

USAID/DRC Strategic Statement 2006-2008

SUMMARY OF FAA SECTION 118(E) AND 119(D) ANALYSES

Essential Procedures

Sections 118(e) and 119(d) of the Foreign Assistance Act state that:

Biodiversity: All country-level Operating Unit Strategic Plans must include a summary of analyses of the following issues: (1) the actions necessary to conserve biological diversity, and (2) the extent to which the actions proposed meet the needs thus identified.

Tropical Forestry: For country-level Strategic Plans that cover countries that have any part of their territory within the tropics, each Strategic Plan must also include (1) a summary of their analyses of the actions necessary to achieve conservation and sustainable management of tropical forests and (2) the extent to which the actions proposed meet the needs thus identified.

These requirements may not be waived, modified, or eliminated by the responsible Bureau for country-level Operating Unit Strategic Plans.

This summary analysis was derived from a comprehensive analysis performed by the Wildlife Conservation Society (under contract to USAID/DRC) that was completed in September 2003. This document is available for review by those interested. The summary analysis was updated by USAID/DRC in September 2005 to include the new strategic objectives planned for the 2006-2008 Strategic Statement.

DRC Tropical Forest Overview

The Democratic Republic of Congo possesses over 50% of Africa's tropical forests and is second only to Brazil in terms of countries ranked by surface area covered by tropical forest. By virtue of its tremendous biomass, DRC's forest are important in helping to maintain global climatic and chemical cycles in that conversion of its forests to agricultural land will result in an extraordinary increase in atmospheric carbon dioxide (CO₂), dramatically impacting efforts to combat global warming. In addition, DRC's forests help drive both regional and local weather patterns. Indeed as over 50% of the rainfall received in the region results from local cycling of water through evapotranspiration, loss of forest cover will result in both less precipitation and an increase in the severity of droughts. Finally, millions of people make their home in DRC's forests, using it for the construction of shelter, harvesting food stuffs, and as a source of spirituality.

DRC's forests are diverse systems at both the ecosystem and floristic levels. While there are a variety of different ways of dividing DRC's forests, it is clear from table 1 that there are a number of major divisions. Even within vegetative formations, there are a variety of different forest types and floristic associations. Within a given forest type forests typically contain over 120 species > 10 cm diameter at breast height (dbh) per ha (see e.g., Hart, 2001). DRC's forests are far from homogenous as evidenced by the differential distribution of important timber species. For example, *Wenge* (*Miletia laurenti*) is

found in relatively high densities on poorly drained and swamp soils in Bandundu, Limba (*Terminalia superba*) is found in high densities in the semi-deciduous forests of the Mayombe in Bas Congo, relatively high concentrations of Afrosia (*Pericosios elata*) are found in the forest northeast of Kisangani in Oriental Province, and Sapele (*Entandrophragma cylindricum*), while found throughout the forest in the central Congo basin south of the Congo river is found in relatively high densities in the semideciduous forests of northeastern DRC, often in association with both Iroko (*Milicia excelsa*) and the true African mahogany (*Khaya* spp.).

Area covered by principal vegetative formations in the Democratic Republic of Congo.

VEGETATIVE FORMATION	AREA (Km ²)	% TOTAL FOREST AREA	% NATIONAL TERRITORY
Closed equatorial forest (evergreen and semi-deciduous)	872,251.16	68,14	37.20
Mountain forest			
-Closed mountain forest	38,612.39	3.01	1.65
-Bamboo forest	1,666.72	0.13	0.07
Open equatorial forest			
-Dry forest	51,946.17	4.06	2.22
-Open forest (Miombo)	102,225.61	7.99	4.36
Flooded forest	88,614.08	6.92	3.78
Gallery forest	2,500.05	0.19	0.11
Mangroove forest	555.07	0.04	0.02
Secondary forest	121,670.70	9.54	5.19
TOTAL FOREST	1,280,042.46	100.00	54.59
Forest-savanna mosaic	165,838.83		7.07
Plantations	555.57		0.02
Savannas, grass and wooded	768,358.82		32.77
Water	62,502.24		2.67
Un-interpretable (clouds)	67,502.24		2.88
COUNTRY TOTAL	2,344,800.00		100.00

Source: SPIAF, 1995; Synthetic forest map

Threats to Tropical Forests in DRC

Deforestation

Environmentalists, ecologists, and other concerned parties have been calling the attention of the world's population to the problems posed by tropical deforestation for over two decades. While the debate continues in some circles as to whether or not the decrease in return time and increase in severity of El Nino events and droughts as well as concurrent increases in global warming have actually occurred, the fact that there have been highly variable local, regional, and global weather patterns in recent years cannot be denied. Further, the vast tracts of tropical forest that have been lost in Central and South America, Asia, and West Africa have made a substantial contribution to atmospheric increases in CO₂, a major greenhouse gas.

In 1992 FAO found deforestation rates in Central Africa to be on the order of 0.5 percent per year, representing a forest conversion of some 114,000 km² for the decade ending in 1990 (Buzzard, 2002). While the forests of DRC's central basin are relatively sparsely populated, at an estimated annual human population growth rate of over 3.3% for the past two decades, eastern DRC's population has exploded. The wave of deforestation caused by this extraordinary growth is discussed in relation to the Albertine Rift and Rift Frontier eco-development zones. One cannot emphasize enough the fact that DRC's forest biodiversity is not distributed equally and that these two eco-development zones - Albertine Rift and the Rift Frontier - happen to be two of the most important regions for biodiversity conservation in Africa, if not the world. Thus the loss in terms of forest cover here and its contribution to global warming and climate change is by no means equivalent to the absolutely tragic loss of biodiversity that is presently underway.

It must be emphasized that it is the rate of change that is the most alarming in DRC. As the human population of DRC has gone from approximately 40 million in 1990 to somewhere on the order of 55 million people today, it is expected to roughly double in the next 20 years and become on the order of 120 million people.

Given the agrarian lifestyle of eastern DRC's population as well as its reliance on fuel wood and charcoal for cooking, one should expect analogous rates of forest loss here. The ability to manage population growth and agricultural expansion will be essential to minimizing loss of biodiversity and forest cover.

Commercial Logging

More than anything else, geography has thus far spared most of DRC's forests from bearing the brunt of commercial logging. The approximately 200 km of waterfalls and rapids between Stanley Pool and the port of Matadi make it impossible to float logs down the river to the port and thus require increased transportation costs imposed by transferring timber to road and rail. Similarly, transportation costs to ship wood from eastern DRC's forests 1,000 km or more to the port of Mombasa, Kenya make it an expensive proposition to export timber. While table 2 depicts a dramatic reduction in timber production as the result of war and political instability, it is worth noting that even in 1992, DRC reported timber export volumes of only 330,300 m³ of wood. This pales in comparison with export volumes on the order of 2 million m³ of wood for each of the Republic of Congo and Gabon.

The fact that these neighbors that only possess a fraction of DRC's forest each exported well over \$100 million worth of timber (Gabon exported over \$300 million) as compared to DRC's \$11 million in 2000 is a dramatic indication of lack of development of this important economic sector.

Change in number of timber companies and declared volumes for the period between 1992-2002.

YEAR	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Number of Companies	28	28	25	22	25	18	16	16	12	13	11
Declared Volume (m ³ x1000)	330	287	272	225	308	257	262	34	62	38	44

Direction de la Gestion Forestière (2003)

The GDRC is well aware of the potential economic potential of the forest sector and, in consultation with a number of donors, is undertaking efforts to increase timber production. In order to move towards sustainable development in this sector, the GDRC has reformed its forestry code and is developing plans for pilot zoning projects that would work with stakeholders to determine production forest zones in areas of high timber production and/or high human population growth. Concurrent with development of the forestry sector are plans for buttressing the protected areas network.

Roads

Buzzard (2002) discusses the threat of roads to tropical forest conservation in view of an analysis of the importance of logging roads in Cameroon produced by Minnemeyer et al. (2002). The thesis apparently is that many areas believed to be "low access" or roadless may in fact be accessible by logging roads. Indeed the threats posed by logging roads with respect to facilitating immigration, forest fragmentation, and commercialization of the bushmeat trade are much discussed in conservation circles.

Part of the legacy of the Mobutu era in DRC is a complete neglect of all but the most important roads. This is generally believed to have been a strategic decision by the former dictator to make it difficult for potential aggressors (be it rebellious populations or invading armies) to advance on his strongholds and take over the country. As there was a relatively well developed road network at independence (that continues to be represented on maps), studies undertaken to depict wilderness areas in Central Africa based on road networks have understated the importance of DRC. In contrast, river transportation has been the major mode of access to remote forests here. River boats have long been transporters of bushmeat from the forest to important urban areas.

Actions necessary to Achieve Conservation and Sustainable Management of Tropical Forests in DRC

In a FAA 118/119 Analysis of the Central African Program for the Environment, Buzzard (2002) puts forth nine areas within which actions should be taken to work towards conservation and sustainable management of forests within the Congo Basin. Her analysis serves as a useful framework to discuss the same subject with respect to DRC.

Strengthen policy and institutions: The fact that political and institutional factors play a critical part in the management of forest resources has been recognized by both the GDRC and donors.

The World Bank is developing a loan package aimed at reforming relevant forestry laws in the DRC (e.g., the forestry code) and to help create a coordination office within the Ministry of Environment (along with help from FAO), in order to work with other Ministries on issues related to forest policy as well as travel throughout the country to meet with stakeholders. Nonetheless, some actors are apparently working against such reforms such that donors must remain vigilant.

Assist parties to honor legal/management commitments: Buzzard (2002) points out that it has been noted that forest degradation would be significantly slowed around the world if governments and industry were to actually implement commitments they have made – locally, nationally and internationally -- to manage and protect their forests (Global Forest Watch 2002). While many

countries have taken great strides in enacting laws to protect their forests, in many places regulations are simply not enforced. These points are pertinent to the DRC.

Combat illegal logging: Measures to combat illegal logging include improved monitoring, improving governance and accountability and involving communities. In DRC, even the government documents refer to timber production figures as “reported” data with the implication that significant production goes unreported (Batunyi and Mbala, 2003). As the GDRC moves to increase timber production, the International Tropical Timber Organization (ITTO) recommendations cited by Buzzard (2002) are worth consideration:

- Develop and implement effective monitoring systems that include the use of logtracking, remote sensing and field investigations;
- Provide capacity building and training to communities, non-government groups and law enforcement agencies in various monitoring approaches and tools;
- Develop regional data sharing programs to help identify problem areas that need to be targeted for enforcement; and
- Support and undertake research on the nature, extent, causes and impacts of illegal logging and on potential solutions.

Promote community participation: Community participation, and the involvement of civil society are key pieces to achieving conservation and sustainable management of tropical forests, which have often been overlooked. The new forestry code in the DRC makes specific reference to the need to work with local communities to determine areas suitable for timber production zoning as well as to assure both secure tax revenue for these communities and require timber companies to undertake locally agreed upon actions to improve the livelihood of local communities (e.g., build schools and health centers). Donors could facilitate this process through governance activities.

Land Use Planning: Land use plans, and/or appropriate land use policy development can provide for a more integrated land use for forests and adjacent lands. Communities should be involved in this process as stakeholders. The new forestry code requires zoning activities to be undertaken with local communities prior to issuing new timber concessions. The World Bank is currently working with government to choose areas for pilot studies and early indications suggest that CBFP landscapes could make ideal sites for such activities.

Improved monitoring and data analysis: Improved data and capacity are necessary to improve understanding of economic and ecological alternatives with regard to forest management and utilization. Steps must be taken to improve decision-making, based on sound data, and in the absence of corruption. A multi-donor program “SYGIAP” is currently underway to improve geographic information systems (GIS) capacity in the ICCN and partner organizations, including SPIAF (the forest inventory branch of the Ministry of the Environment). The fact that ICCN is part of the coordination office in the Ministry of the Environment should theoretically facilitate information exchange. However, it is important that efforts to improve data analysis and information exchange continue and that crucial Ministries (e.g., mines) be included in the process.

Reform forest concession systems and management: Buzzard (2002) points out the need to reform systems for awarding forest concessions. The new forestry code has gone a long way to addressing concerns with the granting of timber concessions. However, it is apparent and not surprising that some individuals are not happy with these reforms and may be working against them. It is imperative that legislative reforms be implemented (the rules and regulations implementing the forestry code need to be promulgated) and monitored.

Halt forest corruption: Steps must be taken to halt corruption in the forestry sector and help to curb its associated environmental effects.

Adopt a transboundary watershed approach to planning and management: Buzzard (2002) suggests that in order to protect and sustainably manage tropical forests in the Congo Basin, it is important to recognize the Congo River Basin as a unique watershed that requires integrated management cross-sectorally and at many levels. It is indeed important to have transboundary collaboration on a variety of issues but given the political realities a pragmatic approach will be required.

Biodiversity Overview

The DRC is the single most biologically diverse country on the African continent. It has the highest number of species for almost all groups of organisms with the exception of plants in which it is second to South Africa. It has the highest diversity of mammals (415 species, of which 28 are endemic) and birds (1,094 species of which at least 23 are endemic). Reptiles (268 species, 33 endemic) and amphibians (80 species, 53 endemics) are poorly known and no doubt much remains to be discovered about the true extent of their diversity. Freshwater fish diversity is also high with at least 963 known species. Here again much probably remains to be discovered. Over 11,000 species of higher plant are known for the DRC, of which 3,200 are endemic. The DRC has 12 of Africa's 30 Centers of Plant Endemism as identified by IUCN/WWF lying partly or wholly within its borders. These are Mayombe, Itombwe, Ituri, Maiko National Park, Kahuzi-Biega N.P., Salonga N.P., Haut Shaba, Kundelingu N.P., Upemba N.P., Marungu Highlands, Garamba N.P. and Virunga N.P. It also has two of the Endemic Bird Areas identified by BirdLife International. These are the Albertine Rift Mountains and the East Congo lowlands.

A biodiversity tally shows that DRC possesses more species of birds and mammals than any other African country and is one of the most flora-rich countries on the continent. It ranks sixth highest among countries worldwide for total numbers of mammal species and 9th highest for numbers of birds. What was originally the old Belgian Congo, which included Rwanda, Burundi, and the DRC, contains about 9,500 species of seed plants and of those already described, approximately 15 percent were considered new to science when included in the *Flore du Congo Belge*. Even with very little botanical exploration over the last decade new species continue to be found including a large tree new to science in the forests of the Ituri only described during the recent war (*Pradosia spinosa*).

Endemic species

Some of Africa's large mammals can only be found in DRC. The northern White Rhino is known nowhere except on the Congo's north eastern savannas in the Garamba National Park. Grauer's gorilla, or the eastern lowland gorilla, is found further south but only on the DRC's side of the Albertine Rift and in the immediately adjacent lower elevation forests. Further west and north the okapi, a giraffe of DR Congo's closed equatorial forest, which, although the size of a small horse, did not become known

to science until the beginning of the 20th century. The bonobo chimpanzee is found further west still in the Congo River's central basin. Among the endemic birds the best known is the Congo Peacock whose nearest relatives are Asian.

Although less spectacular there are many endemic species among smaller mammals and other taxa. Overall at least 10% of plants, 6% of mammals and 32 % of birds are endemic to the country.

The Albertine Rift contains a greater concentration of endemic vertebrates than anywhere else on mainland Africa, and the rift lake, Lake Tanganyika, has the record for endemic fish. Of 325 fish species, 89% are found only in L. Tanganyika. The two rift protected areas in the DRC, Virunga NP and Kahuzi-Biega NP, contain the highest number of endemic vertebrates and plants of all protected areas in the Albertine rift, itself, and probably in all of mainland Africa.

Rare and endangered species

The IUCN Red List of threatened or vulnerable species (plants and animals) for the DRC lists a total of 325 species. However the list is almost certainly very incomplete since good quantitative data on status, distribution and trends have never been collected for most plant and animal species in DRC. Notable exceptions are the white rhino and the mountain gorilla.

For the vast majority of species in the DRC knowledge is limited to mere presence/absence information. The table below presents a list of animal species that appear in the IUCN Red List of vulnerable and threatened species for DRC.

Primates:		
<i>Cercopithecus dryas</i>	Dryas Guenon	DD
<i>Cercopithecus hamlyni</i>	Owl-Faced Guenon	LR
<i>Cercopithecus lhoesti</i>	L'hoest's Guenon	LR
<i>Euoticus elegantulus</i>	Elegant Galago	LR
<i>Galago matschiei</i>	Eastern Needle-Clawed Bushbaby	LR
<i>Gorilla beringei</i>	Eastern Gorilla	EN
<i>Gorilla gorilla</i>	Western Gorilla	EN
<i>Lophocebus aterrimus</i>	Black Crested Mangabey	L
<i>Pan paniscus</i>	Bonobo	EN
<i>Pan troglodytes</i>	Chimpanzee	EN
Carnivores		
<i>Acinonyx jubatus</i>	Cheetah	VU
<i>Crocuta crocuta</i>	Spotted Hyena	LR
<i>Lutra maculicollis</i>	Speckle-Throated Otter	VU
<i>Lycaon pictus</i>	African Wild Dog	EN
<i>Osbornictis piscivora</i>	Aquatic Genet	DD
<i>Panthera leo</i>	Lion	VU
<i>Potamogale velox</i>	Otter Shrew	EN
<i>Profelis aurata</i>	African Golden Cat	VU
Hoofed animals		
<i>Cephalophus callipygus</i>	Peter's Duiker	LR
<i>Cephalophus dorsalis</i>	Bay Duiker	LR

<i>Cephalophus leucogaster</i>	White-Bellied Duiker	LR
<i>Cephalophus nigrifrons</i>	Black-Fronted Duiker	LR
<i>Cephalophus rufilatus</i>	Red-Flanked Duiker	LR
<i>Cephalophus silvicultor</i>	Yellow-Backed Duiker	LR
<i>Cephalophus weynsi</i>	Weyn's Duiker	LR
<i>Ceratotherium simum</i>	Square-Lipped Rhinoceros	NT
<i>Giraffa camelopardalis</i>	Giraffe	LR
<i>Hippotragus equinus</i>	Roan Antelope	LR
<i>Hippotragus niger</i>	Sable Antelope	LR
<i>Hyemoschus aquaticus</i>	Water Chevrotain	DD
<i>Kobus ellipsiprymnus</i>	Waterbuck	LR
<i>Kobus kob</i>	Kob	LR
<i>Kobus leche</i>	Lechwe	LR
<i>Kobus vardonii</i>	Puku	LR
<i>Loxodonta africana</i>	African Elephant	EN
<i>Manis temminckii</i>	Cape Pangolin	LR
<i>Neotragus batesi</i>	Bates' Pygmy Antelope	LR
<i>Okapia johnstoni</i>	Okapi	LR
<i>Oreotragus oreotragus</i>	Klipspringer	LR
<i>Ourebia ourebi</i>	Oribi	LR
<i>Redunca redunca</i>	Bohor Reedbuck	LR
<i>Syncerus caffer</i>	African Buffalo	LR
<i>Taurotragus derbianus</i>	Giant Eland	LR
<i>Tragelaphus eurycerus</i>	Bongo	LR
<i>Tragelaphus oryx</i>	Common Eland	LR
<i>Tragelaphus spekii</i>	Sitatinuga	LR
<i>Tragelaphus strepsiceros</i>	Greater Kudu	LR
Bats		
<i>Casinycteris argynnis</i>	Short-Palate Fruit Bat	DD
<i>Micropteropus intermedius</i>	Hayman's Epauletted Fruit Bat	DD
<i>Miniopterus schreibersi</i>	Common Bentwing Bat	LR
<i>Plerotes anchietae</i>	D'anchieta's Fruit Bat	DD
<i>Rhinolophus blasii</i>	Blasius' Horseshoe Bat	LR
<i>Rhinolophus maclaudi</i>	McLaud's Horeshoe Bat	LR
Rodents and shrews		
<i>Crocidura attila</i>		VU
<i>Crocidura caliginea</i>		CR
<i>Crocidura congobelgica</i>		VU
<i>Crocidura kivuana</i>		VU
<i>Crocidura latona</i>		VU
<i>Crocidura monax</i>		VU
<i>Crocidura polia</i>		CR
<i>Crocidura stenocephala</i>		VU
<i>Crocidura zimmeri</i>		VU
<i>Hystrix cristata</i>	Crested Porcupine	LR
<i>Idiurus macrotis</i>	Long-Eared Flying Squirrel	LR

Idiurus zenkeri		LR
Praomys jacksoni		DD
Praomys minor		VU
Praomys mutoni		LR
Ruwenzorisorex suncoides	Ruwenzori Shrew	VU
Marine mammals		
Megaptera novaeangliae	Humpback Whale	VU
Sousa teuszii	Atlantic Hump-Backed Dolphin	DD
Trichechus senegalensis	African Manatee	CE
Reptiles		
Crocodylus cataphractus	African Sharp-Nosed Crocodile	DD
Kinixys erosa	Common Tortoise	DD
Kinixys homeana	Home's Hinge-Back Tortoise	DD
Osteolaemus tetraspis	African Dwarf Crocodile	VU
Pelusios upembae	Upemba Mud Turtle	DD

Categories of threat used in the IUCN Red List are:

- Critically endangered (CE)
- Endangered (EN)
- Vulnerable (VU)
- Near threatened (NT)
- Least concern (LR)
- Data Deficient (DD)

Species Diversity

Although maps showing relative concentrations of African plant biodiversity are probably generally correct even for the DRC, the best diversity information exists for large mammals such as primates and ungulates. The data are of progressively poorer quality with respect to smaller mammals, amphibians, insects and non-flowering plants for which there is much less information. What is striking about central Africa is the hole left in the center of the DRC when biodiversity surveys are mapped. The few clusters of dots in the DRC represent the better known protected areas and old Belgian research stations (i.e., Yangambi downstream from Kisangani). The vast areas without any information include some of suspected fascinating diversity and of probable importance for protection. But, even when endemism and diversity is only considered for the large mammals and flowering plants, the DRC emerges as being of absolute and critical importance as a global center of biodiversity.

The Congo, in its three segments, has more fish species than any other African river. Lake Tanganyika (ca 32,893 km²), the largest lake of the Albertine Rift, contains a unique fauna of about 1,300 species of vertebrates and invertebrates, of which 325 are fish species. Lake Tanganyika is one of the oldest lakes on the continent. Although the lake's fish species have not been fully documented, it has an 89% rate of endemism and is therefore one of the most important areas in the world for freshwater fish conservation.

The primate diversity of DRC is second only to that of Brazil with 37 species from 18 genera. The Ituri forest alone contains 13 diurnal species, unrivalled by any other forest in Africa. Two globally important primate species, with very restricted distributions, occur in the mountains of the Albertine Rift. These are the famous mountain gorilla, *Gorilla gorilla beringei*, occurring in the Virunga volcanoes (astride

DRC, Rwanda and Uganda), and the Bwindi Impenetrable Forest in Uganda, and the golden monkey *Cercopithecus mitis kandti* restricted to the Virungas and the Nyungwe Forest (Rwanda). The mountain gorilla population numbers little more than 600 individuals. However numbers are stable despite the recent war thanks largely to the sustained support that the Congolese authorities have received from the international conservation community. On the eastern side of the Albertine Rift fragmented populations of Grauer's gorilla (*G.g.graueri*) live in the high and mid altitude forests. The population was estimated to be approximately 17,000 in 1996 (Hall et al., 1998) but it is known that many populations of this sub species, particularly in and around the Kahuzi-Biega National Park, have suffered severe poaching during the recent armed conflict. It is worth noting that the Mountain and Grauer's gorillas represent a very significant economic resource for the country. At the end of the 1980's the gorillas of Kahuzi-Biega NP and Virunga NP were receiving around 8,000 visitors per year, and generating nearly \$1 million annually from the sale of gorilla viewing permits.

Further east the endemic pygmy chimpanzee, or bonobo (*Pan paniscus*), is restricted to low altitude forests to the south of the Congo River. Its range is thought to be quite large (>800,000 km²) but its distribution within this range is poorly known and is suspected to be quite patchy. Considered to be genetically the closet relative to man it was not discovered until 1935. Other mammals endemic to the DRC rainforest, and only discovered in the course of the 20th century include a forest giraffe, the Okapi (*Okapia johnstoni*), the aquatic genet (*Osbornictus piscivora*) and the Salonga monkey (*Cercopithecus dryas*) of which the first adult specimen was found in 1985.

The DRC has a high antelope diversity with 30 species. These include the bongo (*Tragelaphus euryceros*), the swamp dwelling sitatunga (*Tragelaphus spekei*) and eight species of forest duiker (*Cephalophus* sp).

Finally the emblematic northern white rhino (*Ceratotherium simum cottoni*) is endemic to the savannas of the Garamba National Park in northern DRC. This last remaining population is very seriously threatened and numbers little more than 35 individuals.

The DRC has a coastal section of little more than 40 km comprised essentially of the Congo River delta. The Réserve de Mangroves covers 66,000 hectares and includes 226 km² of mangrove forest. The mangrove ecosystem provides a nursery and breeding ground for many of the species of fish exploited commercially. Although a full inventory of the fauna and flora of the reserve has never been undertaken, the principal plant species are *Rhizophora racemosa*, *Rhizophora mangle*, *Avicennia nitida*, *Avicennia tomentosa*, *Hibiscus tiliaceus*, and *Acrostihum aureum*, with restricted localized communities of *Conocarpus erectus* and *Laguncularia racemosa*.

Wildlife species of this zone include the critically endangered West African manatee (*Trichechus senegalensis*), the hippopotamus (*H. amphibius*) and the sitatunga (*Tragelaphus spekei*). Three species of marine turtle, *Dermochelys coriacea*, *Chelonia mydas*, and *Eretmochelys imbricate* are known to be present and a fourth, *Lepidochelys olivacea*, is suspected to be present. Freshwater fish species include *Lamprologus lethops*, *Haplochromis fasciatus*, *Oreochromis lepidurus* but there are no quantitative data on species diversity and rates of endemism.

Threats to Biodiversity in the DRC

Agriculture in previously remote areas

The tropical forests in the Democratic Republic of Congo are at risk with the greatest threats being in areas of high population density. It is likely that these threats will soon be compounded in some areas by intense development and international investment. The latter will bring improved roads and other communication and transportation networks opening up areas that were previously nearly inaccessible. The human population is increasing at greater than 3% per year with some of the greatest growth and density being in forest frontier areas. Overall 70% of DRC's population is rural and surviving on extensive, land demanding, agricultural techniques such as slash and burn agriculture.

The demand for agricultural land is therefore increasing. Poor transportation networks make delivery of agricultural produce difficult so that wherever populations move agriculture also moves, with the result that halos of new cultivation radiate out from remote illegal mining camps, camps of displaced persons, military camps and also from the camps of militias of numerous affiliations that are scattered through the forest of eastern DRC. Extensive conversion of the forest to non-forest land cover occurs, therefore, not only as a steady eating in from the edges but also as multiple interior disintegration.

Human movements and anarchistic distribution of farmland is partly a result of unclear land tenure. This problem must be tackled through zoning and the zoning should be grass roots in its approach. Different zoned units should have management plans such that protected areas, forest concessions, and community farming zones all have plans for land management.

Simultaneously, it is critical to explore livelihood alternatives for rural populations, and empower them to develop new enterprises and activities that incorporate sustainable natural resources management. The rate of increase of rural populations is lower than that of urban areas, but the actual numbers of people in rural areas is increasing. The geographic position of livelihood activities is crucial such that they serve to pull people away from areas zoned for protection rather than attract immigrant populations towards protected areas.

Mining

The separation between the Mining Ministry and the Environment Ministry has allowed for a disturbing distribution of mining concessions. In eastern DRC these completely ignore the distribution of protected areas such as the Okapi Faunal Reserve that, on paper, has been entirely covered by "legal" concessions. DRC's mineral wealth is, itself, a threat if in the rush to develop it environmental concerns are not taken into account.

During the war years when the government could not control the exploitation of its mineral rich eastern provinces, many of the parks (Okapi, Kahuzi-Biega, and Maiko in particular) were over-run by small scale extractive operations. It would be a failure if the post-war mining development only increased the size of mining operations without any increase in their environmental accountability. Environmental considerations should include not only the methods of extraction but also the location, protected areas must indeed be protected.

Hunting and bushmeat trade

Whereas the armed conflict and ensuing anarchy in eastern DRC reduced development dependent on infrastructure, bushmeat hunting increased. Whole villages forced to abandon gardens depended almost solely on bushmeat. This was the case during several gardening cycles in the Ituri forest and in areas of southern Kivu. Furthermore, large military camps in the Ituri forest fed themselves on

bushmeat and sold bushmeat in nearby markets in order to gain petty cash. The increase in arms and munitions has filtered throughout the population with local hunters working for the military. Significant quantities of bushmeat were and are transported by bicycle regardless of the conditions of the roads. Even as peace is established, the increase in arms and the lack of alternate livelihoods is likely to maintain the importance of bushmeat. Around the forest town of Beni and to a distance of 50 kilometers there is no longer any game meat except that of the smallest animals (porcupines and squirrels, Mapilanga unpublished report). In the remote Okapi Faunal Reserve pygmies are having to hunt at greater and greater distances from the road in order to assure a catch (Tshikaya, unpublished report). Despite the increase in bushmeat dependence in the east, associated with anarchy, the phenomenon is not limited to the war zones. Bushmeat is favored and continues to be brought into the metropolis of Kinshasa. In order to feed Kinshasa's markets, enterprising *comerçantes* purchase game from hunters using the Salonga National Park (Ilambu, personal communication), a park mainly in the Equateur Province. Any road system that penetrates into previously un hunted areas will open up new source areas for the bushmeat trade. At a commercial scale, bushmeat hunting has nowhere been shown to be sustainable (Bennett, personal communication)

Habitat loss

Although mining and bushmeat hunting are likely to lead to empty forests; it is the first threat, agriculture, that will lead to forest conversion. Some of the DRC's better known animals depend on large areas of forest: elephant, okapi, Grauer's gorilla, bonobo. Beyond these highly visible large mammals, the IUCN Red List of threatened species lists over 300 species. This means that many species are likely to disappear from areas as the forest gets broken and divided into smaller remnants. This is already the case around populated forest borders. Any activity that facilitates the movement of people and establishment of agriculture will lead to habitat loss. Road building will certainly dictate the geographic direction of major habitat loss. The effects can be diminished if prior to road building, there are environmental impact statements and, where a choice of location is possible, that the choice least likely to pull people to unpopulated zones is chosen.

Analysis of Actions necessary to Conserve Biodiversity in the DRC

The actions necessary to conserve biodiversity in DRC include:

- Inventory and protect key areas of biodiversity that are not now protected. Take steps to integrate protected areas with other surrounding land uses.
- Inventory protected areas affected by the war and take steps to increase their protection.
- Develop multiple use areas as buffer zones around protected areas and include the local populations in the management of these buffer zones.
- Produce management plans for all protected areas based on good biological and socio-economic information and implement them.
- Curb illegal bushmeat hunting – through both protection and incentives.
- Produce zoning and management plans throughout the Congolese landscape.

- Assure that development activities, including road building, are accompanied by environmental assessments.
- Assure the inclusion of environmental concerns in the Poverty Reduction Strategy Paper.
- Expand community conservation programs: Involve communities – and empower them to manage in a sustainable manner.
- Strengthen institutions and public-private-community linkages.
- Improve laws, policies and governance pertaining to the environment.

Analysis of the Extent to Which Activities Proposed for Support in the new Strategic Statement Meet the Needs Identified

Actions necessary to achieve conservation and sustainable management of tropical forests.

Action Required	Response Initiatives in the DRC
• Strengthen policy and institutions	CBFP, CARPE, IBRD
• Assist to implement commitments	IBRD
• Combat illegal logging	CBFP, CARPE
• Promote community participation	Mission, Governance, Peace Process SOs
• Undertake land use planning	CARPE, IBRD
• Improved monitoring and data analysis	CARPE
• Reform forest concession and management	IBRD
• Halt forest corruption	Mission, Governance SO
• Adopt a trans-boundary watershed approach to planning and management	CBFP, CARPE

The extent to which activities proposed under the Strategic Statement meet the needs for conservation and sustainable management of tropical forests.

The proposed USAID/DRC Strategic Statement and the activities thereunder will respond to only a subset of the needs identified. The Mission will undertake significant activities in the area of promoting community participation in identification of areas suitable for timber production, and areas that will not be utilized for timber production. These activities will involve working with communities in general and specific ways to empower them to make decisions affecting the community. The intervention approach chosen to work with communities in the Governance SO relies heavily on community decision making. The same SO's other activities will likewise work with communities to promote self-determination of development needs. OTI's program and the community-support aspect of the Peace Process SO will involve significant community participation. The community structures created and supported through these activities are expected to make a significant long-term impact in areas adjacent to or bordering forested areas.

The Mission's Governance SO will have an impact on reducing forest corruption. The Mission's transportation axis-based anticorruption activity has attracted a very high level of interest within the GDRC and operates through participatory needs identification and exposure of corrupt practices.

Empowerment of communities will tend to have the indirect effect reducing the space for corrupt activities by strengthening local capacity to resist or counter such practices.

As indicated above, USAID has put in place coordinating and operational structures that are designed specifically to address conservation and sustainable management of the DRC's tropical forests. The Congo Basin Forest Partnership and the CARPE program were created and established to serve this end across the entire Congo river basin. The CBFP/CARPE Presidential Initiative's activities will meet many of the identified needs in this area during the strategy period. The World Bank's involvement is also significant, particularly in the area of the legislation required for sustainable forest management. The USAID/DRC program, recognizing that the CBFP/CARPE and IBRD programs are designed and funded to respond to the challenges of sustainable forest management, has decided not duplicate efforts in this area, but rather reinforce support of the CARPE efforts in the areas of community participation and anti-corruption through the Strategic Statement.

Actions necessary to achieve conservation and sustainable management of biodiversity.

Action Required	Response Initiatives in the DRC
<ul style="list-style-type: none"> • Inventory and protect key areas of biodiversity that are not currently protected 	CARPE, CBFP
<ul style="list-style-type: none"> • Inventory protected areas affected by the war and increase their protection 	UNESCO, GTZ
<ul style="list-style-type: none"> • Develop multiple use areas as buffer zones around protected areas and include the local population in the management thereof 	CARPE, French Cooperation, EU
<ul style="list-style-type: none"> • Produce management plans for all protected areas 	CARPE, IUCN
<ul style="list-style-type: none"> • Curb illegal bushmeat production and trade 	CARPE, CBFP
<ul style="list-style-type: none"> • Produce zoning and management plans 	UNESCO, UNDP, EU
<ul style="list-style-type: none"> • Ensure development activities including road building have environmental assessments 	IBRD
<ul style="list-style-type: none"> • Ensure the inclusion of environmental concerns in the PRSP 	IBRD
<ul style="list-style-type: none"> • Expand community conservation programs 	CARPE, UNDP
<ul style="list-style-type: none"> • Strengthen institutions and community linkages 	UNDP, Mission
<ul style="list-style-type: none"> • Improve laws, policies and governance pertaining to the environment 	OSAFAC, IBRD Mission

The extent to which activities proposed under the Strategic Statement meet the needs for conservation and sustainable management of biodiversity.

Strategic Statement activities planned will partially respond to the last and second-to-last needs identified above. As detailed in the tropical forests section, community management capacities will be strengthened under the Governance SO as well as through the Peace Process SO with OTI initiatives further strengthening community management. These efforts, in areas contiguous to areas of biodiversity importance, are expected to increase informed community management of natural resources, including the biodiversity resource in the DRC.

The international community has long been keenly interested in biodiversity conservation in the DRC. Indeed, rare fauna and flora identification and protection was the overriding interest of the international environmental community, to the virtual exclusion of all other environmental interests in the DRC, until recent times. That interest remains, and the funding made available from a plethora of international actors continues to flow. The table above is only a very partial listing of actors involved in this sector in the DRC. The CBFP/CARPE program is the USG's main investment in biodiversity conservation in the DRC, and will work towards responding to the identified needs in virtually all areas identified. The Mission does not intend to invest in activities under this Strategic Statement in the need areas identified for biodiversity conservation as those needs will be met through the activities of other donors and the activities under the CBFP/CARPE, security conditions permitting.

CARPE is a stand-alone regional Strategic Objective managed by USAID/DRC. However, the CARPE SO (and the CARPE program, by extension) does not form part of this Strategic Statement.

SO-Level Recommendations for Responding to Opportunities and Threats with Regards to Conservation and Sustainable Use of Tropical Forests and Biodiversity

Peace Process Strategic Objective

Community participation will be strengthened under this Strategic Objective, particularly in the east of the DRC. This will empower the communities on the border of the Albertine rift to take over more control of their adjacent natural resources, within the policy framework from the central level. Otherwise, within the ambit of this short-term SO there is little scope for addressing the needs for biodiversity and tropical forest conservation.

Protection Strategic Objective

There are no untoward consequences for biodiversity or tropical forest conservation that can be envisaged under this Strategic Objective. Likewise, there is no scope for activities under this SO to mitigate or reduce biodiversity or tropical forest loss.

Reintegration Strategic Objective

Much of the combat and population movement that has taken place over the course of the recent war has taken place in or adjacent to some of the most important areas for biodiversity conservation in Africa: Virunga National Park, Kahuzi-Biega National Park, Maiko National Park, Salonga National Park, the Okapi Wildlife Reserve, and the Itombwe Forest. All factions have been implicated with pillaging resources including ivory poaching, mining (coltan, cassiterite, diamonds, and gold), and bushmeat hunting both within and outside protected areas. In addition, the instability within the regions of eastern DRC has facilitated the occupation of protected areas for cattle farming and the exploitation of forests for charcoal production.

Given the geographic position of the various mostly erstwhile warring factions in relation to key protected areas, and the fact that the majority of the combatants will be demobilized, the locations of reintegration activities and how they are undertaken are critical to the future viability of critical areas for biodiversity conservation and the protection of tropical forests in Africa.

Activities need to be geographically oriented away from areas deemed important for biodiversity protection. If properly implemented these activities could help take pressure off these areas and actually improve the prognosis for successful long term conservation of these areas. This is due to the fact that many of the current pressures are directly related to military, armed irregulars, and rural militias, but increasingly returning IDPs and refugees. It will be critically important that NGOs financed to assist in reintegration activities be aware of the proximity of national parks, reserves and other areas of critical ecological value and contact protected area managers. It will be important for those undertaking public works activities or offering assistance through more traditional development activities to take the necessary precautions to reduce the negative impacts on biodiversity and tropical forests.

Essential Services Strategic Objective

Human population growth rates in eastern DRC in the areas bordering Uganda and Rwanda are among the highest in Africa. This area also happens to be one of the most important areas for biodiversity conservation in Africa. Be it birds, plants, fish, or mammals, the Albertine Rift region has phenomenal rates of endemism and extraordinarily high levels of diversity. The human population places tremendous pressure on the environment for land conversion to agriculture and harvesting of wood for fuel. The USAID family planning activities have recently expanded to the east as part of a major shift eastward of all health interventions in the DRC. Such activities will be expected to have positive impacts on the environment and also improve the overall health and economic status of the families involved.

Placement of health facilities is also critical and a major factor in the distribution of population centers. This can be either positive or negative with respect to biodiversity conservation. A major health center within a protected area (or logging concession) would pull immigrants into the protected area (or concession). But it is also true that at a distance of 30 to 60 km a health center could encourage emigration from the protected area of potential poachers, miners, etc. and thus have an important positive impact. This might be considered in future collaborations between USAID funded health programs and CBFP. When such synergies are sought, it is important that local people be made aware that the presence of the protected area is one reason for the health center financing. It is important that people get a feeling for some of the positive benefits of protected areas as opposed to simply thinking of them in terms of restrictions.

Work in the agriculture sector is critically important to improving the well being and economic status of those who need it the most. USAID agriculture activities under the Service Provision SO have the opportunity to enhance the long term protection of biodiversity and tropical forests by promoting sustainable use. Activities can also help orient people away from critical protected areas as well as other areas highlighted as important for conservation. At the same time, livelihood projects that do not plan for possible negative environmental consequences run the risk of contributing to the degradation and/or loss of forest cover and biodiversity.

Governance Strategic Objective

Good governance, the rule of law, and the ability to participate in the selection of individuals called upon to make policy and decisions that both affect the quality of daily life and set the course for the future are extremely important for environmental management. Assuming the thoughtful implementation of governance activities these should enhance the long-term protection of biodiversity

and maintenance of forest cover. Nevertheless, governments do have the right and obligation to set a national policy and promulgate and enforce laws that provide for the long term protection and sustainable use of biodiversity and forest resources. While communities must be afforded the opportunity to participate in decisions that affect them, there will none the less be rules, regulations and laws written with long-term sustainability in mind that are unpopular in selected communities.

The government has recently rewritten or is currently considering rewriting laws on mining, forestry, nature conservation, and land use (*affaires foncières*) with careful consideration of balancing long term economic and sustainability interests while at the same time affording communities the opportunity to participate in activities such as zoning. Governance activities should enhance community participation in efforts such as zoning while at the same time help communities understand the process by which decisions are made that are in the interest of the nation but not necessarily in the short-term interests of a particular group.

An example of how USAID funded governance activities could make a positive impact in this arena lies with the new forestry law. The Forestry Code was signed into law in August 2002 and the rules and regulations implementing the law are currently being written. The law provides for community participation in zoning areas for timber production and requires timber companies, through a *cahier de charge* (an official document listing the rights and responsibilities of the timber company managing the concession) to list social obligations such as the construction of schools and health centers. Governance programs located adjacent to timber lands could facilitate community participation in these activities. In addition, the law calls for the sharing of revenues generated from the surface area tax applied to timber concessions. These will amount to substantial revenues to be shared at both the provincial and local government levels. Governance activities could help assure the correct transfer of funds to the local level. At the same time, they should help communities understand that the laws/rules governing timber concessions are to be respected and that the arrival of a concession is not an invitation to use company infrastructures to facilitate the commercialization of the bush meat trade. Communities should also be helped to understand that once zoned as a forest concession, land is off limits for agricultural activities.