



118/119 Biodiversity and Tropical Forestry Assessment for Burkina Faso

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ACRONYMS

AWARE	Action for West African Region
DAF	<i>La Direction des Aménagements Forestiers</i>
GEF	Global Environment Facility
IUCN	The World Conservation Union
MAB	Man and the Biosphere
MCC	Millennium Challenge Corporation
NGO	non-governmental organization
PAGEN BF	<i>Projet de Partenariat pour l'Amélioration de la Gestion des Ecosystèmes Naturels au Burkina Faso</i>
PGET	Planning Trans-border Ecosystems Management
SP/CONAGESE	Permanent Secretariat of the National Council for the Management of the Environment
SP/CONEDD	National Council for the Environment and Sustainable Durable Development
UNDP	United Nations Development Programme
UNEP	United Nations Program for the Environment
UNESCO	United Nations Educational, Scientific, and Cultural Organization
USAID	United States Agency for International Development
USG	United States Government
WATH	West Africa Trade Hub
WCPA	World Commission of Protected Areas

EXECUTIVE SUMMARY

This report was prepared as part of the Biodiversity Support and Technical Analysis for USAID/Africa project under its “Support for Biodiversity and Tropical Forestry Assessments” task. Responding to sections 118 and 119 of the Foreign Assistance Act, this report provides details on the extent, threats, and major participants in the biodiversity and forest sectors of Burkina Faso, as well as information on current U.S. Foreign Assistance and USAID programming, with recommendations on threats and opportunities posed by those funds. However, it should be noted that this is a U.S.-based research document and recommendations are limited by its lack of ability to obtain first-hand information on resource conditions or interact with USAID field staff.

Burkina Faso is characterized by a tropical climate of the Sudanese and Sahelian categories, with a long dry season from October to April, and a short rainy season from May to September. The arid Sahelian zone covers the northern part of the country, with the Sudanese zone covering the south. Burkina Faso contains a number of key high-value conservation assets and, in addition to the largest elephant populations of West Africa, it has two United Nations Educational, Scientific, and Cultural Organization (UNESCO) biosphere reserves and three wetlands of international importance. Although the country is a signatory to major international conservation agreements and has numerous pieces of legislation aimed at environmental protection, several major threats to biodiversity and forestry have led to the decline of many species.

With an estimated population of 14,326,203 (2007), and a 2.53 percent annual growth rate (2005), the majority of Burkina's people are concentrated in the south and center of the country, with a population density exceeding 48/km² in certain areas. Among Africa's poorest countries, Burkina Faso's economy is dominated by subsistence agriculture in which 90 percent of the population engages (accounting for 37 percent of gross domestic product). Dependence on agriculture magnifies the impact of the cycles of drought and desertification that have severely affected the country, and compounds pressure on the environment as the agriculturally dependent population moves into new areas in search of productive land.

Merchantable natural resource products are found in Burkina Faso in limited quantities, (including Manganese, gold, limestone, marble, zinc, and phosphate), and Burkina's modest level of exports, estimated at \$439 million in 2004, consists primarily of cotton, gold, livestock, peanuts, sesame, cashew nut, shea nut, as well as horticulture products, such as mango during the off-season period. Imports for the same year were estimated at \$843 million, roughly two times exports. Although numerous mining sector investigations have revealed the presence of valuable minerals, only gold has been an object for serious exploitation, given constraints posed by a lack of water, the isolation of the country, and the high cost of energy.

As a signatory of the Convention on Biological Diversity, Burkina has undertaken the enforcement of its terms, including development of national strategies and action plans. With support from the United Nations, Burkina Faso obtained Global Environment

Facility (GEF) financing to undertake a country study of Burkina Faso's biodiversity to collect and analyze biological, economic, and social data to serve as the basis for national and sectoral strategies and actions related to biodiversity. Completed in February 1999, "Country Study on Burkina Faso Biodiversity" helped to inform the National Strategy and Action Plan for Biodiversity in Burkina Faso, produced in December of 1999. Additionally, this report heavily informed the present analysis, and the conclusions reached therein are present throughout this document.

The government has also established the National Council for the Environment and Sustainable Durable Development (SP/CONEDD) to promote integration of the fundamental principles of the protection of the environment into the economic, social, and cultural development process of Burkina Faso, and to coordinate with other institutions and nongovernmental organizations (NGOs) on environmental issues. In addition to SP/CONEDD, the Ministries of Environment and Standard of Living; Agriculture, Water and Water Resources; Animal Resources; Mines and Energy; and Transport and Tourism play important functions in management of natural resources of Burkina Faso.

Located in central West Africa, Burkina Faso is a favored location for regional activities, and The World Conservation Union (IUCN) and its African Elephant Specialist Group maintain a regional office for West Africa in Ouagadougou. In addition, the European Union funds the Protected Areas of Sahelian Africa project in Burkina Faso, which is active in the trans-boundary "W" Regional Reserve (Burkina Faso, Benin, and Niger), where it is working on joint management for the area, creation of environmental education centers, training of park staff, and improvement of the infrastructure within the park. A major local environmental NGO is the *Projet de Partenariat pour l'Amélioration de la Gestion des Ecosystèmes Naturels au Burkina Faso* (PAGEN BF), whose goal is preservation of biodiversity in the country's protected areas, and sustainable development for the populations on their peripheries.

Led by U.N. programs, numerous international donors contribute to environmental issues, primarily through direct funding for institutions and initiatives, in Burkina Faso. Additionally, in November 2005, the Millennium Challenge Corporation (MCC) selected Burkina Faso as eligible to submit a proposal for Millennium Challenge Account assistance for fiscal year 2006, and has recently signed a \$12 million Threshold Country Program. Although the work envisioned is not in the environmental sector, in its authorizing legislation, the MCC is directed to use objective and quantifiable indicators to evaluate a country's demonstrated commitment to, among other things, "economic policies that promote the sustainable management of natural resources."

Total forest area in Burkina Faso is 7,089,000 ha, 26% of the total land area, consisting almost exclusively of natural forests and located primarily in protected areas on the frontier with Benin and Togo. Community forestry is well developed in Burkina Faso, and the country has been a pioneer in rural forestry, participatory management of natural forests and small stands, and management of plant and animal wildlife. As there is as yet limited integration of the rural and urban economies, harvesting of fuelwood for

supplying urban areas continues to employ traditional methods, with wood providing an estimated 91% of the total energy consumed. Forest resources are managed through two departments within the Ministry of Environment and standard of living: Department of Water and Forests and the Department of the Environment.

Biodiversity in Burkina Faso faces several major threats, which have intensified, especially since the 1970s. These threats broadly fit into several major categories as follows:

- 1) **Drought and Desiccation** – which has been persistent for the last 30 years, and has led to desiccation of the land and death of wildlife and vegetation, and can be considered both a symptom and driver of desertification
- 2) **Population Pressures** – with a more than three-fold population increase in the past 50 years, pressure on limited arable land in the country has intensified resource competition and habitat destruction.
- 3) **Bush Fires** – which annually burn large swaths of the country and can lead to habitat destruction (particularly in forest areas)
- 4) **Soil Degradation** – resulting primarily from drought, decreasing nutrient replacing fallows, and agricultural practices such as continuous cotton monoculture systems with their heavy applications of pesticides/chemicals.
- 5) **Natural Resource Management Capacity** – which is hampered by multiple and contradictory policies and a lack of sufficient funding,
- 6) **Water Sources** – with the silting of rivers and dams, as well as invasion of water sources by wild species, such as hyacinth, and the contamination by industrial activities, such as oil processing, soap processing, and tanneries.
- 7) **Mining activities** – which in certain cases has been carried out without proper accompanying mitigation measures (gold mining in particular).

Although Burkina is a non-presence USAID country, the foreign assistance budget for the country in 2008 is \$10.2 million, and U.S. objectives to advance transformational diplomacy hold opportunities and considerations for biodiversity and forest conservation.

Peace and Security – \$200,000 has been requested under the peace and security functional objective for addressing law enforcement restructuring, anti-trafficking in persons, the enhancement of professionalism of the armed forces, and for emphasizing the importance of such principles as civilian control of the military, respect for human rights, defense resources management, and military justice. Additionally, under this program area the US government is combating small-arms trafficking within the country and across the borders. Efforts at promoting peace and security in the sub-region (Cote d'Ivoire, Burkina Faso, Ghana, Liberia) are critical to the development of stable and productive states. Furthermore, peace and security and combating small arms trafficking will likely lead to enhanced biodiversity conservation, especially in the trans-boundary protected areas of BF.

Support for trans-boundary peace and Security – Given the importance of the protected areas along Burkina's borders, especially in the south, regional peace and security is an

important goal for protecting biodiversity – and is of course preeminent among the needs of the human population in the regions. Furthermore, with multiple parks along the border with Côte d’Ivoire, which has seen ongoing conflict since 2002, efforts at controlling the trafficking of small arms reduce the threat to populations of critical large mammals with poaching and bush meat hunting, and also have a significant positive effect on biodiversity conservation in the area by increasing the ability of Burkina to effectively manage trans-boundary resources

Health and Education – A further \$7,470,000 for investing in people has been requested primarily for addressing serious education and health issues in the country. Basic education funding will be focused on access to food through school feeding programs, while health funding will support HIV/AIDS, maternal and child health, and water supply and sanitation programs.

Environmental Education – Education programs working with schools and local communities present an opportunity to open a dialogue for environmental education and USAID should look for opportunities to incorporate conservation education into the curriculum of the schools with which they work (through organizations such as CRS, Africare and AWARE). Environmental education in particular should be targeted to reach not only the students, but also the teachers and the Parent-Teacher Association members for an effective impact on the environmental quality of life for all in the communities of interest. Additionally, in order to reach the greatest synergy with biodiversity conservation, environmental education programs should be targeted at areas surrounding the countries most critical biodiversity assets (especially the southern forests and internationally recognized areas of biological diversity importance). This would have the double effect of making environmental education more engaging, by emphasizing the local importance, and useful, by engendering an environmental ethic where it is most needed.

Economic Growth – The remaining \$2,530,000 has been requested for economic growth to support agricultural sector productivity facilitating farmer access to inputs and training to increase productivity, building community and household level assets to diversify income-earning opportunities, promoting the use of soil and water conservation techniques and the use of drought-tolerant seed varieties. In comparison to other areas of USAID support, economic growth activities have the potential for the greatest synergies with conservation.

Promotion of Agroforestry Systems – Programs aimed at the training of farmers can be beneficial by recommending practices such as agroforestry where improved fallows and the incorporation of trees of economic value on the farm (fruit, fodder, and fuel wood) can improve soil fertility, provide a secondary income for the farmer, and reduce the pressure on new lands.

Agricultural Input Training – While the provision of farm inputs can help the population to meet food security and economic goals, certain inputs have deleterious impacts on the

environment. Therefore, training and proper use of inputs – and the selection of the most appropriate inputs – can reduce this risk and improve crop output for the farmer.

International Grades and Standards – Finally, economic generation activities (such as those implemented by WATH) should look to support conformance to international market standards that require specific environmental practices and provide access to lucrative export markets. Support for marketing and export for sustainably harvested non-timber products can provide an incentive for conservation and an opportunity to diversify income generating activities, while economic growth opportunities targeted at ecotourism would target conservation and provide an income-earning opportunity.

Overall, the case for conservation in Burkina is compelling, with strong populations of elephants, multiple biosphere reserves and wetlands of international importance, and promising cross-border collaboration for some of its numerous trans-boundary protected areas. However, Burkina also faces serious anthropogenic and climatic challenges that are compounded by a lack of financing for conservation activities. Although the threats identified in this report are not specifically addressed by current U.S. Foreign Assistance programming, with a consideration of the environmental threats and opportunities in Burkina Faso, USAID can find synergistic activities to aid conservation and mitigate the impact of activities with the potential for unintended environmental consequences.

Therefore, the following general recommendations are offered as specific programming is considered and planned:

- Activities with the potential to affect rural populations should target areas of high conservation value, especially those surrounding protected areas. To this end, project implementers should collaborate with conservation organizations in the country (IUCN or PAGEN BF for example) to target programs and integrate environmental concerns into their planning. Some principle areas for intervention would include the frontier with Benin and Togo, which possess the majority of the remaining natural forests of Burkina Faso, and the internationally recognized biosphere reserves of the “W” Region and the *Mare aux Hippopotames*.
- Activities involving agriculture (such as elements under the WATH program) should promote sustainable techniques (including agroforestry and organic farming), look to mitigate the potential negative impact of chemical inputs (through proper use and storage of appropriate and/or alternative inputs) and to examine the market chain to see how interventions can improve conformity to international trade standards (EurepGAP, for example).
- Programs should recognize the cross-cutting nature of environmental issues, and look for opportunities for activities that can meet explicit goals and have positive secondary effects on the environment (such as clean water activities with ecosystem protection, and workshops incorporating environmental components). Specifically, these activities could be linked with USAID supported AWARE programming which has sponsored health trainings and forums in Ouagadougou as well as trainings and

interventions with other implementing partners including CRS with their school lunch programs.

- The environmental review process required by Regulation 216 for specific activities should be used as an opportunity to ensure that the conservation of biodiversity and forests are routinely included in programming decisions, and screening tools/mitigation efforts for environmental impact should be required for the specific interventions of implementing entities under USAID programs.

Note on methodology: This assessment was conducted through the review of Web-available materials, as well as a limited phone calls and emails with those familiar with environmental issues and the USAID portfolio in Burkina Faso.

SECTION A. INTRODUCTION

Burkina Faso is a landlocked West African country, bordered by Mali in the north and west, Niger in the East, and Benin, Togo, Ghana, and *Côte d'Ivoire* in the south. Major environmental issues faced by Burkina Faso include droughts, desertification, overgrazing, soil degradation, deforestation, and resource management policy difficulties.



A1. Environment and Natural Resource Management Context in Burkina Faso

Burkina Faso has a land area of 274,200 km², with 85 percent considered “shrublands, savanna, and grasslands,” and 14 percent “cropland and crop/natural vegetation mosaic.” The majority of Burkina lies on a savanna plateau, 200-300 meters above sea level, and is generally characterized by a tropical climate of the Sudanese and Sahelian categories, with a long dry season from October to April, and a short rainy season from May to September. The arid Sahelian zone covers the northern part of the country, and has an annual rainfall that does not exceed 350-500 mm in most areas. The Sudanese zone is less arid and covers the southern part of the country, receiving annual rainfall that varies from 700 mm to 1200 mm.

The majority of *Burkinabè* streams are seasonal, with only the *Mouhoun*, the *Comoé*, and the *Pendjari* having perennial flows. Major seasonal streams include the *Nazinon*, the *Nakambé*, and the *Sirba*. Other perennial bodies of water include *Bam* and *Dem* lakes, *Mare aux Hippopotames*, the *Oursi* Pond, and the artificial lakes of *Kompienga*, *Bagré*, and *Ziga*. Since 2006, the latter has particularly been serving as a major supplementary source of drinking water for Ouagadougou and its surrounding localities.

With an estimated population of 14,326,203 (2007), and a 2.53 percent annual growth rate (2005), the majority of Burkina's people are concentrated in the south and center of the country, with a population density exceeding 48/km² in certain areas. Given this high population density, hundreds of thousands of *Burkinabè* traditionally migrate to *Côte d'Ivoire* and Ghana for work (primarily seasonal agricultural work). However, given the fighting following the 2002 coup attempt in *Côte d'Ivoire*, hundreds of thousands of *Burkinabè* in that country have recently returned to Burkina Faso.

Among Africa's poorest countries, Burkina Faso's economy is dominated by subsistence agriculture in which about 90 percent of the population engages. This dependence on agriculture, which represents 37 percent of gross domestic product, magnifies the impact of cycles of drought and desertification that have severely affected the country. The primary agricultural products include cotton, millet, sorghum, rice, maize, livestock, peanuts, cowpea, sesame, tubers (yam, cassava), market gardening/horticulture crops (vegetables¹ and mango in particular), and shea nuts, with cotton acting as the principle cash crop. As such, Burkina has joined with three other cotton-producing countries in the region – Mali, Niger, and Chad – to lobby for improved access to Western markets. In recent years, gross domestic product growth has largely been driven by world cotton prices, although the industry remains dominated by unprofitable government-controlled corporations.

Marketable natural resources are found in Burkina Faso in limited quantities, (including manganese, gold, limestone, marble, phosphate, and zinc), and Burkina's modest level of exports, estimated at \$439 million in 2004, consists primarily of cotton, gold, livestock, peanuts, sesame, horticulture crops (off season mango in particular), and shea nut

¹ Most common vegetables which are grown during the off-season period include the leafy, onion, carrot, tomato, and green beans

products, to major markets of Singapore, China, Thailand, and the European Union. Imports for the same year were estimated at \$843 million, about double exports.

Although numerous mining sector investigations have revealed the presence of minerals, including gold, phosphorous, zinc, silver, lead, nickel, bauxite, limestone, cement stones, magnetite, manganese, bituminous schist, and diamonds, only gold has been an object for serious exploitation (although exploitation of manganese has begun in recent years). Although mining would have a negative impact on the landscape, constraints including a lack of water, isolation of the country, and the high cost of energy have kept mineral exploitation at relatively low levels. Besides the adverse impact on landscape, gold mining has recently been linked by some to water contamination with arsenic, leading to numerous cases of skin cancers, kidney problems, and other health problems for several communities in the Northern Province of *Yatenga*.

A2. Background on USAID/USG Activities in Burkina Faso

A USAID non-presence country since 1995, current USAID activities are coordinated out of the West Africa Regional Program, where annual funding is mainly programmed through nongovernmental and regional organizations. The largest of such programs is the Food for Peace school lunch program administered by Catholic Relief Services. However, Burkina is a beneficiary of several regional initiatives, notably in trade, health, and agriculture.

Based in Ghana, the West African Trade Hub (WATH) has worked to improve the road transport governance (improving policies and reducing corruption), Export business development (including the promotion of handicrafts and cashews), and communications and outreach to raise awareness of and access to the US market. Also based in Ghana, the Action for West Africa Region - Reproductive Health (AWARE-RH) initiative is a five-year, USAID-sponsored health improvement project working in 21 countries. In Burkina Faso, the project has worked on HIV/AIDS policy and community-based health capacity, support for malaria treatment and prevention programs, activities aimed at child health and survival. In agriculture, the Famine Early Warning System Network (FEWS Net) maintains an office in Ouagadougou which compiles and distributes information on food security and vulnerability in the country. Additionally, several other smaller USG initiatives work in Burkina to identify and promote agricultural techniques and crop varieties which can lead to increased yields in the region.

In past years, U.S. leadership and assistance has been pivotal in Burkina Faso, with the U.S. acting as the main donor to inter-African organizations headquartered in Ouagadougou that were successful in eliminating river blindness, and in virtually eliminating famine throughout the Sahelian region despite persistent drought.

Examining the history of involvement in environmental and forestry activities shows a long standing relationship between the US and Burkina Faso. In 1977, the US provided a grant to the government (then Upper Volta) to improve the capacity for promotion of rational water and land resource use, through which the government was to develop a model forest management plan for the national forest and train forestry agents. In 1980,

another grant was provided to train middle/upper level planning and policy officials in environmental planning and resource management. These grants were largely provided in response to the recurring drought in the region to help mitigating impact on citizens, through better and more sustainable use of natural resources.

In 1981, an assessment of a potential for Peace Corps-USAID-host country cooperation in the social forestry sector was performed, and in 1982 a study was performed to assess Burkina Faso's environmental status, focusing particularly on deforestation, and soil and rangeland erosion and degradation. The study found that the main driver of deforestation were the subsistence stresses facing rural farmers and the urban poor. The study also found that “the tendency to seek simple technical solutions to complex environmental problems was the most important constraint to effective environmental management”.

Building on the past studies, in 1985 a project was established for village level sensitization, training of forestry agents and villagers in forestry techniques including establishing village nurseries and plantations, and developing agroforestry systems, and for counteracting environmental degradation. A component of the program also worked to strengthen the provincial administrations of the Ministry of Environment and Tourism. Continuing its commitment to the environment and natural resources in Burkina Faso, in 1989 USG assistance helped to start a pilot project to establish village-level natural resource management activities, and in 1994 another program began to help involve local communities in the conservation of *Kabore Tambi* National Park.

A3. Current U.S. Government Programming Efforts in Burkina Faso

Burkina Faso is classified by the U.S Department of State as a developing country, and the 2008 Congressional Budget Justification cites “weak democratic institutions, fragile food security, corruption, debilitating diseases, and a history of destabilizing involvement beyond its borders” as major obstacles to its development.

In 2005, Burkina was granted access to the African Growth and Opportunity Act and has recently signed an agreement to receive assistance under the Millennium Challenge Account Threshold Program. For this program, Burkina Faso was awarded almost \$13 million to address the low percentage of girls' completing primary school. Burkina also has the largest Ambassador’s Self-Help Program in Africa, which provides grass-roots assistance in building schools, clinics, and water supplies.

In FY 2008, \$10,200,000 in the foreign operations budget has been requested for Burkina Faso as follows:

- \$0.2 million in peace and security, to address law enforcement restructuring and reform, provide opportunities for enhancing the professionalism of the armed forces, and combat trafficking in small arms.
- \$7.47 million in investing in people, primarily for health and education problems focusing on school feeding programs and to support HIV/AIDS, maternal and child health, and water supply and sanitation programs.

- \$2.53 million in economic growth, focusing on agricultural sector productivity by facilitating farmer access to inputs and training to increase productivity, building community and household level assets to diversify income-earning opportunities, and promoting the use of soil and water conservation techniques and the use of drought-tolerant seed varieties.

The details of U.S. government programming, and its relation to biodiversity and forestry concerns, are discussed in Section F of this report.

A4. Rationale for a 118/119 Assessment in Burkina Faso

The formal environmental requirements of USAID operating unit strategic plans 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.

Specifically regarding Tropical Forestry and Biological Diversity, Foreign Assistance Act Sections 118, *Tropical Forests*, and 119, *Endangered Species*, require that all country plans include an analysis of the actions necessary in that country to conserve biological diversity and tropical forests, and the extent to which current or proposed USAID actions meet those needs. Section 118/119 analyses are specific legal requirements of all USAID operating unit strategic plans, and should be conducted in relation to the new strategic plan developed by missions.

These assessments identify biodiversity and forestry assets in the country, discuss the impact of USAID activities, and determine actions within current and future programs where USAID could promote conservation. More than a legal requirement, a current 118/119 analysis can provide important advice to help guide proposed programs toward a more sustainable use of the country's renewable natural resources.

According to article 2 of the Convention on Biological Diversity, "biological diversity" is defined as the "variability of living organisms of any origin, including, among others, terrestrial and marine ecosystems, and other aquatic ecosystems and the ecological complexes they belong to; this comprises the diversity within species and between species." The definition for USAID biodiversity programs can be found as Annex C.

SECTION B. LEGISLATIVE AND INSTITUTIONAL STRUCTURES AFFECTING BIODIVERSITY AND FORESTRY

Organized as a republic, Burkina Faso is composed of 13 regions, 45 provinces, and 350 departments, with a central government budget of \$540 million (2004). A member of the African Union and the Economic Community of West African State, Burkina Faso was the fifth country in the Heavily Indebted Poor Countries Debt Reduction Initiative to reach its completion point and receive debt forgiveness.

B1. Policies and Treaties Related to the Environment

Burkina Faso has ratified numerous international agreements and conventions related to biodiversity, including the Convention on Biological Diversity on September 2, 1993. Since it entered into force in December 1993, Burkina has undertaken enforcement of the terms of this convention, including development of national strategies and action plans.

With support from the United Nations Program for the Environment (UNEP), Burkina Faso obtained Global Environment Facility financing to undertake a country study of its biological diversity (Country Study on Burkina Faso Biodiversity). The purpose of this study was to collect and analyze biological, economic, and social data to serve as the basis for national and sectoral strategies and actions related to biodiversity. Completed in February 1999, “Country Study on Burkina Faso Biodiversity” helped to inform the National Strategy and Action Plan for Biodiversity in Burkina Faso, produced in December of 1999. Additionally, this report heavily informed the present analysis, and the conclusions reached therein are present throughout the present document.

Additional international environmental conventions to which Burkina Faso is party include the following:

- The Convention on Wetland of International Importance (Ramsar, 1971), to recognize fundamental ecological, economic, cultural, scientific, and tourist values of wetlands
- The Convention on World Cultural and Natural Patrimony (Paris, 1972), to institute a system for the protection of outstanding sites of cultural and natural heritage
- The Convention on International Trade in Endangered Species of Wild Flora and Fauna (Washington, 1973), to protect endangered species by controlling trade in dead or live animals
- The Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 1979) to protect wildlife species migrating across international borders
- The Berne Convention on the Conservation of Wildlife and their Natural Habitats
- The Convention Framework on Climatic Changes, to stabilize greenhouse gas concentration in the atmosphere at a level that prevents dangerous disruption of the climatic system
- The United Nations Convention on desertification control in countries seriously affected by drought and/or desertification, to fight against desertification and to mitigate the effects of drought.

Although it is clear that Burkina Faso has taken action based on the convention for biodiversity, the degree to which it adheres to the letter and spirit of the above conventions is unclear from the review of available documents for this study. However, it can be said that Burkina Faso has been compliant with submitting periodic national reports, the first submitted in 1997, the second in 2001, and the third in 2006. However, although these reports serve to confirm the commitment of Burkina Faso to the ideal and to requirements of the Convention for Biodiversity, they are primarily survey forms, and do not contain the many details and context important to evaluating the status of biodiversity and conservation in the country.

B2. Legislation Related to the Environment

The constitution of Burkina Faso (Article 101) states that all citizens have a right to a healthy environment and a duty to protect it. However, there are numerous pieces of legislation that detail the management of various aspects of the environment, and a multiplicity of texts that can lead to confusion and ineffective management.

The multiplicity of texts results from legislation from the colonial period, elaborated in the colonial and post-colonial contexts, and combined with ad hoc measures to meet specific needs. Additionally, with the acceptance of international conventions, many laws were revised, or new laws were added to comply with new frameworks. This process has led to a multiplicity of actors on the ground, and a sharing of roles and responsibilities for resource managers.

Additionally, many of the enforcement texts were crafted in the central administration, without a strong appreciation for the realities on the ground, and early texts derived from the colonial period show excessive repression of the population, where it were excluded from the exploitation of local resources.

Nevertheless, many of these measures are important to preservation of biodiversity and natural resources in Burkina Faso, especially the National Plan of Action for the Environment, which was adopted in 1991 and reviewed in 1994 to take into account the conclusions of the Rio Conference. Of primary importance in guiding environmental policies in Burkina Faso, the main objectives of the plan include the following:

- To reduce the pressures on the natural habitat
- To encourage natural resource regeneration
- To protect biological diversity
- To improve the living environment
- To contribute to the process of sustainable development
- To develop legislative instruments to improve the capacity for environmental management
- To fight against desertification, pollution, and poverty

The National Forestry Action Plan was launched in 1989 and was finalized at the end of 1991 with financial support from the German Agency for Technical Cooperation and

technical support from FAO. After the adoption of the National Environmental Action Plan, it was later decided to combine the two to ensure coordination of goals and resources for the closely related sectors, and emphasize the importance of community involvement in the management of forest resources especially relating to wood energy.

Additional legislative and other measures important to the environment include the following:

- Forest Code, Mining Code, and Environmental Code for sustainable natural resources management in conjunction with the decentralization process;
- Joint Order 10 of 3 February 2000 on the constitution, terms of reference, organization and functioning of Village Land Management Commissions;
- Structural Adjustment Program
- Strategic plan for scientific and technological research
- Integrated Rural Development Program
- Poverty Reduction Strategy Paper (which includes protecting the environment and improving living conditions as one of its development priorities)

In order to mitigate the negative effects of these multiple measures, the authorities have recently adopted and/or “reread” legislation, including the Agrarian and Land Reorganization, Forestry Code, Environmental Code, Water Code, and Draft Orientation Texts on Decentralization. One of the major shifts resulting from the reexamination of this legislation has been to emphasize the importance of participatory approaches, and the responsibility of the people in the management of natural resources. Specifically, the “National Forestry Policy Document” specifies that the participatory approach will be established as the guiding principle for forestry, wildlife, and fisheries, and the “Guidelines on Decentralization” clearly confirms the responsibility and role of the people as the main actors in the management of natural resources.

B3. Principal Institutions of Burkina Faso Involved with the Environment

As a cross-cutting issue, there are multiple institutions that deal with the environment, and it could be argued that all are involved to one degree or another. Therefore, after the ratification of the Convention on Biological Diversity on September 2, 1993, Burkina Faso identified the need for a specific institution to undertake enforcement of the terms of this convention and develop national strategies and action plans on biological diversity.

As such, the government established the Permanent Secretariat of the National Council for the Management of the Environment (SP/CONAGESE) to promote integration of the fundamental principles of the protection of the environment into the economic, social, and cultural development process of Burkina Faso, and to coordinate with other institutions and NGOs on environmental issues. This council was later reformed as the National Council for the Environment and Sustainable Durable Development to better reflect the important role of developmental issues and the focus of the Ministry of Environment and Standard of Living in which it is housed.

(<http://www.environnement.gov.bf/SiteEnvironnement/index.jsp>)

The Ministry of Environment and Standard of Living is the principle institution involved with the environment and natural resources in Burkina. Within the ministry there are two departments which more specifically deal with management of the environment and natural resources: Department of Water and Forests and the Department of the Environment.

Department of Water and Forests: The Department of Water and Forests (*La Direction générale des eaux et forêts*) mission is to design, coordinate, and implement national policy with specific tasks including:

- Protection of forest resources
- Organization of the harvest and sale of forest products, and the promotion of non timber forest products
- Design and implementation of plans and protection strategies for national parks, protected areas, and forests, and the management of forestry research contracts
- Development and application of national legislation for forests and wildlife and the implementation of international conventions for forests and fauna
- Training of forest sector actors, and the spread of forestry techniques
- Oversight of “paramilitary” forest agents who protect forest, wildlife, and water resources. (*La Division du Corps paramilitaires des eaux et forêts de la réglementation et du contrôle*)

Additionally, the Department of Water and Forests has the authority over the departments for Forest Management, Rural Forestry, National Parks and Wildlife reserves, and the Regional Departments for the Environment and Standard of living.

Among these, the Department of Forest Management (*La Direction des Aménagements Forestiers – DAF*) has the responsibility to coordinate the implementation of forest regulations and support the partner groups and organizations that have considerable control and interests under decentralized management policies. This department is charged with the on the ground coordination of forest projects and programs including those aimed at combating desertification. DAF is further divided into separate units for planning and statistics (*Service de la Planification et des Statistiques*), forest management (*Bureau Central d’Aménagement des Forêts*), and mapping and resource evaluation (*Service de la Cartographie et de l’Evaluation des Ressources Forestières*).

Department of the Environment: The Department of the Environment’s (*La Direction générale de l’environnement*) mission is to coordinate activities against desertification, promote the use of environmental evaluations, support environmental education, and oversee international conventions relating to the environment. Specific tasks include:

- Support of the national action plan for the fight against desertification, and monitoring of desertification
- Support of community based environmental organizations and associations

- Promotion and regulation of environmental evaluations (environmental impact, environmental strategic evaluations, and environmental audits)
- Coordination and follow-up of environmental activities in other government departments
- Maintenance of an inventory of the projects and programs with major potential environmental impacts and recommendations for corrective measures
- Follow-up of the application of international environmental conventions and coordination and integration with national plans
- Development of the partnership with the international institutions and organizations for managing environmental conventions and optimizing opportunities for appropriate financing
- Development and implementation of the national action plan for environmental education

Additionally, the Department of the Environment has the authority over the Departments for the Coordination for the Fight against Desertification (*La Direction de la coordination de la lutte contre la désertification*), Environmental Evaluations (*La Direction des évaluations environnementales*); International Conventions for Environmental Issues (*La Direction des conventions internationales en matière d'environnement*), and Environmental Education and Competency Development (*La Direction de l'éducation environnementale et du développement des compétences*).

While the roles of the Department of Water and Forests and the Department of the Environment are well defined, there is overlap in their mandates leading to the potential for unclear authorities and conflicting policies. For example, both DAF and the Department of the Environment are responsible for anti-desertification activities, and supporting community based/partner organizations in the forest sector.

In addition to the Ministry of Environment and Standard of Living the following ministries play important functions in the use and management of the natural resources of Burkina Faso:

- Ministry of Mines and Energy, <http://www.mines.gov.bf/SiteMines/index.jsp>
- Ministry of Agriculture, Water, and Water Resources, <http://www.agriculture.gov.bf/SiteAgriculture/index.jsp>
- Ministry of Animal Resources, <http://www.mra.gov.bf/SiteMra/index.jsp>

Although staffing and budgets for these ministries, critical to understanding their ability to effectively enforce legislation and effectuate conservation programs, could not be found, their Web sites offer good information on the focus, function, and direction of the ministries. The complete directory of ministry Web sites can be found at http://www.primature.gov.bf/sites_web_ministeriels/sites_web.php.

B4. Major NGOs

The two largest NGOs operating in Burkina Faso with USG funding are Catholic Relief Services (CRS), and Africare. While neither is an environmental organization, both have complimentary activities – primarily food security and agriculture – which have direct impacts on peoples reliance on the natural resources for their livelihoods. CRS has agriculture activities, which work with farmer associations to assist resource poor farm households in rural areas to sustainably increase overall food availability, with key project crops including garden vegetables, sesame, millet and sorghum. CRS encourages farmers to diversify their crops and income generating activities to minimize risks, and also helps farmers to improve and maintain better soil fertility for better crops. Other CRS sectors include microfinance, education, humanitarian aid, HIV/AIDS prevention and education, peace building, and emergency response. Africare works with HIV/AIDS and food security, where it uses both USG Ambassador Fund and USAID Food for Peace support.

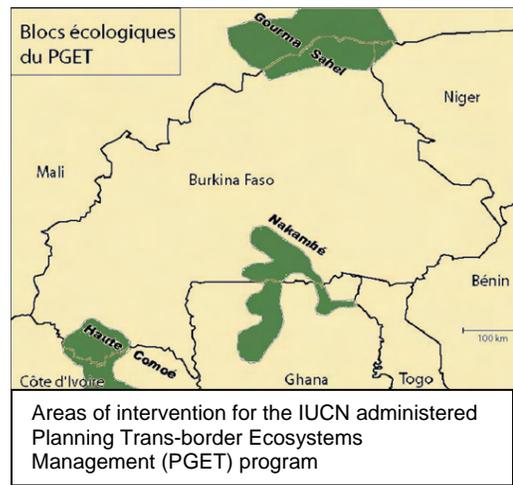
Examining environmental NGO activities, located in central West Africa, Burkina Faso is a favored location for regional activities, and IUCN and its African Elephant Specialist Group maintain a regional office for West Africa in Ouagadougou.

The African Elephant Specialist Group is dedicated to the conservation and management of African elephants, with the broad aim of promoting long-term conservation and recovery of elephant populations. As part of this work, it surveys elephant populations in Burkina Faso, and according to its *African Elephant Status Report 2007*, elephant populations in the country are concentrated in six areas mainly in the south, and total 4,000 to 5,000 individuals.

Additionally, IUCN has a program called Planning Trans-border Ecosystems Management (PGET) the objective of which is to facilitate consultation between neighboring countries with a view to better co-ordinate conservation activities in trans-border zones. The below map shows areas of intervention for the PGET program

Furthermore, the European-funded Protected Areas of Sahelian Africa project is active in the “W” Regional Reserve (for Burkina Faso, Benin, and Niger), and is working on a joint management plan for the area, creation of environmental education centers, training of park staff, and improvement of infrastructure within the park.

A major local environmental NGO is the *Projet de Partenariat pour l'Amélioration de la Gestion des Ecosystèmes Naturels au Burkina Faso* (PAGEN BF), whose goal is preservation of biodiversity in the country's protected areas, and sustainable development for the populations in



their peripheries. Specifically, PAGEN BF has five overarching areas of intervention related to natural ecosystems of Burkina Faso:

- Reinforcement of national management capacity, with activities including: the revision of the national forestry code, co-financing development of materials for the National School of Water and Forests, purchase of equipment for fighting bush meat slaughter, training for the Ministry of Environment and Standard of Living, professionalizing ecotourism actors, creation of animal-friendly labeling, wildlife mapping, and protected areas management evaluation
- Reinforcement of local capacity, with activities including the training of local populations through study tours and training of trainers, assistance to the *Association Intervillageoise des Ressources Naturelles et de la Faune of Hauts Bassins*, and the *Forum du Parc National de Kaboré-Tambi*, and baseline surveys for in *La Mare aux Hipopotames* and Kabore-Tambi National Park
- Protected areas management, with activities including identification and development of over 1,108 km of paths, and the installation of boundary markers and information signs in protected areas of Burkina.
- Monitoring and evaluation, with activities including identification of biodiversity indicators and the collection of data
- International cooperation for management of trans-boundary wildlife issues, with activities in la Forêt Classée et Réserve Partielle de Faune de la Comoé Léraba (Côte d'Ivoire), le Parc National de Kaboré Tambi (Ghana) la Réserve Partielle de Faune du Sahel (Mali), including trans-boundary partner communication and coordination, establishment of migration corridors, and harmonization of policies and techniques for wildlife management.

B5. Donor Organizations

Led by United Nations programs, numerous international donors contribute to environmental issues, primarily through direct funding of institutions and initiatives in Burkina Faso, including the following:

- United Nations programs
 - The United Nations Development Programme (UNDP): Projects supported by UNDP fall under the following five categories: poverty reduction, democracy and governance, energy and the environment, current crises, and HIV/AIDS. Specific projects are listed in Annex B.
 - The United Nations Environment Program: Current UNEP-supported projects include the Ecosystem Approach to Restoring West African Drylands and Improving Rural Livelihoods through Agroforestry-Based Land Management Interventions project, the Sustainable Cities Programme to assist cities to achieve more environmentally sustainable growth and development, and the Partnership

- for the Development of Environmental Laws and Institutions in Africa program to assist in country development of environmental legislation and institutions
 - The United Nations Food and Agriculture Organization
 - The United Nations Capital Development Fund
 - The United Nations World Food Programme
 - The International Fund for Agricultural Development
- The Global Environment Facility: GEF-funded projects since 2002 with more than \$1 million in funding are listed in Annex B.
- *Centre de Coopération Internationale en Recherche Agronomique pour le Développement*: The group's main aim in Burkina Faso is to offer rural communities the means to control their own development through "helping farmers to manage their farms more efficiently, encouraging the creation of agricultural professional organizations and ensuring better environmental management and land development." Program area highlights in the environmental sector include assistance with the management of "W" trans-boundary protected areas and conversion of natural forests for logging operations.
- Multilateral development banks
 - The World Bank
 - The African Development Bank
 - The West African Development Bank

In November 2005, the MCC selected Burkina Faso as eligible to submit a proposal for Millennium Challenge Account assistance for FY 2006, and has recently signed a \$12 million Threshold Country Program. Although the work envisioned is not in the environmental sector, in its authorizing legislation, the MCC is directed to use objective and quantifiable indicators to evaluate a country's demonstrated commitment to, among other things, "economic policies that promote the sustainable management of natural resources." Although natural resource management is not one of the prime areas used to determine eligibility, the MCC uses two environmental indicators to provide "supplemental information" to the country selection process: the Natural Resource Management Index (The Center for International Earth Science Information Network/ Yale, <http://sedac.ciesin.columbia.edu/es/mcc.html>) and the Land Rights and Access Index (International Fund for Agricultural Development/ International Finance Corporation, <http://www.doingbusiness.org/>).

Ranked in its country income group (low), Burkina Faso received a failing score in the 27th percentile for the Natural Resource Management Index, and a failing score in the 41st percentile for the Land Rights and Access Index. Details on the supplementary Natural Resource Management Performance indicators, as well as the overall country scorecard can be found on the MCC Web site at: <http://www.mcc.gov/selection/scorecards/2007/index.php#m>. Although Burkina Faso received a failing score on both indicators, it is hoped that the prospect of MCC funding

will provide further incentive for Burkina to engage in a more sustainable management their natural resources.

B6. Regional Initiatives

Burkina Faso is also involved in regional programs to help manage the ecosystems and natural resources of West Africa including the *Projet sous-régional de Gestion Participative des Ressources Naturelles et de la Faune* with Côte d'Ivoire, and the *Programme National de Gestion des Ecosystèmes Naturels* with Mali. Additionally, the creation of the “W” trans-trans-boundary biosphere reserve with Niger and Benin marked the first concrete action by the Environment Initiative of the New Partnership for Africa's Development (NEPAD) launched at the World Summit on Sustainable Development in Johannesburg in 2002.

Burkina has also worked regionally to help eliminate barriers to elephant migration through creation of an elephant corridor between Burkina and Ghana, and through joint management of common areas for Sahelian elephants with Mali.

SECTION C. STATUS AND MANAGEMENT OF NATURAL RESOURCES

Biodiversity and natural resources play several critical roles in the lives of the *Burkinabè* population. In addition to direct uses of food, clothing, housing, and medicine, there are important socio-cultural uses such as totems and religious uses. Furthermore, scientific, technological, recreational, and educative uses are also valued. As such, conservation and sustainable use of biodiversity has been an important consideration in national planning since the colonial period.

C1. General Status and Management of Natural Resources

The general context for the environment and natural resources are provided above in section A1, and protected areas and forests are discussed in sections C2 and C4. Soils and desertification are discussed in section C1a below, as well as throughout the document, but it should be noted that the status is generally marginal, with loss of vegetative cover (which prevents erosion and improves soil quality), especially in the north, reaching alarming levels.

Specifically examining wildlife, Burkina Faso has a rich resource base with West Africa's largest elephant population, and game preserves are home to lions, hippos, monkeys, warthogs, and antelope. While this offers the possibility of attracting tourists, and tourism dollars, to the region, thereby giving a strong incentive for conservation, the infrastructure for tourism is not well-developed. Table 1 presents the species present in Burkina Faso, while Table 2 shows a breakdown of the terrestrial fauna (survey taken in 1996 by L. Ouedraogo, and P. Kafando). Additionally, there is a history of managing hunting and ranching practices for better management of wildlife, species protected by cultural traditions (including the hippopotamus and crocodile in certain areas), as well as the economic incentive of ecotourism that helps to drive conservation by the commercial sector and the national government.

Table 1: Summary of Biodiversity Taxonomic Inventories²

Kingdom	Component	Families	Genera	Species
Animalia				
	Insects	151	250	1515
	Aquatic fauna	54	106	198
	Wild fauna	119	362	665
	Domestic fauna	11	14	16
	<i>Sub-total</i>	335	732	2394
Plantae				
	Higher fungi	8	13	28
	Algae	32	88	191
	Aquatic herbaceous flora dependent on wetlands	76	118	185
	Terrestrial herbaceous flora	87	333	627
	Ligneous flora	55	214	376
	<i>Sub-total</i>	258	766	1407
	Grand Total	593	1498	3801

² Tables 1 and 2 were taken from the *Country Study on Burkina Faso Biodiversity*, February 1999

Table 2: Summary of Taxonomic Inventory of Terrestrial Wild Fauna

Classes	Orders	Families	Genera	Species
Mammals	11	33	77	128
Birds	20	76	246	477
Reptiles	4	10	39	60
Total	35	119	362	665

C1a. General Threats to Natural Resources

Natural resources in Burkina Faso face several major threats, which have intensified in pressure, especially since the 1970s. These threats fit broadly into seven major categories discussed in detail below.

Drought and Desiccation which has been persistent for the last 30 years, and has led to desiccation of the land and death of wildlife and vegetation, and can be considered both a symptom and driver of desertification

Drought can be defined as one, two, or more years where rainfall is less than the historical average. While periods of drought in the Sahel have been common throughout its history, their duration, scope, and the damage inflicted have constantly increased during the last 100 years, particularly in the last 30. These droughts have disrupted what was thought to be the historical state of the ecosystems of Burkina Faso, and have had devastating effects on biodiversity, croplands, and pastureland, leading to impoverishment of local populations.

Beginning in the period of 1968 to 1973, annual rains were 15-40 percent less than the average, resulting in losses of harvests and cattle, and exacerbation of competition for land use. Although some recent years have seen a return to a higher rainfall, there has also been drought, and with marginal rainfall to begin with, vegetation is slow to recover from losses.

Desiccation of the land has also translated into a decrease of the groundwater table, causing drying up of streams and death of vegetation. The transformation of habitats by drought and desiccation has led to decline (and even the extinction) of some species dependent on, and adapted to, the previous habitat. The loss of arable land from drought-driven desertification has also caused the displacement of populations towards zones favorable to agricultural and pastoral activities, increasing competition with wildlife for natural habitat and resources. Furthermore, where moving to more favorable land is not an option, displaced populations are generally pushing people into more marginal lands, which are often adjacent to or inside protected areas that had been protected from population pressures due to their remoteness, inaccessibility, and low farming potential.

The 1992 U.N. Conference on Environment and Development in Rio de Janeiro, defined desertification as “land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities” The effects of this process present significant challenges to the affected areas, and include accelerated

soil erosion, soil and water salinization, reduced soil moisture retention, increased runoff, reduction in species diversity and plant biomass, and reduction in overall land productivity, causing the impoverishment of local communities.

Although the significance and relationship of global climate change with desertification is difficult to quantify, numerous models predict that temperatures will rise in dryland regions, increasing evapo-transpiration rates, and further driving desertification in zones currently affected. This suggests that issues of drought and desertification in Burkina Faso should be expected to increase in severity and not simply be viewed as natural variation that will average out over time.

Population Pressures, with a more than three-fold population increase in the past 50 years, has swelled demands on limited arable land in the country, and has intensified resource competition and habitat destruction.

Estimates show a population of 14,326,203 (2007), compared with 4,300,000 in 1960. This change has increased pressure on the land to provide for needs of the population (food, clothes, housing, etc.). As population pressures increase, and people are further impoverished through a decline in available resources, the decision-making timeframe decreases, leading to short-term – and ultimately destructive – natural resource management decisions. Some of these decisions have led to overexploitation of resources, including overgrazing of livestock, uncontrolled agro-pastoral practices, and shifting cultivation with a decreased fallow period

These pressures also encourage the migration of farmers and herders to zones more favorable to their activities, notably in southern areas that provide the habitat for the majority of Burkina Faso's wildlife. Additionally, population pressures encourage the growth of urban areas and increase pressure on the resource bases that surround them.

Bush Fires, which annually burn large swaths of the country, can lead to habitat destruction (particularly in forest areas).

In Burkina Faso, bush fires can burn up to one-third of the country in a given year, and constitute one of the country's main threats to the conservation and sustainable use of biological diversity. These fires can be part of traditional practices and ceremonies, intentionally lit for illicit purposes, or simply accidental. In any case, each year thousands (or tens of thousands) of hectares of forests are destroyed, causing a loss of habitat, negatively affecting the fertility of the soil, and compromising the ability of the land to support a biologically diverse landscape. Likewise, uncontrolled charcoal producing activities could bring about a similar impact, owing to the clearing/burning of important areas of ligneous species that takes place each year both in the eastern and southwestern parts of the country.

Soil Degradation, resulting primarily from drought, decreasing nutrient replacing fallows, and agricultural practices such as continuous cotton monoculture systems with their heavy applications of pesticides/chemicals, has been prominent in Burkina Faso.

Soil degradation can take many forms, but is mainly linked to over-exploitation of the land. Given the fragility of the soils and landscape of the country, inappropriate methods of land use can quickly deteriorate local conditions.

While soil fertility is normally replaced during a fallow period through natural or augmented growth, the decreased fallow period has compromised the soil's regenerative abilities. Although techniques to restore soil fertility, including agroforestry, have a history of use in certain areas (the arid *Yatenga* region in the north for example) information and practices are not widespread. Nevertheless, a traditional agricultural technique using planting pits, or *zai*, has been adopted in some areas for use in tree planting and has proven effective in restoring soil stability and fertility.

Taken together, the decreasing periods of fallows, bush fires, and desertification, have deteriorated the soils, which are often not replaced, increasing the pressure on remaining areas with favorable soil. Another important factor contributing to the degrading of soils is the continuous application of chemicals/pesticides in the monoculture systems of cotton both in the eastern and south western parts of the country.

Natural Resource Management Capacity in Burkina Faso is hampered by multiple and contradictory policies and a lack of sufficient funding.

Although numerous policies in Burkina Faso are aimed at conservation and the sustainable use of natural resources, other policies and the lack of regulations work towards an opposite effect.

One such policy is the land tenure regime, which has the state as the owner of the land. Because the person who is using the land does not own it, and is not guaranteed the long-term benefits to be derived from it, there is no incentive to make investments in it, or to use it sustainably. The traditional land system, based on land concessions with temporary use arrangements, further exacerbates the problem, making it hard to rationally justify even short- or medium-term investments in the land. This problem can be seen in the Land Rights and Access index used by the MCC, where Burkina received a failing score in the 41st percentile for its country group.

Furthermore, there is a lack of strategic policies that would help to build local consensus for conservation, and the knowledge to preserve it. There is a lack of environmental education programs that could mobilize the population for protection of the environment, and a lack of knowledge concerning the endemism, number, and populations of flora and fauna species, which would form the basis for actions to protect threatened species. Low levels of environmental education have also led to the loss of indigenous knowledge and traditional environmental values

Compounding all of the threats to natural resources in Burkina Faso is the lack of sufficient financial resources for conservation management activities. This both decreases the national management capacity and increases reliance on external financing through international organizations (which itself is still insufficient).

Water Sources in Burkina Faso face the multiple threats of silting and pollution. Wind and water erosion have led to the loss of soil and silting of water sources (including rivers, lakes, and dams). Furthermore water sources have seen contamination by industrial activities, such as oil processing, soap processing, and tanneries, and the discharge of contaminated water from gold mining, heavy pesticide cotton agriculture, and general waste water and sewage. Additionally, water sources have degraded with the invasion by non-native wild species such as hyacinth.

Mining activities when carried out without proper accompanying mitigation measures (gold mining in particular), have caused both degradation on the land and water sources. While the mining code details proper procedures for mining, non-adherence to environmental legislation and regulations has been cited, and gold mining has recently been linked by some to water contamination with arsenic, leading to numerous cases of skin cancers, kidney problems, and other health problems for several communities in the Northern Province of *Yatenga*.

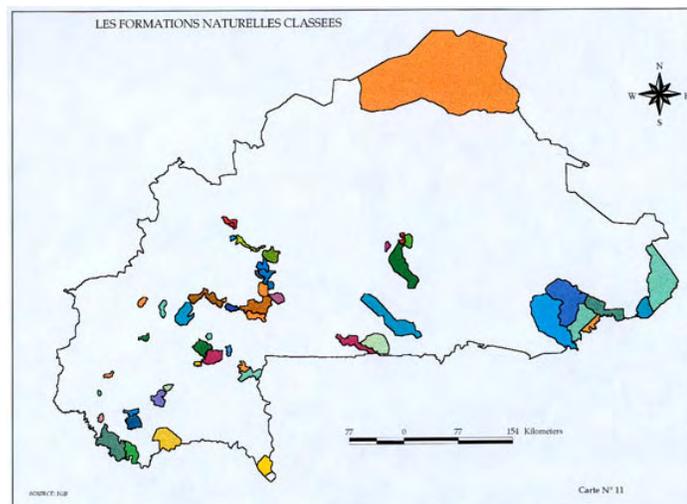
In addition to the general threats detailed above, threats which effect wildlife in particular are listed below. While they are largely derivative of the general threats the specific effects on wildlife are worth noting.

- Hunting for bush meat and poaching of animals for international trade
- Overexploitation and the use of prohibited methods in hunting
- Degradation and loss of wildlife habitat
- Drought and the loss of watering holes
- Difficulty related to the management of zones under local control
- Lack of benefits from resources from the local populations
- Insufficient management and financial capabilities for wildlife conservation
- Genetic erosion through the abandonment of local animal breeds
- Lack of gene banks of domestic fauna and livestock
- Water pollution, primarily due to pesticides use and similar causes as already mentioned above

C2. Status and Management of Protected Areas

The protected areas of Burkina Faso contain the richest habitat in the country. These protected areas consist of various types (national parks, biosphere reserves, protected forests, etc.) as listed in Table 3 on the following page.

As can be seen on the map on the right, although they are numerous



the protected areas are highly fragmented and largely trans-boundary. Even in regions such as the west-central and south-east where the protected areas are contiguous, the complexities of multiple authorities and regulations within the neighboring zones of protected lands place considerable constraints on the ability of Burkina Faso to successfully manage the areas. These challenges are further magnified for the numerous parks that are trans-boundary, or simply on the border, where conservation efforts need to be coordinated with managers in other countries, and where border crossings make the areas particularly vulnerable to poaching. This issue is particularly poignant in relation to those parks in the region bordering *Côte d'Ivoire*, where conflict and instability have led to a significant trade in weapons that support bush meat and the poaching of large mammals.

Table 3: Protected Areas in Burkina Faso

Type/Name	Size (ha)	Established
Bird Reserve (1)		
<i>Mare aux Hippopotames</i>	19,200	1986
Faunal Reserve (4)		
Arly	76,000	1954
Bontioli	12,700	1957
Madjoari	17,000	1955
Singou	192,000	1955
National Park (4)		
Deux Bales	56,600	1967
Kabore-Tambi	242,700	1976
Komoe-Leraba	280,000	
W du Burkina Faso	235,000	1954
Partial Faunal Reserve (6)		
Arly	130,000	1954
Bontioli	29,500	Degazetted
Kourtiagou	51,000	1957
Nabere	36,500	Degazetted
Pama	223,000	1955
Sahel	1,600,000	1970
Protection/Protected Zone (1)		
Nazinga Ranch	806,000	Degazetted
Sanctuary (2)		
Beli Bird Sanctuary - Proposed	160,000	Proposed
<i>Mare d'Oursi</i> Bird Sanctuary - Proposed	45,000	Proposed
Wetlands of International Importance (Ramsar): (3)		
<i>La Mare aux hippopotames</i>	19,200	1990
<i>La Mare d'Oursi</i>	45,000	1990
<i>Parc National du W</i>	235,000	1990
UNESCO-MAB Biosphere Reserve (2)		
"W" Region (Burkina Faso)	346,000	2002
<i>Forêt classée de la mare aux hippopotames</i>	186,000	1986

Although much of the wildlife of Burkina Faso is concentrated in protected areas, these areas were largely created in the 1950 or later, and today's wildlife populations are much

poorer than their historical numbers. Existing large mammals are concentrated in the protected areas of the extreme south and southwest (*Comoé* province), and the center south and southeast (provinces of *Sissili*, *Nahouri*, *Gourma*, and *Tapoa*) of the country.

Examining details of the protected area system, we find that they comprise more than 15 percent of the land of Burkina Faso, including 814,000 ha considered Category I or II (strict nature reserve, wilderness area, and/or national park). Table 3 contains data on the protected area system as recorded by the World Commission of Protected Areas (WCPA). However, although the size and history of the parks are generally known, the species and conservation programs within the areas are not well-documented.

In addition to the areas displayed below, there are 72 “Classified Forests” in Burkina Faso, the details of which can be found on the WCPA Web site: <http://www.unep-wcmc.org/wdpa/designation2.cfm?Desig=329&country=BFA>.

Within the Burkina Faso protected areas network are two UNESCO Man and the Biosphere (MAB) reserves, the “W” Region and the *Mare aux Hippopotames*, which are considered sites of international biodiversity importance for arid/semi-arid zones with significant faunal and genetic resources.

The “W” Region Biosphere Reserve, named for the double bend of the Niger River that flows through it, was the first trans-boundary biosphere reserve in Africa. Designated as a biosphere reserve in Niger in 1996, it was extended into Burkina Faso and Benin in 2002, and now covers more than one million hectares. The biosphere reserve straddles the borders of the Soudano-Guinean, Sudanese, and Sahel bio-geographic regions, endowing the area with a rich biodiversity.

In addition to containing one of the largest populations of ungulates in West Africa, “W” is also considered a stronghold against desertification from the north. More than a biosphere reserve, “W” comprises wetlands of international importance, recognized under the Ramsar Convention, and parts of it are inscribed on the World Heritage list due to its continuous human occupation since the Neolithic period.

The main management problems in the area include poaching (for subsistence and commercial purposes), “illegal” transhumance practices, fishing, and the conversion of land for agriculture. Acting as a model to experiment with strategies for sustainable development and involvement of local communities, Burkina Faso, Benin, and Niger are working to design and implement a joint management plan for the area, with the support of the European Union under the Protected Areas of Sahelian Africa project.

The second UNESCO-MAB reserve in Burkina Faso is the *Mare aux Hippopotames*. Located about 60 km north of *Bobo-Dioulasso* in south-west Burkina Faso, it is known for its freshwater lake and marshes in the floodplain of the Volta Noire River, as well as for its gallery forests. Biodiversity of international importance includes fish, forests, natural medicinal products, population genetics/population dynamics, and vegetation

cover. Additionally, IUCN Red List Vulnerable species including the hippopotamus and African mahogany are found within the designated area.

Like “W”, *Mare aux Hippopotames* is also designated a Ramsar Wetlands of International Importance, for its rich mammal and bird fauna, including its hippopotamus population. The vegetation of the area is composed of aquatic species, dense thickets of *Ficus congoensis* and *Canthium cornelia*, herbaceous plants, a well-developed gallery forest (composed of *Berlinia grandiflora*, *Vitex doniana*, etc.), dense dry forest, and open dry forest/shrubby savanna.

People living in and around the area make their livelihoods from fishing and raising livestock, collecting fruit, honey, and firewood, and from eco-tourism (with an estimated 1,000 visitors per year). The primary threats to the area are from poaching, livestock grazing, and bush fires. Research is being conducted on the impact of traditional stock raising and fishing, and education programs are being implemented for fishermen and traditional leaders who maintain sacred rituals in several sites within the area.

C2a. Threats to Protected Areas

Although biodiversity is in theory protected, in practice, many species within do not benefit from practical and appropriate conservation measures, while other measures are ineffective. Additionally, in certain areas, especially entomological fauna and aquatic flora little is known about their existence and numbers, making conservation efforts difficult at best.

As mentioned above, protected areas are threatened by fragmentation and trans-boundary issues. The utility of protected areas to conserve large mammals is compromised by fragmented areas, and further fragmentation or encroachment into these areas will have the potential to be disastrous to conservation efforts.

A further significant threat is posed by the instability in *Côte d'Ivoire*. In addition to the potential for direct threats posed by army and insurgent groups fighting and/or hiding in protected and forested areas along the border, conflict in the region has resulted in refugees and internally displaced populations, bringing increased pressure on resources along the border areas. Additionally, the increased trade in weapons to meet the demand of the conflict has increased the spread of arms into the hands of poachers and those hunting for bush meat, posing a serious threat to large mammals in protected areas throughout the region.

Other specific threats faced by protected areas in Burkina Faso include:

- Degazetting, modifications of demarcations, and changes in the status of protected areas
- Fragmented areas and management schemes
- High degree of trans-boundary areas constraining management and control of poaching
- Bush fires and clearing of forest lands

- Inappropriate and/or illegal exploitation of resources
- Livestock grazing and competition
- Successive droughts causing massive plant and animal death
- Poverty leading to the satisfaction of the immediate needs of the population without regard to long-term effects

C3. Status and Protection of Endangered Species

According to IUCN's Red List, no *Burkinabè* species are listed as critically endangered, although two are listed as endangered (African wild dog, and chimpanzee), and 13 are listed as vulnerable (including the cheetah the hippopotamus, and the African elephant).

The full list is provided in the text box on the right (a full listing with scientific and alternate common names is provided in Annex A), and the original information is provided on the IUCN Red List Web site at: <http://www.iucnredlist.org/>

The status and extent of endemic species in Burkina Faso is not well known, and points to the needs for further surveys and studies. However, the 1999 country study found that 23 vegetable species surveyed in Burkina Faso are endemic in West Africa.

IUCN Red List of Critically Endangered, Endangered, and Vulnerable Species of Burkina Faso

Critically Endangered (0):

- NONE

Endangered (2):

- AFRICAN WILD DOG
- CHIMPANZEE

Vulnerable (13):

- CHEETAH
- AFZELIA
- LESSER KESTREL
- DORCAS GAZELLE
- RED-FRONTED GAZELLE
- COMMON HIPPOPOTAMUS
- AFRICAN MAHOGANY
- AFRICAN ELEPHANT
- MARBLED TEAL
- AFRICAN DWARF CROCODILE
- AFRICAN LION
- AFRICAN GOLDEN CAT
- LAPPET-FACED VULTURE

C3a. Threats to Endangered Species

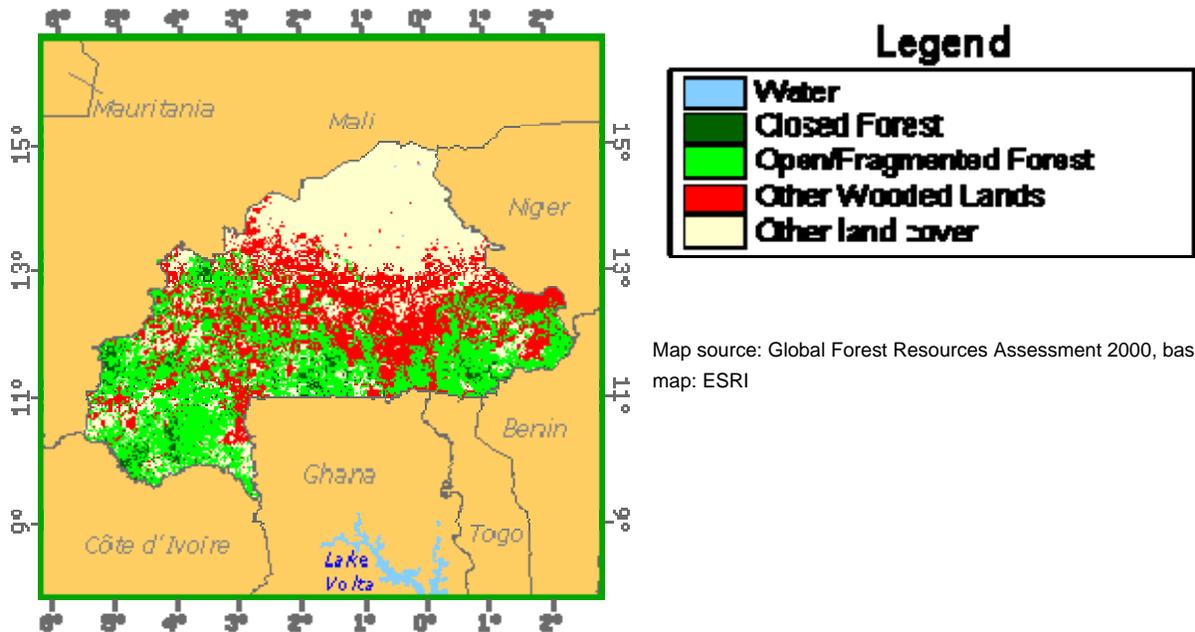
Largely located in the protected areas of Burkina Faso, endangered and vulnerable species face many of the same threats, as well as those that face the country at large, including the following:

- Bush fires
- Population pressures, poverty, and the related shortening of fallows, leading to habitat loss and degradation
- Nomadic animal husbandry practices
- Repeated droughts leading to high mortality of species
- Loss of appropriate habitat to desertification

C4. Status of Forest Resources

According to data from 2000, total forest area in Burkina Faso is 7,089,000 ha, 26% of the total land area, consisting almost exclusively of natural forests and located primarily in protected areas on the frontier with Benin and Togo. Natural forests (including multiple sub categories of gallery forests, open forests, shrub savannah, and striped

thickets) are divided into two categories, with 25% as reserved forests and the remaining 75% non-reserved forests. Of the reserved forests, 10% are national parks, 67% are wildlife reserves, and 23% are classified reserved forests. The annual deforestation rate has been estimated at a modest 0.2% per year. The below map shows the extent and distribution of these forest areas:



Although plantations covered only 67,000 ha, their importance has increased in recent years, as the area of plantations increased 11% from 1990-2000, while natural forest area has declined 3% during the same period. Additionally, while the forests cover over a quarter of the land of Burkina Faso, they are sparse, with only 7% of the forests attaining a 25% or greater crown cover.

The multipurpose species that are widespread in the country are the locust bean (*Parkia biblobosa*) and baobab (*Adansonia digitata*). Shea nut (*Vitellaria paradoxa*) has traditionally been carefully tended, and today the central region of the country is widely wooded with this species.

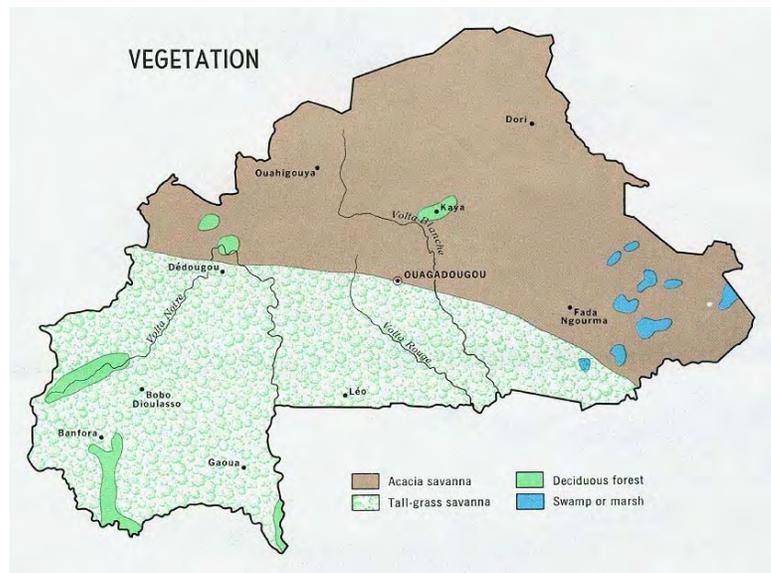
While still predominated by *Acacia* species in the Sahelian region, the populations of some *Acacia* species which hold utility for fodder have been vulnerable to loss due to 1) the extent of pruning and related regeneration difficulties, and 2) the poor rainfall situation in recent decades, where drought has become a common occurrence, and 3) the grazing and trampling of seedlings by cattle. In the Sudanese domain where the agricultural activities of Burkina Faso are concentrated, clearing of land for agriculture has led to the extinction of entire populations of species, with only species that were traditionally recognized as providing usefulness beyond timber (such as providing fruit or valuable nuts) were saved during agricultural clearing.

Additionally, the presence of “sacred woods” has been an important factor in the conservation of forests. Despite their limited extent, small pockets of dense forests representing vestiges of ancient systems have been saved from clearing due to their sacred status and protection by customary practices. These areas are generally dominated by species including: *Anogeissus leiocarpus*, *Diospyros mespilifomis*, *Celtis integrifolia*, *Acacia pennata* and *Pterocarpus erinaceus*.

According to article 7 of the Forest Code of Burkina Faso, forestry policy is driven by the following fundamental principles:

- The conservation of biodiversity
- The valorization of forest resources for economic development and improvement of the standard of living
- The generation of jobs and revenue to the profit of the population
- The participation and responsibility of the local population in the conception, execution, and monitoring of forestry activities, relating to decentralized natural resource management.

Community forestry is well developed in Burkina Faso, and the country has been a pioneer in rural forestry, participatory management of natural forests and small stands, and management of plant and animal wildlife. While land management has been successfully implemented and adopted as the main development strategy for community forestry, large scale adoption in the country faces a number of serious obstacles, including the lack of secure land tenure, weaknesses in land legislation and inadequate agroforestry policies.



As there is as yet limited integration of the rural and urban economies, harvesting of fuelwood for supplying urban areas continues to employ traditional methods, with wood providing an estimated 91% of the total energy consumed. Fuelwood, construction wood, livestock, wildlife, medicines, shea and honey are the country’s main forest industries, with fuelwood accounting for approximately 85% of the total sales for wood products in the country, with construction wood accounting for 12% and timber 3%. This figure for timber supplies less than 10% of the countries needs, with the remainder imported from neighboring countries. In economic terms, this equates to a trade deficit in forest products

with imports averaging \$2,292,000 and exports averaging only \$13,000 per year (1996-1998). No forests in Burkina Faso have been certified by the Forest Stewardship Council.

Beginning in the early 1980s, Burkina Faso has undertaken a number forest initiatives with the support of the FAO and UNDP. Preeminent among them is the “Natural Forest Management Project”, which examined fuel wood use and forest management in an area covering 150 kilometres around Ouagadougou which supply fuelwood to the city. With three phases that in 1986, 1990, and 1994 respectively, its main objective was to reconcile the urban demand for fuelwood with the need sustainable management of the resources from the surrounding forests.

The result of this project was the development of a forest management and production model which aimed to optimize forest use. This model consisted of the felling of 50% of the standing marketable timber, reforestation of degraded areas, enrichment of production parcels, and fire protection. The model also had detailed technical, social, and economic facets which insured that a portion of wood sales were put into community investment funds, responsibility for management was undertaken by communities, and that harvest of fuelwood would improve household incomes and contribute the development of rural markets. The project was also credited with helping to stop the degradation, and improve the management of, about 250,000 ha of natural forests, by checking bushfires, and reducing illegal wood cutting.

C4a. Threats to Forest Resources

The major threats to the forests identified in the Forest Code are land cleared for agricultural use, bush fires, and domestic, commercial, and industrial exploitation. Additionally, the Food and Agriculture Organization of the United Nations cites drought, soil erosion, wood scarcity, and transhumant livestock as major threats to the loss of forests and biological diversity. On top of these direct threats, as in all of natural resource management in Burkina Faso, lack of coordination of national policy at the institutional level and financing, are major factors in the sustainable management of forest resources.

Despite the small official exports in wood products, logging concerns all the ligneous species traditionally used as timber, and the targeted species are numerous. While there are no statistics on the proportions of the species which are most prized as timber, the following species should be noted:

- *Detarium microcarpum* (Detah with small fruits) is highly exploited where it can be found. However, due to the strength of its stump spouts it does not seem be in danger
- *Prosopis africana* (Prosopis from Africa) has small scattered populations, and is prized for its “high caloric power”. Regeneration of *Prosopis* is endangered by logging. *Burkea africana* (Kurkea from Africa) is in a similar situation as *Proposis*.
- *Vitellaria paradoxa* – also referred to as *Butyrospermum paradoxum subsp parkii* - (Shea nut tree) is protected in Burkina Faso, but is often the victim of illegal and excessive exploitation.

With the increase of urban populations, there has been a rise in the demand for fuel wood in the areas, and the trade has significantly increased resulting in a typical “ring of desertification”. Around large urban centers, protected species such as *Vitellaria paradoxa* have suffered from illegal and excessive logging, resulting in the decline of species. Furthermore, the reduction of the traditional fallow period along with the insecure land tenure system has led to the scarcity of species popular for agroforestry use including of neere (*Parkia biglobosa*), shea nut tree (*Vitellaria paradoxa*), Tamarind (*Tamarindus indica*), grapefruit tree (*Lannea microcarpa*), and plum-tree (*Sclerocarya birrea*).

Although the government has a long-term aim of reducing reliance on fuelwood through reducing taxes to promote the use of butane as a domestic fuel source, butane is still significantly more expensive than wood and it is therefore probably unrealistic to expect widespread adoption from poor urban and rural populations.

C5. Conservation Outside of Protected Areas

Recognizing the importance of natural resources outside of protected areas, the government of Burkina Faso pledged to take actions to combat the “three struggles” against bush fires, excessive logging/charcoal producing activities, and the grazing of domestic animals. To this end, it has created policies aimed at assisting local communities to better manage natural resources for a sustainable use. Examples can be seen in the forest of *Nazinon*, the forest of *Gonsé*, the GEPRENAF project, and the GEF/Nazinga project.

In the case of *Nazinon*, a forest management project was implemented by the government to combat unrestricted woodcutting in the forest and to create management options for the 24 villages involved with the forest management. Due in part to this study, the ‘Reserved Forests’ management policy, was broadened to include the notion that forest management be extended to cover those that are not gazetted as “Classified Forest”, but that provide essential resources to local populations.

In the end, four approaches were proposed to engage local communities in an operational dialogue about forest management, allowing the state to act as a partner of the communities for promoting sustainable resources utilization:

- Approach by socio-ecological zones, taking account of the dominant socio-economic and ecological features in a particular region to distinguish between homogeneous zones and to adapt all measures to the specific ambient conditions
- Program-based approach, laying down the forms of intervention and management by different institutions with specific objectives and agents within a global and consistent development system

- Participatory approach, confirming the paramount and decisive role of rural populations in meeting their individual and collective aspirations
- Village land management approach, acknowledging that forestry activities cannot be separated from agricultural and pastoral activities being performed by the same actors on a given area of land, and that village land management is defined through spatial organization of village land, dynamic management of natural resources of that village land, and making villagers individually and jointly responsible and liable.

Another example of a similar conservation approach, where studies and community involvement have led to management decisions for resources outside of conservation areas can be seen in section C.4 where the “Natural Forest Management Project” has been discussed.

While not strictly speaking conservation, water resources in Burkina Faso have been generally underexploited as fishing has not proven to be a reliable livelihood for many fishermen. This is primarily due to climatic fluctuations affecting fish populations and fishing sites, insufficient training and organizing of fishermen, and the lack of modern fishing equipment.

C6. Ex-situ Conservations

In addition to conservation efforts on the landscape of Burkina Faso, certain efforts have been made towards ex-situ conservation. Although Burkina Faso has neither centers of genetic resources, nor a central gene bank, there are agencies charged with the collection, handling, and distribution of plant and animal genetic resources for medium- and long-term conservation (and species improvement) as follows:

- *l’Institut de l’Environnement et de Recherches Agricoles* is in charge of research activities in the domain of environment and agriculture.
- The University of Ouagadougou is in charge of issues related to nature sciences and rural development.
- The National Centre of Forestry Seeds is in charge of research and development of good quality forestry seeds.
- Regional Centre for Agro-Pastoral Promotion is in charge of the promotion of agriculture and pastoralism in the country.

However, these organizations are hindered by a lack of human and material resources in pursuit of their mission, and many function only with the assistance of short-term funds and projects.

Nevertheless, The National Centre of Forestry Seeds maintains tree seed collection that includes economically important species including: *Acacia senegal*, *Dalbergia*

melanoxylon (Near Threatened), *Pterocarpus lucens*, *Adansonia digitata*, *Anogeissus leiocarpus*, *Bombax costatum*, *Ceiba pentandra*, *Khaya senegalensis* (vulnerable), *Parkia biglobosa*, *Prosopis africana*, *Acacia nilotica*, *Acacia raddiana*, *Acacia seyal*, *Acacia senegal*, *Acacia sieberiana*, *Tamarindus indica*, *Sclerocarya birrea* and *Daniellia oliveri*.

Examining vertebrates, few collections have been undertaken, but the Laboratory of Natural History of National Centre for Scientific and Technological Research maintains a collection of more than 6,000 samples of snakes and fishes.

SECTION D. PROPOSED ACTIONS AND RECOMMENDATIONS FOR USAID PROGRAMS

Although the scope of this assessment has been limited to US based desktop research, examining the Congressional Budget Justification for Foreign Operations 2008, in conjunction with the FY 2009 Mission Strategic Plan for Burkina Faso, and USAID-supported activities in Burkina Faso in recent years, can allow us to make some recommendations for USAID to contribute to biodiversity and tropical forestry conservation that are consistent with U.S. goals and objectives.

In general, given the importance of trans-boundary protected areas in Burkina Faso and the administration of USAID activities by a regional programming office, there is a great potential for regional activities to affect biodiversity and forestry conservation efforts. Therefore, we would recommend that USAID examine the positive and negative potential effects of regional initiatives on conservation in Burkina Faso, as well as targeting interventions in trans-boundary areas of high importance, to bring peace and stability of the area and to decrease the local population's dependence on natural resources critical to conservation. Specific recommendations for proposed program elements are detailed below.

D1. Peace and Security

In 2008, \$200,000 has been requested for addressing law enforcement restructuring, anti-trafficking in persons activities, enhancing the professionalism of the armed forces, and emphasizing the importance of such principles as civilian control of the military, respect for human rights, defense resources management, and military justice. Additionally, under this program area the US government is combating small-arms trafficking within the country and across the borders. In 2005-2006, USAID worked with partner organizations (including the West African Network For Peace Building, the Population Media Center, Tulane University, and the United Nations Office on Drugs and Crime), for similar activities that included security assessments, conflict prevention network strengthening and capacity building, and anti-trafficking awareness and sensitization.

D1a. Peace and Security Potential Impact

Although peace and security activities may appear remote from conservation concerns, there are important connections and the potential to affect conservation efforts. Given the importance of the protected areas along Burkina's borders, especially in the south, regional peace and security is an important goal for protecting biodiversity. The threat from conflict is especially pronounced in forest regions that can act as a safe haven for rebel groups, while limiting the capacity of the country to manage the resource.

In the context of Burkina Faso, there are multiple parks along the border with *Côte d'Ivoire*, which has seen ongoing conflict since an attempted coup in 2002. As such, instability in the area has the potential to harm the resource base of critical areas and limit the capacity to effectively manage the area. However, efforts at regional cooperation for peace and security have the potential to form the basis for greater cross-border

cooperation in the management of trans-boundary areas, and improve the outlook for those areas that are threatened by conflict. Additionally, through combating the trade in small arms in the country and across the border, US interventions will reduce the ability of poachers to threaten wildlife populations, especially those important ones along the southern border of the country from Cote d'Ivoire to Niger.

Addressing broad-based security issues can affect specific threats to biodiversity, such as decreasing poaching and bush meat hunting in trans-boundary protected areas.

Additionally, strengthening civil society organizations, including local conservation organizations, offers the opportunity to bring natural resources, and their relation to meeting basic human needs, to a more prominent place in the larger civil society and peace agenda.

D1b. Peace and Security Recommendations

Therefore, organizations implementing peace and security activities should work with conservation groups in the country, such as IUCN or PAGEN BF, to identify and target the most vulnerable trans-boundary areas, such as the “W” region and southern natural forests, and to integrate conservation issues, as appropriate and where there is overlap with peace and security activities. It is critical for the peace and security of the region, and to decrease hunting and poaching, that the trade in weapons be decreased in the area. Similarly, targeting conflict resolution will help to ease increased pressures exerted by refugees and internally displaced persons created by conflict in critical trans-boundary areas.

Furthermore, it is recommended that implementing entities familiarize themselves with important materials, such as the recently published series of toolkits by the USAID Bureau for Democracy, Conflict and Humanitarian Assistance, which examine conflict through various lenses, of which land and livelihood are particularly relevant to Burkina Faso. Descriptions and full versions of these toolkits can be found at:

http://www.usaid.gov/our_work/cross-cutting_programs/conflict/publications/toolkits.html

Additionally, where peace and security programming includes civil society strengthening, it is recommended that local conservation organizations are supported, as they are more likely to work in remote areas, where there is high conservation value and high potential for the effects of conflict to spill over into Burkina Faso.

D2. Investing in People

In 2008, \$7,470,000 has been requested primarily for addressing serious education and health issues in the country. Basic education funding will be focused on access to food through school feeding programs, while health funding will support HIV/AIDS, maternal and child health, and water supply and sanitation programs. Funding in the health sector will also link to The President's Plan for AIDS Relief, which will receive \$450,000 for interventions related to AIDS care and treatment. In 2005-2006 USAID worked with partner organizations (including Family Health International, AWARE/EngenderHealth, John Snow Inc., the Academy for Educational Development, the West Africa Health

Organization, and the MCC) on similar activities, which included the adoption of high-impact health policies, regional HIV/AIDS workshops and awareness campaigns, reproductive health and community health planning workshops, and health capacity building. Additionally, proposed activities also include training for water source management committees, and awareness of water and sanitation.

D2a. Investing in People Potential Impact

As the basis for the livelihoods of the *Burkinabè* population, conservation of natural resources can easily be seen as inherently investing in people. This connection is especially strong when considering health activities for improvement of clean water. Not only are these activities particularly relevant to conservation, but a healthy environment also plays a critical role for preserving and improving water quality. Activities aimed at water source management, can help to reduce pollution of water sources to the benefit of both the population and wildlife that depend on them.

D2b. Investing in People Recommendations

Therefore, it is recommended that clean water efforts target protecting watersheds, reducing silting through tree planting, and controlling water pollution. These efforts are not only beneficial towards clean water efforts, but can also play an integral part in the success of these activities. Furthermore, with poverty and food insecurity acting as drivers for over-exploitation of natural resources surrounding cities and rural communities, school lunch activities targeted at areas of high biodiversity importance, for example in communities bordering protected areas, could help to protect the local resources.

Additionally, interaction with schools and school officials presents an opportunity to open a dialogue for environmental education with those populations most directly responsible for local resource management, and most affected by external conservation efforts. Therefore, USAID should work with local NGOs to identify opportunities to include conservation education into programs of the schools with which they are working. Possibilities for such an opportunity include a buy-in with the Global Conservation Program or working with the National School of Water and Forests to develop appropriate and site-specific conservation curriculum. The “food for peace” school lunch programs implemented by CRS also offer opportunities for engaging local schools in environmental education.

Similarly, workshops held on health issues should consider including “health and the environment” on their agendas to raise awareness of conservation issues and emphasize the health benefits to a healthy and sustainably managed resource base. Given the interrelated nature of health and the environment, and the strong response of the U.S. to health issues in the region, health workshops and conferences offer a great opportunity to introduce cross-cutting environmental themes to their agendas and materials. Specifically, these activities could be linked with USAID supported AWARE programming which has sponsored health trainings and forums in Ouagadougou in the areas of reproductive health, child survival, infectious disease, and HIV/AIDS.

D3. Economic Growth

In 2008, \$2,530,000 in U.S. funding has been requested to support agricultural sector productivity by facilitating farmer access to inputs and training to increase productivity, building community and household level assets to diversify income-earning opportunities, and promoting the use of soil and water conservation techniques and the use of drought-tolerant seed varieties. In 2005-2006 USAID worked with partner organizations (including the Corporate Council on Africa, FEWS Net, Market Information Systems for Trader and Producer Organizations in West Africa, the West Africa Trade Hub/Accra, the U.S. Department of Agriculture, the West and Central African Council for Agricultural Research and Development, and the Permanent Interstate Committee for Drought Control on the Sahel) for similar activities, which included agricultural policy formation, shea nut/butter and handicraft marketing and export support, agricultural commodities research and training, and food security monitoring.

D3a. Economic Growth Potential Impact

In comparison to the other areas of USAID support, economic growth activities have the potential for the greatest synergies with conservation. As discussed above, poverty and food insecurity increase pressure on the resource base around population centers, and the targeting of food security and income-earning activities can affect conservation in their areas of intervention. In so far as USAID works towards soil and water conservation, biodiversity and forest conservation will directly benefit by reducing reliance on the clearing of new areas and the use of harmful chemical inputs, as well as reducing the requirements for irrigation water per farm unit.

Additionally, programs aimed at supporting farmers, through training and the provision of inputs, have a significant potential to impact ecosystem health. Where farming techniques are inappropriate to local conditions, or where there is a high potential for pollution through inappropriate or misused inputs, programs can not only negatively affect the environment, they can also work at cross purposes to other programs, such as those for clean water.

Finally, efforts aimed at accelerating the export of wood products and allied industries, as well as handicrafts and artisan products, have the potential for a negative impact through increasing the pressure on available resources, and encouraging unsustainable harvesting practices. However, if managed sustainably, these products can provide an incentive for conservation by associating an economic value with well managed resources.

D3b. Economic Growth Recommendations

Therefore, it is recommended that farmer training consider agro-forestry practices such as improved fallows and the incorporation of trees of economic value on the farm (fruit, fodder, fuel wood), which can improve soil fertility and recovery while providing a secondary income for the farmer. Additionally, practices aimed at the sustainable use of a

particular piece of land, can reduce the pressure on new lands or allow for greater fallow periods for recovery. Although the provision of certain inputs can have deleterious impacts on the environment, training and proper use of inputs – and the selection of the most appropriate inputs – can reduce this risk and improve crop output. This is particularly important with both the reliance of Burkina Faso on cotton cultivation, which general requires high levels of input application, and the focus of USAID through projects such as WATH and the West Africa Cotton Improvement Program on further developing this sector.

An additional area that should be considered for farmer training is supporting organic farming. These efforts could help farmers, and larger agribusinesses, to utilize “environmentally friendly” sustainable farming practices and to receive price premiums and access into niche export markets. Examining the whole market chain, interventions should look to support conformity to international trade standards, such as those for EurepGAP, which have environmental standards required for access to lucrative markets.

Furthermore, support for marketing and export of sustainably harvested non-timber forest products can provide an incentive for conservation and an opportunity to diversify income-generating activities. In cases where harvesting of the resource entails the loss of individual plants or trees, programs should include components for replanting to ensure sustainability of the activity and the resource. Finally, economic growth opportunities targeted at ecotourism would have overtly environmental goals, while providing income-earning opportunities for rural communities and larger private sector groups in the urban areas.

Additionally, the environmental review process required by Regulation 216 for specific activities should be used as an opportunity to ensure that the conservation of biodiversity and forests are routinely included in programming decisions. Language in procurement documents for implementing partners in economic growth activities should include specific procedures for screening and reporting the impact of their activities on biodiversity and forestry. Finally, implementing entities for economic growth activities should be required to have screening tools in place to review the potential impact of community groups and entrepreneurs receiving their services. This screening process should include clear guidelines on how the beneficiaries’ proposals will be reviewed, procedures for making go/no-go decisions, and measures for mitigating the impact of supported projects.

D4. Policy Recommendations

In so much as USAID’s work can influence the national policies of Burkina Faso, the government should be encouraged toward rapidly adopting appropriate policy/land reforms aiming not only at facilitating access, but also recognizing the land ownership right of the user (s). This condition along with effective protection measures in favor of the environment should become the prerequisite to assuring a much greater participation/involvement of most farmers and their respective communities in the upholding of their natural resource base for a better environmental quality of life on a sustainable basis in the country.

SECTION E. CONCLUSIONS

Overall, the case for conservation in Burkina is compelling, with strong populations of elephants, multiple biosphere reserves and wetlands of international importance, and promising cross-border collaboration for some of its numerous trans-boundary protected areas. However, Burkina faces serious anthropogenic and climatic challenges that are compounded by a lack of financing for conservation activities.

In its plan for advancing transformational diplomacy in Burkina Faso, U.S. foreign assistance is aimed at the functional objectives of peace and security, investing in people, and economic growth. Although “environment” programs fall under the Economic Growth Program, funds projected in economic growth are principally targeted towards agriculture and economic opportunities. Although the threats identified in this report are not specifically addressed by current U.S. Foreign Assistance programming, with a consideration of the environmental threats and opportunities in Burkina Faso, USAID can find synergistic activities to aid conservation, and mitigate the impacts of activities with the potential for unintended negative consequences.

Therefore, the following general recommendations are offered as specific programming is considered and planned:

- Activities with the potential to affect rural populations should target areas of high conservation value, especially those surrounding protected areas. To this end, project implementers should collaborate with conservation organizations in the country (IUCN or PAGEN BF for example) to target programs and integrate environmental concerns into their planning. Some principle areas for intervention would include the frontier with Benin and Togo, which possess the majority of the remaining natural forests of Burkina Faso, and the internationally recognized biosphere reserves of the “W” Region and the *Mare aux Hippopotames*.
- Activities involving agriculture (such as elements under the WATH program) should promote sustainable techniques (including agroforestry and organic farming), look to mitigate the potential negative impact of chemical inputs (through proper use and storage of appropriate and/or alternative inputs) and to examine the market chain to see how interventions can improve conformity to international trade standards (EurepGAP, for example).
- Programs should recognize the cross-cutting nature of environmental issues, and look for opportunities for activities that can meet explicit goals and have positive secondary effects on the environment (such as clean water activities with ecosystem protection, and workshops incorporating environmental components). Specifically, these activities could be linked with USAID supported AWARE programming which has sponsored health trainings and forums in Ouagadougou as well as trainings and interventions with other implementing partners including CRS with their school lunch programs.

- The environmental review process required by Regulation 216 for specific activities should be used as an opportunity to ensure that the conservation of biodiversity and forests are routinely included in programming decisions, and screening tools/mitigation efforts for environmental impact should be required for the specific interventions of implementing entities under USAID programs.

REFERENCES

- “Linkages between Climate Change and Desertification,” *Arid Lands Newsletter*, ISSN: 1092-5481, Issue No. 49, June 2001.
- Central Intelligence Agency, *World Fact Book – Burkina Faso*, Washington, D.C., 2007. <https://www.cia.gov/cia/publications/factbook/geos/uv.html>
- Congressional Budget Justification for Foreign Operations, Washington, D.C., 2008.
- Food and Agriculture Organization – Forestry Department, *Country Profiles – Burkina Faso*, 2007 <http://www.fao.org/forestry/site/countryinfo/en/>
- International Union for Conservation of Nature and Natural Resources (IUCN), “IUCN Red List of Threatened Species – Burkina Faso,” 2006. <http://www.iucnredlist.org/>
- IUCN Species Survival Commission, “African Elephant Status Report,” occasional paper No. 33, 2007.
- Ministry of Economy and Development of Burkina Faso, *Poverty Reduction Strategy Paper*, 2004.
- Ministry of Environment and Standard of Living, *Le Code Forestier*, 1997.
- Permanent Secretariat of the National Council for the Management of the Environment (SP/CONAGESE), *Rapport Intermédiaire du Burkina Faso sur la Diversité Biologique a la Conférence des Parties*, 1997.
- SP/CONAGESE, *Stratégie Nationale et Plan d’Action du Burkina Faso en Matière de Diversité Biologique*, 1999.
- SP/CONAGESE, *Country Study on Burkina Faso Biodiversity*, 1999.
- SP/CONAGESE, *Deuxième Rapport National de Diversité Biologique*, 2001.
- USAID Bureau for Democracy, Conflict and Humanitarian Assistance, *Forests and Conflict: A Toolkit for Intervention*, Washington, D.C., 2006. http://pdf.usaid.gov/pdf_docs/PNADB336.pdf.
- USAID, *Best Practices for Biodiversity and Tropical Forest Assessments*, Washington, D.C., 2005.
- U.S. Department of State, *Background Note: Burkina Faso*, Washington, D.C., 2007. <http://www.state.gov/r/pa/ei/bgn/2834.htm>

U.S. Department of State, *FY 2009 Mission Strategic Plan – US Mission to Burkina Faso*, March 2007.

World Resources Institute (WRI), *Earth Trends: Biodiversity and Protected Areas - Burkina Faso*, 2003. <http://earthtrends.wri.org/>

WRI, *EarthTrends: Forest, Grasslands and Drylands – Burkina Faso*, 2003. <http://earthtrends.wri.org/>

WRI, *EarthTrends: Environmental Institutions and Governance – Burkina Faso*, 2003. <http://earthtrends.wri.org/>

APPENDIX A. IUCN RED LIST FOR BURKINA FASO

Critically Endangered (0):

- NONE

Endangered (2):

- *Lycaon pictus* (AFRICAN WILD DOG, CAPE HUNTING DOG, PAINTED HUNTING DOG, WILD DOG)
- *Pan troglodytes* (CHIMPANZEE, COMMON CHIMPANZEE, ROBUST CHIMPANZEE)

Vulnerable (13):

- *Acinonyx jubatus* (CHEETAH, HUNTING LEOPARD)
- *Afzelia africana* (AFZELIA)
- *Falco naumanni* (LESSER KESTREL)
- *Gazella dorcas* (DORCAS GAZELLE)
- *Gazella rufifrons* (RED-FRONTED GAZELLE)
- *Hippopotamus amphibius* (COMMON HIPPOPOTAMUS, HIPPOPOTAMUS, LARGE HIPPO)
- *Khaya senegalensis* (AFRICAN MAHOGANY, BENIN MAHOGANY, DRY ZONE MAHOGANY, SENEGAL MAHOGANY)
- *Loxodonta africana* (AFRICAN ELEPHANT)
- *Marmaronetta angustirostris* (MARBLED TEAL)
- *Osteolaemus tetraspis* (AFRICAN DWARF CROCODILE, WEST AFRICAN DWARF CROCODILE)
- *Panthera leo* (AFRICAN LION, LION)
- *Profelis aurata* (AFRICAN GOLDEN CAT, GOLDEN CAT)
- *Torgos tracheliotos* (LAPPET-FACED VULTURE)

APPENDIX B. DONOR-FUNDED PROJECTS LIST

UNDP Projects in Burkina Faso	
Poverty Reduction	<i>Programme d'Amélioration des Revenus et de Sécurité Alimentaire (ARSA) pour les groupes vulnérables</i>
Democracy and Governance	<i>Projet de renforcement de la gouvernance administrative et de la coordination de la politique nationale de bonne gouvernance. Projet d'appui au plan d'actions de mise en oeuvre de la police de proximité. Projet d'appui à la politique nationale de lutte contre la corruption.</i>
Energy and the Environment	<i>Autoévaluation des besoins de renforcement des capacités nationales pour la gestion de l'environnement mondiale Programme national plateformes multifonctionnelles pour la lutte contre la pauvreté Programme de partenariat pour la gestion durable des terres Programme d'actions national d'adaptation aux changements climatiques Autoévaluation pour la préparation de la seconde communication nationale sur les changements climatiques</i>
Crises Prevention	<i>Projet d'appui à la lutte contre la grippe aviaire.</i>
HIV/AIDS	<i>Appui au Secrétariat Permanent du Comité National de Lutte contre le Sida Programme d'Appui au Monde Associatif et Communautaire</i>

GEF Projects in Burkina Faso - Single Country				
Project Name	Focal Area	Agency	GEF Grant (million \$)	Project Stage
Energy Sector Reform Project	Climate Change	IBRD	3.29	Council Approved
Transformation of the Rural PV Market (prev. Energy Sector Reform)	Climate Change	UNDP	1.76	Council Approved
Partnership Programme for Sustainable Land Management, Phase 1	Land Degradation	UNDP	10	Council Approved
Sahel Integrated Lowland Ecosystem Management, Phase I	Multi-focal Areas	IBRD	4.84	CEO Endorsed
Total			19.89	4 Projects
GEF Projects in Burkina Faso – Regional				
Addressing Transboundary Concerns in the Volta River Basin and its Downstream Coastal Area	International Waters	UNEP	5.845	CEO Endorsed

Building Scientific and Technical Capacity for Effective Management and Sustainable Use of Dryland Biodiversity in West African Biosphere Reserves	Biodiversity	UNEP	2.75	CEO Endorsed
West African Regional Biosafety Project	Biodiversity	IBRD	6.1	Council Approved
Enhancing the Effectiveness and Catalyzing the Sustainability of the W-Arly-Pendjari Protected Area System	Biodiversity	UNDP	5.622	Council Approved
Reversing Land and Water Degradation Trends in the Niger River Basin	International Waters	IBRD	13.375	CEO Endorsed
Desert Margins Programme Tranche 2	Biodiversity	UNEP	5.617	CEO Endorsed
Desert Margin Programme, Phase 1	Biodiversity	UNEP	5.352	CEO Endorsed
Dryland Livestock Wildlife Environment Interface Project (DLWEIP)	Biodiversity	UNEP	1	CEO Approved
Capacity-building for Improving Greenhouse Gas Inventories (West and Francophone Central Africa)	Climate Change	UNDP	2.992	CEO Endorsed
Enabling Sustainable Dryland Management Through Mobile Pastoral Custodianship	Land Degradation	UNDP	1	CEO Approved
Total			49.653	10 Projects

APPENDIX C. USAID DEFINITION OF BIODIVERSITY PROGRAMS

Biodiversity activities and programs have become more complex and better integrated with other agency development programs. At the same time, the agency has been required to program additional funds for biodiversity activities. As a result, a clear definition of what constitutes a biodiversity program has become critical. The agency's "Biodiversity Code" guides the agency in determining what programs are included in the accounting toward the biodiversity earmark. Within the code are four key criteria, all of which must be met to be considered a biodiversity program:

- The program must have an explicit biodiversity objective; it isn't enough to have biodiversity conservation result as a positive externality of another program.
- Activities must be identified based on an analysis of threats to biodiversity.
- The program must monitor associated indicators for biodiversity conservation.
- Site-based programs must have the intent to positively affect biodiversity in biologically significant areas.

Under the Foreign Assistance Framework, biodiversity is recognized as a "key issue" and reflecting the four criteria above is defined as, "[a]ctivities having biodiversity conservation as an explicit objective in natural and managed terrestrial and aquatic ecosystems. Activities are identified through an analysis of the threats to biodiversity and have associated indicators for biodiversity conservation. Activities may be site-based or not site-specific, such as policy level initiatives. Site-based work is implemented in biologically significant areas. *Ex situ* conservation of wild species, and their germ plasm, may also be included when explicitly linked to biodiversity conservation."

Previously, biodiversity activities were identified as having a primary or secondary code for biodiversity conservation. This no longer applies. Biodiversity is now identified as a "key issue" instead of by primary or secondary code. Activities with a primary or secondary objective for biodiversity conservation may be identified as a biodiversity "key issue" under the new system.