon the primary author is lost as a contact for further information. At minimum, it is advantageous to provide readers with alternative sources of information. To simplify the access further, this document is available in WordPerfect®.

Below are several sources which can be consulted to obtain more information about climate change, biodiversity conservation, and natural resources management within moist tropical forests in the Congo Basin.

1. USDA. 1987. **International Directory of Forestry and Forest Products Libraries.** Pacific Southwest Forest and Range Experimental Station, Forest Service, USDA, General Technical Report PSW-97. 106 p.

> This publication lists several libraries in the Congo Basin countries that may be sources of grey literature or whose librarians may be able to direct requests for information to government libraries and local NGOs. See: Africa: p. 3-10.

2. Haugen, C., Durst, P. B., and Freed, E. 1993. **Directory of Selected Tropical Forestry Journals and Newsletters**. International Forestry, Forest Service, USDA, Washington, D.C. In cooperation with USAID, International Society of Tropical Foresters, and the Society of American Foresters.

> For those not familiar with the variety of journals and newsletters published worldwide which deal with Tropical Forestry, this little guide is an invaluable start to a more detailed search for information.

3. TROPENBOS Foundation. 1991. **An Inventory of Existing Databases on Research Related to the Tropical Forests**. Prepared for the Working Group on an EC Tropical Forest Research Network, Tropenbos, Ede, Netherlands. 52 p.

> This document reviews information databases of ongoing and past research projects, those of donor agencies, and those of scientific publications in addition to collaborative network databases.

4. Alston, P. G. 1991. Environment Online: The Greening of databases. Part 2. Scientific and Technical Databases. Database: 34-52; October, 1991.

> This article, written by a health education specialist at the U.S. Department of Health and Human Services, was very comprehensive in it's time. Although now a little dated, it remains an excellent point from

which to start to gain a better understanding of the wide variety of databases and vast stores of information accessible on-line.

Notes

1. Cleaver, K., Munasinghe, M., Dyson, M., Egli, N., Peuker, A., Wécelius, F. (Ed.). 1992. *Conservation of West and Central African Rainforests*. World Bank Environmental Paper. No. 1. World Bank, Washington, D.C.

2. USAID. 1994. **Central African Regional Program for the Environment (CARPE). Summary**. Un-published internal document of USAID/ARTS/FARA. (CARPE 698-0548).

3. BSP. 1992. *Central Africa. Global Climate change and Development. Synopsis*. Biodiversity Support Program (a Consortium of the WWF, TNC, and WRI). Funded by the USAID. Corporate Press, Landover, MD. 20 p.

ABSTRACTS

1. Ada, N-A., and Tanjong, E. 1990. **Nongovernmental Organizations in Natural Resources Management in Cameroon**. PVO/NGO/NRMS Cameroon. Yaounde, Cameroon. 20 p.

This directory addresses natural resources management activities undertaken by national and international NGOs within Cameroon. It contains the names and addresses of organizations, describes projects and their sources of funding, and lists the objectives and geographical focus of project activities.

2. ADB/World Bank/IUCN. Forest Policy: An Approach Paper. 14 p. In: *Conservation of West and Central African Rainforests*. Selected papers from a conference organized by the International Union for the Conservation of Nature and the World Bank and hosted by the African Development Bank. November 5-9, 1990; Abidjan, Côte D'Ivoire. Environment Department and Africa Technical Department, The World Bank, Washington, D.C.

Since the publication of the 1977 Forestry Sector Policy Paper by the World Bank, the environmental and economic issues concerning management and utilization of forests has grow considerably in importance. This document provides an over-view of the World Bank's approach to forestry, including the rationale for a new forestry policy, and the primary focus and scope of a proposed new Policy Paper. The newly proposed paper will emphasize biodiversity loss, climate change, acid deposition, and watershed degradation. Transnational and global concerns are discussed with respect to deforestation and greenhouse gas emissions. Also discussed is the special case of tropical moist forests, which continue to decline at an alarming rate, and the implication of and for World Bank policy.

3. ATO. 1994. *Abstract of the Conference for the Promotion of Investments and Industries in the Timber Sector in Africa*. Paris 23-24 November, 1993. African Timber Organization Bulletin No. 2. February 15, 1994. 76 p.

This document provides abstracts of lectures and papers presented at the Conference for the Promotion of Investments and Industries in the Timber Sector in Africa, held in Paris in November, 1993. Abstracted in the document are the actions of funding donors and bankers with regard to the African timber industry; lectures and debates by attendees on development of forestry in Africa, Euro-African partnerships, market potentials, and industrialization and trade development potential of tropical timbers; diversification of the use of African tropical timber veneers and plywoods, and incentives for local processing of African timbers. The conference was attended by ATO members, industry members, and agents of funding donors.

4. Aubé, J. 1993. **Cameroon Forest Sector Overview**. Prepared for the Agricultural and Rural Development Office, USAID, Cameroon.

The forests of Cameroon are heterogeneous in having both high species diversity and high levels of endemism. More than 9, 000 species of plants are known to exist in Cameroon, 156 of which are endemic species. The Cameroonian government is concerned with the current economic crisis and priorities of the government are to support development through forestry.

This report, prepared for the USAID country

office in Cameroon, provides an overview of the status of forestry in the country. It includes analyses of forest cover, forest management, logging, activities of donors and funded projects, and several recommendations. The author points out that forestry in Cameroon represents between 4% and 5% of total gross domestic product and 8.3% of total export value, and that the industry provides employment for some 20,000 people. However, the cost has been expressed in high rates of deforestation. In 1993, the rate of deforestation in Cameroon was estimated to be between 100,000 and 200,000 hectares per year in the dense forests. The primary causes of deforestation continue to be: population growth, shifting cultivation, fuel wood demand, logging operations, agriculture activities, and inappropriate development policies.

The Cameroon Ministry of Environment and Forests (MINEF) was created in April 1992. Under it's auspices, a new forest management policy has been reviewed and hopes are high that greater consideration will be given to conservation of biodiversity and sustainable management of the forest resources of Cameroon.

5. Bailey, R. C., Bahuchet, S., and Hewlett, B. Development in Central African Rain Forest: Concern for Forest Peoples. In: *Conservation of West and Central African Rainforests*. Selected papers from a conference organized by the International Union for the Conservation of Nature (IUCN) and the World Bank and hosted by the African Development Bank. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, The World Bank, Washington, D.C.
The authors discuss the need for greater concern for indigenous people in the rain forests of Central Africa. Included in this manuscript, presented at the conference, are reviews of patterns of adaptation, acculturation, and development in the forests. The status of Indigenous groups is reviewed by region (Central African Republic, Cameroon, Zaire, Gabon, and others).

6. Barnes, R. F. 1988. **General Introduction to the Forests of Central Africa**. Draft Manuscript prepared for Wildlife Conservation International (NYZS/WCI), June 1988. 26 p.

One of the key factors uniting central African counties is the possession of extensive regions of tropical rain forests. These forests are centers of great biological diversity and contain vast natural resources. The author reviews the geomorphology and climatology, soils and vegetation, and biodiversity within central African forests. He discusses the economics of forestry, the presence and modes of exploitation of humans, and the concomitant threats posed by such activities.

7. Bertault, J. C., and Maitre, H. F. 1993. **Silvicultural Research Network of CIRAD-Fôret for Natural Rain Forests. Meeting on Long-term Research Sites in Tropical Forest**. Held Under the Auspices of CIFOR (Centre de Coopération Internationale en Recherche Agronomique pour le Développement), November 4-6, 1993; Bogor-Cisarua, Indonesia. Nogent-sur-Marne, France. 10 p.

The question has arisen of whether it is possible to reconstruct the original forest structure and retain biodiversity after an initial logging enterprise has been undertaken. Furthermore, what simple, economical measures could be taken to ensure sustainability and 'favourable' species composition. In 1976, CIRAD set out to answer these questions by establishing a network of trail plots in tropical rain forests around the world. Previous to this program, these plots were scattered, often inadequately managed and

funded, lacked common guidelines and goals, and invariably were too small to provide useful information.

This short report reviews the work of CIRAD's silvicultural research network for natural rain forests which sought to standardize the size, measurement, and analysis of information form experimental rain forest research plots. The focus was placed upon analysis of forest stand dynamics and growth, the evolution of regeneration, the effects of treatment impact versus non-intervention, and the transfer of technical knowledge gained from research to forest management projects. The main trial plots are described in tables and provide data on the location, year of establishment of the research program, research partners involved, primary research topics, number of plots, and total area.

The Permanent Sample Plots yielded information that is summarized in this document. This includes: the impact of logging, the effect of thinning and natural mortality, the impact of fire, results of production, and conclusions. Among sites reviewed in this document are those in the Central African Republic, Congo, and Gabon.

8. Brinkerhoff, D. W., Gage, J. D., and Yeager, J. A. 1992. I**mplementing Natural Resources Management Policy in Africa. A Document and Literature Review**. Prepared for USAID/AFR/ARTS/FARA by Management Systems International, the International Development Management Center at the University of Maryland, Abt Associates Inc, and Development Alternatives Inc. Washington, D.C. 74 p. Project No. 936-5451.

This document provides a review of 19 USAID project and program documents relating to organizational and managerial issues in natural resources management policy implementation in Africa. An overview is provided of natural resources management activities of the Africa Bureau of USAID, issues and treatment in the literature of natural resources management policy implementation, and critical questions relating policy implementation in Africa.

Most projects reviewed were for sustainable agriculture, agro-forestry, protected areas management, and biodiversity conservation. The most common elements identified in the reports were technical assistance and training, institution strengthening, policy studies, and equipment allocation. The most critical management and organizational issues affecting natural resources management project and program success were identified to be: management capacity, commitment of donor or host agency officials, sustainability problems, community participation, budgeting and information systems, and decentralization.

9. BSP. 1992a. *Central Africa. Global Climate change and Development. Synopsis*. Biodiversity Support Program (A Consortium of the WWF, TNC, and WRI). Funded by the USAID. Corporate Press, Landover, MD. 20 p.

This document is a synopsis based upon a series of technical papers published under a separate cover entitled *'Central Africa: Global Climate change and Development - Technical Report*'. Six countries in Central Africa, within the Congo Basin, contain the largest remaining contiguous tract of tropical moist forest in Africa. Rapid population growth, economic decline, political problems, lack of institutional support for policies, and poor management have contributed to increasing encroachment upon these forests and concomitant deforestation and loss of unique biological and genetic resources. It is stressed that lack of sustainable utilization and conservation of the unique natural resources of the Congo Basin will lead to

runoff, altered soil structure, and local changes in precipitation. It is predicted that continued deforestation, with its attendant release of CO^2, will contribute substantially to global climate change within and beyond the Basin. The end result of such changes will be an irreversible alteration of the hydrology of the Basin and agricultural, economic, and social destabilization.

This publication provides an overview of a study designed to understand the complex dynamic ecology and hydrology of the Congo basin and the effects of climate change in central Africa. The objectives of the study were to: 1) assess current and potential emissions of CO^2 from deforestation and to improve scientific understanding of the processes; 2) determine the socio-economic factors contributing to these activities and assess methods to reduce emissions; and 3) assess the impact of these activities on global climate change and the region.

It provides a comprehensive introduction to the region and its forest reserves, estimates the area affected and the rate of change in forest cover, puts into perspective the current rate and amount of emissions of greenhouse gases, country-by-country, in Central Africa relative to global sources, and assesses the potential impacts of global climate change based upon satellite-derived data and computer models. Also discussed are the human impacts and interactions with the tropical moist forests, land use patterns and agricultural clearing, energy needs (primarily fuel wood), the extent and degree of impact of commercial logging, the infrastructure that drives deforestation, and possible mitigation efforts such as reforestation and increasing agricultural productivity. In the next chapter, the political and economic factors relating to global climate change are addressed. This includes an overview of the economies and natural resource extraction in the Congo Basin countries, complicating factors such as political instability, and institutional deficiencies or frailty. An analysis is provided of improved methods of extracting and managing information through remote sensing by satellite and the use of Geographic Information Systems (GIS). Computer-generated satellite-derived coloured maps depict the changes in vegetation between 1976 and 1986. Finally, conclusions are drawn and some recommendations provided to alleviate the growing deforestation, biomass burning, and global climate change in central Africa. The authors conclude that better management of natural forest resources, more baseline ecosytematic and socio-economic data, and coordination of research and resource management are sorely needed. A fortuitous fact is that the tropical forests of central Africa, unlike those of West Africa, are largely intact. This affords an unparalleled opportunity to conserve their vital resources and prevent serious and unalterable socio-economic and environmental degradation.

10. BSP. 1992b. *Central Africa: Global Climate change and Development - Overview*. BSP (A Consortium of the WWF, TNC, and WRI). Funded by the USAID. Corporate Press, Landover, MD.

(For background information to this publication, see: No.9). Recognizing the potential impacts of climate change on all life, the US Congress mandated that the USAID should pursue a ‘Global Warming Initiative’. In response to this mandate, the USAID commissioned Oak Ridge National Laboratory to assess current and future greenhouse gas emission potential from Sub-Saharan Africa. The most significant gas emitted, primarily from deforestation, was found to be CO^2. The *Central Africa: Global Climate change and Development Study*, focusing on the six nations within the Congo Basin, was initiated by USAID. Three studies described and assessed 1). climate, soils, hydrology, and vegetation; 2). Socio-economic factors relating to forest utilization

and the inter-relationship of policy, economics, demography, and land-use changes; and 3). the potential to use for remote sensing to provide information concerning climate change and the role of GIS in analysis and management of the research data.

This document presents the findings delineated above. These include the current state of tropical forests in the Congo Basin. Discussed at length are greenhouse gas emissions, deforestation, potential impacts of climate change, the role of humans, global climate modelling, and remote sensing activity.

11. BSP. 1992c. *Central Africa: Global Climate change and Development - Technical Report*. BSP (A Consortium of the WWF, TNC, and WRI). Funded by the USAID. Corporate Press, Landover, MD. (For background information to this publication, see: No.9 & 10). This document provides an summarized overview of the subjects brought forth and discussed in *Central Africa: Global Climate change and Development - Overview*.

12. Cameroon, Government. 1989. **Plan D'Action Forestier Tropical. Table Ronde Internationale, Yaounde, 24-28 Avril, 1989. Rapport de Presentation**. Ministere de L'Agriculture, Direction des Forests, Republique du Cameroon. (Plan of Action for Tropical Forestry. An International Roundtable Discussion: Meeting Proceedings. Held in Yaounde, Cameroon, April 24-28, 1989. Ministry of Agriculture, Forestry Division, Republic of Cameroon).

This report of an international roundtable discussion reviews the status of forestry from a national, human, and economic perspective. It describes the national political principles for development of forestry in Cameroon, the objectives assigned to the Forestry Department, actions to be taken, projected results, and financial requirements to meet the objectives.

13. Carpaneto, G. M. 1993. **Parc National D'Odzala-Congo. Ethnologie, Faune, et Ecotourisme. Rapport Final de Premiere Mission: Aout-December 1992**. Ministère des Eaux et Forets, Direction Faune et Flore, Republique du Congo. Projet ECOFAC - Composante Congo. 26 p. + 2 Annexes (15 p.). (D'Odzala-Congo National Park. Ethnology, Fauna, and Ecotourism. ECOFAC Project; Flora and Fauna Directory of the Ministry of Waters and Forests, Republic of the Congo. Final Mission Report, August-December, 1992).

In this report to the Ministry of Waters and Forests of the Republic of the Congo, the author reports upon an ethnozoological study of the impact of local hunters on animals in the Mboko Hunting Reserve and the Lekoli-Pandaka Reserve, the type and number of mammals, birds, reptiles, and amphibians captured, and use of animals in medicine and folklore. Concurrently, a faunal study and inventory was undertaken of the d'Odzala National Park, and an assessment made of the potential to develop tourism and hunting. Also discussed are the potential to use local people as guides, community reaction to such plans, and analyses of the potential impact of such changes upon the local populous.

14. Carret, J. C., and Clement, J. (Ed.). 1993. **La Compétitivité des Bois D' œuvres Africains**. Ministère de la Coopération, Gouvernment du France. 298 p. (The Competitiveness of the African Forestry Industry, Goverment of France).

The authors undertook a series of studies on the competitiveness of the principal production channels in African agro-industry. In this document they review the emergence of timber industries and commercial development of world-wide

commerce in wood and tropical forest products in Africa, the dynamics of competitiveness, pricing policy, and the effects of substitution of African wood products upon French markets. The problems facing wood production industries, such as over-exploitation and deforestation, are discussed and responses to the problem are reviewed. In addition, a number of annexes are included that provide a synopsis of the history of forestry in several West African countries. This includes reviews of production statistics, and national and international markets. All Congo Basin countries are included in this review.

15. Carroll, R. 1986. The Status, Distribution, and Density of the Lowland Gorilla (*Gorilla gorilla gorilla* (Savage & Wyman)), Forest Elephant (*Loxodonta africana cyclotis*), and Associated Dense Forest Fauna in Southwestern Central African Republic: Research Towards the Establishment of a Reserve for their Protection. Yale University School of Forestry, New Haven, Connecticut. March 1986. 66 p.

This is an unpublished manuscript reporting upon a wildlife research project undertaken by the author, funded by the WWF, to assess the potential for conservation of lowland gorilla, forest elephant, and other animals within the dense tropical forests of southwestern Central African Republic. The central aim of the document was to mobilize conservationists and politicians in establishing a reserve in the Haute Sangha Prefecture.

The author reviews the climate, soils, hydrology, vegetation, and human exploitation of the dense forest and provides species lists for mammals, birds and principal commercial trees. In addition, research performed by the author is described, including assessment of Gorilla and chimpanzee density based upon line transect gorilla nest counts and counts of elephant droppings. Gorilla density, which was high, was estimated to be 0.89-1.45/km^2 , while that of elephant was 0.86/km^2, underlying the importance of the region for conservation.

16. Carroll, R. 1993. **The Development, Protection, and Management of the Dzanga-Ndoki National Park in Southwestern Central African Republic**. Prepared for the Ministry of Waters, Forests, Hunting, and Fishing, and Tourism, Government of the Central African Republic in cooperation with the World Wildlife Fund. January 1993. 167 p.

The dense tropical forested regions of Central African Republic are among the last strongholds for endangered and threatened species such as the lowland gorilla, chimpanzees, forest elephants, and dwarf forest buffalo, among numerous other forms of flora and fauna. Their presence highlights the importance of the tropical forests of the Central African Republic in conserving these unique organisms.
In this report, the author reviews the development, protection, and management of the Dzanga-Sangha Dense Forest Special Reserve, within the Dzanga-Ndoki National Park in southwestern Central African Republic, with respect to conservation of critical flora and fauna, and accommodation of human communities, and resource utilization. He provides an overview of the physical features and climatology of Central African Republic , and a review of several forested regions and their resident flora and fauna. Also discussed are exploitation, human population pressure, and the overall objectives of the project. The latter include organization, conservation, protection and enforcement, rural development, tourism, and research/education requirements for the project. Central to these concerns is maintenance of the cultural integrity of the Ba'Aka Pygmies, with special allowances made for limited traditional hunting and

controlled logging in certain areas.

17. Cleaver, K., Munasinghe, M., Dyson, M., Egli, N., Peuker, A., Wécelius, F. (Ed.). 1992. *Conservation of West and Central African Rainforests*. World Bank Environmental Paper. No. 1. World Bank, Washington, D.C.

African rain forests face a series of severe environmental problems that could jeopardize regional ecosystems and the well-being of whole populations and national economies. Concern for biodiversity and the loss of tropical rain forest became an increasing focus of public awareness in the 1980s.

This document is an edited volume of papers presented at a Conference on conservation of West and Central African rain forests held in Abidjan, Nigeria on November 5-9, 1990. The conference was organized by the World Bank and International Union for the Conservation of Nature and hosted by the African Development Bank. The impetus for the conference was a heightened global concern for the increasing rate of deforestation, environmental degradation, and concomitant loss of and biological diversity within rain forests. It was also a forum for reformulation of the FAOs Tropical Forestry Action Plan and development of a new World Bank Forest Policy, which are summarized in this volume.

The primary goal of the conference was to coalesce and discuss the most recent knowledge on the subject, promote greater cooperation among participating groups, identify the major concerns of African and international NGOs, and allow African governments to explain their forest management strategies. The editors arrange papers according to several critical issues including: country strategies for forest management, the effects of agricultural activities, aspects of natural forest management, issues of biodiversity conservation, the role played by forest people and forest-derived products, economic and fiscal issues, and governmental, NGO, and private participation in the conservation of west and central African rain forests. Thirty-nine contributions from experts in foreign aid (multilateral, bilateral, and NGO) and academics cover issues such as biomass burning, local participation, and economic analyses. Papers also are presented on fiscal issues, agroforestry, utilization of non-timber forest products, and poaching.

It is concluded that a comprehensive action plan which emphasizes sustainable agriculture, sound forest management, more extensive research, greater local community and NGO participation, more coordination and global cooperation, and the role of women, might slow down or eliminate the growing serious threat of deforestation.

18. Curran, B. K. 1993. **Preliminary Socioeconomic Assessment and Management Recommendations for Campo Reserve, Southwestern Cameroon**. Report prepared for The World Bank. May 1993. 20 p.

The Campo Wildlife Reserve in Cameroon was created in 1932 and encompasses some 270,000 hectares of Atlantic Biafran Forest in the Southwest. Although protected as a reserve, the region has been logged extensively. The indigenous population within the reserve are under-employed. With the world-wide collapse of the cacao trade, many have resorted to the commercial bush meat trade and thus have come into conflict with local authorities and the conservation objectives of the reserve. The authors of this report review the current status of the reserve, describe an anthropological field study of land use patterns, suggest three adjacent areas for eventual inclusion in the reserve (Dipikar Island, Mvini-Ntem, and Northeast Campo), and discuss various

recommendations for sustainable management.

19. Daniels, N. D. 1992. *Protecting the African Environment: Reconciling North-South Perspectives. Critical Issues Series, No. 3.* Council on Foreign Relations Press, New York, NY. 54 p.

Following the 1992 Earth Summit in Rio de Janeiro, reduction of pollution and the conservation of tropical forests and biodiversity became the center of increasing public and political attention. However, with this attention came the realization that industrialized countries of the Northern Hemisphere favoured greater environmental regulation than developing countries in the Southern hemisphere were able or willing to undertake, considering the economic and social crises many were facing.

The author points out that long-term solutions to the developmental and environmental needs of African countries will not be addressed until the North-South dichotomies of economics and ideology are taken into consideration and favourably reconciled with assistance from developed nations.

20. Doumenge, C. 1990. **La Conservation des Ecosystèmes Forestiers du Zaire**. (The Conservation of Forest Ecosystems of Zaire). Prepared for the International Union for the Conservation of Nature (IUCN). Programme For Tropical Forests, Gland, Switzerland. 242 p.; ill., maps, statistical tables.

Within Zaire is the majority of tropical forest cover of Central Africa, some one million km^2, in which reside more than 10,000 plant species, 3,000 of which are known to be endemic. This ecosystem also is home to 409 species of mammals, 1086 species of birds, and localized groups of culturally and genetically unique human forest dwellers. Zaire has had the foresight to protect a large percentage of its forests, and even aims to increase the total protected area by 12% to 15%. Logging of forest so far has been modest. Some 500,000 m^3 per year are currently extracted. However, it is probable that this rate will continue to increase to 6 million cubic meters per year by 2000.

In this book, the author reviews the biodiversity of Zaire, describes it's forest resources, provides an overview of the general role of forests in the economy of the country, and identifies legislative and institutional factors relating to the protection and utilization of forests. In addition, he provides several recommendations for legislation, utilization, conservation, and international financing for Zairan forest ecosystems. Among these are recommendations to revise legislation to permit local communities to become involved in management of protected areas, greater regulation of hunting, and promotion of tourism. Also provided is general information about 15 protected sites and 13 others worthy of consideration for protection.

21. Doungoube, G. 1991. **Situation des Aires Proteges ou Proposees de la Republique Centrafrique**. Ministere des Eaux, Forets, Chasses, Peches, et Tourisme, Republique Centrafricaune. BP 830. 47 p + annexes. (Status of Proposed and Protected Sites in the Central African Republic).

This report, prepared for the Ministry of Waters, Forests, Hunting, and Fishing, and Tourism of the Central African Republic, describes status of parks, natural reserves, and existing and proposed protected areas in Central African Republic as of October 1991. The author reviews the history, administration, biogeography, vegetation, and fauna of the Central African Republic. Also discussed are the creation of new protected areas, with reference to obstacles to their development, strategies for protection, potential for tourism, and socio-

economic factors of relevance. The political aspects of conservation are discussed and several recommendations made for action to conserve existing and proposed protected regions.

22. Fa, J. E. 1991. **Conservacion de los Ecosistemas Forestales de Guinea Ecuatorial**. (Conservation of Forest Ecosystems of Equatorial Guinea). Tropical Forest Program, International Union for the Conservation of Nature Switzerland. 221 p., charts, maps, and statistical tables.

Much of the tropical forests of Equatorial Guinea are surprisingly diverse ecologically. Having been a Pleistocene refugia free of glaciation, many of the birds and mammals are unique and largely remain undocumented. the Mbini region, which contains significant natural resources, generates over 50% of the national income from exportation of forest products and other natural resources. The coastal regions of Mbini are the most severely deforested, while the country's inaccessible interior regions remain mostly undisturbed. Agriculture, especially itinerant agriculture, is the second leading cause of deforestation after timber harvesting.

In this report, the author assesses the condition of the dense humid forests of Equatorial Guinea in terms of their conservation, ecology, exploitation, and legal status.The author reports that primary forest coverage decreased from 50% to 28% between 1959 and 1985, while secondary forest cover decreased by 2% to 10%. Largely unregulated, poaching and hunting for bush meat and illegal trapping and exportation of exotic wildlife remain major and widespread problems. Several recommendations are put forth to guarantee the conservation and protection of several sensitive sites. The government of Equatorial Guinea is encouraged to development legal and institutional frameworks that will allow for sound regulation and management of agricultural activity, sustainable forest resource utilization, and conservation of biodiversity.

23. FAO. 1988a. **Tropical Forestry Action Plan, Joint Interagency Planning and Review Mission for the Forestry Sector: Cameroon**. Tropical Forestry Actlon Programme, FAO, and UNDP. 3 v.

Cameroon, unlike many of it's neighbours, still possesses extensive tracts of pristine tropical forests, particularly in the south. Contrary to many reports of conservation organizations, the authors of this report see most of this forest, almost 17.5 million hectares, as being in need of removal in order to meet the demands of international markets. The goals are to double forest products production by 2000, thereby aiming to produce 100,000 new jobs. There will be a 50% increase in demand for fuel-wood in the next 15 years and 58 new forestry projects could make Cameroon the leading producer and exporter of forest products by the 21st century. Six of the proposed plans, 8.5% of the total, are conservation-based activities. Also addressed in this report is loss of wildlife to poaching, encroachment of people, and droughts.

24. FAO. 1988b. **Zaire Forest Policy Review (Draft): Summary Report**. Tropical Forestry Actlon Programme, FAO, Conservation International Institute for Environment and Development (CIIED), and others. 10 p. + 5 annexes: charts, maps, statistical tables, En.

This report outlines a strategy for conserving the forest resources of Zaire through development programs and internal policy reforms. An overview is provided of forestry and land use, conservation of forest ecosystems, wood energy, forest-based industries, and institutions. The scope of each subsector is assessed, followed by information on socioeconomic importance, related management issues and trends,

policy issues and institutional constraints. Although Zaire's national parks are considered to be well-managed, it is reported that forested lands are subject to encroachment and degradation through slash and burn agriculture, which results in clearance of about 2 million ha. annually, and fuelwood harvesting, which amounts to about 30 times the industrial production of lumber. Furthermore, forest reserves appear to be unprotected and un-managed. A government plan has been implemented to establish a 100,000 ha fuelwood plantation for Kinshasa, despite the fact that it would meet only 3% of the demand for charcoal over the next 5 years.

The report concludes that The Department of Land Affairs, Environment, and Nature Conservation is severely limited by lack of funding, adequately trained staff, and coordination of activities. Recommendations are made for increased development assistance to Zaire, and for the government of Zaire to institute administrative and policy reforms, enhance collaboration with non-governmental organizations, and to increase basic research.

25. FAO. 1989. **Plan D'action Forestier Tropical: Table Ronde Internationale, Yaounde 24 - 28 Avril 1989. - Rapport de Presentation**. (Tropical Forestry Action Plan: international Round Table, Yaounde, 24 - 28 April 1989. - Proceedings). Tropical Forestry Actlon Programme, FAO, and Others. Cameroon Ministry of Agriculture, Directorate of Forests. Apr 1989, v, 70 p.

This report reviews the round table proceedings on a Tropical Forest Action Plan for Cameroon. This was developed by the Government of Cameroon and several international donor institutions. The report reviews the status of forestry in the national economy, outlines the national development policy, and elaborates upon strategies for development of forestry. Paramount to the new policy are economic development, employment, and environmental protection. Also considered is the relative importance of 58 planned forestry projects and an assessment is made of the manpower and financial needs for the programs.

26.FAO. 1990. *Republique du Zaire Plan D'action Forestier Tropical*. (Tropical Forestry Action Plan for the Republic of Zaire).Tropical Forestry Actlon Programme, FAO, Canadian International Development Agency (CIDA), and others. 2 vols., statistical tables.

Despite having enormous forest reserves, Zaire has problems with wood scarcity in the more densely populated southern and eastern regions, where demand for fuel wood and construction material is high. Currently, forestry accounts for only 1% of the GNP in Zaire.

This Tropical Forestry Action Plan (TFAP) report describes Zaire's natural resources, geography, economy, political system, and national forestry plan to 1990. The first section provides an analysis of land use cover, human settlements and rural social structure, agricultural policy and natural resource management, agronomy research, limitations to development of forest utilization, and prospects for reforestation. The second section describes the history of forestry in Zaire and addresses issues of industrial constraints and environmental impacts of forestry. Information is provided on national energy needs, fuel wood requirements, forest ecosystem conservation, and the role of institutions. The WCMC offers several recommendations for action plans and conservation strategies, and discusses such issues as implementation, costs, objectives, and expected results.

27. FAO. 1991. *FAO Documentation. Forestry. 1986-1990*. 10th World Forestry Congress. David Lubin Memorial Library, FAO, Rome, Italy., 377 p.

This booklet provides abstracts of bibliographic citations prepared for the 10th World Forestry Congress held in Paris from September 7-16, 1991. The bibliography is arranged by standard AGRIS bibliographic search categories extracted from the FAO Documentation database on forestry and forest products industry for the period from 1986 to 1990. The listing is followed by author, subject, project, and geographical indices.

28. Freeman, P. H. 1986. **Natural Resources in Sub-Saharan Africa, Review of Problems and Management Needs**. Bureau for Africa, Bureau of Science & Technology, USAID, Washington, D.C. 297 p.

In Africa, the inter-relatedness of natural resources and the livelihood of people is very evident. Many African exist at the subsistence level and their homelands continue to suffer from degradation and declining availability of natural resources coincident with demographic and economic problems. In 1986, USAID completed a review of natural resources management problems in Africa. Seven critical problems were identified and recommendations were made for possible action by the Agency. The key problems identified were soil erosion, loss and or degradation of soil productivity, vegetation, biodiversity, and coastal resources, the pollution and degradation of water resources, and stress upon natural resources due to drought.

29. Gartlan, J. S. 1990. Practical Constraints on Sustainable Logging in Cameroon. 9 p. In: *Conservation of West and Central African Rainforests*. Selected papers from a conference organized by the International Union for the Conservation of Nature and the World Bank; hosted by the African Development Bank., November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, The World Bank, Washington, D.C.

In this paper, presented at the conference, the author examines the technical issues of governmental control of logging operations in Cameroon and the procedures of several logging companies. Unplanned, sustainable logging exists in some areas of Cameroon forests where valuable logs are removed from small concessions. The possibility of a boycott of African timber is significant threat to Cameroon. He suggests that consideration and implementation of some of the recommendations outlined may permit tentative steps toward sustainable logging practices. It is pointed out that logging practices be made more ecologically compatible and concessions be made large enough to allow sustainable logging to take place.

30. Gartlan, S. 19??. **Country Plan Cameroon**.The World Wildlife Fund (Draft Manuscript). 101 p.

This unpublished draft manuscript outlines a plan of action for conservation of biodiversity in Cameroon. The physical geography, climate, soils, and major ecotones of Cameroon are described. Also reviewed are the biological significance of major ecosystems in the country and the environmental threats they face. The infrastructures of governmental and environmental protection are described, as are the roles of NGOs and the involvement of World Wildlife Fund in biodiversity conservation in Cameroon. The author lists priorities for action biogeographically and regionally. He recommendations the need for development of a national education programme, a national land-use plan, and a national population policy if the majority of Cameroon's biodiversity is to be conserved.

31. Gartlan, S. 1989. **Conservation des ecosystemes forestiers du Cameroun**. (Conservation of Forest Ecosystems of

Cameroon). Tropical Forest Program, International Union for Conservation of Nature and Natural Resources. Gland, Switzerland., 186 p. ill., maps, statistical tables.

There are two major types of forests in Cameroon, coastal and Congolese, most of which are suffering from over-exploitation and degradation, particularly the coastal forests. The government of the Cameroon is sensitive to the need to conserve and sustainably use these valuable resources. In Cameroon, the state has acquisitioned 20% of the national territory for conservation, but lacks an urgently needed national forest management plan.

This report describes the extent and importance of forests in Cameroon, the role of forestry in the national economy, the biodiversity, and legislative and institutional aspects relating to forest conservation and utilization. Several recommendations are made concerning administrative and legal actions that could be taken. The author also describes 24 sites identified as being in need of protection.

32. Gibson, J. E. 1993. **West and Central Africa Regional Environmental Law Study**. A Report of the International Resources Group, Ltd. Washington, D.C. Prepared for REDSSO/WCA, USAID, Abidjan, Cote d'Ivoire. 95 p. + Annexes.

Legal and legislative deficiencies in environmental and natural resource laws are a serious constraint to the development of environmental protective measures in developing nations. This report assesses and provides an overview of the state of natural resource and environmental laws and regulations in several West and Central African countries. By and large, the foundation of environmental law in West and Central African countries is colonial, derived from 20th century French and English law. Such laws predominantly have dealt with health regulation and resource extraction. Although several countries have developed and enacted modernized environmental laws, no country has a thoroughly comprehensive legislation. The author reports that this fact, and lack of sufficient political, institutional, and financial stability, has contributed to their failure to deal adequately with environmental protection and conservation. Furthermore, the failure to address and make compromises for traditional practices, such as selective tree felling, has impeded development and implementation of adequate and effective environmental legislation.

The author recommends a variety of actions to address limitations to the development and effective application of environmental and natural resource protection laws. These include: policy and legal reforms, institutional reinforcement, enhancement of public and community participation, and education and training programs.

33. Goodson, J. 1988. **Conservation and Management of Tropical Forests and Biological Diversity in Zaire**., U.S. Agency for International Development. Bureau for Africa, Zaire. 140 p., maps, statistical tables, En.

Zaire possesses about half of all tropical forests found in Africa, almost 10% of the global cover. These forests hold a diversity of flora and fauna, a high percentage of which are endemic taxa. Although demand for fuel wood and charcoal has resulted in regions of deforestation near urban centers, Zaire does not face an immediate and serious threat from deforestation. The current rate of deforestation is low, about 0.15% - 0.50%, and it is estimated that at least 87.6% of Zaire's original forest remains intact. The author suggests that slow rural population growth and a decrease in agricultural activity of small landholders is expected to reduce the loss of biological

resources through deforestation. Zaire's eight national parks probably protect the majority of biotic communities, vegetation types, and endangered species. Two new parks are proposed which will add another 1% of the protected land area. Although the Government of Zaire remains committed to conserving its forests and biodiversity, the author reports that there is a lack of legal, economic, and institutional resources to protect existing areas, a deficiency of skilled professionals, and insufficient biotic and technical information to set priorities and policy for conservation. (Author abstract, modified).

34. Graham, R.L., Perlack, R. D., Prasad, A. M., and Waddle, D. B. 1990. *Greenhouse Gas Emissions in Sub-Saharan Africa*. Prepared by Oak Ridge National Laboratory, Oak Ridge, TN. for the Office of Technical Resources, Bureau for Africa, USAID, Washington, D.C. ORNL-6640. 135 p.

Although there is unanimity that increased production of greenhouse gases will lead to a warmer global climate, these is uncertainly in predicting the time of onset and magnitude of predicted global warming. General circulation modelling suggests that a doubling of CO^2 emissions, or an equivalent increase in all other greenhouse gases, may increase the earth's surface temperature by 3.0^o to $5.5.^oC$. The gases of most concern are CO^2, methane, CFCs, and nitrogen oxides.

In Sub-Saharan Africa, only CO^2 is of major concern due to the low levels of industrialization. In 1985, 50% of CO^2 emissions were produced by three countries, Ivory Coast, Nigeria, and Zaire, predominantly for deforestation. By 1985 carbon emissions from deforestation for all of Sub-Saharan Africa were 200 million tonnes (only 3% of global levels; by contrast 24.6% is produced by North America). However, if the rates of deforestation, 0.2% per annum in 1985, were to increase in Zaire, which has vast area of tropical moist forest, carbon emissions from Sub-Saharan Africa could increase significantly.

The authors review greenhouse gas emissions in Sub-Saharan Africa, carbon cycling and the role of terrestrial vegetation, forest and land use patterns, carbon emissions from industry, biological carbon estimates and their impact upon climate change in Sub-Saharan Africa, and the results of remote sensing. Based upon computerized modelling, they review the methodology, potential impacts, land management options, and study limitations for predicting the influence of emissions from Sub-Saharan Africa upon global climate change.

35. Green, J. L., and Brown, K. M. 1994. **Forest Certification Program Prospects. Cameroon, Central Africa**. Prepared for the World Resources Institute (WRI), Yaounde, Cameroon. 21 p.

Cameroon has 17.5 million hectares of closed canopy forests. Revenues from oil, coffee, cocoa, and tobacco have been declining because of government mismanagement and declining global commodity markets. The obvious short-term solution is to utilize forest resources through logging. In fact, the most recent TFAP plan of the FAO plans to double roundwood logging to 4 million m^3 by 2000. This will make Cameroon the largest exporter of timber in Africa. Despite this plan, little emphasis has been placed upon conservation and sustainable logging and extraction and sawmill efficiency is very low. To address the concern for lack of sustainable logging practices and deforestation world-wide, the Forestry Stewardship Council (FSC) was established in 1993. The FSC would oversee timber certification and adherence to international standards for logging and is considering developing accredited timber certification programs for Africa.

This report describes a reconnaissance mission to determine the potential for Cameroon to be involved in a timber certification program and to assess the potential to develop a mechanism to manage forests sustainably in Cameroon in light of the present economic and political crises. The report includes synopses of interviews with government officials.

36. Hall, J. 1993. **Report on the Strategic Planning Mission for the Creation of a Protected Area in the Lobeke Region of Southeastern Cameroon: Assessment of Timber Exploitation, Safari Hunting, and Preliminary Vegetation Analysis**. Prepared for the NYZS/The Wildlife Conservation Society.

The Government of Cameroon for a long time has recognized the importance of Lobeke for the conservation of elephant and other large mammals. The author reviews the activities of an interdisciplinary team assessing the potential to develop the Lobeke region in Southeast Cameroon as a protected site. Their report describes activities of the team and attempts to reinvigorate interest in developing Lobeke as a protected site. The author reports that the mission was able to renew the interest of the government and sought possible funding for creation of the conservation area. He describes analyses of forest vegetation types and compilation of partial species lists.

Forestry projects are still active in the area. Several species of economically valuable trees were found to be regenerating after logging activity. Preliminary, tentative assessments suggest that sustainable forestry may be possible and that managed forest could serve as a buffer to a conservation region. However, one obstacle to such management is commercial hunting for bush meat and trapping of parrots. Sport hunting also is prevalent in the region and has put hunters in conflict with the local people. The author suggests that sport hunting, if managed, could play a role in a multiple use conservation area. He urges the Cameroonian Government to continue its moratorium on providing timber concessions within the proposed conservation region and that an area of approximately 100,000 ha, encompassing the proposed 40,000 ha forest reserve and the forest east towards the Sangha river, be put off limits to timber exploitation indefinitely.

37. Hecketsweiler, P. 1990. *La Conservation des Ecosystèmes Forestiers du Congo*. (Conservation of forest Ecosystems of the Congo). Conservation of Forest Ecosystem Studies. Tropical Forests Program, International Union for the Conservation of Nature, Switzerland. vi, 187 p., maps. statistical tables.

The Congo is second only to Zaire in the land area covered by tropical forests (62%). This valuable resource and its resident biodiversity is threatened by increasing human encroachment and deforestation.

This document was the product of a regional program on "Conservation and Rational Utilization of Forest Ecosystems In Central Africa." ("Conservation et Utilization Rationelle des Ecosystèmes Forestieres en Afrique Central") which was financed by the European Development Fund. In this report, the author describes the forest resources of the Congo and their role in the economy, the biological diversity and flora and fauna of the forests, current modes of exploitation, and the legislative and institutional factors relating to forest management, utilization, and conservation. Existing protected parks and reserves are reviewed with respect to climate, geography, vegetation, human activity, and legal status (e.g., Parc National d'Odzala, Réserve de Faune de la Léfini). Several important sites with potential for future conservation are listed and described briefly. These include: Site de Nouabalé,

Site des Bowé de Kouyi, and Site de la Likouala-aux-herbes - Lac Télé.

Recommendations are put forth to develop legislation and establish a managerial institution to guarantee conservation and ensure rational, sustainable utilization of forest ecosystems and resources. The author provides summaries of the 12 protected parks and reserves in the Congo. Also discussed are six sites with potential for protection. The report includes lists of commercial plants and protected mammals, birds, and reptiles.

38. Hladik, C. M., Hladik, A., Linares, O. F., Pagezy, H., Semple, A., and Hadley, M. (Ed.). 1993. *Tropical Forests, People and Food. Bicultural Interactions and Applications to Development*. Man and the Biosphere Series (MAB), V. 13. UNESCO and Parthenon Publishing Group. 852 p.

This volume, one of the MAB Series, provides a comprehensive overview of the history, evolutionary, ecological, physiological, anthropological, and cultural aspects of food and nutrition derived from tropical forests world-wide. This book is the outcome of an international symposium entitled "*Food and Nutrition in the Tropical Forest: Bicultural Interactions and Applications to Development*" held in Paris, September 1991. Eight or more reports contained in this volume are derived from studies undertaken in the Congo Basin. Seventy-four chapters provided up-to-date references on the problems facing people whose livelihood and future existence depends upon access to intact tropical forests.

39. IIED/Zaire, Government. 1988. **Zaire Forests Policy Review. Summary Report**. (Unpublished, Draft Manuscript). Department of Land Affairs, Environment, and Nature Conservation, Zaire, and IIED, Washington, D.C. 102 p. + annexes.

This unpublished draft manuscript reviews the policies affecting sustainable development of forests in Zaire from July 1987 to May 1988. This review was designed to assist the government of Zaire in preparation of a Forestry Sector Plan, to provide the World Bank with background information concerning assistance needs, and to prepare for a multi-donor mission organized by TFAP.

The report summarizes results of field visits to nine regions of Zaire and discussions with officials of local government, NGOs, forestry industry, and local communities. As a result of this review, 11 papers were presented at a national forest policy seminar on ecosystem conservation, wood energy, forestry and rural development, the roles of NGOs, approaches to integrated land use planning, and institutional involvement.

40. INTERASE. 1993. 1993 *Directory of Country Environmental Studies. An Annotated Bibliography of Environmental and Natural Resources Profiles and Assessments*. A Product of the International Environmental and Natural Resource Assessment Information Service (INTERASE) Project, Funded by the Australian International Development Assistance Bureau (AIDAB), German Agency for Technical Co-operation (GTZ), Netherlands Ministry of Foreign Affairs, Swiss Directorate for Development Cooperation and Humanitarian Aid, and United States Agency for International Development (USAID). November 1992. (Available for WRI, Washington, D.C.)

This Directory provides annotated reviews of environmental, natural resource, forest conservation, and biodiversity profiles, strategies, reports, and studies. These are grouped by continent and sub-categorized by country. There are abstracts of FAO, TFAP, and national government reports for Cameroon, Central African Republic , Congo, Equatorial Guinea, Gabon, and

Zaire. [Author's note: Most of these reports also are described in this manuscript or modified from the INTERASE Directory abstracts].

41. IUCN. 1985. *Zaire: Conservation of Biological Diversity*. International Union for Conservation of Nature and Natural Resources. Tropical Forest Program, Gland, Switzerland.; 25 p., En.

In 1925 Zaire was the first African country to create a national park, and today the government remains committed to conservation. Zairian forests are home to unique plant and animal life, including such rare mammals as pygmy chimpanzees, okapis, and mountain gorillas. In 1985, about 1,820 km^2. (0.2%) was being deforested each year, primarily through plantation agriculture, shifting cultivation, and fuel wood collection.

This report assesses the natural resources of Zaire and identifies several major environmental threats. Currently, most reserves within the forest are protected by their remoteness, although they are vulnerable to poaching. However, the author(s) report that rapid urban population growth, estimated to be 3.1% per annum into the next century, will undoubtedly lead to the increased likelihood of forest colonization. Recommendations are put forward to expand the amount of protected areas and to strengthen enforcement of conservation laws, particularly in many villages where residents are allegedly involved in extensive poaching and illegal elephant hunting.

42. IUCN. 1988a. **Conservation et Utilization Rationnelle des Ecosystemes Forestieres en Afrique Centrale. Rapport National Centrafrique**.75 p. (Conservation and Rational Utilization of the Forest Ecosystems of Central Africa).

This publication is a national report of the Government of Central African Republic, in cooperation with the IUCN, describing the conservation and rational utilization of forest ecosystems in the Central African Republic. Described are the biodiversity and forest resources of the country, the role of forestry and forests in the economy, legislative and institutional aspects of the conservation of forest resources, existing conservation programs, modes of exploitation of the forest and it's resources, and a description of critical sites of importance for conservation.

43. IUCN. 1988b. **Zaire: Conservation of Biological Diversity**. World Conservation Monitoring Center (WCMC), Cambridge, UK. (Unpublished, Draft Manuscript). 25 p.

In Zaire is the largest expanse of pristine tropical moist forest in Africa. In addition, there are more species of plants and animals within its borders than in any other country on the continent. Much of the land is critical habitat to a wide variety of species, many endemic, rare, or endangered. These include the pygmy chimpanzee, okapi, and mountain gorilla. There is great potential for conservation within Zaire because many of its forested lands are pristine.

This report describes the physical and human geography, vegetation, rare and threatened taxa, forest resources and their exploitation, critical sites and protected areas, and threats to diversity. It includes discussion of ways in which to improve management and extension of protected areas. The author provides tables of the number of species of endemic plants, mammals, and amphibians by country, a list of important sites for forest conservation, features of, and problems or threats relating to, protected areas in Zaire, and a list of important timber species with common African names.

44. IUCN. 1989. **La Conservation des Ecosystèmes Forestiers d'Afrique**

Centrale. (Conservation of the Forest Ecosystems of Central Africa). International Union for the Conservation of Nature. Programme For Tropical Forests. 124 p.

This publication presents plans of action for the conservation of forest ecosystems in the central African countries of Cameroon, Central African Republic, Congo, Gabon, Equatorial Guinea, Sao Tomé et Principe, and Zaire. For each country, the document describes the forest resources and biodiversity of the country, the role of forestry and forests in the economy, legislative and institutional aspects of the conservation of forest resources, existing conservation programs, modes of exploitation of the forest and it's resources, and a description of critical sites of importance for conservation.

45. IUCN. 1993. *Ecologically Sensitive Sites in Africa. Volume 1. Occidental and Central Africa*. Compiled by the World Conservation Monitoring Center (WCMC), Cambridge, UK, for the World Bank, Washington, D.C. Burlington Press, Cambridge, UK.

This book, part of a series on ecologically sensitive sites of the world, provides a comprehensive and updated examination of all ecologically sensitive sites and protected sites in the Congo Basin. In Section I, ecologically sensitive sites are defined, a conceptual framework is provided for designation and classification of such sites, and categories and management objectives are reviewed. In addition, there is a discussion of the development of guidelines on the relationship of World Bank projects to such sites and minimum quality standards for ecologically sensitive areas. In Section II, detailed maps and information are provided on the total management are of internationally and nationally protected and un-protected sites by country. Each national park, reserve, protected area, and unprotected site is described with reference to relevant topography, vegetation, protected and endangered flora and fauna, degree of agricultural encroachment, extent of deforestation, hunting pressure, uncontrolled slashing and burning, and other related environmental damage. As a thorough guide to assessment of sites in need of conservation and protected management funding, this series of booklets should not be overlooked.

46. Johnson, N., and Cabarle, B. (Ed.). 1993. *Surviving the Cut: Natural Forest Management in the Humid Tropics*. World Resources Institute, Washington, D.C. 71 p.

World-wide forests are under attack.Tropical forests are being lost at a rate of 17 million hectares per annum, while those in temperate regions are over-harvested and damaged by pollutants. One of the most vexing questions today is whether natural forest indeed can be managed sustainably.

The authors analyse historical practices and call for a redefinition of natural forest management. They point out that forestry development practitioners and theorists have had too narrow a focus and stress the need to consider also the social, political, and economic aspects of forest management. They advocate a broader focus centering upon the health of forest ecosystems and well being of local communities in order to ensure maintenance of forest vitality, species diversity, and watershed integrity. Also recommended is a redefining of timber concessions and greater adoption of community-based forest management.

47. Lyke, J. 1992. **Deforestation: An Overview of Global Programs and Agreements**. Congressional Service Research Report for Congress. Library of Congress, Washington, D.C.

In recent years global environmental issues such as tropical deforestation and its implications for global climate change and

biological diversity loss have prompted public concern and become important political issues in the United States. The rapidly growing global rate of deforestation has fomented increased public and political attention, both nationally and internationally. This has resulted in the implementation of a wide variety of programs, principles, and policies concerning forest management and conservation.

The U.S. Congress has considered a variety of legislation to limit the ever increasing rates of deforestation and the U. S. has supported a number of bilateral and multilateral initiatives to assist other countries in managing their forest resources. This paper provides some background on four of the main multilateral institutions addressing deforestation in the tropics, as well as in temperate and boreal regions, and clarifies their roles and interrelationships. The organizations, considered include: the United Nations Conference on Environment and Development (UNCED), the Tropical Forestry Action Programme (TFAP), the International Tropical Timber Organization (ITTO), and the World Bank. Of these organizations, UNCED has focused attention on global forest-related issues, while the TFAP has created a framework to bring the nations of the North and South together. It has helped also in analysis of forest resources in many countries. The ITTO has become an advocating institution for forest conservation and has established targets and standards for sustainable tropical timber management. The World Bank's new forest policy requires prior environmental assessments and prohibits the financing of commercial logging business in moist tropical forests.

Critiques and arguments are broached concerning the successes, failures, and weaknesses of these organizations in order to provide background information for continuing congressional oversight and the development of legislation on global forest conservation and management.

48. McKay, K. L. 1990. **Creating the NRMS Database**. Energy/Development International, Washington, D.C. 16 p. + annexes.

This database of natural resources management was created to assist the USAID and other institutions in planning and evaluation of their natural resources management programs on the African continent. The database is searchable and "user-friendly", enabling the extraction of information about projects, officers, activities, and collaborating organizations.

49. McShane-Caluzi, E. and McShane, T. O. 1990. *Conservation Avant la Crise: Strategie Pour la Conservation au Gabon*. (Conservation Before the Crisis: A Conservation Strategy for Gabon)., WWF.104 p.

The current view of conservation in Africa is that of a continent in crisis. Gabon is no exception; with serious demographic problems, deforestation, and increasing demand for agricultural lands, there is a sense of urgency in stemming the loss of biological resources within its borders while trying to raise the standard of living of the majority of its people. In 1988, the World Wildlife Fund established Gabon as one of six countries upon which to focus attention because of high biological diversity and significant opportunities to fund conservation within the country.

This report reviews the proposed World Wildlife Fund program for Gabon. In it the authors document the biologically significant species and regions of Gabon, threats to their conservation, and critical strategic questions relating to their conservation. The report includes a discussion of priorities for foreign assistance, development of protected regions, the needs for further

research, and the development of a public education program.

50. Merriam, R. L., and Guercio, A. A. 1993. **Development and Management of Conservation Education and Sustainable Alternative Economic Activities in Protected Areas. Final Report**. Prepared for the Government of Congo Wildlands Protection and Management Project (Global Environment Facility) by Micro Development Corps, Battleboro, Vermont.

The Dimonika Reserve is 185 km northeast of Pointe Noire, Congo where there is a UNDP/UNESCO Man and the Biosphere Project for tropical forest conservation. The author reports that the project has failed to obtain the support of the local populous in conserving the reserve, primarily due to lack of resources devoted to management, lack of enforcement of hunting restrictions, uncertainty over the location of buffer zones, and unemployment due to loss of revenue from logging. The Conkouati Reserve of 300,000 hectares is on the Atlantic coast near the border with Gabon. Although human density is moderate, there has been oil and timber exploration and extraction in recent years. The roads left by such activity afford access of people into more remote locations of the forest to hunt and slash and burn. Although the reserve was created in 1980, the authors report that little has been achieved in integrating local community involvement in management and activities in the reserve.

The authors provide a detailed, yet flexible management plan for the two reserves. They stress the necessity of completing biological inventories in the Conkouati reserve and of integrating the needs of the local populous with sustainable management of natural resources, establishing effective protection of the reserves, and closer involvement of local communities in policy in both locations. In addition, they emphasize the need for funding to reinforce the capacity of national personnel in management of the reserves, the need to identify and develop alternative sources of capital such as cash-crop commercialization, non-timber forest product extraction, small livestock farming, aquaculture, and small-scale tourism and research activity. The report includes a discussion of the need for conservation education and training for locals and visitors, supervision of environmental, social, and ecological studies, and development of alternative financial support for activities that would continue after the project had been terminated.

51. Millington, A. C., Critchley, R. W., Douglas, T. D., and Ryan, P. 1994. *Estimating Woody Biomass in Sub-Saharan Africa*. The World Bank, Washington, D.C. 174 p.

This comprehensive publication by the World Bank provides an exhaustive review of remote sensing methods for estimating the occurrence and density of woody biomass in Sub-Saharan Africa. Detailed descriptions are provided of meteorological satellite data for vegetation cover, land use mapping, and specifically woody biomass. The emphasis is upon Eastern and Southern Africa, but includes profiles and Land Cover Class tables for Congo Basin countries.

52. Ndjatsana, M. 1993. **Analyse de la Situation du Secteur Forestier du Cameroon. La Politique Forestiere**. (An Analysis of the Status of Forestry in Cameroon: The Politics of Forestry), The World Wildlife Fund. 60 p.

This report describes the ecology and vegetation structure of the forests of Cameroon by geographical region and describes the problems of forest conservation, industrial and commercial development plans, the role of syndicates and foreign donor agencies in forestry, and

the institutional aspects of forestry research and regulation.

53. NRC. 1993. *Sustainable Agriculture and the Environment in the Humid Tropics.* Committee on Sustainable Agriculture and the Environment in the Humid Tropics. Board of Agriculture and Board of Science and Technology for International Development, and the National Research Council. National Academy Press, Washington, D.C. 702 p.

The ever increasing adverse effects of anthropogenic activity on the earth's environment make it evident that a new attitudes and policies for management of natural resources are essential if global resources are to be conserved and utilized in a sustainable manner for future generations. It is evident that agriculture and forestry, often practiced in a non-sustainable manner in the tropics, have major adverse effects upon climate patterns, soils, water quality, and biological diversity. The most pressing need for action is in the humid tropical regions of the world, particularly in Africa where most populations are subsisting at or below the poverty level.

This hefty volume, produced at the request of the USAID, by a 15-member Committee on Sustainable Agriculture and the Environment in the Humid Tropics reviews the global implications of these problems. The authors examine the potential of improved land use and agricultural practices to benefit tropical humid regions and alleviate environmental degradation and loss of biodiversity. They review agricultural practices in the humid tropics, sustainable land use options, technologies to bring about positive changes, policies related to those changes,and greenhouse gas emissions due to deforestation and land use. Country profiles are provided, that of Zaire being of particular relevance.

54. Offermans, D. M. 1993. **Biodiversity Conservation in Moist Forests and Wetlands in Cameroon: Status and Proposals**. Prepared for The World Wildlife Fund and Wereld Natuur Fonds Netherlands. October 1993. 66 p + annexes.

Reversing the accelerating degradation of the earth's environment has been set as a primary objective and policy of the World Wildlife Fund. Three specific programmes have been identified, that for sustainable use of renewable natural resources, one aimed at reducing consumption and pollution, and one for global biodiversity conservation. As part of the latter, World Wildlife Fund is calling upon governments world-wide to have 10% or more of their forested regions protected, and free of deforestation, by 2000.
This report focuses upon the moist dense forests of Cameroon, one of several focal countries of World Wildlife Fund's biodiversity conservation policy. With plans by France to offer a debt-for-log swap to Cameroon (Oryx 28(3):153) for exclusive access rights to forests and plans to double logging activity, this document highlights the urgency of the situation. In it is provided a comprehensive overview of tropical moist forests and, to a lesser degree, wetlands in Cameroon. Listed are existing protected areas and their current conservation status. Estimates are provided for the cost of conservation of proposed sites and recommendations are made concerning priority actions to be taken by World Wildlife Fund Netherlands in achieving the goals of the programme.

55. Otto, J., and Drabek, A. 1992. **Designs for Collaboration: A Study of PVO/NGO Umbrella Projects in Africa**. *The Studies of the PVO/NGO Initiatives Project.* DATEX Inc., Washington, D.C., 142 p. + appendices.

USAID supports PVO/NGO 'umbrella' projects in Africa. This document reviews the effectiveness of such projects, points out

areas in which they have failed to achieve their objective, documents the variety of approaches used by these organizations, and discuss aid strategy development approaches. Overall, the objective of the review was to improve effectiveness of the PVO/NGOs in Africa. The authors point out that umbrella projects largely are flexible and effective and improve the involvement of USAID with collaborating recipients.

56. Poore, D., and Sayer, J. 1987. *The Management of Tropical Moist Forest Lands. Ecological Guidelines*. The International Union for the Conservation of Nature Tropical Forest Programme. International Union for the Conservation of Nature. 63 p.

In 1976, in collaboration with FAO, UNEP, and WWF, the International Union for the Conservation of Nature produced 'Ecological Guidelines for Development in Tropical Rain Forests'. This document was a response to the growing concern over unsustainable development, over-exploitation of tropical forests, the inevitable depletion of vital natural resources, and loss of unique biological diversity. It has been suggested that the primarily reason for this these problems was due to a failure to pay attention to fundamental ecological principles. In this book, the authors review the values and changing uses of tropical forests, forest management policies of governments, land allocation issues, the variety of ecological constraints to development, economic utilization of forest products, infrastructure development on forested lands, watersheds and wetlands, and pest control methods.

57. Putterman, D. M. 1994. **Biodiversity Property Rights and Bioprospecting in Cameroon: an Overview**. Report Prepared for the USAID. 15 p.

Bio-prospecting increasingly is becoming a popular method, with limited potential, to discover new drugs and agricultural or industrial chemicals. With such activity comes the need to ensure the intellectual property rights of the nations from which products are removed for isolation and or bioengineering, to determine fair market values for genetic resources used in making the final products, and to control the impacts of prospecting.

In this un-published manuscript, the author assessing the current status of bio-prospecting in Cameroon and the need to develop national legislation in regulation of these activities. The report summarizes a two-week meeting with government personnel, researchers, NGO staff, and representatives of donor institutions in Cameroon. It is divided into six sections; reviewing the economy and government of Cameroon, discussing the agencies with expertise in bio-prospecting and the legal regulation of medical plant research; an overview of non-government prospecting efforts; presentation of a case study which contrasts commercial exploitation of medical plants and Cameroonian research on genetic resources; and a section with conclusions and recommendations.

58. Ramanathan, T.R. 1992. **Non-Governmental Organizations and Natural Resources Management in Africa**. U.S. Department of Agriculture, Forest Service Office of International Cooperation and Development, and Forestry Support Program. 69 p.

The author provides a thorough review of NGOs and natural resources management activities in Africa. The document is provides 150 annotated bibliographic abstracts and 135 references drawn from recent literature (1982-1992). These are augmented by an alphabetical index to literature abstracts with geographical, organizational, and subject key words. This should be the starting point for all searches for literature concerning the activity of NGOs

in natural resources management in Africa.

59. Richardson, M. 1993. Wrestling with the Preservation of the Korup Rain Forest. Our-Planet 5(4):4-7, UNEP.

This article reports on the complex problems of biodiversity preservation in Korup National Park in Cameroon. These issues are considered in the light of the Convention on Biological Diversity, signed at the UNCED conference in 1992. Inhabitants of the village of Erat, who were promised modern facilities such as electricity and piped water in villages to be built outside the Park, provided their hunting ceased, are still waiting to be moved. Lack of funds has caused building development to stop, and the ban on hunting designed to preserve biodiversity has deprived the Erat villagers of their livelihood.

60. Ruitenbeek, H. J. 1990. Economic Analysis of Tropical Forest Conservation Initiatives: Examples from West Africa. 26 p. In: *Conservation of West and Central African Rainforests*. Selected papers from a conference organized by the International Union for the Conservation of Nature and the World Bank and hosted by the African Development Bank., November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, The World Bank, Washington, D.C.

In the past, there have been two views of the relationship between economic development and tropical forest conservation. Either that they were incompatible, or that conservation was critical for sustainable development. Recent, new economic analyses taking into consideration the economic value of biodiversity (e.g. free standing forests) and non-renewable resources suggest that conservation and development are compatible.

In this paper, the author presents two case studies as examples, one in the Korup National Park in Cameroon. He reviews economic theory and applied economic analysis with respect to biodiversity conservation, provides examples of economic planning in an integrated development and conservation project, suggests some institutional requirements for the incorporation of economic analyses into conservation evaluations, and how economics can be used to strengthen tropical forest conservation.

61. Sato, H. 1992. Notes on the Distribution and Settlement Pattern of Hunter-Gatherers in Northwestern Congo. African Study Monographs (Japan) 13(4);203-216; Dec, figs, tables, 17 ref.

The distribution and residential pattern of hunter-gatherers in the Sangha Region of north-western Congo are described. Five linguistics groups of hunter-gatherers were studied: the Baka (Bangombe), Bambenjele, Baluma, Mikaya, and Bakola. Most built sedentary settlements along roads or on river banks and tended fields, although they also engaged in hunting. The settlement patterns of all the groups were traced and it was concluded that many progressively are abandoning hunting and gathering and relying upon agriculture for subsistence.

62. Senechal, J., Kabala, M., and Fournier, F. (Ed.). 1989. **Revue des connaissances sur Mayombe**. (Review of the Understanding of the Mayombe Forests). UNESCO. 343 p.

A review is presented summarizing scientific advances in the understanding of a sub-equatorial forest ecosystem, the Congolese Mayombe. The Mayombe Project of the Man and the Biosphere Program (MAB) of UNESCO aimed at developing a rational basis for using and conserving biosphere resources, and improving relationships between man and the environment.

However, the project is applicable to other humid regions of Africa. The first part of this report covers the natural environment (geology, climate, chemical and physical properties of the atmosphere, water systems, soil, soil biology, flora and fauna). The second part discusses the human environment (history, settlement and population, women's activities, health, hunting and fishing, farming, crop protection, livestock production, forest economy and transport).

63. Serageldin, I. 1990. *Saving Africa' s Rainforests*. Environmentally Stable Development, The World Bank, Washington, D.C.

Of the 15.4 million hectares of forests destroyed every year, nearly 2 million hectares of tropical rain forest are being lost each year in West and Central Africa. Unregulated and uncontrolled deforestation now threatens entire ecosystems and their biological resources. The environmental, social, and political consequences of this loss could be enormous and globally destabilizing.

In this book, Ismail Serageldin stresses the need to address the root causes of deforestation in Africa, institutional and policy issues, and emphasizes the importance of multi-institutional involvement in averting more serious deforestation.

64. Shepherd, G. 1993. Local and National Level Forest Management Strategies - Competing Priorities at the Forest Boundary: the Case of Madagascar and Cameroon. Commonwealth Forestry Review (UK) 231:316-320; Dec.

In Madagascar and Cameroon, institutional and land classification changes have taken place, but consultation with local officials and villagers so far has been limited despite commitment of donor agencies to integration of development and conservation. Communally held resources and privately owned lands often are at odds with national land tenure systems. At the forest boundary, villagers have planted and fallowed agricultural plots and utilize the protected forest area for hunting and/or gathering. The author suggests that village-based management of land tenure problems would assist in rural development and often be the most realistic approach to resource sustainability.

65. Stromayer, A. K., and Ekobo, A. 1991. **Biological Surveys of Southeastern Cameroon**. Prepared for WCI. 40 p.

The southeastern region of Cameroon holds the largest concentration of fain forest animals in central Africa, yet it has been studied poorly and remains threatened by logging and hunting. This report describes fieldwork for a series of studies undertaken by WCI in the Lake Lobeke, Mongokele, and Boumba Bek (proposed reserve) study sites in the moist tropical forests of southeast. A survey of the forests was undertaken to assess the conservation potential and to propose boundaries. In addition a survey of two sites was done to provide data on elephant and gorilla density and habitat use to contribute to the EEC/UNEP African Elephant Database Project. Finally, the authors provide an overview of human impacts in the region and the potential threats imposed by their activity, review the development of tourism and big game hunting, and provide several recommendations for future management of the region.

66. Sullivan, F. ?. **The Korup/Oban Complex: Extractivism, a Tool for Conservation**. Prepared for WWF-UK, Surrey, UK. 5 p.

The Korup National Park in Cameroon was established in 1986. In 1988, the Cross River National Park (Oban Division) was declared across the border in Nigeria. The

900,00 ha. area is home to 60,000 people of several tribes, many dependent upon the resources of the forest for their livelihood. the Korup/Oban Complex has very high plant diversity, many of which provide products for the local communities. Population pressure and increased extraction of forest products is threatening the existence of unique species of plants and the long-term livelihood of local communities.

This report provides species lists of the medical plants, seeds, vegetables, fruit, spices, mushrooms, palm products, building materials, rubbers and gums, fishing materials, and related economic products extracted from the Korup/Oban complex. The author describes a plan to identify, isolate, and breed useful plants and integrate them into existing indigenous, monitored agro-forestry systems. An assessment is being made of the potential to make use of forest animals, such as the domestication of rodents and pilot butterfly farming. The author stresses the need for detailed plant and animal inventories within the complex and suggests that *in-situ* conservation no longer is tenable in regions with rapidly growing populations and agro-forestry programs can be a valuable tool in incorporating indigenous vegetation into land use systems, thereby reconstituting natural habitat through *ex-situ* conservation strategies.

67. Telesis USA Inc.,a. 1991. **Etude supplémentaire des Options de développement viables à la Réserve de Dzanga Sangha en République Centrafricaine: Le Tourism Vert Les Extraits Végétaux**. (Supplementary Study of the Viable Development Options for the Dzanga-Sangha Reserve in the Central African Republic: Eco-Tourism (&) Plant Extraction)., GTZ and WWF. June, 1991. 115 p.

This report, prepared by Telesis Inc., USA, presents the conclusions of a supplementary study of the options available for the long-term development of the Dzanga-Sangha Reserve in Central African Republic. The authors present statistical data on tourism in Africa and review the current state and strength of tourism in Central African Republic, with emphasis upon the reserve, relative to other African countries. Recently there has been great and rapidly increasing interest of biotechnological and pharmaceutical firms in prospecting for medicines and related products derived from forest plants. Telesis Inc., also reviews the current state of plant prospecting by researchers and pharmaceutical firms such as Merk/INBIO and provides recommendations for future development and management.

68. Telesis USA Inc.,b. 1991. **Sustainable Economic Development Options for the Dzanga-Sangha Reserve, Central African Republic. 1. Summary Report**. 25 p. 2. **Final Report**. 172 p. Prepared for the World Wildlife Fund, Washington, D.C. April 1991.

Sustainable environmental resource use and conservation are essential to economic development. This is especially true of developing regions of tropical Africa.Telesis Inc., in cooperation with the PVO-NGO/NRMS Project and World Wildlife Fund, developed an integrated resource management framework applicable to various conservation projects.

This report provides an assessment of the potential economic development opportunities in the Dzanga-Sangha Reserve in Central African Republic. Commercial harvesting of timber has been under way in the region for the last 20 years. In their review, Telesis Inc. question the economic value of current logging projects and point out the threat posed by expansion of safari hunting and poaching for bush meat or the pet trade within the reserve. The authors provide an assessment of the

potential for tourism, an evaluation of alternative management practices, and recommendations to avert the spiral of loss of biodiversity and economic decline in the area as a result of logging.

69. UNCED. 1991a. **Conference des Nations-Unies sur l'Environnement et le Developpement: rapport national de la Republique Centrafricaine**. (United Nations Conference on Environment and Development: National Report of the Central African Republic). UNCED National Reports, Central African Republic, Bangui, Central African Republic. September 1991,106 p.

Because of both human encroachment and climactic changes, the Sahel region is growing to encompass parts of Central African Republic. With these environmental changes come the need for international and national policies and plans to address their consequences.

This report describes the economy and demography of Central African Republic and reviews its natural resources and their role in economic development. Several environmental problems are discussed, including loss of biodiversity, deforestation, air pollution, soil erosion, loss of soil fertility, and poor or insufficient sanitation, waste treatment, and disposal. Other chapters summarize national and international institutional policies, programs, and plans to address these problems, the major opportunities for, and constraints to, sustainable development, and review the primary elements of the national strategy for sustainable development.

70. UNCED. 1991b. **Republic of Gabon National Report on the Environment: International Conference on the Environment (Brazil-1992)**. UNCED National Reports, May 1991. 41 p.,

Gabon has vast regions of tropical forest with a high percentage of endemic species . Almost 35% of these forests are pristine and unexploited. The Gabonese government wishes to preserve its forest resources, but there are constraints to conservation. Primary among these is sanctioned national exploitation of natural resources without little sound management policy or planning.

This report provides background data on Gabon, describing it's ecological heritage, and the relationship between economic development and the environment. Gabon's environmental management policy is outlined and the needs and prospects for sustainable development are identified. Despite a low population density and only moderate agricultural activity, urban pollution, increasing exploitation of forest resources, and illegal poaching are damaging the environment and threatening forest regeneration possibly leading to local extinction of species.

71. UNDP/WWF. 1993. **Conservation and Sustainable Management of the Dense Forest of Bangassou Project**. (Global Environment Facility of UNDP). 7 p.

The Bangassou Dense Forest, one of the last refugia for chimpanzees, is also a critical corridor for seasonal migration of forest elephants. This short paper describes a free-standing technical assistance project of the UNDP to the Government of Central African Republic to conserve and sustainably manage the dense forest of Bangassou. This would complement existing government and foreign institutional programs already in existence and draw upon experiences of the Dzanga-Sangha project, with emphasis upon grass-roots activities.

72. UNESCO/MAB. 1986. *Agroforesterie en Zones Forestieres Humides D' Afrique*. Maldague, M., Hladik, A., et Posso, P. (Ed.). UNESCO MAB Programme, Paris, France. 313 p.

This document opens with a overview of a seminar on agroforestry in the humid tropics of Africa held in Makokou, Gabon in July 1985. Articles in this report are based upon those presented at the seminar. In the second part, several authors review the MAB agroforestry project in Makoku, Gabon. The third part comprises reviews of the state of agroforestry in the humid tropics by country (Congo, Gabon, Central African Republic, and Zaire are included). In the last section, agroforestry and methodology are reviewed in the context of development.

73. UNESCO. 1987. *International Symposium and Conference, Wildlife Management in Sub-Saharan Africa. Sustainable Economic Benefits and Contribution Towards Rural Development*. Held on 6-12 October, 1987, Harare, Zimbabwe. UNESCO, World Heritage Commission and the International Foundation for the Conservation of Game (IFCG).

This conference was attended by members of Parks, Wildlife, or Forestry from Cameroon, Central African Republic, Congo, and Zaire. Some aspects of wildlife management in Cameroon are reviewed on p. 459-462 and one author describes the problems of tropical forest ecosystems in Africa (D. M. Kabala, p. 615-618).

74. USAID. 1986. **Energy, forestry, and Natural Resources Activities in the Africa Region**. Bureau for Africa, Office of Technical Resources, USAID, Washington, D.C. 297 p.

This published manuscript provides an overview of USAID project activities in energy, forestry, and natural resources in Africa. The central aim of the document was to serve as a reference for USAID missions, federal agencies, the US Congress, and national or international development and voluntary organizations. Relevant sections include remote sensing activities of forested regions of West Africa.

75. USAID. 1991. **Program Proposal. An Integrated Plan for Regional Forest Conservation and Management in Southeastern Cameroon, Southwestern Central African Republic and Northern Congo**. Submitted by World Wildlife Fund and WCI. 79 p. + supplementary materials. USAID, Bureau for Africa, Rosslyn, Virginia. (manuscript).

The World Wildlife Fund and the WCI has formed a consortium to carry out a 5 yr program on rain forest conservation and management in a 1.5 million hectare region covering parts of the Central African Republic, Cameroon, and the Congo. This region of pristine dense lowland forest is believed to contain the highest concentration of forest elephant in Africa, estimated to be 16,000 to 22,000 animals. Building upon the recent creation of Dzanga-Sangha National Park and Dense Forest Reserve, this program provides a unique opportunity to conserve and manage an intact ecosystem with high species diversity. It is reported that conditions for the development of a park or reserve are good, but this could change if adjacent regions of the Congo and Cameroon are opened to hunting and logging. There are hopes that adjacent regions in the Congo (Nouabale-Ndoki) and Cameroon (Lobeke) would be included as reserves or park, thereby making it a tri-national conservation region contiguous with the Dzanga-Sangha.

This report provides an overview of the program rationale, a description of the goals, objectives, coordination, and management of the proposed program, and reviews of biological and socio-economic research, conservation planning and management, socio-economic development, training and institutional development, and implementation of the country-specific projects in Central African Republic, Congo,

and Cameroon. The primary aim of the program was to balance ecological sustainability, economic self-reliance, and cultural self-determination while focusing upon long-term protection, multiple use forestry management, and local community participation. Due to gaps in information, the program has been designed to provide for a flexible and pragmatic approach based upon the principles of the Wildlands and Human Needs Program of the USAID.

76. USAID. 1992. **Plan for Supporting Natural Resources Management in Sub-Saharan Africa**. Regional Environmental Strategy for the Africa Bureau, USAID., Washington, D.C., 53 p.

USAID has been a major and influential donor in Sub-Saharan Africa for over 15 years. In spite of accomplishments, the economic and environmental problems faced by this region continue to grow as populations increase and economies stall or fail amid political, social, and environmental instability.

The need to maintain long-term commitment to Sub-Saharan Africa led to approval of the plan articulated in this document. The plan will be used to guide USAID and its missions in developing, planning, integrating, and analysing natural resources management programs in the region in the context of a broadly based development strategy.

77. USAID. 1993. **Proceedings of a Workshop on: AID, NGOs, and Natural Resource Management in Africa**. A workshop held on August 10, 1993.
This document reviews a one-day workshop to discuss the effectiveness of USAID and NGOs in implementing natural resources management activities in Africa. The key factors responsible for successes in natural resources management endeavours were identified and participants discussed methods to enhance future relationships in natural resources management. Recommendations made by participants included the need for greater involvement of NGOs in USAID planning, the training of USAID staff to work better with NGO staff, and greater assistance from USAID in helping NGOs achieve the goals set out by the agency. Participants also discussed a vision of the perceived ideal relationship between NGOs and USAID by 1999. This document builds upon and extends the work elucidated in several publications of USAID discussing the role of NGOs and USAID in natural resources management in Africa. For a more detailed account of several of these documents consult: Ramanathan,T. R., 1993. (No.)

78. Waura, M. F. 1990. Pour une exploitation rationnelle de la foret Gabonaise. (For a Rational Exploitation of Gabonese Forests)., 11 p. In: *Conservation of West and Central African Rainforests*. Selected papers from a conference organized by the International Union for the Conservation of Nature and the World Bank and hosted by the African Development Bank. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, The World Bank, Washington, D.C.

The author discusses the forests and commercially important trees of the forests of Gabon and reviews the history of exploitation and commercialization of gabonese forests with a view towards rational exploitation.

79. Wilks, C. 1990. *La Conservation des Ecosystèmes Forestieres du Gabon*. (The Conservation of Forested Ecosystems in Gabon). International Union for Conservation of Nature and Natural Resources Gland, 215 p., maps, statistical tables.

Eighty five percent of Gabon is forested, the greatest amount by surface area for any African country. Until 1960, Gabon was

highly dependent upon forestry. Today they seek to conserve their forests while relying more upon oil resources. The forests of Gabon are extraordinary diversity, have a high percentage of endemic species, and are an important sanctuary for gorillas, chimpanzees, and elephants.

This document was the outcome of a regional program of "Conservation and Rational Utilization of Forest Ecosystems In Central Africa.", financed by the European Development Fund. The author presents a current overview of the resources, biodiversity, and ecology of the humid tropical forests of Gabon and legislative and institutional factors relating to their conservation and utilization. He discusses the current status of several conservation programs, such as that of 'La Station d'Étude des Gorilles et Chimpanzés' (SEGC), and existing protected sites in Gabon's forests (e.g., Lopé, Moukalaba, Sette-Cama, Ipassa, Wonga-Wongué, and Sibang) . In addition, several sites of importance with respect to conservation (Foret des Abeilles, Lac Onagué, etc.) are described with respect to climate, geography, vegetation, nearby populations, points of interest, and legal status. Currently, 7% of Gabon is protected land and the addition of 15 other sites of significant biological interest, which is recommended, would bring the total of protected area to 16%. The author reports that although laws regulating nature reserves, hunting, and protection of endangered species are adequate, legislation concerning forest exploitation in general is deficient. He provides recommendations for reforestation, new legislation, public education, and regulation of hunting and the ivory trade. He stresses the need for a detailed faunal and floral inventory of Gabon's forests, particularly in the coastal regions, where exploitation has been most extensive.

80. Wood, K. 1990. Meeting the Conservation Challenge: the Korup Project. Rural Development in Practice (UK) 2(1):25-26.

The main threat to the Korup Forest in Cameroon, which was declared a National Park in 1986, comes from illegal hunting and logging. In order to stop the damage and preserve the remaining forest tracts, conserve the wildlife, and improve the prosperity of villagers, the Korup Forest Conservation Project was launched. The aim of this project was to provide greater access of villages to cash crops and other new sources of income. In order to preserve the park, it is expected that some villages may have to be relocated. The author suggests that careful planning and consideration of social and economic effects of community movement and issues of human and animal health, transport, food storage, crop husbandry, wild game preservation, and poaching control are needed before communities will cooperate. Ongoing field services and education are emphasized.

81. World Bank. 1992a. **Staff Appraisal Report. The Gabonese Republic Forestry and Environment Project**. Agricultural Operations, Occidental and Central Africa Department. Report No. 10503-GA.

This manuscript is based upon the findings of a 1991 World Bank Appraisal Mission to Gabon to address a request for assistance from the Gabonese government for a Forestry and Environment Project. This was identified as a top priority project of the World bank, reflecting the Gabonese governments concern for forest depletion, environmental degradation, and protection and rational utilization of local resources. This report reviews the feasibility, financing, management, implementation, economic justification, and risks of the proposed project.

82. World Bank. 1992b. **African Non-**

governmental Organizations Working in the Environmental Sector. External Affairs Department, The World Bank, Washington, D.C., 130 p.

This directory lists local and foreign NGOs active in Africa. Included are the names and addresses of organizations, descriptions of organizations, and objectives, priorities, and geographical focus of project activities.

83. World Bank. 1992c. **List of World Bank-Financed Projects with Potential NGO Involvement**. External Affairs Department, The World Bank, Washington, D.C., 34 p.

This document lists projects in various stages of development or completion, funded by the World Bank, which have potential for involvement by NGOs. The six Regional Offices are reviewed and projects are categorized by country within the Offices.

84. World Bank. 1992d. **Non-governmental Organizations in Africa**. External Affairs Department, The World Bank, Washington, D.C., 315 p.

This document is a directory which lists NGOs active in Africa. Included are the names and addresses of organizations, sources of funding, descriptions of projects, and objectives and geographical focus of project activities.

85. WRI. 1992. 1993 *Directory of Country Environmental Studies. An Annotated Bibliography of Environmental and Natural Resource Profiles and Assessments*. A product of the International Environmental and Natural Resource Assessment Information Service. Funded by Australian International Development Assistance Bureau (AIDAB), German Agency for Technical Co-operation (GTZ), Netherlands Ministry of Foreign Affairs Swiss Directorate for Development Cooperation and Humanitarian Aid, and the United States Agency for International Development (USAID).

86. WWF. 1994a. **Operational Guidelines for the Okapi Wildlife Reserve - Zaire**. Final Draft. Institute Zarois pour la Conservation de la Nature in Cooperation with the World Wildlife Fund. June 1994.

This is an internal memorandum of the World Wildlife Fund describing the operational guidelines for management of the Okapi Wildlife Reserve in Zaire. It provides a review of protection, monitoring, and management issues, development of a zoning system for the reserve, and development of an education and public awareness program. Also, it describes research, ecotourism, and priorities for management and budgeting actions.

87. WWF. 1994b. **Seminaire sur la Strategie de Conservation des Ressources Naturelles Renouvelable en Afrique Centrale. Rapport Atelier de Planification et Documentation**. Bangui, Central African Republic., Fevrier 16-20, 1994. 29 p. + 8 Annexes (65 p.). (Seminar on the Strategy for Conservation of Renewable natural Resources in Central Africa. Report of a Workshop for Planning and Documentation).

A conference was held in Bangui, Central African Republic, to develop a strategy for the conservation of natural renewable resources in Central Africa.This document

is the result of that conference and describes general and specific conservation problems of the respective countries, priorities of the World Wildlife Fund, and the general strategy for Africa and Madagascar. It includes a description of objectives, methodologies, summaries of global strategies applicable to Africa, methods of intervention, and recommendations. Reference also is made to human activities, pollution, and public education.

Annex 2 provides a review in tabular form, by country, of protected areas and species of interest, cooperating institutions, human and environmental problems facing the areas, and recommendations to minimize or alleviate the problems. Cameroon, Central African Republic , and Gabon are included in this review. Annex 3 summarizes the situation for southern Central Africa; Annex 4 provides a hierarchial classification of environmental problems and objectives; Annex 6, a synopsis of the program plan for southern Central Africa; Annex 7, a synopsis of the protected areas and species of interest in the region, and Annex 8, a review of important plans of action for development and management of protected areas.

BIBLIOGRAPHY

Achard, F. 1990. Use of Remote Sensing in Survey, Management, and Economic Development of Tropical Rainforests. World Bank Technical Paper 128: Satellite Remote Sensing for Agricultural Projects P.135 (13).

Ada, N-D., and Tanjong, E. 1991. Non-Governmental Organizations in Cameroon. PVO/NGO/NRMS, Cameroon, September 1991. 20 p.

Adams, J. S., McShane, T. O. 1992. The Myth of Wild Africa: Conservation Without Illusion. World Wildlife Fund, Gland, Switzerland. 266 p.

Akerele, O., Heywood, V., and Synge, H. 1991. (Ed.), Conservation of Medicinal Plants. Cambridge University Press, New York, New York. 378 p.

Alderson, H. 1984. Deforestation in Africa - Steps Towards A Solution? Environ. Conservation 11(3): 276.

Alers, M. P. T., Blom, A., Kiyengo, C. Sikubwabo, Masunda, T., Barnes, R. F. W. 1992. Preliminary Assessment of the Status of the Forest Elephant in Zaire. African Journal of Ecology 30(4):279. (December).

Alpert, P. 1993. Conserving Biodiversity in Cameroon. Ambio 22(1):44-49.

Andreae, M. O. 1990. Biomass Burning in the Tropics: Impact on Environmental Quality and Global Climate. 27 p. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Anon. 1985. Areas of Critical Environmental Concern. Part II. 1951-1970. Wilderness 48(168): 31-39.

Anon. 1985. Reforesting The Earth - 1985. Am. Forests 91(4): 38-44.

Anon. 1990. The Role of CIDA in International Forestry Development. Forestry Chronicle 66(3):219 (17)

Anon. 1991. Erodibility of Moist Tropical Soils of Cameroon. (Erodibilitat Feuchttropischer Boden Kameruns). Mitteilungen Der Deutschen Bodenkundlichen Gesellschaft 66(2):1165-1168.

Anon. 1991. Human Foragers in Tropical Rain Forests. Human-Ecology 19(2), Special Issue, p. 115-285.

Anon. 1991. Plan for Korup Park. Panoscope (PS) 22:18. (January).

Anon. 1991. World Bank Proceeds With Massive Project to Protect Biological Diversity. DIVERSITY 7(4): 9-10.

Anon. 1992. Developing Countries The Focus of New FAO Initiative to Protect Animal Genetic Diversity. DIVERSITY 8(1): 5.

Anon. 1994. Debt-for-Logs Swap (France offers to cancel foreign debt in exchange for exclusive logging rights). Oryx 28(3):153.

Anon.1994. New park in Congo (Nouabale-Ndoki National Park). Oryx 28(3):153.

Aplet, G., Laven, R., and Fiedler, P. 1992. The Relevance of Conservation Biology to Natural Resource Management. Cons. Biology 6(2): 298-300.

Assitou, M. N. Vue D'ensemble des Ecosystemes Forestiers Naturels en Republique Populaire du Congo. 7 p. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D'Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Aylward, B., and Barbier, E. 1992. Valuing Environmental Functions in Developing Countries. Biodiversity and Conservation 1(1): 34-50.

Bahuchet, S. 1986. Outline of A Human History of the Congo Basin Forest. Mem. Mus. Natl. Hist. Nat. Ser. A Zool. 132:297-316.

Bahuchet, S. 1990. Food Sharing Among the Pygmies of Central Africa. African Study Monographs 11(1):27-53.

Bahuchet, S. 1990. Tree Names of the Pygmies of the Western Congo Basin. Bull Mus.Natl. Hist. Nat. Sect. B. Adansonia Bot. Phytochim. 11(4):355-366.

Bahuchet, S. et al 1989. Se Nourrir en Fôret Equatoriale. Anthropologie Alimentaire des Populations des Regions Forestieres Humides D'Afrique. (Finding Food in the Equatorial Forest. A Study of Food Strategies Developed by Populations Living in the Humid Forest Regions of Africa). UNESCO. Paris, France. 96 P.

Bahuchet, S.1992. Spatial Mobility and Access to Resources Among African Pygmies. In: Mobility and Territoriality: Social and Spatial Boundaries Among Foragers, Fishers, Pastoralists and Peripatetics. E. Casimir, M. J., and Rao, A. Berg Publishers Ltd. Providence, RI, USA.

Bailey, R. C., and Aunger, R., Jr. 19??. Net Hunters vs. Archers: Variation in Women's Subsistence Strategies in the Ituri Forest.Human Ecology (New York). 17(3):273-297.

Balaka, M. Y. 1990. Commentaires sur la Conservation et L'amenagement de la Foret en Afrique de L'Ouest et Centrale. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Balick, M. 1990. Ethnobotany and The Identification of Therapeutic Agents From The Rainforest.

in D. Chadwick, and J. Marsh, Eds., Bioactive Compounds From Plants. John Wiley & Sons, New York. p. 22-40.

Balick, M., and Kelleher, S. 1989. Anthropological and Ethnobotanical Review of the Mbuti in the Ituri Forest of Zaire: with Reference to policy Development in the Region. 60 p.

Balick, M., and Mendelsohn, R. 1992. Assessing The Economic Value of Traditional Medicines From Tropical Rain Forests. Cons. Biology 6(1): 128-130.

Barnes, R. F. Agnagna, M., Alers, M. P. T., Blom, A., Doungoube, G., Fay, M., and Masunda, T. 1993. Elephants and Ivory Poaching in the Forests of Equatorial Africa. Oryx: (J Fauna Flora Soc.) 27(1):27(8).

Barnes, R.F.W. 1990. Deforestation Trends in Tropical Africa. Afr. J. Ecol. 28:161-173.

Bawa, K., Ashton, P., and Nor, S. 1990. Reproductive Ecology of Tropical Forest Plants: Management Issues. in K. Bawa, and M. Hadley, Eds., Reproductive Ecology of Tropical Forest Plants. UNESCO & The Parthenon Publishing Group, Paris. p. 3-16. 421 p.

Beattie, A. 1992. Roundtable: Discovering New Biological Resources - Chance Or Reason? BioScience 42(4): 290-292.

Beauclerk, J. 1990. "Hunters and Gatherers in Central Africa: On The Margins of Development", Draft Consultancy Report for Oxfam.

Beauclerk, J. 1993 Hunters and Gatherers in Central Africa: on the Margins of Development. Oxfam Research Paper(No. 6): V + 46 p. Oxfam Publications, Oxford, UK.

Bélisle, M. 1987. Le Territoire Forestier Camerounais: Les Ressources, les Intervenants, les Politiques d'utilisation. (Forestry in cameroon, the Resources, the Intervention, and the Politics of Utlization). Prepared for the Ministry of Agriculture, Forestry division, Government of Cameroon. 129 p.

Besong, B. J. 1990. New Directions in National Forest Policy. (Cameroon). In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Blake, R. 1984. Moist Forests of The Tropics - A Plea for Protection and Development. World Resources Institute Journal '84 : 50-57.

Blom, A. T. C., Barnes, R. F. W., Barnes, K. L. 1992. Primates in Gabon Current Status and Distribution. Oryx:(J. Fauna Flora Soc.) 26(4):223(12), October.

Bonnefille, R., J.C. Roeland and J. Guiot. 1990. Temperature and Rainfall Estimates for The Past 40,000 Years in Equatorial Africa. Nature 346:347-349.

Bonner, R. 1993. At the Hand of Man: Peril and Hope for Africa's Wildlife.Simon and Schuster. 322 p.

Bormann, F.H. 1985. Air Pollution and Forests: En Ecosystem Perspective. BioScience 35(7): 434-441.

Borota, J. 1991. Tropical Forests. Some African and Asian Case Studies of Composition and Structure. Developments in Agricultural and Managed-Forest Ecology 22. Elsevier Science Publishing Co., New York, New York. 274 p.

Botkin, D. B., and Talbot, L. M. 1992. Biological Diversity and Forests. World Bank Forestry Policy Background Paper. World Bank, Washington, D.C.

Bourke, I. J. 1988. Do Forest Products Trade Barriers Disadvantage the Developing Countries? Resource Policy Guildford : Butterworth Scientific. 14 (1), p. 47-58.

Brewer, C., and et al 1992. The Sustainable Biosphere Initiative: A Student Critique and Call to Action. Bull. Ecological Soc. America 73(1): 23-24.

Brinkman, W.L.F. 1983. Hydrology. in H. Lieth and M.J.A. Werger (Eds.). Tropical Rain Forest Ecosystems: Biogeographical and Ecological Studies, Pp. 89-98. Elsevier, Amsterdam.

Browder, J. 1992. The Limits of Extractivism. BioScience 42(3): 174-182.

Brown, A. 1992. Human Impact on Plant Gene Pools and Sampling for Their Conservation. Oikos 63(1): 109-118.

Brown, G., and Sarewitz, D. 1992. Debt Swaps: What About Science? Geotimes 37(3): 6.

Brown, M., and O'Connor, K. 1993. Non-Governmental Organizations and in Africa's Pastoral Sector: Where to Go From Here? A Synthesis Document. the PVO-NGO/NRMS Project (World Learning Inc., CARE, and WWF), Washington, D.C.

Brown, S., A.J. Gillespie, and A.E. Lugo. 1989. Biomass Estimation Methods for Tropical Forests With Applications To Forest Inventory Data. For. Sci. 35:881-902.

Brown, S., and A.E. Lugo. 1990. Tropical Secondary Forests. Journal of Tropical Ecology 6:1-32.

Brown, S., and A.E. Lugo. 1984. Biomass of Tropical Forests: A New Estimate Based on Forest Volumes. Science 223:1290-93.

Brown, S. and Lugo, A. E. 1982. "The Storage and Production of Organic Matter in Tropical Forests and Their Role in the Global Carbon Cycle," Biotropica 14: 161-187.

Bruijnzeel, L. 1991. Hydrological Impacts of Tropical Forest Conversion. Nature & Resources 27(2): 36-46.

Cachier, H., and Ducret, J. 1991. Influence of Biomass Burning On Equatorial African Rains. Nature 352(6332):228-231.

Caillie, X. D. Van. 1989-1990. Erodibility of Sandy Soils in Zaire and Erosion Control. (Erodibilite Des Terrains Sableux Du Zaire et Controle De L'erosion. Cahiers ORSTOM, Serie Pedologie 25(1-2):197-208.

Cailliez, F. 1990. "Industrial Eucalypts Plantations in The People's Republic of Congo." Draft. Prepared for The International Workshop on Large Scale Reforestation, Sponsored By EPA. Corvallis, OR, May 8-10.

Cambell, D.G. and H.D. Hammond. 1988. Floristic Inventory of Tropical Countries. New York Botanical Garden, Bronx.

Cantwell, C. 1992. CITES Turns to Timber. Understory 2(2): 1, 5. (Journal of The Woodworkers Alliance for Rainforest Protection)

Carpaneto, G. M., and Germi, F. P. 1992. Diversity of Mammals and Traditional Hunting in Central African Rain Forests. Agric. Ecosyst. Environ. 40(1-4):335(20).

Carr, M.E. 1985. Plant Species Evaluated for New Crop Potential. Econ. Bot. 39(3): 336-345.

Carruthers, I. and J. Kydd. 1989. Sub-Saharan Africa: Putting The Meteorology in Perspective. Weather 44(2):43-45.

Casebow, A. 1987. Water Hyacinth and Soil Fertility: A Review on An Integrated Approach to Soil Fertility With Biogas Production in the African Rain Forest. Agric. Eng. Silsoe. 42(2):36-44. Ill.

CEQ. 1981. Global Future: Time to Act. Report to The President on Global Resources, Environment and Population. Council on Environmental Quality and Department of State, Washington, D.C. 242 p.

Chudnoff, M. 1984. Tropical Timbers of The World. U.S. Dept. of Agriculture, Washington, DC. 466 p. (Agric. Handbook 607)

Ciesla, W. 1991. Cypress Aphid: A New Threat to Africa's Forests. Unasylva 42(167): 51-55.

Cofer, W., J.S. Levine, E.L. Winstead and B.J. Stocks. 1991. New Estimates of Nitrous Oxide Emissions From Biomass Burning. Nature 349:689-691.

Colchester, M. and Lohmann, L. 1990. "The Tropical Forestry Action Plan: What Progress?", The Ecologist. March 1990.

Collins, N., and Thomas, J. 1991. (Eds.), The Conservation of Insects and Their Habitats. Academic Press, San Diego, California. 450 p.
Commission on Ecology 1984. Why Conservation?. IUCN, Gland, Switzerland.

Costanza, R. 1991. Ed., Ecological Economics. The Science and Management of Sustainability. Columbia University Press, Irvington, NY. 525 p.

Costanza, R., and Daly, H. 1992. Natural Capital and Sustainable Development. Cons. Biology

6(1): 37-46.

Cros, B., R. Delmas, B. Clairac, J. Loemba-Ndembi, and J. Fontan. 1987. Survey of Ozone Concentrations in an Equatorial Region During The Rainy Season. J. Geophys. Res. 92:9772-9778.

Dale, V. H., Houghton, R. A., Grainger, A., Lugo, A. E., and Brown, S. 1993. Appendix: Emissions of Greenhouse Gases From Tropical Deforestation and Subsequent Uses of Land. In: Sustainable Agriculture and the Environment in the Humid Tropics. Committee on Sustainable Agriculture and the Environment in the Humid Tropics. Board of Agriculture and Board of Science and Technology for International Development, and the National Research Council. National Academy Press, Washington, D.C. 702 P.

Dale, V.H., R.A. Houghton, and C.A.S. Hall. 1991. Estimating The Effects of Land-use Change on Global Atmospheric CO2 Concentrations. Can. J. of Forest Res. 21(1):87-90.

Danforth, R. M. 1986. Agroforestry in Zaire. J. Calif. Rare Fruit Grow. 18: 37-48. Ill.

Detwiler, R.P., and C.A.S. Hall. 1988. Tropical Forests and The Global Carbon Cycle. Science 239:42-47.

Detwiler, R.P., C.A.S. Hall, and P. Bodgonoff. 1985. Land Use Change and Carbon Exchange in The Tropics: Estimates for The Entire Region. Environ. Mgmt. 9:335-44.

Diamond, A.W., and Lovejoy, T.E. 1985. Eds., Conservation of Tropical Forest Birds. ICBP, Cambridge, England. 324 p. (Technical Publ. No. 4)

Dickinson, R. 1991. A Commentary On: Probable Impact of Deforestation on Hydrological Processes. Climatic Change 19(1-2): 175-176.

Dixon, J. A., Sherman, P. B. 1990. Economics of Protected Areas: A New Look at Benefits and Costs. Island Press, Washington, D.C., USA.

Dobson, A., and Absher, R. 1991. How to Pay for Tropical Rain Forests. Trends in Ecology & Evolution 6(11): 348-351.

Doumenge, C. 1990. La Conservation des Ecosystemes Forestiers du Zaire. (Conservation of Forest Ecosystems in Zaire.). IUCN., Gland, Switzerland. 242 p.

Doungoube, G. 1990. Central African Republic: the Dzanga-Sangha Dense Forest Reserve. World Bank Paper 130. Living With Wildlife: Wildlife Resource Management With Local Participation in Africa p. 75 (7).
Doungoube, G. Date? Surveillance de la Diversite Biologique Strategie Nationale de Conservation. Etude de Cas de la Reserve Speciale de la Foret Dense Dzanga-Sangha. 8 P.

Drijver, C. A. 1992. People's Participation in Environmental Projects. In: Croll, E., and Parkin, D. (Ed.). Bush Base: Forest Farm. Culture, Environment and Development. P.131-145. Routledge London, UK.

Drijver, C. A., and Marchand, M. 1985. Taming the Floods: Environmental Aspects of Floodplain Development in Africa. Centrum Voor Milieukunde Rijksuniversiteit Leiden (Center for Environmental Studies, State University of Leiden, Netherlands.). (Floodplains of the Lngone and Benoue Rivers, Cameroon. 79 p. + 7 Annexes.

Ducret, J., and Cachier, H. 1992. Particulate Carbon Content in Rain at Various Temperate and Tropical Locations. J. atmos. Chem. 15(1):55-68.

Dykstra, D., and Heinrich, R. 1992. Sustaining Tropical Forests Through Environmentally Sound Harvesting Practices. Unasylva 43(169): 9-15.

Dyson, M. B. Concerns for Forest Peoples: A Touchstone of a Sustainable Development Policy. 11 p. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

EC (Commission of the European Communities). 1989. "The Conservation of Tropical Forests: the Role of the Community," Unpublished Position Paper of the Commission of the European Communities.

Eckholm, E. 1985. U.N. and Aid Groups Seek to Save Dwindling Third World Forests. New York Times July 29: A11.

Economist Intelligence Unit. 1991. Country Report: Cameroon, Central African Republic, Chad. No. 1, 1991. London.

Ehrenfeld, D. 1992. The Business of Conservation. Cons. Biology 6(1): 1-3.

Elfring, C. 1984. Can Technology Save Tropical Forests? BioScience 34(6): 350-352.

Enama, M. T. 1991. Habitat Selection by the African Buffalo in Virunga National Park, Zaire. Dissertation Abstracts International. B, Sciences and Engineering 51 (12, I): P.5669B-5670B, University of Maine, Orono, ME 04473, USA.

Erwin, T. 1991. How Many Species Are There?: Revisited. Cons. Biology 5(3): 330-335.

Esser, G. 1987. Sensitivity of Global Carbon Pools and Fluxes To Human and Potential Climatic Impacts. Tellus 39B:245-260.

Esteve, M. J. Exploitation rationnelle de bois d'oeuvre en foret dense africaine et consequences sur la destruction ou la perturbation du couvert forestier - Qu'en est-il reellement aux yeux de l'experience. (Rational Exploitation of Forest Products in Dense African Forest and the Consquences of Destruction and Alteration of Forest Cover) In: *Conservation of West and Central African Rainforests*. Selected papers from a conference organized by the International Union for the Conservation of Nature (IUCN) and the World Bank (WB) and hosted by the African Development Bank (ADB). November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, The World Bank, Washington, D.C.

Eussner, A. Date? Agro-Industrial Co-operation Between the European Community and the ACP Countries. Journal of Common Market Studies 25(1):51-73.

Fa, J. E. 1991. Conservacion de Los Ecosistemas Forestales de Guinea Ecuatorial. (Conservation of Forest Ecosystems in Equatorial Guinea.). IUCN. 221 Pp.

Evrard, C. 1968. Recherces Ecologiques Sur Le Peuplement Forestier Des Sols Hydromorhes Dela Cuvette Centrale Congolaise. INEAC Ser.Sci.110

Fa, J. E. 1992. Conservation in Equatorial Guinea. Oryx: (J. Fauna Flora Soc.) 26(2):87, April, 1992.

Falloux, F. Et al 1990. "Early Lessons and Future Directions", Annex 1 in National Environmental Action Plans for Africa: Proceedings From A Workshop Organized By The Government of Ireland, The Environmental Institute, University College,Dublin and The World Bank. P.63.

FAO (United Nations Food and Agriculture Organization). 1988. An Interim Report on the State

of Forest Resources in the Developing Countries. Forest Resources Division, Forestry Department, Rome, Italy.

FAO-UNEP. 1981. Tropical Forest Resources Assessment Project:- Forest Resources of Tropical Africa, Part 1: Regional Synthesis. FAO, Rome.

FAO. 1990. An International Instrument for the Conservation and Development of the World's Forests. FAO, Rome, Italy. In: Conservation of West and Central African Rainforests. Selected papers from a conference organized by the International Union for the Conservation of Nature and the World Bank and hosted by the African Development Bank. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, The World Bank, Washington, D.C.

Faure, J. J., and Nogaret., J. M. 1988. Education et Formation Forestiere au Cameroon. (Education and Development of Forestry in Cameroon). Interagency Mission PNUD/FAO, Forestry Sector, Cameroon.

Fay, J. M, and Agnagna, M. 1991. A Population Survey of Forest Elephants (Loxodonta africana cyclotis) in Northern Congo. African Journal of Ecology 29(3):177.(September).

Field, T. 1992. World Forests: Wandering Souls and Disappearing Forests. Am. Forests 98(5 & 6): 33-35, 59.

Finlayson, M., and Moser, M. 1991. Wetlands. Facts on File, New York, NY. 224 p.

Firor, J. 1984. Interconnections and The "Endangered Species" of The Atmosphere. World Resources Institute Journal '84 : 16-26.

Francis, P., and Bulfeta, G. 1987. Land and Tree Tenure in Humid West Africa: A Bibliography. International Livestock Center for Africa, Addis Ababa, Ethiopia.

Fries, J. 1991. Management of Natural Forests in The Semiarid Areas of Africa. Ambio 20(8): 395-400.

Fujita, M., and Tuttle, M. 1991. Flying Foxes (Chiroptera: Pteropodidae): Threatened Animals of Key Ecological and Economic Importance. Cons. Biology 5(4): 455-463.

Fultang, B. the Efficiency of the Forestry Taxation System in Garba, Lawal. African Timber Organization (ATO-OAB). Timber Market Perspectives in ATO Member Countries. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Garine, I. De, and Koppert, G. 1987. Coping With Seasonal Fluctuations in Food Supply Among Savanna Populations: the Massa and Mussey of Chad and Cameroon. Clarendon Press, Oxford p. 210-259.

Gartlan, J. S., Newbery, D. M., Thomas, D. W., and Waterman, P. G. 1986. the Influence of

Topography and Soil Phosphorus on the Vegetation of Korup Forest Reserve, Cameroun. Vegetatio Vol. 65 (3): P.131-148.

Gartlan, S. 1989. La Conservation des Ecosystemes Forestiers du Cameroun. (Conservation of Forest Ecosystems in Cameroon.). IUCN., Gland, Switzerland. 186 P.

Gartlan, S. 1990. Practical Constraints on Sustainable Logging in Cameroon. Presented at The Conference Sur La Conservation Et L'Utilization Rationnelle De La Foret Dense D'Afrique Centrale Et De L'Ouest, Abidjan, Cote D'Ivoire, Nov. 5-9.

Gash, J., and Shuttleworth, W. 1991. Tropical Deforestation: Albedo and The Surface-energy Balance. Climatic Change 19(1-2): 123-134.

Gassita, J-N, et N'Goye, M. A. 1990. Une Catastrophe Ecologique: La Degradation de la Foret Classe de la Mondah, aus Environs de Libreville, Gabon. 7 p. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Gaston, K. 1991. The Magnitude of Global Insect Species Richness. Cons. Biology 5(3): 283-296.

Gautier, J. P., Moysan, F., Loireau, J. N., and Feistner, A. T. 1987. Une Nouvelle Espèce de Cercopithèque Cercopithecus lhoesti solatus (Harrison, 1984): Distribution Géographique - Mesures de Protection a Prendre. CIRMF, Gabon. (A New Species of Cercopithecus Monkey in Gabon).

Gentry, A.H. 1992. Tropical Forest Biodiversity: Distributional Patterns and Their Conservational Significance. Oikos 63(1): 19-28.

Gibert, G. 1984. La Masse Forestière Congolaise. Son Implementation, Ses Divers Faciès. Bois et Fôrets des Tropiques 204:3-19.

Gillis, M. 1988. "West Africa: Resource Management Policies and The Tropical Forest", in Repetto, R., and Gillis, M., Eds., Public Policies and The Misuse of Forest Resources. New York: Press Syndicate of The University of Cambridge.

Giner-Pons, R. M., Gray, A. I., Lavaud, C., Massiot, G., Gibbons, S., and Waterman, P. G. 1992. 30-Norfriedelane Triterpenes From the Stem Bark of Caloncoba glauca. Phytochemistry 37 1):223-225.

Goldammer, J.G. 1988. Rural Land-use and Wildland Fires in The Tropics. Agroforestry Systems 6:235-252.

Goldammer, J.G. 1990. the Global Tropical Biomass Burning Problem: Implications on Land Management Strategies. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Goldsmith, F. 1991. Ed., Monitoring for Conservation and Ecology. Chapman and Hall, London. 275 p.

Gomez-Pompa, A., Whitmore, T. C., and Hadley, M. (Ed.). Rain Forest Regeneration and Management. Man and the Biosphere Series V. 13. UNESCO and Parthenon Publishing Group).457 p.

Goodland, R.J., Watson, C., and Ledec, G. 1984. Environmental Management in Tropical Agriculture. Westview Press, Boulder, CO. 237 p.

Goodland, R.J.A., Et Al., 1990. Tropical Moist Forest Management: The Urgent Transition To Sustainability. Draft.

Gopinthan, R., and Sreedharan, C. 1989. Soil Erosion As influenced By Rainfall Erosivity Under Different Agroforestry Systems. Meteorology and Agroforestry. Proceedings of an International Workshop On the Application of Meteorology to Agroforestry Systems Planning and Management, Nairobi 9-13 February 1987. P.407-418.

Gornitz, V. 1987. Climatic Consequences of Anthropogenic Vegetation Changes From 1880-1980. in M.R. Rampino, J.E. Sanders, W.S. Newman and L.K. Konigsson (Eds.). Climate: History, Periodicity and Predictability, Pp. 47-69. Van Nostrand Reinhold Company, New York.

Goudriaan, J., and D. Ketner. 1984. A Simulation Study for The Global Carbon Cycle, Including Man's Impact on The Biosphere. Clim.Change 6:167-192.

Government of Central African Republic. 1990. "Central African Republic: Policy Framework Paper, 1991-92." Prepared By The Central African Republic Authorities (in Collaboration With The Staffs of The IMF and The World Bank).

Graham, R. L., Perlack, R. D., et. al 1990. Greenhouses Gas Emissions in Sub-Saharan Africa. U.S. Department of Energy, Oak Ridge National Laboratory, Oak Ridge, TN. US-AID Office of Energy, Washington, D.C. 135 p.

Graham, R.L., R.D. Perlack, A.M.G. Prasad, J.W. Ranney, and D.B. Waddle. 1990. Greenhouse Emissions in Sub-Saharan Africa. ORNL-6640. Oak Ridge National Laboratory.

Grainger, A. 1986. Deforestation and Progress in Afforestation in Africa. Int. Tree Crops. J. 4:33-48.

Gray, G. 1992. World Forests: Outlook for The Earth Summit. Am. Forests 98(5 & 6): 49-51.

Green, J. L., and Brown, K. M. 1994. Fôret Certification Program Prospects. Cameroon, Central Africa. Prepared for the World Resources Institute (WRI), Yaounde, Cameroon. 21 p.

Grinker, R. R. 1990. Images of Denigration: Structuring Inequality Between Foragers and Farmers in the Ituri Forest, Zaire.American Ethnologist 17(1):111-130.

Grut, M., and Egli, N. 1990. Forest Revenue Systems and Concession Management for West and Central African Moist Forests. In: Conservation of West and Central African Rainforests.

Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Gulick, F. A. 1984. Increasing Agricultural Food Production Through Selected Tree Planting Techniques. A Summary Memorandum With Selected References. Unpublished Manuscript. Bureau for Africa,Office of Technical Resources, USAID, Washington, D.C. 149 p.

Hall, C.A.S., and J. Uhlig. 1991. Refining Estimates of Carbon Released From Tropical Land-Use Change, Can. J. For. Res. 21(1):118-131.

Hallaire, A. 1989. Risque Alimentaire et Strategies Paysannes au Nord des Monts Mandara (Cameroun). (Food Risk and Peasant Strategies in the North Mandara Mountains). Eldin, M., and Milleville, P. (Ed.). Editions de L'ORSTOM, Institut Francais de Recherche Scientifique Pour Le Developpement en Cooperation Paris, France. P.327-334.

Hamilton, A.C. 1983. African Forests. in H. Leith and M.J.A. Werger (Eds.). Tropical Rain Forest Ecosystems: Biogeographical and Ecological Studies, Pp. 155-182. Elsevier, Amsterdam.

Hamilton, L. 1991. Tropical Forests: Identifying and Clarifying Issues. Unasylva 42(166): 19-27.

Hamilton, L. S. 1985. Overcoming Myths About Soil and Water Impacts of Tropical Forest Land Uses. in S.A. El-Swaify, W.C. Moldenhauer and A. Lo (Eds.). Soil Erosion and Conservation, Pp. 680-690. Soil Conservation Society of America, Ankeny.

Hanan, B. 1989. Equatorial Guinea: Environmental Issues Paper.

Hannah, L. 1992. African People, African Parks. An Evaluation of Development Initiatives as A Means of Improving Protected Area Conservation in Africa. in Cooperation With USAID, BSP, and CI. 76 p.

Hansen, P., and Jorgensen, S. 1991. Ed., Introduction to Environmental Management. Elsevier Science Publishers, Amsterdam, The Netherlands. 404 p. (Developments in Environmental Modelling Vol. 18)

Harper, D. 1983. Ed., Proceedings of The Symposium on The Conservation of Primates and Their Habitats. Vol. 1. Primate Conservation in The Wild. Vol. 2. International Conservation and The Role of Zoos. Univ. of Leicester,.
Harris, L. 1984. The Fragmented Forest: Island Biogeography Theory and The Preservation of Biotic Diversity. Univ. of Chicago Press, Chicago, IL. 211 p.

Harrison, M. J. S. 1986. Feeding Ecology of Black Colobus, colobus satanas, in Central Gabon. Cambridge University Press. Paper Presented at the "Proceedings of the Tenth Congress of the International Primatological Society," July 1984, Nairobi, Kenya. p. 31-37.

Harrison, M. J. S. 1988. A New Species of Guenon (genus Cercopithecus) From Gabon. J. Zool. Lond. 215: 561-575.

Hart, J. A. 1986. Comparative Dietary Ecology of a Community of Frugivorous Forest Ungulates

in Zaire. Thesis. Dissertation Abstracts International, B (Sciences and Engineering) 47(4):1390B-1391B; Michigan State Univ., East Lansing, MI.

Hart, J. A. 1986. Comparative Dietary Ecology of a Community of Frugivorous Forest Ungulates in Zaire. Dissertation Abstracts International, B (Sciences and Engineering) 47(4):1390B-1391B., Michigan State Univ., East Lansing, MI 48824, USA.

Letouzey, R., Vivien, J., and Satabie, B. 1985. in Situ Conservation of Forest Genetic Resources in Cameroon. Forest Genetic Resources Information, FAO (No. 14):15-31.

Hart, T. B., and Murphy, P. G. 1987. Conflict of Human Interests in the Ituri Forest of Zaire: Implications for Forest Survival. U.S. Dept. of State, Washington, D.C. p. 47-49. Ill., Maps.

Hart, T. B., and Hart, J. A. 1986. the Ecological Basis of Hunter-gatherer Subsistence in African Rain Forests: the Mburi of Eastern Zaire. Human Ecology: An Interdisciplinary Journal 14(1):29.(March).

Hart, T.B. 1985. The Ecology of A Single-species-dominant Forest and of A Mixed Forest in Zaire, Africa. Ph.D. Dissertation, Michigan State University, East Lansing.

Harvey, L. 1991. A Commentary On: Tropical Deforestation and Atmospheric Carbon Dioxide. Climatic Change 19(1-2): 119- 122.

Hazelwood, P.T. and Stotz, D.F. 1981. Draft Environmental Profile of The United Republic of Cameroon. University of Arizona, Office of Arid Lands Studies. U.S. Dept. of State, U.S. Man and The Biosphere Program.

Hazlewood, P.T. and D.F. Stotz. 1981. Draft Environmental Profile of The United Republic of Cameroon. University of Arizona, Office of Arid Lands Studies. U.S. Dept. of State, U.S. Man and The Biosphere Program.

Heath, M., Merefield, J., and Paithankar, A. 1992. Environmental Impact of Mining on Tropical Forest. Geotimes 37(3): 14- 17. (India)

Heaton, K. Et al 1990. USAID/ZAIRE Global Climate Change Initiative. Report of The Assessment Team, Kinshasa, Zaire. Draft. Center for International Development and Environment, World Resources Institute.
Hecketsweiler, P. 1988. Conservation Et Utilisation Rationnelle Des Ecosystemes Forestiers En Afrique Centrale, Rapport National: Congo. Document Du Travail: IUCN.

Hecketsweiler, P. 1990. La Conservation des Ecosystemes Forestiers du Congo. (Conservation of Forest Ecosystems in Congo.). IUCN., Gland, Switzerland. 187 Pp.

Hecketsweiler, P., and Ikonga, J. M. 1991. La Reserve de Conkouati: Congo. Le Secteur Sud-est. (Conkouati Reserve, Congo: Southeast Sector.). IUCN., Gland, Switzerland. 323 p.

Hecketsweiler, P., Doumenge, C., and Ikonga, J. M. 1991. Le Parc National D'Odzala, Congo. (Odzala National Park, Congo.). International Union for Conservation of Nature and Natural Resources (IUCN), Gland, Switzerland. 334 Pp.

Hellden, U. 1991. Desertification - Time for an Assessment? Ambio 20(8): 372-383.

Henderson-Sellers, A. 1991. A Commentary On: Tropical Deforestation: Albedo and The Surface-Energy Balance. Climatic Change 19(1-2): 135-138.

Henderson-Sellers, A. 1991. Developing an Interactive Biosphere for Global Climate Models. Vegetatio 91:149-166.

Henderson-Sellers, A. and V. Gornitz. 1984. Possible Climatic Impacts of Land Cover Transformations With Particular Emphasis on Tropical Deforestation. Clim.Change 6:231-258.

Hepper, F. N. 1990. Cameroon's Rain Forest Genetic Resources: the Limbe Botanic Garden Project. Mitteilungen Aus Dem Institut Fur Allgemeine Botanik Hamburg 23a:217.

Holloway, J., Kirk-Spriggs, A., and Khen, C. 1992. The Response of Some Rain Forest Insect Groups to Logging and Conversion to Plantation. Royal Soc. Philosophical Trans. Biol. Sciences 335(1275): 425-436.

Horta, K. 1991. "The Last Big Rush for The Green Gold: The Plundering of Cameroon's Rainforests", The Ecologist 21(3): May/June.

Houghton, J.T., G.J. Jenkins and J.J. Ephraums. 1990. Climate Change: The IPCC Scientific Assessment. Cambridge University Press, Cambridge.

Houghton, R. 1991. Tropical Deforestation and Atmospheric Carbon Dioxide. Climatic Change 19(1-2): 99-118.

Houghton, R.A. 1989. Emissions of Greenhouse Gases. In: Myers, N., Ed., Deforestation Rates in Tropical Forests and Their Climatic Implications. Friends of The Earth, London.

Houghton, R.A. 1990. The Future Role of Tropical Forests in Affecting The Carbon Dioxide Concentration of The Atmosphere. Ambio 19(4):204.

Houghton, R.A. Et al 1985. Net Flux of CO^2 From Tropical Forests in 1980. Nature 316:617- 20.
Houghton, R.A., Et al 1987. The Flux of Carbon From Terrestrial Ecosystems To The Atmosphere in 1980 Due To Changes in Land Use: Geographic Distribution of The Global Flux. Tellus 39B, 122-39.

Huntley, B., and et al 1992. A Sustainable Biosphere: The Global Imperative. Bull. Ecological Soc. America 73(1): 7- 13.

ICBP/IUCN 1985. Threatened Birds of Africa and Related Islands. ICBP, Cambridge, England. 796 p.

ICRA. 1986. Provisional, Indicative Blueprint for Agroforestry research in the Humid Tropical Lowlands of Cameroon. Prepared for the Cameroonian Agroforestry Task Force by the International Council for Research in Agroforestry. 99 p. (Draft, unpublished manuscript).

IIED. 1986. Cameroon Forest Policy Study. Progress Report, June - October, 1986. Submitted to the International Institute for Environment and Development (IIED).

IIED. 1988. Les Interventions des Ong Dans le Secteur Forestier au Zaire: Bilan et Perspectives D'Avenir. Compte Rendu. Table Ronde; Kinshasa, Zaire; Avril 21-22, 1988(The Interventions of NGOs in Forestry in Zaire: A Report . Status and Review. Roundtable Session; Kinshasa, Zaire; April 21-22, 1988.) 17 p. + 4 Annexes (19 p.). IIED., Washington, D.C.

IIED. 1988. Natural Forest Management for Sustainable Timber Production. Draft. International Tropical Timber Organization.

IIED. 1988. Zaire Forest Policy Review (Draft): Summary Report. Washington, DC.

IITA. 1992. Working With Farmers in Cameroon and Rwanda: New Strategies to Improve Staple Food Crops. International institute of Tropical Agriculture, Ibadan, Nigeria. Iii + 35 p.

Laborde, J. P., and Morel, M. 1991. Climatological Aspects of Rainfall Collection for Water Supply in North Cameroon. (Aspects Climatologiques Lies Aux Possibilities D'alimentation En Eau Potable Par Collecte Des Eaux Pluviales Dans Le Nord-Cameroun.). Hydrologie Continentale 6(1):55-66.

Infield, M. 1989. Hunters Claim a Stake in the Forest. New Scientist Vol. 124 (1689): P.52-55.

Infield, M. 1992. the Importance of Hunting in the Conservation of Large Mammals: A Case Study in Korup National Park, Cameroon. In: Wegge, P. (ed.). Mammal Conservation in Developing Countries: A New Approach. Proceedings of a Workshop Held at the 5th Theriological Congress, Rome, Italy, August 1989. NORAGRIC Occasional Papers. Series C, Development and Environment (No.11):106-122.

Ingold, T., Riches, D., and Woodburn, J. (Ed.). Hunters and Gatherers: Volume 1: History, Evolution and Social Change, Volume 2: Property, Power and Ideology. 331 p., 323 p. Berg Publishers Ltd., Providence, RI, USA.

IUCN 1984. The World's Most Endangered Protected Areas. Ambio 13(5-6): 386-387.

IUCN, 1992. Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

IUCN/UNEP. 1987. IUCN Directory of Afrotropical Protected Areas. IUCN, Gland, Switzerland., Cambridge (UK). 1034 p.

IUCN. 1988. IUCN Profile of the Forests of Congo. Rapport Préliminaire non Publiable (Un-published Report). IUCN, Gland, Switzerland., Cambridge (UK). 1034 p.

IUCN. 1990. Biodiversity in Sub-Saharan Africa and Its Islands. Conservation, Management, and Sustainable Use. A Contribution to the Biodiversity Conservation Strategy Programme. Occasional Papers of the IUCN Species Survival Commission. No. 6. 242 p.

Ives, J. 1984. Does Deforestation Cause Soil Erosion? IUCN Bull. Suppl. 2: 4-5.

Jackson, I.J. 1989. Climate, Water and Agriculture in The Tropics. Ed. 2nd Longman Scientific and Technical, Harlow.

Johns, A. 1985. Selective Logging and Wildlife Conservation in Tropical Rain-forest; Problems and Recommendations. Biol. Conservation 31(4): 355-376.

Johnson, B. 1991. Responding to Tropical Deforestation. an Eruption of Crises - an Array of Solutions. WWF and The Conservation Foundation, Washington, D.C. 63 p.

Johnson, N. Et al (in Press). "Natural Forest Management and The Future of Tropical Forests". Washington, D.C.: World Resources Institute.

Jordan, C.F. 1985. Nutrient Cycling in Tropical Forest Ecosystems. Wiley, New York.

Kaiser, H. F. 1988. Forest Development in the Congo. J. Soc. Amer. Foresters. 86(10):40-42.

Kane, S., Reilly, J., and Tobey, J. 1992. an Empirical Study of The Economic Effects of Climate Change on World Agriculture. Climate Change 21(1): 17-36.

Kasisi, R. 1990. Le Developpement Durable et Le Paradoxe de L'amenagement Conservationniste: Cas de la Region du Parc National de Kahuzi-Biega (Zaire). (Sustainable Development and the Paradox of Conservationist Planning: the Case of the National Park of Kahuzi-Biega, Zaire.). Loisir et Societe 13(2):379-407.

Keller, M., Jacob, D., Wofsy, S., and Harriss, R. 1991. Effects of Tropical Deforestation on Global and Regional Atmospheric Chemistry. Climatic Change 19(1-2): 139-158.

Keller, M., W.A. Kaplan and S.C. Wofsy. 1986. Emissions of N_2O, CH_4 and CO^2 From Tropical Forest Soils. Journal of Geophysical Research 91:11791-11802.
Kemp, R. 1992. The Conservation of Genetic Resources in Managed Tropical Forests. Unasylva 43(169): 34-40.

Kendrick, K. 1989. Equatorial Africa (Cameroon, People's Republic of The Congo, Central African Republic, Angola, Zaire, Rwanda and Burundi). in D.G. Campbell and H.D. Hammond (Eds.). Floristic Inventory of Tropical Countries, Pp. 203-216. New York Botanical Garden, New York.

Kernan, H.S. 1984. Forestry Background Paper. Draft. USAID/Kinshasa.

Khasa, P., Furlan, V., and Lumande, K. 1990. Symbioses Racinaires Chez Quelques Essences Forestieres Importantes au Zaire. (Root Symbionts of Important Forest Species in Zaire.). Bois et Forets des Tropiques (No. 224):27-33.

Koubouana, F. 1992. A Comparative Study of Some Methods of Spatial Analysis of Semi-deciduous forests of the Niari Valley (Congo). (Etude Comparee De Plusieurs Types D'analyses Spatiales Sur Des forets Semi-decidues De La Vallee Du Niari (Congo)). Bulletin

D'Ecologie 23(3-4):163-174.

Laarman, J., and Sedjo, R. 1992. Global Forests. McGraw- Hill, New York. 337 p.

Lacaux, J-P., Delmas, R. A., Cros, B., Lefeivre, B., and andreae, M. O. 1991. Influence of Biomass Burning Emissions on Precipitation Chemistry in the Equatorial forests of Africa. in: Global Biomass Burning: Atmospheric, Climatic, & Biospheric Implications (MIT Press). P167(7).

Lahm, S. A.. 1993. Ecology and Economics of Human/wildlife Interaction in Northeastern Gabon. Ph.D. New York University (0146) Volume 54/11-a of Dissertation Abstracts International. Page 4159. 344 Pages

Laird, S. 1991. Rainforest Alliance Conserves Tropical Diversity for Medicinal Uses. Diversity 7(1 & 2): 28.

Lamlein, J. 1984. Plants in Danger. End. Species Tech. Bull. Reprint 1(7): 3.

Lanly, J.-P., Singh, K., and Janz, K. 1991. FAO's 1990 Reassessment of Tropical Forest Cover. Nature & Resources 27(2): 21-26. (Describes General Methodology Used in The Reassessment)

Laurance, W. 1991. Edge Effects in Tropical Forest Fragments: Application of A Model for The Design of Nature Reserves. Biol. Conservation 57(2): 205-220.

Lawson, D. P. 1992. The Herpetofauna of Korup National Park, Cameroon: Biogeography and Comparative Biodiversity of A Tropical African Rainforest (santa Cecilia, Ecuador). M.S. The University of Texas at Arlington (2502) Volume 31/03 of Masters Abstracts. Page 1165. 157 Pages

Le Master, D. C., and Sedjo, R. A. 1992. Modeling Sustainable Forest Ecosystems. Proceedings of a Conference in Washington, D.C., November 18-20, 1992. Forest Policy Center, American Foresters, Washington, D.C.

Leader-Williams, N., and Albon, S. D. 1988. Allocation of Resources for Conservation. Nature 336(6199):533(3). December 8, 1988.

Leakey, R. 1991. Low-tech Cloning of Tropical Trees. Bot. Gardens Conservation News 1(9): 39-40. (Technique for Conservation)

Ledwig, F. 1992. Human Impacts on Genetic Diversity in Forest Ecosystems. Oikos 63(1): 87-108.

Leplaideur, A., and Roux, P. 1988. Annuaire Bibliographique sur Le Republique Populaire du Congo. (Annual Bibliography on the Congo Republic.). Institut de Recherches Agronomiques Tropicales, Montpellier, France.

Lewin, R. 1984. Parks: How Big Is Big Enough? Science 225(4662): 611-612.

Lewis, D. 1989. The Conservation Alternative. West Africa. December 4-10:2008-2010.

Lewis, L.A. and L. Berry. 1988. African Environments and Resources. Unwin Hyman, Boston.

Lleras, E. 1991. Conservation of Genetic Resources *in Situ*. Diversity 7(1 & 2): 72-74.

Lootens, M., and Lumbu, S. 1986. Suspended Sediment Production in A Suburban Tropical Basin (Lubumbashi, Zaire). Hydrological Sciences Journal 31(1):39-49.

Lubini, A. 1985. the Swamp Forest With Mitragyna-stipulosa and Pycnanthus-marchalianus in the Kisangani Region Upper Zaire. Bull. Jard. Bot. Natl. Belg. 55(3-4):393-420.

Lubini, A. 1990. La Flore de la Reserve Forestiere de Luki (Bas-Zaire). (the Flora of the Luki Forest Reserve, Lower Zaire.). In: Ihlenfeldt, H.D. et al (Ed.) Proceedings of the Twelfth Plenary Meeting of AETFAT, Hamburg, September 4-10, 1988. Mitteilungen Aus Dem Institut Fur Allgemeine Botanik Hamburg 23a:135-154.

Lugo, A. E., Ewel, J. J., Hecht, S. B., Murphy, P. G., Padoch, C., Schmink, M. C., and Stone, D. 1987. People and the Tropical Forest. A Research Report From the United States Man and the Biosphere Program. Institute of Tropical Forestry, Southern Forest Experiment Station, USDA Forest Service, Rio Piedras, Puerto Rico. 75 P.

Lugo, A.E., and Brown, S. 1986. Steady State Terrestrial Ecosystems and The Global Carbon Cycle. Vegetatio 68:83-90.

Lugo, A.E., M.J. Sanchez, and S. Brown. 1986. Land Use and Organic Carbon Content of Some Subtropical Soils. Plant and Soils 96:185-196.

Luhembwe, N., and Sys, C. 1992. Evaluation of the Physical Environment of the Central Basin of Zaire for Agriculture. (Evaluation Du Milieu Physique De La Cuvette Zairoise Pour L'agriculture. Bull. Des Seances, Acad. Roya. Des Sci. D'Outre-Mer 38(2):191-216.

Mabbutt, J. 1984. A New Global Assessment of The Status and Trends of Desertification. Environ. Conservation 11(2): 103-113.

Maddy, M. A-E. 1986. the Impact of Commercial Logging on Tropical Moist Forests: With Special Reference to West Africa. Unpublished Manuscript on File at USDA-USFS. 72 p. (Liberia and Nigeria).

Mahe, G., and Olivry, J. C. 1991. Climatic Changes and Monthly and Annual Variations in Discharge in Western and Central Africa. (Changements Climatiques et Variations Des Ecoulements.). Ven, F. H. M. Van De, Gutknecht, D., Loucks, D. P., Salewicz, K. A. (Ed.). Hydrology for the Water Management of Large River Basins. (Conference). Institute Francais De Recherche Scientifique Pour Le Developppement En Cooperation (ORStoM). International Association of Hydrological Sciences, Wallingford, U.K., IAHS Publication (No. 201):163-171.

Mahony, R. 1992. Debt-for-nature Swaps: Who Really Benefits? The Ecologist 22(3): 97-103.

Maini, J. 1992. Sustainable Development of Forests. Unasylva 43(169): 3-8.

Maitre, H. F. Recherches sur la Dynamique des Peuplements Arbores en Vue de Definir Une

Sylviculture Assurant la Conservation et la Production Durables de L'ecosysteme Forestier Tropical Humide. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Makelola, A. 1990. Agroforestiere et Conservation des Ecosystemes: Cas du Mayombe,Congo. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Malaisse, F., and Binzangi, K. 1985. Wood as a Source of Fuel in Upper Shaba (Zaire). Commonw. For. Rev. London 64(3):227-239. Ill.

Malaisse, F., and Kapinga, I. 1986. the influence of Deforestation On the Hydric Balance of Soils in the Lubumbashi Environment (Shaba, Zaire). Bulletin De La Societe Royale De Botanique De Belgique 119(2):161-178.

Malleux, J. 1990. Aplicacion Del Modelo de Producción de Areas (APM) Para la Evaluación Del Avance de la Deforestación en la Región Continental de Guinea Ecuatorial. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Mandango, M. A., and Boemu, L. 1990. La Foret Dense Humide du Zaire. (the Tropical Rain Forest of Zaire.). In: Ihlenfeldt, H.D. et al (Ed.) Proceedings of the Twelfth Plenary Meeting of AETFAT, Hamburg, September 4-10, 1988. Mitteilungen Aus Dem Institut Fur Allgemeine Botanik Hamburg 23a:233-248.

Marland, G. 1991. A Commentary On: Tropical Forests and The Greenhouse Effect: A Management Response. Climatic Change 19(1-2): 227-232.

Martin, C. 1991. The Rainforests of West Africa: Ecology - Threats - Conservation. Basel: Birkhauser Verlag.

Martin, C. 1991. The Rainforests of West Africa. Birkhauser Boston Inc., New York. 235 p.

Master, L. 1991. Assessing Threats and Setting Priorities for Conservation. Cons. Biology 5(4): 559-563.

Matig, O. E. 1989. Attempts to Rehabilitate Sterile Soils - Forest Plantations in North Cameroon. (Quelques Tentatives De Recuperation Des Sols Steriles - Plantations forestieres Dans Le Nord Cameroon. in: Trees for Development in Sub-Saharan Africa. Proceedings of A Regional Seminar Held By the International Foundation for Science (IFS), ICRAF House, Nairobi, Kenya, February 20-25, 1989. P.213-227. International Foundation for Science (IFS) Stockholm, Sweden.

Matson, P.A., and P.M. Vitousek. 1990. Ecosystem Approach To A Global Nitrous Oxide

Budget. Bioscience 40(9):667-672.

Mbaelele, M. Ma. 1990. Investissement en Biodiversite et en Protection des Zones Forestieres. Zaire. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

McAllister, D. 1991. Estimating The Pharmaceutical Values of Forests, Canadian and Tropical. Canadian Biodiversity 1(3): 16-25.

McCloskey, M. 1984. World Parks. Sierra 69(6): 36-43.

McKey, D. 1988. Cecropia Peltata, An Introduced Neotropical Pioneer Tree, Is Replacing Musanga cecropioides in Southwestern Cameroon. Biotropica 20(3): 262-264.

McNeeley, J., and Miller, K. 1984. Eds., National Parks, Development and Conservation. The Role of Protected Areas in Sustaining Society. Smithsonian Institution Press, Washington, DC. 700 p.

McNeely, J. 1990. Establishing Priorities for Conserving Biological Diversity. Conserving the World's Biological Diversity (IUCN/et Al.) p. 83(24).

McNeely, J. 1992. The Sinking Ark: Pollution and The Worldwide Loss of Biodiversity. Biodiversity and Conservation 1(1): 2-18.
McPherson, M.P. 1984. Checking Land Destruction: Immediate Gains and Future Benefits. World Resources Institute Journal '84 : 50-57.

McShane, T. O. 1988. Conservation Before the Crisis: An Action Plan for Conservation in Gabon. WWF (USA), Gland, Switzerland.

Meher-Homji, V. 1991. Probable Impact of Deforestation on Hydrological Processes. Climatic Change 19(1-2): 163-174.

Memvie, J-B. 1990. la Conservation et L'utilisation Rationnelle des Ecosystemes Forestiers en Afrique Centrale. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Mika, K. K. 1987. Nature Conservation and the Socio-economic Development of Farmers in the Valley of Lufira. NEED (News Environment Energy Development) (No. 5):7-12.

Miller, K. and Tangley, L. 1991. Trees of Life: Saving Tropical Forests and Their Biological Wealth. Boston: Beacon Press.

Ministry of Agriculture, Cameroon. 1988. Proceedings of the National Seminar on the Management of Forest Resources in Cameroon. September 23-25, 1987., Palais des Congrès, yaounde, cameroon. Convened by the Ministry of Agriculture, Cameroon, with the Assistance of

the IIED and CIDA. 142 p.

Mitchell, J.F.B., Manabe, S., Meleshko, V. and Tokioka, T. 1990. Equilibrium Climate Change and Its Implications for The Future. in J.T. Houghton, G.J. Jenkins and J.J. Ephraums (Eds.). Climate Change: The IPCC Scientific Assessment, Cambridge University Press, Cambridge.

Mittermeier, R. A., and Bowles, I. A. 1994. Reforming the Approach of the Global Environmental Facility to Biodiversity Conservation. Oryx 28(2):101-106.

Mlot, C. 1991. Extinction By Global Warming? BioScience 41(11): 754.

Mosango, M., and Lejoly, J. 1987. Chute de Litiere et Apport au Sol des Macro-Elements Mineraux Biogenes Dans Le Groupement a Caloncoba Subtomentosa des Environs de Kisangani au Zaire. (Litterfall and Mineral Cycling in the Caloncoba Subtomentosa Community in Kisangani, Zaire.). Bulletin de La Societe Royale de Botanique de Belgique 120(1):7-19.

Moukolo, N., Bricquetm J-P., Biyedi, J. 1990. Balance and Variation of Solid Discharge From the Congo Basin January 1987 - December 1988. Hydrol. Cont. 5(1):41-52.

Muller, J. O. 1993. Man and Ecosystem in the Crisis of the Tropical Rain Forests. Forstarchiv 64(6):259-263.

Munasinghe, M., and Wells, M. 1990. Protection of Biological Diversity Through Local Community Development. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Munk, W. 1992. Global Warming. Canadian Biodiversity 1(4): 10-11.

Murthy, S. 1985. Sandalwood: Case Study of A Resource Decline. Garden 9(1): 16-19.

Muthoo, M. 1991. An Overview of The FAO Forestry Field Programme. Unasylva 42(166): 30-39.

Myers, N. 1984. Genetic Resources in Jeopardy. Ambio 13(3): 171-174.

Myers, N. 1989. Deforestation Rates in Tropical Forests and Their Climatic Implications. London: Friends of The Earth.

Myers, N. 1991. Trees By The Billions; A Blueprint for Cooling. Int. Wildlife 21(5): 12-15.

Myers, N. 1991. Tropical Forests: Present Status and Future Outlook. Climatic Change 19(1-2): 3-32.

Myers, N., and Goreau, T. 1991. Tropical Forests and The Greenhouse Effect: A Management Response. Climatic Change 19(1-2): 215-226.

N'landu, D. 1991. The Impact of Ecoclimatic Factors on Mineral Nutrient Cycling in Entandrophragma Delevoyi Dry Evergreen Forest in Shaba, Zaire. (L'impact Des Facteurs Ecoclimatiques Sur Les Cycles Biogeochimiques En Foret Dense Seche A Entandrophragma Delevoyi De Wild. Au Shaba Meridional (zaire). Universite De L'etat A Liege (belgium) (0422) Volume 53/01-c of Dissertation Abstracts International. Page 40. 199 Pages
Mme. S. Alexandre, Pub., Belgium.

Narland, G. 1991. A Commentary On: Tropical Forests and The Greenhouse Effect: A Management Response. Climatic Change 19(1-2): 227-232.

NAS. 1980. Conversion of Tropical Moist Forests. Committee on Research Priorities in Tropical Biology of The National Research Council. National Academy of Sciences, Washington, D.C. 205 p.

NAS. 1980. Firewood Crops - Shrub and Tree Species for Energy Production. National Academy of Sciences, Washington, D.C. 237 p.

NAS. 1980. Research Priorities in Tropical Biology Committee on Research Priorities in Tropical Biology of The National Research Council. National Academy of Sciences, Washington, D.C. 116 p.

NAS. 1989. Evaluation of Biodiversity Projects. Board of Biology, Commission on Life Sciences, National Research Council, Washington, D.C. National Academy Press. 50 P.
Ndong Mba, A. 1990. Politicas Y Estrategias de Desarrollo Del SubSector Forestal Ecuatorguineano Y El Plan de Accion Forestal Tropical. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Newbery, D. M., Alexander, I. J., Thomas, D. W., and Gartlan, J. S. 1988. Ectomycorrhizal Rain-forest Legumes and Soil Phosphorus in Korup National Park, Cameroon. New Phytologist 109(4):433-450.

Newbery, D. M., Gartlan, J. S., McKey, D. B., and Waterman, P. G. 1986. the Influence of Drainage and Soil Phosphorus on the Vegetation of Douala-Edea Forest Reserve, Cameroun.Vegetatio Vol. 65 (3): P.149-162.

Newman, J., and Schreiber, R.K. 1984. Animals as Indicators of Ecosystem Responses to Air Emissions. Environ. Management 8(4): 309-324.

Newman, R. 1990. Forest People and People in the Forest: Investing in Local Community Development. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Newton, P. 1991. The Use of Medicinal Plants By Primates: A Missing Link? Trends in Ecology & Evolution 6(9): 297-299.

Ngandu, M. S., and Kolison, S. H. 1993. Zaire - Country Profile. In: Sustainable Agriculture and the Environment in the Humid Tropics. Committee on Sustainable Agriculture and the Environment in the Humid Tropics. Board of Agriculture and Board of Science and Technology for International Development, and the National Research Council. National Academy Press, Washington, D.C.702 P.

Ngimbog, L-R. 1987. La Protection de l'Environment au Cameroon. Université de Yaounde, Cameroon. Unpublished manuscript.

Ngoufo, R. 1991. Conservation de La Nature et Developpement Rural Dans Le Cadre du Projet Korup (Sud-ouest Cameroun). (Nature Conservation and Rural Development in the Context of the Korup Project (South-Western Cameroon)). Revue de Geographie du Cameroun 10(2):99-115.

Nicholson, S.E. 1989. Long-term Change in African Rainfall. Weather 44(2):46-56.

Nicoll, M. and Langrand, O. 1986. Conservation Et Utilisation Rationnelle Des Ecosystemes Forestiers Du Gabon. Gland, Switzerland: IUCN.

Njovens, B. B. 1991. Cooperatives in Cameroon: Position paper. Prepared for the World Bank. (Draft manuscript).

Noda, A. and T. Tokioka. 1989. The Effect of Doubling The CO2 Concentration on Convective and Non-convective Precipitation in A General Circulation Model Coupled With A Simple Mixed Layer Ocean. J.Met.Soc.Japan 67:1055-1067.

NRC. 1991. Managing Global Genetic Resources: The U.S. National Plant Germplasm System. National Academy Press, Washington, D.C. 190 p.

NRC. 1991. Managing Global Genetic Resources: Forest Trees. National Academy Press, Washington, D.C. 240 p.

OAS. 1990. Economic Biology of Underutilized Tropical Plants. Regional Scientific & Technological Development Program, Washington, D.C. 39 p.

Odum, E.P. 1985. Trends Expected in Stressed Ecosystems. BioScience 35(7): 419-422.

Oldeman, R. 1985. Forest Modelling Without Maths. IUCN Bull. 16(4-6): 61-63.

Oldfield, M. 1984. The Value of Conserving Genetic Resources. U.S. Government Printing Office, Washington, DC.

Orr, D. 1991. The Economics of Conservation. Cons. Biology 5(4): 439-441.

OTA. 1984. Technologies to Sustain Tropical Forest Resources. Congress of the United States. office of Technology Assessment.OTA-F-214. 344 p.

OTA. 1993. Sustaining Tropical Forest Resources. U.S. and International Institutions. Background Paper No. 2. Office of Technology Assessment, U.S. Congress. OTA-BP-F-19. 65

p.

Owen, O. 1985. Natural Resource Conservation: an Ecological Approach. MacMillan Publishing Co., New York. 800 p.

Pagezy, H. 1987. Coping With Uncertainty in Food Supply Among the Oto and the Twa Living in the Equatorial Flooded Forest Near Lake Tumba, Zaire. Clarendon Press, Oxford p. 175-209.

Pagni, L. 1991. "Huge Forests: Making Them A Paying Proposition." The Courier No.125:34,35.

Parker, J., and Hope, C. 1992. The State of The Environment: A Survey of Reports From Around The World. Environment 34(1): 18-20, 39-44.

Pearce, F. 1989. Methane: The Hidden Greenhouse Gas. New Scientist, 6 May 1989. 19-23.

Pearce, F. 1991. Africa at A Watershed. New Sci 129(1761):34-40.

Pedersen, J., and Waehle, E. 1991. the Complexities of Residential Organization Among the Efe (Mbuti) and the Bamgombi (Baka): A Critical View of the Notion of Flux in Hunter-gatherer Societies. In: Ingold, T., Riches, D., and Woodburn, J. (Ed.). Hunters and Gatherers: Volume 1: History, Evolution and Social Change. Berg Publishers Ltd., Providence, RI, USA. P.75-90.

Peet, J. 1992. Energy and The Ecological Economics of Sustainability. Island Press, Covelo, California. 300 p.

Peluso, N. 1992. The Ironwood Problem: (mis)management and Development of an Extractive Rainforest Product. Cons. Biology 6(2): 210-219.

Pereira, H.C. 1989. Policy and Practice in The Management of Tropical Watersheds. Westview Press, Boulder.

Peters, R., and Lovejoy, T. 1992. Eds., Global Warming and Biological Diversity. Yale University Press, New Haven, Connecticut. 552 p.

Peterson, R. 1990. Whose Forests: Land Tenure Dynamics on Zaire's Ituri Forest Frontier. University of Wisconsin Land Tenure Center. Unpublished.

Peterson, R. B., 1990. Kutafuta Maisha: Searching for Life on Zaire's Ituri Forest Frontier. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Pimentel, D., and et al 1992. Conserving Biological Diversity in Agricultural/forestry Systems. BioScience 42(5): 354- 362.

Pimm, S. 1992. The Balance of Nature? Ecological Issues in The Conservation of Species and Communities. Chicago University Press, Chicago, Illinois. 448 p.

Pinglo, F. 1988. Conservation Et Utilisation Rationnelle Des Ecosystemes Forestiers En Afrique Centrale, Rapport National: Centrafrique, Document Du Travail: IUCN.

Plotkin, M., and Famalore, L. 1992. Eds., Sustainable Harvest and Marketing of Rain Forest Products. Island Press, Covelo, California. 288 p.

Plumier, J. F. 1992. L'ecotourisme Dans la Region Nord de la Republique Centrafricaine. (Nature Tourism in the Northern Region of the Central African Republic). Tropicultura 10(4):163-165.

Pomeroy, D.1993. Centers of High Biodiversity in Africa. Conservation Biology Vol. 7(4):901-907.

Post, W.M. Et al 1990. The Global Carbon Cycle Amer. Scientist 78, 310.

Postel, S. 1984. Air Pollution, Acid Rain, and The Future of Forests. Part 3. Am. Forests 90(9): 28-35.

Postel, S., and Heise, L. 1988. Reforesting the Earth. Worldwatch Paper 83. Worldwatch Institute, Washington, D.C. 66 p.

Prance, G. 1991. A Commentary On: Tropical Forests: Present Status and Future Outlook. Climatic Change 19(1-2): 33-36.

Prance, G. 1991. What Is Ethnobotany Today? J. of Ethnopharmacology 32: 209-216. (Need for Future Research Before Indigenous Cultures & Natural Habitats Are Destroyed)

Prance, G., and Kallunki, J. 1984. Eds., Ethnobotany in The Neotropics. The New York Botanical Garden, Bronx, NY. (Proceedings of The "Ethnobotany in The Neotropics" Symposium Held By The Society of Economic Botany, June 1983)

Prescott-Allen, R., and Prescott-Allen, C. 1983. Genes From The Wild. Earthscan, London.

Quick, S. 1988. Report on the Activities of International Organizations and National Government Missions in the Area of Conservation and Management of Tropical Forests and Biological Diversity in Zaire. 45 p. US Agency for International Development, Washington, DC, USA

Redford, K., and Sanderson, S. 1992. The Brief, Barren Marriage of Biodiversity and Sustainability? Bull. Ecological Soc. America 73(1): 36-38.

Reid, W. 1992. Biopolicy International #2: Genetic Resources and Sustainable Agriculture: Creating Incentives for Local Innovation and Adaptation. Acts Press, Maastricht, The Netherlands. 31 p.

Reisner, M. 1991. Game Wars. Undercover Pursuit of Game Poachers. Viking/Penguin Press, 294 p.

Repetto, R. 1988. "Overview", in Repetto, R., and Gillis, M., Eds., Public Policies and The Misuse of Forest Resources. New York: Press Syndicate of The University of Cambridge.

Repetto, R. 1988. The Forest for The Trees?: Government Policies and The Misuse of Forest Resources. Washington, D.C.: World Resources Institute.

ReVelle, C. 1991. World Experts Convene on Need to Incorporate Biological Diversity Conservation Goals in Development Projects. DIVERSITY 7(4): 13-14.

Rind, D. 1984. Global Climate in The 21st Century. Ambio 13(3): 148-151.

Risser, P. 1985. Toward A Holistic Management Perspective. BioScience 35(7): 414-418.

Risser, P., Lubchenco, J., and Levin, S. 1991. Biological Research Priorities - A Sustainable Biosphere. BioScience 41: 625-627.

Roberts, T. R. 1989. Systematic Revision and Description of New Species of Suckermouth Catfishes Chiloglanis mochokidae From Cameroon. Proc. Calif. Acad. Sci. 46(6):151-177.
Robinson, M. 1992. Preserving Biological Diversity. The Challenge to Conservation. Perspectives in Primate Biology 4: 1-7.

Roeper, N. 1983. 1980 U.S. Imports of African Mammal Trophies and Skins. TRAFFIC-USA, Washington, DC.

Rojas, M. 1992. The Species Problem and Conservation: What Are We Protecting? Cons. Biology 6(2): 170-178.

Romanoff, S.A 1992. Regional Perspective on Cassava, Famine, and Seasonal Hunger in Humid and Subhumid Africa. Journal for Farming Systems Research-Extension 3(1):47-70.

Roome, N. 1984. Evaluation in Nature Conservation Decision-Making. Environ. Conservation 11(3): 247-252.

Rose, D. 1992. Free Trade and Wildlife Trade. Cons. Biology 6(1): 148.

Rosenberg, D., and Freedman, S. 1984. Application of A Model of Ecological Succession to Conservation and Land-use Management. Environ. Conservation 11(4): 323-330.

Roth, W.B., et al 1984. Evaluation of 107 Legumes for Renewable Sources of Energy. Econ. Bot. 38(3): 358- 364.

Rotmans, J., and Swart, R. 1991. Modelling Tropical Deforestation and Its Consequences for Global Climate. Ecological Modelling 58: 217-247.

Rowntree, P., and Lean, J. 1991. A Commentary On: Possible Climatic Impacts of Tropical Deforestation. Climatic Change 19(1-2): 197-200.

Rubin, S., and Bowles, I. 1992. Innovations in Conservation Finance Move Beyond Debt-for-nature Swaps. Tropicus 6(1): 19-20.

Rubinoff, I. 1984. if We Lose The Tropical Forests, No Birds Will Sing. Washington Post August

5

Ruggiero, R. G. 1989. The Ecology and Conservation of The African Elephant (loxodonta Africana Oxyotis Matschie, 1900) in Gounda-st. Floris N.P., Central African Republic (elephant). Ph.D. Rutgers University The State U. of New Jersey (new Brunswick) (0190).Volume 50/12-b of Dissertation Abstracts International. Page 5408. 289 Pages.

Ruggiero, R. G. 1990. the Ecology and Conservation of the African Elephant (Loxodonta africana oxyotis; Matschie, 1900) in Gounda-St. Floris N.P., Central African Republic. Dissertation Abstracts International. B, Sciences and Engineering 50(12):5408B. Rutgers University, New Brunswick, NJ 08903, USA.

Ruggiero, R. G. 1992. Seasonal Forage Utilization by Elephants in Central Africa. African Journal of Ecology 30(2):137-148.

Ruitenbeek, H. J. 1990. Economic Analysis of Conservation Initiatives: Examples From West Africa. World Wide Fund for Nature (WWF), Godalming, Surrey, UK 33 P.

Ruitenbeek, H. J. 1992. Economic Analysis of Tropical Forest Conservation Initiatives: Examples From West Africa. World Bank Environmental Paper No. 1: Conservation of West & Central African Rainforests 241(31).

Ruitenbeek, H. J. 1992. the Rainforest Supply Price: A Tool for Evaluating Rainforest Conservation Expenditures. Ecol. Econ. 6(1):57(22).

Ryan, J. 1992. Conserving Biological Diversity. Am. Forests 98(3 & 4): 37-44.

Sabhasri, S. 1991. Technical Workshop to Explore Options for Global Forest Management, Bangkok, Thailand, 24-29 April, 1991. Chairman' s Summary Document, Unpublished Manuscript. 12 P.

Saboukoulou, P. 1990. Le Bois Residuel des Operations Forestieres au Congo. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Sachs, W. 1991. Environment and Development: The Story of A Dangerous Liaison. The Ecologist 21(6): 252-257.

Sader, S.A., R.B. Waide, W.T. Lawrence and A.T. Joyce. 1989. Tropical Forest Biomass and Successional Age Class Relationships To A Vegetation Index Derived From Landsat TM Data. Remote Sens. Environ. 28:143-156.

Sader, S.A., T.A. Stone and A.T. Joyce. 1990. Remote Sensing of Tropical Forests: an Overview of Research and Applications Using Non-photographic Sensors. Photo. Eng. Rem. Sens. 56(10):1343-1351.

Salacuse, J. W. 1985. "The National Land Law System of Zaire", Report to The Land Tenure Center, Univ. of Wisconsin and U.S.A.I.D. Kinshasa.

Salati, E., and Nobre, C. 1991. Possible Climatic Impacts of Tropical Deforestation. Climatic Change 19(1-2): 177-196.

Sample, V. 1991. Land Stewardship in The Next Era of Conservation. Grey Tower Press, Milford, Pennsylvania. 43 p.

Sampson, N., and Hamilton, T. 1992. Can Trees Really Help Fight Global Warming? Am. Forests 98(5 & 6): 13-16.

Sargent, F., Lusk, P., Rivera, J., and Varela, M. 1991. Rural Environmental Planning for Sustainable Communities. Island Press, Washington, D.C. 260 p.

Sauve, H., and Courtemanche, P. 1986. Amenagement des Formations Boises naturelles du Departement du Mayo-Tsanaga. Presentation du Projet. Projet CARE/ONAREF.

Sayer, J. 1991. Conservation and Protection of Tropical Rain Forests: The Perspective of The World Conservation Union. Unasylva 42(166): 40-45.

Sayer, J. A. 1990. Institutional Arrangements for Forest Conservation in Africa. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Schlesinger, W.H. 1986. Changes in Soil Carbon Storage and Associated Properties With Disturbance and Recovery. In: J.R. Trabalka and D.E. Reichle, Eds., The Changing Carbon Cycle: A Global Analysis. P.194-220. Springer-Verlag, New York, U.S.A.

Schmidt, R. 1990. Sustainable Management of Tropical Moist Forests. Presentation for ASEAN Sub-Regional Seminar, Indonesia, January, 1990. Unpublished Manuscript. 35 P.

Schultes, R. 1984. Learning The Secrets of The Forests. WWF Focus 6(5): 4.

Schutz, H., and H. Seiler. 1989. Methane Flux Measurements: Methods and Results. In: Andreae, M.O., Ad D.S. Schimel, (eds), Exchange of Trace Gases Between Terrestrial Ecosystems and The Atmosphere. John Wiley & Sons.

Schwartz, A. 1984. Wintering Birds May Find Tropical Paradise Lost. Audubon Action 2(6): 5.

Scmithüsen, F. 1987. Etude sur les Institutions et la Legislation du Secteur Forestier au Cameroon. (Study of the Institutions and Legislation of the Forestry Sector in Cameroon) Interagency Mission PNUD/FAO, Forestry Sector, Cameroon. 129 p.

Sebagenzi, M. N., Vasseur, G., and Louis, P. 1992. Recent Warming in Southeastern Zaire (Central Africa) inferred From Disturbed Geothermal Gradients. Global and Planetary Change 6(2-4), (December), P.209.

Seidensticker, J. 1984. Managing Elephant Depredation in Agricultural and Forestry Projects. The World Bank, Washington, DC. 33 p.

Seiny-Boukar, L., Floret, C., and Pontanier, R. 1992. Degradation of Savanna Soils and Reduction of Water Available for the Vegetation: the Case of Northern Cameroon Vertisols. Canadian Journal of Soil Science 72(4):481-488.

Seitz, A., and Loeschcke, V. 1991. Eds, Species Conservation: A Population-Biological Approach. Birkhauser Boston Inc., Secaucus, New Jersey. 292 p.

Skarby, L., and Sellden, G. 1984. The Effects of Ozone on Crops and Forests. Ambio 13(2): 68-72.

Smith, N., Williams, J., and Plucknett, D. 1991. Conserving The Tropical Cornucopia. Environment 33(6): 6-9.

Songwe, N. C., and Fasehun, F. E. 1991. Leaf Consumption and Weight Loss Prior to Leaf Fall in Tropical Rainforest. Nigerian Journal of Forestry 21(1-2):7-12.

Songwe, N. C., Fasehun, F. E., and Okali, D. U. U. 1988. Litterfall and Productivity in a Tropical Rain Forest, Southern Bakundu Forest Reserve, Cameroon. J. Trop. Ecol. 4 (pt.1):25-37. Maps.

Speart, J. 1992. What's Wildlife Worth? Wildlife Conservation 95(3): 44-47. (Wildlife Trade)

Stanhill, G., and Moreshet, S. 1992. Global Radiation Climate Changes: The World Network. Climate Change 21(1): 57-76.

Stark, M. A. 1986. Daily Movement, Grazing Activity and Diet of Savanna Buffalo, *Syncerus caffer brachyceros*, in Benoue National Park, Cameroon. African Journal of Ecology 24(4):255-262.

Stark, M. A. 1986. Analysis of Five Natural Soil Licks, Benoue National Park, Cameroon, West Africa. African Journal of Ecology 24(3):181-187.

Stark, M. A. 1986. Relationship Between Fire and Basal Scarring on Afzelia africana in Benoue National Park, Cameroon. African Journal of Ecology 24(4):263-271.

Stoll, H. L. 1990. Exemples D'une Exploitation Forestiere Perenne au Nord du Congo: Presentation du Cas de la Congolaise Industrielle des Bois. 8 p. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Stromgaard, P. 1985. Biomass Growth and Burning of Woodland in A Shifting Cultivation Area of South Central Africa. For. Ecol Manage. 12:163-178.

Suchet, P. A., and Probst, J-L. 1993. Carbon Dioxide Flux Consumed by Chemical Weathering of Continents Influences of Drainage and Lithology. C. R. Acad. Sci. Ser. II. Mec-phys-chim. Sci. Univers. Sci. Terre. 317 (5).

Sugden, A. 1992. Using Biotic Interactions to Forecast The Consequences of Global Climate

Change. Trends in Ecology & Evolution 7(2): 35-36.

Sullivan, F. 1992. Trading Futures. BBC Wildlife 10(5): 55.

Sutton, S., Whitmore, T., and Chadwick, A. 1984. Eds., Tropical Rain Forest: Ecology and Management. British Ecological Society, 512 p.

Suyama, M., Ida, A., et Obam, A. 1987. Rapport D'Etudes sur la Conservation de l'Environment, des Sols, et des Eaux. (Report of Studies on Conservation of the Environment, Soils, and Waters). Interagency Mission PNUD/FAO, Forestry Sector, Cameroon.

Swanson, T., and Barbier, E. 1992. Economics for The Wilds: Wildlife, Wetlands, Diversity, and Development. Earthscan Publications Ltd., London, England. 217 p.

Swisher, J., and Masters, G. 1991. Buying Environmental Insurance: Prospects for Trading of Global Climate-protection Services. Climate Change 19(1-2): 233-240.

Talbott, K. and Furst, M. 1991. Ensuring Accountability: Monitoring and Evaluating The Preparation of National Environmental Action Plans in Africa. World Resources Institute. Unpublished.

Tans, P.P., I.Y. Fung, and T. Takahashi. 1990. Observational Constraints on The Global Atmospheric CO2 Budget. Science 247, 1431-38.

Tchamba, M. N., and Seme, P. M. 1993. Diet and Feeding Behaviour of the Forest Elephant in the Santchou Reserve, Cameroon.African Journal of Ecology 31(2):165-171.

Terashima, H.; Ichikawa, M.; and Sawada, M. 1988. Wild Plant Utilization of the Balese and the Efe of the Ituri Forest, the Republic of Zaire. African Study Monographs (Japan) No. 8 (suppl.) 81 P.

Terborgh, J. 1992. Diversity and the Tropical Rain Forest. Scientific American Library: W. H. Freeman and Co. New York, NY. Xi + 242 p.

Teugels, G. G., and Mamonekene, V. 1992. Description of A New Barbus Species Cyprinidae From the Central Kouilou Basin Congo. Cybium 16(1):43-52.

Thebe, B., and Pontanier, R. 1989. Runoff Study in North Cameroon: Extension From Plot to Catchment Scale. (Etude Du Ruissellement Au Nord Cameroun. Transfert De La Parcelle Au Bassin Versant.). Hydrologie Continentale 4(1):57-69.

Jabre, B. 1988. Women's Education in Africa. A Survey of Field Projects in Five Countries. Digest - UNESCO-UNICEF Cooperative Programme (No. 26): 127 p.

Thomas, D. W., Thomas, J. M., Bromley, W. A., and Mbenkum, F. T. 1989. Korup Ethnobotany Survey. WWF-UK.

Thomas, G., and A. Henderson-Sellers. 1987. Evaluation of Satellite-derived Land Cover Characteristics for Global Climate Modelling. Climatic Change 11:313-347.

Tisdell, C. 1991. Economics of Environmental Conservation. Economics for Environmental and Ecological Management. Elsevier Science Publishers, Amsterdam, The Netherlands. 234 p.

Train, R. 1984. Biological Diversity: The Ecological Basis for Sustainable Development. World Resources Institute Journal '84 : 27-33.

Trexler, M.C., and Haugen, C., in Press. Keeping it Green: Opportunities for Mitigating Global Warming Through Tropical Forestry. World Resources Institute.

Trzyna, T.C. 1983. Ed., The United States and The Global Environment. A Guide to American Organizations Concerned With International Environmental Issues. California Institute of Public Affairs, Claremont, CA.

Tucker, C.J., J.R.G. Townshend, and T.E. Goff. 1985. African Land-Cover Classification Using Satellite Data, Science (4685)227:369.

Tudge, C. 1992. Last Animals at The Zoo. How Mass Extinction Can be Stopped. Island Press, Covelo, California. 266 p.

Tutin, C. E. G., Williamson, E. A., Rogers, M. E., and Fernandez, M.A. 1991. Case Study of a Plant-animal Relationship: Cola lizae and Lowland Gorillas in the Lope Reserve, Gabon. Journal of Tropical Ecology 7(2):181-199.

Tutin, C. E. G., and Fernandez, M.1992. Insect-eating by Sympatric Lowland Gorillas (Gorilla G. Gorilla) and Chimpanzees (Pan T. Troglodytes) in the Lope Reserve, Gabon. American Journal of Primatology 28(1):29-40.

U.S. Department of Commerce. 1987. Overseas Business Report: Gabon. Vol. 87(01). Washington, D.C.: U.S. Department of Commerce.

U.S. Interagency Task Force on Tropical Forests 1980. The World's Tropical Forests: A Policy, Strategy, and Program for The United States. Department of State, Washington, D.C. 54 p.

U.S. Library of Congress, Science and Technology Division. 1980. Phase 1 Environmental Profile of The Republic of Zaire. U.S. Agency for International Development. U.S. Dept. of State, National Committee on Man and The Biosphere.

UNDP/World Bank. 1988. Gabon: Issues and Options in The Energy Sector. Washington, D.C.: ESMAP.

UNESCO/MAB. 1990. Food and Nutrition in the African Rain Forest. Selected Data From the Research Team in Food Anthropology. Hladik, C. M., Bahuchet, S., and de Garine, I. (Ed.). UNESCO, Man & the Biosphere Project. Paris, France. 96 P.

United States Department of The Interior 1984. The Value of Conserving Genetic Resources. U.S. Printing Office, Washington, DC. 360 p.

USAID. 1990. Greenhouse Gas Emissions and The Developing Countries: Strategic Options

and The USAID Response; A Report to Congress. Washington, D.C.

USAID. 1992. Policy, Analysis, Research, and Technical Support (PARTS) Project. US-AID Bureau for Africa, Office of Analysis Project Paper PD-ABG-054. 124 p. + 8 Annexes.

USAID. 1993. Towards A Sustainable Future for Africa: Improved Natural Resources Management Under the Development Fund for Africa, 1987 to 1993. USAID-ARTS Technical Paper, No. 5. April 1993. 39 p.+ Illustrations.(In: ARDA 18(1))

Van Orsdol, K. G. 1987. Buffer Zone Agroforestry in Tropical Regions. Forestry Support Program, USFS, USDA, Washington, D.C. 67 p. (Oku Forest Project, Cameroon. (WWF & USAID). p. 31-33.)

Vedder, Amy L. 1989. Feeding Ecology and Conservation of The Mountain Gorilla (gorilla Gorilla Beringei). Ph.D. The University of Wisconsin - Madison (0262), Volume 50/10-b of Dissertation Abstracts International. Page 4348. 274 Pages.

Vitousek, P., and Matson, P. 1991. A Commentary On: Effects of Tropical Deforestation on Global and Regional Atmospheric

Vivien, J. 1990. Wild Fruit Trees of Cameroon. Fruits (Paris) 45(2):149-160.

Vooren, A. P. 1990. Harvest Criteria for Tropical Forest Trees. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D'Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Waerebeke, D. Van, Chabaud, A. G., and Collet, J. Y. 1988. Nouveaux Nematodes Atractides Parasites du Chimpanze et du Gorille au Gabon. (New Atractid Nematode Parasites of Chimpanzee and Gorilla in Gabon.). Annales de Parasitologie Humaine et Comparee 63(1):37-47.

Waterman, P. G. 1986. A Phytochemist in the African Rain Forest. Phytochemistry 25(1):3-17.

Wellner, P., and Dickey, E. 1991. The Wood Users Guide. Rainforest Action Network, San Francisco, California.

West, P., and Brechin, S. 1991. Eds., Resident Peoples and National Parks: Social Dilemmas and Strategies in International Conservation. University of Arizona, Tucson, Arizona. 443 p.

Western, D. 1991. Biology and Conservation: Making The Relevant Connection. Cons. Biology 5(4): 431-433.

Western, D. 1992. The Biodiversity Crisis: A Challenge for Biology. Oikos 63(1): 29-38.

Westman W. E, Strong L. L., and Wilcox, B. A. 1989. Tropical Deforestation and Species Endangerment the Role of Remote Sensing. Landscape Ecol 3(2):97-110.

Westphal, E. 1985. The Physical and Biological Environment of Cameroon. (Le Milieu Physique

et Biologique Du Cameroun.). Agricultural University, Wageningen, Netherlands. (No. 75):2-19.

Weyerhaeuser, R. 1984. Focus on Africa. WWF Focus 6(5): 6. (WWF-US African Wildlife Conservation Program)
Whelan, T. 1991. Ed., Nature Tourism. Managing for The Environment. Island Press, Covelo, California. 220 p.

White, F. 1983. Vegetation of Africa. UNESCO, New York.

White, F. 1983. Vegetation Map of Africa. UNESCO, Paris. 350 p. (Descriptive Memoir and 3 Colored Maps) Conservation 31(3): 265-288.

White, L. J. T., Tutin, C. E. G., and Fernandez, M. 1993. Group Composition and Diet of Forest Elephants, Loxodonta africana cyclotis (Matschie, 1900), in the Lope Reserve, Gabon. African Journal of Ecology 31(3):181-199.

Wickens, G. 1991. Management Issues for Development of Non-timber Forest Products. Unasylva 42(165): 3-8.

Wilcox, B., and Murphy, D. 1985. Conservation Strategy: The Effects of Fragmentation on Extinction. Am. Naturalist 125(6): 879-887.

Wilkie, D. S. 1987. Impact of Swidden Agriculture and Subsistence Hunting on Diversity and Abundance of Exploited Fauna in The Ituri Forest of Northeastern Zaire (pygmy) Ph.D. University of Massachusetts (0118) Volume 48/02-b of Dissertation Abstracts International. Page 314. 310 Pages.

Wilkie, D. S., and Finn, J. T. 1990. Slash-burn Cultivation and Mammal Abundance in the Ituri Forest, Zaire.Biotropica 22(1):90-99.

Wilkie, D. S., Sidle, J. G., and Boundzanga, G. C. 1992. Mechanized Logging, Market Hunting, and a Bank Loan in Congo. Conservation Biology 6(4):570-580.

Wilkie, D.S. and J.T. Finn. 1988. A Spatial Model of Land Use and Forest Regeneration in The Ituri Forest of Northeastern Zaire. Ecol.Model. 41:307-323.

Wilks, C. 1990. La Conservation des Ecosystemes Forestiers du Gabon. (Conservation of Forest Ecosystems in Gabon.). IUCN., Gland, Switzerland. 215 p.

Williamson, E. A. 1989. Behavioural Ecology of Western Lowland Gorillas in Gabon (gorillas). Ph.D. University of Stirling (united Kingdom) (5037) Volume 54/01-b of Dissertation Abstracts International. Page 45. 169 Pages

Willison, J., Bondrup-Nielsen, S., Drysdale, C., Herman, T., Munro, N., and Pollock, T. 1992. Eds, Science and The Management of Protected Areas. Elsevier Science Publishers, Amsterdam, The Netherlands. 548 p.

Wilson, E. 1991. Rainforest Canopy. The High Frontier. Nat. Geographic 180(6): 78-107.

Winterbottom, R. 1990. Taking Stock: The Tropical Forestry Action Plan After Five Years. Washington, D.C.: World Resources Institute.

Winterbottom, R. 1990. the Tropical Forestry Action Plan and Indigenous People: the Case of Cameroon. In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Witte, J. 1992. Deforestation in Zaire. The Ecologist 22(2): 58-64.

Wolbarst, A. 1991. Ed., Environment in Peril. Smithsonian Institution Press, Washington, D.C. 272 p.

Wolf, E. C. 1987. On the Brink of Extinction: Conserving the Diversity of Life. Worldwatch Paper 78. Worldwatch Institute, Washington, D.C. 52 P.

Wolfheim, J. 1984. Primates of The World: Distribution, Abundance and Conservation. Univ. of Washington Press, Seattle, WA.

Wong A. H., Hong L. T., and Singh K. D. 1991. Industrial Wood Preservation a Role in the Conservation of Tropical Biodiversity. In: in Harmony With Nature: the International Conference of Tropical Biodiversity, Kuala Lumpur, Malaysia, June 12-16, 1990. Malay Nat.t. J. 45(1-4):563-578.

Woodburn, J. 1991. African Hunter-gatherer Social Organization: Is it Best Understood as a Product of Encapsulation? In: Ingold, T., Riches, D., Woodburn, J. (Ed.). Hunters and Gatherers: Volume 1: History, Evolution and Social Change. Berg Publishers Ltd., Providence, RI, USA. P.31-64.

Woodward, M. C. 1989. Activities on Non-Governmental Organizations in Cameroon.

World Bank. 1985. Staff Appraisal Report: Ivory Coast Second Forestry Project. Report No. 5151-IVC.

World Bank. 1986. Zaire: Issues and Options in The Energy Sector. Washington, D.C.: Energy Sector Management Assistance Program (ESMAP).

World Bank. 1988. The Congo: Issues and Options in The Energy Sector. Washington, D.C.: Energy Sector Management Assistance Program (ESMAP).

World Bank. 1989. Cameroon: Agricultural Sector Report, Vol.1. Report No. 7486-CAM.

World Bank. 1989. Central African Republic: Forestry Environmental Issues Paper. Washington, D.C.

World Bank. 1989. Environmental Issues Papers: Summary and Conclusions for AF1 Countries. Unpublished.

World Bank. 1990 Natural Resource Management Project - Central African Republic. President's Report. Report No. P5225 (Internal Document ISN 185246)
World Bank. 1990. Environmental Issues Papers. Unpublished.

World Bank. 1990. Environmental Action Plans and Issues Papers for AF1 Countries. Unpublished Collection of Papers Sent Around With A Memorandum on Dec. 11, 1990.

World Bank. 1991. (draft). Central African Republic: Issues and Options in The Energy Sector. Energy Sector Management Assistance Program (ESMAP).

World Bank. 1991. (draft). Cameroon: Issues and Options in The Energy Sector. Energy Sector Management Assistance Program (ESMAP).

World Bank. 1991. Ouesso Wood - Processing Project - Congo. PCR Project Completion Report. Report No. 9494 (Internal Document ISN 176429).

World Bank. 1992. Forestry and Environment Project - Gabon. SAR Staff Appraisal Report. (Internal Document ISN 188234).

World Bank. 1992. Forestry Project - Cameroon; Or Projet Forestier - Cameroun. PCR Project Completion Report. (Internal Document ISN 173816).

World Bank. 1992. Forestry and Environment Project - Gabon. MOP Memorandum of the President. Report No. P5771 (Internal Document ISN 188235).

World Bank. 1992. Wildlands Protection and Management Project - Congo (Global Environment Trust Fund Grant). Projet de Conservation et de Gestion des Aires Protegees - Congo. MOD Memorandum of the Director. 2 V. -- Contents: V. 1. Memorandum and Recommendation -- V. 2. Technical Appendix. English & French. Report No. 10590 (Internal Document ISN 189720).

World Bank. 1993. Preliminary Socioeconomic Assessment and Management Recommendations for Campo Reserve, Southwestern Cameroon. Report Prepared for the World Bank by Curran, B.K. May, 1993. 20 P.

Worthington, E.B. 1983. The Ecological Century. Clarendon Press, Oxford. 206 p.

WRI/CIDE. 1993. African NGO Participation in Natural Resources Policy Reform. Prepared for WRI/CIDE By: Swatrzendruber, J. F. Funded By: USFS-USDA, USAID, USDA- Office of International Cooperation and Development.59 P.

WRI. 1984. Recommendations for A United States Strategy to Conserve Biological Diversity in Developing Countries. WRI, Washington, DC. 82 p.

WRI. 1992. 1992. Global Biodiversity Strategy: Guidelines for Action to Save, Study, and Use Earth's Biotic Wealth Sustainably and Equitably. World Resources Institute, World Conservation Union, and United Nations Environment Programme. 260 p.

WWF/ODNRI. 1989. Cross River national park (Oban Division): Plan for Developing the Park and its Support Zone. WWF-UK.

WWF/TNC/WRI. 1993. Central Africa: Global Change and Development - Overview. US-AID Bureau for Africa, Office of Analysis. Technical Report PN-ABP-067.108 p.

WWF-U.S. 1984. Plant Conservation: The First of Four Arguments for Conservation. End. Species Tech. Bull. Reprint 1(12): 3-4.

WWF. 1987. the Korup Project. Soil Survey and Land Evaluation. World Wide Fund for Nature. Report (No. 32068), 100 p.

WWF. 1987. The Korup Project, Cameroon. (Draft manuscript). 64 p.

WWF. 1992. Can Nature Survive Global Warming? A WWF International Discussion Paper. 59 p.

Yamagiwa, J., Mwanza, N., Spangenberg, A., Maruhashi, T., Yumoto, T., Fischer, A., and Steinhauer-Burkart, B. 1993. A Census of the Eastern Lowland Gorillas *Gorilla gorilla graueri* in Kahuzi-Biega National Park With Reference to Mountain Gorillas G. G. Beringei in the Virunga Region, Zaire. Biological Conservation, 64(1):83.

Yamagiwa, J., Yumoto, T., Ndunda, M., and Maruhashi, T. 1988. Evidence of Tool-use by Chimpanzees (*Pan troglodytes schweinfurthii*) for Digging Out a Bee-nest in the Kahuzi-Biega National Park, Zaire. Primates 29(3):405-411.

Yekola, M. E., and Ngatho, M. 1990. L'agriculture Itinerante et la Deperdition des Ressources Forestieres Dans la Collectivite Ngombe-Doko, Zaire. (Shifting Cultivation and the Loss of Forest Resources in the Ngombe-Doko Collective, Zaire.). Tropicultura 8(4):185-188.

Yobwa, I. 1990. Forest Development and Management in Zaire (Abstract). In: Conservation of West and Central African Rainforests. Selected Papers From a Conference Organized by the IUCN and the WB and Hosted by the ADB. November 5-9, 1990; Abidjan, Côte D' Ivoire. Environment Department and Africa Technical Department, the WB, Washington, D.C.

Zeeve, S. R. 1991. Behavior and Ecology of Primates in The Lomako Forest, Zaire. Ph.D. State University of New York at Stony Brook (0771). Volume 52/08-b of Dissertation Abstracts International. Page 4516. 255 Pages.

INDICES

1. AUTHOR INDEX

2. GEOGRAPHICAL INDEX

3. INSTITUTIONAL INDEX

4. SUBJECT INDEX