

# CHAPTER 17

## LOPÉ-CHAILLU-LOUESSE LANDSCAPE

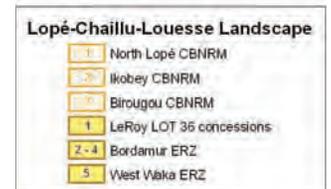
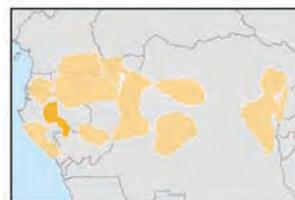
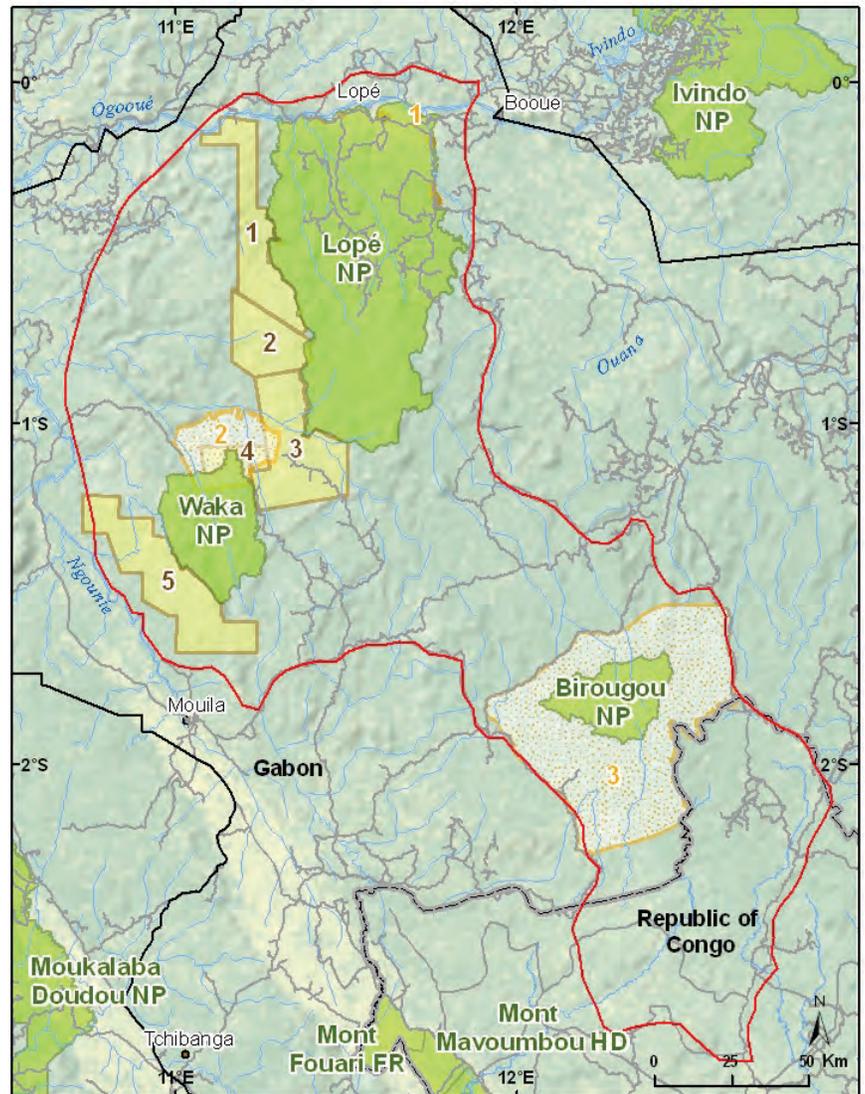
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### Land Use Planning

The Lopé–Chaillu–Louesse Landscape covers 35,000 km<sup>2</sup> and extends over 275 km from north to south and from the center of Gabon to 50 km inside the Republic of Congo. It centers on the Chaillu Massif, a mountainous region that is assumed to have sheltered one of the forest refuges of the Pleistocene, explaining the presence of numerous endemic species.

The macro-zoning of the landscape was implemented by the Gabonese government following the review leading to the 2001 Forestry Code. The Gabonese section of the landscape includes Lopé, Waka and Birougou national parks, which with their buffer zones comprise approximately half of the Gabonese portion of the landscape. Three large logging companies (Bordamur, Leroy Gabon and IFL) have concessions covering the bulk of the remaining landscape outside of the national parks. However, in many areas, community zones, logging concessions and park buffer zones overlap, producing a complex mosaic of land use micro-zones.

In this context, where the large-scale macro-zoning of the landscape is essentially complete, the CARPE consortium has to date focused on data collection, raising awareness and lobbying, which are necessary to produce effective management plans and micro-zoning within these macro-zones. In this section we illustrate the progress being made by highlighting, as an example, the process undertaken in one of the seven macro-zones in this landscape: the Waka-Lopé corridor extractive resource zone.



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

Figure 17.1: Macro-zones in the Lopé-Chaillu-Louesse Landscape



**Photo 17.1:** The savannas of Lopé National Park are dotted with clusters of rock of indeterminate age, which shelter a very particular flora.

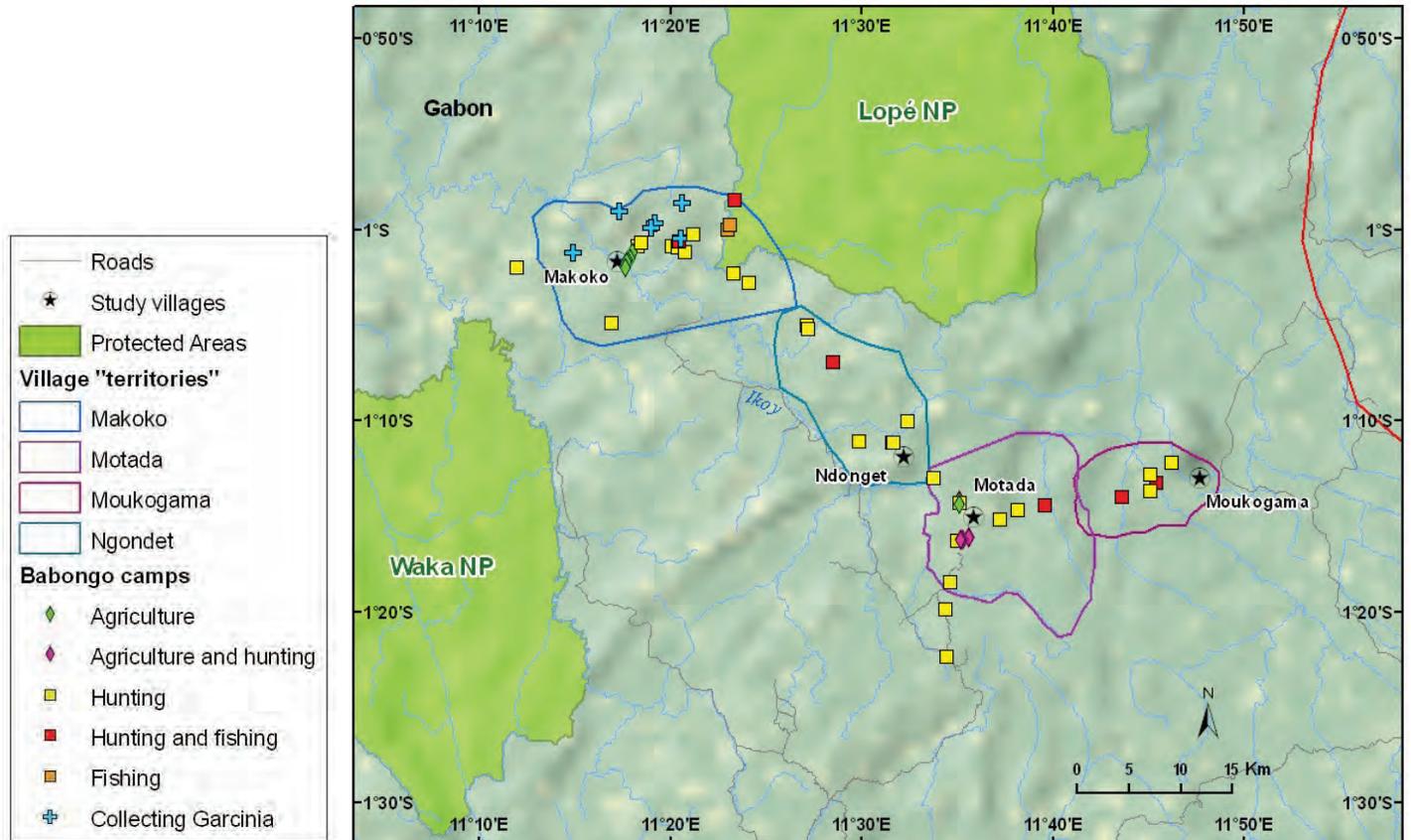
## Progress in the Waka-Lopé Corridor

The 2,800 km<sup>2</sup> 'corridor' in the remote center of the Lopé-Chaillu-Louesse Landscape, between Lopé and Waka national parks is a highly dissected forest landscape, of which more than half is unlogged old-growth rainforest. The area is extremely remote, with no roads, but it is allocated in a logging concession and so new roads are being opened very rapidly and will soon cover the whole area. A large portion of the corridor falls within the buffer zone of Lopé and Waka national parks.

The forest corridor is inhabited by the Babongo pygmies, who live in isolated forest camps and villages. No reliable data on the number, location or economy of these villages existed. Indeed, they do not figure in national census reports (including the census of 2003) or on official maps. Such basic information is clearly an essential prerequisite for effective land use planning and obtaining it was a priority for the CARPE consortium. To investigate the situation, WCS carried out a systematic participatory mapping survey, including

6 field missions, covering over 400 km on the footpaths of this remote forest area. During the survey, four main villages were located and 55 forest camps were mapped. Given the remote nature of the terrain, and the need to clearly explain and receive the consent of the villages concerned, this process took many months.

It was found that approximately 350 Babongo pygmies live in these villages and camps (not including those living in road-side villages), subsisting mainly from small-scale agriculture and what the forest can provide. Although primarily a subsistence economy, there is limited bushmeat commerce in the south and east of the area, and considerable commerce of the bark of *Garcinia cola* (a stimulant, used for fermenting local palm wine) in the north. Consultation meetings were held in each of the four main villages, and follow-up meetings permitted the first-ever contact between national park representatives and these villages.



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

**Figure 17.2:** Locations of 55 forest camps and 4 main forest villages mapped in the remote center of the landscape

Following contact with the population of the area and preliminary evaluation, work has progressed on two parallel tracks: 1) enhancing the local population's capacity to engage with the land use planning process and 2) continuing to collect data on the different values of the forest in order to inform the land use planning process. The capacity building activities have been sub-contracted to the Indigenous Peoples of Africa Coordinating Committee (IPACC), who have extensive experience in the field. IPACC supports the creation of local civil-society associations, continues with the process of participatory mapping and provides technical support.

The data collected to support the micro-zoning process included: 1) baseline data on wildlife distribution and densities (conducted by WCS) and 2) data on more general forest diversity notably botanical diversity (conducted by MBG). From the wildlife surveys, the ape population density was estimated at 0.8 individuals/km<sup>2</sup> (95 % CI 0.54-1.2), indicating a population of over 2,000 individuals, and elephant density was estimated at 0.45 individuals/km<sup>2</sup> (95 % CI 0.26-0.78). These densities were comparable to those in the adjacent national parks and indicate that



**Photo 17.2: Data encoding follows data field collection.**

these previously neglected areas have a considerable conservation value. The botanical surveys have identified areas of exceptionally high plant diversity, including the presence of new and rare species, especially on higher ground.

## Implications and Land Use Planning Follow-up

This zone illustrates the complexity of the land use planning process: the corridor is an area essential for the livelihoods of marginalized communities, and it also has high economic value, wildlife value and biodiversity value. While the area is at present remarkably intact, logging has the potential to seriously impact both the livelihoods of local populations and the wildlife and biodiversity value of the zone. The next steps will be to convene a stakeholder meeting at which the

data gathered can be presented for validation and to launch the next phase of the planning process, which will focus on reaching agreement on micro-zoning. This example demonstrates the approach that has been taken in this zone, and illustrates the overall landscape approach of planning based on sound data.

## Institutional Change and the Land Use Planning Process

As indicated above, the past years have permitted a considerable amount of data to be collected and discoveries to be made that will provide the basis for the land use planning process in the landscape. The emphasis over the coming years will be to use this information to develop and implement effective land use plans that take into account the needs of local communities, the private sector and the unique and diverse flora

and fauna of the landscape. The recent (January 2008) establishment of a National Parks Agency, with a firm mandate to manage the parks and to oversee activities in the park buffer-zones (together comprising about 14,000 km<sup>2</sup> or nearly half the landscape), provides a sound legal basis for developing and implementing many of these plans. In community areas, several key legal instruments pertaining to land use planning remain to be

published. In particular, this includes decrees on the establishment of community forests and on the management of village hunting zones. Until these are published, management of community lands has to be based mostly on voluntary local

agreements. This is a challenging process, but one that is essential if the rate of degradation of the landscape's forests is to be reduced for the benefit of both the people who depend on them and the landscape's globally significant flora and fauna.

*Photo 17.3: Patrolling Lopé National Park involves traversing a diverse set of habitats.*



## Human Activities

The human population of the landscape is essentially divided into three zones. In the north, a complex mixture of ethnic groups including Okandé, Simba, Mbahouin, Makina and Saké live in 7 villages along the Ogooué and Offoué rivers. In the center of the landscape the population is a mix of Massango and Mitsogho – closely related but linguistically distinct ethnic groups – located along the roadsides, with a small population of Babongo pygmies maintaining a traditional lifestyle in forest villages and mixed with the Bantu population. The southern portion of the landscape, from approximately 1.5 degrees south through the Congolese sector, is inhabited mainly by the Nezbi (Banjabi) ethnic group, many of whom live in larger villages than the inhabitants in the center and north of the landscape. Dispersed across the landscape are small pockets of Akélé. In both the northern and the southern sections there are also small pockets of Babongo who have switched to a more sedentary lifestyle and now live in fixed villages. As elsewhere in Gabon, the four main administrative centers in the landscape (Lopé, Iboundji, Mimongo and Mbigou) include a cosmopolitan population with representatives of most of the other major ethnic groups in Gabon, as well as an array of West African traders.

Despite the ethnic diversity, the defining feature of the landscape is its low population density.

Road maintenance in the wet and steeply dissected center of the landscape is poor, and most trade is outside of the landscape rather than across it. For this reason, most economic opportunities are in administrative and commercial centers on the edges or just outside the landscape and there is a gradual but noticeable movement of people (particularly in the economically active segments of the population) out from the center of the landscape. Six large forestry camps, which comprise a significant portion of the population of the landscape, and contain cosmopolitan populations, are the exception to this trend, causing people to move to formerly remote areas in the center of the landscape.

Note the relative lack of men in the 15-25 and 25-35 age classes. Such population pyramids are typical in villages all over Gabon (and are frequently more pronounced than this example) and result from young economically active members (more frequently men), moving away from the village to seek opportunities in logging camps and urban centers outside the landscape.

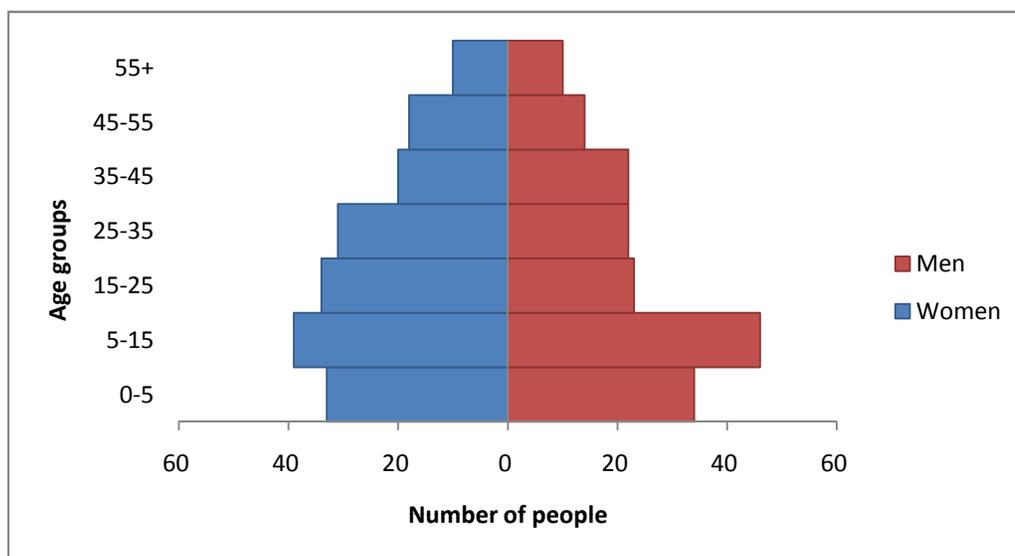


Figure 17.3: Population distribution in Babongo villages in the center of the Landscape. The relative lack of men in the 15-25 and 25-35 year-old cohort is representative of age pyramids in the villages of Gabon (and often even more striking than in this example). The structure of this pyramid is the consequence of the departure of economically active young men from their villages (often in search of better income) to logging camps and urban centers outside of the Landscape.

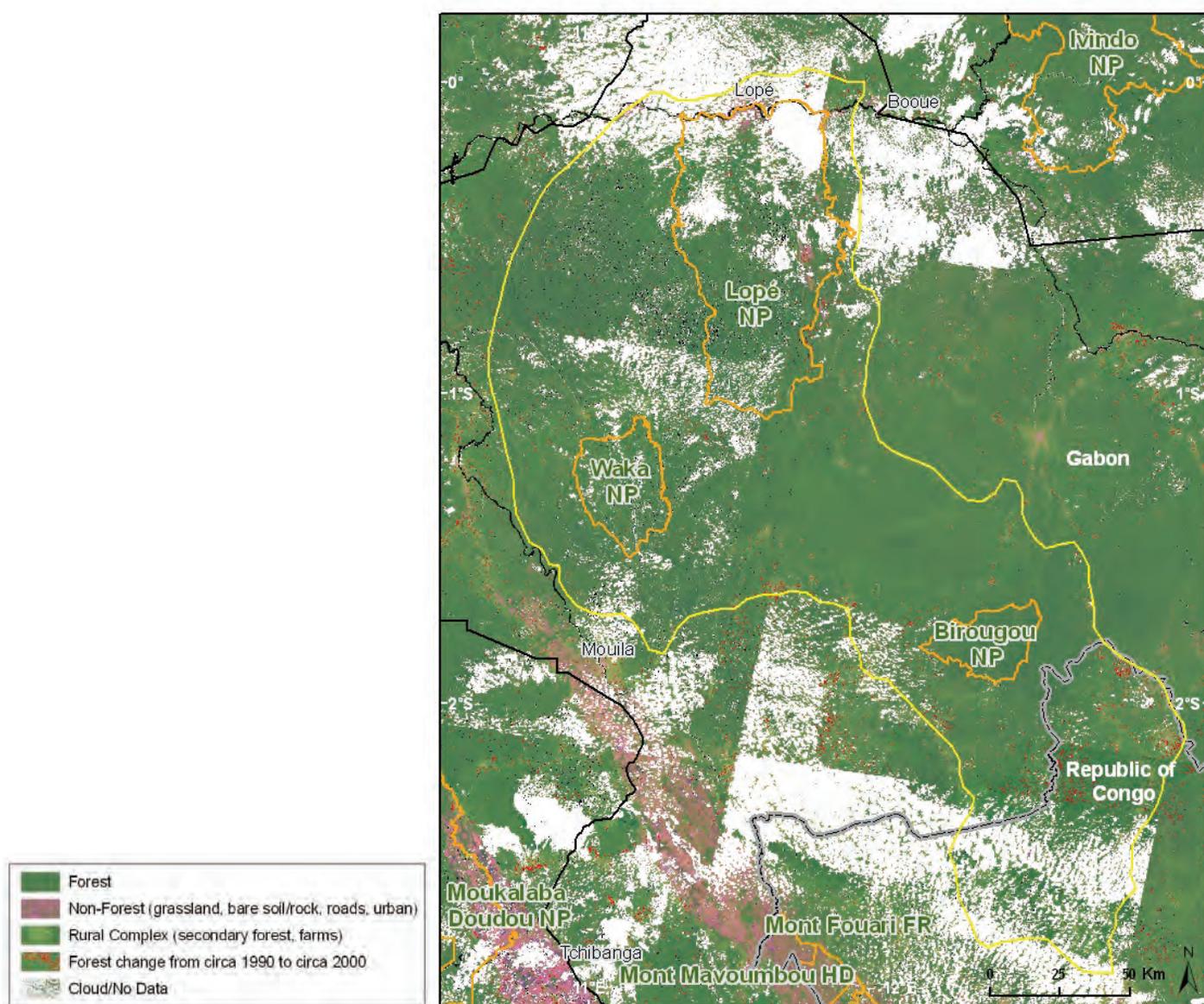
Table 17.1a: Important agricultural products trade in the Lopé-Chaillu-Louesse Landscape

Agricultural product	Unit	Purchase price/unit (\$)	Primary destinations	Date	Data collection	Sources
<b>Birougou villages</b>						
Sugar cane wine ( <i>Saccharum</i> )	Liter	0.76		2005-2006	Household surveys, 620 households	Parks and People Database, Boston College
Manioc ( <i>Manihot esculenta</i> ) batons	Stick (Baton)	0.82		2005-2006	Household surveys, 620 households	Parks and People Database, Boston College
Manioc ( <i>Manihot esculenta</i> ) tubers	Sack	2.22		2005-2006	Household surveys, 620 households	Parks and People Database, Boston College
<b>Waka villages</b>						
Sugar cane wine	Liter	1.05		2005-2006	Household surveys, 712 households	Parks and People Database, Boston College
Palm wine	Liter	0.80		2005-2006	Household surveys, 712 households	Parks and People Database, Boston College
Manioc tubers	Sack	6.94		2005-2006	Household surveys, 712 households	Parks and People Database, Boston College

**Table 17.1b: Bushmeat trade in the Lopé-Chaillu-Louesse Landscape**

Bushmeat species	Unit	Purchase price/unit (\$)	Primary destinations	Date	Data collection	Sources
<b>Birougou villages</b>						
Blue duiker ( <i>Cephalophus monticola</i> )	Whole animal	5.92	Libreville	2005-2006	Household surveys, 620 households	Parks and People Database, Boston College
Brush-tailed porcupine ( <i>Atherurus africanus</i> )	Whole animal	5.80	Libreville	2005-2006	Household surveys, 620 households	Parks and People Database, Boston College
Various « red duikers » ( <i>Cephalophus dorsalis</i> , <i>C. callipygus</i> , <i>C. nigrifrons</i> , and <i>C. ogylybi</i> )	Whole animal	17.50	Libreville	2005-2006	Household surveys, 620 households	Parks and People Database, Boston College

### Forest Cover



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

Figure 17.4: Composite Landsat satellite image of the Lopé-Chaillu-Louesse Landscape overlain with 1990 to 2000 forest loss (in red)

**Table 17.2: Forest cover and forest loss in the Lopé-Chaillu-Louesse Landscape from 1990 to 2000**

Landscape area	Forest area			Forest loss			
	1990 (km <sup>2</sup> )	2000 (km <sup>2</sup> )	2005 (km <sup>2</sup> )	1990–2000 (km <sup>2</sup> )	1990-2000 (%)	2000-2005 (km <sup>2</sup> )	2000-2005 (%)
34,770	33,845	33,647	N/A	198	0.59	N/A	N/A

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

Sources: SDSU, UMD-CARPE, NASA.

## Large Mammal and Human Impact Monitoring

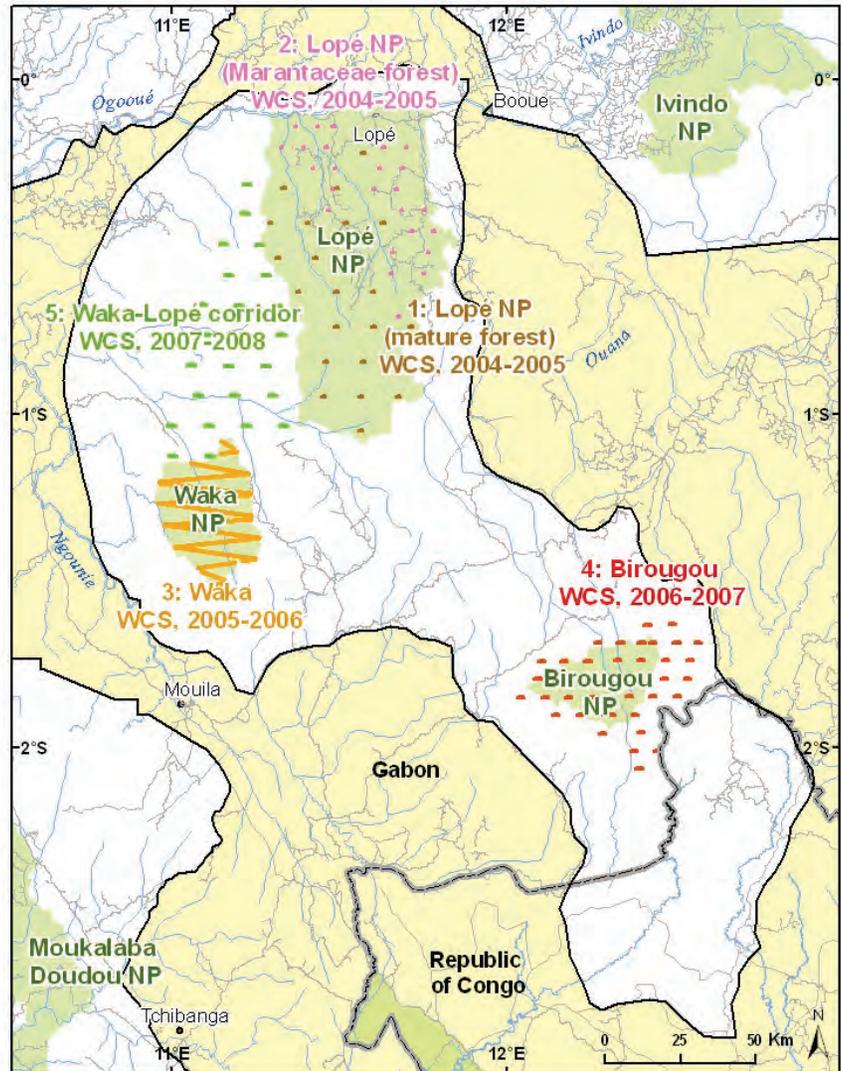
Wildlife and human impact surveys were conducted in Gabon between 2004–2005 in Lopé National Park, 2005–2006 in Waka National Park, 2006–2007 in Birougou National Park, and 2007–2008 in the logging concessions between the Waka and Lopé National Parks and in the large CBNRM around Birougou National Park. In the Republic of Congo, much of the landscape was surveyed in 2004–2005. Methods used were line transect surveys except in Waka and in the Congo sector, where guided recces were used; all large mammal and human sign were recorded and georeferenced.

The landscape as a whole is composed of large tracts of intact (never logged) mature rainforest on extremely rugged terrain, especially in the south, and “younger” (about 1,400 years old) rainforests in the north. Some very ancient, isolated savannas occur in the north of the landscape.

Important populations of large mammals including elephants, gorillas, chimpanzees, and a suite of monkey and forest ungulate species occur in all the sectors so far surveyed, both inside the protected areas and in much of the areas where land use is either logging or CBNRM. The endemic monkey found in the Landscape, the Sun-Tailed Guenon, was recorded in the north of Birougou National Park, extending its known distribution by about 30 kilometers southwards.

Some of the younger forests have been selectively logged in the recent past. Some of both the mature and younger forests are currently being, or are about to be, logged, including much of the Congo sector. Human impact is fairly low throughout the Gabon sector, the most impacted areas being those near human settlements or along logging roads, including disused roads.

In Waka National Park, human sign was almost absent except in the extreme north near the villages and, in Birougou National Park, human sign was rare and mostly in the west of the Park near to the town of Mbigou. Inside Lopé National Park, human sign was around the Ayem railway station, in the northwest of the park, in and around the abandoned logging camps of Soforga and Mitende, and in the extreme south near a village zone. In the Congo sector, there were hunt-



Sources: WCS, UMD-CARPE, OSFAC, FORAF

Figure 17.5: Biological surveys conducted in the Lopé-Chaillu-Louesse Landscape

ing signs throughout most of the areas surveyed, which are mainly active logging concessions. It seems that remoteness and rugged terrain, at least in this landscape, serves as a *de facto* protection for wildlife.

*Photo 17.4: Buffaloes (Syncerus caffer) are abundant and relatively tame in the savannas of Lopé National Park.*



**Table 17.3: Biological survey results from the Lopé-Chaillu-Louesse Landscape**

Survey	Survey date	Total km of recces	Number of transects	Total km of transects	Elephant presence	Elephant dung pile encounter rate (N/km)	Elephant dung pile density (N/km <sup>2</sup> )	Ape presence	Ape nest group encounter rate (N/km)	Ape nest group density (N/km <sup>2</sup> )	Human sign (N/km)
1	Aug 2004-Dec 2005		22	21.8	Yes	2.6 (2)	544 (599)	Yes	1.05	29 (18.7)	0.1
2	Aug 2004-Dec 2005		26	13.1	Yes	11.6 (3.6)	1,299 (889)	Yes	0.68	18.8 (15.7)	0.21
3	Dec 2005-July 2006	344	-	-	Yes	3.4 (0.8)	NA	Yes	0.73	N/A	0.16
4	Oct 2006- Apr 2007		40	79.5	Yes	1.5 (0.64)	385 (173)	Yes	1.55 (0.31)	41.52 (10.06)	0.53 (0.27 – 0.79) (on transects; and 1.04 (0.63 – 1.45) (guided-recces)
5	Oct 2007-Mar 2008	289.7 (recces were recces-voyages, not guided-recces)	23	57.3	Yes	2.8 (1.8-4.3)	694 (439-1,097)	Yes	1.2	25.1	0.1 (transects); 0.4 (recces-voyages)

1 and 2) Maisels et al., 2006.

3) Abisi, 2006.

4) Aba'a and Bezangoye, 2007.

5) Abisi, et al., 2008.

## Special Interest

### Mandrill Tracking Ecotourism

Finding sustainable means of generating value from intact forests and wildlife populations is an important component of limiting the degradation of forest in Central Africa. Ecotourism can be one such activity. While the overall magnitude of revenue from tourism may not rival those from extractive industries, ecotourism can generate revenue that is locally significant and if managed well, can contribute to sustainable forest management. In tropical forests, other than at rare clearings or 'bais', wildlife is difficult to see, and both special techniques and unusual combinations of favorable habitat and charismatic species are required for successful wildlife viewing. One such situation occurs in northern Lopé National Park, where the landscape features, and the presence of an unusual and charismatic species – the mandrill – combine to present a novel opportunity for ecotourism to support both conservation and sustainable livelihoods.

Mandrills (*Mandrillus sphinx*), the world's most colorful primate, are found in the forests of Congo, Cameroon and Equatorial Guinea, but the vast majority of their range is in Gabon. They live in social groups, known as hordes, which average 6-700 and occasionally over 1,000 individuals. These are the largest natural aggregations of non-human primates in the world. Mandrill hordes are composed mostly of females and young males, with the large and brightly-colored

adult males joining them principally during the breeding season.

Normally, mandrills are incredibly flighty, and with up to 2,000 eyes looking out for potential predators, including people, it is virtually impossible to approach them on foot in their forest habitat. In the north of Lopé, the habitat is mainly savanna, with forest growing only on high hills, at old village sites and in long, thin 'galleries' of forest following rivers and streams. Using radio tracking, researchers from WCS and CIRMF found that several groups of mandrills used these thin strips of forest on a regular basis. However, mandrills avoid the exposed savanna (where they could easily fall prey to eagles or leopards), and so when a horde is in narrow gallery forest, they can only move in two directions – forward or back. By fitting mandrills with special collars that emit a radio signal that can be picked up by a detector, the group can be located and their direction of travel determined. This makes it possible for adventurous visitors to set up a hide ahead of the mandrills in the gallery, and lie in wait, completely concealed. In this way, it is possible to find oneself surrounded by a mandrill horde and observe their behavior at close quarters.

To take advantage of this unique opportunity, a pilot project was developed. Following development of an initial business plan, the successful deployment of radio collars, and recruitment and training of three local guides in 2006, mandrill tourism excursions were offered to the public as a trial product in 2007. A total of 105 tourists participated in 43 excursions during the year. Bookings increased through the year as the product became better known. Visitor feedback was very positive. In response to post-excursion evaluations, 90 % percent of visitors ranked the overall quality of the excursion as 'Excellent' or 'Good' (figure 17.6). Reservations for the first 3 months of 2008 were already much higher than for the same period in 2007.



**Photo 17.5:** In the dry season, when the waters are very low, the bedrock of the Ogooué River is visible.



Figure 17.6: Visitors feedback on mandrill excursions in 2007 (N=100 respondents)

The project has so far focused on the technical aspects of developing mandrill tourism: the project has shown that it is possible to offer mandrill-tracking safaris that are of sufficient quality to meet tourist expectations. The next step is to ensure that it is financially viable over the long term – the first part of this will be to conduct a review of the business plan based on the experience gained over the past 18 months, and to develop a viable marketing and pricing strategy.

In North Lopé, the home range of the focal mandrill horde is adjacent to a village, Kazamabika, which is enclaved by the national park. The mandrill horde rarely enters the village lands, but some villagers continue to hunt wildlife outside the village enclave, including the man-

drill groups. Therefore, finding an effective way to partner with this village (via revenue sharing or joint marketing of complementary tourism products) is an essential next step. A trial strategy, where tourists tracking the mandrills will also attend a traditional dance in Kazamabika village, thereby bringing revenue to that village, has been piloted in the second half of 2008. While the overall amount of revenue generated for the local population (through the employment of guides and a partnership with the village) may not be large, it is significant in an area where there are few other economic options. These are early days for this venture, but the results so far suggest that developing an economic product based on mandrill tourism can provide benefits to both the forest and local communities.

