

Review of Progress on the 2005 Regional Action Plan for the Conservation of Chimpanzees and Gorillas in Western Equatorial Africa

Compiled by Fiona Maisels, 2011; revised and updated May 2013

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1 Overview

1 *Western lowland gorillas and central chimpanzees*

In 2005, over 70 participants convened at a meeting in Brazzaville, to draw up an Action Plan for western lowland gorillas *Gorilla gorilla gorilla* and central chimpanzees *Pan troglodytes troglodytes*. The participants included most of the conservationists and scientists active in great ape conservation in the region, plus representatives of all of the range states in which these two species occur. After the meeting, other experts who were not able to be physically present at the workshop were also asked to contribute their advice and to review the document. Because of this wide-ranging author and reviewer process, the result was the universally accepted Regional Action plan for the Conservation of Chimpanzees and Gorillas in Western Equatorial Africa (Tutin *et al.* 2005; Fig. 1).

The Action Plan identified priority areas for the conservation of western lowland gorillas and chimpanzees in the countries which contain all known populations of western lowland gorillas and of central chimpanzees (Figs. 2, 3). These are: Cameroon, the Central African Republic, Equatorial Guinea, Gabon, the Republic of Congo, a small area in the Democratic Republic of Congo and Cabinda in Angola.

Priority areas (Fig. 4) were identified as a function of known or inferred population size, surface area, and importance for conservation and sustainable forest management--these last two points were assessed for the Congo Basin during a previous workshop in Libreville in 2000, also assisted by a large number of experts from across the region (Kamdem Toham *et al.* 2003).

For each priority area, the site-specific threats were listed, and a series of appropriate actions listed to mitigate these threats. Each also had a timeframe, potential partners, and an estimate of the budget needed to achieve the action. An example is provided in Fig. 5. The maximum timeframe was a five-year one, and the Regional Action Plan will soon, therefore, be out of date. Here we review what has, and importantly, what has not been done, to assist the next stage in strategic planning for great ape conservation across the region.

Figure 1. The five-year regional action plan for the area covered by all western lowland gorillas and most central chimpanzees (Tutin *et al.* 2005)

Figure 2. Distribution of western lowland gorillas

Figure 3. Distribution of central chimpanzees

Figure 4. Priority areas for the conservation of chimpanzees and gorillas in Western Equatorial Africa, resulting from the workshop in 2005. Map by Stephen Blake.

Figure 5. Example of the table of threats and necessary actions for the Exceptional Priority Area known as the Sangha Trinational Complex

Figure 6. Five-year regional action plan for the Cross River gorilla (Oates *et al.* 2007)

2 *Other taxa*

The other subspecies of chimpanzee and gorilla are the subjects of separate Action Plans.

The **Cross River Gorilla** *Gorilla gorilla diehli* Action Plan was developed in a similar manner to the 2005 Western Equatorial Ape one, through a workshop in 2006 ((Oates *et al.* 2007); Fig. 6) and is structured in the same way. The activities listed are more precise, as the distribution of

this species is a much smaller area of the Cameroon-Nigerian highlands, and thus actions were specifically tailored to sub-populations and clearly defined activities. The timeframes for the different activities are between one to five years (thus this Action Plan is valid until 2012). It was reviewed by Andrew Dunn and by Aaron Nicholas in early 2009 and a revision is currently underway (2013).

The action plan for **Grauer's gorilla** *Gorilla berengei graueri* was produced in 2012 (Maldonado et al 2012) : this plan also included the Eastern chimps *P. t. troglodytes* living in Eastern DRC.

For **West Africa Chimpanzees** two action plans were produced in 2003; one plan was simply a compressed version of the other. The subspecies at that time included were both *Pan troglodytes verus* and *Pan troglodytes ellioti* (formerly *P.t. vellerosus*: (Oates et al. 2009). These Action Plans, produced by Rebecca Kormos in 2003 (Kormos & Boesch 2003; Kormos et al. 2003); Fig. 7, were recently reviewed by the same author (Kormos 2008; Box 1).

Box 1. Summary of the Impact Assessment: Action Plan for Chimpanzees in West Africa (Kormos 2008) http://www.primate-sg.org/action_plans/

This paper is an impact assessment of two action plans: 1) West African chimpanzees: Status survey and conservation action plan (Kormos et al. 2003) and Regional Action Plan for the Conservation of Chimpanzees in West Africa (Kormos and Boesch 2003). These are both products from a workshop held in West Africa in 2002.

Questionnaires were sent to original workshop participants, authors of the action plan, past and current project implementers, donors, government officials in each country, conservation NGOs working in the area, bilateral, as well as multilateral organizations and representatives from the private sector. Questions were aimed at collecting information on status of projects before and after the workshop, amount of funding received as well as suggestions for improvement in the process. Responses were received from 35 people and organizations.

The action plan was appreciated as a good general and up-to-date source of information that was not easily obtainable elsewhere. The action plan was used and referred to in writing proposals and may have made a significant impact in increasing funding to the region. While the action plan was not successful at stopping many activities that will have negative consequences on chimpanzees and chimpanzee habitat, it may have been important in mitigating some of these activities.

The action plan had little effect in influencing policy. It was most effective in countries that had good baseline knowledge of the chimpanzees already, and who had greater capacity and infrastructure to receive funding.

The study found that greater emphasis is needed on the preparation time before the workshop in order to i) identify selection criteria for priority sites and actions, ii) select the most appropriate workshop participants, iii) secure donors to fund recommendations that are generated at the workshop, iv) develop a monitoring and evaluation plan. During the workshop, identification of national and regional leadership for chimpanzee conservation would greatly facilitate i) fundraising, ii) updating the action plan with information on new priorities, species numbers, new threats etc. iii) lobbying governments for policy changes and private sector to mitigate negative actions on chimpanzees.

If these recommendations are incorporated into the process, this would increase the impact of the action plan itself as a useful tool rather than just a background document. The study

concludes that leadership is the key to ensuring that the action plan is not just an academic exercise, but also an instrument for action and change and the preservation of a species.

Figure 7. The five-year regional action plans for West African chimpanzees (Kormos & Boesch 2003; Kormos *et al.* 2003)

The **Eastern Chimpanzee Action Plan** (Plumptre *et al.* 2010) was the result of a similar process to the others (Fig. 8), as was the **Nigeria-Cameroon Chimpanzee Action Plan** (Morgan *et al.* 2011) (Fig. 9).

Fig. 8. Eastern Chimpanzee Action Plan

Fig. 9. Nigeria-Cameroon Chimpanzee Action Plan

2 What has been done since 2005?

This section goes through the different actions deemed necessary in 2005 for improved conservation of western lowland gorillas and central chimpanzees. The information was initially gathered for presentation at a workshop in Yaoundé, where WCS had been asked to present its activities on apes and elephants in the Congo Basin. Several colleagues provided information on the activities in their sites. Each priority area is treated separately, as in the original document, and a series of maps are presented to show the geographical spread of each type of activity.

The structure is as follows: the original table from the Regional Action Plan (Action Needed, Potential Partners, Timeframe, Funding Needed) is presented, followed by what actions have actually taken place to date, 2005–2013, and what have been the results so far.

3 *Exceptional Priority Areas*

1 Odzala/Lossi/Pikounda/Ngombe/Ntokou complex, Republic of Congo

1.1. Action Needed	Potential Partners	Timeframe	Funding Needed
Establish a rapid response structure and systematic epidemiological surveillance system for Ebola , both before, after and during epidemics.	WCS-WHP, ECOFAC, University of Barcelona, CIRMF, RKI, NIH, UAB, LNSP, MSPP, MEFE, WCS, University of Rennes	1 year	\$150,000

Actions taken to 2013: A wildlife mortality rapid response structure was established by WCS. The WCS Field Veterinary Program, now WCS Wildlife Health Program, have response teams on stand-by. Guidance is outlined in reports and two peer-reviewed papers (Cameron 2008, 2010, Olson *et al.* 2011, 2012; Yang 2007).

Pre-emptive hunter-based carcass surveillance and reconnaissance walk surveys (recces) are ongoing (27 have been carried out since 2007) in the southeastern portion of Odzala-Kokoua National Park and in the adjacent Ngombe Forest Management Unit. Great ape and other wildlife carcasses reported via these reconnaissance mechanisms are routinely sampled within an average of 48 hours of notification.

There is a basic sample and scientific equipment storage capacity in Bomassa (in the Sangha-Ndoki area) which has the potential to be further developed. However, all Ebola virus suspect samples are sent to the WCS diagnostic lab within the National Public Health Laboratory (NPHL) in Brazzaville, developed in 2009. WCS-WHP worked with the RoC Ministry of Health to develop this first in-country laboratory capable of diagnosing filoviruses (including Ebola) and other pathogens relevant to great apes. An Ebola faecal antibody assay, developed in collaboration with NIH/NIAID/VRC (Vaccine Research Center) is currently being utilized for great apes.

Results: WCS has responded to the reports of great ape carcasses within the Ngombe UFA since 2006. Thirteen carcasses were confirmed and sampled over three years, of which six were tested; all were negative for filovirus (assays were done at CIRMF(4) and WCS lab(2)). One great ape mortality event occurred - in 2007 - in which 9 great ape (1 chimp, 8 gorilla) were found and sampled in a limited region of Ngombe FMA, immediately east of OKNP. One carcass was tested at CIRMF, showing negative results for Ebola virus. The Ebola faecal antibody assay for great apes with NIH is now used in the field. Results from antibody screens on 266 samples will be available by September 2013. PCR lab up and running in Brazzaville.

1.2. Action Needed	Potential Partners	Timeframe	Funding Needed
Implement biomonitoring of ape populations in zones both affected and unaffected by Ebola , in order to evaluate impact.	ECOFAC, WCS, University of Barcelona, University of Rennes, MEFE	5 years	\$500,000

Actions taken to 2013: A WCS-ECOFAC 2005 survey of the entire Odzala National Park was carried out (Blake 2006), followed by a repeat survey of the southern section in 2008 (Malonga *et al.* 2009), also by WCS and ECOFAC personnel (Fig. 10) and a full survey of the whole Park in late 2012 by WCS and Africa Parks personnel (Maisels *et al.* 2013 in prep).

At the time of the 2005 survey, it was not known where Ebola had spread within the Park, apart from areas to the south and east outside of the Park.

A WCS survey of the whole of the Ngombe UFA, which was presumed not to have been previously touched by Ebola, was carried out in 2007 (Malonga 2008).

Results: There was no change in distribution of apes inside Odzala National Park 2005–2008: (Fig 9, (Malonga *et al.* 2009). However, the whole of the north of the Park was virtually ape-free, even in 2005 (Blake 2006). This could be due to Ebola, but could also be exacerbated by hunting, as a major logging road now runs along the northern border of the Park. This road affords easy access to hunters and to bushmeat transporters to the regional capital of Ouessou, just northeast of the park, and to the smaller towns of Sembe and Souanke, to the northwest of the Park. 2012 results indicate that the apes in the north may have recovered somewhat (Maisels 2013 in prep).

A very large population (73,000 gorillas) (Malonga 2008) was found west of the Sangha in 2007. Again, the north of this area had almost no apes, but this was much more clearly attributable to the effects of hunters coming from the large town of Ouessou (population about 24,000)¹.

¹ Source: Direction Départementale du Sangha (Congo) 2009

A discriminant analysis on all nests throughout this landscape 2005-2012 was carried out in May 2013 by Sam Strindberg and the results will likely be ready for the Action Planning meeting (Brazzaville 2013).

Figure 10. Left: Distribution of all ape nest sites (left) 2005 and (right) 2008. Same scale. Encounter rate of nests/km. The black polygons on the figure to the left show the areas of savannah. The blue circle on the 2008 map shows an area where ape populations were notably higher in 2005 than in 2008.

1.3. Action Needed	Potential Partners	Timeframe	Funding Needed
Increase capacity in biological sampling techniques and biomonitoring through targeted training programs.	WCS-WHP, ECOFAC, WCS, MEFE	2 years	\$50,000

Actions taken to 2013: Training of wildlife survey staff in field methods and in data analysis was carried out by WCS Congo, and WCS Congo staff were also trained in Lope, Gabon (Maisels & Aba'a 2008). A further nine-week training course was held in Ndoki in 2010 (Maisels 2010; Maisels *et al.* 2010); three of the Odzala research assistants attended for the full course. Two of the Odzala staff followed another (refresher) training course run by Ashley Vosper in the Zanaga landscape in 2012. Staff from the Global Health Programme trained staff in safe dung collection methods.

Additional training courses specifically targeted at animal disease reporting and carcass sampling were held in this landscape for the veterinary, survey staff and researchers, by WCS-WHP.

Results: Staff have been trained and are operational, and have successfully carried out both wildlife and epidemiological surveys (see section 1.1).

1.4. Action Needed	Potential Partners	Timeframe	Funding Needed
Establish early-warning system and community awareness campaign for Ebola in local community	ECOFAC, WCS-FVP, MSPP, MEFE	5 years	\$200,000

Actions taken to 2013: Early-warning system established (see also section 1.1). Ape carcass reports, sampling and test results relayed real-time to National Public Health Lab, and the World Health Organisation. WCS-Congo has partnered with INCEF (International Conservation and Education Fund: <http://www.incef.org/>) on Ebola awareness outreach, tied closely to hunter-based carcass surveillance².

Results: See section 1.1: Received reports of carcasses from villagers in National Route 2 corridor. Hunter-based carcass surveillance along northern, eastern and southern borders of OKNP (88 villages; 1,042 hunters). Recent village surveys confirm that all dead apes found by villagers are being reported. There has been no large-scale wildlife mortality to date.

²<http://www.incef.org/project-map?q=node/43>

1.5. Action Needed	Potential Partners	Timeframe	Funding Needed
Implement effective protection for remaining ape populations through anti-poaching patrols	ECOFAC, MEFE, WCS, IFO, CIB	3 years	\$5,000,000

Actions taken to 2013: WCS, the Government of Congo and a private sector logging company (IFO, a subsidiary of Danzer) have been working together since 2007 to implement effective anti-poaching patrols in the Ngombe concession (the periphery of the Odzala NP).

Results: Fourteen eco-guards were trained; wildlife management of the Ngombe concession was adopted by the Government of Congo; Wildlife conservation and protection strategic plan adopted by all partners in June 2008, and the concession managed to get FSC certification in early 2009³. African Parks⁴ has established conservation management in Odzala itself, which had brought additional protection for the Park. There are insufficient ecoguards to ensure a good level of great ape protection level in the entire region. Roads and a bridge over the Mambili River allow easy access to Brazzaville. The need is to increase numbers of patrols, thus number of ecoguards. IS THIS STILL THE CASE IN 2013??

2 Lac Télé/Likouala complex, Republic of Congo

2.1. Action Needed	Potential Partners	Timeframe	Funding Needed
• Support government agents and local communities in promoting and implementing great ape protection efforts in and around the Lac Télé Community Reserve	WCS, MEFE, CFC	3 years	\$450,000 8

Actions taken to 2013: Regular mixed patrol missions with WCS and Government agents. Training of volunteering CFC ecoguards. Environmental education and awareness campaign regarding apes protection ongoing.

Results: Very few ape poaching cases through the zone: since 2006: only 1 gorilla reported to be killed by poachers

2.2. Action Needed	Potential Partners	Timeframe	Funding Needed
• Conduct baseline ape surveys in the Likouala and Baille swamps to the southeast and west of Lac Télé Community Reserve to assess great ape populations	WCS, MEFE, CFC	1 year	\$50,000 9

Actions taken to 2013: Complete surveys were done throughout the Lac Télé landscape 2005–2012 including the Impfondo area (2008), the Tanga area (2009), the whole of the Lac Tele

³[http://www.danzergroup.com/Press-Releases-Detail.87.0.html?&tx_ttnews\[tt_news\]=416&tx_ttnews\[backPid\]=80&cHash=1424de1f97](http://www.danzergroup.com/Press-Releases-Detail.87.0.html?&tx_ttnews[tt_news]=416&tx_ttnews[backPid]=80&cHash=1424de1f97)

⁴<http://www.africanparks-conservation.com/apffoundation/index.php>

Reserve (2006, 2011), the Baily swamps (2006, 2011), and the Batanga area (2007, 2012). To prepare for the 2010 surveys, a nine-week training course was held in Ndoki in 2010 in order to maintain staff skills and expertise (Maisels 2010; Maisels *et al.* 2010). Three of the existing Lac Télé research assistants attended for the full course, plus two other Lac Télé staff members who have now joined the survey team.

Results: High densities of gorillas in swamps confirmed, but not where near human hunting access.

2.3. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Standardize protocols for training and implementation of biomonitoring programme for great ape populations 	WCS, MEFE	5 years	\$100,000 10

Actions taken to 2013: IUCN Best Practice Guidelines for surveys and monitoring of great ape populations were completed in 2008, printed and distributed. A multiauthor book published (Hedges 2012) for elephants, also contains extremely useful general chapters on the theory and practice of estimation of animal abundance using dung, camera trapping, genetic, and occupancy methods. Finally a general manual was produced by Strindberg & O'Brien (2012) on the monitoring decision process.

Results: See Kuehl *et al* 2008; Maisels *et al* 2008, Hedges 2012, Strindberg & O'Brien 2012..

Within Congo these methods are used in all protected areas (Nouabalé Ndoki NP, Lac Télé Community Reserve, Conkouati-Douli NP, Odzala-Koukoua NP, Dimonika Biosphere Reserve, Ogooué-Leketi NP), and the proposed protected areas (Messok-Dja region, Ntokou Pikounda NP) and in large areas of the country where conservation focused wildlife management is implemented by logging companies (CIB concessions surrounding Nouabalé Ndoki; IFO concession in the Ngombe area, and the iron mine area in Zanaga area).

2.4. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Establish systematic surveillance systems for the emergence of zoonotic diseases in great ape populations 	WCS, MEFE, WCS-FVP, CIRMF, RKI, MSPP, LNSP	1 year	\$25,000

Actions taken to 2013: WCS Lac Télé personnel instructed on reporting great ape or other wildlife mortality.

Results: One gorilla carcass reported in 2007, but not confirmed. See also section 1.1.

3 Sangha Trinational complex, Cameroon, Central African Republic & Republic of Congo

3.1. Action Needed	Potential Partners	Timeframe	Funding Needed
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<ul style="list-style-type: none"> • Develop an epidemiological surveillance system and rapid response structure for the emergence of zoonotic diseases, specifically Ebola 	CIRMF, MSPP, NIH, RKI, UAB, WCS, WCS-GHP, WWF, MINSANTE, LNSP, MINFOF, MINEPN, CPC, MEFD	1 year	\$150,000 11
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Actions taken to 2013: Training of veterinary, survey staff and researchers in animal disease reporting and carcass sampling in Republic of Congo, where the laboratory at Bomassa (Congo) is the base of operations. There is a PCR lab set up in Brazzaville.

In 2012, in Congo and CAR observational health monitoring of apes in habituation programmes are under standardisation. A monitoring protocol has been elaborated in NNNP.

In Dzanga Sangha , a vaccine delivery system was tested on the two habituated western lowland gorilla groups in April 2011. In August 2012 a Wildlife Health Laboratory (WHL) was established in Bayanga (CAR) to establish the feasibility and costs for on-site PCR (and other) testing of (respiratory) pathogens in humans (including tourists) approaching wild great apes, as well as intra vitam and post mortem disease investigation in wildlife.

Results: In Congo, at least 20 people trained in minimally-invasive carcass sampling and safe sample handling. Sampled 14 great ape carcasses over 3 years; all tested negative for filoviruses at CIRMF and the WCS lab in Brazzaville. For Dzanga Sangha (CAR), WCS Field Veterinarian trained 5 Bai Hokou staff on animal disease reporting, carcass sampling, samples collection and storage, and general hygiene and health concerns relative to human-great ape disease transmission at the Bomassa training workshops. See also section 1.1.

In CAR, the two habituated gorillas groups were successfully vaccinated against measles in 2011 and against anthrax in 2013. One gorilla group was treated with antibiotics during a severe respiratory outbreak in March 2012 (and a snare was removed from one habituated gorilla in June 2012). Through wide-scale on-site parasite screening of Dzanga Sangha staff and wildlife, the WHL has demonstrated that common human pathogens for which the gorillas are susceptible can be swiftly identified, and alongside the appropriate treatment where relevant, provides an important tool in screening humans and minimising disease transmission to habituated apes.

3.2. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Improve judicial and law enforcement structures in protected areas and timber concessions, including capacity building, monitoring systems, and promotion of wildlife protection laws in logging concessions. 	MINEEFCP, MEFE, MINFOF, MINEPN, WCS, WWF, Timber companies (e.g., CIB, Delcolvenare, STBK, Grumcam, SEBAC, etc.)	3 years	\$4,350,000 12

Actions taken to 2013: In Congo, WCS/MEFD/CIB partnership actively strengthened law-enforcement in concession through targeted strategy and CIB financial assistance. Development of anti-poaching strategy for NNNP collaboration with the buffer zone project (PROGEPP) Established collaboration with PALF and arrests of major poachers; conducted a MIST training workshop; recruited 20 ecoguards and training workshop in Feb 2011. SMART training workshop participation in April 2013. NNNP has received 8 “aides forestieres” that are now leading anti-poaching mission in the park.

In CAR, workshop in Nola with judges, lawyers and wildlife managers on wildlife legislation; transboundary law enforcement activities (forest and river patrols); setting up in all three countries of law enforcement projects following the LAGA model (LAGA in Cameroon, RALF in CAR and PALF in Congo) to assist governments in increasing wildlife law enforcement capacity, particularly by ensuring appropriate judicial follow up of wildlife related crimes, provide widespread national media coverage and thus produce effective deterrents to the killing of great apes and other threatened wildlife. National wildlife protection legislation under revision. Elaboration of DSPA anti-poaching strategy. MIST training for certain Dzanga Sangha conservation staff.

Results: In Congo: Regular training cycles established for park and concession ecoguards. Fixed guard posts increased to six throughout CIB concessions, an additional guard post created at an important crossing point at the Motaba river. CIB internal regulations established for controlling workers. Poaching controlled in the short-term but elephant poaching (not apes) increasing in recent years (since 2008). No case of killed apes in NNNP between 2010 and 2012. Regional authority law-enforcement still ineffective and needs to be improved to enhance further progress at ground-level.

Tri-national activities; inauguration and full operation of tri-national anti-poaching brigade along the Sangha river (Nyangoute). Regular bi- and tri-national anti-poaching missions.

Another logging concession (Mokabi-Dzanga) has adopted a management plan and on its way to establish an anti-poaching unit. DATE???

In CAR and the region: Increased awareness and compliance of the judicial sector concerning wildlife related cases; regular media coverage at the national level; countless confiscations, arrests and progress in judicial enforcement (much still to be done); regional approach to wildlife legislation and wider national, regional and international attention to the judicial consequences to committing wildlife related crimes. In Dzanga, regular training cycles established for ecoguards. Poaching controlled in the short-term but elephant poaching (not apes) increasing in recent years (since 2008) and at the time of writing out of control in Dzanga due to extreme circumstances (coup d'état and power vacuum). Reasonably effective patrols in Congo and Cameroon, although not enough guards.

Regular missions are conducted by "Club Ebobo" education project in and around NNNP. Special modules and communication items have been developed to improve knowledge of existing wildlife laws, the importance of great apes and other large mammals and the world heritage status of the TNS. These approaches included a newly developed outreach program entitled, "Why are gorillas important to the world and to Congo?".

3.3. Action Needed	Potential Partners	Timeframe	Funding Needed
• Standardize protocols for training and implementation of biomonitoring programs for great ape populations	WCS, WWF, MEFE, MINFOF, MINEPN, MINEEFCP	5 years	\$375,000 13

Actions taken to 2013: See above (Section 2.3)

Results: See above (Section 2.3).

Within Congo, these methods are used in all protected areas (Nouabalé Ndoki NP, Lac Télé Community Reserve, Conkouati-Douli NP, Odzala-Koukoua NP, Dimonika Biosphere Reserve), and in large areas of the country where conservation focused wildlife management is

implemented by logging companies (CIB concessions surrounding Nouabalé Ndoki; IFO concession in the Ngombe area).

Within CAR, these same methods were used in 2003 and in 2011-12 in Dzanga (and in 2003 in Bangassou).

Within Cameroon, these methods are used in protected areas (Deng Deng NP, Mbam et Djerem NP, Takamanda NP, Korup NP, Campo Ma'an NP etc), and in some areas of the country where conservation focused wildlife management is implemented by logging companies (the UFA 10065 concession near Deng Deng NP; the Forest Reserves in many areas).

3.4. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Develop and promote national and transboundary structures for great ape ecotourism in the Nouabalé-Ndoki, Dzanga and Lobéké NPs 	GTZ, WCS, WWF, MINTOUR, MEFE, MINFOF, MINEPN, MINEEFCP, tour op.	3 years	\$250,000 14

Actions taken to 2013: Transboundary tourism includes visits to both NNNP, LNP and DNNP and movement of tourists between Cameroon, Congo and CAR.

As of 2009, TNS Fund providing support for ecotourism improvements throughout TNS. 'TNS brochure' created for encouraging ecotourism. Establishment of a standardised tourism protocol (including health guidelines see also section 3.1) underway. Establishment of various tourism brochures, guidebooks and posters. Establishment of: questionnaires to measure visitor satisfaction; Improvement of visitor reception and food; recruitment of a bilingual guides; exchange of information; improvement of tourism infrastructure; negotiations started with professional tour operators; accord de libre circulation in the TNS; in Congo tourist guide training was carried out in 2006, TNS guide training workshop in 2009, and in CAR gorilla guide refresher training in 2011. Several economic and ecological impact studies of eco-tourism realized, including an evaluation of the adherence of Dzanga Sangha's gorilla programme to the IUCN best practice great ape tourism guidelines. TNS-wide tourism vision accepted.

In Congo, two habituated gorilla groups. In Dzanga, another two habituated groups and two more under-habituation. Pricing of gorilla permits standardized. In Bayanga (CAR), two tourism lodges operational with a third near completion.

Results: Infrastructure improved (including Dzanga's Tourist Welcome Centre in 2011);

At the national level, in both CAR (Dzanga Sangha) and Congo (Nouabalé Ndoki) gorilla tourism has been developed and was on the increase up until mid-2012 when figures fall due to the worsening European financial crisis. Additionally, at the time of writing tourism in Dzanga-Sangha is currently suspended due to political instability.

Transboundary tourism: transboundary tours on the increase, mostly between Nouabalé-Ndoki and Dzanga, some with Lobeke. Also national tours in all three countries available.

4 Loango/Moukalaba-Doudou/Gamba Complex, Gabon

4.1. Action Needed	Potential Partners	Timeframe	Funding Needed
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Reinforce anti-poaching measures throughout the site especially on logging concessions in the buffer zones.	DFC, WCS, WWF, ANPN	2 years	\$1,200,000
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Actions taken⁵: Between 2008 and 2013, the number of eco-guards for Loango National Park increased from 20 to 24 and for Moukalaba Doudou from 22 to 27. In 2013 a Senior Conservateur was appointed for the region in addition to the three Conservateurs for each of the National Parks. A law enforcement monitoring (LEM) system based on the software MIST has been implemented in Loango NP since 2008, and Moukalaba since 2010 resulting in improved motivation for patrol effort, and facilitating strategic decision-making for anti-poaching patrols. Focal Points in charge of managing the LEM databases recruited and trained, all eco-guards trained on data collection protocols for LEM. New equipment has been purchased for the Law Enforcement teams including vehicles (cars, boats, quads); field equipment (GPS, compasses, tents) and uniforms. Loango National Park are also using camera traps for surveillance, and since 2012 WCS has undertaken overflights of the national parks with its Cessna aircraft, monitoring human sign.

In 2013, the ANPN had X gendarmes allocated to work within the National Parks, each park will have X, available to partake in missions.

The logging company in the area, CBG, obtained FSC certification in June 2009⁶, by abiding by a series of standards required for mitigating threats to wildlife, and to reduced impact forest management.

Results⁷: Anti-poaching missions by the ANPN and DFC are increasing, strengthened by the arrival of the new staff and equipment. For Loango National Park, the number of antipoaching patrol days has increased tenfold from 53 in 2008 to 535 in 2012 (number of man days has also increased sixfold from 229 to 3753). Moukalaba-Doudou National Park teams have increased their patrol effort by 45% from 2011 to 2012 with 584 patrol days (2330 man days).

Increased patrol effort has resulted in an increase in confiscations and legal proceedings. Loango and Moukalaba-Doudou NPs confiscated a total of 56 illegal arms, and 8 tusks in 2012, with 64 written convocations.

The logging company CBG are positively disposed to do anti-poaching missions, and have agents from the Water and Forests Ministry at their site via the "PROBLAB" public-private-civil society partnership. WWF is working with CBG to implement MIST, and use camera traps for monitoring who is accessing the roads. However, the initial funding for the PROLAB project has expired and has not been renewed. CBG maintains a minimal level of operating support, but the level of anti-poaching effort is extremely low, and vehicles checks at barriers are cursory. Recently, elephant poaching has been detected even in the most intensively monitored parts of this landscape, indicating that hunting is not under control.

4.2. Action Needed

Potential Partners	Timeframe	Funding Needed
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⁵ Information from Ruth Starkey, WCS

⁶ <http://cbgpog.com/cbg.php?var=pres&menu=certification&id=fsc-olb>

⁷ Information from Ruth Starkey, WCS

Introduce measures to minimize risks of disease transmission and establish health-monitoring systems for apes, rules for all people using the site, education for villagers and tourists, and analysis of ape faecal samples	WCS-FVP, WWF, ANPN, DFC, MPI-EVA, Kyoto University	3 years	\$450,000
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Actions taken⁸: Two long-term great ape research sites are established in this priority area: the Max Planck Institute (MPI) in Loango National Park and PROCOBHA (a collaboration between IRET and Kyoto University) in Moukalaba-Doudou National Park. Both sites run ape habituation projects and ape health monitoring studies, and collect and analyse ape faecal samples to study prevalence, transmission dynamics and molecular epidemiology for numerous pathogens. PROCOBHA have created a molecular/microbiology laboratory at IRET in Libreville and both MPI and PROCOBHA have trained Gabonese students abroad on ape disease studies.

Between 2005- 2008, WCS developed Employee Health Protocols and good practices that were adopted by SINOPEC (Chinese petroleum company) in the region, and training in Ebola carcass sampling was provided to PROCOBHA in 2009. MPI have also developed their own health protocols that they maintain on-site. ANPN has developed a parks Health and Safety Manual which incorporates IUCN best practice guidelines for reducing disease transmission risk between apes and humans, and has used this to evaluate the PROCOBHA site.

Three separate preventative medicine training sessions were held for the staff DATES?, and one health and hygiene session was held for the local community.

Results: The WCS Employee Health Programme was adopted by field staff, and they have remained free of infectious disease. The oil company then in the area (SINOPEC) adopted the Employee Health Programme (EHP) and good practices, as did the Japanese Gorilla Research and Habituation Programme at Moukalaba-Doudou National Park. However, a site visit by ANPN in 2011 revealed that PROCOBHA was not applying best practices. Since then, ANPN has worked closely with PROCOBHA to insist on improved health and safety procedures. Improvements have been made but as of time of writing PROCOBHA field staff are still not vaccinated.

4.3. Action Needed	Potential Partners	Timeframe	Funding Needed
Develop and promote responsible great ape tourism within the broader ecotourism strategy for this site	ANPN, SCD, MPI-EVA, SCS, PSVAP, WWF, WCS	5 years	\$200,000

Actions taken⁹: In 2005 the Max Planck Institute (MPI) established a gorilla and chimp habituation program in Loango NP with the long-term aims of developing ape research and tourism. In 2009, the Kyoto University habituation project in Moukalaba-Doudou NP (which had been ongoing since 2001) set up a new project (PROCOBHA) in partnership with IRET, with the aims of continuing gorilla habituation for science and tourism, developing a wide program of scientific research and developing ecotourism guidelines, eco-guide training and an Ecomusee. In Doussala village, in the buffer zone of Moukalaba-Doudou NP, a local NGO called PROGRAM has set up a pilot eco-tourism project, which includes gorilla tracking in the nearby forest.

⁸ Information for both actions and results from Trish Reed, WCS and Kath Jeffery, ANPN

⁹ Information from Ruth Starkey, WCS and Kath Jeffery, ANPN

In 2012, ANPN developed new management plans for Loango and Moukalaba-Doudou National Parks, in which a clear vision for tourism development is outlined. A tourism expert has been hired by ANPN, and tourism professionals are being sought to develop gorilla based tourism in collaboration with ape experts.

There is also a gorilla orphanage in the area (Evengué Island) run by SCD, which houses confiscated gorillas and aims to reintroduce gorillas into the wild.

Results: As of 2013, gorilla and chimpanzee habituation at MPI is advancing well, with increasing contact rates, and plans to develop tourism in the next year or so are underway. PROCOBHA has successfully habituated one group of 22 gorillas, which is currently reserved for research. Since 2011 they have been following a second group for habituation, a research station/Ecomusee is under construction and plans are underway to train ecoguides and tourism staff. However, PROCOBHA ends in 2014 and it is unlikely that a tourism product will be ready by then. ANPN is working with the PROCOBHA team to ensure their tourism activities are developed in line with ANPN's vision.

The rehabilitation project at Evengué has had some success with improved gorilla health measures in the last few years. In August 2009, six young gorillas were released on a larger island site in the Fernan-Vaz Lagoon¹⁰. A site for reintroduction is being explored. A larger island is being prepared for stage 2 of reintroduction.

PROGRAM Association is supported by WWF to test and develop responsible tourism products in the Doussala area (buffer zone) and inside the park. There is potential for gorilla habituation to be carried out in Doussala. Although the tracked gorilla group is not habituated, contact rates are high.

WWF is about to carry out a gorilla habituation feasibility study for PROCHOBA, PROGRAM and Max Planck.

4.4. Action Needed

	Potential Partners	Timeframe	Funding Needed
Strengthen research capacity to respond to threats to apes, integrate research into site management, provide support in training, data collection and analysis, and applied protocols	SI, University of Kyoto, MPI-EVA, WCS, WWF, ANPN, CMP	5 years	\$250,000

Actions taken: A law enforcement monitoring system has been implemented in the national parks since 2008 using the software MIST. MIST links georeferenced field data with patrol effort, to provide protected area management with a rapid, spatially explicit tool for visualising where problems are occurring, and how effective their law enforcement activities are at any given time, and over any time period. The eco-guards and conservateurs have been trained in data collection techniques and reporting methods. National – park-by-park monthly reports are produced showing the patrolled zones, effort and results.

Through 2012-2013 the eco-guards for Loango National Park have each spent one month working with the Max Planck research team as part of capacity building. The eco-guards refine their forest skills, and learn about great ape ecology and research techniques. Max Planck research teams inform the park staff on illegal activities observed within the national park, have

¹⁰http://www.yog2009.org/index.php?view=article&id=187%3Agabonese-orphan-gorillas-set-free-on-an-island&option=com_content&Itemid=67

contributed to the development of the park's management plan, and provide technical support to the Conservator.

Results: Law enforcement monitoring has been running in Loango since 2008, and in Moukalaba in 2010. All the ecoguards have been trained in data collection for law enforcement monitoring, and the Focal Points trained in the data management. (see section 4.1 for results).

Although PROCOBHA run a diverse research programme this is not well integrated into park management. ANPN is making efforts to be more present at the PROCOBHA site and follow their activities more closely.

4.5. Action Needed	Potential Partners	Timeframe	Funding Needed
Maintain ape biomonitoring program, including training in monitoring methods for research personnel	WCS, WWF, DFC, University of Kyoto, MPI-EVA, ANPN, CMP	1 year	\$100,000

Actions taken: One staff member of Loango NP was trained as part of the regional monitoring training in 2005. The WCS Lope NP monitoring team leader went to Loango in 2006 to further train other team members, including WWF staff. Loango National Park and the 5km buffer zone was then completely surveyed in 2007, using standard methods. Moukalaba National Park was partially surveyed by WWF staff, but only for apes.

The logging concession has had one complete survey by logging company employees paired with WWF technicians. However, there were concerns raised about the speed of progress (much faster than normal) of the survey teams, due to a lack of training of the logging employees, who are normally paid by the number of kilometres they travel in a day. The results were released for part of the ape modelling exercise of 2013.

Results: Apes were present in reasonable numbers in all sectors of Loango National park; but subsequent discriminant analysis (2013) suggests only 436 (95% c.l. 241-789) gorillas and 236 (141-394) chimps.

5 Dja Conservation Complex, Cameroon

5.1. Action Needed	Potential Partners	Timeframe	Funding Needed
• Establish and maintain basic management infrastructure in the Dja Conservation complex	FFI, MINFOF, ECOFAC	5 years	\$625,000

Actions taken to 2013: As part of its DPCEP project (Dja Periphery Community Engagement Project; 2006–2008); Bristol Conservation and Science Foundation, in partnership with Living Earth Foundation (LEF) and Fondation Camerounaise de la Terre Vivante (FCTV) developed a game guard training manual in communication game guards trained in communication and community consultation communication and consultation skills to improve the quality of their interaction with local communities. 60 game guards were trained and negotiations with the game guard training schools at Garoua and Mbalmayo led to the formal integration of the module into the professional training curriculum.

In 2011, FCTV - BCSF - LEF carried out a year-long Carpe funded pilot project to establish community-based anti-poaching networks in the Western periphery of the DBR.

From 2010 to 2013, FCTV-BCSF-LEF have been working on two consecutive FLEGT projects (FAO and EC funded) focusing on community monitoring of the illegal timber trade, recognising the impact of illegal logging on habitat protection in the DBR and its periphery. To date, the partners have provided training to 400 community members who monitor instances of illegal logging in their neighbourhoods and report instances to the local administration (MINFOF). In the last quarter of 2013, three seizures of illegal wood were made in Lomie (the first seizures in over two years).

BCSF, in partnership with LEF and FCTV has recently secured funding from the Darwin Initiative to develop and test a pro-poor sustainable wildlife-harvesting model in the periphery of the Dja Biosphere Reserve. The project will start in May 2013 and run for three years.

Results: 60 game guards trained in community skills and consultation; Establishment of trust-based relationships and increased dialogue between game guards communities in target areas in south and west of Dja; 4 community based anti-poaching networks established and working in partnership with game guards to monitor poaching activities around Western periphery; 400 community members trained to monitor instances of illegal logging in their neighbourhoods and report instances to the local administration (MINFOF). In the last quarter of 2013, three seizures of illegal wood were made in the eastern periphery of DBR (the first seizures in over two years) as a result of community reports.

5.2. Action Needed	Potential Partners	Timeframe	Funding Needed
• Recruitment, training and functioning of 50 extra ecoguards for law enforcement activities	MINFOF, ECOFAC	5 years	\$725,000

Actions taken to 2013: In 2006-2007, during the gap period between ECOFAC's phases 3 and 4, the logging company Pallisco established a collaboration with the Dja conservator and funded and supported the logistics of anti-poaching patrols of the Lomié antenna ecoguards in the FMUs located in the eastern periphery area of the Dja (UFAs 10-044/042/041, 10-039).

In 2007 ZSL established a partnership with Pallisco who manage 6 FMUs in this region - UFAs 10.030, 10.031, 10.039, 10.041, 10.042 and 10.044 - covering an area of over 350,000ha. As part of this 'Wildlife Wood Project', wildlife and illegal activity monitoring team has been established to patrol and collect data in these concessions. In 2013, with support from ZSL, Pallisco finalised a 'Strategic Wildlife Protection Plan' for all its concessions which maps out required protection and monitoring activities. In 2013 ZSL conducted a SMART training course for Wildlife Wood Project staff with a view to implementing SMART in Pallisco's concessions. Representatives from UNOPS and MINFOF responsible for the TRIDOM were also trained. (A more extensive SMART course is being planned for later in 2013). ZSL are also working with local MINFOF agents, local communities and Pallisco to establish community surveillance and reporting networks to facilitate reporting of poaching (any other illegal activities) and response to these reports.

Results: Continuity in periphery surveillance in the eastern part of the Dja (4 FMUs covered representing approximately 7000ha) maintained through patrol funding and logistical support during 2 years from logging company Pallisco.

Regular patrolling in 6 UFAs to the east of Dja Reserve. 5 Wildlife Wood Project staff trained in the use of SMART. 2 people involved in elephant poaching arrested in 2012 (unfortunately later released).

5.3. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Reactivate and maintain permanent great ape research areas throughout the area. 	MINFOF, ECOFAC, PGS/IRAD, Nature+	5 years	\$240,000

Actions taken to 2013: PGS has been conducting scientific research on great ape socioecology since 2005 (with a year-long break between 2006 and 2007). PGS has a permanent, manned and well-equipped research station in the northern periphery of the Dja (FMU 10-047) and carries out additional research projects in other parts of the Dja (south: Alat Makay; north: Somalomo, Ekom...). PGS also conducts and collaborates on fundamental great ape research projects and disciplines other than great ape ecology (eg, botany, herpetology).

Eric Arnhem has carried out his PhD study (2003-2008) on the impact of logging activities on the abundances of western lowland gorillas, common chimpanzees and other rainforest mammals in an active logging concession located east of the Dja Reserve (FMU 10-030) (Arnhem 2008; Arnhem *et al.* 2008). Results of this research identified chimpanzees as one of the most sensitive mammal species to logging activities and led to recommendations addressed to the logging company Pallisco to mitigate their impact on chimpanzee populations in its logging concession. Recruited by ZSL to manage its Wildlife Wood Project, Eric continued to carry out wildlife surveys in FMU 10-030 and 10-038 (SFID) for research on great apes ecology, the impact of logging on wildlife, monitoring methods in the context of logging concessions, etc.

ZSL continue to work with Pallisco to collect data on distribution of gorillas and chimpanzees in their concessions which is used to inform logging operations and minimise potential impacts.

Cameroon national Jacob Willie carried out studies (2008-2012, with Ghent University) towards his PhD on the ecological drivers of herb communities and use by gorillas for nesting/feeding, with implications for how climate change can affect gorilla food sources, furthering knowledge for conservation planning.

Charles-Albert Petre is currently carrying out his PhD (2009-2015, with Liege University and the Royal Belgian Institute of Natural Sciences) on the ecological function fulfilled by western lowland gorillas in seed dispersal in logging concessions. Through faecal content analysis, germination trials and monitoring of seedling emergence and growth, this study will describe the diversity of species dispersed, elucidate whether or not relationships exist between gorillas and plants, and evaluate the effectiveness of dispersal directed towards gorilla sleeping sites. In addition, through the extrapolation of a case-study with one commercial tree species, *Chrysophyllum lacourtianum*, we investigate the contribution of gorillas in the regeneration of production forests; to make the forestry sector aware of the importance of conservation of gorillas.

Results: PGS has semi-continuous data on great ape socioecology and phenology in the southern part of FMU 10-047, between 2008 and 2013. One PhD thesis has been completed (Jacob Willie; Nov 2012) and another is underway (Charles-Albert Petre), with conservation applications. A series of publications are in preparation, or in press; details of completed and ongoing research projects can be found in the Centre of Research and Conservation (CRC) of Antwerp Zoo's annual reports since 2005.

Combining data from Arnhem's thesis and ZSL's subsequent research in FMU 10-030 and 10-038, we benefit now from a semi-continuous annual data collection on great apes abundances in this concession from 2003 to 2009 (see graphs below). For information, FMU 10-030 is located midway between the Dja Biosphere Reserve and Boumba-Bek-Nki national parks, and constitutes with its neighbouring concessions a huge low-access forest tract of about 3000km².

Areas inhabited by chimpanzees mapped in 3 UFAs and classified as High Conservation Value by Pallisco resulting in rerouting of planned roads, and adapting felling activities to minimise impacts.

5.4. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Establish great ape monitoring and survey programme across complex 	MINFOF, ECOFAC, PGS/IRAD, Nature+, Logging and mining co. (R. Pallisco, Fip. cam, Geovic), Bristol Zoo/CIAD	5 years	\$200,000

Actions taken to 2013: Partial survey of Reserve carried out in 2009 (Latour 2010). Surveys carried out in northern periphery from 2008-2010 (PGS site) and in Ekom (in the reserve) and Eschou (outside of the reserve) in 2008. Subsequent surveys are planned for these 3 sites in 2013/2014, as well as in southern Dja (Alat Makay). Genetic sampling for gorillas in the PGS site has been carried out (results pending) and additional sampling for chimpanzees and gorillas (genetic and camera-trapping) is underway, to complement nest count data.

ZSL's partnership with Pallisco and SFID has developed a technique based on *Adaptive Recce Transect Sampling (ARTS)* allowing to monitor rainforest mammals at lower costs while mapping core areas of chimpanzee territories. This technique is currently being used by logging company Pallisco and SFID (Rougier Group) to survey logging compartments before disturbances and to plan ahead logging operations in order to limit the displacement of chimpanzee communities, which can result in severe intergroup conflicts. ARTS surveys are then very useful to adapt forest management for the benefit of this sensitive species. In addition, as part of the implementation of a 'Strategic Wildlife Protection Plan' adopted by Pallisco in 2013, FMU-wide wildlife surveys will be carried out every 5 years to monitor trends in the populations of various indicator species, including apes, for adaptive management, with baseline surveys planned in 2013-2014. Ongoing monitoring and surveillance activities are carried out by wildlife and illegal activity monitoring teams in Pallisco's FMUs. Currently Cybertracker software is used and SMART will be implemented in 2013.

Results: Distribution and densities for a part of the Reserve in 2008 were calculated, but the actual number of nests seen was actually too low for DISTANCE analysis to be robust. However, it is possible that there were about two individual gorillas/km², but with wide confidence limits, and an increase in densities with proximity to the reserve. Further publications on temporal and spatial changes in great ape abundance in the Dja area are pending additional data collection in 2013/2014. We intend to continue monitoring great ape abundances every 5 or so years in the site. Marked nest counts in the PGS site (FMU 10-047) estimated densities in 2009-2010 (Tagg & Willie 2013) and data so far have shown little change in encounter rates between 2001 and 2008 (Tagg et al. 2011), possibly contributed to by local amnesty on great ape hunting.

Combining data from Arnhem's thesis and ZSL's subsequent research in FMU 10-030, we benefit now from a semi-continuous data collection on great apes abundances in this concession from 2003 to 2009 (see graphs below).

Figure 11. Evolution des densités estimées de nids de chimpanzé à Makalaya de 2003 à 2009 (source: (Arnhem 2008); ZSL unpublished report)

Figure 12. Evolution des densités estimées de nids de gorilles à Makalaya de 2003 à 2009 (source: (Arnhem 2008); ZSL unpublished report)

ARTS surveys focusing on chimpanzees will regularly take place in Pallisco's and SFID's concessions (before and after harvesting operations in 5-yrs logging blocks). They will allow adapting logging operations to the presence of great apes but also be used to assess the impact of logging activities every 5 years.

5.5. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Establish a disease surveillance programme and rapid response structure specifically for great apes (with focus on Ebola and Anthrax) 	MINFOF, PRESIDIA, Johns Hopkins Institute, PGS, Nature+	5 years	\$275,000

Actions taken to 2013: PGS have established agreement with GVFI for rapid response in the case of suspicious ape deaths to site in northern periphery – team dispatched for event in December 2009 (dead gorilla, likely anthrax), no additional events to date. PGS staff and researchers are aware of protocol and equipped to react in the event of suspicious ape (or other) deaths.

In 2011, ZSL has held workshops and distributed leaflets on Preventive Health Strategies to Pallisco's staff, including personnel camping in the forest. Pallisco's H&S Dept. is aware of GVFI and commits to inform this organization in case of potential Ebola/Anthrax event. As part of ZSL's awareness programme, the leaflet is also distributed in villages neighbouring Pallisco's concessions.

Results: Still awaiting analysis of samples of carcass from 2009, but rapid response team ready for future events and GVFI lab being prepped for such analyses.

"10 rules of preventative health" leaflets distributed extensively to Pallisco's staff and rural communities of the Upper-Nyong District.

5.6. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Establish community-based biodiversity enterprises to support ape habituation and community-based ecotourism 	MINFOF, PMDA, Bristol Zoo/CIAD/FFI, PGS/IRAD, Nature+	5 years	\$250,000

Actions taken to 2013: PGS supports a scientific tourism programme whereby students, volunteers and researchers use the facilities to carry out research in the northern periphery of the Dja, employing local people. PGS facilitates infrequent eco-tours from Belgium in collaboration with Belgium and Cameroonian tourist agencies (4 successful tours since 2009). Ape habituation has not been attempted in FMU 10-047 since a prospection in the early days of PGS (2001) due to the intense human activity and hunting in the area. PGS seeks external funding and enlists expert advice for community-level projects (eg, environmentally-responsible coca farming, agro-forestry, composting, pig rearing, etc). Village-level surveys investigating

attitudes to hunting, socio-economics, bush meat offtake and hunting effort were conducted in 2002 and 2009 and are due to be repeated in 2013/2014.

A consortium of actors working in the Dja Landscape (PGS, BZG, FCTV, LEF, ZSL) teamed up in 2011 to launch a landscape-wide project to support local community integration into great ape and ecosystem protection; contributing to the sustainable management of Cameroon's natural resources and biodiversity, in particular great apes, for the benefit of the country's people, wildlife and ecosystems. The project is being launched in May 2013 with the initiation of a research piece into the ape hunting supply chain around the Dja.

FCTV-BCSF-LEF is currently implementing a livelihoods development programme, supported by ECOFAC V (Dec 2012 - Dec 2014) which focuses on promoting alternative economic livelihoods (including honey production, fishing and cocoa production) to ease pressure on resources.

ZSL are working with communities to develop community surveillance and reporting networks to address illegal activities (See 5.2).

Results: PGS has found that the employment of regular and casual workers in their research programme reinforces the value of living apes and intact forests to the local people; there has been a local amnesty on ape hunting since 2004. Stability through employment in research, money from eco-tours and additional financial, technical and material aid from externally-funded PGS community-level projects provide incentives for sustainable resource use and the capacity to participate in conservation. Results of regular community-level surveys will document changes in attitudes and actions in the community; publications pending additional data collection.

6 Boumba-Bek/Nki Complex, Cameroon

6.1. Action Needed	Potential Partners	Timeframe	Funding Needed
• Finalize legal status of both National Parks	MINFOF, WWF	1 year	\$10,000 22

Actions taken to 2013: Completed.

Results: Boumba-Bek NP was classed in 2005 (Décret N°2005/3284/PM du 06 octobre 2005) and the Nki NP also classed in 2005 (décret N 2005/3285/CAB/PM du 06 octobre 2005).

6.2. Action Needed	Potential Partners	Timeframe	Funding Needed
• Establish and implement effective law enforcement program , including recruitment and training of 100 ecoguards and annual transboundary patrols with Odzala National Park	MINFOF, WWF, ECOFAC, MEFE	5 years	\$1,700,000 23

Actions taken to 2013: Partially done.

Results: For the transboundary Law Enforcement teams in Nki-South (Moloundou-Ndongo) regular patrols are organized with WWF/ETIC at Gbala (Congo). In the Souanké Panhandle (Congo), WWF is supporting 24 ecoguards. A legal advisor was recently recruited (Nov 2010) based in Yokaduma, Cameroon, and that led to 15 new guards for Nki-Boumba Bek being sworn in as well as the judicial follow up of wildlife related crimes.

6.3. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Maintain annual ape biomonitoring program. 	MINFOF, WWF	5 years	\$450,000 24

Actions taken to 2013: Ongoing.

Results: Surveys have been done every three years (2003, 2006, 2009, 2012), and bai monitoring is planned bimensually in different baïs: in Boumba-Bek, the baïs of Likolo, Batouka, Gbwekoua and Oboul are monitored. In Nki-North, regular monitoring of Ikwa bai was conducted over several months each year. In Nki-south, the baïs of Mbiado, Bayapeke, and Yombi are monitored. Details in the activity reports of Nki and Boumba Bek. The 2012 results for Boumba Bek suggest about 3000 apes : 2400 gorillas and 1200 chimps (in prep).

6.4. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Establish a disease-monitoring programme specifically for great apes given geographical proximity of recent Ebola outbreaks. 	MINFOF, WWF	5 years	\$375,000

Actions taken to 2013: Not done

Results: Not done

6.5. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Establish collaborative framework with all stakeholders in support of great ape conservation, while developing management plan 	MINFOF, WWF	5 years	\$100,000 25

Actions taken to 2013: Partially done.

Results: The management plans for the two parks have been written and are now in the process of being validated. There are activity reports for Nki & Boumba Bek detailing the information meetings with communities, collaboration platforms, and coordination meetings of activities with MINFOF.

7 Lopé/Waka complex, Gabon

7.1. Action Needed	Potential Partners	Timeframe	Funding Needed
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<ul style="list-style-type: none"> • Extend existing programs of health education and ape health monitoring to minimize risks of disease transmission between humans and apes 	WCS-FVP, CIRMF, ZSL, ANPN, DFC, ECOFAC	5 years	\$250,000
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Actions taken: Between 2004 and 2009 collaborative work between SEGC, WCS, ZSL, covered 7 years and at least 5 separate grants. In 2010, the health education programme for local children continues in north Lopé schools but the health-monitoring programme stopped in Mikongo and SEGC in 2010.

Results: Two fully-equipped field laboratories for on-site faecal parasite screening were installed in 2003 by ZSL-Mikongo and in 2005 in CEDAM. They were operational until 2010. Two Gabonese technicians trained in parasite screening and carcass sampling methods. Analysis of a total of 476 great ape faecal samples, 55 mandrills and 108 humans using a suite of methods. Internationally-approved Health and Safety programme for staff established: includes vaccinations, annual health checks, ongoing faecal screening, regular first aid training (32 qualified first aiders locally), best practice guidelines. Rapid-response system for epidemics implemented. Health education programme for local school children developed: 37 classes in 7 villages and 1 logging camp held: 447 children received lessons each year since 2008. This ended in 2010.

7.2. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Support research & training programs and improve capacity for adaptive management, through focused research protocols and systems to evaluate the effectiveness of management for the protection of apes 	WCS, ANPN, CIRMF, ZSL, USTM, ENEF, ECOFAC	5 years	\$250,000 27

Actions: Lopé – Two cycles of monitoring completed 2005, 2009. One survey Waka 2006. One buffer zone survey Waka-Lope corridor 2008. More focused ape inventory carried out by ZSL in the Mikongo Conservation Centre activity area (covering approximately 70km² in the East side of Lopé NP) using line transect method, including local assessment of nest decay rate over a 10-month period, in 2010 to assess actual potential for gorilla habituation after 10 years of efforts. For that same purpose, an attempt of genetic census was also carried out by ZSL in 2010 in collaboration with SEGC covering both Mikongo and SEGC activity areas and the corridor between the two sites, leading to an intensive faecal sampling effort (around 1000 samples collected). Unfortunately, genetic analyses have failed to provide significant results for individual identification, but still provided interesting information on local ape group distribution. Since 2005, standard long great ape trainings done at CEDAMM 2007 (Jeffery: analysis) and 2005 and 2008 (Maisels: monitoring). Many other trainings at CEDAMM on more generalized subjects (ecoguards by ANPN, GIS by WCS etc). A Law Enforcement monitoring protocol, MIST, was implemented in Lope National Park in 2009, providing regular information on Anti-poaching effort and results to be used for adaptive management.

Results: Ape distribution throughout Park and in Waka, plus the corridor. Possible Ebola effect in past (pre-1996). Biomonitoring Team leader Lope trained 2008. Assistants to team trained 2007.

7.3. Action Needed	Potential Partners	Timeframe	Funding Needed
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<ul style="list-style-type: none"> • Standardize and refine protocols for training and implementation of monitoring programs for great ape populations 	WCS, ANPN, CIRMF, ZSL, DFC, ECOFAC	5 years	\$150,000
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Actions taken to 2013: See section 1.1.

Results: See section 1.1.

7.4. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Improve judicial and law enforcement capacity in protected areas and logging concessions, including mobile anti-poaching brigade, specialized training for local authorities, gendarmes and magistrates 	ANPN, DFC, WCS, ECOFAC, USFWS	3 years	\$ 160,000 28

Actions taken:

Between 2008 and 2013, the number of eco-guards for Lope National Park increased from 10 to 14 and for Waka from 5 to 19. In 2013 a Senior Conservateur was appointed for the region in addition to the Conservateurs for each of the National Parks. In 2013, the ANPN had X gendarmes allocated to work within the National Parks, each park will have X, available to partake in missions.

A law enforcement monitoring (LEM) system based on the software MIST has been implemented in Lope since 2009, and Waka since 2011 resulting in improved motivation for patrol effort, and facilitating strategic decision-making for anti-poaching patrols. Focal Points in charge of managing the LEM databases recruited and trained, all eco-guards trained on data collection protocols for LEM. Standard monthly reports produced of effort and results for adaptive management.

New equipment has been purchased for the Law Enforcement teams including vehicles (cars, boats); field equipment (GPS, compasses, tents) and uniforms. A control post was constructed on the bridge at Ayem. Lope and Waka National Park are also using camera traps for surveillance, and since 2012 WCS has undertaken overflights of the national parks with its Cessna monitoring human sign.

Through a GEF/USFWS funds, financial and technical support has been provided to the Ministry of Water and Forest teams in Lope, Iboundji and Fougamou to increase anti-poaching efforts. An LEM system is being implemented within the MINEF.

Results: Law enforcement efforts in Lopé National Park has increased from virtually 0 effort in 2009, to 1759 person days a year in 2012. Poaching still persists in the northwest of the park, with human footpaths going a long way south along the Offoué, perhaps poaching increasing there. Law enforcement missions are resulting in confiscations of bushmeat, arms, munitions and other illegal activity items (chainsaws, planks). With over 300 bushmeat confiscations in 2012, none were great apes. No great ape carcasses were found in 2012 in Lope or Waka.

Logging activities west and south-west of Lopé National Park have been significantly scaled back since the 2008 financial crisis. While construction of a forestry camp in buffer zone northwest of the park was halted due to lobbying and ANPN has conducted several missions against illegal and destructive logging, there are no barriers on access roads and poaching

probably continues. As of May 2013, activities are due to restart in the former Leroy logging concession, including the southern part of the “Lot 36” which has high ape densities. The company concerned has expressed its intention to implement environmental best practices including hunting management but given the degraded nature of much of the concession other than the Lot 36, this is likely to be short-term in nature.

7.5. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Develop and promote responsible great ape tourism, of already habituated gorilla groups and within the broader ecotourism strategy for this site 	ZSL, ANPN, ECOFAC and private tour operators	5 years	\$ 500,000 29

Actions taken to 2013: Gorilla groups were never properly habituated and this was abandoned by ZSL in favour of generalized rainforest tourism. This in turn closed in 2010.

Results: No results now specific to this point.

4 *Important Priority Areas*

8 Rio Campo/Campo Ma'an complex, Cameroon & Equatorial Guinea

8.1. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Implement law enforcement and disease surveillance program, including recruitment and training of 50 ecoguards 	FEDEC, WWF, INDEFOR-AP, ANDEGE, MINFOF, Projet Hydroélectrique de Memvélé, PNDP, Opérateurs Economiques	5 years	\$750,000

Actions taken to 2013: Campo: Guards recruited and trained; disease surveillance not a park programme but researchers involved. Rio Campo: Ape faecal samples were collected for genetic and pathogen analyses, which will be analysed by MPI-EVA/Robert Koch Institute, Germany.

Results: Campo Ma'an: 30-46 guards affected to Campo Ma'an NP each year; funding not regular, staff not motivated, implementation of law enforcement not efficient. Research on SIV and malaria on the Campo great apes.

8.2. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Establish and maintain basic management infrastructure in Rio Campo 	INDEFOR-AP, ANDEGE	3 years	\$450,000

Actions taken to 2013: In 2009, the Equatoguinean NGO, Amigos de la Naturaleza y del Desarrollo de Guinea Ecuatorial (ANDEGE), developed a management plan for the Rio Campo Nature Reserve. This management plan went through technical approval in 2009 but, with some confusion over how to achieve political approval, has not yet been submitted for political approval. In 2010, ANDEGE submitted a successful funding proposal to the Congo Basin Forest Fund (CBFF) in to implement the Rio Campo management plan, which will entail the construction and maintenance of basic management infrastructure in Rio Campo.

Results: Architectural plans for management infrastructure completed.

8.3. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Establish framework for collaboration between the governments of Equatorial Guinea and Cameroon with emphasis on transboundary conservation action initiative 	INDEFOR-AP, MINFOF	1 year	\$10,000

Actions taken to 2013: Underway.

Results: WWF Spain initiated work on the proposed Rio Campo Ma'an transboundary protected area in 2010, establishing an ad-hoc committee during a meeting in Kribi, Cameroon, in July 2010 and conducting a site visit, engaging in high-level political awareness-raising, and confirming a roadmap in a meeting in Bata, Equatorial Guinea, in October, 2010. Although an agreement was signed between the Cameroonian and Equatoguinean government agencies indicating their willingness to engage in transboundary conservation work through the Rio Campo Ma'an area, lack of subsequent funding prevented any further progress after the Bata meeting.

8.4. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Establish and maintain a biomonitoring programme for great apes 	FEDEC, WWF, MINFOF, INDEFOR-AP, CI, MPI	5 years	\$250,000

Actions taken to 2013: Line transect surveys were carried out in Campo Ma'an NP in 2008, recce surveys in 2009 and line transect surveys were planned for 2011. The nationwide survey conducted across Rio Muni in 2011 by CI, INDEFOR-AP and the Max-Planck Institute for Evolutionary Anthropology (MPI-EVA) included line transects within Rio Campo NR. This survey also included a camera trap study that was set up adjacent to the Rio Campo NR and which demonstrated presence of gorillas; the area, however, was part of a logging concession and selective logging took place as the study was coming to an end, in October 2011.

Results: Reports available. For the Rio Muni study, a manuscript has been submitted to PLoS ONE.

8.5. Action Needed	Potential Partners	Timeframe	Funding Needed
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Explore ecotourism potential – conduct a feasibility study with great ape viewing options	FEDEC, WWF, MINFOF, INDEFOR-AP, ANDEGE	1 year	\$70,000
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Actions taken to 2013: Assessment done on the Campo Ma'an side.

Results: Assessed and considered feasible depending on successful implementation of recommendations (preconditions) as detailed in the report (Cipolletta 2010).

8.6. Action Needed	Potential Partners	Timeframe	Funding Needed
Develop and sustain platform for collaboration between stakeholders about logging issues	FEDEC, WWF, MINFOF, INDEFOR-AP, Projet Hydroélectrique de Memvélé, PNDP, Opérateurs Economiques	5 years	\$50,000

Actions taken to 2013: Under way at least in the Campo Ma'an side.

Results: The logging company was certified by FSC and a Partnership agreement signed with HEVECAM. Ongoing revision of "Environmental and Social Impact Assessments" of upcoming large investments (Memve'le dam, CAMIRON railway).

9 Ivindo Complex, Gabon

9.1. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> Extend existing programs of health education and ape health monitoring to minimize risks of disease transmission between humans and apes 	WCS-FVP, CIRMF, DFC, ANPN	5 years	\$250,000 30

Actions: Employee health programme was developed for WCS Ivindo staff. Preventative protocol training to staff, families and communities living around the periphery of the Park. The health programme was extended in 2010 to schools to the south of Ivindo NP (at the Rougier camps of Ivindo and Massouna). Ape health activities in Ivindo stopped in 2010.

Results: An Employee Health programme was adopted and the staff were maintained free of infectious disease. Three separate preventative medicine training sessions were given to staff. One health and hygiene session was given to the community. 610 villagers in 3 villages at the periphery of park participated in health and hygiene education sessions. 106 questionnaires were given to villagers identified risky behaviour. Health education programme for local school children were developed: 6 classes in 2 logging camps held: 234 children received lessons in 2010.

9.2. Action Needed	Potential Partners	Timeframe	Funding Needed
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<ul style="list-style-type: none"> • Develop and promote responsible great ape ecotourism at Langoué Baï from viewing platforms, and other appropriate areas within the broad ecotourism strategy for Gabon's National Park network 	ANPN, WCS, FIGET, private sector	3 years	\$500,000 31
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Actions: A fairly high-end ecotourism pilot project was carried out from 2004 to Dec 2008 at the baï. This was evaluated in a formal report to the Government.

Results: The report to the Government showed that (i) there had been no negative impact of tourism on animal visitation at the site, or on habitats around; (ii) economically, the tourism as it had been carried out was not breaking even, due to low tourist occupancy rate, and high operation costs, but that this could be ameliorated by cost sharing of road maintenance between Government, NGOs and tour operators and probably by better publicity and (iii) formal agreements between stakeholders (tour companies, NGOs, Government) should precede any next steps. There is currently no great ape tourism at Langoué Bai, though the ANPN with a private tour operator aims to reopen next year (depending on lodge construction). ANPN with WCS are working on developing/improve existing tourism circuits.

9.3. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Develop on-site research capacity on great ape ecology, behaviour and health, through support to the IRET research station 	IRET/CENAREST, CIFOR, WCS-FVP, CIRMF, PSVAP	5 years	\$250,000 32

Actions: The wildlife monitoring team (two cycles) showed that there were very few apes (or even duikers!) in the forest next to IRET; and a separate study showed bay duiker populations had been depleted there (Van Vliet *et al* 2009).

Results: No results.

9.4. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Sustain partnerships with logging companies in the buffer zone to reinforce the protection of apes and increase capacity to monitor population trends 	WCS, WWF, FRM, ANPN, Rougier	5 years	\$1,050,000 33

Actions: Work with several of the logging concessions around Ivindo NP (Rougier, CoraWood, CEB) resulted in a survey of the area between the railway line and the park (Rougier and CoraWood), and started monitoring at bais in the CEB concession. Continuation of the environmental education with workers and their families. WCS is starting to evaluate how to identify chimpanzee core areas during forestry inventories.

Results¹¹: Results from the survey in Rougier and CoraWood (showing the distribution and abundance of hunting camps, snares, and elephant carcasses, as well as wildlife itself) were useful in suggesting conservation action that could be taken by the two companies. Monitoring

¹¹ Tim Rayden's information

(both acoustic and visual) of showed that poaching continues in the concession and guided further control by the company. WCS is now working with Rougier to improve wildlife management (within the concession).

WCS has signed MoUs with two major logging companies (Rougier & CEB, both of which have FSC) in the landscape to collaborate on wildlife protection measures and research. Annual work plans for the third year of collaboration under development. New proposals submitted for developing tailored wildlife monitoring approach for FSC certified forest. Awareness missions made to all logging companies operating in the buffer zone to discuss legal requirements for reduced impact management of buffer zones. Evaluation/verification protocol for buffer zone management under development with ANPN. Evaluation tool for wildlife management in forest concessions developed and tested with four companies in this landscape. Reports submitted to forestry companies and DGEF (Water and Forests ministry) with recommendations for improvements and repeat/annual monitoring. DGEF are supportive of the continuation of this initiative.

9.5. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Maintain ape biomonitoring program, including training in monitoring methods for research personnel 	WCS, ANPN, DFC, IRET/CIFOR, PSVAP	5 years	\$175,000 34

Actions: Two surveys undertaken within Park (2004 and 2009) and the southern buffer zone (2010). Team leaders and assistant team leaders trained in standard 9-week courses at Lopé 2004 and 2008. Apes at Langoué Baï monitored 2001-2008. Another training just finished in 2011.

Results: No significant change in ape (or elephant) density 2004-2009. The ratio of solitaires to groups of apes improved over the course of monitoring Langoué Baï (probably recovery from Ebola).

10 Belinga-Djoua, Gabon¹²

10.1. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Surveys of ape distribution and density throughout the site, including training in monitoring methods for research personnel 	WWF, DFC, IRET, WCS, ANPN	2 years	\$100,000 36

Actions taken: Reconnaissance surveys in February 2011 in the area were to determine the limits of an area in which a more precise density and distribution survey will be carried out. This was a joint project ZSL-IRET in which a junior IRET researcher (Thierry Diop) was involved as part of the fulfilment of a MRes (University of Burkina Faso). 4 recce surveys carried out by ZSL-IRET between Feb-July 2011. Also, a study looking at nest degradation was initiated but could not be completed.

A DFC agent (from the local brigade in Makokou) is also involved in the field team and then receives on-the-job training on navigation, recce and transect surveys. Concurrently there are

¹² Information from Sandra Ratiarison, ZSL

basic socio-economic surveys in villages located along main access roads and rivers (Djoua) to evaluate their influence on the area surveyed for apes. 12 village surveys were carried out along the Mazingo-Mekambo/Mekambo-Makokou/Belinga route.

Results: Results due in December 2011

10.2. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Measures to prevent fragmentation of ape habitat block, by prevention of new human settlements and deforestation along the Zadie-Belinga road 	Assemblée Departementale de l'Ivindo, DFC, ANPN, WWF	1 year	\$50,000 37

Actions taken: OLAM has a new forestry concession along the Zadie-Belinga Route. A protocol d'entente is being established between OLAM-WWF-SUNRY-ANPN-MINEF, the prefecture and the chef de village, aimed mainly towards anti-poaching missions and the protection of wildlife in the area. OLAM have started exploiting the area, but selective logging under a sustainable management plan.

Results:

10.3. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Raising awareness of the need for ape conservation among local actors and organizations with anti-poaching missions 	DFC, ANPN, WWF	1 year	\$75,000 38

Actions taken: DACEFI has organised a week of awareness activities in schools around Makokou in April 2011 to which ZSL collaborated as well. The aim was to increase the awareness of children about ape conservation (including health aspects). ANPN, the Ape Alliance (the informal group gathering JGI, CIRMF, PPG, PGFV, Gabon Environnement) and ZSL have started working in March at developing guidelines for ecoguards and DFC agents to apply during ape orphan seizures, especially to mitigate disease transmission risks following 2 successive gorilla orphan seizures occurring in the area within 6 months. The Ape Alliance also began in November 2011 training to MINEF and the gendarmerie for health risks during wildlife seizures.

Results: DACEFI-ZSL collaboration, 9 schools were visited in April 2011 for great ape awareness. The ape orphan seizure guidelines have been established but are not yet validated.

10.4. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Creation of a great ape sanctuary within the TRIDOM landscape, based on survey results 	ANPN, DFC, WWF	1 year	\$40,000 39

Actions taken: The surveys carried out in the first point will contribute to evaluate the feasibility and worthiness of the creation of such sanctuary in this area. The feasibility evaluation has been included in the annual work plan of the Direction Generale des Eaux et Forêts for 2011.

Results:

10.5. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none">• Applied epidemiological research on Ebola, collection of faecal samples and autopsies of cadavers to assess impact of past Ebola epidemics and current health status of ape populations	CIRMF, WCS-FVP, GRAET	2 years	\$100,000

Actions taken: Nothing for Belinga, but PACE workshop includes REMAGA agents based in Minkébé. Also, WCS staff in Ivindo trained in reporting wildlife morbidity and mortality, including standardized data collection and faecal collection.

Results: **REMAGA** (Réseau d'Epidémiosurveillance des Maladies Animales au Gabon--the Epidemic-surveillance Network of Animal Diseases in Gabon) has agents permanently based in Minkébé which now, as a result of a workshop, integrate Ebola surveillance into their existing wildlife monitoring program. REMAGA stopped its activities in the area in March 2011.

11 Mengamé, Cameroon

11.1. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none">• Formalize legal status of gorilla sanctuary	MINFOF, WWF	1 year	\$10,000

Actions taken to 2013: Done.

Results:

11.2. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none">• Establish and implement effective law enforcement and community sensitization program, including recruitment and training of 30 ecoguards and initiation of cross-border protection activities	MINFOF, WWF	5 years	\$580,000

Actions taken to 2013: ?

Results: ?

11.3. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none">• Develop and sustain great ape-human conflict mitigation strategy	MINFOF, WWF	5 year	\$250,000

Actions taken to 2013: ?

Results: ?

11.4. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none">• Implement disease-monitoring programme (given geographical proximity to past Ebola outbreaks)	MINFOF, WWF	5 years	\$375,000

Actions taken to 2013:

Results:

11.5. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none">• Maintain ape biomonitoring programme and reinforce survey database	MINFOF, WWF	5 years	\$125,000

Actions taken to 2013:

Results:

11.6. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none">• Develop community mobilization strategy in support of great ape conservation	MINFOF, WWF	1 year	\$100,000

Actions taken to 2013:

Results:

12 Conkouati/Mayumba Complex, Republic of Congo & Gabon

12.1. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none">• Develop capacity and structures for an effective law enforcement and judiciary process in Conkouati-Douli NP and surrounding buffer zones, including training of park guards and transboundary protection efforts and policies	WCS, MEFE, MEFEP	3 years	\$900,000 41

Actions taken to 2013: Ecoguard recruitment training -2005, 2007 and 2010. Law enforcement efforts are monitored since 2005. Two cross-boundary marine surveillance training was done in 2008 and 2010 at Mayumba (US-Navy); transboundary cooperative agreement signed between Congo and Gabon.

WCS advice and support to the transboundary cooperative agreement between Congo and Gabon 2005.

Results: Conkouati National Park: Increased numbers of Ecoguards and training allows more efficient coverage; LEM helps plan surveillance missions more efficiently; No marine surveillance was done in 2008 due to defect boat engines and after September 2010 when the ocean boat capsized and was written off. A new boat is ordered.

Mayumba National Park has 16 eco-guards (2013) for antipoaching efforts, and the ANPN works regularly with other administrations (marine, MINEF). In 2012, the ANPN purchased a new marine boat, has hired a South African skipper to train and mentor Gabonese teams at sea. Equipment for law enforcement efforts was procured. Patrol effort in Mayumba for 2012 was 390 days (with 314 of these on foot patrols) totally, 1112 person days of effort.

Transboundary co-operation agreement signed between the governments of Congo and Gabon for Mayumba-Conkouati-Douli, November 2010.

Joint patrols will remain a problem because Congo Ecoguards are armed and Gabonese Ecoguards not. It is impossible for Congolese Ecoguards to cross into Gabon with their weapons. The marine boat patrols are very efficient but the boat is extremely expensive to run and maintain (insurance alone costs 15,000 USD/year).

12.2. Action Needed

	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Construct a great ape research and training station within the Conkouati-Douli NP, to conduct effective and timely biomonitoring and provide effective deterrent to poaching 	WCS, MEFE	1 year	\$75,000

Actions taken to 2013: Conkouati: A permanent forest control post "Moufoumbi" was built in the North, in an area with high great ape densities. In collaboration with the Goualougo Triangle, a great ape research project was launched (incl. Mounting of 4 camera traps) around the post. We attempt to have a permanent presence there rotating EGs and research assistants.

Results: Provides an almost permanent presence in one of CDNP's most important great ape ranges and deter poachers from the area. This is an excellent project financed by a 2-year USFWS Great Ape grant but future funding beyond that is required.

12.3. Action Needed

	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Conduct baseline surveys of ape populations and other large mammals in Mayumba NP and buffer zone 	WCS, MEFE	1 year	\$50,000

Actions taken to 2013:

Conkouati - surveys 2005, 2008, 2010.

Mayumba NP - recce surveys 2006, 2007, 2008, 2009, 2010, 2011.

Mayombe - area in Gabon behind the National Park done in 2011 under GEF finance (transects in the wildlife-rich area, camera traps and recces near the lagoon).

Results:

Conkouati - important reduction in the great ape population between 2005 and 2008 due to improved access, road infrastructure by TAMAN and Petroleum company seismic explorations) but an overall increase is observed between 2008 and 2010 most likely as a result of improved surveillance. The logging company TAMAN opened the forest road elongating the Parc in 2006 and a mining company M&P opened >500km of seismic paths as well as roads and a bridge over the Noubi River, rendering access easy and reducing control with the current Ecoguards force in 2007 and 2008. Ecoguards man-force was increased from 21 in 2005 to 31 in 2010. The seismic campaign ended in 2008 and everyone left. The graded road degraded with time and the Niari Bridge was restored, whereby less vehicles use the forest road in 2010 (also less poaching and traffic).

Mayumba NP - no change in ape abundance 2006–2011.

Mayombe - Ape density in the area in the Mayombe (about 1500 km² in the centre of the mountainous area) is about 0.8 individuals/km² (95% c.i. 0.4-1.4); perhaps as many as 1100 apes here, mostly gorillas (998 (95% ci 527-1889), and about 140 (95% ci 72-276) chimps.

12.4. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Establish systematic surveillance systems for the emergence of zoonotic diseases 	WCS, MEFE, WCS-FVP, CIRMF, RKI, MSPP, LNSP, HELP-Congo	1 year	\$25,000

Actions taken: none.

Situation is currently bad-recent multiple mortalities of sitatunga and duikers in Mayumba (Sept-Oct 2011). Suspected Ebola outbreak, however, ANPN had no capacity to intervene; neither WCS, CIRMF nor the Ministry of Health were able to respond to send experts or sampling equipment.

Results: No response system was available to respond to potential epidemic outbreak

12.5. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Implement conservation education awareness and outreach programs in local communities, with specific emphasis on great apes 	WCS, MEFE	5 years	\$100,000

Actions taken to 2013:

Conkouati - Since 2005, 17 schools (roughly 2000 children) around Conkouati-Douli NP receive regular environmental education.

Mayumba - Plan to visit all villages peripheral to park with ape conservation education activities. But finance delayed.

Mayombe - no action.

Results:

Conkouati - All of 25 villages around Conkouati-Douli NP and their schools are better aware of the status, behaviour and importance of great apes. But insufficient staff (only 2) for environmental education and outreach.

Mayumba - none.

Mayombe - none.

13 Maiombe Forest Transboundary Initiative, Angola, DRC & Republic of Congo and Gabon

13.1. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Conduct ape population surveys in the Maiombe Forest in Cabinda, DRC, and Congo Republic, to include ape counts, habitat status and collection of genetic material 	IDF, MINUA, GPC, NORAD, UNDP, CABGOC, DFID, MINADER, MEFE, MFE, MAE, Gremio ABC, CIRMF	2 years	\$200,000

Actions taken to 2013:

Results:

13.2. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Provide training for local community participants and research personnel in ape census field methodology and community-based law enforcement 	IDF, MINUA, GPC, NORAD, UNDP, CABGOC, DFID, MINADER, MEFE, MFE, MAE, Gremio ABC	8 months	\$100,000

Actions taken to 2013:

Results:

13.3. Action Needed	Potential Partners	Timeframe	Funding Needed
<ul style="list-style-type: none"> • Conduct socio-economic surveys on bushmeat market trade, hunting pressure and local attitudes to conservation in the Maiombe Forest 	IDF, MINUA, GPC, NORAD, UNDP, CABGOC, DFID, MINADER, MEFE, MFE, MAE, Gremio ABC	1 year	\$50,000

Actions taken to 2013:

Results:

Figure 13. Areas where the generalised Action Point “Biomonitoring training and implementation” was carried out 2005–2010, overlaid on the Priority Sites in the Regional Action Plan. Yellow areas are where WCS carried out the field surveys

In order to help maintain and restore the integrity of the Mayombe ecosystem as to conserve biodiversity, promote regional stability and improve human livelihood, UNEP and the International Union for Conservation of Nature (IUCN), with financial support from Norway have been working with Angola, Congo and DR Congo to establish a transboundary protected area in the Mayombe landscape. An initial intervention from July 2009 to June 2010 helped re-initiate a dialogue and arrive at a political consensus among the 3 countries. A tri-partite agreement was signed by the ministers in charge of forests in Angola, Congo and DRC in 2009. A number of technical studies were conducted in the following years, leading the finalization of the Mayombe Transboundary Plan in 2012. In February 2013 the ministers in charge of forests in Angola, Congo and DRC adopted the transboundary plan and invited Gabon to join the initiative. Angola announced the gazettment of a national park in Cabinda as a first sign of implementing the transboundary plan.

The next step will be to raise significant funds to fully implement the plan.

CONCLUSIONS

Please add any overall comments, observations or conclusions:

Suggestion to include an action for the Dja Landscape to develop/empower communities and improve knowledge of wildlife law.

Initiatives to improve ape health monitoring have vastly improved and methods to intervene have been successfully tested via vaccination but with the potential for further widespread outbreaks more research needs to be carried out on using baits to administer vaccines/ drugs (although ref: Goualogo).

Large efforts have been made to standardise survey methods but there needs to be more organisation with regards to the timing of surveys across landscapes to improve comparability as well as the use of cybertrackers. Additionally the use of gorilla dung as an index of abundance needs to be seriously considered as a strong alternative to nests.

Elements of the Mayombe Transboundary plan can be fed into the new WEA action plan.

Some areas outside of the Rio Campo NR contain higher density of apes (and mammalian biodiversity in general) than within the protected area, and many of these areas are also active logging concessions. Rio Campo NR needs to be expanded to give greater protection to the remaining ape populations and to meet the boundaries of Campo Ma'an more closely. At the very least, logging companies working in this area of high biodiversity outside of the protected area should be obligated to establish, implement and monitor management plans that minimize the negative impacts on apes. Within Rio Campo NR itself, infrastructure development during the last 5-10 years has greatly fragmented the area; with the city of Rio Campo designated as an important geopolitical site, a major road was constructed straight through the reserve, which, in the absence of adequate enforcement and suitable economic alternatives, has also facilitated the transportation of bushmeat to cities such as Bata. In addition, the increasing number of expat workers has also driven demand for primates as pets in recent years. In Bata, verbal reports were received of hunters selling orphaned apes at popular expat sites, including the Israeli-built hospital and the Spanish Cultural Center.

It is important to highlight the need to include other priority areas involving Equatorial Guinea, especially the Monte Alen-Monte Mitra landscape. The nationwide study in 2011 showed a high density of apes as well as other large mammals in this region. Intense hunting and the rapid rate of infrastructural development across the country, as with many areas across Central Africa, amplifies the need for increased protection on a policy level and implement them on the ground.

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ACRONYMS (incomplete)

ANDEGE – Amigos de la Naturaleza y del Desarrollo de Guinea Ecuatorial

ANPN – Agence National des Parcs Nationaux

BCSF – ?

CARPE – Central African Regional Program for the Environment (U.S. Agency for International Development)

CBG – Compagnie des bois du Gabon

CI – Conservation International

CIB – Congolaise Industrielle de Bois, Congo

CIFOR – Centre for International Forestry Research

CIRMF – Centre International de Recherche Médicale de Franceville, Gabon

CMP – Cybertracker Monitoring Programme

CNPN – Conseil National des Parcs Nationaux (National Parks Council), now ANPN – Agence National des Parcs Nationaux (National Parks Agency)

DFC – direction de la faune et de la chasse, Gabon

ECOFAC – Conservation et Utilisation rationnelle des ressources en Afrique Centrale

FCTV – ?

FLEGT – Forest Law Enforcement, Governance and Trade

FMU – Forest Management Unit

FSC – Forest Stewardship Council

IFO – Industrie Forestière de Ouessou, Congo

INCEF – International Conservation and Education Fund

LEF – ?

LNSP – Laboratoire Nationale de la Santé Publique, République du Congo

MEFE – Ministère de l'Economie Forestière et de l'Environnement, République du Congo

MPI-EVA – Max Planck Institute for Evolutionary Anthropology

MSPP – Ministère de la Santé Publique et de la Population, République du Congo

NIH – National Institutes of Health, USA

PGS - Projet Grands Singes, Cameroon (Royal Zoological Society of Antwerp)

PSVAP – Projet Sectoriel de Valorisation des Aires Protégées (EU)

RKI – Robert Koch Institute, Germany

SCD – Société de Conservation et Développement, Gabon

SCS – A local ecotourism NGO, Gabon

S.F.I.D. - Société Forestière et Industrielle de la Doumé

SI – Smithsonian Institution

SINOPEC – China Petroleum & Chemical Corporation

UAB – University of Alabama

WCS – Wildlife Conservation Society

WCS-FVP Wildlife Conservation Society Field Veterinary Programme (now WCS-GHP – Global Health Programme)

WCS-GHP – Wildlife Conservation Society Global Health Programme (formerly WCS-FVP)

WWF – The World Wide Fund for Nature

ZSL – Zoological Society of London