CHAPTER 1
STATE OF THE FORESTS OF CENTRAL AFRICA: REGIONAL SYNTHESIS

Richard Eba'a Atyi, Didier Devers, Carlos de Wasseige, and Fiona Maisels

Introduction

The 2008 Central Africa State of the Forest report covers six countries: Cameroon, the Republic of Congo, the Democratic Republic of Congo, the Central African Republic, Gabon, and Equatorial Guinea. These countries cover a total area of 4,048,470 km² and in 2005 had a population of about 86 million inhabitants. The Central Africa sub-region is generally characterized by very strong population growth, estimated at 2,87 %/year, with the total number of inhabitants projected to reach about 99 million by 2010 (United Nations, 2007) and doubling by 2030.

According to an analysis of economic indicators (table 1.1), there exists widespread poverty in the sub-region. DRC and CAR - which when combined represent more than 73 % of the total sub-regional population - are classified among the lowest income countries in the world (GNI/inhabitant < $ 935, according to the World Bank ranking, 2006). Additionally, Cameroon and Congo are classified as lower middle income. Only two countries, representing a mere 2 % of sub-regional population, are middle-income (Gabon) or high income (Equatorial Guinea). Complementing these raw economic figures is a generally high degree of disparity in distribution of national wealth - situating the management of forest resources in the Congo Basin against a background of ubiquitous impoverishment among its population.

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The majority of inhabitants of the sub-region depend on small-scale slash-and-burn shifting agriculture for subsistence - a farming practice which uses the forest as a land reserve for expansion. In addition to slash-and-burn shifting cultivation, people in the Congo Basin subsist by harvesting forest products for both food and domestic energy (fuelwood and charcoal).

Photo 1.1: Typical profile of a dense humid riparian forest in Central Africa.

Table 1.1: Summary of economic development indicators in Congo Basin countries in 2006

Country	Population (millions of inhabitants)	Population density	Life expectancy (years)	Child mortality (/1000)	GNI (billion $)	GNI/inhabitant ($/inhabitant)
Cameroon	18.2	39	50.3	86.8	17.7	980
Congo	3.7	10.8	54.8	79.5	6.0	1,370
CAR	4.3	6.9	44.4	114.5	1.6	370
DRC	60.6	26	46.1	129.0	8.1	130
Gabon	1.3	5	56.7	60	7.5	5,360
Equatorial Guinea	0.5	18.4	51.1	123.6	94.9	8,510

Source: World Bank, 2006.

Forest Cover in the Congo Basin

Forested Area

Photo 1.2: On the edge of the massif, forests share space with human-impacted savannas (North Kivu - DRC).
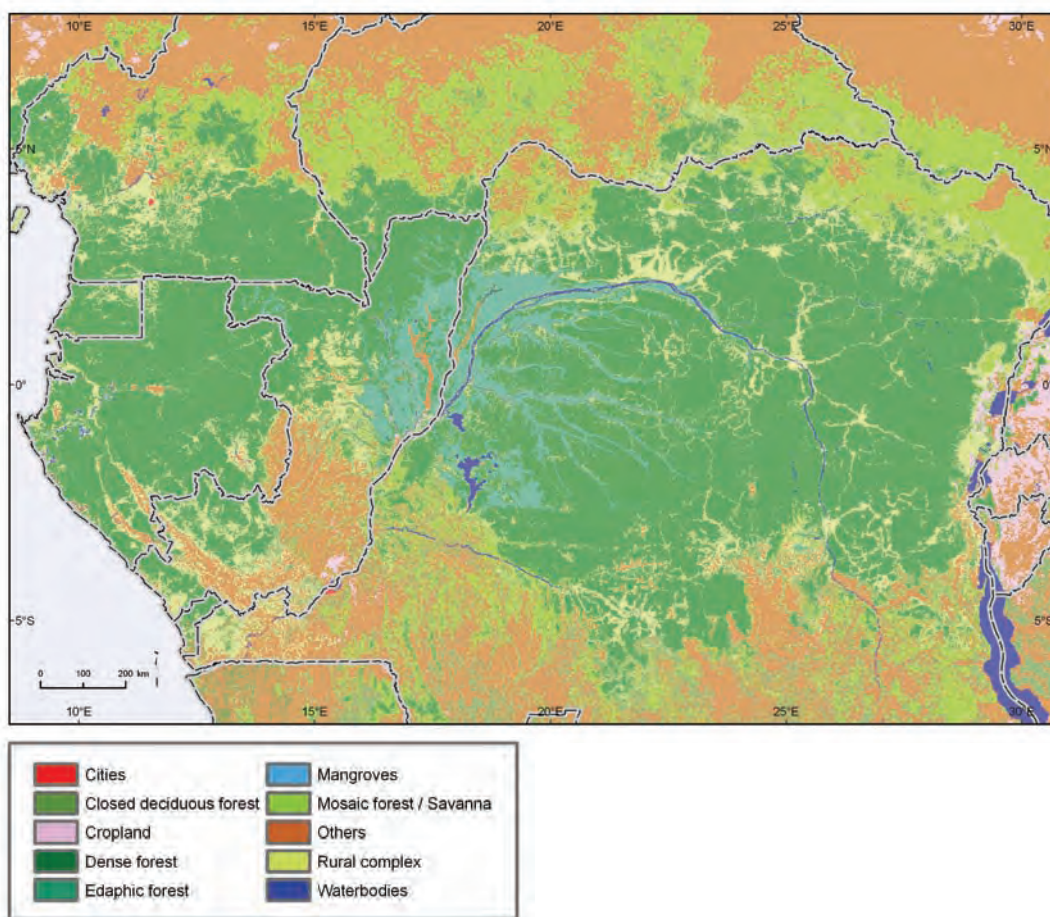

Box 1.1: Mapping Congo Basin forests using satellite remote sensing

Remotely sensed data offer a unique and valuable information source for quantifying tropical forest area and forest change at regional scale. However, the primary limitations to large area high spatial resolution mapping include the development of generic and robust methods, overcoming data quality issues and having the resources to purchase required data sets. For a region like the Congo basin, data needs are intensive in order to overcome the presence of cloud cover. Of the three main tropical forest zones including Amazon and South-East Asia, the Congo Basin represents the most challenging due to the persistence of cloud cover and the relative fine-spatial scale of the prevailing change dynamics found there.

For the 2008 State of the Forest Report, all of the available data and state of the art methods have been used to deliver the most recent and best area estimates currently available from satellite remote sensing. Forest area for the Congo Basin was estimated from five complementary sources provided respectively by South Dakota State University and the *Université catholique de Louvain*. Wall-to-wall mapping of forest cover was performed using 30-m Landsat data for the year 2000 covering the majority of the Congo Basin. However, this forest map did not exhaustively map the entire Basin. In order to derive an estimate that included all lands of the CBFP-member nations that constitute the Congo Basin, the Landsat-derived map product was used to calibrate data from the MODerate Resolution Imaging Spectroradiometer (MODIS) sensor in mapping humid tropical forest area. Eight years of 250-m MODIS data were used as inputs to overcome atmospheric contamination.

Based on the GLOBCOVER experience, a new forest map including edaphic forests was produced using 300-m resolution Medium Resolution Imaging Spectrometer (MERIS) data for the 2005-2006 year for CAR and DRC. For the 4 coastal countries of the Congo Basin, all 1-km daily observations of SPOT-Vegetation acquired over the last 9 years provided an even clearer mosaic allowing a better forest/no forest delineation. Finally, the SRTM 90-m digital elevation was used to classify forest types according to an altitudinal gradient.

Combining and averaging these 5 complementary sources, areal extent of the different forest types was obtained at the basin level as well as for the CBFP-member countries. It is also important to mention that these forest statistics both improve and update the previous figures delivered in the 2006 State of the Forest Report.

Sources: UCL, JRC, SDSU, and FORAF.
Figure 1.1: Land cover in Central Africa

Table 1.2: Forested area (ha) of the six forest countries of Central Africa in 2008

Forest cover category	Cameroon	Congo	CAR	DRC	Gabon	Eq. Guinea
Lowland dense forest	16,467,570	14,384,835	4,614,732	83,761,542	20,982,690	1,972,044
Sub-montane forest (900-1500 m)	270,540	612	1,440	5,995,494	14,445	27,450
Montane forest (>1500 m)	17,685	0	0	955,071	36	2,619
Swamp forest	0	4,108,545	27	8,200,098	17,766	0
Mangrove	120,348	0	0	0	71,919	351
Total dense forests	**16,876,143**	**18,493,992**	**4,616,199**	**98,912,205**	**21,086,856**	**2,002,464**
Forest-cropland mosaic	4,501,395	5,805,468	1,816,380	21,144,384	3,120,219	624,438
Forest-savanna mosaic	5,867,865	1,351,890	22,774,437	28,592,334	185,931	28,647
Dense deciduous forest (Miombo)	105,984	1,251,531	922,923	28,023,714	176,643	0
Other vegetation	14,066,352	6,824,178	30,970,737	50,825,421	1,404,630	39,231
Cropland	4,873,077	215,514	917,676	825,390	33,480	2,637

Sources: consolidation of land cover data produced by UCL, JRC and SDSU.

Change in Forest Cover

The ability to monitor changes in forest cover in the Congo Basin has been strained during the last five years due to reduced availability of adequate satellite images (technical failure of Landsat ETM+), combined with diminished quality due to persistent cloud cover for certain areas of the sub-region (notably for the Atlantic coastal area of Equatorial Guinea, Gabon and Cameroon). A recent analysis of satellite images dating from 1990 and 2000 (Duveiller *et al.*, 2008; Hansen *et al.*, 2008a), focused only on densely forested areas in the Congo Basin, found the average annual rate of net deforestation to be 0.16 %. For these purposes, "deforestation" is considered as the conversion of dense forests or degraded forests to any other type of land use. This net deforestation rate is calculated from an estimated gross deforestation rate of 0.17 % combined with an estimated reforestation rate of 0.01 % (table 1.3).

Photo 1.3: Forest cover is mapped using a combination of remote sensing and ground validation.

Table 1.3: National average annual deforestation and reforestation rates in the dense forest zones of the Congo Basin between 1990 and 2000

Country	Gross deforestation (%)	Net deforestation (%)
DRC	0.21	0.20
Congo	0.07	0.02
CAR	0.19	0.06
Cameroon (*)	0.14	0.14
Gabon (*)	0.09	0.09
Eq. Guinea (*)	0.10	
Congo Basin	**0.17**	**0.16**

(*) due to the low sampling rate in the study of Duveiller et al., 2008, the figures for the Equatorial Guinea are taken from Hansen et al., 2008a.
Sources: adapted from Duveiller et al., 2008 and Hansen et al., 2008a.

The highest net deforestation rates were found in DRC and Cameroon, respectively (table 1.3). These findings are largely explained by the fact that both countries have the highest densities, in Central Africa, of rural populations who practice slash-and-burn shifting cultivation. The relatively high population growth rate in these two countries exerts an increasing demand on surrounding land for agricultural development to meet consummate growing food needs. However, the deforestation phenomenon remains relatively modest in the Congo Basin overall - especially if the phenomenon in dense forest zones is disaggregated from that in the savanna ecosystems. Higher national deforestation rates have been published (e.g., FAO, 2001b); however these include figures from savanna ecosystems – which are often more populated and more active in farming, than dense forested ecosystems. Additionally, deforestation is much more pronounced around the major urban areas.

Box 1.2: Congo Basin forest area change from satellite remote sensing

Implementing operational monitoring of tropical deforestation is a major challenge. The primary limitation for humid tropical forest monitoring is persistent cloud cover that confounds efforts to operationalize land cover change characterizations. Many land cover mapping activities rely on photo-interpretation, or other approaches that are labor-intensive, costly, and difficult to replicate in the consistent manner required for long-term monitoring (e.g., Africover).

One way to overcome these limitations is to use sampling methods for estimating national and regional forest cover change. Sampling has a number of advantages over wall-to-wall mapping. First, it requires only a portion of the region to be studied, reducing processing requirements. Second, sampling methods provide a measure of uncertainty, indicating confidence of the resulting estimates of cover and change. Third, sampling reduces data input needs, as cloud-free data are required only for the sample block areas. Last but not least, the sampling approach currently allow a more detailed forest type characterization providing estimates not only for the deforestation, but also degradation, reforestation and regeneration.

Wall-to-wall mapping, on the other hand, has obvious comparative advantages to sampling as spatially explicit estimates of forest cover change are produced for the entire region. This enables results to be subset in a way not possible with a sample population. However, producing wall-to-wall estimates of forest cover change is difficult. Persistent cloud cover means that methods for automatically processing images are required, as the more persistent are the clouds, the more images one needs as inputs to acquire good land observations. Mapping the Congo Basin in this way entails mass-processing of data to filter atmospherically contaminated pixels and to identify and characterize good land observations. As such, the logistics and quality control of wall-to-wall mapping are much more difficult to manage than sampling approaches.

The unique 30-m Landsat data archive has been processed at Basin level according to both methods, i.e. the sampling approach and the wall-to-wall approach, respectively by the *Université catholique de Louvain* with the Joint Research Centre and South Dakota State University. The results presented here correspond to the change between 1990 and 2000 periods. On-going efforts will result in forest change estimates for the 2000-2005 interval using these same methods.

In addition to deforestation, forest degradation (conversion of dense forests into degraded forests), Duveiller *et al.*, (2008) estimate the average annual rate of net degradation of dense forests in the Congo Basin to be 0.09 % (table 1.4). This quantified measure of degradation is based solely on significant detected change in forest cover and not in qualitative terms (i.e. change in species composition). Degradation is largely offset by recovery (transition from degraded forest to dense primary forest), when considered nationally.
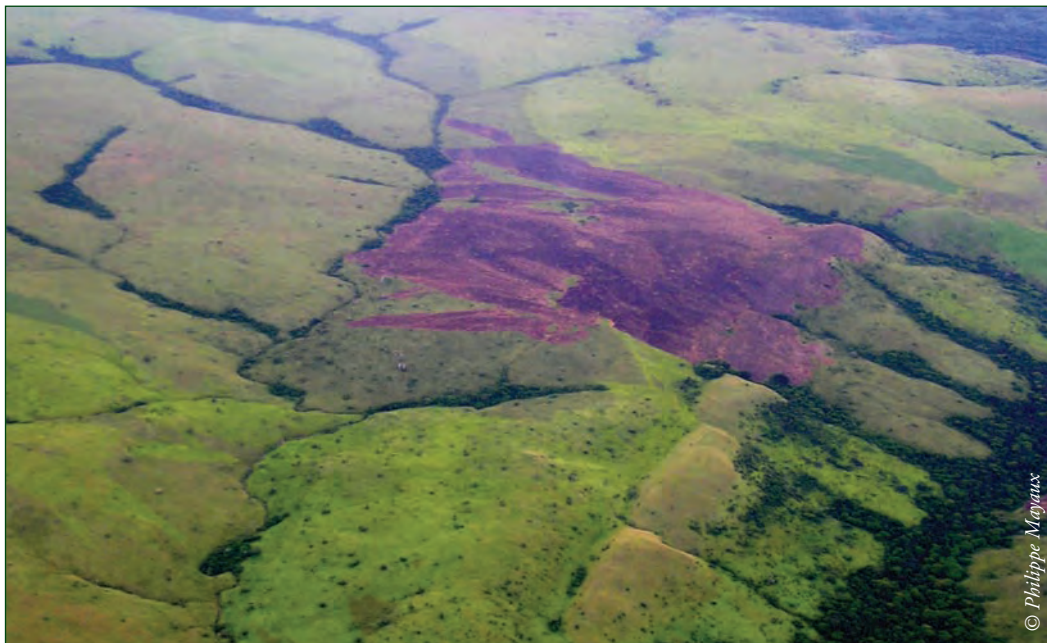

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Photo 1.4: Human land use profoundly impacts forest landscapes.

Table 1.4: Average annual degradation and recovery rates in dense forest zones in the Congo Basin between 1990 and 2000

Country	Gross degradation (%)	Gross recovery (%)	Net degradation (%)
DRC	0.19	0.07	0.12
Congo	0.04	0.04	0.00
CAR	0.06	0.04	0.02
Cameroon (*)	0.07	0.06	0.01
Gabon (*)	0.09	0.01	0.08
Eq. Guinea (*)	0.00	0.32	
Congo Basin	**0.15**	**0.06**	**0.09**

(*) These figures from should be interpreted cautiously given the low to very low sampling rate.
Source: adapted from Duveiller et al., 2008.

Forest Logging in Central Africa: Progress and Challenges

Contribution of the Forestry Sector to Economic Development in Central African Countries

Photo 1.5: Felled trees serve as the primary source for the timber sector.

Photo 1.6: ... but some logs are abandoned.

[1] See 'The forests of Congo in 2008' chapter in this report.

[2] See 'The forests of the DRC in 2008' chapter in this report.

The formal forestry sector has played an important role in the Congo Basin since the colonial era. However, the sector's contribution to GDP has decreased gradually and consistently - especially for countries where the oil sector has been growing rapidly, notably in Congo, Gabon and Equatorial Guinea. According to data collected in ministerial departments in charge of economy and finance in the countries concerned, the lowest forest sector contributions to GDP are found in Equatorial Guinea (0.22 %) and DRC (1 %). The decline in importance of the forestry sector in the economy of Equatorial Guinea is almost entirely due to the oil sector, which has literally exploded in the last five years, making it also the only high-income country in the sub-region. In DRC, on the other hand, the forest sector's collapse has been largely due to the disintegration of the underlying economic and state institutions, combined with a neglected infrastructure network that has led to inflated transportation costs for the industry. The latter is all the more striking, occurring in a country that has urgent need for financial resources (the country with the lowest GNI *per capita* see table 1.1) and largest forest area of the continent. Table 1.5 presents the contribution of the forestry sector in terms of tax revenue and percentage of GDP for each country of the sub-region. As is indicated here, Cameroon generates the greatest amount of revenue from the forest sector in the sub-region.

However, the consideration of the forestry sector's role in the national economy cannot be limited solely to its estimated contribution to GDP. For example, in spite of only being 6.3 % of GDP, CAR's timber exports contributed 41 % to national export earnings in 2007. In both CAR and Gabon, the forest sector is the second largest employer in the national economy after the state. Jobs in the forestry sector are of particular importance because a large proportion of employees come from surrounding rural areas. In Congo, for example, there are about 4,000 employees[1] in the logging and timber sector in the provinces of Sangha and Likouala alone. In DRC, with very little rural employment in the formal sector, there are 15,000 direct jobs listed in the timber industry.[2] In rural forested areas across the Congo Basin, the formal forestry sector is by far the largest private employer.

Table 1.5: Contribution of the forestry sector to GDP and tax earnings in the Congo Basin

Country	Contribution to GDP (%)	Contribution to tax earnings (million €)
Cameroon	6	62.1
Congo	5.6	10
Gabon	4.3	31.3
Eq. Guinea	0.22	13.8
DRC	1	1.7
CAR	6.3	-

Sources: Cameroon: Ministère des Finances; Congo: Document stratégique de Réduction de la Pauvreté (DSRP); DRC: World Bank; CAR: Institut centrafricain de Statistiques et d'Études économiques et sociales; Gabon: Direction générale des Impôts; Equatorial Guinea: Documento de la 2da Conferencia Económica.

Photo 1.7: … while others will be turned into charcoal.

Forest Statistics and Flow

Log Production from the Formal Sector

In 2007, the formal forestry sector in Central Africa produced about 8.4 million cubic meters of timber (table 1.6). Gabon, with nearly 3.4 million cubic meters, is the largest producer followed by Cameroon (approximately 2.3 million m³). The smallest producer is DRC, with 310,000 m³.

The formal timber sector logs more than 50 species across the sub-region, but only a dozen are well known and tend to dominate the market. The most harvested species is okoumé, representing over 32 % of timber products from Central Africa. It is found mainly in Gabon, but also in Equatorial Guinea and Congo to a lesser extent.[3] Second to okoumé is sapelli, found in most countries of the sub-region, this species accounts for nearly 16 % of overall timber volume. The third most abundant timber species, ayous, represents nearly 11 % of overall wood volume harvested. Combined, these three species represent about 59 % of log production in Central Africa. Overall,

logging in the Congo Basin is still very selective towards high grade timber, and many species are under targeted or not targeted at present - due mainly to lack of market or a very low profit margin for these species. A lack of focus for certain species is often linked as well to their unfavourable specific technical properties (including extremely dense and/or fibrous species), or to a high tendency of being infested by insects or fungus (high phytopathological sensitivity). There is an ongoing progressive diversification of species logged, but it is occurring very slowly and only in forests near the ports of export and/or with lower production costs (Cameroon, the coastal area in Gabon, southern Congo and the province of Bas-Congo in DRC). For example, azobé is widely logged on the coast of Cameroon but hardly at all in Northern Congo despite being present. Furthermore, ilomba, an abundant peeling species in all forests of the sub-region, is only harvested in Equatorial Guinea.

Photo 1.8: The timber industry is the primary job provider in rural areas (sawmill FOREEX - Gabon).

Photo 1.9: The African forests consists of many important tree species, but only 50 species are exploited.

Table 1.6: Harvested timber volume and primary species logged by country in 2007

Country	Production (m³)	Main species logged
Cameroon*	2,296,254	Ayous, sapelli, tali, azobé, iroko
Congo	1,330,980	Sapelli, sipo, bossé, iroko, wengué
Gabon	3,350,670	Okoumé, azobé, okan, movingui, ozigo
Eq. Guinea	524,799	Okoumé, tali, azobé, ilomba
DRC	310,000	Sapelli, wengué, sipo, afromosia, iroko
CAR	537,998	Ayous, sapelli, aniegré, iroko, sipo
Total	**8,350,701**	

* Data 2006.
Source: National ministries of forestry.

[3] It should be noted that okoumé statistics are aggregated with those of ozigo, now banned from harvesting in Gabon.

Photo 1.10: In recent years, the timber industry in Central Africa has focused on first-stage wood processing (CPBG peeling mill in Port Gentil).

In Central Africa, industrial timber transformation facilities are mainly oriented towards primary processing (sawing, peeling and slicing). Of the 225 industrial processing units listed, 177 (nearly 80 %) are sawmills. Gabon has the highest number (73) of industrial plants followed by Cameroon (60) – combined, they represent 60 % of sub-regional processing capacity (table 1.7). The existence of a sawmill structure, however, does not always translate into it being operational. This point is especially relevant in DRC, where the worsening socio-political context in the 1990s led to the stoppage or abandonment of many plants where the equipment is now obsolete. Official statistics do not record artisanal sawmills, which often operate in the informal sector and that, considered as an entity, can be a significant contribution to the wood processing sector.

Peeling plants are often associated with plywood facilities and thus incorporate a secondary processing element. A growing number of sawmills are associated with industrial planning facilities and produce planed sawn wood (flooring, molding...). The amount of processed dried wood has also risen sharply in recent years across Central Africa.

Table 1.7: Distribution of industrial timber processing plants in Central African in 2007

Type of industry	Cameroon	Congo	DRC	CAR	Gabon	Eq. Guinea	Total
Sawmill	51	25	33	7	60	1	**177**
Peeling plant	5	6	6	1	12	5	**35**
Slicing plant	4	0	2	2	1	4	**13**
Total	**60**	**31**	**41**	**10**	**73**	**10**	**225**

Source: National ministries of forestry.

The number of industrial plants does not provide the full picture regarding the volume of wood processed because as mentioned above some of the processing units are not functional and information on the processing capacity of these plants is often incomplete. From the statistics on factory input volumes, which are fairly well monitored in all countries except DRC, it is possible to estimate the processing rate for each country (table 1.8) using statistics on felled volumes (table 1.6). From an analysis based on available data, it appears that Cameroon is the most active timber processing country, with nearly 75 % of timber processed in-country. This high timber processing rate in Cameroon flows from a policy introduced in the Forest Code of 1994, which mandated a stop to log exports within five years. This strict policy has been somewhat eased by allowing the export of some logs through a quota system - but its impacts have been nonetheless significant. Cameroon is followed by Congo, which has a processing rate of approximately 65 %.

Although it is increasing, the timber processing rate in Central Africa remains low overall and log exports still dominate. By improving the conversion rate in each country, the forest sector's contribution to national economies could be increased - especially if companies operating in the sub-region move beyond mere primary processing of wood. Incentive policies aimed at removing current obstacles to an augmentation in processing, could help achieve this. Paradoxically, it remains often more profitable to export raw logs, transported hundreds of kilometers, than sawn timber.

Table 1.8: Rate of industrial timber processing in Central Africa

Country	Processing plant input volume (m³)	Volume felled (m³)	National processing rate (%)
Cameroon	1,716,566	2,296,254	74.8
Congo	861,768	1,330,980	64.7
DRC	-	310,000	-
CAR	128,473	537,998	23.9
Gabon	1,131,566	3,350,670	33.8
Eq. Guinea	73,151	524,799	13.9

Source: National ministries of forestry.

Photo 1.11: Logging roads are essential to export logs from forest areas.

Table 1.9 presents the volume of primary industrial timber products processed in 2007 in Central Africa. In comparison with the volumes exported of the same processed timber products (table 1.10), only a slight difference is observed. While this low discrepancy in volumes may be due in part to certain data inconsistencies, it nonetheless signals that little of the industrial processed timber is sold locally. In all countries of the sub-region, the majority of local demand is met through the informal timber sector. This informal sector is largely supplied either through traditional wood processing operations (pit sawyers) or by absorbing the "waste" wood by-products of the formal sector. However, in either case, these transactions are not captured as part of the formal timber sector market.
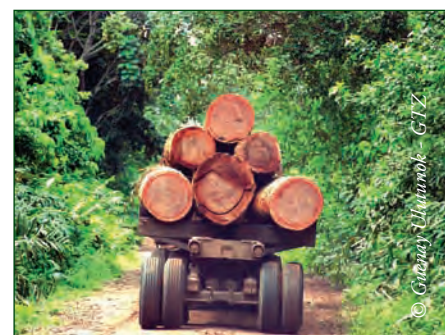
Table 1.9: Primary industrial timber processing products in Central Africa in 2007

Volume (m³)	Cameroon	Congo	Gabon	Eq. Guinea	CAR	Regional total
Sawn wood	613,000	212,719	296,406	784	97,001	**1,219,910**
Peeled veneer	3,204	44,826	180,516			**228,546**
Plywood	22,000	8,665	84,795	293	740	**116,493**
Sliced veneer	64,286	0	1,285	27,644	4,300	**97,515**
Planed sawn wood	64,000	11,300				**75,300**

Source: National ministries of forestry.

Exports

Table 1.10 presents the volume and types of industrially processed timber products exported through the formal sector in Central Africa. As mentioned above, unprocessed logs represent the largest product category exported from Central Africa. The largest producer of logs, Gabon, is also the largest exporter of this product, with nearly 53 % of sub-regional log exports. The second largest sub-regional export is sawn wood. Cameroon is the only exception in the sub-region, where the volume of processed products exported surpasses that of logs. As mentioned above, this can be seen as a result of deliberate policy to encourage in-country wood processing,

Gabon is the largest producer of peeled veneer and plywood – owing to an abundance of okoumé, which is particularly adapted to this type of processing.

Slicing remains a marginal activity, with high added value and exclusively for very high quality wood.

The main destination of overall timber exports from Central Africa remains the European Union, although the importance of Asia is rapidly increasing. As an example, China has recently become the main destination for Gabonese timber exports.

Photo 1.12: CPBG peeling mill in Port-Gentil (Gabon).

Table 1.10: Quantities and types of timber products exported through the formal sector in Central Africa

Exported product (m³)	Cameroon	Congo	Gabon	Eq. Guinea	CAR	DRC	Regional total
Logs	266,000	522,497	1,938,079	547,299	193,213	208,087	**3,675,175**
Sawn wood	613,000	209,122	157,856	600	76,042	30,382	**1,087,002**
Peeled veneer	64,286	15,307	144,135	31,101	4,300	0	**259,129**
Sliced veneer	3,204	0	1,889	0	0	1,392	**6,485**
Plywood	22,000	1,755	28,384	0	740	6,762	**59,641**
Planed sawn wood, flooring, molding…	3,205	0	0	0	0	1,152	**4,357**
Log for pulp and paper	0	250,746	0	0	0	0	**250,746**

Source: National ministries of forestry.

Advancing Sustainable Forest Management in Central Africa

Improving Legal and Institutional Frameworks

Following the 1992 Earth Summit in Rio de Janeiro, all of the Central African countries have embarked on a revision of their forest laws in order to make them compatible with the needs of sustainable forest resource management. These new laws and regulations, most of which have already been adopted, include important new developments. Notable amongst these laws are certain novel obligations: (1) the requirement to manage production forests based on (sustainable) management plans; (2) the need for greater participation from local people in forest resource management; (3) specific conservation objectives to be achieved across the national territory; and (4) to reduce the negative impacts of resource extraction on forest ecosystems through a series of regulations and guidelines. In addition to legislation specific to managing forest and wildlife resources sustainably, some countries (Cameroon, Congo, Gabon, and Equatorial Guinea) have already adopted laws on environmental protection in a broader sense, while others (DRC and CAR) have already prepared similar draft legislation, that is currently winding its way through the legislative process. Institutionally, management of forest resources and environmental protection have also grown in political clout across the sub-region, through the creation of new ministerial departments in charge of implementing and developing government policies in the forest/environment field. State financing for biodiversity resource management is also improving. Cameroon, CAR, Equatorial Guinea, and Congo have set up national funds to finance public service activities for forest and wildlife management, and biodiversity conservation. In principle, the DRC has a forest capital trust fund created in 1985, but which has ceased operating since the socio-political events of the 1990s. With the support of technical and international financial partners, different countries have developed restructuring programs. At present, only the Forest and Environment Sector Program (PSFE) in Cameroon and the Forest Environment Program (EFP) in Gabon are operational. The National Forest and Conservation program (PNFoCo) in the DRC and Congo's PSFE remain in preparatory phase. Apart from restructuring programs and traditional bilateral and multilateral initiatives in the forest sector, the international community has instituted a number of instruments and financing mechanisms for Congo Basin forests. The new funding initiatives are often linked to the issue of climate change, payment for ecosystem services or contribution to the Millennium Goals. One such initiative is the Congo Basin Forest Fund (CBFF), which aims to reduce poverty and mitigate climate change by reducing deforestation across the sub-region. The CBFF is designed as a multi-donor fund and has already received capital inputs of around $ 100 million through contributions from the United Kingdom and Norway. Another example is the GEF's (Global Environmental Facility) strategic program to support sustainable forest management in the Congo Basin. In support of this endeavor the GEF aims at pooling a total of $ 200 million - commitments have already been made for $ 54.7 million from GEF agencies (World Bank, FAO, UNDP, UNEP) and the rest is to come from national governments and co-financing from various donors and NGOs (Simula, 2008).

Towards Better Forest Governance

Improving forest governance in Central Africa is generally pursued through three approaches: the FLEGT process (Forest Law Enforcement Governance and Trade), independent third party observers and timber certification and/or legality systems operating in the Congo Basin.

The FLEGT process initiated by the European Union, aims to culminate in the signing of bilateral Voluntary Partnership Agreements (VPA) between all the timber-exporting states of the sub-region and the European Union. Once signed, these agreements will restrict timber exports to the EU to wood that meets the legal conditions agreed to by the signatories. The first VPAs should be signed by the EU with Cameroon and the Congo during the first half of 2009. Other countries have already begun informal discussions with the EU and negotiations will take place in 2009.

Before the implementation of the FLEGT process, some countries in the sub-region had already adopted the process of linking Independent Observers (IO) to the monitoring of forest operations for greater transparency. The oldest and most varied experience is that of Cameroon. Since 1999, Cameroon has involved regular IOs during the allocation of forest concessions. Subsequently, NGOs working to promote transparency such as Global Witness and Resource Extraction Monitoring (REM) were involved in forest monitoring - a sovereign state activity - and their monitoring reports were widely disseminated at international level. Cameroon has also worked with the World Resource Institute (WRI) to develop an interactive forestry atlas, making it available to users interested in basic information on forest concession management. The Republic of Congo has also involved IOs in forestry operations and an initial version of its forestry atlas (prepared with WRI) has already been published. All sub-regional countries are currently developing joint forest atlases with WRI. The notable transparency in DRC, both in developing the legal framework for forest management and in converting former logging titles to concessions, should also be emphasized. At each stage of the process, the forestry administration has worked consistently with national and international NGOs, as well as technical, international donor and private sector partners.

In development by COMIFAC, the OFAC (*Observatoire des Forêts d'Afrique centrale*) will help all Central African countries to make a wide variety of forest sector data available in a transparent fashion, including: forest cover, logging, biodiversity conservation and biodiversity development statistics.

Additionally, countries of the sub-region signed an agreement in 2008, under the auspices of COMIFAC, to strengthen forest law enforcement and monitoring.

The private sector is also involved in initiatives to improve the law on forestry operations and enhance transparency. Thus far, 25 certificates of legality (total area of 2,606,340 ha) have been granted to private companies following audits by independent bodies, including SGS and Bureau Veritas (see table 1.12). Many companies are also involved in the Forest Transparency Initiative (FTI), a project funded by the Cooperation Agency of the United Kingdom (DFID) and implemented by the World Resources Institute (WRI) with the aim of making information on forest resource management available to interested members of the public.

Photo 1.13: Better management of production forests involves the adoption of management plans.

Implementation of Forest Management Plans: Significant Progress

Implementation of forest management in logging titles has experienced ten years of notable progress in Central Africa. From zero hectares managed in 2000, the sub-region had over 11.3 million ha of forest concessions in 2008, managed in accordance with state-approved plans. Forest management plans are in effect in four countries of the sub-region: Cameroon, Congo, Gabon, and the CAR (see table 1.11). In CAR, 8 of the 11 concessions awarded already have management plans approved and in operation (or 75.2 % of the licensed area), with the three remaining concessions expected to have approved plans by the end of 2009. For the sub-region, about 36.4 million ha have been allocated in the form of 256 forest concessions - 87 of which are already operating under approved management plans, representing 31 % of the area allocated (11.3 million hectares). These figures will likely increase significantly during the next five years, as management plans in another 142 concessions (21.4 million ha) are finalized. The French Devel-

Photo 1.14: Dense forests represent a succession of dominant and dominated trees.

opment Agency (AFD) is supporting two projects (PAPPG in Gabon and another in development in Congo) whose objectives are to find workable solutions for logging titles which have thus far remained outside of the formal sustainable forest management process.

The DRC will see significant change in the near future - following the recent forest title conversion process. At present, 65 titles[4] (about 9.7 million ha) have been converted, due to their adherence to regulations and their commitment to sustainable management. Within four years, these convertible titles must have management plans approved. 91 titles (about 12.7 million ha) are still undergoing review.

Forestry Certification: International Recognition of Progress Made Towards Sustainable Forest Management in Central Africa

Since the advent of forest certification in the early 1990s, a number of private logging companies operating in Central Africa have pursued this internationally recognized process through adherence to standards of sustainable forest management. Among several competing processes, the Forest Stewardship Council's (FSC) certification system is considered the most demanding at the international level - focusing not only on technical, but also social and environmental aspects of forest management. The FSC system uses the same principles, basic criteria and indicators (PCI) to assess forest management around the world. Thus, the granting of an FSC certificate to an enterprise amounts to international recognition of the quality of forest management.

Leroy Gabon achieved the first FSC sustainable forest management certificate in Central Africa in 1996 (Eba'a Atyi, 2006). However, their certificate was almost immediately withdrawn at the request of some NGOs, who claimed that the company's management plan was not satisfactory, since the State had not yet defined the procedure for preparing forest management plans. It took 10 years for another FSC certificate to be issued in the sub-region, this time on a concession of 42,000 hectares in Cameroon (Wijma). From zero hectares in early 2006, FSC-certified forest area ballooned to a total of more than 3 million hectares in October 2008, spread over three countries: Cameroon (899,822 ha), Congo (834,302 ha) and Gabon (1.3 million ha). These FSC-certified areas are managed by seven companies: four in Cameroon (Wijma, SEFAC, TRC, Pallisco), one in Congo (CIB) and two in Gabon (CEB and Rougier-Gabon).

Apart from the FSC system, Keurhout is another sustainable forest management certification system that has granted certificates for about 1.2 million hectares of production forests in Gabon (table 1.12). These Keurhout certificates are gradually being replaced by FSC certificates. In Central Africa, some companies have also opted for environmental management certification (ISO 14001) primarily in Gabon with 549,327 ha, in addition to a certification of legality or sustainable forest management (FSC or Keurhout).

Decentralization, Increased Local Participation and Benefit Sharing in Forest Resource Management

Among the most important innovations within the new forest laws adopted by Central African countries are those relating to the participation of local populations, decentralization and benefit sharing. These innovations are illustrated by the introduction of the concepts of community forests, municipal forests, decentralized communal forests and forest revenue distribution to decentralized entities. The same concepts, relating either to forest management or taxation, can be found with variable wording in the legislation of all countries. However, Cameroon is the only country where many of these concepts are being translated to concrete actions on the ground. Data from the Cameroonian forestry administration (MINFOF) indicate that 177 community forests[5] covering 632,000 ha had been allocated by 2007. Of these community forests, 143 (564,000 ha total) had a simple management plan approved by the forest administration. Also in 2007, council forests were allocated to six Rural Councils in Cameroon (141,000 ha total), four of which already have approved management plans (110,000 ha total).

[4] See 'The forests of DRC in 2008' chapter in this report

[5] Community forests are managed by village communities to produce forest goods, and services benefiting the communities concerned.

Cameroon instituted a decentralized forest taxation system in 1997, and Rural Councils in the forested zone have since received 50 % of annual forestry fees (*Redevance forestière annuelle*, RFA), paid to each of these local authorities by the central government. The amount of RFA redistributed depends on the extent of forest concessions within a given Rural Council, as well as to the amount paid by companies by unit area. Statistics from the Ministry of Finance show that in 2007 CFA 6.7 billion (€ 10.2 million) were transferred to rural communities of Cameroon under this revenue distribution process. The CAR also has a decentralized taxation system, redistributing a fee of 1,000 CFA/m³ of timber extracted from logging concessions to the municipality having jurisdiction.

In other countries, community forestry is sometimes provided for by the legislative framework but not yet implemented on the ground (notably, in Gabon and DRC). Decentralized taxation is called for by legislation in both Congo and DRC, but its implementation remains as of yet ineffective.

Photo 1.15: Practical training on how to measure the diameter of a tree.

Table 1.11: Status of forest management implementation in Central Africa in 2008

Forest concessions	Cameroon Area (ha)	Cameroon Nbr	Congo Area (ha)	Congo Nbr	Gabon Area (ha)	Gabon Nbr	Eq. Guinea Area (ha)	Eq. Guinea Nbr	CAR Area (ha)	CAR Nbr	DRC Area (ha)	DRC Nbr	Total area (ha)	Total number
Management process not started			3,696,109	27									3,696,109	27
Under definitive agreement (management plan approved)	4,207,862	65	1,907,843	3	3,449,131	11			1,739,055	8			11,303,891	87
Under provisional agreement (management plan in preparation)	1,866,171	38	6,371,718	22	6,018,597	33			582,789	3			14,839,275	96
Total concessions allocated	6,074,033	103	11,975,670	52	9,467,728	44				11	9,170,246	65	39,009,521	275
Total annual harvestable areas (AACs) in 2007	247,758	91	181,687	26	74,392	12			81,684	10			585,521	139

Source: data collected by the FORAF Project, 2008.

Table 1.12: Status of forest certification in Central Africa in 2008

Type of certificate	Cameroon Nbr conc.	Cameroon Certified area (ha)	Congo Nbr conc.	Congo Certified area (ha)	Gabon Nbr conc.	Gabon Certified area (ha)	CAR Nbr conc.	CAR Certified area (ha)	DRC Nbr conc.	DRC Certified area (ha)	Total number of concessions	Total certified area (ha)
Concessions with certificates of legality (TLTV, OLB)	21	1,722,786	0	0	2	622,399	1	195,500	1		25	2,540,685
FSC	8	899,822	2	834,302	4	1,304,963					14	3,039,087
ISO 14001					1	549,327					1	549,327
Keurhout					2	1,166,027					2	1,166,027
PAFC			0	0							0	0
Total of certified sustainable management forests	8	899,822	2	834,302	4	1,304,963					14	3,039,087
Total	29	2,622,608	2	834,302	9	3,642,716	1	195,500	1		42	7,295,126

(*) In Equatorial Guinea there are no certified forests either for sustainable management or for legality.
Source: data collected by the FORAF Project, 2008.

Remaining Obstacles to Sustainable Forest Management

Inadequate Legal and Institutional Frameworks

Central African nations have made considerable progress with regards to legislation aimed at sustainable forest resource management. Nonetheless, existing laws are not always supported by the necessary implementing provisions and often contain inconsistent or incoherent elements. For example, several countries have laws referring to community forests and decentralized communal forests, but the lack of the necessary associated by-laws prevents concrete implementation from taking place on the ground. The same is true for the frequent absence of specific terms referencing the modalities of forest revenue distribution.

The application of new laws is also complicated due to inconsistencies between different texts on similar topics. A comparative study of forestry legislation in Congo Basin countries (Perthuisot and Durrieu de Madron, 2008) highlights several of these inconsistencies.

Lack of Adequate Forest Sector Statistics and Information

Most governments have limited forestry statistics, and forest administrations consequently are often unable to provide reliable information on ongoing development projects in the sector, on their financing, and on their implementation period. Administrations are also not always aware of recent developments in the forest certification process in their respective countries.

The mechanisms for information exchange between civil society (NGOs), the private sector and forestry administrations are inadequate. Forestry administrations have no information on the amount of financial support garnered by NGOs nor on the level of technical capacity of NGOs and private companies operating in the forest sector. As a result, the institutional capacity of the forestry sector has always been poorly estimated in Central Africa.

By creating the *Observatoire des Forêts d'Afrique centrale* (OFAC), COMIFAC aims to help countries bridge the information gap in the forest sector, in support of improved decision-making capabilities. To do this, however, countries must build adequate institutions and avenues to collect data; these structures remain absent to date.

Photo 1.16: A team from the Cameroonian ministry in charge of forests is trained in the use of GPS.

Poorly Understood Resources

Despite the forest management projects undertaken in the sub-region, forest ecosystems are still poorly understood because of insufficient and disparate research efforts. This lack of knowledge is in part a result of the absence of a network of permanent observation plots for monitoring forest dynamics in almost all countries of the sub-region. In the few countries where there are such plots, such as CAR, they are not representative of all forest types or they are very recent and cannot yet provide results applicable to forest management.

The large databases established during forest management inventories contain a vast wealth of information and should be better used at the sub-regional level to improve knowledge of forest ecosystems. Various initiatives in this direction are underway.

A Prominent and Relatively Unknown Informal Sector

As mentioned above, the informal sector plays an important role in the forestry sector in Central Africa. The informal sector ranges from supplying rural populations with forest products for traditional usage, to meeting the lumber and firewood needs of large urban centers, and, sometimes, to providing sub-regional and international markets (often relatively insignificant quantities). Despite its importance, the informal sector for forest products remains relatively unknown and data are patchy and incomplete at best. More systematic studies should be conducted in the near future in order to better guide holistic decision-making for the forest sector. Studies are underway in the framework of the FORAF project, in order to provide additional data and define the methodologies to monitor this sector in the future.

Persistent Governance Problems

Despite recent efforts to improve forest governance, problems persist in this arena largely because forest monitoring and enforcement institutions remain generally weak and ineffective. However, it should be noted that governance problems observed in the forestry sector are characteristic of the general socio-political context present in Central African countries. In the case of Cameroon, for example, the praiseworthy implementation of decentralized forest revenue sharing is slow to produce significant impacts on local development in forest areas. Although the central government is transferring large amounts of forest-derived revenue to forest zone municipalities in a transparent fashion, the management of this money by locally elected officials remains opaque. The poor capacity of the managers of funds received under decentralized taxation, compounded by poor local governance, produces low impacts.

Perspectives for Timber Production in Central Africa

The change in the state of Central African forests for the next five years will likely largely be affected by five key elements impacting the management approaches of government institutions, the private sector and civil society.

Implementation of the New Forest Financing Instruments and Mechanisms

The new financing instruments mentioned above are in launch phase. This is particularly true for CBFF, the GEF Strategic Program of Support for the sustainable management of the Congo Basin and the trust funds being created in some CARPE/CBFP landscapes (case of TNS, for example). These instruments and mechanisms should soon become operational and be a source of capacity building. This is particularly important for conservation activities, for which low-income countries cannot logically give high budgetary priority. Similarly, these new funding initiatives will enable better coordination of sub-regional forest management policies, coordination efforts that have been undertaken for some years thanks to COMIFAC. The CBFF launched a first call for projects, which was a huge success, with 94 projects preselected. A significant number (about twenty) of the selected projects are supranational, with activities planned in at least two sub-regional countries. The effectiveness of such coordination will depend on the ability of the Executive Secretariat of COMIFAC to fulfill this role.

Result of the FLEGT Process

By 2013, at least four of the six timber-exporting countries in the sub-region should have signed VPAs with the EU in the framework of FLEGT. As the EU is the largest customer of Central Africa for timber exports, the VPAs will provide additional incentive for countries in the sub-region to become more involved in combating illegality in the forestry sector. There is a risk that EU countries, faced with the economic crisis, will reduce demand for tropical timber more than Asian countries, which are traditionally less demanding in terms of legality. Nevertheless exchanges already underway between Central Africa, the EU and China on FLEGT should mitigate such risks. One of the interests of VPAs is that during negotiations, timber traceability systems are improved and the use of independent observers will be widespread during application.

Trends in REDD Negotiations

The rules for reducing carbon emissions from deforestation and forest degradation (REDD) are being negotiated. These should come to fruition in the coming years, and according to the terms adopted, REDD may provide an incentive to Congo Basin countries to better preserve current forest biomass in return for financial resources. Conversely, the outcome of negotiations could encourage states with enormous land resources like DRC to turn to new alternatives for wealth generation such as the production of biofuels across large areas of palm oil crop, for example. From this perspective, COMIFAC coordination is required to give more weight to the best REDD options for Central Africa. Eventually, each state will be able to make a combination of three options to develop their forestry potential, namely: (i) sustainable management of production forests, (ii) carbon markets and (iii) payments for environmental services (PES), especially through conservation concessions.

Forest Certification

The first FSC certificates obtained in the sub-region appear to have had a snowball effect, encouraging firms hesitant to engage in forest certification. Almost all companies engaged in sustainable forest management of the territories granted to them now seek sustainable forest management certification, which was far from being the case five years ago. Similarly, international markets buying Certified African tropical timber will be reassured by a more consistent supply of certified timber. It is reasonable to expect that Central Africa will have 7 to 10 million hectares of certified forests in the next five years. Widespread forest certification will lead to a substantial improvement in governance for forest concession management, because the certification audits are independent and based on internationally-recognized requirements.

The Outcome of Reforms in DRC

Owing to the socio-political instability that prevailed over the past 20 years, the DRC has the least developed national forestry sector. With political stability gradually returning, the DRC has undertaken a number of forest sector reforms supported by the international community. As these reforms progress, DRC will become the main focal point for forest management in Central Africa. Its role and potential for REDD should make the country a leader in the next few years. One process that will likely have a ripple effect on forest management in the sub-region is the successful conversion of former logging titles to concessions in DRC, according to the new Forest Code. At the end of an exemplary process to validate the legality of logging titles, more than 10 million ha of production forests are now moving towards the implementation of sustainable concession management. Land use zoning remains to be done in a progressive fashion, in order to be able to define vocations for forest areas (production forest, industrial forestry, development for local people, conservation).

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Photo 1.17: An ICCN guard scans the horizon for wildlife.

Biodiversity Development and Conservation

State of Biodiversity in the Congo Basin

Most of the Congo Basin is in the biome of tropical forests and subtropical rainforest (Olson *et al.*, 2001). Using the "human footprint" approach according to Sanderson *et al.* (2002), large areas of this biome have been identified as part of 10 % of the wildest areas on Earth (center and north-east of Gabon, a large portion of northern Congo, and several major regions of DRC). More recently, while mapping African biodiversity, Burgess *et al.* (2006) found that the richest areas in vertebrate and plant species are those that surround the central Basin.

These authors have described Congo Basin forests as relatively intact and of exceptional species diversity. By comparison, although more vast, the Amazon Basin forests have long since lost their terrestrial megafauna, and many seed dispersal agents no longer play a role (Janzen and Martin, 1982). In some areas of Africa, the same phenomenon has come to pass, while in the Congo Basin, elephants, great apes and other megafauna remain an integral part of the sub-region's ecology (Blake *et al.*, 2009).

Sources: INC/ WCS, WRI, WWF, ECOFAC, ICCN, and FORAF.
Figure 1.2: World Heritage sites in Central Africa

A detailed review of the biodiversity was not possible for the SOF 2006, because the intensity of inventory was biased in favor of the western part of Central Africa and the Albertine rift (CBFP, 2006)

Since the last report on the State of the Forest (CBFP, 2006), the state of knowledge on the Congo Basin has improved significantly. A concerted effort has been made within twelve CARPE/CBFP landscapes to standardize inventory methods and approaches, but the human

and financial resources are insufficient to draft a full and comprehensive status report on biodiversity in Central Africa. However, since the objective of conserving these forests is to maintain the functionality of ecosystems still present, monitoring some indicators representative of the most intact forests will enable us to draft a biodiversity status report.

Elephants and apes were chosen as the indicators of intact, functioning ecosystems because, if a forest is being unsustainably hunted, these spe-

Box 1.3: World Heritage sites in Africa

The 1972 UNESCO World Heritage Convention contributes to the Biodiversity 2010 Objective to reduce the rate of biodiversity degradation, in particular by safeguarding habitats for threatened species through the classification of transborder natural sites and the establishment of protected ecological corridors. In Sub-Saharan Africa, the Convention was ratified by 43 out of 46 UNESCO member-states.

The global status of the World Heritage Convention is as follows:

World Heritage sites by region

Regions	Cultural	Natural	Mixed	Total	%	Member States with listed sites
Sub-Sahara	40	33	3	**76**	9	27
Arab States	60	4	1	**65**	7	16
Asia and Pacific	125	48	9	**182** *	21	27
Europe and North America	372	54	9	**435** *	50	49
Latin America and the Caribbean	82	35	3	**120**	14	25
Total	**679**	**174**	**25**	**878**	**100**	**145**

The site "Uvs Nuur Basin" (Mongolia, Federation of Russia) is a transregional site located both in Europe and Asia and Pacific. Here it is entered under Asia and Pacific.

Today, the concept of World Heritage is well understood by partners, and can be used as a catalyst for international cooperation, allowing World Heritage sites to receive financial assistance from a wide variety of sources for projects to conserve and manage common heritage for humanity.

Natural sites listed as World Heritage in the Congo Basin

Sites by country	Criteria	Year classified
Democratic Republic of Congo		
Virunga National Park	Natural	1979
Kahuzi-Biega National Park	Natural	1980
Garamba National Park	Natural	1980
Salonga National Park	Natural	1984
Okapi Faunal Reserve	Natural	1996
Cameroon		
Dja Faunal Reserve	Natural	1987
Central African Republic		
Manovo-Gounda St Floris National Park	Natural	1988
Gabon		
Lopé-Okanda ecosystem and cultural landscape	Mixed: cultural and natural	2007

The UNESCO mission to promote World Heritage involves:

• encouraging Convention member-States to propose sites on their own territory for listing on the World Heritage list;

• encouraging member-States to formulate management plans for the listed sites and set up systems for reporting on the state of conservation of the World Heritage sites;

• helping member-States safeguard World Heritage sites by providing technical assistance and vocational training;

• mobilizing international cooperation for conserving world forest heritage in Central Africa;

• providing emergency assistance to World Heritage sites in the event of immediate danger;

• supporting member-States activities to sensitize the public to the safeguarding of World Heritage sites;

• encouraging local people to participate in safeguarding their cultural and natural heritage.

It should be noted that inclusion on the World Heritage List is only the first step towards site protection. Management and protection are continuous processes, which involve local people, site managers and national authorities. When the original characteristics that led a site to be classified as World Heritage are threatened, being recognized on the List of World Heritage in Danger can be an effective conservation tool to address threats. It draws the attention of the international community to sites being threatened by natural conditions (e.g., earthquakes and natural disasters) or human activity (e.g., war, armed conflict, pollution, poaching or uncontrolled town planning) and mobilizes international resources so that urgent measures can be taken.

cies are the first to be hunted out. This is because they are (i) selected for by hunters, as they give the best rate of return (in terms of kilograms of meat) per unit effort; (ii) generally occur at lower density than smaller species and (iii) because of their slower reproductive rate, are harvested faster than their rate of replacement.

Two other indicators were used for the State of the Forest. The first is the abundance of signs of human presence. Human sign has been documented to be inversely proportional to the density of elephants and great apes, at least in places where there is no anti-poaching activity or other wildlife protection measures. The second indicator employed was the rate of loss of forest cover, equivalent to net deforestation.

Since 2000, over one hundred biological inventories have been conducted in the Congo Basin (see the section devoted to managing the CARPE/CBFP landscapes). Whether they have been carried out along transects or recces, they have provided the following information:

- elephant dung and ape nest group density on transects (figures 1.3 and 1.4);
- elephant dung and ape nest group encounter rate on recces (figures 1.5 and 1.6) of these and also of human sign (on transects and on recces: figure 1.7);
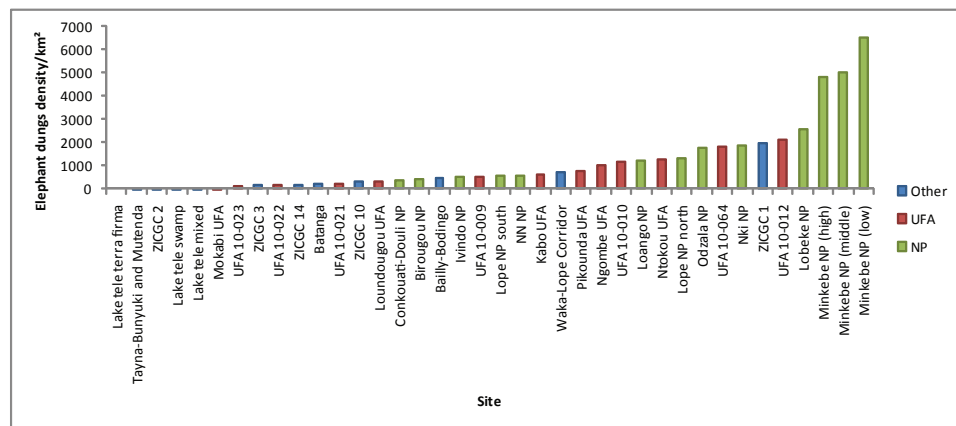- encounter rate of human signs on transects and on recces (figure 1.7).

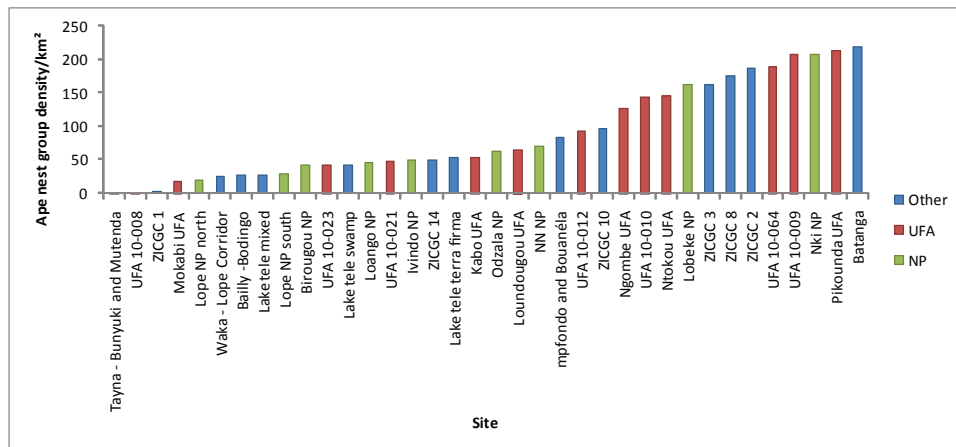Figure 1.3: Elephant dung density per km²
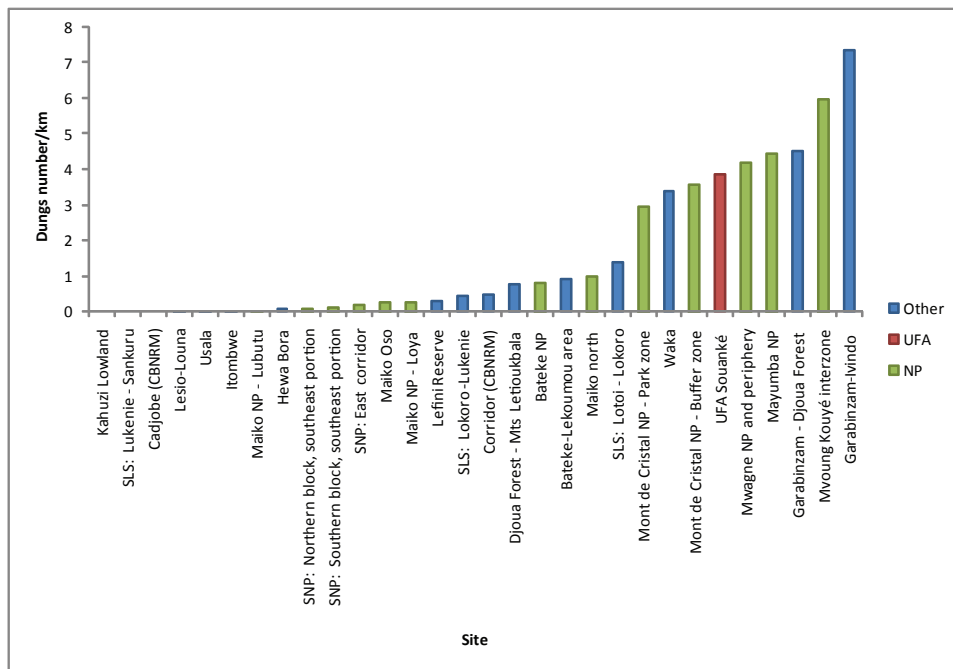

Figure 1.4: : Ape nest group density per km²

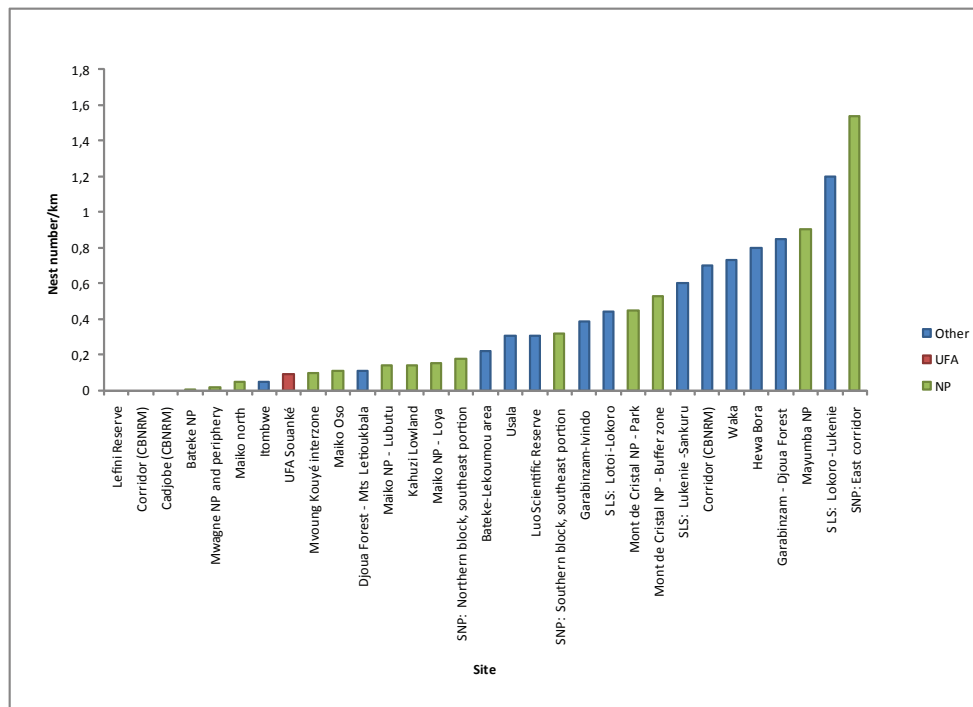*Figure 1.5: Encounter rate of elephant dung per kilometer on recces*

Figure 1.6. Encounter rate of ape nest groups per kilometer on recces

Photo 1.18: An elephant and its mother at a bai in Dzanga-Ndoki National Park.

Relevance for Land Use Planning

The importance of protected areas for elephants is very clear (figures1.3 and 1.5). Most of the sites where there was a low encounter rate (and low density) of elephant dung were community managed zones, or hunting zones. All the sites where elephant dung was abundant were in protected areas.

Most of the protected areas fall into the top half of the graphs, with the logging concessions fairly scattered throughout. Importantly, concessions with no fauna protection measures are in the lower half of the graph, whereas some concessionaires that are already certified or who are working towards certification are placed higher up.
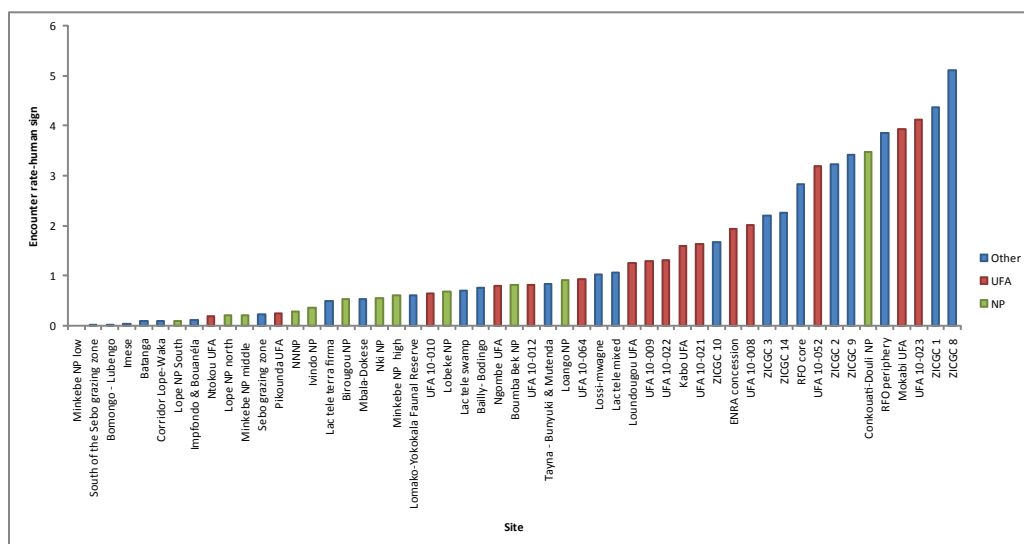

Figure 1.7: Human sign encounter rate on transects and recces

For apes no clear land use pattern emerges (figures 1.4 and 1.6). In logging concessions, community management areas or hunting zones their nest sites can be at low, medium or abundant density. Only two protected areas (Nki and Lobeké) were in the top part of the scale. There was also clearly a subregional difference - all the protected areas in the bottom half of the scale were in Gabon, and all those in the top were either in northern Congo or southeastern Cameroon. However among the hunting areas and the community management areas there was no regional skew - Cameroonian and Congolese sites were found at both ends of the scale (and in the middle). This is probably due to the effect of the recent (1996-2003) Ebola epidemics in the central-eastern Gabon and western Congolese landscapes having almost wiped out the ape populations even in some of the most remote, unhunted areas (Minkebé, Mwagne). Bonobos were poorly represented in the dataset, as only three landscapes hold them; nevertheless they are still present in all three (Salonga, Tumba and Maringa-Lopori).

A more formal regional analysis of data would be necessary before drawing firm conclusions on land use patterns. It has to be said that in general, all wildlife in the DRC landscapes were far less abundant than in those in the other countries. Of the 51 sites for which elephant dung encounter rate data were available, DRC did not figure at all in the top 50% of sites. Of the 38 sites for which elephant dung density were available, only two sites in DRC figured at all, and both were very low indeed on the list. Of the 53 sites for which data was available for ape nest group encounter rate, none of the top 14 included a DRC site.

Approaches to Biodiversity Management

Formal biodiversity management in Central African countries occurs mainly in protected areas. Regionally, the protected areas in categories I to VI as defined by IUCN (IUCN, 1994) total 341, covering an overall area of 57.1 million ha[6] (table 1.13). The exact distribution of protected areas between different IUCN categories is difficult given the differences in conceptions between the stakeholders and laws of different countries. Classifications made in different countries nevertheless agree on national parks (category II of IUCN) and the recreational hunting zones and hunting reserves (IUCN category VI).

In terms of proportion, the 341 protected areas represent 14 % of the territory covered by the six forest-rich nations in Central Africa. The highest number of protected areas and largest proportion of national territory covered can be found in Cameroon and CAR. It is however important to note that recreational hunting zones cover large areas in both these countries.

Subtracting the protected areas in IUCN category VI (i.e. recreational hunting zones, hunting reserves and community reserves - all usually containing relatively little forest) the number of protected areas in the sub-region decreases to 188, with a total area covered of approximately 37.7 million ha. For Cameroon and CAR, the number of protected areas is reduced to 106 (4,360,761 ha) and 15 (6,066,115 ha), respectively.

Photo 1.19: The Red-vented Malimbe (Malimbus scutatus) is on the IUCN Red List of Threatened Species.

Table 1.13: Protected areas (IUCN categories I to VI) in Central Africa

Country	Number of protected areas	Area (ha)	Proportion of national territory (%)
Cameroon	174	10,437,336	22
Congo	14	3,513,438	10
CAR	73	17,330,015	28
DRC	50	26,314,330	11
Gabon	17	2,431,367	9
Eq. Guinea	13	590,955	21
Total	**341**	**57,104,003**	**14***

* Proportion of sub-regional territory.
Source: FORAF, 2008.

Outside the protected areas in category VI, biodiversity management in Central Africa is dominated by 46 national parks covering about 18.8 million ha (table 1.14). National parks make up the bulk of protected areas in countries like Gabon, which has 13 national parks out of 17 protected areas, covering an area of 2.2 million ha out of a total of 2.4 million hectares.

Table 1.14: Distribution of national parks in Central Africa

Country	Number	Area (ha)
Cameroon	15	2,682,407
Congo	3	2,189,161
CAR	5	3,188,700
DRC	7	8,240,000
Gabon	13	2,191,367
Equatorial Guinea	3	303,000
Total	**46**	**18,794,635**

Source: FORAF, 2008.

[6] These figures include recreational hunting zones, and hunting reserves.

Apart from these formally recognized classifications of biodiversity management, populations in Central Africa use forest resources abundantly in daily life to meet nutritional, medicinal, domestic energy and cultural demands. Many non-timber forest products (NTFP) are traded from the local to the international level. Trade in NTFP is largely informal and is poorly monitored by forestry authorities.

Box 1.4: ECOFAC Program

Since 1992, the ECOFAC program has taken part in the conservation and rational use of the forests and ecosystems of Central Africa, cooperating with States and enlisting the participation of local populations. Within the program two fundamental and complementary objectives are closely combined: conservation and sustainable development. ECOFAC cements the European Union's commitment to combat forest degradation and biodiversity loss, while supporting sustainable development in Central Africa.

ECOFAC IV (2007-2010) is the fourth phase of the most important regional environmental program financed by the 9th European Development Fund in Central Africa. It works in 7 of the Central African countries spanning the entire Congo Basin and in 8 protected areas, stretching over nearly 15 million hectares.

For the first time since ECOFAC began, the Democratic Republic of Congo entered the program with the inclusion of Salonga National Park. Salonga National Park (also a World Heritage site) is the largest national forestry park in all of Africa. In DRC, Garamba (in the north) and Virunga National Parks are also receiving ECOFAC support.

Thanks to the support of the three previous program phases, the ECOFAC protected areas (see table below) are gradually becoming management models to sustain over the long-term. Achieving this sustainability is the main priority of ECOFAC IV, even if all protected area managers know the road may be long.

Country	Protected area	Area (km²)
Cameroon	Biosphere Reserve of Dja	5,260
Congo	Odzala-Kokoua National Park and Sanctuary of the Lossi Gorillas	13,200
Gabon	Lopé National Park	5,360
Equatorial Guinea	Monte Alén National Park	2,000
CAR	Mbaere-Bodingue National Park (Ngotto)	9,000
CAR	Village hunting zones (in northern - CAR)	80,000
Sao Tomé and Principe	Obo Natural Reserve	295
DRC	Salonga, Garamba and Virunga National Parks	Respectively 33,166, 5,112 and 7,769

The ECOFAC program is based around four strategic guiding principles

• Strengthening the capacity of actors

Strengthening of capacity occurs at the local level (officers and technicians in charge of protected areas), at the provincial level (decentralized administrations), centrally (national agencies in charge of protected areas) and at the sub-regional level (international support to Central Africa).

• Institutional support

The support provided to national institutions aims at improving the legal, regulatory and technical framework for managing protected areas and peripheral zones, by incorporating this theme into the sustainable development policy of different sectors.

• Integrated management of protected areas

Protected area management is considered within the framework of «land use planning». It supports the installation of local level consensus-building platforms for multiple stakeholders with the goal of ensuring concerted management of protected areas and development planning in peripheral zones, as well as, the operational and institutional dynamics necessary to sustain this approach.

• Sustainable economic development

Protected areas must contribute to local economic development and to combating poverty in neighboring populations through the expansion of non-timber forest products (sectoral approach) and wildlife opportunities (ecotourism, community hunting, etc), or by developing community forestry and supporting targeted means of improving productivity in agrarian systems.

A regional vision

At the regional level, program coordination and the implementation of national components are carried out:

- Through close partnership with the Network of Protected Areas of Central Africa (RAPAC) to strengthen the regional coordination of protected area management.

- By engaging other donors in dialogues within the framework of the Congo Basin Forest Partnership (CBFP) to support the joint implementation of regional activities, such as the FLEGT action plan in the peripheral zones of protected areas or the identification of additional funding sources.

- By associating with regional institutional mechanisms like the Central African Forest Commission (COMIFAC).

- As much as possible, at official or sub-regional levels, ECOFAC also supports international sustainable financing mechanisms currently in development (carbon marketplaces, REDD and others).
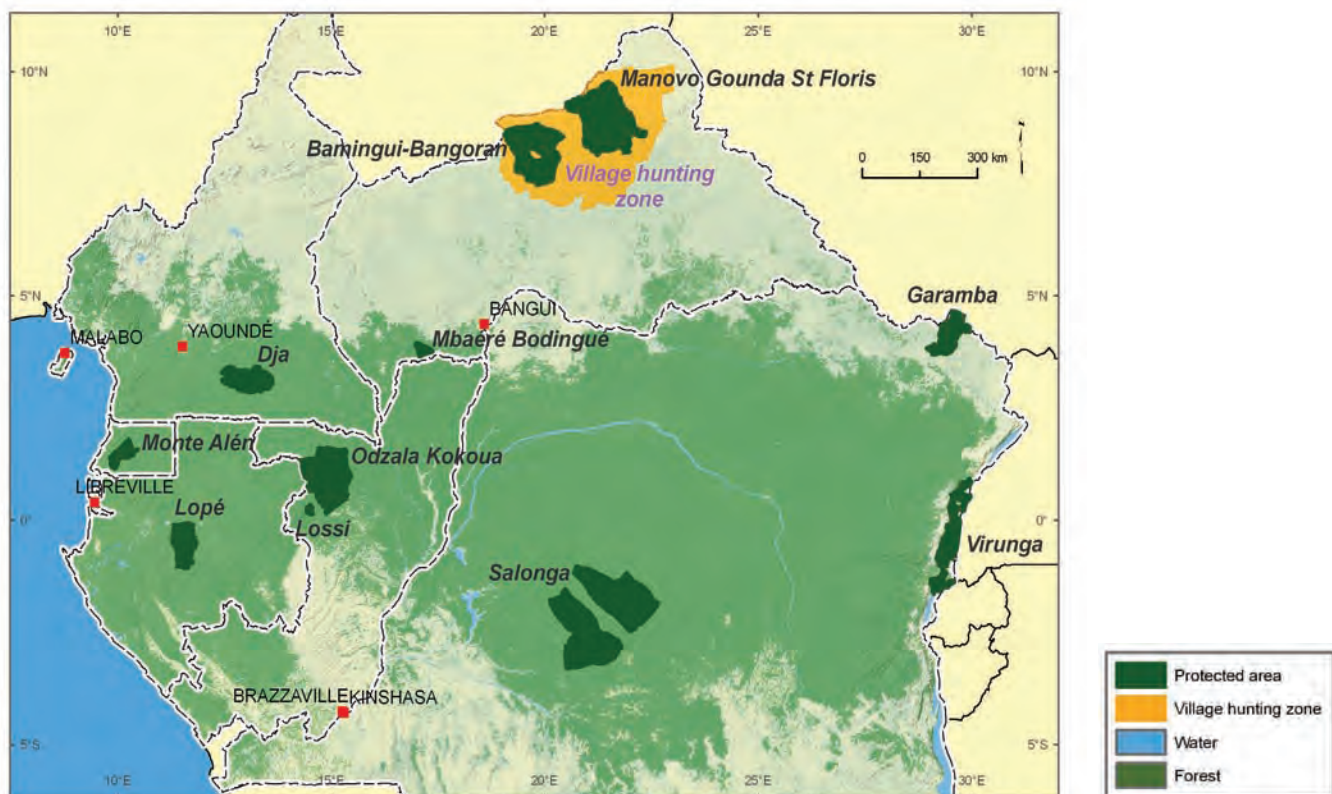
A well mobilized team

Program implementation is supported by a Regional Coordination team based in Libreville (Gabon) and teams in each country, made up of technical support staff for protected areas, 11 international technical assistants and local staff. This staff also receives full support from the national park conservators, wildlife directors, and the ministries and agencies involved.

A Regional Technical Monitoring Committee meets every six months to evaluate the progress of the annual work program and activities, in tandem with the various stakeholders involved in natural resource management in Central Africa.

Contacts: ECOFAC IV Regional Coordination

BP 15 115 Libreville GABON Tel/Fax: (241) 73.34.90 Email: ecofac@ecofac.org web site: www.ecofac.org

Sources: ECOFAC, INC/WCS, INDEFOR, PARPAF, ICCN, WRI, WWF, and FORAF.
Figure 1.8: Intervention sites of ECOFAC IV

Of 314 protected areas, only 10 (covering approximately 2.9 million ha) are managed according to development/management plans approved by the state and adopted for implementation by all stakeholders. Eight of these ten areas are in Cameroon (covering about 2.2 million ha) and two in Gabon (covering 689,748 ha). Among the 10 protected areas with management plans, there are nine national parks and one wildlife reserve (the Dja Reserve in Cameroon also classified as a Biosphere Reserve).

Economic Development of Biodiversity

The economic valorization of biodiversity is mainly through ecotourism and recreational hunting tourism. However, despite the potential offered by the sub-region's exceptional biodiversity, the biodiversity-related tourist sector remains underdeveloped and is poorly monitored by the public administration. For example, apart from Cameroon and CAR (see national summaries of these countries), where recreational hunting zones are formally managed, hunting tourism is neither organized nor monitored in any of the other countries - despite legal provisions to promote this sub-sector.

In Cameroon, it is estimated that biodiversity-related tourism contributed 1.35 % to the balance of trade and provided tax earnings of about € 697,328 in 2007. During the same fiscal year, the biodiversity-related tourism sector directly employed nearly 800 people in CAR and provided tourist revenues estimated at nearly € 1 million, despite the safety issues this country is experiencing. Partial data provided by the ICCN in DRC indicate tax revenues of around € 52,847 in 2007 with tourist revenues of € 22,525 (FORAF, 2008).

Photo 1.20: Mountain gorilla tourism has the potential to be highly profitable.

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Conclusion

Central African forests still represent a resource of global significance and remain relatively well preserved. Forest resource management in Central Africa takes place against a background of widespread poverty, but the forest sector has the potential to help reduce poverty not only through sustainable management of forest concessions, but also biodiversity conservation and enhancement activities. To valorize the potential available, forest resource management in Central Africa will have to seize all the opportunities offered by the new approaches to develop biodiversity resources (e.g., carbon and other environmental services) and the associated mechanisms for mobilizing funding.

Since the first report on the state of the forests in Central Africa in 2006, significant progress has been made towards sustainable concession management. These advances come from the implementation of management plans, progress in forest certification and a tendency for greater

involvement of all social strata in managing forest resources and sharing the benefits generated. However, in all sub-regional countries, the impact of these efforts has been undermined by continuing governance problems and an unregulated informal sector with scarce information.

Progress has also been made towards improving the protection of vulnerable species within logging concessions in the sub-region. By extension, this protection has also benefited other species which constitute an important component of these ecosystems. However, more efforts are needed – especially in concessions where no conservation component exists in the management plan (generally part of the certification process), as well as in community-managed areas.

In DRC, it appears that the «syndrome of the empty forest» (Redford, 1992) - or at least the «half-empty forest» (Redford and Feinsinger, 2001) - has become widespread, and a broader and more concerted effort is needed to reverse the biodiversity loss incurred.

To date, there is little economic valuation of biodiversity in the sub-region. This absence of any directly linked economic incentive to conserve biodiversity, often results in a general lack of interest amongst the population to engage in such activities - in the context of a sub-region facing immediate large-scale development demands. In order to mobilize the resources necessary to adequately support conservation and sustainable development of the Congo Basin's forests, improved communication efforts are needed regarding the status of these forest resources, as well as ongoing activities and potential opportunities to implement sustainable management strategies in the sub-region.