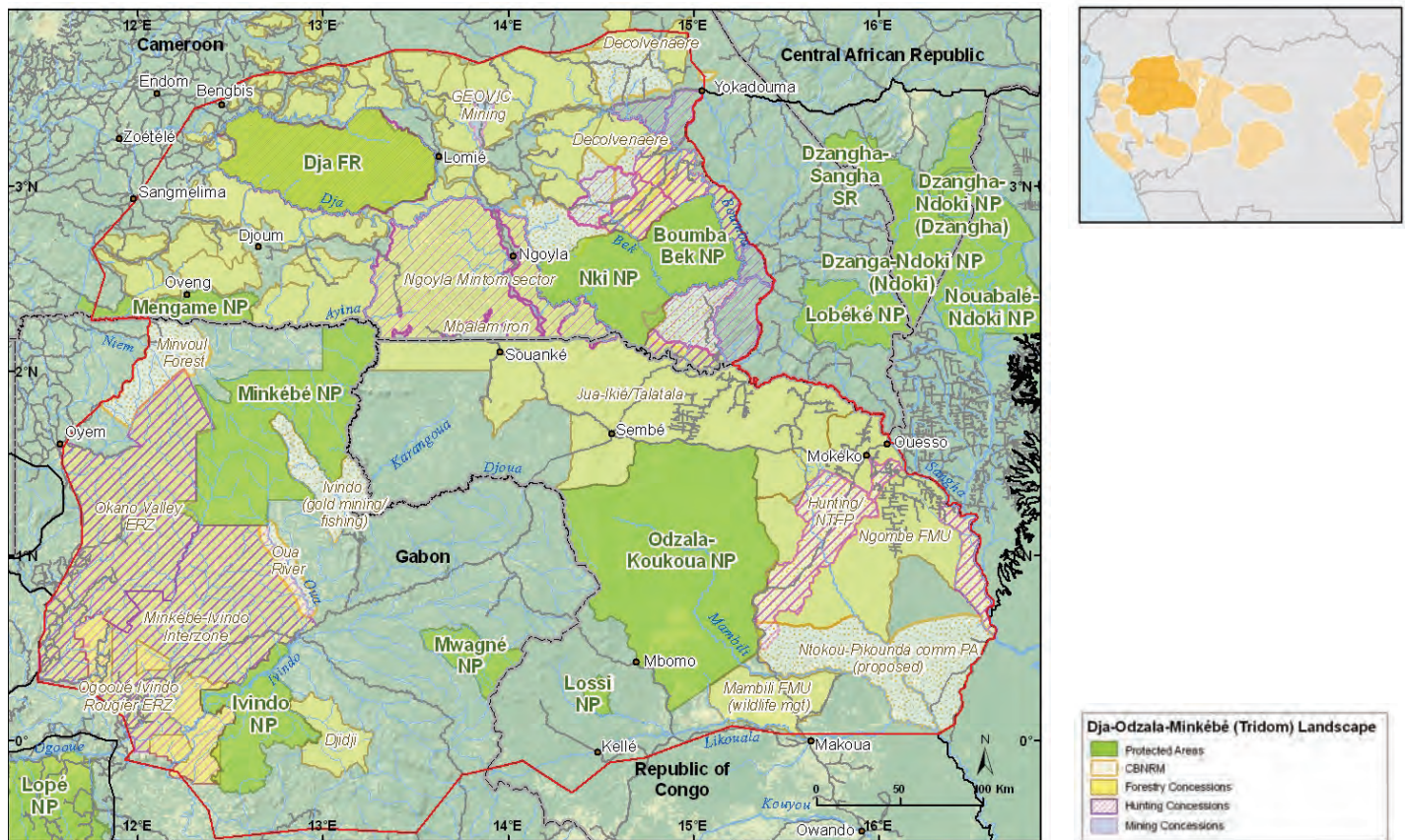


CHAPTER 18

DJA-ODZALA-MINKÉBÉ (Tridom) LANDSCAPE

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Land Use Planning



Sources: WWF, WCS-Congo, WCS-Gabon, UMD-CARPE, OSFAC, FORAF, IUCN, Tom Patterson, US National Park Service.

Figure 18.1: Macro-zones in the Dja-Odzala-Minkébé (Tridom) Landscape

The COMIFAC Tridom intergovernmental collaboration agreement, signed in 2005, defines Tridom as a transborder complex of protected areas connected by a vast inter-zone in the countries of Cameroon, Republic of Congo and Gabon. The agreement specifies that the limits of the Tridom relate to the protected areas as well as to the limits of the inter-zone to be defined in between the protected areas. In 2006, a COMIFAC Tridom meeting recommended that each country take steps to define the limits of the Tridom tak-

ing into account its master plan (if available), the peripheral zones of the protected areas, ecological connectivity needs, and natural limits (including roads). The application of this principle, and including the logging concession blocks in the periphery of the protected areas, leads to a 191,541 km² landscape.

Much of the Tridom area has already an assigned primary land use class (logging concession, protected area, and community managed areas).



Photo 18.1: Misty morning in Odzala National Park.

Nineteen percent of Tridom has secured protected area status with nine protected areas totaling 37,498 km² (Dja, Boumba Bek, Nki, Mengame, Odzala, Lossi, Minkébé, Mwagne, Ivindo). Dja has a validated management plan while management plans are currently being drafted for the other protected areas, with the exception of Mengame and Lossi.

In the field, a number of sites have been identified that are good candidates for additional conservation zones, as they contain still largely intact forest ecosystems, are remote from human intervention, improve connectivity between protected areas, and would strengthen the robustness of the Landscape. Park services and wildlife departments in collaboration with NGO partners have identified to date a total of 17,227 km² of such “critical sites,” of which four areas are in Congo (Ntokou-Pikounda 3,256 km², Dja 1,400 km², Djoua-Ivindo 5,268 km², Lossi-Mwagne Inter-zone 1,430 km²), and four areas in Gabon (Minkébé Mengame Corridor 2,333 km², Sing Nouna Ridge 1,658 km², Mvounk Kouyé Forest 1,466 km², Mwagne National Park extension 416 km²). As for Cameroon, in 1996, the government decided, not to allocate nine forest management units (“the Ngoyla-Mintom Forest, 9,321 km²) for logging, withdrawing them from the concession attribution process. It was thought that the area was special as an inter-zone between Dja, Nki and the (then planned) Minkébé protected areas. This freezing of the allocation process provides time for a land use planning process of this inter-zone.

To accompany this innovative governmental initiative, a WWF planning team is proposing a zoning plan for the Ngoyla Mintom Forest divid-

ing it into a permanent forest estate and a non-permanent forest estate (agroforestry domain), covering 8,118 km² and 1,583 km² respectively. In the permanent forest domain, two town council-managed forests are proposed: Ngoyla (980 km²) and Mintom (586 km²). The remaining permanent forest domain is to be allocated to logging (1,084 km²) and a forest conservation domain (no logging) with four hunting zones and five community hunting zones as well as a totally protected core zone. The zoning proposal is currently being evaluated by the Cameroonian Government.

Almost 70 % of Tridom will be used for timber production and most of it will be located within forest concessions. Tridom’s ecological health depends critically on these forests under concession as they provide large areas of continuous habitat in the periphery of the protected areas. In addition, logging companies have an important socio-economic role to play in remote, and often impoverished, rural areas. It is thus an important, and encouraging, trend that more companies are interested in FSC certification. Rougier, a French company, is engaged in the FSC certification process and aims for 20,000 km² of FSC-certified forest in Gabon, Congo, and Cameroon. In Tridom, Rougier’s Ogooué Ivindo concession (2,820 km²) was FSC-certified in 2008, and it is engaged in the certification process for its 2,620 km² concession in South Cameroon. In Congo, IFO/Danzer is engaged in the FSC certification process for its 11,598 km² Ngombe concession, east of Odzala National Park. In Cameroon, Decolvenaere logging company is equally engaged in such a process and 1,520 km² have successfully completed the FSC pre-audit.

In Gabon, in three large assemblages of logging concessions, multi-stakeholder memorandums of understanding (MOU) are being finalized and involve the Forest Economy Ministry, the park service, 22 logging companies, local communities and local authorities. The aim is to regulate hunting in each of these logging zones (9,490 km² Okano valley complex in western Minkébé Forest, 11,600 km² Minkébé Ivindo inter-zone complex, and 10,190 km² around Mwagne National Park). The Okano valley MOU was signed by 9 logging companies, authorities and communities in November 2008 and the MOU has now been transmitted to the Ministry of Forest Economy for signature by the Minister. The MOU’s prohibit the use of access/logging roads and vehicles for hunting, and simultaneously secure village hunting grounds. Note that on the implementation side the Gabonese Ministry of Forest Economy,



Photo 18.2: Locusts of the family Pyrgomorphidae are often brightly colored -- a warning to potential predators that they are not edible.

Box 18.1: Income-generating activities around Odzala-Kokoua National Park in the Republic of Congo are setting an example for other protected areas in the sub-region.

Located at the edge of the vast Congo Basin forest massif, Odzala-Kokoua National Park (recently expanded to 13,500 km²) represents an extraordinary tropical forest ecosystem for conservation. In the periphery of the park, the Forest Ecosystems in Central Africa (ECOFAC) program is developing income-generating activities (IGA) as part of its fourth strategic axis (see box 1.4). The idea of IGA is to reduce poverty among local people and to limit human pressure on natural resources, particularly wildlife (bushmeat).

The local population, which is mainly concentrated along the northern and southwestern limits of the park and comprises approximately 6,000 people, is currently experiencing a drop in manioc production. As a result, people are putting more pressure on forest ecosystems to meet their essential needs. To address this pressure, medium and long term economically and ecologically viable IGA are being developed and monitored in the more vulnerable areas. These activities include: beekeeping; replacing mosaic virus infested manioc by healthy and resistant shoots; pisciculture; sustainable fisheries; small scale sheep, goat and poultry raising; re-launching cocoa crops; developing non-wood forest products; and developing village hunting and sporting zones in the periphery (an activity being tested in select pilot areas with support from ECOFAC).

In parallel, the ECOFAC program also encourages the development of strategic plans for socio-economic activities and supports the establishment of cooperative associations. The Bana Mawa cooperative, which is one of the most active in the *Sous-Préfecture* of Mbomo is carrying out IGA in the areas of pisciculture (eight fish ponds), small scale breeding, farming (manioc and corn), and the processing of basic products (installation of an electric mill for manioc flour production). The development of cooperative associations, along with the growing capacity of local organizations and the installation of a legally-recognized consensus-building framework, probably represent the most notable changes in the social landscape of Odzala-Kokoua National Park over the last ten years.

Initiatives to promote IGA demonstrate the capacity of people and communities to join efforts to improve living conditions and rally around a common project. The result is an increased diversification in the subsistence means of households, at the same time as addressing the priority goals of a protected areas for conserving ecological heritage and preserving natural resources.

Aquaculture is a monitored activity. The know-how of local associations should be supported and disseminated in the periphery of the park.

Rougier Gabon and WWF have signed a collaboration agreement in 2006 that sets up a funding mechanism for wildlife surveillance in Rougier Gabon's Ogooué Ivindo in the Tridom Landscape (2,820 km²) and Haute Abanga concessions in the Monte Alén-Monts de Cristal Landscape (2,886 km²). These agreements are seen as a precursor to a system where several logging companies increasingly contribute to the cost of wildlife patrols in their concessions.

In the periphery of Boumba Bek and Nki national parks, five logging companies with concessions totaling 500,000 ha with approved management plans also contribute to a local wildlife fund co-managed by WWF's Jengi project and the forest administration.

In Congo, IFO, a Danzer subsidiary, is working with WCS experts on a wildlife plan and on some of the social issues for the Ngombe concessions, located east of Odzala National Park. The resulting zoning plan for the concession takes into account village hunting zones, strict conservation zones and (temporary) no hunting zones.



Photo 18.3: Foresters sometimes limit access to concessions using 'natural' barriers.

In Tridom-Cameroon, a MINFOF, SNV, and WWF planning team completed the design of 6 community forests around Boumba Bek and Nki national parks. Three of these community forests are already operational. GTZ and WWF contributed to the establishment of eight community hunting zones (CHZ) in the forests around Boumba Bek National Park. Management plans have been developed for 2 while the process is engaged for an additional 3 CHZ. In Boumba Bek

National Park, WWF in collaboration with national and local NGOs completed participatory mapping of Baka use zones.

In the Republic of Congo, IFO and WCS have mapped community hunting areas (3,961 km²) inside IFO's Ngombe concession so as to define a village hunting domain.

In Gabon, as part of the MOUs in the logging concession complexes, a zone of 15 km along both sides of the public roads is typically reserved for customary village hunting.

In the Makokou area, a MINEF-ANPN-WWF planning team worked with gold miners and other stakeholders on access and hunting regulation related to small scale gold panning sites, as well as with fishermen on the Oua River to regulate hunting and access along this river. Multi-stakeholder MOU for the gold panning sites and the Oua River are expected to be signed by stakeholders in 2009.

In the periphery of the Minkébé National Park, and with the assistance of an EU-funded community forest project, two requests for community forests have been prepared.

In the Minvoul area, Fang and Baka communities have been consulted in the design of a protected corridor between Minkébé National Park in Gabon and Mengame National Park in Cameroon.

In Ivindo National Park, stakeholder meetings with fishermen and local authorities have been initiated to set up a fishery association and to take into account the subsistence fishery activities on the Ivindo river in the parks management plan.



*Photo 18.4: Baka children smoking the head of a red river hog (*Potamochoerus porcus*).*

Mining Development in Tridom

Large iron ore mines and associated infrastructure are being planned for the heart of the Tridom: Bélinga in Gabon, Mbalam in Cameroon and Avima in Congo. If the development of these huge iron ore deposits goes ahead without applying best environmental standards and not taking into account the potential impact on landscape ecology, it could lead to the end of the Tridom as a continuous interconnected forest ecosystem. Therefore, it is critical that the mining sector takes into account the Tridom ecology while developing its plans. To that effect, WWF is negotiating MOUs with GEOVIC (cobalt mining east of Lo-

mié) and CamIron (Mbalam iron ore deposit) to address biodiversity conservation.

In Gabon, WCS and WWF are in the beginning of a long process of establishing constructive engagement and dialogue with the mining sector towards application of best environmental and social practices in the interest of the respective countries, the mining companies and the Tridom forests.

Human Activities

Governments have been approached by firms interested in industrial-scale palm oil plantation development. Although nothing has yet materialized on the ground, is a trend to be monitored.

In Gabon “family felling permits” have been abolished in favor of the possibility of requesting “community forests” as foreseen in the 2001 forest code. Two community forest requests have been prepared by an EU-funded project (DACEFI) involving MINEF and Nature +.



Photo 18.5: Loading of logs in the Bordamur timber concession.

Mining

The rise in commodity prices (until July 2008) has started to impact the Tridom. Rising iron ore prices have attracted mining companies to the Tridom. An Australian company, Sundance Resources Ltd. has been set up to develop the Mbalam iron ore deposit (Cameroon, near the Republic of Congo border) and is currently doing the pre-feasibility study while China National Machinery and Equipment Import and Export Corporation (CMEC) obtained the rights to develop the Belinga iron ore deposits in northeast Gabon. Both deposits are estimated each at 1,000 million tons of iron ore. Another Australian Company has started exploring iron ore deposits in the Avima mountains in Congo's Souanké panhandle.

Since mid-2007, at the Kongou Falls inside Ivindo National Park, CMEC has started creating a road and a base camp for the dam construction project related with the Belinga iron mining project, in violation of the new Gabonese national park law. It is yet unclear how the recent global economic crisis and fall in iron ore prices will impact these projects. No activity is currently (as of February 2009) taking place on site in Belinga.

Gold panning affects several sites in the Upper Ivindo area in Gabon and Congo. Gold prices in gold camps have almost doubled in a couple of years. In July 2008, gold sold at 8,500 CFA¹/gram in the Minkébé gold camp and its population has risen from 150 people in 2004 to over 800 people (mostly Cameroonian illegal immigrants).

Land Use

If we include the peripheries of PA's in the Tridom, then the Landscape attains 197,400 km². Of these 37,498 km or 19 % are under a PA status. Logging concessions cover currently almost

60 % of the Landscape. The remainder is in the rural complex or in forests whose status has yet to be clarified.

¹ 1 Euro = CFA 655.957

Table 18.1: Large unprotected forest zones without logging concessions

Country	Large unprotected forest zone without logging concessions	Size (km ²)	Comment
Cameroon	Ngoila-Mintom Forest	9,321	Attribution to logging companies put on hold by the Cameroonian Government pending potential creation of a conservation concession in this forest. A zoning proposal is currently being studied by the Government.
Gabon	Ayina Forest	2,333	Not allocated because of poor timber quality in this swampy, inaccessible forest. Proposed as a protected transborder corridor between Minkébé and Mengame.
	Djoua – Zadié Forest	1,300	Contiguous to Souanké panhandle forest in Congo. Not allocated for logging because of swampy conditions. Part of a great ape priority site identified during the May 2005 Great Ape Conference held in Brazzaville.
	Sing Nouna Forest	1,658	Contiguous with Minkébé National Park. Small-scale gold panning present. Mining interest (minor iron ore deposit). A mixed status conservation/mining could be developed.
Congo	Souanké ‘panhandle forest’	8,141	Not yet allocated to logging, part of it very swampy. Proposition to locate a crossborder conservation corridor to link Minkébé National Park with Dja and Odzala National Park. Mining interest (gold, iron) in Avima mountains. Mixed status conservation/mining could be developed for part of the site.
	Ntokou Pikounda	3,255	Located south of IFO concession. Proposed as a protected area. Very high density of gorillas.

Source: WWF-Minkébé.

Table 18.2a: Important agricultural products in the Tridom Landscape

Agricultural product	Unit	Purchase price/unit	Primary destinations	Date	Data collection	Sources
Odzala segment, Congo (Ngombe ERZ)						
Cassava	Wheelbarrow	\$8.30	Ouesso	May 2008	Data collected by direct observation. No formal study was conducted to meet project objectives.	WCS, Malonga
Cocoa	1 kg	\$1.10	Sembe	Feb 2008		WCS, Malonga
Maize	Sack (80 kg)	\$101.2	Ouesso	Apr 2008		WCS, Malonga
Gabon segment, Makokou market						
Plantain	Bunch (5 kg)	CFA5,250	Inhabitants of Makokou	June 2008	Data collected by direct observation in the town market	WWF, Ikossa Koumamanga
Cassava	Packet of sticks (<i>batons</i>) (5 kg)	CFA2,000	Inhabitants of Makokou	June 2008		WWF, Ikossa Koumamanga
Peanut paste	1 eating spoon	CFA100	Inhabitants of Makokou	June 2008		WWF, Ikossa Koumamanga
Gabon segment, Ogooué Ivindo villages						
Cassava	Stick (<i>baton</i>)	\$0.79	Inside Landscape - Makokou	2005-2006	Household surveys, 662 households	Parks and People Database, Boston College
Cassava	Sack of tubers	\$5.68	Inside Landscape - Makokou	2005-2006	Household surveys, 662 households	Parks and People Database, Boston College
Cane wine	Liter	\$3.75	Inside Landscape - Makokou	2005-2006	Household surveys, 662 households	Parks and People Database, Boston College
Cameroon segment, Gribé						
Plantain	Average bunch	\$1.55	Yokadouma consumers	March 2008	Stratified sampling	Fogue and Defo, 2006
Macabo (<i>Xanthosoma sagittifolium</i>)	8-9 kg bowl (<i>cuvette</i>)	\$4.44	Yokadouma consumers	March 2008	Stratified sampling	Fogue and Defo, 2006
Cassava (couscous)	8-9 kg bowl (<i>cuvette</i>)	\$5.55	Yokadouma consumers	March 2008	Stratified sampling	Fogue and Defo, 2006
Congo segment, Sembe Market						
Peanut paste	2.6 kg	CFA2,500	Sembe	June 2008	Data collected by direct observation in the town market	WWF, Mbolo
Plantain	3 kg	CFA350	Sembe	June 2008	Data collected by direct observation in the town market	WWF, Mbolo
Cassava	1 stick (<i>baton</i>), 350 g	CFA100	Sembe	June 2008	Data collected by direct observation in the town market	WWF, Mbolo
Gabon segment, Oyem market						
Cassava	10 stick (<i>batons</i>) (5 kg)	CFA1,500	Oyem inhabitants	June 2008	Data collected by direct observation in the town market	WWF and MINEF, Owono Philbert
Plantain	Bunch (6kg)	CFA1,500	Oyem inhabitants	June 2008	Data collected by direct observation in the town market	WWF and MINEF, Owono Philbert
Peanut paste	0.8 kg	CFA2,500	Oyem inhabitants	June 2008	Data collected by direct observation in the town market	WWF and MINEF, Owono Philbert

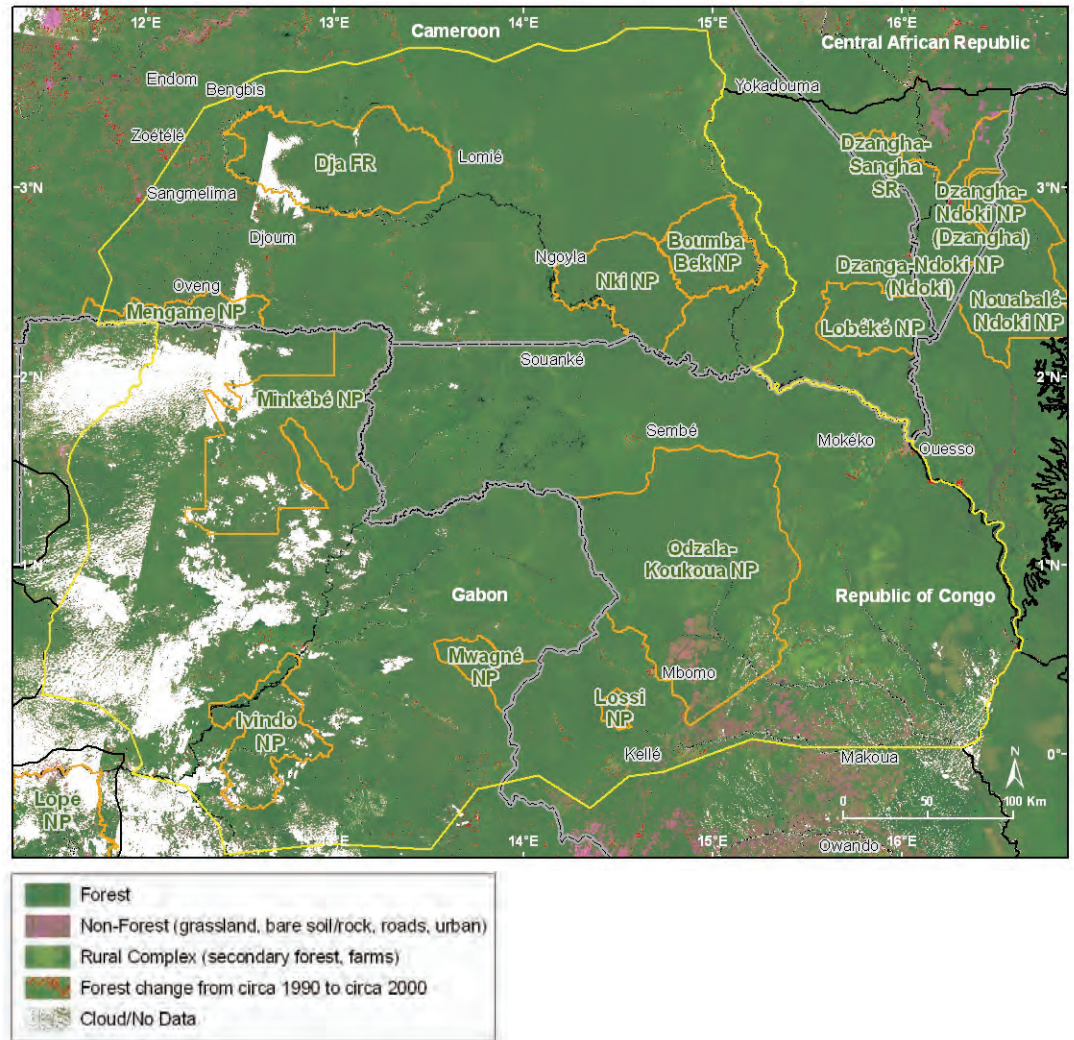
Agricultural product	Unit	Purchase price/unit	Primary destinations	Date	Data collection	Sources
Market in Gabon, Libreville PK8						
Cassava	6.5 kg (package of 10 batons)	CFA2,000	Small-scale retailers and Libreville end-consumers	June 2008	Data collected in the PK8 market	WWF/Stéphane Louembet
Plantain	Bunch (11 kg)	CFA6,500	Small-scale retailers and Libreville end-consumers	June 2008	Data collected in the PK8 market	WWF/Stéphane Louembet
Taro	65 kg	CFA22,000	Small-scale retailers	June 2008	Data collected in the PK8 market	WWF/Stéphane Louembet

Table 18.2b: Bushmeat trade in the Tridom Landscape

Bushmeat species	Unit	Purchase price/unit	Primary destinations	Date	Data collection	Sources
Congo Segment, Ouesso Market						
Red duiker (<i>Cephalophus sp.</i>)	Whole	\$33.95	Ouesso market	December 2007	Data collected in Ouesso market.	WCS, Malonga R. and Elende A. G., 2008
Red river hog (<i>Potamochoerus porcus</i>)	Whole	\$73.53	Ouesso market	December 2007		WCS, Malonga R. and Elende A. G., 2008
Brush-tailed porcupine (<i>Atherurus africanus</i>)	Whole	\$9.99	Ouesso market	December 2007		WCS, Malonga R. and Elende A. G., 2008
Gabon segment, Makokou market						
Red duiker (<i>Cephalophus sp.</i>)	Whole	CFA14,000	Inhabitants of Makokou	June 2008	Data collected by direct observation in the town market	WWF, Ikossa Koumamanga
Brush-tailed porcupine (<i>Atherurus africanus</i>)	Whole (average)	CFA4,500	Inhabitants of Makokou	June 2008		WWF, Ikossa Koumamanga
Red river hog (<i>Potamochoerus porcus</i>)	Quarter	CFA14,000	Inhabitants of Makokou	June 2008		WWF, Ikossa Koumamanga
Fresh fish from Ivindo River	Heap (1.5 kg)	CFA2,000	Inhabitants of Makokou	June 2008		WWF, Ikossa Koumamanga
Gabon segment, Ogooué Ivindo villages						
Red duiker (<i>Cephalophus sp.</i>)	Whole	\$18.47	Primarily Libreville, also Makokou	2005-2006	Household surveys, 533 households	Parks and People Database, Boston College
Blue duiker (<i>Cephalophus monticola</i>)	Whole	\$7.02	Primarily Libreville, also Makokou	2005-2007	Household surveys, 533 households	Parks and People Database, Boston College
Brush-tailed porcupine (<i>Atherurus africanus</i>)	Whole	\$7.11	Primarily Libreville, also Makokou	2005-2008	Household surveys, 533 households	Parks and People Database, Boston College

Bushmeat species	Unit	Purchase price/unit	Primary destinations	Date	Data collection	Sources
Cameroon segment, Gribé						
Brush-tailed porcupine (<i>Atherurus africanus</i>)	Whole and fresh	\$2.22	Wholesalers selling in Yokadouma	March 2006	Stratified sampling	Fogue and Defo, 2006
Blue duiker (<i>Cephalophus monticola</i>)	Whole and fresh	\$3.33	Wholesalers selling in Yokadouma	March 2006	Stratified sampling	Fogue and Defo, 2006
Red duiker (<i>Cephalophus sp.</i>)	Whole and fresh	\$15.55	Wholesalers selling in Yokadouma	March 2006	Stratified sampling	Fogue and Defo, 2006
Congo Segment, Sembe						
Blue duiker (<i>Cephalophus monticola</i>)	Whole and fresh	CFA3,000	Sembe, Ouesso	June 2008	Data collected by direct observation in the town market	WWF, Mbolo
Red duiker (<i>Cephalophus sp.</i>)	Whole and fresh	CFA9,000	Sembe, Ouesso	June 2008	Data collected by direct observation in the town market	WWF, Mbolo
Brush-tailed porcupine (<i>Atherurus africanus</i>)	Whole and fresh	CFA2,500	Sembe, Ouesso	June 2008	Data collected by direct observation in the town market	WWF, Mbolo
Gabon segment, Oyem market						
Blue duiker (<i>Cephalophus monticola</i>)	Whole and fresh	CFA6,000	Oyem inhabitants	June 2008	Data collected by direct observation in the town market	WWF and MINEF, Owono Philbert
Red duiker (<i>Cephalophus sp.</i>)	Whole and fresh	CFA15,000	Oyem inhabitants	June 2008	Data collected by direct observation in the town market	WWF and MINEF, Owono Philbert
Brush-tailed porcupine (<i>Atherurus africanus</i>)	Whole and fresh	CFA9,000	Oyem inhabitants	June 2008	Data collected by direct observation in the town market	WWF and MINEF, Owono Philbert
Gabon, Libreville, Oloumi market						
Blue duiker (<i>Cephalophus monticola</i>)	Whole	CFA9,000	Libreville end-consumers	June 2008	Data collected in the market	WWF/Stéphane Louembet
Brush-tailed porcupine (<i>Atherurus africanus</i>)	Whole	CFA13,000	Libreville end-consumers	June 2008	Data collected in the market	WWF/Stéphane Louembet
Red river hog (<i>Potamochoerus porcus</i>)	Quarter	CFA20,000	Libreville end-consumers	June 2008	Data collected in the market	WWF/Stéphane Louembet
Red duiker (<i>Cephalophus sp.</i>)	Whole	CFA30,000	Libreville end-consumers	June 2008	Data collected in the market	WWF/Stéphane Louembet

Forest Cover



Sources: SDSU, UMD-CARPE, NASA, SRTM, IUCN, FORAF

Figure 18.2: Composite Landsat satellite image of the Tridom Landscape overlain with 1990 to 2000 forest loss (in red)

Table 18.3: Forest cover and forest loss in the Tridom Landscape from 1990 to 2000

Landscape area	Forest area			Forest loss			
	1990 (km ²)	2000 (km ²)	2005 (km ²)	1990–2000 (km ²)	1990-2000 (%)	2000–2005 (km ²)	2000-2005 (%)
191,541	186,065	185,729	N/A	336	0.18	N/A	N/A

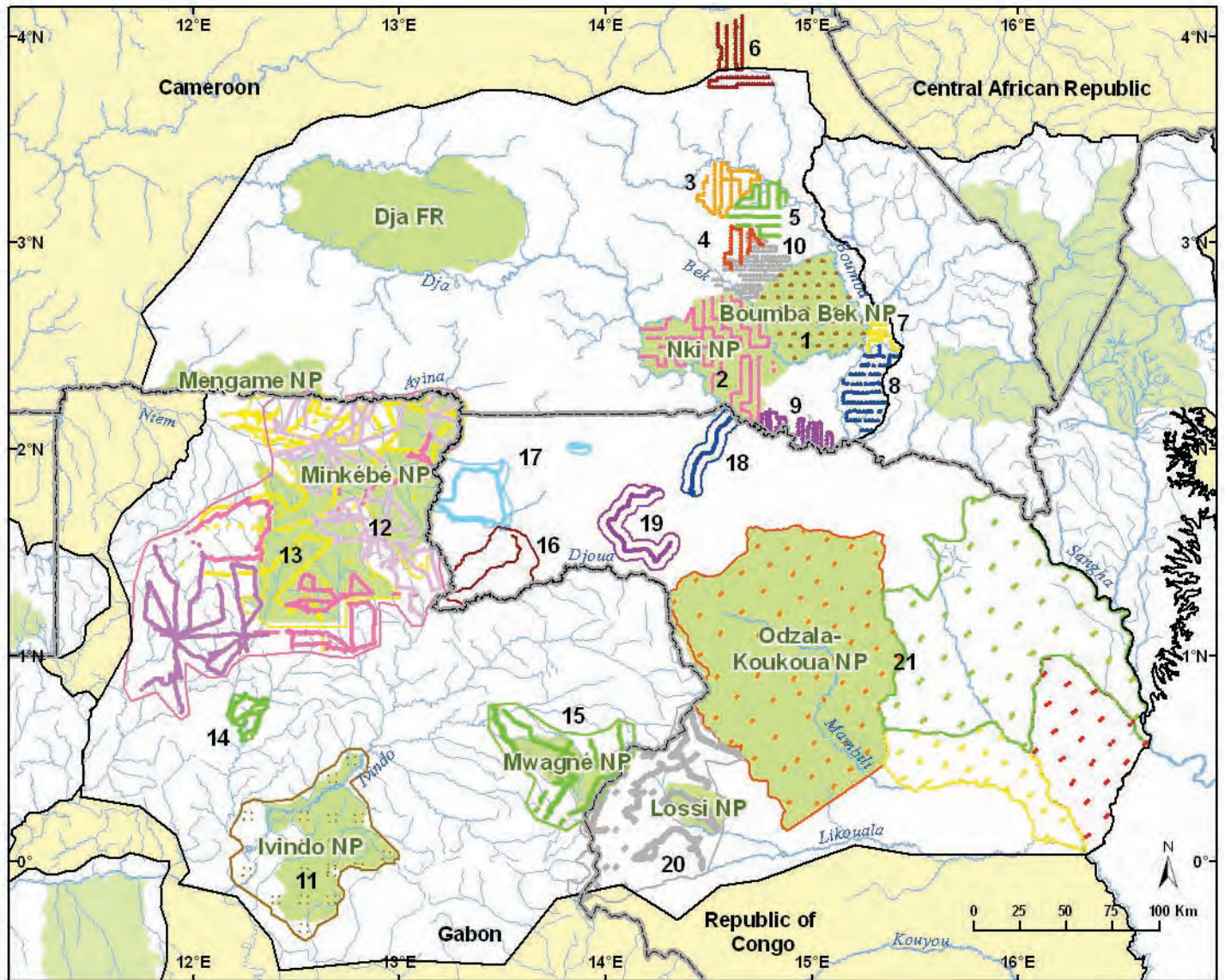
Forest cover and forest cover loss are derived from Landsat and MODIS satellite data.

Sources: SDSU, UMD-CARPE, NASA.

The major land use change over the last twenty years has been logging. As the primary method of logging is selective it does not result in major forest cover change. Commercial and subsistence agriculture has more or less stabilized in the Landscape. Rural population growth is low, as

population growth is concentrated in towns where schools and jobs are located. However, these are trends of the past and should not be extrapolated to the future.

Large Mammal and Human Impact Monitoring



Sources: WWF, WCS-Congo, WCS-Gabon, UMD-CARPE, OSFAC, FORAF
 Figure 18.3: Biological surveys conducted in the Tridom Landscape

Table 18.4: Biological survey results from the Tridom Landscape

Survey	Site name	Survey date	Lead organization(s)	Total km of recces	Number of transects	Total km of transects	Elephant presence	Elephant dung pile encounter rate	Elephant dung pile density	Ape presence	Ape nest group encounter rate	Ape nest group density	Human sign
1	Boumba Bek National Park	Oct 2003- May 2004	WWF	473	47	47	Yes	2.00 ± 0.25		Yes	0.32 ± 0.06		0.82 ± 0.13
2	Nlki National Park	Nov 2005- Feb 2006	WWF	291	258	258	Yes	4.806 ± 0.289	1,840.1 ± 128.35	Yes	0.891 ± 0.081	207.00 ± 22.942	0.545 ± 0.11
3	UFA 10-021	Feb-May 2003	WWF and Decolvenaere	121	120	60	Yes	0.366 ± 0.070	202.63 ± 96.94	Yes	0.216 ± 0.057	47.844 ± 16.882	1.632 ± 0.232
4	UFA 10-022	Jul-Aug 2004	WWF and SCIFO	46	45	45	Yes	0.6 ± 0.20	170.01 ± 62.502	Yes	0.263 ± 0.132		1.307 ± 0.275
5	UFA 10-023	Mar-May 2006	WWF and SFCS/TTS	87	86	86	Yes	0.546 ± 0.207	121.43 ± 47.383	Yes	0.209 ± 0.074	42.702 ± 20.586	4.12 ± 0.50
6	UFA 10-052	Apr-May 2003	WWF and Decolvenaere	127	127	63.5	Yes	0.138 ± 0.076		Yes	0.09 ± 0.045		3.197 ± 0.286
7	ZICGC 8	May-Aug 2007	WWF and GTZ	42	46	46	No			Yes	0.717 ± 0.257	174.43 ± 66.135	5.1 ± 0.61
8	ZICGC 9	Apr-July 2007	WWF and GTZ	94	91	91	Yes	0.0756 ± 0.059		Yes	0.594 ± 0.159		3.41 ± 0.39
9	ZICGC 10	Jul-Sep 2006	WWF	103	103	100	Yes	1.39 ± 0.284	278.06 ± 61.996	Yes	0.68 ± 0.102	96.026 ± 17.575	1.669 ± 0.293
10	ZICGC 14	Jul-Sep 2006	WWF	155	149	147	Yes	0.355 ± 0.964	174.9 ± 49.875	Yes	0.232 ± 0.046	49.464 ± 12.044	2.253 ± 0.249

Survey	Site name	Survey date	Lead organization(s)	Total km of recces	Number of transects	Total km of transects	Elephant presence	Elephant dung pile encounter rate	Elephant dung pile density	Ape presence	Ape nest group encounter rate	Ape nest group density	Human sign
11	Ivindo National Park, Gabon	Apr 2004-Feb 2005	WCS		18	37.5	Yes	5.94 (1.56)	497 (323)	Yes	1.17 (0.56)	48 (36)	0.36 (0.42) on transects; 1.01 (0.03) on guided-recces
12	National Park and periphery (northern, western and southern)	May 1998-Jun 2000	WWF	2,742			Yes	5.40 (along topofil measured distance)		Very low	0.032		0.70
13	Minkébé National Park	Aug 2003-Jun 2004	WCS, WWF	659	61	61	Yes	See below, analysis per stratum		Very low			
13	Minkébé National Park: low human impact zone	Aug 2003-Jun 2004	WCS, WWF		16	16	Yes	19.1	6,498 (5,107-8,269)	Very low	0.19		0 (transect) 0.04 (recces)
13	Minkébé National Park: medium human impact zone	Aug 2003-Jun 2004	WCS, WWF		20	20	Yes	12.3	4,981 (3,557-6,974)	Very low	0		0.21 (transect) 0.51 (recces)
13	Minkébé National Park: northern periphery, high human impact zone	Aug 2003-Jun 2004	WCS, WWF		25	25	Yes	15.9	4,808 (3,112-7,425)	Very low	0.13		0.60 (transect) 0.72 (recces)

Survey	Site name	Survey date	Lead organization(s)	Total km of recces	Number of transects	Total km of transects	Elephant presence	Elephant dung pile encounter rate	Elephant dung pile density	Ape presence	Ape nest encounter rate	Ape nest group density	Human sign
14	Mvoung Kouyé inter-zone, southern periphery of Minkébé National Park	Oct-Dec 2007	WWF	109			Yes	5.97		Yes	0.1		0.03
15	Mwagne National Park and periphery	2004- 2005	ANPN, WWF	310			Yes	4.19		Very low	0.02		0.56
16	Garabinzam-Djoua Forest (Souanké panhandle, Congo)	May- Jun 2005	WWF	75			Yes	4.51 (along topofil measured distance)		Yes	0.85 (along topofil measured distance)		0.67
17	Garabinzam-Ivindo (Souanké panhandle, Congo)	Aug- Sep 2004	WWF	72			Yes	7.35 (along topofil measured distance)		Yes	0.39 (along topofil measured distance)		Few human sign in between Garabinzam and Ivindo, but high around Avima Mts gold mining camps
18	UFA Souanké-Balmessok-Meyebe Forest	Sep-06	WWF				Yes	3.87		Yes	0.09		0.77
19	Djoua Forest-Mts Letiouk-bala (Souanké panhandle, Congo)	Apr- May 2006	WWF	141			Yes	0.76		Yes	0.11		0.79

Survey	Site name	Survey date	Lead organization(s)	Total km of recces	Number of transects	Total km of transects	Elephant presence	Elephant dung pile encounter rate	Elephant dung pile density	Ape presence	Ape nest encounter rate	Ape nest group density	Human sign
20	Lossi Mwayne Forest, Districts of Mbomo and Kelle, Congo		MEF-PNOK, WWF	644	41	41	Yes	3.59 (transect) 0.68 (recces)		Yes	0.12 (transect) 0.08 (recces, all nests counted)		1.02 (transect) 0.59 (recces)
22	Ngombe ERZ	Jan-May 2007	WCS	475.7	38	76	Yes	6.3± 0.3	1,013.3 c.i. [600.11; 1,710.8]	Yes	1.9 ± 0.3	126.68 c.i. [80.8; 198.61]	0.8 ± 0.01
22	Ntokou CBNRM	Nov-Dec 2006	WCS	214.0	18	36	Yes	5.7 ± 0.5	1,291.2 c.i. [836.5; 1,993.1]	Yes	2.5 ± 0.7	144.85 c.i. [90.37; 232.14]	0.19 ± 0.005
22	Pikounda ERZ	Jan-May 2007	WCS	238.5	18	36	Yes	2.7± 0.6	752.7 c.i. [313.6; 1,806.6]	Yes	2.4 ± 0.8	211.94 c.i. [20.56; 139.06]	0.24 ± 0.006
22	Odzala National Park	Aug-Dec 2005	WCS and ECOFAC		73	73	Yes	8.57 (6.89-10.67)	1,765 (1,384-2,250)	Yes	Gorilla: 0.69 (0.7-1.2) unidentified: 0.025	62.47 (gorillas')	

Sources: (1) Bene-Bene, 2004; (2) Nzooh Dongmo et al., 2006; (3) Nzooh Dongmo et al., 2003; (4) Nzooh Dongmo et al., 2004; (5) Ghogue and Nzooh Dongmo, 2006; (6) Nzooh Dongmo and Bas-sama, 2003; (7) Mendomo Biang and Nzooh Dongmo, 2007; (8) Mabo, 2007; (9) Nzooh Dongmo et al., 2008; (10) Nzooh Dongmo et al., 2008; (11) Maisels, 2005; Latour, 2004; Maisels, et al., 2006; (12) Apes: Huijbregts et al., 2003; Elephants and human sign: WWF analysis of Minkébé data base; (13) Blake, 2005; (14) WWF, unpublished a; (15) WWF, unpublished b; (16) Schaffner Cappello, and Zebene, 2005; (17) Schaffner Cappello, and Ibatu, 2004; (18) Madzou, 2006a; (19) Madzou, 2006b; (20) Bassouama et al., 2006; (22) Kominou et al., 2007; Nganga et al., 2007; Malonga et al., 2007; Blake, 2006.

Special Interest

“The Baka participate enthusiastically in zoning in and near Boumba Bek National Park (Cameroon)”

The Baka pygmy communities around Boumba Bek National Park have over the years complained of being marginalized in the natural resource management decision making process. Relations between the Baka communities and conservation authorities have been tense at times. Conservation success in the area will depend partly on participation of the Baka in the overall natural resource management process. This is critical given the key role played by Baka as local guides, hunters and informants to big game hunters. In previous meetings with Baka communities, they categorically refused to recognize superficial boundaries imposed on them by the government and conservation NGOs. It is within this context that WWF started a participatory zoning process

to identify and map out Baka use zones inside the forest. The delimitation exercise of Baka use zones in the park was a big success as all communities supported the process and designated elected resource persons to participate. These communities enthusiastically participated in the forest surveys. Use zones were mapped and geo-referenced with colorful maps produced for village negotiations. Community leaders spoke out their satisfaction that their voice has been taken into account by conservation services. Today, WWF, park authorities, and Baka communities are working together to set ground rules for access and user rights inside the park. The ground rules will be incorporated in the park's management plan. Yesterday's protagonists now court each other in a mutual partnership geared towards sustainable natural resource management.



Photo 18.6: The construction of a dugout canoe can sometimes use an entire tree trunk.