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# Guinea Biodiversity and Tropical Forests 118/119 Assessment

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**Guinea Biodiversity and Tropical Forests 118/119 Assessment**

**EPIQ IQC: EPP-I-00-03-00014-00, Task Order 02**

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## ACRONYMS

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AGIR	Appui à la Gestion Intégrée des Ressources Naturelles
CBO	community-based organization
CCC	Chimpanzee Conservation Center
CCSP	Jane Goodall Chimpanzee Conservation and Sensitization Program
CI	Conservation International
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CRD	Communauté Rurale de Développement
DNEF	Direction Nationale des Eaux and Forêts (National Directorate of Waters and Forests)
EITI	Extractive Industries Transparency Initiative
EU	European Union
FAO	Food and Agricultural Organization of the United Nations
GDP	gross domestic product
GEF	Global Environment Facility
GIS	Global information system
IUCN	World Conservation Union (International Union for the Conservation of Nature and Natural Resources)
LAMIL	Landscape Management for Improved Livelihood
MEO	mission environmental officer
NGO	nongovernmental organization
OICI	Opportunities Industrialization Centers International
PGRN	Projet de Gestion des Ressources Naturelles (Natural Resources Management Project)
UNHCR	United Nations High Commissioner for Refugees
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development
USFS	United States Forest Service



## EXECUTIVE SUMMARY

Guinea is critical to global and regional biodiversity conservation. Not only is the country part of the regional biodiversity hotspot known as the “Guinean Forests of West Africa,” but it also hosts the world’s most viable chimpanzee populations. Guinea is home to the headwaters of several major West African rivers, the largest remaining mangrove forests in the region, and important fish breeding grounds that serve fish populations beyond the country’s borders.

Guinea is also located in a politically volatile region. It borders five nations that have recently experienced violent conflict; it also underwent internal conflict due to poor governance, increased poverty, and rising prices for staples, such as rice and fuel. Given that its neighborhood is a hotspot for conflict and biodiversity, both conservation and development in Guinea are key to maintaining regional biodiversity, peace, and security.

About 28 percent of Guinea’s total land area is made up of tropical forests. It houses a quarter of West Africa’s total mangrove wetlands, which stretch from Senegal to northern Angola. Guinea’s protected areas include 156 classified forests, two national parks, and four biosphere reserves. Its classified forests cover 11,866 km<sup>2</sup>, while its two national parks — the Parc du Haut Niger and the Parc du Niokolo-Badiar — together cover 922 km<sup>2</sup>. Guinea’s four biosphere reserves — Mount Nimba, Siama, Badiar, and Haut Niger — cover 11,000 km<sup>2</sup>. In total, according to the UN Food and Agricultural Organization, Guinea’s formal protected areas include about 10 percent of its total land area.

Beyond this general information, it is difficult to report with scientific accuracy on Guinea’s biodiversity, including the present number of species, changes in these numbers, where species are located, and migration patterns. Studies have been conducted only in a few areas in the country usually on a single species. Most biodiversity research has taken place on Mount Nimba in Guinea’s forest region or on chimpanzees, which are found throughout Guinea (possibly in higher numbers than elsewhere in West Africa).

In the past several years, Conservation International (CI) conducted three rapid biodiversity surveys of (1) the Pic de Fon classified forest in the Simandou Range, (2) three classified forests in southeast Guinea, and (3) the Boké prefecture of northwestern Guinea (the first two in partnership with Rio Tinto and the third with Alcoa-Alcan). These studies aimed to “create an adequate understanding of the existing political, socioeconomic, and biodiversity contexts in the area” and did not inventory the species found in the study sites. Given the dearth of information, it is not surprising that almost every group interviewed told our team that the greatest need is an inventory of biological and natural resources. Their views are reinforced by the National Biodiversity Action Plan.

One of the primary reasons Guinea lacks information about its biodiversity and natural resources is that it does not have robust environmental institutions. According to the European Commission’s 2007 environmental profile, recurrent institutional problems are responsible for the government’s inability to implement its National Environment Action Plan (1994), which includes strategies for protecting biodiversity and forest

resources. Not only have the ministries responsible for making environmental decisions changed direction and leadership eight times in the past 20 years, but also these institutions (responsible for the environment, agriculture, livestock, etc.) have developed their environmental strategies — and assigned responsibilities — on their own, making it difficult to determine who is accountable for what. Fortunately, this latter problem may improve with the 2007 restructuring, which brought the ministries of agriculture, livestock, environment, and water and forests, under the Ministry of Agriculture. Many resource managers hope that having these functions all housed within the Ministry of Agriculture will improve coordination and collaboration, particularly in the area of environmental decision making.

Even with greater collaboration and coordination, the problem of limited government capacity to manage natural resources remains. On the legislative front, Guinea has adopted a number of national and international codes related to conservation and natural resource management but weak government capacity means that few of these codes are actually implemented and enforced. This limited capacity is apparent in the management of Guinea's classified forests. The Direction Nationale des Eaux et Forêts is legally responsible for managing these forests, but years of wildlife poaching, uncontrolled animal grazing, and illegal encroachment have left many degraded. Some of these forests have been changed to the point that managers question whether they should remain classified.

To determine the status of Guinea's biodiversity and forest resources, we examined the threats to these resources as well as the actions necessary to respond to them. Both threats and actions are detailed in Sections E and F, respectively, and the former fall into the following two categories:

- Indirect threats include limited governmental, institutional, and legal capacity; population growth; poverty and political instability; and the lack of regional conservation planning. and mineral mining.
- Direct threats include habitat fragmentation and loss; hunting and bushmeat/pet trade; unregulated removal of vegetation from forests; agriculture extensification and shifting cultivation; uncontrolled bush fires; and the overexploitation of coastal resources.

The actions necessary to combat these threats range from local solutions (organizing community or co-managed forests and using agroforestry techniques for sustainable farming systems) to national solutions (creating inventories, building the capacity of government resource managers, and improving the legal framework). Many of these options are currently being undertaken by international and Guinean organizations, in part or in specific geographic areas, while others still need to be considered and applied as appropriate.

This assessment looked specifically at how USAID is addressing threats to biodiversity and forestry resources. USAID has a long history working on natural resource management, environment, and agriculture in Guinea, and many aspects of its current programming address the threats listed above (at least in part), especially those related to co-management of classified forests in Guinea. In USAID's current portfolio, three activities directly address biodiversity and forest conservation in Guinea: (1) Landscape Management for Improved Livelihoods (LAMIL), (2) Programme de Renforcement

Institutionnel à la Direction Nationale des Eaux et Forêts, and (3) Faisons Ensemble. Additionally, the Chimpanzee Conservation and Sensitization Program (ended in August 2007) raised significant awareness about the need to protect chimpanzees and improve the legal framework governing poaching and bushmeat. It should be noted that this program was implemented jointly in Guinea and Sierra Leone, and shows the regional and trans-boundary focus of the USAID mission in Guinea.

LAMIL is the USAID program that most directly addresses these needed conservation actions. It addresses almost all of the abovementioned threats, particularly through its efforts to improve natural resource governance, improve the livelihoods of rural populations, and conserve biodiversity. However, the project works in only four sites, which limits its impact (although the natural resource management projects on which LAMIL is based operated in dozens of sites).

The Programme de Renforcement Institutionnel à la Direction Nationale des Eaux et Forêts is implemented in partnership the U.S. Forest Service's International Programs division and works in the areas of participative management, policy development, information management, and personnel management for the National Directorate of Waters and Forests (Direction Nationale des Eaux et Forêts or DNEF). This project primarily focuses on building capacity and strengthening the legal framework for natural resource management.

Faisons Ensemble primarily addresses weak legislative, policy, institutional, and financial frameworks in Guinea. While these are overarching concerns for those pursuing conservation, the project is not yet fully operational, and as a result its conservation-focused elements have not been implemented.

After assessing the status of Guinea's natural resources, the threats they face, and the actions needed to combat these threats, our team offered recommendations that fall into three categories: (1) overarching recommendations for USAID activities, (2) specific recommendations for USAID activities, and (3) global recommendations.

**Overarching recommendations** are actions that USAID could take to further integrate conservation into their programming but that do not necessarily relate to a particular USAID activity. They include USAID interventions in sites important to biodiversity and forest conservation and continuing cross-sectoral and trans-boundary activities.

**Specific recommendations** relate to current or planned USAID activities, such as continuing support for co-management activities; the clarification, harmonization, annotation, and communication of legal codes; and capacity building for DNEF agents.

**Global recommendations** are actions that may be beyond the scope of current USAID programming but that should be considered by interested parties because of their vital importance to conservation. They include supporting the creation of national inventories; the generation of reliable scientific data and maps; financial support and capacity building for regional/national conservation, enforcement, and monitoring activities; and the revitalization of the tourism and eco-tourism sectors.

In addition to the three abovementioned categories, three themes also ran through many of the recommendations and should be highlighted:

- *Support co-management.* USAID should continue its support for co-management activities and should look for opportunities to institutionalize the process so that its impact can be expanded throughout the country and region.
- *Increase cross-border coordination.* Given the importance of Guinea for stability, biodiversity, and livelihoods in the region, USAID should seek opportunities to engage organizations in neighboring countries in cross-border and trans-boundary conservation initiatives.
- *Bolster the capacity of the DNEF.* As the DNEF's lack of capacity to manage and conserve national resources is a major deficiency that prevents many needed conservation actions, including the creation of national inventories, the application/enforcement of legal codes, and the use of rational/sustainable resource planning, USAID should work to build the DNEF's institutional capacity to plan, implement, and monitor conservation activities in Guinea.

## **SECTION A. INTRODUCTION**

### **A1. 118/119 Legislation and Purpose of This Assessment**

The environmental requirements of the USAID operating unit's Operational Plans and Country Assistance Strategy are specified in ADS 201.3.8.2, Mandatory Technical Analysis for Developing Strategic Plans, Environmental Analysis, and are derived from the Foreign Assistance Act and 22 CFR 216.

The Foreign Assistance Act specifically addresses tropical forests and biodiversity in Sections 118, "Tropical Forests," and 119, "Endangered Species," and requires that all country plans include an analysis of the actions necessary to conserve biological diversity and tropical forests in that country and a description of the extent to which current and proposed USAID actions meet those needs. Section 118/119 analyses are requirements of all USAID operating unit Operational Plans and Country Assistance Strategies and should be conducted during the strategic planning process.

These assessments identify biodiversity and forestry assets within a country, discuss the impact of USAID activities there, and determine ways current and future USAID programs could promote biodiversity conservation and sustainable forest management. In addition to responding to the requirement, a current 118/119 analysis can help guide proposed programs toward a more sustainable use of the country's renewable natural resources.

### **A2. Methodology of This Assessment**

Guinea's 118/119 assessment was conducted by a four-person team made up of two international consultants (Brian App and Julia Watkins of Chemonics International) and two local consultants (Mamadou Saliou Diallo of Guinée Ecologie and Dantily Diakite of the National Directorate of Waters and Forests). The team worked closely with its USAID counterpart, Mission Environmental Officer (MEO) Ibrahima Camara. In addition to assisting with the design and preparation of the assessment, Mr. Camara joined the team during a six-day field trip upcountry.

To carry out the assessment, the team used a threats-based approach, first reviewing the literature and then conducting on-the-ground interviews to assess Guinea's biodiversity and forests. In September 2007, the Chemonics team reviewed background materials available through the Internet and met with DC-based organizations working on biodiversity/forestry in Guinea. From October 2-12, the international team worked with local counterparts in Guinea to conduct interviews and meetings with key stakeholders, including representatives of the Guinean government, nongovernmental organizations (NGOs), donor organizations, and community-based organizations (CBOs) as well as farmers, USAID project staff, and activity beneficiaries.

The team conducted a six-day field trip upcountry, spending October 5 and 6 in the Labé area, October 7 and 8 in the Dabola area, and October 9 and 10 in the Kindia area. (During October 2, 3, 4, 11, and 12, the team was in Conakry.) On completion of the fieldwork, the team conducted follow-up interviews, reviewed documents obtained in-country, and drafted the report.

### A3. Guinea Background

The Republic of Guinea has the potential to act as either a stabilizing or destabilizing force in its volatile region (it borders six nations, five of which — Senegal, Guinea-Bissau, Sierra Leone, Liberia, and Côte d'Ivoire — recently experienced violent conflict). In coastal west Africa, Guinea is richly endowed with renewable and non-renewable natural resources and is the source of every major river in the area. Yet, despite this wealth of resources, Guinea remains underdeveloped, and the majority of its population continues to live in poverty.

In 2005, USAID identified Guinea as a fragile state with political (authoritarian rule), economic (population rates surpassing GDP growth), and social (reversal in health indicators and shortfalls in primary education completion) sources of instability. For these (and other) reasons, the U.S. Department of State has recognized “strengthening democratic institutions and promoting good governance” as key to U.S. foreign assistance and improving foreign investment in Guinea and the region.

#### A3a. Physical Environment

The Republic of Guinea has approximately 245,000 km<sup>2</sup> of land, which can be broadly divided between four major natural regions (see map to right): (1) Guinée Maritime (36,000 km<sup>2</sup>, colored orange) with a tropical climate and two six-month seasons (monsoon and harmattan), (2) Fouta Djallon (63,000 km<sup>2</sup>, colored blue) with a temperate climate and a seven-month dry season, (3) Haute Guinée (97,000 km<sup>2</sup>, colored pink) with savannah plains and a short rainy season, and (4) Guinée Forestière (49,000 km<sup>2</sup>, colored green) with a humid subequatorial climate and rich plant cover.



Map of Guinea (Source: ESRI ArcWorld, DCW, IGN)

As one moves south to north or west to east, Guinea gets progressively hotter and drier, with a dry season lasting from October to June and a wet season from July to September (see Map 1 in Appendix B for annual average rainfall). Annual precipitation varies from 1,300 mm in Haute Guinée to more than 4,000 mm in Guinée Maritime. The country’s major towns are Conakry (capital, population 1.1 million), Kankan (population 100,000), Kindia (population 60,000), N’Zérékoré, Siguiri, Labé, Boké, Mamou, Kissidougou, and Fria.

Guinea has six main ecosystems: (1) forests, (2) grasslands/shrublands/savanna, (3) cropland, (4) urban areas, (5) barren vegetation, and (6) wetlands (WRI 2003). Within these ecosystems, the country holds an abundance of natural resources, particularly mineral deposits, which are the current focus of many international mining companies’

attention. These deposits include some of the world's richest bauxite deposits as well as significant quantities of gold, diamonds, and other minerals.

### **A3b. Population**

Guinea's population is estimated to be 9.9 million (CIA 2007), with more than 1 million living in the capital Conakry, thereby exerting particular pressure on coastal habitats. In 2000, at the height of regional conflicts, Guinea was also home to an estimated 750,000 refugees from neighboring Sierra Leone, Liberia, and Guinea-Bissau. While most sheltered in areas near the border, especially in Guinée Forestière, many others moved to Conakry, where they taxed already overextended municipal services. By the end of 2006, the United Nations High Council for Refugees (UNHCR) estimated that the number of refugees had decreased to 39,000.

The United Nations Development Programme's 2006 *Human Development Report* ranked Guinea close to the bottom among the world's nations — 160 of 177 countries measured — with respect life expectancy (53.9 years), adult literacy (41 percent), student enrollment, and standard of living (UNDP 2006). This low ranking reflects the country's poor economic health and limited infrastructure. Unfortunately, these numbers are typical for the region. Three of Guinea's neighbors were ranked even lower (Sierra Leone was 176, Mali was 175, and Niger was 177).

With respect to education in Guinea, the 2006 *Human Development Report* found a net primary school enrollment ratio of 66 percent and the net secondary school enrollment ratio of 21 percent in 2002-03. The country's health-related indicators are also generally poor, reflecting poor nutrition, a lack of access to health care, and limited access to clean water (42 percent). However, despite these poor indicators, life expectancy in 2005 was estimated at 53.9 years, which is significantly higher than Sub-Saharan Africa's average of 46.1 years. This figure likely reflects the current low incidence of HIV/AIDS in Guinea (1.5 percent) compared with higher rates in many other African countries (USAID 2007b).

### **A3c. Economy**

Guinea's economy is based primarily on agriculture and mining, and it imports most of its manufactured goods (see Map 2 in Appendix B for principal economic activities and Map 3 for soils). The country holds almost half of the world's proven reserves of bauxite (used to create aluminum) and is the world's second largest producer of iron ore. Most of Guinea's bauxite is exported raw; only a small percentage is processed in-country. The largest mining firm is the parastatal Compagnie des bauxites de Guinée, which is run in conjunction with the government by U.S.-based Alcoa, Inc. Guinea's mining sector has recently attracted large investments and accounts for around 17 percent of the country's GDP. Guinea is one of 15 countries committed to implementing the Extractive Industries Transparency Initiative (EITI), the goal of which is to increase government accountability of resource-rich countries with extractive industries. EITI supports improved government transparency by verifying and publishing company payments and government revenues from oil, gas, and mining industries.

Due to its large contributions to exports and government revenue, mining is Guinea's principal economic activity, and several new investments are under way (including a

large iron-ore extraction project in Simandou with the Australian/UK mining firm Rio Tinto) and should be completed in coming years.

While two of three Guineans depend on agriculture as their primary source of income, production levels are generally low. Agriculture, livestock, and fisheries account for only around 20 percent of GDP (10 percent of exports). Most agricultural production is directly consumed, and poor infrastructure discourages the sale of perishable foods at any significant distance. Guinea's most important crop is paddy rice, which is grown on 50 percent of irrigated land (principally along the river banks in the north and east). However, this rice meets only some 60 percent of domestic requirements.

Guinea's main commercial crop has been cotton, but the 1997 departure of the French partners from the Kankan cotton project precipitated a significant decline in production. With low and declining processing levels, and unused stockpiles rotting, some farmers have abandoned cotton in favor of traditional food crops.

While Guinea had a small but thriving tourism industry in the past, this sector declined significantly over the past quarter-century, plagued by inadequate infrastructure and regional insecurity. While the government has made attempts to promote tourism, the majority of today's "tourism" would more accurately be described as business travel. Nevertheless, a small number of tourists visit the country, which has numerous sites of interest. A tourism sector could be developed around these sites with improvements in infrastructure and marketing campaigns.

Additionally, while services account for approximately half of Guinea's GDP, this is largely due to the country's numerous public servants and reflects the dominant role played by the government in various economic activities. Guinea's informal economy is very large, consisting primarily of subsistence farming and trading in basic goods. Some estimates even indicate that it is larger than the formal economy.

### **A3d. Politics**

Since independence, Guinea has had only one change of power, when Lansana Conté took over as president in 1984. In 1993, he was elected president and has been re-elected twice (in 1998 and 2003) as the candidate of the Parti de l'unité et du progrès (Party for Unity and Progress). The next presidential election is scheduled for 2010. Due to ill health, it is unlikely that Mr. Conté will run. In fact, he may even be unable to finish his current presidential term. However, since Mr. Conté has been reluctant to name a successor, his death or incapacitation would likely leave a power vacuum and usher in a period of instability. Officially, the constitution stipulates that the president of the National Assembly (the legislature) assumes power at the death of the president. However, without the support of the military — which is far from certain — it may not be realistic to expect such an orderly transition.

Hope for a peaceful transition dimmed earlier this year, when unrest and discontent came to a head in Guinea. In January 2007, workers protesting high inflation and allegations of government mismanagement staged a strike. A month later, high tensions led to security forces opening fire on workers. During the strike, 60 people were shot dead, prices soared, and violence made citizens afraid to leave their homes (BBC News

2007). While, in the end, the strike did result in a lowering of prices and a change in some government positions, the major issues were not resolved.

## **SECTION B. LEGISLATIVE AND INSTITUTIONAL FRAMEWORK**

### **B1. Environmental Institutions**

Guinea gained its independence in October 1958, and during the First Republic (1958-1984), the country had no institutions or policies to deal with environmental concerns. However, the government did create a public agency in charge of water and forests, whose responsibilities included maintaining the more than 150 classified forests established by Guinea's former colonial power. For most of the First Republic, military guards enforced forest and hunting regulations (in the late 1970s, they were replaced by civil servants).

By the time Guinea's Second Republic was established in April 1984, environmental concerns had become paramount among government officials around the world. Like many other governments, Guinea established ministries and policies designed to address these concerns.

In 1986, Guinea created the Ministry of Natural Resources, Energy, and Environment. As would happen several times over the next 20 years, the government soon restructured its agencies and, in 1993, created the Ministry of Energy and Environment, which held the environmental mandate. In 1996, it passed to the Ministry of Mining and Geology. It was not until 2004 that Guinea created a single specialized agency to address environmental issues: the Ministry of Environment.

According to the EU's 2004 assessment of Guinea's environmental management, recurrent institutional problems are responsible for the government's inability to implement its National Environment Action Plan, created in 1994. In addition to frequent institutional changes, a number of sectoral ministries (agriculture, livestock, and environment) have independently developed environmental strategies and action plans. Unfortunately, these plans are developed in isolation, and a lack of coordination among ministries makes it very difficult to establish who is responsible for what.

In 2007, in an attempt to ensure greater cooperation and coordination among disparate sectors, the government restructured again, turning the Ministry of Environment into a Directorate of Environment housed under the new Ministry of Agriculture, Livestock, Environment, Water, and Forests. According to recent discussions (European Commission 2007), the government intends to house responsibility for environmental management in two units within the new ministry. These units will: (1) conduct environmental research and assessments, (2) prevent and/or control pollution, (3) manage disasters and environmental emergencies, and (4) propose environmental laws and provide public information.

### **B2. Forestry Institutions**

When Guinea developed environmental institutions, it created policies for forestry at the same time. By 1990, following the lead of other countries in the West African subregion, Guinea had a forestry policy, the Tropical Forestry Action Plan, that reflected the nation's vision for its forests. Similar to the efforts of other countries in the subregion, the National Directorate of Waters and Forests (DNEF), the agency legally responsible for managing all Guinea's forests, attempted to transform itself from a

“service of repression” (as conducted by military guards in the First Republic) to a service that works in collaboration with local populations. Military-trained forest guards are rare these days and — in large part due to USAID’s extended natural resource management project — many new forest agents have been trained in participatory methods. The DNEF, housed under the Ministry of Agriculture as of 2007, is now called the Ministry of Agriculture, Livestock, Environment, Water, and Forests.

To assist with the implementation of its Tropical Forestry Action Plan, Guinea created the National Forest Fund in 1989 (which was legally instituted in 1993). The first version of the 1993 forestry action plan established the fund as a special account, endowed with accounting and budgetary autonomy. It consists of receipts from products that come from the exploitation of state forests, taxes and fees from the application of forest laws, fines and penalties, sales of confiscated items, net profits of public wood-processing enterprises, fees paid to the forest service for services rendered, and loans or donations from the state or international organizations. The fund is not managed in a transparent manner and is believed to be mismanaged.

### **B3. Policies and Laws**

Guinean natural resource policy is established through two mechanisms: (1) legislation in the form of codes and laws or (2) sectoral national action plans and strategies.

On the legislative front, Guinea has adopted a number of codes related to the protection of natural resources, biodiversity, forests, and wildlife. The country adopted the Code for the Protection and Enhancement of the Environment in 1987 and the Regulation of Environmental Impacts Studies in 1989. The following year, Guinea adopted both a wildlife code and a forestry code. This new forestry code devolves forest control to Guinea’s elected rural councils, each of which is supported by a state forestry service representative.

The country has numerous other codes and laws, including ones that relate to water, livestock, wildlife, hunting, land, mining, sea fishing, inland fisheries, pesticides, health, and sanitation. Through the Jane Goodall Chimpanzee Conservation and Sensitization Program, USAID recently funded a review of Guinea’s environmental legislation, including analyses of individual codes and how they relate to chimpanzee conservation.

The most recent code is the Code des Collectivités Locales, which functions as Guinea’s decentralization code, giving local governments authority to manage community resources. However, many of these codes do not include *texts d’applications*, or instructions as to how they should be implemented. Another problem is that many of the provisions both within a given code and between codes are not consistent and, in some cases, contradict each other.

With respect to sectoral national action plans, several of these have been developed since 1984. In 1989, Guinea passed its Forestry Action Plan and, in 1990, established the National Action Plan and Master Layout of Mangroves. The National Environmental Action Plan became active in 1994 and serves as the national Agenda 21 and the basis for environmental policy in Guinea. Other noteworthy action plans include the National Strategy and Action Plan for the Conservation and Sustainable Use of Biological Diversity (2002), the Strategy Paper and Action Plan for Livestock

Development (1998), the National Action Plan to Combat Desertification and Drought (2006), the New Policy for Agricultural Development (2007), and the Second National Strategy Paper for Poverty Alleviation and Economic Growth (2007).

#### **B4. International Conventions**

Guinea has also endorsed and signed several international conventions and protocols, including:

- Convention on Biological Diversity
- United Nations Framework Convention on Climate Change
- United Nations Convention to Combat Desertification
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- Convention on Wetlands of International Importance
- International Convention for the Prevention of Pollution of the Sea by Oil
- Convention on the African Migratory Locust Organization
- Convention on the Conservation of Migratory Species of Wild Animals
- Convention for Cooperation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region
- International Convention for the Protection of Plants
- Vienna Convention for the Protection of the Ozone Layer
- Montreal Protocol on Substances that Deplete the Ozone Layer

The implementation of many of these conventions is limited due to weak government capacity and the lack of communication and coordination among key stakeholders, including the government, civil society, and the private sector.

Nonetheless, the government, with the support of international development partners, has recently taken steps to upgrade the capacity of environmental and forestry institutions. Through a Global Environment Facility (GEF)/UNDP project, the government currently conducts a self-evaluation of its environmental management capacity. The project has also performed a human resource assessment for the forestry sector, which it will use to prepare a capacity building action plan.

In addition, USAID's Chimpanzee Conservation and Sensitization Program staged a law enforcement and CITES training in April of this year. The workshop — which included police officers, customs officers, military personnel, magistrates, DNEF agents, and scientists — was designed to train officials in CITES procedures and relevant national laws and regulations, and laid the groundwork for Guinea to develop and formalize regional and national strategies to curb illegal practices that threaten wildlife and their habitats.

#### **B5. Regional Cooperation**

Guinea is a member of the Mano River Union (with Liberia and Sierra Leone), the Economic Community of West African States, the African Union, and the Cotonou Convention. The Mano River Union has been proposed as a platform to promote trans-boundary conservation among participating countries. The first consultative meeting of technical staff was funded by USAID/Liberia and took place in Freetown in June 2007.

The meeting's goal was to share ideas and experiences for effective conservation and management of trans-boundary forests, and it produced several important results, including a list of strategic trans-boundary conservation sites.

## **B6. Donor Community**

Several donor organizations actively support natural resource management and conservation in Guinea. Over the past several years, the United States has been the top bilateral donor in Guinea, followed by France and Japan, both of which work on natural resource management and fisheries. Canada and Germany also play prominent roles in the agricultural sectors.

Guinea's top multilateral donors are the European Union (EU), the World Bank, and the United Nations agencies. The EU concentrates primarily on rural development, social and economic infrastructure, and macroeconomic support. The World Bank primarily supports Guinea's rural and urban infrastructure programs. Specific donor programs related to natural resources and conservation are highlighted below.

### **B6a. European Union**

The European Commission, on behalf of the EU and the Republic of Guinea, initiated a new five-year protocol to a fisheries agreement between the two parties for the period January 1, 2004 to December 31, 2008. The protocol includes a number of innovative activities aimed at protecting the local artisanal fishing sector, contributing to food security by reducing discards, and developing an effective fisheries surveillance and control system in Guinean waters.

### **B6b. Food and Agricultural Organization of the United Nations**

The Food and Agricultural Organization (FAO) is currently planning to execute a GEF-funded, regional watershed protection program worth \$11 million. The program, scheduled to begin in 2008, will conduct outreach activities focused on the conservation of 14 river basins shared among 8 to 11 countries in West Africa. In Guinea, the project will focus on watershed management in the Fouta Djallon region.

### **B6c. United Nations Development Programme**

The UNDP is currently implementing a nine-year, GEF-funded project to conserve the biodiversity of the Nimba Mountains in Guinea's forest region. The project, Conservation of the Biodiversity of the Nimba Mountains through Integrated and Participatory Management, began in 1999 and ends in 2008. It uses a participatory approach to integrated ecosystem management and enhances the mainstreaming of biodiversity conservation into local and national sustainable development planning. Eventually, it will establish a national system of protected areas and facilitate improved monitoring of biodiversity. Together with funding from the GEF, Guinea is receiving technical assistance from the United Nations Environment Programme (UNEP) and UNDP to establish an information exchange center to catalog and evaluate existing levels of biodiversity in the region.

## B6d. United States Agency for International Development

USAID has been working on natural resource management in Guinea for several years. Its largest project at the moment, the Landscape Management for Improved Livelihood project (2005-2007), aims to stimulate agricultural markets, develop innovative and appropriate farming technologies, and improve governance on a local and national level. USAID also works with the U.S. Forest Service to improve government capacity, particularly within the DNEF. These initiatives are discussed in greater detail in Section F of this report.

## B6e. World Bank

The World Bank is currently implementing a five-year project that promotes sustainable management of Guinea's coastal biodiversity. The Coastal, Marine, and Biodiversity Management project assists communities in and around priority areas to plan, implement, and maintain environmentally sustainable and socially inclusive alternative livelihood options. It complements a highly successful World Bank community development program called the Village Communities Support Project.

## B7. NGO and Private Sector Community

During our trip, we heard about several local and international NGOs working on natural resource management and conservation in Guinea. We also learned that a few private companies, including Alcoa, Rio Tinto, and Kraft, have worked closely with the NGO and/or donor community to support conservation in Guinea. Alcoa and Rio Tinto are both mining companies with exclusive rights to mine bauxite and iron ore, respectively. Table 1 lists each of these groups' specific activities in Guinea.

**Table 1: NGO and Private Sector Groups Working on Natural Resources Management and Conservation in Guinea**

DONOR	ORGANIZATION TYPE	NRM/BIODIVERSITY ACTIVITY AREAS
Alcoa and Alcan	Private Company	Funded biodiversity surveys in the Boké prefecture as well as a multi-stakeholder workshop to form an action plan for conserving biodiversity in the Boké prefecture. The Alcoa Foundation also awarded the Jane Goodall Institute a grant to support their chimpanzee conservation efforts in Guinea.
Conservation International	International NGO	In partnership with Guinée Ecologie, conducted biodiversity surveys and action plans for the prefectures of Boké and three classified forests in southeastern Guinea. The reports were funded through a partnership with international aluminum producers Rio Tinto and Alcoa/Alcan to better understand the region's biodiversity as the companies develop alumina refinery projects in that area.

Guinée Ecologie	Local NGO	Works closely with government ministries, NGOs, and donor organizations on activities related to sustainable natural resource management in Guinea.
Jane Goodall Institute	International NGO	From September 2005 to August 2007, worked under a USAID grant to conduct local and national campaigns that raised awareness about chimpanzee endangerment and conservation. Also provided extensive training and technical assistance to help build the capacities of governments, NGOs, community-based organizations, and chimpanzee sanctuaries to promote and support conservation of habitat and biodiversity. Although USAID funding has ended, the Jane Goodall Institute is currently leveraging other funds to sustain its activities in Guinea and Sierra Leone.
Kraft	Private Company	Works through the Global Development Alliance with USAID to support cashew production in Guinea. In 1994, Kraft Foods gave \$1 million to help foster economic and social development through the promotion of sustainable tree crop systems that increase cashew production, generate income, conserve biodiversity, and offer long-term economic incentives to rural farmers.
Project Primate	International and Local NGO	Works closely with Guinea's National Directorate of Waters and Forests (DNEF) to support the Chimpanzee Conservation Center (CCC) located in the Haute Niger Region of Guinea. The CCC currently hosts 41 orphaned chimpanzees. The goals of the program include sustaining and improving the lives of orphaned chimpanzees living in the center, reintroducing some of the orphaned chimpanzees back into the wild, and educating Guinean citizens, expatriates, and eco-tourists about chimpanzee endangerment.
Rio Tinto	Private Company	Supports Conservation International's biodiversity assessment of the Pic de Fon classified forest in Guinea, where future mining operations are under consideration. Identifies existing and potential threats and opportunities for biodiversity conservation. Also engaged with Conservation International on an integrated regional land-use plan in the Greater Nimba Highlands.

## SECTION C. STATUS OF BIODIVERSITY AND FORESTRY RESOURCES

### C1. Status of Regional Biodiversity

#### C1a. The Guinean Forests of West Africa

Conservation International has classified the Guinean forests of West Africa as one of the world's 25 biodiversity hotspots. To qualify as a hotspot, a region must meet two strict criteria: It must contain at least 1,500 species of endemic vascular plants (greater than 0.5 percent of the world's total), and it must have lost at least 70 percent of its original habitat (Conservation International 2007a).

The Guinean forests of West Africa are the West African portion of the Guineo-Congolian rainforests that once spanned the continent. They contain two main blocks that incorporate several major Pleistocene refugia. The first block, the Upper Guinea forest ecosystem, extends from Guinea into eastern Sierra Leone, and eastward through Liberia,



**The Guinean forests of West Africa**

(Source: [web.biodiversityhotspots.org/xp/Hotspots/west\\_africa/](http://web.biodiversityhotspots.org/xp/Hotspots/west_africa/))

Côte d'Ivoire, and Ghana into western Togo. The second block, the Lower Guinea forest ecosystem, extends from western Nigeria to the Sanaga River in southwestern Cameroon. The Lower Guinea forest ecosystem also includes the islands of Bioko and Pagalu, both part of Equatorial Guinea, and São Tomé and Príncipe, which together form an independent nation. The two major ecosystems are separated by the Dahomey gap (a mixture of savanna and dry forest) in Togo and Benin (Conservation International 2000b).

As its hotspot designation suggests, the Guinean forests of West Africa are also home to an impressive number of endemic species (see Table 2). In addition, the forests have the highest mammal diversity of any hotspot in the world. Out of the estimated 1,100 mammal species found on the entire continent of Africa, 320 live in the Guinean forests, and more than 60 of these species are endemic to the region. In terms of primate conservation, the region is considered one of the highest priority regions in the world: It is home to 30 distinct primate species, 18 of which are endemic to the region. Critically endangered primates in this hotspot include the white-collared mangabey, Roloway monkey, Stampfl's putty-nosed guenon, Miss Waldron's red colobus, and the Cross River gorilla (Conservation International 2007b).

**Table 2: Endemic Species of Guinean Forests of West Africa**

Taxonomic Group	Species	Endemic Species	Percent Endemism
Plants	9,000	1,800	20%
Mammals	320	67	20.9%
Birds	785	75	9.6%
Reptiles	210	52	24.8%
Amphibians	221	85	38.5%

Source: [www.biodiversityhotspots.org/xp/hotspots/west\\_africa/Pages/biodiversity.aspx](http://www.biodiversityhotspots.org/xp/hotspots/west_africa/Pages/biodiversity.aspx)

While the West African forests are famous for their primates, they are also the home to seven endemic genera, including the rare pygmy hippopotamus and the Liberian mongoose. Other flagship species include two types of duiker — Jentink’s duiker and the zebra duiker — which are also two of the rarest antelopes in the world. The countries that make up the hotspot support a combined population of approximately 5,000 elephants, although several populations live in the savannah areas outside of the hotspot (Conservation International 2000b).

The status of biodiversity in the region is severely threatened and, according to some estimates, the area has already lost more than 70 percent of its original forest cover. The hotspot was originally covered by tropical rainforest and extended an estimated 1,265,000 km<sup>2</sup>. But it has been dramatically reduced to a series of forest fragments separated by agricultural communities and degraded lands. Overall, the region retains approximately 141,000 km<sup>2</sup> of closed canopy forest cover, which represents roughly 15 percent of its original vegetation. A mere 20,000 km<sup>2</sup> of the land is protected in national parks, nature reserves, and wildlife sanctuaries that meet international standards (Conservation International 2000b).

### **C1b. Mano River and Trans-Boundary Conservation**

The border separating southern Guinea and northern Sierra Leone — and extending south to include the border regions between Sierra Leone and Liberia — represents critical habitat for several species, including chimpanzees and associated wildlife. To our team’s knowledge, no trans-boundary biodiversity assessment has been conducted in recent years, but our literature review and interviews revealed that biodiversity and forestry resources have been severely impacted by a number of activities, notably civil unrest in Sierra Leone and Liberia.

During our trip, we visited Madina Wula, a sous-prefecture just one kilometer from Sierra Leone. Because of its proximity to the border, Madina Wula experienced first-hand environmental impacts from civil unrest in neighboring Sierra Leone. The president of Madina Wula’s Communauté Rurale de Développement (CRD) described the environmental impacts as “enormous.” Although he was not able to quantify them, he reported that the wildlife that used to be plentiful in the area is now rare and difficult to find. He also explained that the more than 6,000 refugees who were displaced to Madina Wula depended almost entirely on forest resources. Not only did they need wood to construct new homes, but they also depended on wildlife for food.

Pressure on natural resources comes from Guinea as well as Sierra Leone and Liberia. Circumstantial evidence suggests that a great deal of wild game is harvested in Sierra Leone and smuggled across the border to be sold in Guinea’s bushmeat markets. As will be explained in the next section, Guinea has a strong market for bushmeat, which may be surprising to some considering that Guinea is a predominantly Muslim nation. This and other cross-border situations demonstrate the need for regional collaboration vis-à-vis biodiversity conservation and resource protection.

Fortunately, a relationship already exists between Guinea, Sierra Leone, and Liberia through the Mano River Union. In August 2006, the Jane Goodall Institute met with stakeholder groups from Guinea and Sierra Leone to discuss the need for a conservation

strategy for the border region. Meeting participants included members from the Mano River secretariat, Sierra Leone's and Guinea's environment ministries, judicial departments, NGOs, civil society, and the donor community. All parties demonstrated widespread support for a border region conservation strategy that would link habitat areas for important, endangered wildlife in Guinea, Sierra Leone, and Liberia.

In our meetings with USAID, we discovered that the three countries' missions have already identified three border regions as conservation priorities for the Mano River region. The first is the Outamba Kilimi region, which links southern Guinea and northern Sierra Leone; the second is the Lofa-Mano-Gola region, which links southern Sierra Leone and western/northern Liberia; and the third is a region that links northern Liberia with southeastern Guinea.

## **C2. Status of Forested, Coastal/Marine, and Protected Areas in Guinea**

### **C2a. Forests**

At its peak, the approximate original extent of closed canopy tropical moist forest cover in Guinea, including lowland, montane, swamp, and mangrove forest, was 185,800 km<sup>2</sup>. Today, only an estimated 7,655 km<sup>2</sup> of this forest remains, 4.1 percent of the original closed canopy forest (Sayer et al. 1992). Forest loss continues still: the deforestation rate in Guinea is estimated at 300 km<sup>2</sup> a year, and the average annual loss of closed canopy forest was 1.8 percent between 1981 and 1985 (Kopp and Thiam 2005).

Today, about 28 percent of Guinea's total land area is made up of tropical forests. Natural forests make up 99.6 percent of this area, while the remaining 0.04 percent consists of forest plantations. Savannas and other woodlands make up an additional 23 percent of Guinea's total land area (ADB, EC, and FAO 2003). Because most of the original forests have been cleared, the current forest cover is predominantly made up of secondary forests.

Guinea's largest tracts of closed forest are moist evergreen woods in the southeast, which are characterized by species such as *Guarea cedrata* and *Lovoa trichiliodes*. Remnant tracts of montane evergreen forests are found on the Fouta Djallon plateau, and semi-deciduous forests occur in riparian strips, especially along the banks of the Niger River. Mangroves and swamp forests occur near the coast, while savanna woodlands dominate Guinea's forest area. In the northeast, Sudanian savanna is naturally predominant. In other areas of cleared forest, regenerated mosaic "parkland" is dominated by *Lophira lanceolata* and *Daniellia olivera* (Kopp and Thiam 2005).

The Guinée Forestière region covers southeastern Guinea. It is home to several areas with remaining forest cover, including Mount Nimba Strict Nature Reserve, Classified Forest of Déré, Classified Forest of Diécké, Zياما Biosphere Reserve, Classified Forest of Mount Béro, Classified Forest of Mount Tetini, and Classified Forest of Pic de Fon. Remote sensing data has revealed that these seven reserves harbor 27.6 percent of Guinea's remaining forest canopy but cover a mere 1.1 percent of the country's surface area. In 1989, Guinée Forestière was estimated to contain 1,180 km<sup>2</sup> of forest, 810 km<sup>2</sup> of which were located in just two sites: Zياما Biosphere Reserve and the Classified Forest of Diécké (Wright et al. 2006).

The DNEF is legally responsible for managing all forests — national or otherwise — in Guinea. Although the French colonial regime classified most of these forests in the 1940s and 1950s, they have received little active management due to limited government resources. Many forests have become degraded due to the fact that they are open access areas, where poaching, animal grazing, and illegal encroachment are largely unrestricted. Some of these forests have become so degraded that some question whether they should retain their status as classified forests, as the resources they were created to protect have been largely depleted. However, some conservationists feel that since these areas have some legal protections, they should be used for reforestation programs and community-level interventions for sustainable management.

## **C2b. Coastal and Marine Areas**

Guinea has an extensive network of terrestrial and aquatic environments, including vast estuaries, a large archipelago rising from a continental shelf, and seasonally flooded coastal plains. Its coastal ecosystem includes 305 km<sup>2</sup> of intertidal flats, 2,230 km<sup>2</sup> of mangroves, 755 km<sup>2</sup> of fresh- or brackish-water coastal marshes, and 605 km<sup>2</sup> of inundated rice fields.

The Guinea current stretches along Africa's Atlantic coast from Guinea-Bissau to Angola. It is ranked among the world's richest coastal and offshore reserves in terms of fish, oil and gas, precious minerals, its potential for eco-tourism, and its function as an important reservoir of marine and coastal biodiversity. Most of these qualities can be attributed to two factors: (1) Guinea contains the widest part of the continental shelf (160 km) of the Guinea Current, and (2) Guinea's coastal zone barely experiences any "upwelling," a phenomenon that usually drains sediment and nutrients from inland waters into the open sea. Without much upwelling, the country's coastal waters accumulate significant quantities of nutrients, making them extremely productive.

The main biotopes found in the coastal zone include mangroves, sandbanks, mudflats, shallow estuarine waters, and sub-humid Guinean forests. Practically the entire coastal zone has been identified as a priority area for biodiversity conservation, especially since it also contains what is left of the Upper Guinean forest.

Guinea's mangrove population constitutes a quarter of West Africa's total mangrove wetland, which stretches from Senegal to northern Angola. Despite having lower diversity than other areas (Guinea is home to only six species of mangroves), the West African coast has the continent's best developed and most extensive mangroves, particularly in Guinea and Guinea-Bissau. Until 50 years ago, the entire coastline, except for a short section near Conakry, was lined with the densely rooted trees. However, in recent years, many of the coastal forests have been cleared for agriculture, creating large gaps in Guinea's mangrove belt. Today, Guinea has close to 200,000 hectares of mangroves.

The extreme non-uniformity of the mangrove-dominated shoreline creates important habitat for migratory birds and endangered species, such as the West African manatee, the pygmy hippopotamus (World Wildlife Fund 2007), and many fish and invertebrate species. Despite the ecological importance of mangroves in West Africa, relatively few are protected, and no strategy is in place to protect the six classified Ramsar sites along Guinea's coastal zone.

In 1999, Conservation International (CI) held a conservation priority-setting workshop in West Africa, in collaboration with BirdLife International, Ecosyn, GEF, UNDP, the World Wide Fund for Nature, and the Critical Ecosystem Partnership Fund. Workshop participations identified the majority of the Upper Guinea forest coastal zone, particularly that in Guinea, as a high priority area for biodiversity conservation (Bakarr et al. 2001).

During recent conversations with key Guinean actors, mangrove protection and management was mentioned far less often than forest protection and management, despite the ecological importance of mangroves. In fact, for many years, Guinea's conservation efforts focused on forest ecosystem protection and did not target the coastal zone. This past created the current situation in which Guinea has not yet established formally protected areas along its coast, in contrast to neighboring Guinea-Bissau, whose coastal zones share many characteristics with those of Guinea.

### C2c. Protected Areas

Guinea has six types of protected areas: *parc national* (national park), *réserve naturelle intégrale* (strict nature reserve), *réserve naturelle gérée* (managed nature reserve), *réserve spéciale* (special reserve) or *sanctuaire de faune* (faunal sanctuary), *zone d'intérêt cynégétique* (trophy hunting zone), and *zone de chasse* (hunting zone). Classified forests receive some protection as government property but that protection does not necessarily include biodiversity conservation (Wright et al. 2006a).

Guinea's protected area system includes 156 classified forests, two national parks, and four biosphere reserves. Its classified forests cover 11,866 km<sup>2</sup>, while its two national parks — the Parc du Haut Niger and the Parc du Niokolo-Badiar — together cover 922 km<sup>2</sup>. Guinea's four biosphere reserves — Mount Nimba, Ziama, Badiar, and Haut Niger — cover 11,000 km<sup>2</sup>. In total, Guinea's protected area system covers about 10 percent of its total land area (FAO 2004).

The Convention on Wetlands of International Importance came into force for Guinea on March 18, 1993. Currently, Guinea has 14 sites designated as Ramsar wetlands of international importance, with a surface area of 47,790.61 km<sup>2</sup>. Birdlife International has identified 18 important bird areas in Guinea. Similar to wetlands of international importance, these sites are internationally recognized but are not formally protected.

**Table 3: Ramsar Wetlands of International Importance in Guinea**

1. Gambie-Koulountou.(Boké)
2. Gambie-Oundou-Liti (Labé)
3. Ile Alcatraz (Boké)
4. Ile Blanche
5. Iles Tristao
6. Konkouré
7. Niger-Mafou (Kankan, Faranah)
8. Niger-Niandan-Milo (Kankan)
9. Niger Source (Faranah)
10. Niger-Tinkisso (Kankan)
11. Rio Kapatchez
12. Rio Pongo
13. Sankarani-Fié (Kankan)
14. Tinkisso (Kankan, Faranah)

As mentioned above, Guinea has not yet established formally protected areas in its coastal zone. However, in 1993, six coastal Ramsar sites were designated as wetlands of international importance because of their unique biodiversity. These sites are Ile Alcatraz, Iles Tristao, Rio Pongo, Ile Blanche, Konkouré, and Rio Kapatchez.

Although the areas within Guinea's protected area system are technically protected, several issues make it difficult to ensure that protection. First, Guinea's governmental institutions are plagued by a general lack of capacity to respond to various threats. Although there are sympathetic, motivated officials in relevant agencies, there has been insufficient governmental and international support for program work that staff members could initiate. In addition, limited training, lack of enforcement, and lack of resources are substantial obstacles.

The second challenge is that laws governing protected areas in Guinea are often ambiguous. For example, although the DNEF is legally responsible for managing classified forests, in practice the préfet is also allowed to grant extraction rights to individuals. That said, our team heard of cases where a sous-préfet who intended to harvest wood illegally was turned away by a community group that had approved a management plan. This was one among many cases where communities with recognized management plans used the rule of law to prevent illegal action. In essence, these management plans ensured that community forests were not merely open access areas.

A third issue is that protected areas are poorly defined in Guinea. The general assumption is that they include classified forests, national parks, and areas identified by international conventions, but not everyone agrees with this definition. In fact, some believe that only national parks deserve protected area status. This ambiguity has created all sorts of misunderstandings and even misuses. For example, the now closed EU-funded Appui à la Gestion Intégrée des Ressources Naturelles (AGIR) project, which aimed to restore and conserve protected areas at the regional level, defined "protected areas" to include major landscapes covering 8,000 to 15,000km<sup>2</sup>. Although the project never intended these areas to be completely "hands off," a 2006 United States Forest Service (USFS) report indicated that local communities often perceived protected areas as places where all extractive activities were strictly forbidden. In practice, this is not the case for nearly all classified forests, which explains why calling classified forests protected areas causes confusion.

In theory, classified forests are protected from extractive activities. However, in practice, they do not appear to be protected, and many have been seriously degraded. Under co-management schemes, which have become increasingly popular over the past decade, Guinean communities can develop forest management plans that establish specific property rights for classified forests. Although classified forests are not protected from all extractive activities under co-management schemes, many people believe that they are in better shape under these schemes than they were when they were the sole responsibility of the state.

Finally, in addition to having poorly defined terms, protected areas also have poorly defined boundaries on the ground and on maps. The lack of certainty about their borders complicates management activities, including conducting assessments of biodiversity status and planning monitoring and enforcement within and around borders.

### C3. Status of Biodiversity in Guinea

It is difficult to report on the status of biodiversity in Guinea as there has been very little research on the country's biological resources. Existing studies were conducted in only a few areas in the country (particularly Mount Nimba in Guinea's forest region) or on a single species (most notably the chimpanzee).

In the past several years, CI, through a partnership with Rio Tinto, conducted two rapid biodiversity surveys — one in the Pic de Fon classified forest in the Simandou Range and the other in three classified forests in southeast Guinea. CI also conducted a similar study in the Boké prefecture of northwestern Guinea in partnership with Alcoa-Alcan. However, because these studies were rapid assessments, they did not inventory the species found in the study sites. Given the dearth of available information, it is not surprising that our team heard from almost every group interviewed that Guinea's greatest need is an inventory of biological and natural resources.

Despite the lack of specific information on Guinea's biological resources, our literature review revealed that its rich heritage of biological diversity — most notably in the dense, humid forests that make up the Guineo-Congolian rainforests — is unique in West Africa. In addition, ecology experts estimate that the forests of Zياما and Diécké rank fourth and seventh respectively of the 12 major priority sites for biodiversity conservation in West Africa.

According to Guinea's National Strategy and Action Plan for Biological Diversity (2002), 6,926 species of flora and fauna have been recorded in the country. The report also states that 93 of these species were endemic to Guinea, 235 were endangered, and 42 were threatened. Again, this information needs to be updated.

Different sources offer varying information about threatened, endangered, and vulnerable species. The IUCN Red List names 83 species (11 critically endangered, 20 endangered, and 52 vulnerable), although it identifies many of its sources as "out of date" and adds that these species' present status in Guinea is unknown. The World Resource Institute's EarthTrends reports a total of 47 threatened species (Table 4). Guinea's [Convention on Biological Diversity Web site](#) lists hundreds of threatened species. This variation in numbers is not surprising because one of the greatest challenges of biodiversity conservation in Guinea is the lack of data.

The one species that has been widely studied in Guinea is the chimpanzee. In fact, Guinea is home to one of the longest studies of chimpanzees in Africa, at Bossou in the southeast of the country. According to existing studies, more chimpanzees live in Guinea than in any other nation, with estimates varying between 8,000 and 21,000 chimpanzees nationwide (Kormos et al. 2003).

**Table 4: Threatened Species in Guinea**

Type of Species	Total Number	Number Threatened
Higher Plants	3,000	21
Mammals	190	12
Breeding Birds	109	12
Reptiles	94	1
Amphibians	33	1
Fish	121	Not determined

Source: EarthTrends, World Resources Institute, 2003

## SECTION D. THREATS TO BIODIVERSITY AND TROPICAL FORESTS

Biodiversity loss in Guinea can be broadly linked to several indirect threats: limited governmental, institutional, and legal capacity to protect the environment; increasing population numbers and densities; poverty and political instability in Guinea and the subregion; mineral mining; and a lack of regional conservation planning. All of these factors lead to immediate threats, such as habitat fragmentation and loss, hunting and the bushmeat/pet trade, the unregulated removal of vegetation, agricultural extensification and shifting cultivation, uncontrolled bush fires, and overexploitation of coastal and marine resources. Each of these threats is discussed below.

### D1. Limited Governmental, Institutional, and Legal Capacity

The government of Guinea is unable to protect its biodiversity because it lacks the legal framework, implementation and enforcement capacity, up-to-date information, and institutional coordination needed to implement and enforce effective conservation measures.

Guinea's national and local governments have legislation and legal institutions designed to protect biodiversity, but much of this legislation is not adequately implemented or enforced. (Guinea's environmental legal codes include *Code de Protection et de Mise en Valeur de l'Environnement*, *Code Foncier et Domanial*, *Code Forestier*, *Code de Faune et Chasse*, *Code de Pêche*, *Code de l'Eau*, and *Code Minier*.) Fortunately, there are some exceptions to this statement, especially in cases where communities with approved management plans have used the rule of law to prevent or punish illegal logging. In several of these cases, local forestry agents enforced the law and acted as partners to communities who wanted to prevent illegal harvesting. USAID has done a lot to support co-management, so success stories such as these should be highlighted, researched, and scaled up to improve impact.

However, in general, Guinea's environmental law is not implemented and/or enforced for a variety of reasons, including weak institutional and legal capacity, obscure and contradictory provisions within and among various environmental laws, and confusion (even among legal experts) as to how some laws should be applied and enforced. This situation is aggravated by a lack of annotated legal source material and other resources that can help national and local authorities determine how to enforce the country's environmental codes.

In addition, national and local governments do not have the financial resources needed to support and sustain the kind of sophisticated legal and bureaucratic system that can effectively administer environmental laws. Government employees make an average of GNF 150,000 per month (\$33 at the current exchange rate). Over the past few years, inflation has increased steadily, from around GNF 2,000 in 2000 to GNF 6,000 in 2005, and is now GNF 4,500, but government wages have remained the same. As a result, government employees typically take second jobs, usually as farmers, and are unable to devote their full attention to their public duties. (In one case, we were unable to meet with a DNEF agent because he was working his fields.)

The lack of reliable information about Guinea's natural resources also undermines the effective implementation and enforcement of biodiversity laws. No baseline data on the country's biodiversity is available, and there is no system to track changes in threats to biodiversity, either inside or outside of protected areas. Many government agents and stakeholders stressed the need for a comprehensive inventory of Guinea's biodiversity and other natural resources as well as the need for basic information-gathering tools, such as current geographic information system (GIS) maps.

The Guinean government also suffers from poor coordination and communication among its ministries. This situation has undermined past efforts to develop environmental action plans, creating confusion over jurisdiction and other issues. Several sectoral ministries have devised environmental action plans, but they do so without informing other ministries, and this lack of coordination and communication often results in disorder.

Illustrating this point, one interviewee told us of an instance where the Libyan government was promised a parcel of Guinea's forest land in exchange for a five-year supply of oil. DNEF officials were reportedly caught completely off guard when Libyan officials contacted them regarding the transaction, as DNEF had not been informed nor had it authorized the use of Guinea's natural resources in an energy transaction with a foreign country.

## **D2. Population Growth**

Population pressures on natural resources can be significant in developing countries, where a majority of people often depend directly on them for their livelihoods. As population increases so does the demand and competition for resources, including arable land, forest products, coastal resources, and water.

Guinea's 1996 census recorded a population of 7,164,823 that was growing at a rate of 2.9 percent annually. However, the World Bank has estimated the country's current population at 9,900,000, an increase of more than 38 percent in the last decade.

Urban and coastal areas have experienced the largest increases in population. Coastal areas (only 15 to 18 percent of Guinea's total land area) have reportedly seen population increases of nearly 300 percent between 1963 and 1996 and are currently home to some 40 percent of Guinea's population (11 percent of which live in the capital Conakry). Population density in the coastal zone ranges from more than 400 inhabitants/ km<sup>2</sup> in and around the three major coastal cities (Conakry, Kamsar, and Kindia) to less than 20 inhabitant/km<sup>2</sup> in rural areas.

Because these coastal areas contain some of the most biologically diverse and ecologically important places in the country, population pressure there is particularly problematic. This pressure and corresponding demand for arable land along the coast is a major threat to Guinea's mangroves, which are being cleared for rice cultivation at a steady rate. As mentioned in Section C, CI identified the majority of the Upper Guinea forest coastal zone, particularly that in Guinea, as a high priority area for conservation.

In recent years a significant source of population growth in Guinea has been refugees from neighboring countries. Since 1989, conflicts in Sierra Leone and Liberia have

produced an enormous influx of refugees into Guinea's forest region. In 1996, this area was estimated to have 650,000 refugees, who were some 40 percent of the forest region's entire population (UNEP 2000). During conversations with GTZ and a CBO in Madine Wula, we learned that the majority of refugees from Sierra Leone and Liberia have since been repatriated, but their presence has produced substantial environmental impacts.

UNEP conducted an assessment of those impacts in March 2000. However, because the assessment team lacked detailed data from before the conflict, they were not able to identify the impacts caused solely by the influx of refugees. However, they did report that their impact is clearly observed, especially in towns like Guéckédou, where at one time the refugee population was 80 percent of the local population (UNEP 2000).

According to UNEP's report, the primary threat to biodiversity and forest resources was caused by increased demand for natural resources. The resulting impacts included shortened fallow periods, deforestation, and water and soil erosion.

During peak refugee periods, UNHCR and other organizations encouraged farmers to convert swamps



Source: UNEP 2000

into agricultural areas (UNEP 2000). Although the intention was to increase productivity and reduce encroachment into upland areas, the result was the loss of the environmental benefits that wetlands generate, which are lost when they are converted into rice fields. In addition, clearing vegetation removes important habitat for a number of aquatic and terrestrial species and building drainage systems disrupts hydrological systems and diminishes the availability of water.

### D3. Poverty and Political Instability in Guinea and the Subregion

The plight of Guinea's natural resources and biodiversity are inextricably tied to the country's political and economic situation. Poverty and political instability in Guinea have exacerbated each other and sent much of the West African subregion into a downward spiral. Increasing poverty forces more and more people to rely on Guinea's natural resources for their survival. Political instability undermines the government's ability to protect biodiversity and promote sustainable use of natural resources.

Guinea's economy has been in decline since 2002, and nearly one fifth of the country now lives in extreme poverty. The percentage of the population subsisting on \$1 a day has risen more than 10 percent over the last 15 years, from 40.3 percent in 1990 to 53.6 percent in 2005. Economic growth declined throughout much of the 1990s from 4.5 percent to just 2.7 percent in 2004. Inflation reached 39.1 percent in 2006 (European Commission 2007). Even in the best of times, Guinea's economy relies heavily on

natural resource exploitation, and when the economy stalls, pressure on Guinea's natural resources and the resulting impacts on its biodiversity intensify.

More than 70 percent of the population works in agriculture, livestock, fishery, forestry, or mining sectors. Poverty is more pronounced in rural areas, where nearly 60 percent of the population (particularly farmers) live below the poverty line. The lack of arable land and limited access to the financial and technical resources needed to improve production techniques has resulted in widespread agricultural extensification to increase production. Even so, Guinea's agricultural output is not sufficient to ensure food security, and the country must import up to 40 percent of the rice consumed. These and other factors also contribute to the unsustainable reliance on wildlife and other forest resources for food.

Part of Guinea's current economic situation has been created by political instability, both domestically and throughout the subregion, which in turn further destabilizes governments and disrupts the availability of basic public services. Soaring fuel and rice prices provoked widespread protests and demonstrations in January 2007. As the 2010 presidential election approaches, the political situation is expected to continue to deteriorate, which discourages foreign investment and threatens to commit the country to additional years of economic hardship.

Armed conflicts in neighboring Liberia and Sierra Leone and political crises in Guinea-Bissau and Côte d'Ivoire have contributed to Guinea's dire political and economic situation, mostly by creating refugees who strain the country's already overtaxed public services and natural resources. In several instances, the neighboring conflicts have spilled into Guinea, most notably between September 2000 to June 2001 along the 1,200 kilometer border with Liberia and Sierra Leone. Protecting the border places additional pressure on the public treasury and adds to the country's economic woes (PRSP 2004).

Additionally, within Guinea, a lack of clear land tenure has been a source of conflict and instability. With more people moving into new — and often marginal — lands (given Guinea's increasing population), a lack of clear land titles has led to conflicts over land rights that have, in some cases, erupted into violence. However, the severity of this problem is unclear, as most people did not express concern over it after the team raised the issue. Nevertheless, a few people did cite it as a critical concern; as a result, this issue needs further study.

#### **D4. Lack of Regional Conservation Planning**

Many West African species' habitats span several countries, and wildlife cross the border regularly in search of food, shelter and reproductive sites. The degree of movement by wildlife is determined by the quality of given habitat. Many of the remnant ecosystems in the Mano River region (which crosses Guinea, Sierra Leone, and Liberia) are under incredible pressure as each nation tries to balance conservation with its citizens' needs for development.

However, the governments, civil societies, and traditional communities in these three countries do not currently coordinate their activities, producing overlapping responsibilities and incomplete conservation programs. In particular, there are no

programs designed to create biological connectivity between ecosystems fragmented by human activity or to build local economies on environmentally and culturally sustainable practices.

## D5. Mineral Mining

Mineral mining and agriculture represent the most important economic activities in Guinea, providing employment to about 80 percent of the population. Mining, because of its contribution to exports and government revenue, plays a critical role in Guinea's economy. Until 1990, it accounted for more than 20 percent of Guinea's GDP, was responsible for more than 90 percent of recorded exports, and provided 65 percent of tax revenue. However, due to financial problems and deteriorating terms of trade experienced by the key bauxite and alumina sectors, mining activity dropped to an estimated 17 percent of GDP by 2005. Increased demand for commodities, owing to strong interest from China, has seen bauxite and alumina prices rise in recent years, but a substantial rise in production is expected only after new investment projects are completed over the next few years.

Guinea has almost half of the world's proven reserves of bauxite, at 12 billion tons, and is the second largest global producer of ore. Expanded investment and economic development in Guinea's mining sector poses a significant threat to its natural resource base and could result in substantial environmental degradation in the absence of appropriate regulation and robust enforcement mechanisms.

In any scenario, mining has the potential to affect biodiversity, both directly and indirectly. Mining activities often have a rapid and devastating impact on biodiversity, primarily through the removal of vegetation and alteration of soil profiles, topography, and hydrological regimes. Direct impacts include damaged/cleared native vegetation; habitat loss and fragmentation; increased rainfall runoff from disturbed land; eroded soil (causing turbidity, siltation, and pollution of local streams); the spread of weeds (including agricultural and commercial exotic species), pests, and diseases of native flora and fauna; altered groundwater levels as a result of mine dewatering; and the exposure of acid-generating rock or subsoil, contaminating waterways with acid and mobile metals.



Bauxite being shipped to Conakry, Guinea (Credit: Brian App)

Indirect impacts are less readily identifiable. For example, mining-related infrastructure such as roads, railways, pipelines, and power lines attracts people who are either looking for work with the mining operation or who intend to take advantage of benefits from related economic activity. Large scale biodiversity loss occurs as colonizers clear land for settlement and farming and increase pressure on local resources through hunting/poaching threatened species, gathering fuel wood, grazing domestic livestock, and littering.

Perhaps one of the most specific and immediate threats to biodiversity posed by Guinea's mining industry is the proposed construction of a railroad from the forest region to Conakry. Not only would this project clear hundreds of hectares of vegetation,

but it would also fragment and degrade some of Guinea's most critical wildlife habitat, located near the border with Sierra Leone. The World Bank's International Finance Corporation is funding an environmental assessment of the proposed railroad, but government ministries, civil society, and donor organizations will need to work together to ensure the assessment, as well as country's environmental and conservation goals, are considered during the final decision making process.

## D6. Habitat Fragmentation and Loss

Perhaps one of the most important factors affecting biodiversity in Guinea is the loss of habitat, which fragments forest blocks and isolates wildlife populations. The causes of habitat loss and fragmentation include mining operations, agriculture extensification, deforestation, and controlled and uncontrolled bush fires. Other factors include land development (which is directly related to population increase), a lack of land use planning, and unclear land tenure arrangements.

Habitat loss/fragmentation can be a severe threat for species that require certain habitat sizes for behavioral and reproductive interactions. For example, for the western chimpanzee, habitat fragmentation could result in habitat isolation, which could threaten the long-term gene pool of chimpanzees, as well as affect the immediate social structure and interactions within the group.

## D7. Hunting and the Bushmeat and Pet Trade

Hunting and the bushmeat and pet trade also rank among the greatest threats to Guinea's biodiversity. Although Guinean law (*Code de Faune*) limits the consumption of bushmeat to personal use, there is widespread evidence that hunting also takes place on a commercial basis. The lack of enforcement of the law has been tied to a lack of capacity among government officials and a lack of clarity within the law. For example, the code does not specifically list which species are illegal to sale, making enforcement virtually impossible. Based on observation of Guinea's major bushmeat markets in Conakry, Guéckédou, Kissidougou, and Faranah, it is clear that there is no capacity for enforcement.



Bushmeat for sale on the side of the road near Mamou (Credit: Brian App)

Of the four main regions of Guinea, bushmeat consumption is most prevalent in Guinée Forestière, where the prohibition against commercial sale of bushmeat is either unknown or overlooked by market officials. There is little bushmeat hunting in the Fouta Djallon region, but circumstantial evidence suggests that the meat of chimpanzees and other endangered species is taken from that region and sold in Guinée Forestière. Officials at the DNEF are aware of the problem, but the agency lacks the financial and human resources needed to enforce regulations.

During our trip, we saw several wildlife species for sale in plain view along Guinea's paved road between Conakry and Kankan, including a green monkey and a duiker. International conservation organizations would likely be saddened to know the local

market value of wildlife. For example, the green monkey sold for GNF 5,000 (US\$1) and the duiker GNF 10,000 (US\$2). We found it painfully ironic that wildlife was sold so cheaply given the millions international organizations spend each year to protect biodiversity.

According to our literature review and interviews with experts, the pet trade also threatens Guinea's wildlife. During our trip upcountry, we saw a few leashed monkeys outside of rural family concessions, but we also heard from the NGO community and local hunter groups that the capture and sale of baby chimpanzees is taking a toll on wild populations. The babies are often sold to expatriates unaware that chimpanzees are a protected species and that they are encouraging illegal trade. Surveys have also shown that military officials are among the most common buyers of baby chimpanzees as pets.

The trade of chimpanzees is a serious threat to the subspecies as a whole, especially since chimpanzees have such slow reproductive cycles. In addition, experts interviewed reported that an estimated nine adult chimpanzees are killed for each baby chimpanzee taken for the pet trade. Together these facts illustrate how devastating the chimpanzee pet trade is on an already threatened population.

#### **D8. Unregulated Removal of Vegetation from Guinea's Forests**

The rate of deforestation in Guinea is estimated to range between 300 and 900 km<sup>2</sup> per year. According to a recent study by the USFS' International Program, the greatest threat to Guinea's protected areas, including its classified forests, is the unregulated removal of vegetation, including gathering wood for fuel, construction, making charcoal, traditional uses, and commercial sale. The same USFS report emphasizes that "by and large, the majority of vegetation removal should be characterized as unregulated, as opposed to illegal." Experts interviewed for the USFS report indicated that forestry resource removal activities are not clandestine operations, but rather organized and sanctioned at various levels by both the private and public sectors.



Fuel wood for sale by the side of the road  
(Credit: Julia Watkins)

The primary users of woody materials are residents of villages adjacent to forests. In recent years, pressure on these forests has been exacerbated by increased local and refugee populations.

Commercial logging also threatens Guinea's forestry resources. The practice is accelerating throughout Guinea, reflecting both efforts to generate foreign exchange through timber exports and the growing fuelwood demand (both inside and outside of Guinea). Fuelwood supplies about 77 percent of household energy needs, and charcoal another 3 percent (Diawara 2001). In addition, the National Biodiversity Action Plan identifies logging as one of the principal threats to Guinea's biodiversity. Analysis by the FAO suggests that by 2020, demand for lumber, fuel, and non-timber forest

products will exceed supply (Diawara 2001). As a result, classified forests that are not formally protected will be severely threatened during the next decade.

In terms of unregulated and/or illegal logging, our team did not find any statistical data during our visit, but we did encounter anecdotal evidence that indicated more than 10 companies — local and foreign — are exporting wood products from Guinea (see Map 4 in Appendix B for wood production statistics). Our interviewees believed that less than half of these companies have received formal concessions. At present, the main company working in Guinea is Forêt Forte, and it has many exploitation concessions within a circle (with a diameter of 300 kilometers) in N'Zérékoré. However, in response to the strikes of early 2007, the prime minister halted commercial exploitation and export of timber, indicating the importance the public places on this issue. The timber trade is expected to begin again in January 2008, although the government has not yet made an official announcement; one is expected by December 31, 2007.



Charcoal for sale near Kindia (Credit: Brian App)

The USFS report also noted that timber from Guinea's forest region is regularly being shipped to Liberia and Côte d'Ivoire, apparently over at least five uncontrolled dirt roads that cross the Guinea-Liberia border. Efforts to export Guinean timber from ports outside the country also appear to be well organized. As one individual noted, local populations of organized cutters take orders from buyers outside Guinea for specific species and volumes and ensure the materials arrive at specific locations at designated times.

As expected, the dynamics of illegal logging are complex, and the practice flourishes in the absence of regulatory oversight or enforcement capacity. In the forest region, illegal or unregulated logging is not industrial in scale, but rather it follows a high-grading pattern, where the best trees from the most valued species are selected. As a result, forests undergo slow but persistent degradation.

The final issue is institutional. Because extraction of wood is haphazard and forest status sometimes unclear, institutional intervention is a challenge. Technically, classified forests are protected areas where extractive activities are forbidden. However, this is not the case in practice for nearly all Guinea's classified forests. Some forests have been degraded to the point that they no longer retain the characteristics that led them to be classified. As a result, it can be difficult to determine what is and is not illegal logging. The institutions concerned currently lack the capacity to clearly define terms like "classified" and "protected" (in their environmental context) and to enforce the accompanying regulations.

## **D9. Agriculture Extensification and Shifting Cultivation**

The spread of unsustainable agricultural practices contributes to Guinea's environmental degradation and threatens biodiversity. In an attempt to meet increasing demand for food supplies, Guinean smallholder farmers are relying on extensive

subsistence farming and environmentally taxing cropping patterns. These includes bringing marginal lands under cultivation and resorting to shifting (or “slash-and-burn”) practices to convert woodlands into fields. While shifting techniques can be sustainable with a lower population density — which allow for longer fallow periods — the current densities have generated competition for land that has forced farmers into marginal areas and decreased fallows required for recovery of the land and soil nutrients. Nevertheless, extensification and unsustainable clearing/fallow rotations are often the only option open to farmers, as they lack access to more sophisticated cultivation practices and technology

As a result, many areas of Guinea are experiencing alarming rates of erosion and decreased soil fertility, and agricultural productivity has declined in step with environmental quality (UNEP 2000). In response to declining productivity, smallholder farmers put even more land under cultivation, which further exacerbates both agricultural and environmental problems. For example, the severe degradation of the Fouta Djallon highlands — the source of three major West African rivers, the Senegal, the Niger, and the Gambia — is reducing the amount of arable land per household and lowering overall crop yields (USAID 1999). Because of the inherently fragile nature of much of the land originally protected as reserved forests, this situation is leading to longer term degradation with little prospect of reversing the trend.

Political instability in West Africa also contributes to these unsustainable agricultural practices. Refugees often move into forest regions and practice unsustainable shifting agriculture, which fragments forests and degrades wildlife habitat.

#### **D10. Uncontrolled Bush Fires**

Guineans use bush fires to accomplish a number of purposes. Herders — who are often said to cause the frequent bush fires that ravage large portions of rural Guinea — may set fires with the idea that burning will refresh the grasses and provide better food for their animals. They also use fire to drive animals out of the forest to make them easier targets. Farmers use fire either to clear fields or to burn debris from recently cleared fields. Honey collectors also use fire to drive wild bees out of their hives. Although bush fires are started to accomplish all of these traditional goals, they are often uncontrolled and lead to the unintentional spread of fire into important habitat for floral and faunal biodiversity.

#### **D11. Overexploitation of Coastal Resources**

The main threats to Guinea’s coastal zone are conversion, fragmentation/alteration of natural habitats, and overexploitation of fisheries. Not surprisingly, the root causes of these threats stem from poverty, population pressure, urbanization, wood collection, cropping, livestock holding, hunting, fishing, harvesting of native plants, water pollution, water flow changes due to land degradation, and weak legislative and institutional frameworks.

In terms of habitat destruction, mangrove conversion is a considerable concern. Originally, mangroves covered 3,850 km of the coastal zone, but much of this habitat has been altered for rice cultivation (an estimated 1,400 km) approximately half of this area has been abandoned because of acidification. One estimate (from the late 1990s)

put the range of remaining mangroves at about 2,000 km. This figure is estimated to decrease by 4 percent annually. In 1990, mangrove wood was estimated to be used for rural household energy (59 percent), Conakry household energy (21 percent), drying and smoking fish (24 percent), and extracting salt (36 percent).

Another coastal resource under pressure is the region's fish stocks. Mangroves provide important breeding grounds for fish, and their disappearance reduces fish stocks as does direct overexploitation of fisheries. Guinea's coastal and inland fish populations were halved between 1986 and 1992 (GEF 2004). More recent numbers estimate that current catch levels represent only one fifth of those seen 10 years ago. Both industrial and artisanal fishermen are putting pressure on fish populations in the shallower waters closest to the coast (demersal fish, shrimp, and mollusks).

Commercial fishing contributes significantly to Guinea's economy through license fees, but all too often it comes into direct competition with small dynamic local fisheries. Industrial vessels are encroaching on artisanal fishing zones, which not only destroys habitats but also damages artisanal fishery equipment and creates social conflict among industrial and artisanal fishermen. This "grey gold rush" is facilitated by unprecedented technological developments, and its impact is further exacerbated by incursions of increasing numbers of illegal fishing vessels.

The rapid development of these sectors, and the lack of inter-sectoral planning or coordination, has resulted in the degradation of coastal habitats and their resources. This degradation leads to increased poverty for coastal-dwelling communities, which in turn gives rise to unsustainable forms of fishing, such as harvesting young and undersized fish, blast fishing, use of monofilament nets, and the capture of sharks and rays for the sole aim of selling their fins.

In response, Guinea has promoted the designation of six Ramsar sites along its coast (see map on preceding page), but this measure is not likely to be very effective, given the country's overall lack of information needed for integrated coastal zone management and its insufficient capacity for effective implementation and enforcement.



Ramsar sites in Guinea's coastal zone  
Source: GEF, 2004.

## SECTION E. ACTIONS NECESSARY TO CONSERVE BIODIVERSITY AND TROPICAL FORESTS

This section recommends actions that can mitigate the threats to biodiversity and tropical forests presented in Section D. These actions were not conceptualized for any particular organization but instead could be implemented by a variety of actors, including the government of Guinea, NGOs, international donors, research institutions, or CBOs. Section G will make specific recommendations for USAID.

Should the reader want more information than the summaries provided below, more detail about recommended actions can be found in key documents assessing environmental and natural resource issues in Guinea, such as *La Politique Nationale de Développement Agricole*. While some of the actions below are not unique to this report, they bear repeating as they will need to be addressed before Guinea can respond to the threats described in Section D. For example, we recommend a national inventory and database for tracking and monitoring Guinea's biodiversity and natural resources. While this action has been recommended by a variety of key assessments and studies, including the 1993 National Environmental Action Plan, Guinea still does not have such an inventory. Because the majority of resource managers interviewed for this report mentioned the need for an inventory in order to make sound decisions, we included it as one of our recommendations.

### E1. Limited Governmental, Institutional, and Legal Capacity

In our interviews, almost every resource manager told us they lack reliable scientific data they can use to make decisions about biodiversity, forests, and natural resources. Consequently, the most important recommendation is to create a national inventory of Guinea's biodiversity and natural resources that can be used to design national and regional conservation strategies. Below the national level, regions should create their own conservation strategies as well so that resource planners can identify and respond to threats or needs that are specific to a given region.

In addition to a national inventory, resource planners need tools and software that can help them better organize and visualize relevant information. For example, if an inventory is created, it should incorporate database and ARC GIS software to enable resource managers to catalog, use, and update data regularly. This data should also be used to create maps that resource managers can use for strategic planning and decision making.

Should an inventory be created, it should be accompanied by a training program to allow local actors to gain skills in inventory methods, database maintenance, cartography, and GIS technologies. The University of Conakry's Center for Environmental Study and Research is currently collaborating with the University of Montreal to introduce university students to state-of-the-art GIS technologies. Local actors, especially from DNEF, should participate in this training opportunity.

In general, resource managers in Guinea have limited technical training. While government staff in Guinea do have technical expertise, many lack experience in emerging technologies, concepts, and practices, particularly those that could make resource planning more organized and efficient. Their capacity could be reinforced in a

variety of ways, including university courses, workshops, detailing international experts to management agencies, and study tours. The GEF is currently funding a study that will help develop a strategy and action plan for global environment management capacity building. It will identify the greatest needs to allow for targeted and responsive capacity building/reinforcement at the national level.

Authorities also need improved capacity to interpret and implement existing environmental laws and codes. First, current codes need to be harmonized, clarified, annotated, summarized, and distributed to national and local authorities. Next, a workshop should gather together decision makers and implementers to ensure their buy-in, and the outcome of the workshop should be summarized and shared at the community level in a way that ensures that the content of the codes are understood and can be enforced. An important example of a legal area that requires this process of clarification is land tenure, which continues to be poorly defined in law, and requires application through multiple systems to secure. To address this issue, the elaboration and promotion of the texts and laws relating to *la Déclaration de Politique Foncière en Milieu Rural* should be considered.

Finally, state actors charged with resource management need sufficient financial resources to carry out their duties. Several measures can help them reach this goal: support transparency in state finances, support schemes that put concession/user fees directly into the operational budgets of resource managers, and finance agency activities (as a short-term solution).

## **E2. Population Growth**

Population growth drives a number of direct environmental threats, and the actions necessary to mitigate these threats will be addressed in their assigned sections. Population growth itself is an indirect threat and will therefore require remedies that are not immediately related to natural resources or biodiversity. For example, Guinean families are generally quite large, so investments in family planning could have positive indirect impacts on Guinea's natural resources.

Community planning should also be considered. This option is especially important given that pressure on the environment comes not only from increasing numbers of inhabitants but also from increasing population densities. In the past several years, rural-to-urban migration has increased, and as a result municipal and natural resources in coastal cities are facing increased demands. Most people are moving to these areas because they offer better economic and social opportunities, including better education and health services. Community planning in rural areas could improve living conditions there and indirectly reduce population pressures in urban areas.

## **E3. Poverty and Political Instability in Guinea and the Subregion**

Poverty and political instability also pose indirect threats to biodiversity and natural resources. The actions necessary to reduce poverty are numerous, but they all have one thing in common: they relate to economic growth. Several organizations are working to promote economic growth in Guinea, and fortunately, there are several ways to align the goals of economic growth and conservation. For example, when choosing a site for a specific economic activity, preferential consideration should be given to communities in or adjacent to areas of high conservation value, including sensitive trans-boundary

areas, and habitats important to chimpanzee conservation (such as the *Parc National de Haut Niger*). For example, introducing economic activities to communities adjacent to classified forests can create economic alternatives for residents and potentially reduce their reliance on forest resources.

Activities designed to promote economic growth can also simultaneously advance the goals of peace, security, and conservation. Placing economic growth activities in trans-boundary areas could increase regional peace and security by reducing conflict over potentially scarce natural resources. To achieve this goal, one must first step reduce dependence on and competition for these resources, and introducing alternative livelihoods is one way to do so. As mentioned in Section C, the Mano River countries have already identified high-priority conservation areas along their borders, including the Outamba Kilimi and Lofa-Mano-Gola regions. These regions should be considered by organizations looking to implement economic growth programs.

Conservation can also directly support economic growth. For example, managing forests to produce sustainable timber yields or sustainable extraction of non-timber forest products (artisanal and medicinal products) can safeguard these products for the long-term economic benefit of the local population. In addition, conserving local natural resources can support local eco-tourism businesses.

Given the strong links between political conflict and environmental degradation (discussed in Section D), the latter could be reduced by ameliorating the former. Though securing political stability is an enormous challenge, actions supporting democracy, good governance, and transparency at both the local and national levels can help achieve it. At the local level, groups can support community-based organizations, including efforts to create clear property rights and encourage predictability and transparency in resource management. At the national level, groups can help strengthen government institutions, law enforcement, democratic processes, decentralization, and transparency. As a signatory to the Extractive Industries Transparency Initiative, Guinea has recognized the importance of these issues (particularly transparency) to effective and equitable resource management and is working to address them.

Activities that aim to achieve political stability can also reinforce economic growth and environmental stewardship. For example, encouraging foreign direct investment can stimulate local economies and empower individuals/groups to take responsibility for managing their natural resources.

However, it should be noted that activities designed to promote economic growth can also have negative environmental impacts. As a result, they should be carefully analyzed and, if necessary, actions taken to prevent or mitigate potential harm to land, water, wildlife, and other resources.

#### **E4. Lack of Regional Conservation Planning**

Actions should be taken to improve regional planning and collaboration on conservation issues. Such initiatives are best driven by the governments in question, though often they need the support of the international community to agree on and implement a common framework for trans-boundary conservation activities. However, even without the government participation, NGOs and donors can coordinate conservation programs

in neighboring countries to increase their impact and to create models that work in the region. Furthermore, local communities can also work with cross-border counterparts to coordinate activities and collaborate on solutions to common problems. Additionally, to increase the conservation value of these trans-boundary activities, studies should be undertaken to identify areas where programmatic interventions would be most effective.

Given the importance of the Mano River region to chimpanzee conservation and of the Upper Guinea forest system's biological diversity, it is crucial for program implementers, governments, and communities in Guinea, Sierra Leone, and Liberia to coordinate their efforts to protect and conserve this unique region. In 2007, USAID's Chimpanzee Conservation and Sensitization Program issued a concept paper entitled "Development of a Border Region Conservation Strategy for Targeted Areas in Guinea, Sierra Leone, and Liberia" that detailed numerous potential benefits to regional collaboration and trans-boundary conservation. These advantages included larger contiguous habitats, increased economic opportunities due to increased international recognition of the area, joint research programs that would eliminate duplication and reduce costs, better enforcement of cross-border poaching, an expanded pool of expertise, and increased access to donor funds.

## **E5. Mineral Mining**

While mining is a major contributor to Guinea's economy, it has the potential — if performed irresponsibly — to damage the environment and the interests of local communities. Mining activities (large and small) not only disrupt animal habitats and behaviors but also can contaminate water sources if the chemicals used to extract the ore leach into groundwater. To mitigate these potential negative effects, it is critically important that Guinea's government, NGOs, and donors engage with the major mining companies to ensure that mining benefits the people and its negative impacts are mitigated. Furthermore, transparent practices on the part of government will help to allow local and international actors to monitor activities to ensure they are being undertaken in a responsible manner. The advantages of corporate social/environmental responsibility (marketing, regulations, and the "right thing to do") should be promoted through public-private partnerships and engagements with the donor community.

## **E6. Habitat Loss and Fragmentation**

Habitat loss and fragmentation is a serious threat produced by a number of other problems, including the removal of vegetation, agricultural extensification, and uncontrolled bush fires, which must be fought in order to reduce or prevent habitat loss and fragmentation. Specific actions to counter each of these threats are discussed in more detail in their respective sections below.

On a broader scale, habitat loss and fragmentation can be prevented by undertaking comprehensive conservation planning, by establishing and managing protected areas, by ensuring enforcement of protected areas, and by improving resource management. Such actions can help local resource managers, resource users, and government officials better understand which resources are vital to the survival of local species and which are not. To reduce damage to habitats, resource managers and government officials should examine the management of classified forests, national parks, and protected areas, including those areas managed by local communities. Rational management of such sites can allow for establishing several zones of activities (protected, mixed, farming,

grazing, etc.) as well as drafting plans for the sustainable exploitation of forest resources.

Additionally, actions can be taken to reverse habitat loss and fragmentation through reforestation activities both inside and outside of classified, private, and community forests. These activities can be supported by clarifying the legal definitions of different types of forests (and the activities permitted within them), supporting nursery activities, and undertaking direct reforestation. Finally, creating a better organization of the value chain for wood products — both for home and commercial use — would allow resource managers to track forestry activities and manage/plan future use.

## **E7. Hunting and the Bushmeat and Pet Trade**

Hunting, eating bushmeat, and keeping animals as pets are traditional activities in Guinea, and as such are authorized within certain parameters (for personal use and excluding certain species, such as chimpanzees). However, when these activities occur on a large enough scale, in sensitive areas, or in contravention of legal codes, they can create considerable threats to biodiversity (particularly for chimpanzees, which have slow reproductive rates). Actions to combat these threats fall into two broad categories: law enforcement and education.

Each Communauté Rurale de Développement and Commune Urbaine is assigned a DNEF agent, as well as a specific market administrator, to enforce relevant forest and wildlife codes. Furthermore, all policemen, gendarmes and military have the power to enforce applicable codes. However, authorities need greater capacity to enforce relevant laws at critical points along the bushmeat and pet trade supply chains, including at point of capture, during transport, and at market.

In some cases, relevant laws are not enforced due to a lack of petrol to conduct patrols in more remote sites or a lack of understanding. For example, no comprehensive list exists of animals that are illegal to hunt and sell. These issues could be overcome through collaboration with government ministries, who could help to define animals that are illegal to hunt. Alternatively, government officials, NGOs, or others could promote understanding among relevant authorities of the content of relevant codes or provide their divisions with financial support to better conduct their duties.

Anti-corruption and education activities can also decrease the bushmeat and pet trade. Public campaigns targeting both buyers and sellers could explain the value of wildlife, the health dangers of eating certain animals (particularly primates and poorly preserved bushmeat), the highly social nature of chimpanzees and their similarities to humans, and the penalties for breaking the law. Based on reviews of CCSP's campaign, ads on billboards effectively disseminated information, and learning about the legal penalties seemed to have a particularly strong impact on people's behavior.

Education and outreach should also directly target hunters' associations, especially in high-priority conservation areas. During our trip upcountry, we met with one hunters' association that had been trained and paid to monitor chimpanzees in the Balayan-Souroumba classified forests through a USAID project. They showed remarkable enthusiasm and understanding of chimpanzee conservation. We observed a fresh chimpanzee nest just 100 yards from the entry point of the forest and learned that the

communities responsible for the forests have banned hunting for the next seven years. This is a clear sign that education and outreach to user groups works well.

## **E8. Unregulated Removal of Vegetation from Guinea's Forests**

The threat posed by the unregulated removal of vegetation can be reduced by decreasing use of forest resources, increasing government capacity to manage forests, and supporting sustainable forestry management approaches.

As previously discussed, economic growth that increases access to alternate resources can help to reduce pressure on limited forest resources. Given the importance of charcoal and wood for household cooking, efforts should be made to improve the efficiency of stoves and kilns to conserve wood. Development projects could also experiment with small-scale cooking applications such as anaerobic digesters or solar driers/cookers. Furthermore, they could facilitate conversations among Guineans in which they consider the use of “green charcoal” made from vegetal wastes or the use of alternative fuels (such as jatropha or other crops that can be made into biofuels). In 2006, a USAID-funded study assessed the market opportunities for biofuel production in Guinea and recommended jatropha as the most promising biofuel source.

While decreasing the use of forest vegetation is important, Guinea's government needs greater capacity to manage and govern protected areas and forestry resources. Its first step should be to assemble a small team of staff from the relevant ministries, NGOs, and CBOs to clearly define the terms “protected area” and “classified forest” and identify the areas that meet those definitions. They should establish goals with respect to the management of classified forests, elaborate a strategy to reach those goals, and create a clear line of authority identifying those responsible for protecting these areas. Finally, the government should gather data on classified forests and devise a plan for creating an environmental inventory and assessing the current status of classified forests.

This same team should also develop a strategy for managing unregulated and illegal forestry practices in Guinea. To do so, they need to clearly understand the root causes of these activities, in particular how they are perpetuated within the public and private sectors. They also need to establish a clearer definition of illegal versus unregulated removal of vegetation as well as a comprehensive, long-range plan for how forests will be managed in Guinea.

The Guinean government is already supporting one strategy that can help protect forest vegetation — co-management, where local communities share responsibility for managing classified forests with the state — and it should be commended for this support. USAID has invested tremendous resources in this approach to forestry management and, by all accounts, it appears to be working well. Therefore, it is critical that future interventions incorporate the lessons garnered from previous USAID projects and that this information is shared with other donors. As mentioned in Section D, there are several donor groups interested in working on co-management, but there does not appear to be a great deal of collaboration among key actors, including groups who have considerable experience in this area.

Alongside co-management, support should also be given to community forestry. This approach is slightly different in that it applies to unclassified forests and communities

have complete (rather than shared) authority over their resources. Like co-management, it seems to work well, likely because it gives local communities a voice in the management of their resources, a stake in the wealth derived from them, and an incentive to support forests' capacity for long-term sustainable production of renewable resources.

Support for communities involved in co-management and community forestry could include (1) introducing economic growth activities that provide alternative sources of income or that link directly to conservation, (2) helping communities develop a forestry management plan, or (3) helping communities develop institutional arrangements that support their forestry management plan.

Finally, as discussed in Section E5, enforcement actions can help curb abusive extraction of resources, especially when used in conjunction with local management, as locals have the capacity (and incentive) to monitor activities and bring those that are against the good of the community to the attention of the authorities.

### **E9. Agriculture Extensification and Shifting Cultivation**

Guinea's principal economic activity is agriculture, which, as a result, has an especially serious potential to threaten biodiversity. The actions necessary to minimize this threat include reducing the "foot print" of agriculture through intensification and providing Guineans with access to livelihoods other than agriculture (as discussed in Section E3).

Traditionally, shifting cultivation allowed fallow periods to replenish soil nutrients, but in recent years these fallow periods have steadily shortened, forcing farmers to seek other methods to increase fertility. Elsewhere in the world, farmers might turn to chemicals, but this option is not available to Guineans due to its high cost. Given this situation, sustainable farming systems, such as agroforestry techniques, should be introduced. Examples of such interventions include compost, improved fallows, crop rotation, and the incorporation of trees in and around fields. All of these practices can increase a field's long-term productivity. However, it should be noted that agroforestry systems have inherent costs, principally high labor costs and the opportunity costs of planting trees instead of other crops.

As mentioned, agricultural inputs (such as chemicals) are often too expensive for Guineans. Part of the reason for this is that they are imported, so developing a local capacity to supply and produce useful inputs could help to improve soil productivity and reduce pressure to expand agriculture into new and/or marginal lands. For example, activities to build the capacity of local actors like *l'Association des Producteurs et Importateurs d'Intrants Agricoles* could be beneficial. However, it should be noted that there are powerful input dealers working in Guinea who might create difficulties for any competition. In addition to a limited supply of inputs, farmers also have limited credit with which to buy them. Therefore, training producer groups in enterprise and financial management skills may be an effective way to increase their access to agricultural inputs. This may be particularly effective since Guinea has many CBOs that could easily undertake such an intervention (including those currently supported by USAID/LAMIL, some of which have expressed interest in offering such training).

As will be discussed in section G, USAID has supported agroforestry plans, through LAMIL and its predecessors, that have been implemented around several classified

forests. As a result, it is incumbent on any organization considering agroforestry initiatives to assess the impacts and lessons of previous investments to inform future activities.

### **E10. Uncontrolled Bush Fires**

Much like hunting (discussed in Section E5), setting bush fires is a traditional activity that threatens biodiversity and forest health. These fires are a particular threat when they are frequent and uncontrolled. Because they are part of cultural practices — and have many sources (herders, farmers, bee keepers, charcoal producers, and hunters) — preventing bush fires is a challenge. However, as is the case with hunting, the impact of bush fires can be reduced through education about their dangers, how to control them, and alternatives as well as enforcement of laws that ban fires at certain times and places.

Another solution lies in clearer land tenure systems, including a formal land registry. Tenure would give Guineans an incentive to invest in their private land, protect it from uncontrolled fires, and enforce rules against such fires. In Guinea, our team observed communities building fire breaks around private land to protect their crops, hives, and tree farms from bush fires. Establishing private land rights could also help establish social norms that hold setting bush fires as unacceptable. The Land Tenure Center has conducted studies on this issue, and any future actions should consult the work of Paula Williams and Julie Fischer before beginning to address tenure concerns.

Finally, devolving forest rights to local communities could give communities the authority to govern common resources. When resources lack owners, no one has an incentive to protect them, and in many cases uncontrolled bush fires burn common resources. In other cases, they may spread into protected areas, such as classified forests or national parks. If forests impacted by uncontrolled bush fires were co-managed, the forest “owners” would be nearby and able to protect the forests. In areas where co-management is established, organizations should also encourage communities to create local conventions that include specific rules to prevent uncontrolled bush fires (and measures to enforce these rules).

### **E11. Overexploitation of Coastal Resources**

Like the unregulated removal of vegetation discussed in Section E6, overexploitation of coastal resources requires solutions that can reduce people’s reliance on these resources as well as increase their capacity to sustainably manage them. With proper management, Guinea’s favorable coastal fish breeding grounds — with its nutrient-rich waters and large system of mangroves — has the potential to provide a large and sustainable supply of fish to the region. However, several actions need to be taken to properly manage this resource (including defining times/places that fishing is permitted and regulating the number of fishing boats and size of their catches).

According to the GEF-funded Coastal Marine and Biodiversity Management project, actions necessary to protect coastal resources include (1) helping Guinea’s government develop a comprehensive vision for its coastal zone, (2) establishing a network of protected areas that incorporate high-priority coastal Ramsar sites, and (3) working with coastal communities to identify and implement selected strategic activities to improve sustainable use of the resources in these sites and buffer zones.

Additionally, efforts should be made to reduce the destruction of mangroves by reducing reliance on mangrove wood for the production of salt and dried fish (both could be done with solar driers or more efficient machinery) and regulating the removal of mangrove trees for rice production. Finally, any marine area policy established should be coordinated with the policies of Guinea Bissau and Sierra Leone to ensure sustainable long-term exploitation (as described in Section E11 below).

## SECTION F. USAID/GUINEA PROGRAMMING

### F1. Recent History of USAID/Guinea Programming in Conservation

USAID has a long history of working on natural resource management, environment, and agriculture in Guinea. Its approach to conservation and rural development is based on integrating these sectors throughout its program areas, and many of its programs have used innovative approaches to environmental protection and natural resource management.

The concept of co-management of classified forests was introduced by USAID/Guinea in 1993 and has since been implemented into three consecutive USAID/Guinea projects: PGRN (1993-1999), Enlarged Project for Natural Resources Management (1999-2005), and the current LAMIL project (2005-2007). LAMIL was designed to improve on the previous two programs, which USAID evaluations found to be successful at improving the status of classified forests but not the biodiversity, governance, and livelihoods of surrounding communities.



Roadside sign for LAMIL supported co-managed classified forest outside of Dabola (Credit: Julia Watkins)

Another important recent USAID conservation activity was the Chimpanzee Conservation and Sensitization Program (CCSP), which ended in August 2007. Implemented in both Guinea and Sierra Leone, the program (led by the Jane Goodall Institute and partners) ran a public awareness campaign to improve the conservation of western chimpanzees and their habitat. The campaign is well known, and its billboards are still prominent in Conakry and elsewhere in Guinea. The program also strengthened conservation education and engaged in capacity building for local and national governments, CBOs, and law enforcement agencies. Project Primate, one of CCSP's implementing partners, also benefited from USAID funding to help run the Chimpanzee Conservation Center, a sanctuary in the Haute Niger region.

### F2. Current USAID/Guinea Programming

According to USAID/Guinea's strategy statement, its overarching foreign policy objective in Guinea is "to reduce fragility in the region and assist the country in maintaining its stability and its transition to a democratic state." As such, the principle strategic objective for USAID/Guinea has become SO5 "Advance Democratic Governance." Nevertheless, USAID has projects in other program areas and, in the 2008 congressional budget justification, requested funding for the following program areas: peace and security (\$650,000), governing justly and democratically (\$5,443,000), investing in people (\$7,100,000), and economic growth (\$2,400,000).

USAID addresses conservation and natural resource management in conjunction with the above-mentioned program areas. For example, USAID funds for economic growth

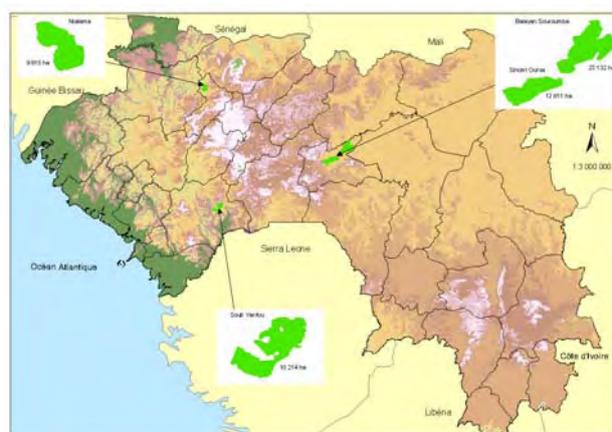
support agriculture and related activities. In addition, funds for governing justly and democratically are applied to natural resource management as one area of integrated program activities. Currently, USAID has three activities that are of preeminent importance for biodiversity and forests in Guinea: LAMIL, *Programme de Renforcement Institutionnel à la Direction Nationale des Eaux et Forêts*, and *Faisons Ensemble*.

LAMIL and *Programme de Renforcement Institutionnel à la Direction Nationale des Eaux et Forêts* focus specifically on natural resource management. LAMIL, the larger of these two activities, is a two-year project active in four areas of Guinea (see map below) in pursuit of the following objectives: (1) stronger governance structures and mechanisms, (2) enhanced livelihood options, and (3) integrated landscape management approaches. In each of its four zones, the project works with co-managed classified forests to expand livelihoods and conserve biodiversity. Specific activities include teaching nursery techniques, providing trees for reforestation, supporting co-management of classified forests and community forests, conducting agroforestry techniques extension activities, supporting biotechnology research for improved planting materials, and producing marketing information and support for agricultural products.

LAMIL has reported preliminary results in their intervention areas, including:

#### *Governance*

- Number of community-based institutions increased
- Technical capacity of national institutions strengthened (biotech, landscape management with DNEF)
- Agroforestry techniques introduced into school curricula
- Co-management model institutionalized (in production)



Map of LAMIL's four areas of intervention  
(Source: USAID LAMIL Project)

#### *Livelihoods*

- Planting material renewed and production capacity boosted
- Yields for certain cultivars increased
- Market information (radio, signboards, etc.) collected and disseminated
- About 100,000 seedlings produced in a network of 13 nurseries

#### *Biodiversity*

- Private nurseries and demonstration units (fodder plots and woodlots) established
- Trees integrated into farmland and degraded areas replanted
- Education material produced (book, poster, and training manuals)
- Environmental clubs and scout groups established

Another important project relating to biodiversity and forests is the *Programme de Renforcement Institutionnel à la Direction Nationale des Eaux et Forêts*, which is

implemented by the USFS. For this activity, the forest service has embedded a technical consultant to support DNEF in the following four areas:

- *Participative management.* The USFS is helping the DNEF synthesize its experience over the last 20 years into policy. For example, they have just completed a national strategy that includes a section on participative management best practices.
- *Policy development.* They are also helping DNEF to develop/refine its policies. For example, USFS is working with DNEF to integrate forest policy into the *Lettre Politique de Développement Agricole*.
- *Communications and information management.* The USFS is working with DNEF on communications, information storage, Internet access, and database development. Currently, the DNEF's database is in its preliminary stages, but they hope to eventually use it for storing inventory information and for conducting threats analysis and monitoring.
- *Personnel management.* The USFS is helping the DNEF develop staff position descriptions as well as further basic organizational development within the department.

Additionally, this program collaborates with the World Agroforestry Centre and the LAMIL project in governmental capacity building and in specific technical assignments such as studying the development of a market and value chain for Guinean timber products.

While *Faisons Ensemble* has a natural resource management component, activities are just beginning and the work plan has yet to be finalized. As a result, it is still too early to evaluate how their work will affect biodiversity and forests in Guinea.

The fundamental principles of *Faisons Ensemble* are that democratic governance grows most effectively from the local level and that good governance requires the participation of all citizens, including women and youth. These principles guide the following four objectives:

- Improved effectiveness of government institutions, decentralization, and local service delivery
- Greater visibility and effectiveness of anti-corruption efforts
- Increased capacity and effectiveness of civil society
- Increased citizen access to more diverse sources and types of information

Agriculture/natural resource management activities are expected to fall under the first objective and are expected to strengthen the ties between DNEF and forest management groups and to combat corruption in forest management.

A fourth USAID-supported project, Tostan (“breakthrough” in Wolof), promotes community organization and planning to meet the challenges of rural development, including issues of deforestation and water quality. While Tostan does not actively work in the environmental sector, they help communities interested in environmental projects — such as reforestation or improved cook stoves — to organize and find the support they need from governmental institutions or donors. Furthermore, PL480-funded programs implemented by Africare and Opportunities Industrialization Centers

International (OICI) work to build the capacity of CBOs and improve agricultural yields through more effective technologies and management systems.

### F3. USAID Programs That Address Threats to Conservation

Current USAID programming in Guinea includes several activities that undertake the “actions necessary for conservation” detailed in Section E. Most of these activities are covered by the programs described in section F2.

The USAID program that most directly addresses the threats described in Section D (through the actions described in Section E) is LAMIL. The only threats this program does not target are those related to mining, the management of coastal areas, and regional coordination.

*Landscape Management for Improved Livelihood.* LAMIL has helped to reinforce the capacity of government institutions by embedding DNEF staff in their project team so that these staff can continue project activities after the project’s end. DNEF staff have been involved in working to codify and institutionalize procedures for co-management of classified forests and in improving the curriculum of the university system to increase resource managers’ technical knowledge.



Hunter group/management committee presentation of chimpanzee program in Ballayan Souroumba (Credit: Brian App)

Threats from population, poverty, and agricultural extensification are addressed through the project’s livelihood activities, which present more productive farming systems, better market information, and improved seed varieties to help increase household incomes and reduce pressure on natural resources. Finally, biodiversity activities such as agroforestry and support of co-management systems help to protect areas important to biodiversity by giving people a voice in the management of their resources, incentives for sustainable management of those resources, and the capacity to manage the resources rationally. The program also directly supports biodiversity through activities such as tracking chimpanzee populations and promoting the strict protection of critical biodiversity zones. All of these activities address threats such as habitat loss, hunting, bushfires, and unregulated removal of vegetation.

It should be noted that while the project includes many of the actions necessary for better conservation, the scope of the project is limited to four small geographic areas, with the exception of its governance and education activities, which have a more national scope. In order to address environmental threats on a more national level, activities would have to be scaled up to cover other areas, or the model refined by LAMIL (and its predecessors) would have to be replicated in other parts of the country.

*Programme de Renforcement Institutionnel à la Direction Nationale des Eaux et Forêts.* This program addresses the threat of “limited government and institutional capacity” described in sections D1 and E1. While this is the only direct area of intervention related to the threats discussed in this report, it addresses what is perhaps the most important threat, especially since institutional weaknesses exacerbate all other threats. Additionally, by working directly with DNEF’s headquarters and senior staff, its activities have national reach and can affect resource management throughout the country. The project supports participative management, effective policy development, information management, and personnel management, all of which are described as actions necessary for conservation.

*Faisons Ensemble.* Faisons Ensemble works to strengthen Guinea’s legislative, policy, institutional, and financial frameworks. While these frameworks have broad impact on conservation efforts, the project is not fully operational and has not yet implemented actions related to conservation. However, the project’s expected interventions — strengthening ties between the DNEF and forest management groups and combating corruption in forest management — are in line with actions described in Section E1.

Other USAID activities, including those under Tostan or implemented by Africare and OICI, address some of the threats to conservation in a more indirect way by strengthening local organizations and promoting economic growth. Although their focus is on food security or rural development, they will also significantly benefit conservation, illustrating USAID/Guinea’s commitment to integrated approaches to development across program areas.

Additionally, it should be noted that CCSP addressed many of the conservation threats described in this report. Most specifically, CCSP worked to improve government capacity through comprehensive examinations of conservation law enforcement capacity (and recommendations for improvement), to increase regional coordination between Guinea and Sierra Leone, and to alleviate the threats posed by hunting, bushmeat, and the pet trade through raising awareness of the need to protect chimpanzees.

## **SECTION G. RECOMMENDATIONS FOR USAID/GUINEA**

Recommendations in this section are presented in three parts: Overarching recommendations, specific recommendations, and global recommendations.

### **G1. Overarching Recommendations for USAID Activities**

Overarching recommendations are actions that USAID could undertake to further integrate conservation into their programming but that do not necessarily relate to a particular USAID activity.

#### **G1a. Locate USAID Program Activities in Sites Important to Biodiversity and Forest Conservation**

To increase synergy between USAID interventions and biodiversity conservation, USAID should consider locating program activities in or around sites important to biodiversity and forest conservation. In particular, USAID should consider placing economic growth activities in these areas, because providing communities with alternative livelihoods could reduce the threat that poverty poses to the environment. Similarly, USAID should also consider locating democracy and civil society projects near conservation sites as such projects help organize communities, raise awareness of rights, and build capacity to manage communal resources. Developing transparent, accountable, representative and democratic local governments can give the people the means and incentives to come together to improve and implement resource management plans. In addition, education projects provide an opportunity to incorporate environmental education/awareness activities into school curricula. If this is done in an area with important natural resources, it can have a profound impact for years to come.

#### **G1b. Continue Cross-Sectoral and Trans-Boundary Activities**

Both cross sectoral and trans-boundary activities offer opportunities to leverage project resources, and gain synergy between existing and planned programs. USAID/Guinea has a history of incorporating conservation activities into other program areas. For example, its current democracy and governance project, *Faisons Ensemble*, has designed activities to support natural resource management. With funding for economic growth activities in Guinea decreasing, and biodiversity funding uncertain, it is crucial for USAID/Guinea to examine opportunities to support conservation through other program areas.

Additionally, with the importance of Guinea's trans-boundary areas to biodiversity, the recent volatile history of neighboring countries, and the regional importance of resources like the headwaters of major rivers and productive fish breeding grounds, it is critical that USAID/Guinea continue to work with regional and neighboring missions — as well as other regional organizations — to support trans-boundary conservation. As with CCSP and the Mano River initiatives, USAID/Guinea actively supports regional activities and should remain active whether through new programs, participation in regional workshops and coordination meetings, or sharing information and lessons learned with development and conservation organizations in neighboring nations.

## **G2. Specific Recommendations for USAID Activities**

The following specific recommendations relate to current or planned USAID activities.

### **G2a. Continue Support for Co-Management Activities**

USAID/Guinea has a long history of supporting natural resource management, community forestry, and co-management of classified forests. While certain groups may no longer need project support, other communities (particularly those in areas of high biodiversity) need to be introduced to co-management approaches. The fact that a waiting list exists of communities interested in receiving support for co-management demonstrates that USAID's efforts in these areas are working and should continue.

To continue its support of co-management, USAID should extend the LAMIL project or launch a similar activity. However, prior to doing so, lessons learned from its three earlier natural resource management activities should be identified so as to inform future efforts. The next generation of USAID support for co-management should work to institutionalize the co-management approach so that past successes can be transferred to other areas of the country. Currently, LAMIL staff are working to achieve this goal of institutionalization, and it is important that USAID share LAMIL's experience with other development partners so that all can benefit from the expertise USAID has amassed over the years.

Past USAID interventions have helped local communities use the rule of law to stand up to people who wanted to harvest timber illegally from their forests. Future work use positive experience to illustrate the benefits of implementing approved management plans. Primary among these benefits is the sustainable management of timber harvests to help preserve the integrity of the forest while returning direct economic benefits to local communities.

One location where co-management might be introduced is the Outamba-Kilimi region, on the border of Guinea and Sierra Leone. USAID/Guinea has identified this area as an important trans-boundary conservation site and plans to invest biodiversity-earmarked funding in a study of this area. For this and future activities in this region, USAID should consider using the co-management model with communities on both sides of the border.

Finally, co-management programs should ensure that economic growth activities have a direct link to biodiversity conservation. Section E3 discusses a few examples of activities that would fit into this category, including managing forests for sustainable yields of timber, protecting forests for sustainable exploitation of non-timber forest products, and eco-tourism.

### **G2b. Clarify, Harmonize, Annotate, and Communicate Legal Codes**

As discussed in sections B3 and D1, Guinea's institutional and legal framework is complex and at times contradictory. The *Faisons Ensemble* project could give USAID the opportunity to address this issue through providing assistance in clarifying, harmonizing, annotating, and communicating the content of existing legal codes. These types of activities are in line with project goals; specific actions could include examining the *Code de Forêt* and *Code de Faune*, especially in relation to the *Code des*

*Collectivités Locales*. Comparison of these codes could identify areas of conflict and bridge gaps between the rights/responsibilities of local communities and those of forest and wildlife authorities.

Currently, these codes lack annotations and application texts, which would explain how the legal framework is applied. *Faisons Ensemble* could help to create, or push for the creation of, such annotations, application texts, and code summaries that can be easily communicated to communities. Furthermore, the examination of these codes would benefit from a thorough reading of some of the Classified Forest Management Plans supported by previous USAID work, which could both help clarify the codes and offer tested language and plans for application texts.

Other appropriate areas of intervention for *Faisons Ensemble* would be to examine land tenure codes, ensure that regulations are understood and applied in rural areas, and facilitate the process of land registration. The lack of secure tenure serves as a disincentive for conservation (as discussed in Section E) and rectifying this situation could increase conservation and sustainable use activities by giving people a reason to invest in their land.

### **G2c. Build the Capacity of DNEF Agents**

A final specific recommendation that could be enacted through current/proposed programming is the building and reinforcement of the capacity of DNEF agents. Although the LAMIL and USFS programs are currently working in this area, both programs are projected to end in early 2008, which will leave a gap in this area of critical need.

To ensure continued support for the DNEF, we recommend that the USFS program be extended and continue its work in the four areas described in Section F2. Specifically, program staff could work with the university to train DNEF personnel in inventory, GIS technology, populating database systems with inventory data, and producing detailed and accurate maps of Guinea's natural resources. It is important to note that USAID has made efforts to train DNEF personnel for a number of years, and lessons from this experience should inform any new initiatives.

With respect to the LAMIL project, DNEF staff is working with LAMIL staff to assume responsibility for activities when the project closes. While this is a necessary and commendable step, it is unclear whether DNEF staff will have the capacity to carry out LAMIL's tasks without the project's support. Given the important work being done in the field, it is important that USAID continue to support DNEF until they can expand their activities into more areas of Guinea.

If continued support of DNEF through LAMIL is not possible due to funding restrictions, perhaps *Faisons Ensemble* could undertake some of this work, particularly that related to the delivery of state services at the community level. Additionally, providing assistance to the Ministry of Agriculture and DNEF on transparency, effectiveness of governance, and anticorruption could help DNEF field staff accomplish their jobs. Currently many field staff do not have sufficient funds to properly carry out their assignments or cannot invest fully in their work because of the second jobs they must hold to support their families. Given Guinea's immense resource base, the DNEF

and other agencies should be able to achieve financial self-sufficiency through user fees, fines, and concessions. *Faisons Ensemble* staff could undertake activities to ensure that DNEF funds are properly allocated and spent.

### **G3. Global Recommendations**

Global recommendations are actions that may be beyond the scope of current USAID programming but that should be considered by interested parties because of their vital importance to conservation. Although USAID may not be in the position to implement global recommendations, it may be in the position to communicate the need for these activities to other donor and regional groups who are in a better position to accomplish this work.

#### **G3a. Support National Inventories and the Generation of Reliable Scientific Data and Maps**

Numerous documents and interviewees clearly expressed the need for national inventories and reliable scientific data/maps. We repeatedly heard the basic question: “How can we conserve when we don’t know what is there?” We heard a variant of this question from officials in the livestock department, who mentioned that certain grass species were being lost, and from a CRD president who lamented the loss of wildlife in nearby forests. It is commonly acknowledged that species are being lost, but no one can say with accuracy how many, how quickly, or from where. With the proper inventories and maps, trends could be identified and examined and realistic site-specific conservation plans could be created. While USAID could certainly assist in this effort, a full national inventory would take substantial and sustained effort that would require training, financing, and cooperation on a large scale.

#### **G3b. Support Financing and Capacity Building for Regional and National Conservation, Enforcement, and Monitoring Activities**

Similar to a national inventory, national conservation, enforcement, and monitoring activities need financing and capacity building on a scale likely beyond USAID’s capacity. However, in its role on various coordination committees and in supporting specific activities, USAID could help to meet this need. Guinea should be the focus of major international assistance for conservation activities because it is home to both threatened species (such as the western chimpanzee and the mangrove) and the headwaters of West Africa’s major rivers. USAID/Guinea can play a role in these activities, but the scale of assistance needed will require an international effort and coordination with other USAID programs in the region. It should be noted that USAID/Guinea has recognized this opportunity and is working with regional partners to examine natural resource management in a trans-boundary context. The next discussion of these issues by regional actors took place at a November 2007 workshop.

#### **G3c. Support Revitalization of Tourism and Eco-Tourism Sectors**

Guinea has numerous attractions that could support a tourism industry, including beaches, mountains, waterfalls, rainforests, charismatic megafauna, and rich cultural activities in music and dance. With countries just across the border already earning considerable tourism revenues, Guineans’ interest in the industry is understandable.

However, Guinea must overcome several challenges before tourism can be considered a viable industry for Guinea.

In a 2006 evaluation of Guinea's network of protected areas, the USFS examined the potential for tourism in Guinea and found several constraints to its development, including no national support for tourism, limited infrastructure, inadequate tourism activities, and limited donor trust due to failed past efforts.

While USAID has shown some interest in developing the tourism sector, meaningful development in this area would require significant investment across numerous sectors and partnerships with private-sector actors willing to invest in tourist facilities and events. Nevertheless, given that economic development in this sector would likely directly benefit rural communities and give them an incentive to conserve local resources, both tourism and eco-tourism should be further examined and pursued in the future.

#### **G4. Conclusions**

Located in a volatile region of West Africa, and containing biodiversity and forest assets of enormous value, Guinea is key to the peace and stability of the region as well as a conservation priority of international importance. With the world's largest populations of the western chimpanzee, the headwaters for major West African rivers, the largest remaining mangrove forests in the region, and important fish breeding grounds that feed fish populations well beyond its borders, Guinea needs to conserve and use its resources in a sustainable manner not only for its own 10 million people but also for the tens of millions of West Africans.

USAID has a long history of involvement in conservation efforts and sustainable natural resource management in Guinea, with notable achievements in the area of co-management between national authorities and local communities. This report has examined biodiversity and forests in Guinea, detailed the threats (Section D) and actions necessary for conservation (Section E), and compared them to the current USAID programs in Guinea (Section F). While the results showed that USAID is indeed supporting numerous actions that benefit conservation, we have also pointed out several areas where there remain opportunities for further conservation activities (Section G), both within current programming as well as in new areas, for consideration by other organizations or future USAID programming.

Examining the recommendations for current and proposed USAID activities in Guinea, three themes ran through the report and bear repeating:

- *Support co-management.* USAID should continue its support for co-management activities and should look for opportunities to institutionalize the process so that its impact can be expanded throughout the country and region.
- *Increase cross-border coordination.* Given the importance of Guinea for stability, biodiversity, and livelihoods in the region, USAID should seek opportunities to engage organizations in neighboring countries in cross-border and trans-boundary conservation initiatives.
- *Bolster the capacity of the DNEF.* As the DNEF's lack of capacity to manage and conserve national resources is a major deficiency that prevents many needed

conservation actions, including the creation of national inventories, the application/enforcement of legal codes, and the use of rational/sustainable resource planning, USAID should work to build the DNEF's institutional capacity to plan, implement, and monitor conservation activities in Guinea.

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## **APPENDIX A. LIST OF INDIVIDUALS INTERVIEWED**

### **A. USAID**

Clifford Brown	Mission Director
Ibrahima Camara	Mission Environmental Officer
Greg Booth	Strategic Results Coordinator
LeaAnne Marr	Technical Office Team Leader
Louis Coronado	Supervisory Program Officer
Dr. Mariam Ciré Bah	Reproductive Health Specialist
Dr. Maladho Baldé	Education Advisor

### **B. U.S. Forest Service Institutional Strengthening for the DNEF**

James Cogswell    Principal Technical Officer

### **C. Jane Goodall Institute**

Marie Claire Gauthier    Program Coordinator

### **D. Direction des Grands Projets**

Thierno Oumar Diallo    Chef division, Contrôle des Grands Projets – Présidence de la République

### **E. Direction Nationale de l'Environnement**

Namory Keita	Directeur, Protection de la Nature
Aboubacar Oularé	Directeur, Gestion des Aires Protégées
Maadjou Bah	Division Conservation de la Biodiversité

### **F. Faisons Ensemble**

Ibrahima Diakite    Governance Performance Director

### **G. Chimpanzee Conservation Center/Project Primate**

Estelle Raballand    Director

### **H. UNDP Mt. Nimba Project**

Efas Sylla    Chef de programme

**I. Ministère de l'Agriculture, de l'Élevage, et des Eaux et Forêts, Bureau Central  
Étude et Planification Agricole**

Lansana Conde    Chef de division

**J. Ministère de l'Agriculture, de l'Élevage, et des Eaux et Forêts, Direction  
Nationale de l'Élevage**

Sory Keita            Directeur adjoint  
Boubacar Camara    Chef de section

**K. Ministère de l'Agriculture, de l'Élevage, et des Eaux et Forêts, Direction  
Nationale de l'Agriculture**

Abdoul Karim Camara    Directeur, Agriculture Nationale  
Aboubacar Oulare        Directeur, Centre National de Gestion des Aires Protégées  
Moustapha Donzo        Directeur, IRAG/CRAF

**L. Ministère de l'Agriculture, de l'Élevage, et des Eaux et Forêts, Direction  
Nationale des Eaux et Forêts**

Mme Kourouma Christine Sagnoh	Directrice nationale des eaux et forêts
Fodé Ismael Soumah	Chef division, Aménagement et Reboisement
Alkaly Bangoura	Division Foresterie Rurale
Ahmadou Shérif Bah	Chef division, Planification
Mamadou Rafiou Diallo	Chef division, Faune
Tahirou Barry	DNEF
Appolinaire Togba Kolie	Coordonnateur, AGIR
Bakary Keita	Homologue USF

**M. Projet LAMIL**

Serge Ngenoakumana	Scaling Up Expert
Michael Balinga	Technical Expert
Saikou Balde	Chef d'équipe
Prospère Tamba Kamano	Vulgarisateur
Fatoumata Diallo	Vulgarisateur
Aly Kallo	Chef de cantonnement forestier
Alpha Ibrahima Barry	Chef de cantonnement forestier

**N. Projet LAMIL, Bissikrima, Conseil de Gestion Forestier de Balayan-  
Souroumba et Sincery-Oursa**

Kokoly Henry Lamah	Chef du cantonnement forestier
Farba Samba Seck	Chef de cantonnement forestier adjoint
Mamady Kaba	Trésorier du CG de Balayan

Fatoumata Barry  
Saly Mara  
Alpha Malal Diallo  
Bailo Diallo  
Mamadou Bobo Barry  
Mariama Oulare  
Alimou Barry  
Mamdou Traore  
Sanacy Camara  
Moru Kourouma  
Mamadou Sidibe  
Kèba Cisse  
Moustapha Diakite  
Mamadou Conde

Vice présidente du CG de Balayan  
Secrétaire du CG sde Balayan  
Trésorier Sincery  
Secrétaire Sincery  
Président Sincery  
Vulgarisatrice  
Vulgarisateur  
Président confrérie de chasseurs  
Surveillant chimpanzés  
Agent de la biodiversité  
Vulgarisateur  
Semencier Balayan  
Président CG de Balayan  
Agent biodiversité

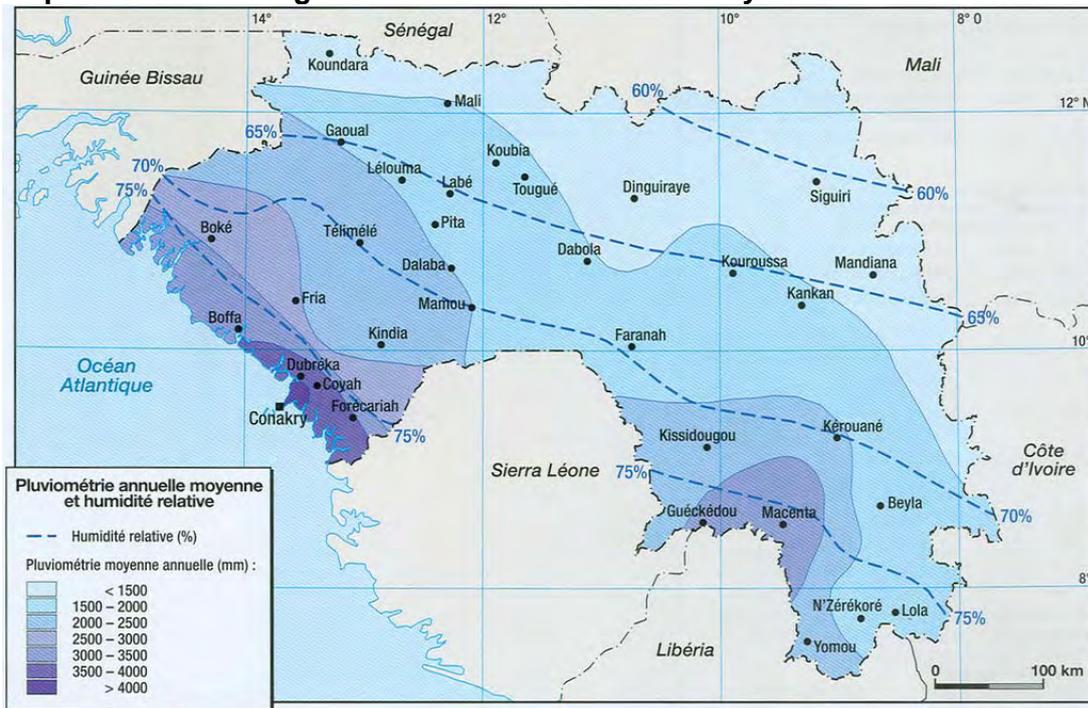
### **O. Tostan**

Mauhamed El Kebir Basse  
Abdoul Aziz Ndong

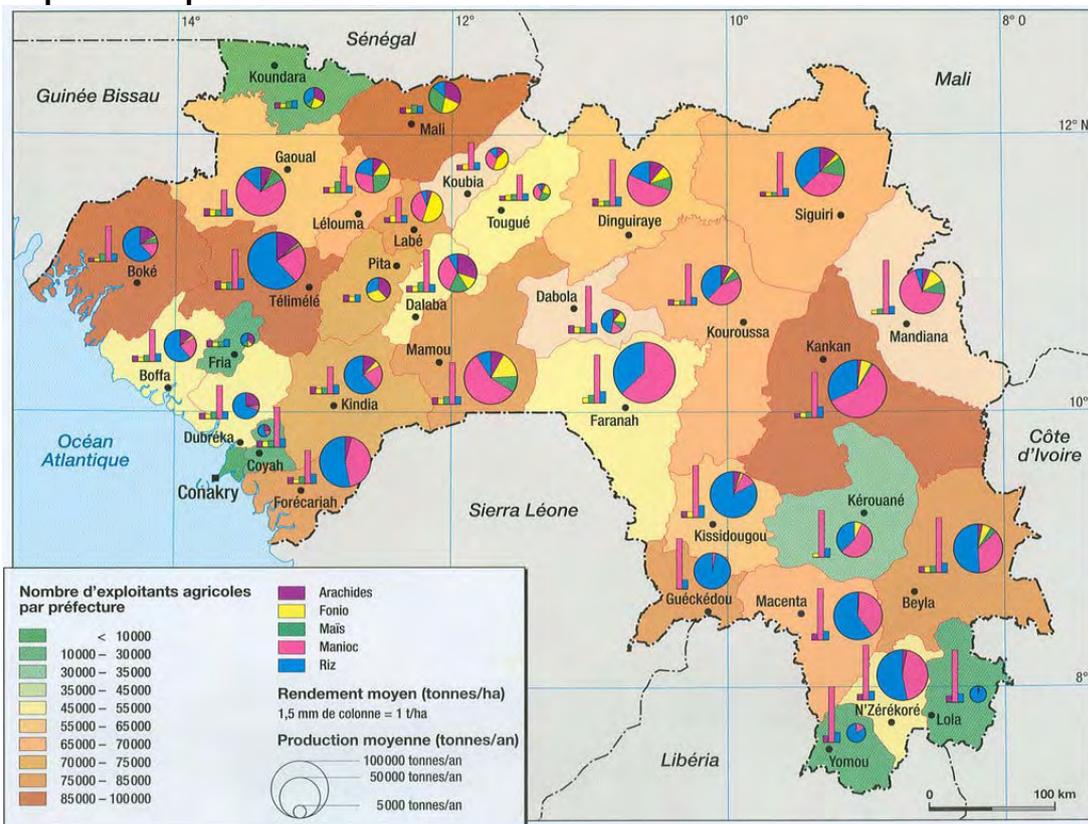
Coordinateur National Tostan  
Responsable Admin./Finances

## APPENDIX B. MAPS OF GUINEA \*

### Map 1. Annual Average Rainfall and Relative Humidity



### Map 2. Principal Economic Activities



\*All maps in Appendix B from Dux et al. *Atlas Scolaire de la Guinée*.

**Map 3. Soils**



**Map 4. Wood Production**

