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Biodiversity Conservation at the Landscape Scale

A Program of the Wildlife Conservation Society
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Ndoki-Likouala Landscape Conservation Area Semi-Annual Report April 2001 – September 2001

I. Summary of Activity Status and Progress

a. Introduction/Summary:

The Ndoki-Likouala Landscape Conservation Area of the Biological Conservation at the Landscape Scale Program (BCLS), extending over approximately 30,000 km², comprises a vast stretch of lowland Guineo-Congolian forest, rich in African mahoganies and large mammals. Within the area, forest type varies from semi-deciduous in the northwest to swamp forest in the southeast. It is home to important populations of some of the continent's most endangered species: forest elephants, western lowland gorillas, chimpanzees and bongo. The region has an extremely low human population density, and has until recently been isolated from modern human influence. Biodiversity of the region is partially conserved in two protected areas: the Nouabalé-Ndoki National Park (NNNP) (established in 1993) and the Lac Télé-Likouala aux Herbes Community Reserve (LTCR) (officially gazetted in 2001). Yet these protected areas alone do not provide sufficient habitat for wide-ranging or low-density species, nor is the capacity of the Ministry of Forest Economy (MEF) strong enough to effectively manage these areas. Consequently, the unique and extraordinary biological values of the region are threatened by the rapid development of logging throughout northern Congo, the export of massive volumes of bushmeat that follows in its wake, and the creation of logging communities who increase pressure on forest resources.

The principal goal of the BCLS program in Ndoki-Likouala is to conserve biodiversity through application of a landscape approach. To accomplish this goal, the program is assessing the ecological status and requirements of selected landscape species (forest elephant, dwarf crocodile, chimpanzee, forest buffalo and bongo), developing management strategies across a mosaic of land-use zones that integrate their conservation, and helping to establish effective systems for this management. WCS works closely with MEF staff who are charged with both wildlife protection and forest management, with managers of logging companies that work around the protected areas of northern Congo, and communities located in the region. In addition to improving management of these protected areas, the BCLS program is helping to design and establish systems of wildlife conservation and management on forestry concession lands. This includes consultation to: reduce the ecological impacts of logging operations (e.g., road placement, no-cut zones); prohibit the hunting of endangered species and the export of any bushmeat from the concession; control logging-based demographic growth and impacts; establish wildlife management systems for sustainable subsistence use by communities, and develop alternative sources of protein for community consumption.

WCS has already conducted biological and socioeconomic surveys in much of the region, and initiated studies on selected landscape species. We assisted MEF in the establishment of Nouabalé-Ndoki National Park and initiated pilot collaborative work with forestry companies (Congolaise Industrielle de

Bois [CIB] and Rougier), MEF, and communities that surround the NNNP regarding wildlife management on non-protected lands. The BCLS currently allows us to extend activities to the LTCR, located at the southeast border of the landscape, and expand collaboration in the surrounding forestry concessions in order to cover the full region. While BCLS support was initially focused on wildlife management in forestry concessions, some assistance for the operations of the NNNP and initial surveys of LTCR has been made available as of FY 2001.

Over the period of April through September 2001, BCLS efforts of the Project for Ecosystem Management of the Periphery of the NNNP (PROGEPP, or Buffer Zone Project) were concentrated on working with MEF and CIB to improve forestry and wildlife management in the forestry concessions (Kabo, Pokola and Loundougou) of the Buffer Zone of NNNP. On the ground BCLS activities in the Buffer Zone focused on wildlife conservation, wildlife management, safari monitoring/policy, ecological and socio-economic monitoring, alternative activities, conservation education, and reduced impact forestry planning based on collaboration with the private sector actors and local communities. The overall objective of the period was to initiate the early planning and pilot activity stages for a comprehensive management plan for the CIB forestry concessions (12,000 km²). The plan and associated activities aim to ensure integration of biodiversity conservation and rational wildlife and forest resource use in long-term multiple-use forest management. A similar approach was discussed with the Rougier company, which holds forestry rights to the Mokabi concession north of the park (3,750 km²). Major management issues addressed during this period included the protection of the Goualogo Triangle (280 km²), placement of the Loundougou access road, control of hunting in the CIB Kabo and Pokola concessions, examination of road planning issues and Reduced Impact Logging (RIL) techniques with CIB, safari policy development, landscape species population baseline establishment, conservation education and bushmeat alternatives development, and lobbying for sustained high level government and international community support for conservation of elephants.

In the Lac Télé-Likouala aux Herbes Community Reserve (LTCR), WCS has been installed for one year, and sound progress has been made on the reserve's work plan. Activities concentrated on continuing to meet appropriate national, regional and local authorities, training local staff (including the newly appointed Head Warden -- the reserve's director), and recruiting Congolese national assistants for the biological and socio-economic surveys.

b. Highlights

- WCS research findings and discussions with the Government of Congo and CIB (Congolaise Industrielle de Bois) resulted in the decision of the government to protect the 26,000 hectare Goualogo triangle by annexing it to the Nouabalé-Ndoki National Park. The legal procedure to class the area was initiated in June 2001 and the Minister of Forest Economy Henri Djombo and Hinrich Stoll of CIB announced this decision to the international community on July 6, 2001 at a press conference at the Bronx Zoo.
- WCS and Ministry of Forestry Economy, in collaboration with CIB, continued implementation of the Project for Ecosystem Management of the Periphery of the NNNP (PROGEPP or the Buffer Zone project). Over this period, conservation and protection activities were expanded in the Kabo and Pokola forestry management units to include the western Loundougou concession and southern Pokola.
- Law enforcement and monitoring was undertaken throughout these areas. Data demonstrate the importance of the concessions surrounding the NNNP for elephant movements and local conservation of elephant populations. Five joint patrols along the Sangha River were executed as part of the tri-national collaboration between Congo, Cameroon and CAR resulting in the arrest of poachers (of protected species) and confiscation of two 12 gauge shotguns and one high-powered rifle. In the Kabo and Pokola UFA 49 patrol days of mobile protection patrols, 367 patrol days of vehicle post controls, and 7 patrol days of anti-snare patrols resulted in 4 ivory tusks, 1 automatic rifle (PMK), several 12 gauge unauthorized shotguns (unregistered or found outside appropriate hunting zones), and 1221 cable snares.
- A US Forest Service-supported mission visited the CIB concession producing a preliminary assessment for a reduced-impact logging (RIL) program to be adopted by CIB. Research Scientist Nadine Laporte (University of Maryland, CARPE) initiated collaboration with WCS and CIB on biomass changes, remote sensing monitoring, and GIS-based forestry planning in the CIB concessions.
- Discussions were held with the Government of Congo, USFWS representatives, and the World Bank concerning the increased and commercial hunting pressures created by the opening of principal access roads to the Mokabi, Lopola, and Ipendza logging concessions.
- In the LTCR region, a three month study was conducted to determine the amount of bushmeat in village markets, the diets of the local people, and the quantity of bushmeat leaving the reserve through two major routes – the paved road between Epéna and Impfondo and the river from Epéna to Brazzaville. This study will be replicated between October and December as a means of comparing the difference in pressure on animals between the low water and the higher water seasons.
- Ground activities with the Regional Direction of the Sangha were launched in May with the establishment of control activities at the Ouesso airport to control bushmeat traffic to Brazzaville. Due to the large amount of money associated with the illegal trade, the control operation succeeded in greatly raising awareness on a national level concerning bushmeat issues and demonstrating that such traffic can be halted through strict measures.
- An agreement was reached with the Likouala regional military commander to stop all purchasing of bushmeat for troops at markets within the reserve boundaries.
- A work program was developed in July with the DRFE/Likouala for execution of patrols in the Mokabi area, controls at the Impfondo airport, awareness and education, ecological surveys of Mokabi, and market surveys.
- Bushmeat market surveys were undertaken in Ouesso from May – August 2001 and initiated in Impfondo in August 2001.
- A six-month survey of the Brazzaville ivory market was initiated in June 2001, and will allow comparison with an earlier studies in 1996 and 1999.

- Conservation education was furthered through the activities of the nature club and protected species lessons in the primary schools at principal villages in the Kabo and Pokola concessions. Conservation awareness missions were conducted during approximately 20 village meetings throughout the logging concessions on topics such as appropriate hunting techniques, community wildlife management, land-use zoning, promotion of alternative protein sources, and protected species, addressing over 1000 individuals. The Buffer Zone education team leader conducted a training session for the new educators in the Lac Télé reserve during a ten-day period.
- Documentary films on elephant conservation and the commercial bushmeat trade in Congo were produced and aired in collaboration with Congo Television to raise awareness on national and regional levels.
- In the LTCR, a strong collaborative relationship has been built with a local NGO, *Conservation de la Faune Congolaise* (CFC). The Lac Télé project has helped the CFC team write funding proposals and to focus its activities on well-defined themes. It is the hope of WCS that this local conservation organization will someday be able to function independently and assume responsibility for all education and awareness activities.
- Preliminary baseline surveys of large mammals were conducted in the LTCR over three months in the major habitats in the reserve. This pilot study will serve to orient a larger, comprehensive assessment in the coming year. However, preliminary data suggest that gorilla densities may be extraordinarily high on the *terra firma* in the reserve. Future transects will validate these extremely high densities of gorillas and determine densities in other habitat types.
- The aerial videography monitoring circuit of forest clearings in northern Congo and neighboring Central African Republic continued. These 24 clearings were over-flown in June and September. The most striking observation during these surveys was the complete transformation of one of the bays in the far south of the Buffer Zone ("Fouloungou Bai"), within the Pokola concession, from a classic "elephant bay" to a sand quarry by CIB. The issue was brought to the attention of CIB and will be addressed in their RIL program. A tacit agreement was obtained from the CIB direction to take measures to protect other bays in the concessions.
- GPS collared elephants were successfully tracked during this period, with overflights in June and September. Three of the four collared elephants were found on both occasions. Preliminary data show that the total combined home range of the four elephants is about 6200 km². The home ranges for the two females (for whom there is a longer time-series of data) are 1470 km² and 2470 km², which confirms our concerns about linking conservation in and out of protected areas.
- The BCLS team hosted 15 international conservationists, including a USAID representative, in a two week WCS Living Landscapes Program technical meeting focused on landscape species monitoring. Four days of the meeting were used to visit the NNNP and CIB concessions to learn about park management issues and the wildlife management and forestry programs.

c. Table of Activity Status

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II. Detailed Description of Progress

a. Key program objectives for reporting period (April 2001 - September 2001)

The goals of the second half of FY 2001 included continuing to establish baseline data and monitor the landscape species and human influences in the landscape. In addition, we aimed to continue work with neighboring logging companies in the Pokola, Kabo, Loundougou and Mokabi concessions for sound management of wildlife resources. Our goal was also to integrate local communities, government and logging companies where appropriate in the management of natural resources across the landscape, and influence national policy in the forestry and protected areas sectors. Finally, we intended to initiate the process of the elaboration of an integrated landscape conservation action plan through drafting of the Nouabalé-Ndoki National Park Management Plan (under separate funding this year), and chapters and interior regulations for CIB concession management plans for Kabo, Pokola and Loundougou.

b. Activity Description

OBJECTIVE 1. Establish baselines and monitor Landscape Species and the landscape context in which they are found.

Activity 1.1. Landscape Species Monitoring

On track

The BCLS program completed final landscape species selection (See Appendix 1) for northern Congo; forest elephant (*Loxodonta africana cyclotis*), chimpanzee (*Pan troglodytes*), forest buffalo (*Syncerus caffer nanus*), dwarf crocodile (*Osteolaemus tetraspis*), and bongo (*Tragelaphus euryceros*).

Reconnaissance:

A series of reconnaissance walks over the area to the north of the Nouabalé-Ndoki National Park was carried out by Patrick Boudjan, to roughly assess the state of wildlife, vegetation, and human activities – and their interactions – in the region. The survey covers almost all of the Lopola concession, the eastern part of the Ipendja concession, and the southern two-thirds of the Mokabi concession (including almost all the land within about 50 km of the NNNP boundary within those three concessions). The survey has now covered about 4000 km² using 17 sample lines spaced about 6 km apart, totaling 725 km. Data collected included all large mammal sign, all human sign, vegetation type and topography. A highly significant negative relationship exists between elephant sign and human sign; and between elephant sign and distance to the nearest human settlement, indicating the elimination of elephants within about 15-20 km of all villages in the area (See Figures 1 and 2). This probably occurred within the last 5 to 10 years. The zones near the villages show that all other large mammal species have been impacted by hunting, especially chimpanzees, which seem to be the worst affected, being absent for up to 25 km away from human settlements. The construction of a major logging road through the middle of the surveyed area, currently underway, will result in an upsurge of poaching unless anti-poaching measures are rapidly implemented. The data collected in this reporting period show that logging activities are already underway only 5 km from the northern border of the NNNP (timber prospection) and that the nearest road is now only 20 km from the northern Park limit (See Figure 3). The final 150 km of survey will be carried out in January and February 2002, and a full analysis carried out.

Wali Bai:

Wali Bai is located approximately four km on foot from the NNNP Headquarters in Bomassa, in the Kabo FMU. This bai has been closely monitored since late 1999 and the information is vital to understanding whether or not important landscape species (elephant, buffalo and bongo) visit the bai regularly. This

information in turn is an indicator of whether or not the agreement between WCS and the community not to hunt in the bai is being respected.

During the reporting period, observation sessions were carried out on 81 days, totaling 321 hours of direct observations. Data were collected at all times of the day and night. The mode was 5 hours of observations per session. Seven all-night (moonlight, sometimes with a night-vision apparatus) observation sessions were completed. Nine species of large mammal were observed in the bai; the two most commonly seen were forest buffalo and – almost always during the hours of darkness, around dawn or after 1630h - forest elephant. These two species spent over half of their time feeding on the green alga *Spirogyra sp.* in the bai. Bongo were rare, but when seen, spent 75% of their time feeding on *Spirogyra*. Animal sign around the bai was monitored weekly (24 visits during the reporting period). Buffalo sign was the most frequently seen (42% of all sign), followed by elephant (28%), bongo (19%), and red duiker (7%). Two 3-km trails connecting Wali with the village were monitored each week for human and animal sign (26 visits during the reporting period). Red duiker sign (4 species lumped together) made up 37% of all sign, followed by elephant sign (20%), gorilla and blue duiker sign (12 and 11% respectively) and yellowback duiker sign (6%). Human sign made up only 4% of the total.

Elephant Monitoring in bais:

Using a similar setup to that of Dr. Andrea Turkalo in Dzanga Bai (Central African Republic), Congolese research assistant Clement Inkamba-Nkulu started a long-term elephant identifying and monitoring study in March 2001. Clement was trained by Andrea Turkalo in Dzanga Bai in December 2000 on how to identify and record individual elephants (See Figure 4). Using the same standardized methodology, he is in the process of building a database of identifiable elephants at the three clearings within the NNNP: Mabale, Mingingi and Bonye, providing insight on the movements and ecology of this species. These data will be compared to data from the early 1990s in order to assess the impact of protection efforts on large mammal populations. It will also contribute importantly to our understanding of the large-scale movements and spatial requirements of this landscape species. It is clear that elephants are the most requiring of space among the species present in the region, and therefore their needs will be the greatest as a sufficient wildlife landscape is determined.

Results from the first field season (March-June 2001) indicated that Mr. Inkamba-Nkulu had identified 234 individual elephants over 86 days of observations, of which about two-thirds were females (all ages). Large adult males appeared to avoid the clearings during the day. About half (46%) of the individuals observed were adults, followed by infants (23%); juveniles, (16%) and subadults (14.5%). A small proportion of them moved between the two closest bais (Mabale and Mingingi). Nocturnal observations at these and the other bais monitored within the NNNP area (Mbeli and Wali) show that elephant visitation increases markedly in the late afternoon and evening, with elephants leaving the bais at or around daybreak. The data for the rest of the reporting period will be analyzed when Mr. Inkamba-Nkulu returns from his second field season in mid-December.

Roads:

The NNNP project continued to monitor the road between Park Headquarters in Bomassa and the Ndoki Research Station on the edge of the Park. This 30 km of road is walked regularly, and animals and human sign, and their distance from the village, are recorded. The road was monitored four times during the reporting period. This was equal to about 120 km of road. A total of 1139 signs or actual sightings were recorded, roughly 9.5 per km. At least twenty-seven mammal species were recorded. Red duiker sign made up 20% of the total, followed by elephant (13%), yellow backed duiker buffalo (10% of the total each) and red river hog (8%).

In relation to distance from the village, we examined the most commonly hunted species: the red and blue duikers and red river hog, as well as two endangered species, gorilla and elephant. Red river hog is the

only hunted species that shows a distinct “village effect”: there are far fewer signs per km of this species around Bomassa - to a radius of 13 km along the road - than for the next 17 km. Blue duiker was less common. Although gorillas are not hunted, their signs were not found at all for the first 4 km away from Bomassa. Elephant sign is common throughout, including near Bomassa. Other commonly seen sign were those of civets, forest buffalo, and yellow backed duiker. Buffalo clearly preferred the wetter portions of the area, where rivers or swamps approached the road (See Figure 5). When the entire 2001 data were analyzed and compared to 2000 data, no significant differences were found in animal presence along the road. This suggests that hunting pressure has remained the same, and with the possible exception of bush pigs, seems to be sustainably managed.

Aerial Videography:

Twenty-four bays are being monitored within the region using aerial videography, inside the protected areas of Nouabalé-Ndoki (Congo) and Dzanga-Sangha (Central African Republic) and in the Buffer Zone around NNNP (Kabo and Pokola concessions). The tests carried out in the previous quarter had allowed us to identify which were the most important parameters for assessing use of bays by large mammals, especially elephants. A bay monitoring cycle was carried out in late August: the first wet season series. The bays within the protected areas of Nouabalé-Ndoki and Dzanga-Sangha National Parks were in good condition, showing recent elephant activity. Those bays to the north of the Buffer Zone showed an improvement in condition from the previous year, indicating more elephant activity than before. One bay in the south of the Pokola concession, however, had been destroyed by the logging company to create a sand quarry.

Buffer Zone:

Ecological monitoring teams undertook the semi-annual wet season reconnaissance surveys covering an estimated 284 km (6 different zones) generating information on human activities and large mammal relative abundance in the various management zones in the logging concessions. More frequent human sign was noted in proximity to certain access roads and near Lac Djaka in the Pokola concession. These data were communicated to the protection teams who promptly swept these areas with patrols. Ecological team members also continued monitoring four major forest clearings (noted for elevated wildlife use) conducting 7 days of direct observations at each site every other month. These data indicate that the immediate sites were calm with little or no human sign and regular large mammal visitation; however, 2 sites exhibited human sign within a few kilometers of the clearings, possibly explaining why animals frequent these sites only during the night.

Djadja and Boukembela clearings in the Kabo concession were monitored for one week every two months during this period, generating information on large mammal use of the clearings and human disturbance of the surrounding areas. Elephant sightings in Boukembela bay increased from 20% to 40% compared to the previous reporting period. Although no hunting disturbance was registered in the area, no direct observations of elephants were made in Djadja bay (5 km from Ndoki 2 camp) although buffalo were present.

The Lac Djaka forest clearing in the Pokola concession requires a strong presence and regular monitoring not only to provide information on elephant populations in the zone, but also to provide protection to this key habitat area. Incursion of commercial small game hunters into the zone has been observed over the past six months. Supplying the Pokola bushmeat market (currently experiencing shortages) may contribute to this spatial pressure.

It was previously reported that the camp and observation tower proposed for Lac Djaka was cancelled due to sensitive complications with the traditional “owner” of the area. In June 2001 the safari operator formerly active in the Kabo concession, informed WCS and CIB of its official withdrawal from activities due to the decision of the MEF not to legalize bongo hunting. The infrastructure left by Congo Safari in

the center of the Kabo concession secures a key area in proximity of the Boukembela clearing and the southern entry to the Goualogo triangle at the confluence of the Ndoki and Goualogo rivers. Therefore WCS has proceeded in acquiring the camp facilities for management as a research and surveillance camp.

The Djaka and Fouloungou bais (Pokola FMU) were surveyed by the NNNP aerial bai monitoring circuit (see NNNP aerial monitoring for details). Overflights of bais, reconnaissance surveys, and general reports suggest that there remain important numbers of elephants in the Fouloungou area. The wildlife-zoning plan for the CIB concessions attributes these areas "no-hunting" protection status and calls for RIL program implementation. The zoning is currently being proposed for legal adoption by the MEF.

Lac Télé Community Reserve (LTCR):

In the first half of FY 2001, 35 km of straight line transects were walked as a pilot study for a reserve-wide survey of large mammals. The preliminary transects indicated high densities of gorillas in the *terra firma* habitat of the reserve. Information from this pilot study was also critical in determining the feasibility of using various survey methods in the collection of further biological data. Appropriate methods have been developed and mammal surveys are currently being completed (See Activity 1.6 below for more details of large mammal surveys in the LTCR).

Because preliminary market, airport, road and river surveys indicate that all three "protected" crocodile species are heavily exploited in the region, the Lac Télé project and WCS herpetologist John Thorbjarnarson will conduct detailed surveys in FY 2002. Specifically, we will examine 1) the diversity and distribution of all reptiles in the Reserve; 2) determine the density of African dwarf crocodiles in the Reserve. These have been scheduled for March 2002. Survey methods have been established and Congolese research assistants are currently being trained to participate in these research activities.

Activity 1.2. Mokabi Landscape Species Surveys

On track

The project completed an ecological and socio-economic site assessment in the Mokabi concession north of the Park in collaboration with Rougier and the MEF. A Buffer Zone team assisted by a representative of the Likouala Regional Direction of Forestry Economy (DRFE) undertook a two-month mission to collect baseline ecological and socio-economic information and provide a technical basis for the development of a preliminary wildlife management plan. In mid-August WCS staff Richard Malonga undertook this mission with the following objectives: Hunting pressures and large mammal relative abundance were assessed through reconnaissance surveys and interviews. A demographic census and questionnaire surveys were conducted to gather information on traditional territories, demographics, ethnicity, and non-timber natural resource exploitation of the company camps and local communities. Pressures of the bushmeat trade crossing the border to Central African Republic (CAR) are clearly increasing with the opening of roads into the concessions. It was clear that anti-poaching missions in the region to halt the international bushmeat traffic would need to be accompanied by high-level dialogue between the CAR and Congo governments. Wildlife conservation and management in the Mokabi concession will require the governments to address issues of border delimitation, recognition, and controls between the two countries.

Preliminary results of the demographic report show that Mokabi UFA has a low human population that is grouped predominately in 2 villages (Mokabi village and the Rougier forestry camp). The results of the census of the Rougier camp show that the population consists of 50% foreigners and 49% Congolese. The foreigners are primarily from Central African Republic (42%), with the remaining few from Democratic Republic of Congo, Cameroon, Chad, Mali, and the Ivory Coast. The forestry company has employed 121 workers to date, of which 33% are foreigners and 67% Congolese. 12 % of the remaining villagers are employed as contractors to the company. These data provide a baseline for monitoring

evolution of company and government based measures to deter and manage in-migration in the concession. Diamond mining and commercial hunting in Mokabi is largely undertaken by foreigners at this time.

Activity 1.3. Focal Ecological Studies on Landscape Species

On Track

Elephant study: Initial results from the satellite-collared elephants have shown that they are able to move rapidly across NNNP in the *Gilbertiodendron* forest (80 km in 3 days); and that the four elephants showed varied patterns of bai visitation (See Figure 6). This underlines the importance of protecting bais in the region, which are not only a magnet for elephants but also for elephant poachers.

The four elephant collars that had been deployed in early 2001 by NNNP researcher Steve Blake, along with WCS Field Veterinarian Dr. Sharon Deem, continued to provide data. Two data downloads were made from the collared elephants during the reporting period. Elephant home ranges were shown to be up to 2500km². Two of the elephants showed home ranges over 100km wide; the smallest home range was 59km wide. The protected areas of the region are mostly smaller than this, so individual elephants leave the safety of the national parks in order to find the resources they need throughout the year. Elephants continued to use bais intensively, sometimes every night for up to a month at a time. (The elephant research is supported almost exclusively by funding from USFWS.)

The phenology study, aimed at understanding elephant movements in relation to seasonal food availability, continued during this reporting period. Two hundred trees from twenty different species known to be important to elephants are monitored on a monthly basis for the presence of fruits. Fruit was abundant during the period from July - September, and elephant visitation to the village of Bomassa relatively low. Preliminary results show that there is very little fruit available to elephants during the dry season however (December - April), which may draw them into agricultural fields in search of food. At present, elephant visits to the village are recorded on a daily basis.

The NNNP management team continued to test and evaluate measures aimed at reducing human-elephant conflicts. Beginning in 1998 elephants began to move into the area near Bomassa village for the first time in memory, likely because of reduced poaching pressure attributable to the presence of the park. However, as a result, elephants also began to destroy fields, to the extent that most of the village has abandoned agricultural activities. In December 2000 the NNNP project cleared three fields near the Bomassa base, which were planted with manioc and corn. These fields were surrounded with heavy cables (abandoned by logging companies) that we expected would prevent elephants from entering the fields. The results that we can catalogue during the reporting period have been decidedly mixed. Although the fences were initially successful, it appears that one young adult male elephant learned that there were weak spots in the barrier, and not only did he eventually manage to enter the fields, but he was witnessed "helping" other elephants to penetrate the fence. As a result, we lost an estimated 25% of the crop in one field, 50% in the second, with minimal damage in the third as of September 2001. The project was forced to harvest what could be salvaged in the former two fields, and to reinforce the third field with more wire. Although we have no real expectations that this is a long-term solution to human-elephant conflict that can be widely adopted, we intend to continue to experiment with methods to reduce the conflict locally, and to get the village to begin to cultivate again on a normal agricultural schedule.

Mbeli gorilla study:

Mbeli Bai is one of the most impressive clearings within the National Park, comprising approximately 13 hectares located in the southwest of NNNP. Pilot studies conducted in 1993 and 1994 revealed that the bai attracts large numbers of western lowland gorillas (*Gorilla gorilla gorilla*) that come to feed on the aquatic herbaceous vegetation. Continuous monitoring began in 1995 and over the past six years

researchers have accumulated detailed group history records on 17 groups and eight solitary males - a total of 177 gorillas. Regular monitoring has provided a calendar of the times of year that gorillas might best be viewed, and as such, provides information regarding their tourism potential.

In addition, the Mbeli bai team continues to investigate the phenological status of important gorilla food trees in the forests surrounding the bai in order to assess whether gorillas visit superabundant patches of herbaceous vegetation, such as bails, independent of fruit availability. Understanding this relationship will allow the possibility of predicting gorilla movements, again as a basis for planning sound tourism opportunities.

Goualogo chimpanzee study:

Due to the immediate threat of mechanized logging in northern Congo and a lack of knowledge on the natural history of the central subspecies of chimpanzee (*Pan troglodytes troglodytes*) a socio-ecological study of an undisturbed population is underway in the area south of NNNP which is soon to be annexed, known as the Goualogo Triangle. This area encloses about 280 km² of intact forest, and includes several known communities of chimpanzees. During this reporting period, the Goualogo team began to cut transects both within the Triangle, and in the area immediately adjacent but outside of the NNNP, where logging is slated to begin sometime in 2002. This will provide a unique opportunity for the Project to evaluate the impacts of logging on chimpanzees, which seem to respond more negatively to logging than many other species.

Activity 1.4. Safari Target Species

On track

Two remote camera surveys were conducted to estimate bongo populations using the Mombongo study area. Remote camera surveys in key areas of the safari zone (40 and 60km), Bagbali area (10km), and Mombongo generated information on bongo movements. Six years of mark-recapture history datasets are being analyzed to estimate bongo population characteristics (group structure, sex/age ratio, individual identification) and develop optimal mark-recapture survey methods. Three research assistants were trained in direct observation data collection at forest clearings to gather data on population structure to compare with data from 1996-97 prior to the population die-off. Road surveys in the Mombongo area and the safari zone and ecological reconnaissance surveys generated seasonal data on bongo relative abundance in relation to habitat type, hunting pressures, water, and forest clearings. A key aspect of this research is to assess the recovery of the population from a catastrophic die-off that occurred in 1997. Research findings will be used to develop a statistically viable and cost-effective method to assess and monitor bongo populations. These methods are of particular interest to the Ndoki-Likouala landscape conservation strategy, and to Cameroon and CAR conservation efforts where "trophy" bongo are being extensively exploited, with no scientific basis for quotas and weak monitoring efforts to assess the impact. Plans to tag bongo to initiate an in-depth investigation of bongo ranging patterns were re-scheduled to the 4th quarter FY 2002 to permit finalization of analyses and publication of findings to date prior to launching the new study component.

Monitoring of buffalo groups visiting Wali bai continued to generate information on social organization and population structure. Information on buffalo relative abundance was collected in the various hunting management zones.

Activity 1.5. Hunting and Forestry Impacts

On Track

Monitoring of household protein consumption and bushmeat traffic in the 4 major camps and towns in the Kabo and Pokola concessions provided feedback to law enforcement efforts and company enforcement of

its internal regulations. Monitoring programs on bushmeat entering the towns of Ouesso and Impfondo, respectively the Sangha and Likouala regional capitals, were established with support of the Regional Government authorities and a local NGO in Ouesso. Data show that snaring rates remain low at the sites in the CIB concessions, with shotgun hunting gaining favor due to its controlled endorsement by the concession regulations. Protein scarcities in Pokola town increased social tensions leading to meetings between the company Direction, Buffer Zone project and the hunting committees. CIB agreed to facilitate more frequent beef importation as well as trips to Ikelemba and Terre de Kabounga villages to provide fresh fish to its employees at lower costs. The frequency of organized hunts was also increased from two to three times/per month as a temporary measure to relieve the demand for protein. Two national researchers were trained in GIS and databasing techniques to assess monitoring data. Mitch Eaton is currently finishing his Master's thesis on "Methods for monitoring the impact of hunting on blue and Peter's ducks in a logging concession" under the auspices of the Conservation Biology Program of the University of Minnesota.

Bushmeat entry surveys at two key road and river points and at the airport in Ouesso were conducted between May-August 2001, replicating methods used by the Buffer Zone monitoring program. Methods consist of recording bushmeat entering via the Liouesso road or the river ports on 20 randomly selected days of each month. The airport is monitored for all meat seized by the ecoguards as well as serving as an independent assessment of ecoguard efficiency during the controls. The surveys were initiated in collaboration with the Regional Direction and a local NGO. The intervention of Mr. Molebanda, local NGO leader, and the recruitment of one of the NGO members as a data collection technician overcame initial resistance by the local population. Data currently being compiled and analyzed will be included in the final report. Elephant meat was registered regularly entering Ouesso from Liouesso and Socambo roads.

Similar market entry surveys were initiated in Impfondo in August in collaboration with the DRFE/Likouala. The surveys are scheduled to be conducted from August 2001- January 2002 to provide baseline information and comparison with trends in Ouesso. Information on elephant and other protected species traffic is also gathered through informal investigations in both Ouesso and Impfondo. Information gathered includes: ivory and elephant meat prices, quantities, production zones, transport systems, producers, buyers, and the links of the Ouesso and Impfondo markets in regional, national, and international commerce of elephant products.

A six-month survey of the Brazzaville ivory market was initiated in May 2001 replicating methods used in a similar survey undertaken in 1994 (Moukassa and Madzou 1994). Two national research assistants monitor the Brazzaville ivory market each day noting all sales, item, price, nationality and profession of client, destination, and other pertinent information. These data will be compared with earlier data from 1994. Informal information gathering regarding raw ivory traffic in relation to source areas was also initiated during this reporting period. Ivory survey data will be used to assess differences in sale trends to provide information on source areas, potential international traffic avenues, and the importance of the trade post- civil war.

In addition to the studies of hunting within the forestry concessions, the Lac Télé project has also begun to gather similar data around the LTCR, in response to obvious threats identified during the last reporting period. In order to determine the hunting pressures on the reserve, bushmeat surveys are being conducted along the major paved road and the Likouala-aux Herbes River. All bushmeat or animal parts found in vehicles, canoes, or transport boats are recorded. Data collected includes: species, number, state of the meat (smoked, fresh, whole, in-pieces), and weight. If the hunter is carrying the bushmeat, the hunting method and origin of the animal are also recorded.

In addition, monitoring of village bushmeat markets begun during the last reporting period were

continued in 15 villages throughout LTCR. Data were collected on animal species, age, sex, origin, destination, selling price and hunting method.

Activity 1.6. Large Mammals and Human Use Patterns On Track

Reserve maps were developed from satellite images and GPS points taken in the field, so that habitat types and villages have now been localized within the LTCR. The position of Lac Mboukou was recently established, proving that the lake, which is reputedly important to elephants and buffalo, is also within reserve borders. Using these maps, an appropriate sampling design was created for large mammal surveys.

In June through September 1, 2001, four Congolese research assistants were hired and trained in line transect techniques, ecology, and basic statistics during a two-month training. The research assistants are currently conducting large mammal surveys and will continue their work throughout LTCR until July 2002. These two teams are surveying approximately 200 km of line transects in order to determine: 1) the density and distribution of large mammals by habitat type, with particular emphasis on gorillas and chimpanzees; 2) whether large mammals use the *terra firma* patches of habitat as refuges from high water levels in the flooded swamp forest during the major wet season (September – November).

Finally, socio-economic researchers have completed collection of data to examine food consumption patterns in households throughout LTCR. These data are currently being analyzed and will serve to help managers to: 1) determine the relative importance of bushmeat in the diets of villagers vs. the importance of fish and other protein sources; and, 2) determine what proportion of diet foods are “collected” locally and what proportion is purchased; offering an idea of the relative importance of subsistence hunting and agriculture in the region compared to the importance of establishing an economic base for food purchase from outside sources. Food consumption surveys were completed for dry season consumption patterns during the last reporting period and have since been repeated for three months in the wet season. Surveys were conducted in each of 8 designated villages throughout the Reserve. Participating households are selected at random in each of the designated villages once or twice a week (totaling no less than 50% of the homes in each village). Surveys were generally administered at the end of each day, and relied on the ability of the interviewee to recall all of the consumed foods that day.

Currently, the Lac Télé project is helping to support an independent Congolese Masters student, Gilbert Madouka. The subject of his thesis research is the use of natural resources and land use by local people in wetlands. The methods and objectives of the study were developed in collaboration with Lac Télé project direction. Mr. Madouka selected 11 villages from throughout the reserve. In each village, 30 people (15 men and 15 women) were questioned about their resource use, specifically regarding: fishing, hunting, agriculture, livestock, craft making, and collection of resources from the forest. Although Mr. Madouka’s research was limited in scope due to time constraints, the information gathered during his study was critical in developing a larger LTCR socio-economic program. Mr. Madouka is currently working with WCS in Epéna entering all data and conducting preliminary data analysis. Thus, a fairly comprehensive pilot study of resource use by different groups of people inhabiting the Lac Télé Community Reserve is nearly complete (and an additional Congolese professional has gained training and field experience).

Using Mr. Madouka’s research and observations as a foundation, the Lac Télé project has developed a more detailed socio-economic research program. The principal objective of the socio-economic program is to qualitatively and quantitatively describe human demography, natural resource use, and attitudes in the Lac Télé region, particularly as they may apply to the biological integrity of the region. Two national researchers and two research assistants are currently executing more detailed village surveys throughout the Lac Télé region. These surveys will serve WCS managers and decision-makers to gain a more

complete understanding of local traditions and customs, land and resource use strategies and division between individuals and villages, and important subsistence and economic activities.

Activity 1.7. Physical Landscape and Habitat Types
Completed

Dr. Nadine Laporte from NASA-University of Maryland delivered the first draft of a vegetation map of the Landscape to Congo in July. This was examined and the second, improved draft has been prepared. Captured video images of selected areas were used to 'ground truth' the original map.

OBJECTIVE 2: Strengthen local, on-site protection and management of biological resources across the landscape

Activity 2.1. Law Enforcement
On Track

Regular patrols inside the NNNP are undertaken by MEF and BCLS staff from both the Bomassa and Makao bases. During the reporting period, the NNNP project completed four patrols in the west and south of the Park, resulting in no seizures, and very few signs of human presence. During the same period, the Makao ecoguards did six patrols, concentrating in the east and north of NNNP; although there were no seizures required by these teams either, they did find considerably more signs of human incursions in the northern part of the Park, as logging activities continue to move closer to NNNP. Clearly more patrols will be required in this area during FY 2002.

In addition, monthly patrols took place on the Sangha River from April-September 2001, along the limits of the NNNP, with tri-national partners from Cameroon and Central African Republic. The numbers of seizures have plummeted since these tri-national patrols started, as this continued pressure on the poachers along the river has led many to abandon their illegal camps. For the reporting period, tri-national seizures included one 12-gauge shotgun and nine cartridges, and 406 wire snares.

As the Lac Télé project develops, action is being taken to protect forest elephants and other protected species in and around the reserve to safeguard the ecological character of LTCR. As proof of the need for immediate action, a group of BCLS Buffer Zone Ecoguards recently (September 2001) searched six fishing camps along the northwestern border of LTCR and found one elephant, three gorillas, and three chimpanzees that had been illegally killed.

The global law enforcement objectives in the LTCR are: 1) To drastically decrease the level of poaching by cutting off the major supply routes to markets; 2) To reinforce roadblocks being conducted in the Buffer Zone and strengthen the effort to stop the export of protected species from the Impfondo airport; and, 3) To eventually stop the export of all protected species out of the Lac Télé Community Reserve. Protected species in LTCR include: gorilla (*Gorilla gorilla*), chimpanzee (*Pan troglodytes*), hippopotamus (*Hippopotamus amphibius*), leopard (*Panthera pardus*), black-and-white colobus (*Colobus guereza*), giant pangolin (*Smutsia gigantea*), agile mangabey (*Cercocebe agilis*), and red colobus (*Colobe bai*).

Roadblocks conducted by three "control agents" and the Reserve conservateur and were begun in September 2001 (a total of three) on a random schedule and at a fixed location on the Epéna-Impfondo road that comes directly into Epéna (which is within the reserve and is the Lac Télé project base village) and leads to the regional capital Impfondo. River patrols on the Likouala-aux-Herbes also started in September to control meat trafficking on the transport boat from Brazzaville, as evidence suggests that bushmeat is collected along the river on this boat. The single river patrol undertaken during the reporting

period resulted in the seizure of two elephant tusks and two leopard skins from the Brazzaville transport boat, as well as parts of three gorillas and a chimp from passing canoes. As the law enforcement program develops in FY 2002, it is anticipated that the roadblocks will be conducted 10 times per month. Two river patrols (of approximately 10 days each) are also programmed each month by the Conservateur and his team of three ecoguards; the transport boat and all canoes along the river will be stopped and searched for bushmeat and poached protected species. All parts and meat of elephants and other protected species seized during the roadblocks and river patrols, as well as the exporter himself, will be turned over to regional authorities for prosecution. Hunting of non-protected animals is allowed in the reserve; therefore non-protected bushmeat will not be seized if it conforms to current laws (i.e. the hunter has a hunting permit and only hunts during the legally designated hunting season). In addition, the leader of the team will write a report after every mission to the regional authorities and project direction, detailing seizures and the data collected.

Activity 2.2. Lac Télé Management

On track

As noted above, the Lac Télé project began activities in December 2000. Despite serious logistical problems (difficulty of obtaining fuel, for example), conflict with the Head Warden and limited funding, the project Directors have made significant progress in their feasibility study for future management of the Reserve. Staff and equipment have been evaluated and inventoried, and wherever possible, upgraded as necessary.

During this reporting period, the Minister for Forest Economy replaced the Head Warden with a new Conservator who is more collaborative and interested in making significant strides in Reserve management. As noted elsewhere in this report (See Activities 1.1, 1.3, 2.1, 2.5, 2.8 and 3.4, for example), new field assistants have been recruited and trained during this reporting period, and they have begun to undertake the biological and socio-economic surveys required to better understand the circumstances that will determine future management decisions. Furthermore, with funding secured from the USFWS, the Lac Télé project has been able to hire a small team of ecoguards that are responding to identified threats in and around the Reserve by increasing law enforcement. These ecoguards would ideally be integrated into project staff, i.e. become part of the governmental system of management.

As WCS only recently started its activities in LTCR (December 2000), and because approximately 17,000 people live in close proximity to the Reserve exerting heavy hunting pressure, LTCR represents the most tenuous link in the Ndoki-Likouala landscape. Neither law enforcement nor control structures existed in this newly classified reserve (10 May 2001). This allowed hunters and poachers from the area northeast of LTCR to avoid roadblocks and patrols conducted by the Buffer Zone staff by evacuating bushmeat and ivory down the Likouala-aux-Herbes river and along the road east to Impfondo. Recent reports indicate that bushmeat hunting continues in the reserve and elephant poaching in the southern half of the reserve has been increasing. Ivory, elephant meat, leopard skins, and gorilla and chimpanzee parts are being exported from LTCR to markets in the major cities of Impfondo and Brazzaville along two major routes: the paved road between Epéna and Impfondo and the Likouala-aux-Herbes river (See Activity 2.1 for more details on law enforcement).

In addition to monitoring bushmeat along the Epéna-Implfondo road and the Likouala-aux-Herbes river, the WCS Lac Télé project, in collaboration with the Buffer Zone project and regional MEF authorities, has also begun to monitor bushmeat arriving and leaving Implfondo, the regional capitol. By monitoring the Implfondo bushmeat trade, it is possible to determine which species are most impacted by hunting. The quantity and species of bushmeat are recorded at the taxi entry points into the city, the Implfondo market, and the Implfondo airport. The study is being conducted on a random schedule at the taxi entry

points and the market. Bushmeat leaving the airport is counted from ten random flights during the reporting period; it is hoped that all flights will be controlled in the future as this program develops.

Activity 2.3. Wildlife Management in Forestry Concessions

On track

A mobile brigade of 25 locally recruited ecoguards working under 4 MEF officers actively patrolled the Kabo-Pokola-western Loundougou forest concessions during this period. Monthly patrols were conducted in the Bodingo area southeast of the NNNP where the CIB company is opening its access road to the Loundougou concession (see report September 2000- March 2001 for Loundougou road situation). The guard post equipped with HF radio system (battery and solar panels) was manned along the Ngatongo road, and controls at the Ndoki 2 camp and Djaka posts continued to cover principle transport routes used by the CIB vehicles. Mobile teams penetrated forest areas in the concessions, focusing on snare hunters, the Djaka area, southern Pokola and forestry prospection teams.

During this period, effort consisted of 56 mobile forest and road patrol team days and 367 patrol team days controlling vehicles in the Kabo, Pokola, and western Loundougou concessions, and 11 patrol missions along the Sangha River in collaboration with the NNNP, Dzangha-Sangha and Lobeke Tri-National reserve efforts. These patrols resulted in the seizure of 1221 snares, 1 automatic weapon, 4 pieces of ivory and several 12 gauge shotguns found in unauthorized areas or without proper papers. No elephants were reported to be killed in the Kabo concession and northern Pokola areas. An elephant kill was confirmed south of the Ndoki 1 camp and additional elephant kills were reported for southern Pokola and southeast of the Terre de Kabounga.

The only reported and confirmed protected species violation in the Kabo and northern Pokola concessions during this period was addressed as a part of the Tri-national protection efforts. The protection team of Buffer Zone and Cameroonian ecoguards seized a shotgun and gorilla meat from a kill made on the Cameroon side of the river by a Congolese hunter. The hunter and 2 accomplices were asked to leave the town of Kabo by project Ministry representatives and the CIB Direction.

The protection team conducted 4 mobile forest patrols in collaboration with the Regional Army authorities to control for illegal hunters, cable snares, and violations of the hunting zones in the concessions. As a result the MEF officials seized 2 unregistered shotguns and several hundred wire snare cables. An additional mobile patrol was conducted near the eastern border of the Pokola concession in the western part of LTCR. The patrol resulted in the seizure of an AK47, 2 unregistered shotguns, and elephant and chimpanzee meat. A follow-up mission was conducted by the Lac Télé MEF Brigade Chief that resulted in the arrest of 2 poachers.

During this period legal charges for wildlife infractions were regularly transmitted to the Regional Direction of Forest Economy for the Sangha region (DRFE/S) in Ouesso for legal processing. As with earlier periods, it was noted that the Regional Direction processed only a few of the infractions (resulting in fines). Repeated meetings attempting to motivate the DRFE/S to enforce the legal process were met with frustration and appeals for "education and alternative activities." These results indicate that pressures of the commercial meat and ivory trade on local forestry officials may be extremely difficult to overcome. It is hoped that strengthening individual local NGO leaders will help to bolster and support the law enforcement bodies. Plans were developed to associate a local NGO with WCS/MEF activities.

CIB continued to enforce the application of its interior regulations and zoning concerning wildlife management in its concessions. Meat scarcities on the Pokola market increased incidents of export violations from Ndoki 1 towards Pokola. In July 2001, the Buffer Zone Direction worked with the CIB Direction in the development of interior regulations that prohibit transport by a list of known commercial

meat traffickers (6 women) and commercial hunters (10 men). Incidents of pressure by several CIB employees to traffic bushmeat have been met with strong enforcement measures by the company.

MEF has shown support for the Buffer Zone, as the model, to be replicated for wildlife management programs in logging concessions throughout Congo. A firm stance on control of illegal wildlife trafficking and destruction of elephant poaching centers by the government will be critical steps in the success of any regional approach to wildlife management and conservation.

**Activity 2.3 was supported by ITTO, USFWS, MEF, WCS and CIB funds.*

Activity 2.4. Bushmeat Control in/from Forestry Concessions

Mixed

In April 2001 an agreement was signed between the Regional Forest Directors (DRFE) of the Sangha and Likouala and the WCS representative, to establish formal collaborative implementation of regional conservation efforts. The terms of the agreement outline the general work to be undertaken, the expected roles of the various parties, and reporting and accounting requirements. After several coordination meetings, the implementation of the agreement was begun in May with the Regional Direction of the Sangha and in August with the Regional Direction of the Likouala. Piloting the DRFE/Sangha activities and logistical constraints delayed of the initiation of the work with the DRFE/Likouala.

In late 2000 and early 2001 the development of extensive commercial export of bushmeat to supply Brazzaville markets and restaurants was observed. Protected species and ivory traffic was also included in the regular airplane export. Observations by international experts in January suggested that quantities being exported had grown to exceed any levels observed at the initiation of conservation activities in northern Congo in the early 1990's. The local market for bushmeat in Ouesso was experiencing shortages of meat and prices had risen by an estimated 40%. As many as four flights per week are undertaken from Brazzaville to Ouesso by the companies TAC and Lina Congo, which were resulting in the transport of hundreds of kilograms of meat of all species (including elephant and other protected species). It became apparent to WCS and MEF that the controls of wildlife trade and export would have to begin with the airport prior to expanding more intensively to river routes. Upon request of the Regional Direction of the Sangha and the Director of Wildlife and Protected Areas in Congo, efforts were shifted to focus on halting the commercial bushmeat trade from Ouesso to Brazzaville aboard commercial flights.

In principal, agents of the Regional Direction of the Sangha should undertake the task of controlling the bushmeat trade at the airport. However, the Regional Director indicated that he did not have confidence in any of his personnel due to the high amount of social pressure and potential for corruption involved. It soon became clear the airport control mission would have to be undertaken, at least initially, by an "independent" and "neutral" unit working under the auspices of the Regional Direction but managed by the project. Upon receiving written request for assistance from the Regional Direction of the Sangha and verbal request of the Governor of the Sangha Province, the Buffer Zone initiated a series of three meetings in early May 2001 with the population of Ouesso concerning halting inter-regional trade.

The Governor of the Sangha presided over the meetings that were targeted at 1) commercial bushmeat traders, 2) government officials and law enforcement agents, and 3) hunters and commercial traders. Explanations were made of the illegality of export of bushmeat, as Congolese wildlife law does not permit commercial hunting, and export from the region is considered commercialization. Although it was evident that many people were benefiting from the lucrative trade to Brazzaville, there was also a level of public support expressed by local NGOs and citizens of Ouesso. A week following the last meeting a strict no export policy was established.

A unit of 8 ecoguards under a MEF and Buffer Zone officer working in collaboration with 6 police officers searched baggage, handbags, and prevented meat from embarking on the flights. The initial days of control were filmed by Congolese TV and covered by Congolese Radio. Meat was turned back during the first week of controls and from then on seized and submitted to the Regional Director. A protocol was developed to optimize efficiency of the airport controls at key points at the baggage check-in, passenger entry lines, and around the perimeter of the landing strip. Datasheets are filled out documenting the details of each day of airport controls. These sheets are deposited at the Regional Direction and at the Buffer Zone Direction in Kabo.

The MEF and WCS project Directors visited the airport to inspect activities on several occasions during this period. The difficulties of the operation were assessed and reports prepared and sent to the Regional Director with copy to the Governor outlining recommendations for improvement of the efforts.

Key problems observed and reported to the DRFE/S and Governor of the Sangha in June 2001: 1)Several local government and law enforcement authorities using influence to attempt to circumvent controls, 2)Implication of the local police in bushmeat traffic, 3)Lack of physical presence of Regional Direction officers, 4)Persistence of meat traffickers repeatedly returning with same meat, 5)Threats to poison meat and then have it seized, 6)Attempts to corrupt agents, 7)Numbers of agents, 8)Need for a vehicle to transport ecoguards in from port to airport and transfer seized bushmeat to the DRFE/S, 9)Need for DRFE/S initiated effort to pursue seizures of protected species (elephant, gorilla etc.) products with arrests and fines, 10)Need for DRFE/S to initiate controls at Ouesso markets concerning protected species traffic, 11)Need for implication of the General Direction in Brazzaville in support of initiative, lobbying of airplane agencies, and expanding effort to include all national airports and Brazzaville airport.

Under the auspices of the DRFE/Sangha, the Buffer Zone project controlled the airport and prohibited export to Brazzaville from early May through the end of the reporting period, with plans to continue. Although there is no physical effort made by the DRFE/S due his fear of reprisals from the local traffickers, the Governor of the Sangha has repeatedly demonstrated his continued support for this effort. The Minister himself has also lent support and encouragement to the effort. The Director of Wildlife and Protected Areas has asked the Buffer Zone project to continue the activities and guarantees General Direction support for the operation.

A series of coordination meetings were held with the DRFE/Likouala in Impfondo in early June and August to launch collaborative activities. A six month work plan was developed for collaborative implementation of anti-poaching patrols in Mokabi, controls at the airport, an education campaign, bushmeat surveys in Impfondo and ecological reconnaissance surveys in Mokabi. The Regional Director presented two agents who expressed willingness to participate in implementing the work plan. The MEF and WCS representatives of the Lac Télé project participated in the meeting and offered to assist in joint activities as needed with Buffer Zone project and the Regional Direction of the Likouala.

**Activity 2.4 was supported in full by the USFWS and WCS*

Activity 2.5. Conservation Awareness Campaign On Track

During the reporting period, the Lac Télé project intended to launch a previously unplanned conservation awareness campaign in collaboration with CFC (*Conservation de la Faune Congolaise*). Initial visits to the villages around the Reserve in early 2001 indicated that local communities were uninformed about the Reserve, Congolese forestry and wildlife laws, or conservation issues in general. However, this program has not yet been implemented, as the Director of CFC has taken an extended trip out of the country. However, current socio-economic teams working in villages are presenting endangered species programs in each of the 27 villages (See below). In the meantime, the WCS Lac Télé direction is seeking funding

to initiate a more focused conservation awareness campaign. In addition, Congo TV has agreed to assist in the development of an educational video of the reserve. TV crew members are scheduled to arrive in Lac Télé for filming of this video in February 2002.

In September 2001, Michel Seinzo, the "*Chef d'équipe de sensibilisation*" for WCS BUFFER ZONE, conducted a two-week seminar on how to raise awareness of conservation issues in local communities. He trained fifteen participants in how to address a village group, techniques of passing a message, visual aids, and conservation laws. Participants included three CFC volunteers, three villagers, and nine WCS Lac Télé staff. The CFC volunteers, villagers, and some of the WCS staff will all be involved in conservation education campaigns around the reserve. Following basic training of socio-economic techniques, the socio-economic team participated in all aspects of planning for both phases of the socio-economic survey program. Working closely with the project direction, the team created all data sheets and questionnaires. The researchers tested and practiced the questionnaires on project staff, and later with small groups of volunteers in Epéna.

In August 2001, the WCS Lac Télé project financed and organized a bee-keeping seminar in collaboration with CFC. Local people frequently cut down mature trees to harvest the honey from a beehive. Not only does this practice result in the needless felling of trees (one researcher counted over 250 felled trees near a single village), the quality of honey collected is poor and the honey harvester is sometimes injured during this practice. By teaching bee-keeping techniques, WCS Lac Télé and the CFC hope to encourage a potentially profitable activity and discourage the destruction of the forest. The project hired two bee-keeping experts, one specializing in traditional methods and the other in modern bee-keeping methods, to conduct the seminar. Fifteen participants were invited from as many villages in or around the reserve. The participants were supplied with a document on bee-keeping as well as note-taking materials, and were given their own modern beehive at the end of the seminar. Although 15 villagers were officially invited to take part in the seminar, 30 people participated for the entire 7 days. The seminar proved to be a success and all the participants left with adequate knowledge to construct and maintain their own beehives. The project will follow-up this training in FY 2002 to evaluate if the participants are practicing the techniques that they learned, and if this reduces unnecessary tree-felling.

The protected species teaching manual developed in collaboration with primary school teachers and inspectors is being finalized after two official test courses for primary and secondary classes. The manual will be distributed to the Ministry of Education once the final artwork is integrated.

The conservation education team compiled the text for 12 lessons to complete the Nature Club Manual. The nature club held sessions with an average attendance of 30-35 children on a weekly basis in Kabo and a bi-weekly basis in Ndoki 2. The project produced a Conservation Educator's Manual and the education team leader held a 10-day training session for new educators of the WCS Lac Télé project. The team conducted regular conservation awareness meetings and individual contacts addressing over 1000 individuals through approximately 20 village meetings throughout the concessions. Meetings were conducted on topics such as appropriate hunting techniques, community wildlife management, land-use zoning, promotion of alternative protein sources, and protected species. Protected species posters, t-shirts, and other materials (designed by Columbus Zoo) have been acquired to support the Regional Direction and local NGO conservation education efforts in Ouesso and Impfondo. Discussions were held with a local NGO to explore collaboration on education activities in Ouesso.

While the protected species curriculum program is being implemented in the Ndoki 2, Ndoki 1 and Pokola schools, program implementation in Kabo has encountered some problems with the lack of motivation of the new primary school director. The Regional Direction of Education has been contacted concerning these problems, as has the Parent-Teachers Association.

Two Congo TV journalists working with Buffer Zone educators produced a documentary film in May – June on elephant conservation for diffusion on local, regional, and national Television. The film currently being finalized covers elephant conservation, research, problems, and future issues. A bushmeat film was also produced using footage obtained during the mission and including images of the bushmeat traffic at Ouessou and Impfondo and the control actions at the Ouessou airport. The documentary seeks to: 1)describe the current elephant poaching crisis in northern Congo, 2)explain the importance of national and international support for sound management of elephant populations, explain and inform about the role of research and monitoring, 3)describe efforts being undertaken to protect and monitor elephants, and 4)foster local, regional, and national support for elephant conservation and management.

The team visited Kabo, Bomassa, Ouessou, Liouesso, Impfondo, Epéna, Ikelemba, Terre de Kabounga, Pokola, and various other key sites. Local, regional, and national authorities were interviewed regarding the problems and potential for elephant conservation.

On an international level, meetings were held between the Minister of Forestry Economy, MEF Wildlife Advisors, World Bank Officials, WRI Representative, and the USFWS African Elephant Program Manager, and WCS representatives in Washington in July. Elephant conservation and national strategies for bushmeat control and wildlife management were among the key topics discussed.

Activity 2.6. Alternative Resource Production

On track

In addition to the 13 present tilapia ponds in Pokola, three large tilapia fish ponds were newly established outside of the town of Pokola and are being prepared for tilapia production. The alternative protein sources team visited and worked with 8 local communities to discuss hunting zones, hunting regulations, and how to improve wildlife management through alternative protein development activities. The team was active this semester in the large town of Pokola establishing a second fish farming base and continuing with support to individuals developing improved chicken farms. Fishing materials were distributed to associations in Kabo, Pokola, Ndoki 2, and Ndoki 1. The team was able to complete the construction and open a butcher shop after reaching an agreement with the beef importers on a price ceiling of imported beef. Pilot studies of snails and guinea pig farming continued in Kabo with 3 new guinea-pig raisers participating on a local level and an increase in snail reproduction resulting in approximately 450 snails (See Appendix 2).

Activity 2.7. Reduced-impact Logging

On Track

CIB and the forestry management consultancy company TWE, drafted a Reduced-Impact Logging program document, which is currently under review by WCS field staff. The initial draft was compiled as a result of the US Forest Service-sponsored visit of Melissa Othman and Dennis Dykstra. Mr. Dykstra was then employed by CIB as a private consultant to develop the program concept. The program outlines RIL practical measures, such as reduced skidder trails, proper felling techniques, road placement guidelines, etc. WCS input will include wildlife management program parameters and make specific recommendations based on findings of recent studies in the region.

CIB was awarded a certificate for sound forest management from the Dutch certifying group *Kerhout* after a positive assessment by SGS in May 2001. SGS undertook its first of the six-month “compliance evaluation” visits in November, again approving CIB’s progress. Several new areas for improvement were noted and CIB is currently working to address those areas for the next evaluation. Both CIB and the Rougier companies have clearly indicated that certification is becoming economically important within the European market for tropical hardwoods.

After years of negotiations and lobbying by WCS concerning the biodiversity importance of the 26,000 hectare Goualogo triangle, on July 6, 2001 the Minister of Forestry Economy Henri Djombo and Hinrich Stoll of CIB formally announced the decision to protect the area by annexing it to the NNNP. The legal process to class the Goualogo triangle was initiated in June, and is expected to be completed in early 2002. CIB has already classed the area as “totally protected” in its forestry management planning and exploitation practices. A government team visited the Sangha and Likouala regions to discuss with authorities and local communities the Goualogo annexation and the NNNP management plan, as required by Congolese law. Unfortunately, neither document has yet been officially adopted by the government.

Finally, a sampling design for forestry prospectors was drawn up for the Bomassa Triangle. This design included “no-go” buffers of 2.5 km radius around all the important bais within the triangle, orientation of sample lines to prevent easy access from the River Sangha and from CAR into NNNP, and avoidance of the research and conservation areas around Bomassa village itself.

Activity 2.8. Research Methods Training On Track

During the reporting period, a one-month training course in “Wildlife conservation methodology” was conducted by Dr. Fiona Maisels to four national University graduates, one of whom already worked for NNNP. The course included the scientific approach to research (hypothesis testing, experimental design, data analysis, and basic field methodology including navigation, and data collection and storage, practical classes and a final examination). As a result, two new research staff were taken on with WCS. The teaching material was then used by the Lac Télé project for a similar training course for four other graduates, who went on to be recruited by the LTCR.

All research projects (See Activities 1.1 and 1.3) that occur within NNNP and Buffer Zone include the participation of Congolese assistants. Monthly meetings held in Bomassa give these young researchers the opportunity to present results of their projects, and to discuss how best to apply results to meet conservation objectives. The research meetings, which started in April 2000, are now in their second year. In the reporting period, Congolese researchers have presented seminars on the following topics: the predicted effects of the Loundougou logging road (Richard Malonga); a study of large mammals and human impact in Lopola, Ipendja, and Mokabi Concessions, with particular emphasis on elephant distribution (Patrick Boudjan); and large mammal monitoring at Mbeli bai (Aimee Tsama).

Dr. Maisels also continues to mentor these research assistants on a daily basis in all aspects of data collection, management, and interpretation in order for them to gain an understanding of the importance that sound research can play in the effective management of protected areas.

In September, a two-month training program was initiated at the Lac Télé project base to teach four Congolese biologists the necessary skills to carry out line transects for the project. The training was broad in scope, including the following subjects: basic scientific methods, development of management plans, project design, sampling, data analysis, GPS, navigation, and logistics. The training also included a weeklong trip in the forest to practice line transect methodology. Tests were given to the participants at the middle and end of the training. All four biologists successfully passed the course and have mastered the basic concepts of the training.

Also in September, a six-week training course was begun in Epéna to teach four Congolese socio-economists the necessary skills to conduct socio-economic studies for the project. The training began with an introduction to socio-economic data collection techniques by Antoine Mokassa, a Congolese researcher working for the Buffer Zone project, following Curran *et al.* (2000). In addition, researchers

learned basic sampling, navigation, and data analysis skills.

Activity 2.9. Technical Training

On Track

In addition to mentoring in scientific research as mentioned above in Activity 2.8, daily project operation at NNNP also includes long-term mentoring of Park administrative and management staff, with devolution of responsibility to national staff for developing work plans and budgets.

The MEF Head Warden in NNNP visited the USA to attend a workshop at CERC, (the Center for Environmental Research and Conservation at Colombia University), followed by a UNESCO/CU Conference on Biodiversity and Society. He presented "Nouabalé-Ndoki National park, Republic of Congo: An island of conservation in a sea of forestry exploitation" as an illustrated talk at CERC and as a poster at the UNESCO workshop. The presentation was acclaimed by CARPE and its use requested, by CARPE, for use as a model presentation.

National capacity in Buffer Zone project administration/management was further developed through increasing responsibilities of the national administrative assistants. Team leaders are all able to develop sound weekly, monthly, six-monthly budgets and work plans. Reporting databases have been developed to facilitate monitoring of the protection brigade activities. Staff were mentored in all facets of project activities in order to promote increased responsibility undertaken by national staff.

During part of this period the Buffer Zone project Coordinator directed the project on the ground in Congo while the Buffer Zone Director took a 3-month leave to pursue his Doctoral degree in Conservation Biology at the University of Minnesota (September - December 2001). At the same time, Mr. Colby Prevost (Buffer Zone project Administrator) has been fully integrated in the day-to-day management of the project headquarters and oversight of project administration. Antoine Moukassa agreed to represent the Buffer Zone project as on site-manager of the Mokabi component of project activities. Richard Malonga has committed to pursuing graduate research on the topic of "Direct and indirect effects of forestry exploitation on large mammals" as part of a comprehensive investigation involving a team of expatriate and national researchers under WCS supervision. Moise Zoniaba, Buffer Zone project Chief of Personnel, continues to grow in assuming administrative and personnel management responsibilities in the project. Buffer Zone project Ministry officer Marcel Ngangoue, along with a group of ten other MEF agents, was chosen by the Minister to receive law enforcement and wildlife conservation training in Tanzania during the first six months of 2002.

The three Ndoki-Likouala project teams all participated in the Living Landscape Meeting held in Bomassa, Congo during July 2001. The meeting, which included participants from all current Landscape sites and some potential candidate sites, was important for establishing monitoring procedures, coordinating methodologies between sites, discussion of landscape species selection, and other program issues.

OBJECTIVE 3: Promote the development of national policies that support the landscape conservation approach.

Activity 3.1. Wildlife Law

On Track

Meetings were held with the General Direction of Forestry Economy, Direction of Wildlife and Protected Areas, and various Wildlife staff from the Ministry throughout the reporting period concerning the Wildlife Law. Similarly, meetings were held with the Governor of the Sangha, US Ambassador, and the

Minister of Forestry Economy to promote the cause of elephant conservation on a landscape scale in northern Congo. Although the new Congolese Forestry Code was adopted during this period, the new wildlife law continues to be debated, often with active WCS participation. We hope to see this law and the corollary application decrees officially adopted during early FY 2002.

The Buffer Zone project Director participated in Brazzaville-based deliberations on the new wildlife law along with a broad group of Government authorities and MEF representatives. Proposals to legalize and attempts to regulate commercial bushmeat traffic were rejected based on the arguments put forth by several representatives from the MEF wildlife division. An important aspect of the new law (currently being finalized) seeks to provide a framework to implement wildlife management practices over broad multiple-use areas.

Activity 3.2. Safari Regulations

On track

The Minister of Forestry Economy has indicated that the Government would currently prefer to develop vision tourism and announced its decision not to open hunting of bongo antelope. WCS provided further technical advice to the MEF on these issues and responded to inquires from the IUCN antelope specialist group and safari interests regarding the status of bongo populations and the potential for safari management in Congo. Neighboring CAR and Cameroon continue to exploit bongo for trophy hunting with little or no ecological basis for quotas and insufficient regulation. Research findings and management recommendations resulting from the long-term bongo population investigation based in Mombongo, Kabo forest will be communicated to the Tri-national partners involved in the Lobeke-NNNP-Dzangha-Sangha conservation effort. An expected output of this research is improved methods for assessment and monitoring of bongo populations using mark-recapture techniques and recommendations for regulation of safari hunting based on understanding of the ecology of hunted species.

Activity 3.3. Wildlife within Forestry Concessions

On track

The Buffer Zone project Director submitted a technical paper (15 p.) on "Wildlife management and ecoguard deployment and monitoring in the forestry concessions" as a solicited "lessons learned" document for the MEF to utilize in its process of planning practical wildlife management and law enforcement mechanisms to regulate the implementation of new requirements for ecoguard units in each forestry concession.

WCS, MEF and the US Forest Service drafted an outline for a workshop to be held in Brazzaville in June-July 2002 with the objective of promoting integration of wildlife management/ conservation and monitoring standard guidelines in forestry concession management plans throughout the country. Wildlife and forestry authorities from surrounding Central African countries will also be invited to participate. In addition, the USFS is interested in working the Ministry and WCS to develop forestry and wildlife data-basing techniques for forest management.

A high-level forest sector law enforcement meeting will be held early next year in Brazzaville. Both the Ministry and US State Department have solicited WCS technical participation based on our extensive experience in the region. This meeting will provide leverage and support for further development and integration of strategies on the forestry and wildlife interface.

The Buffer Zone project Director participated in a June meeting of the World Bank CEO Forum Working Group 3a which produced an annual workplan for the group including: workshops on management

planning, forestry, and biodiversity management.

Antoine Moukassa represented Buffer Zone project at an IUCN/FAO Food Security Meeting in Yaounde, Cameroon in September 2001. He presented the Project's socio-economic monitoring program and adaptive feedback mechanisms used to inform other project components and actions. He also contributed to discussions on improved wildlife management and monitoring techniques in forestry concessions and participated in the development of the final meeting report.

Sarah Elkan, Buffer Zone project Coordinator, represented WCS at a regional meeting of Central African nations on the environment held in Brazzaville in September 2001. Sarah presented the Buffer Zone project strategy and contributed to the development of the Congolese section of the Convergence Plan on the Environment.

Activity 3.4. Lac Télé-Likouala aux Herbes Community Reserve Status On Track

The Lac Télé Community Reserve was officially gazetted on May 10, 2001 as a community reserve. Although the primary focus of the project at present is the completion of a feasibility study by July 2002, discussions with local, regional and national authorities, with local communities, and all interested stakeholders continue in order to facilitate management in the near future. This will be done in as collaborative a fashion as possible with communities situated around the protected area, as part of our mandate to test the real potential of community-based natural resource management in Congo. The feasibility study will play an important role in future management by providing baseline sociological and biological data for management decisions, which we believe may include changes in the limits of LTCR as they currently exist, in order to include more total protection zones, and to enlarge, if possible, the size of the Reserve. Should the project continue on after the completion of the feasibility assessment, we expect to learn lessons about collaborative management of natural resources which will prove critical for other protected areas in Congo, as well as the central African region.

OBJECTIVE 4: Elaborate a participative, integrated landscape conservation action plan.

Activity 4.1. Threats Analysis Completed

Although the Ndoki-Likouala Landscape Threats Analysis was completed during the last reporting period, each project continues to monitor threats to the system so that management decisions can be linked accordingly. Threats change over time and area, and all projects must be prepared to adapt. This has allowed the BCLS program, during the reporting period, to emphasize greater law enforcement around the LTCR and the regional capital of Impfondo, as it became quite obvious that during this time of year, bushmeat, particularly crocodiles, were hunted and shipped in large quantities out of the region (See Activity 2.1).

By the same token, the over-flights of the NNNP and Buffer Zone forests showed that not only were logging roads rapidly approaching the Park's boundaries, particularly in the north, but also that there were more hunting camps close to the Park. The Makao ecoguard teams were subsequently deployed in this area to counteract this immediate threat, and they will continue to patrol these forests more often.

Furthermore, the bai videography also demonstrated that the logging company (CIB) had effectively destroyed one of these forest clearings to the south of the Park to acquire sand for construction purposes. This has been brought to their attention, and we will continue to monitor threats from logging roads and other related activities, and react accordingly.

Activity 4.2. Kabo-Pokola-Loundougou Management Plan

On track

Regular meetings were held with the coordination unit for the CIB management plan. The interior regulations governing execution of management plan inventories were assessed in order to reduce the impact of inventory teams. Sensitive zones around the Park were prospected with minimum team size. No hunting is allowed in any area of the concessions for these prospection teams. A one month training course in large mammal line transect data collection methods was held in Kabo in May 2001 for the CIB and IFO management planning units. Six wildlife technicians (3 CIB, 2 IFO, 1 WCS) were trained in line transect methods for large mammal surveys along the forestry inventory transects, in conjunction with tree survey and non-wood forest product surveys. Line-transect surveys of large mammal sign are being undertaken as part of both the CIB and Rougier management planning processes. These surveys will produce an unprecedented resolution of data on large mammal sign (i.e. elephant dung) abundance and distribution over the entire concession (1% sampling). This intensive sampling will provide a basis for calibration by habitat type, although the data will be subject to some observer differences. Methods employed were designed after White (2000) and those of the Monitoring Illegal Killing of Elephants project (MIKE).

CIB technicians trained by the Buffer Zone project in wildlife inventory techniques were evaluated in the field by the Buffer Zone project on two occasions. The CIB management plan coordinators were advised on measures to improve the quality of data collection and analyses. A calendar of field controls of the wildlife inventory teams was established to provide technical support to the CIB management. Integration of biodiversity information in the management planning process is to be ensured by a formal exercise integrating the existing WCS database on wildlife and human activities in the concessions with the additional information generated from the CIB wildlife inventories.

The Terms of Reference (TOR) for consultancies in the areas of socio-economics, RIL monitoring/remote sensing, and forest peoples' issues were drafted and agreed upon with the CIB management plan team. In addition, a TOR was finalized for the integration of ecological information into the management plan design. Outputs of these exercises are to include draft chapters of the management plan.

Activity 4.3. Mokabi Concession Management

On track

Several meetings were held with Rougier company representatives of Congo and Gabon. An agreement between WCS, Rougier, and MEF providing a legal framework for implementation of a collaborative project for improved forest and wildlife management in the Mokabi concession was drafted and is currently being discussed among the parties. Discussions were initiated concerning collaboration in the Lengoue area of Gabon, where the Rougier concessions border a proposed new protected area. This indicates the value of the approaches taken in the buffer zone work, and the impact of the program as a pilot for other regional efforts.

c. Key management issues

1. The opening of large access roads in the concessions to the north and east of the NNNP will put unprecedented pressures on wildlife in the region. Roads associated with the opening of the forestry concessions and the development of public roads need to be dealt with in a coherent planning process. At present there is little planning, no environmental assessment, and little political will to slow down road building. The Loundougou road could be moved away from the Park by 15 km with an initial investment of estimated 2 million USD. As the European Union has been discussing the financing of a road network

with the Government of Congo, this may be a potential source to fund the re-routing of the road. It has become clear that the Government of Congo is pushing to open up public roads to link southern and northern Congo with Libreville, Bangui, Yaounde, and beyond. This will happen via the CIB Loundougou access road!

2. Although the legal procedure to annex the Goualogo triangle to Nouabalé-Ndoki National Park was initiated in June 2001, the *arreté* that will officially result in the annexation of the Goualogo triangle to NNNP submitted to the Ministry in Brazzaville is still pending. Unfortunately, when the MEF team visited the concessions to obtain the accord of the local population, they neglected to discuss the limits with CIB in any clarity. In subsequent discussions where CIB, the Buffer Zone director, and the Minister have addressed this issue in order to resolve it, it was decided that the Ministry would determine the limits. The question of the limits pertains to 4,000 hectares on the northeastern edge outside of the river Goualogo. All parties are in entire agreement on the minimum limit of 26,000 hectares, however the Government of Congo needs to make a decision in order to proceed with the formal annexation process. Unfortunately, the meetings held in Brazzaville in November to debate the annexation were not well organized, as neither CIB nor certain key representatives were invited. In brief, this situation may need the intervention of the Minister to address this problem and finalize the accord. WCS has done what it can to advance these dossiers, and hopefully upcoming municipal, legislative and presidential elections in 2002 will not prove a hindrance to moving forward on these issues.

3. The Lac Télé Likouala aux Herbes Community Reserve has potential to provide an informative model in Congo for collaborative management of natural resources with local communities. With only limited funding, however, feasibility work, surveys and staffing will be significantly constrained, and the role that the LTCR plays in the Ndoki-Likouala Landscape Program will be limited.

4. Lack of willingness of the DRFE/Sangha to engage in actively anti-poaching activities remains an issue. This can only be overcome by active support from the General Direction of the Ministry. The fear and pressures involved in controlling the bushmeat trade need to be overcome through support from local NGOs and public support. Independent monitoring of the situation lends transparency and increases the ability of agents to enforce the law.

5. CIB has been excavating sand and gravel from areas in and around Foulougou bai in the Pokola concession. Meetings were held with CIB representatives, and WCS has made an official request that CIB adopt RIL guidelines minimizing disturbance of forest clearing habitat throughout the concession.

6. Pressures involving a few powerful local authorities tied to bushmeat and ivory trade continue. Some minor corruption problems have been encountered with certain ecoguard controls of bushmeat traffic on the CIB road to Pokola. Problems have been addressed with in-service training, firing of some guards, re-orientation of guards' bonus pay and performance monitoring systems, promotion of two individuals to increase internal monitoring, and sanctioning of MEF Patrol leaders responsible for on-the-ground activities.

7. The WCS work with the MEF and CIB provides a model mechanism to be tested and evaluated with potential to influence policy and practice in forest concessions adjacent to protected areas throughout Central Africa. The MEF has announced that it will require all companies in northern Congo to follow this model regarding wildlife management and protection (much of the costs to be paid by the companies themselves). The manner in which this is planned and implemented needs to be carefully thought out in order for it to produce result, and not simply exacerbate bushmeat traffic. WCS has been asked to act as technical advisor to the MEF on this matter.

III. Success Stories and Appendices

1. Following a two-year period of negotiation between WCS, CIB, and the Government of Congo, an agreement was reached that will result in the annexation of the 26,000 hectare Goualogo Triangle to Nouabalé-Ndoki National Park. This area is home to some of the most pristine primary rainforests in the Congo Basin, and is home to some of the highest population densities of gorilla, chimpanzee and elephant in central Africa. A press conference was held on July 6 at which Henri Djombo, the Minister of Forest Economy (MEF), and Hinrich Stoll, CEO of CIB announced the decision.
2. The MEF has required that each forestry company in the country absorb the costs of design and implementation of wildlife management programs as part of forest concession management plans. Agreements have been signed by the majority of the companies, however implementation will require extensive planning.
3. Following strong concern expressed by BCLS Lac Télé staff, the MEF demonstrated commitment to management of the LTCR by replacing the Chief Warden of the reserve with a more effective staff-person. This was a significant step in a region of the country that has been without support from the MEF.

Appendices

1. Landscape species and the threats they address in the Ndoki-Likouala Landscape Conservation Area. Table.
2. Alternative Resource Production Activities in the Buffer Zone project. Table.