



# ***Gorilla Journal***

*Journal of Berggorilla & Regenwald Direkthilfe*

*No. 53, December 2016*

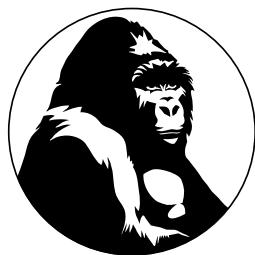


**The Virunga  
Communication  
Post Installation**

**Local Com-  
munities for the  
Maiko National  
Park**

**On a Road to  
Nowhere?**

**Gorilla  
Habituation in  
Loango**



# BERGGORILLA & REGENWALD DIREKTHILFE

## CONTENTS

<b>D. R. Congo</b>	<b>3</b>
The Virunga Communications Post Installation	
Charcoal Trade Destroys Part of the Virunga National Park	3
Local Communities for the Maiko National Park	4
Participation in the World Congress of Rangers in Colorado, USA	5
Participatory Mapping in the Itombwe Nature Reserve	8
Grauer's Gorilla Now Critically Endangered	9
Gold Boom along Ulindi River	12
Rehabilitating Grauer's Gorillas	13
Gorilla Nest Types in Kahuzi-Biega	15
<b>Cross River</b>	<b>17</b>
On a Road to Nowhere?	17
<b>Gorillas</b>	<b>21</b>
Gorilla Habituation for Research and Tourism in Loango	21
The "Walk through the Dja"	23
First Twins Born to Habituated Western Lowland Gorillas	27
African Primatologists Form Society	28
<b>Reading</b>	<b>30</b>
<b>Berggorilla &amp; Regenwald Direkthilfe</b>	<b>31</b>

### **Gorilla Journal 53, December 2016**

*Editor:* Dr. Angela Meder  
Augustenstr. 122, 70197 Stuttgart, Germany  
Fax +49-711-6159919  
E-mail [meder@berggorilla.org](mailto:meder@berggorilla.org)  
*Translation and Proofreading:* Ann DeVoy, Colin Groves  
*Cover:* Owabi in Loango  
Photo: Martha M. Robbins

### **Organization Address:**

*Berggorilla & Regenwald Direkthilfe*  
c/o Burkhard Broecker  
Juedenweg 3  
33161 Hoevelhof, Germany  
E-mail [broecker@berggorilla.org](mailto:broecker@berggorilla.org)  
**Website:**  
<http://www.berggorilla.org>

## Authors of this Issue

**Onésiphore Bitomwa** is the Chief Park Warden in charge of Itombwe.

**Dieudonné Boji Mungu-Akonkwa** has been principal conservator of the Maiko National Park since 2011. Before this he worked in Kahuzi-Biega.

**Andrew Dunn** is Project Manager for the WCS biodiversity research program in southeastern Nigeria. He has been working on biological surveys and conservation in Africa since 1989.

**Jef Dupain** has been AWF's Technical Director Central and Western Africa since 2010 and initiated the African Apes Initiative in 2013.

**Léonard Milenge Eo** is the Executive Director of the local NGO IGH in the South Kivu Province with a particular focus on Itombwe.

**Manfred Epanda** started working for AWF as country director in 2015.

**Terence Fuh Neba** leads WWF's Primate Habituation Programme in the Dzanga Sangha Protected Areas and presently also acts as Technical Advisor for tourism and research.

**Rachel Ikemeh** works for the South-west/Niger Delta Forest Project in Nigeria.

**Dr. Inaoyom Imong** has conducted research on Cross River gorillas and is the Director of the Cross River Gorilla Landscape Project of WCS in Nigeria.

**Jackson Kabuyaya Mbeke** is the GRACE Center Director in the DRC.

**John Kahekwa Munihuzi** was a gorilla habituation officer in the Kahuzi-Biega National Park. In 1992 he founded the Pole Pole Foundation, POPOF.

**Dr. Sonya Kahlenberg** is the U.S.-based Executive Director of the GRACE Center. She is also a biological

### **Bank Account:**

IBAN DE06 3625 0000 0353 3443 15  
BIC SPMHDE3E  
Switzerland:  
IBAN CH90 0900 0000 4046 1685 7  
BIC POFICHBEXXX

anthropologist and studied the behaviour of wild chimpanzees.

**Jeannot Katembo** is a Field Assistant for WCS Program for eastern DRC.

**Fidèle Kavuba** is currently Field Assistant for WCS in Kahuzi-Biega and was involved in the Mwana process for RACOD.

**Olivier Kisumbu Tata** is the General Secretary of RACCOMI, a local NGO in Itombwe.

**Inza Koné** works for the Centre Suisse de Recherches Scientifiques in Côte d'Ivoire.

**Deo Kujirakwinja** manages WCS's Albertine Rift work in Congo and is one of Congo's leading ornithologists.

**Luc Lukaba** is the Deputy Executive Director of AJIPD, a local NGO.

**Kevin Marriott** has been providing independent technical consultancies and project management to conservation organizations worldwide since 2015.

**Robert Muir** has worked on research and community-based conservation, from 2004 to 2015 he was responsible for re-starting the FZS's Virunga National Park Conservation Program.

**Sébastien Mupenda** is the Program Manager for bee keeping and communities for RACOD.

**Dr. Denis Ndeloh Etiendem** works for the Nunavut Department of Environment in Igloolik, Canada.

**Dr. Martha M. Robbins**, Max Planck Institute for Evolutionary Anthropology, Leipzig, has been studying the behavioural ecology of gorillas since 1990.

**Bienvenu Shamavu** has worked for RACCOMI for the last two years regarding the Mwana process.

**Alain Twendilonge** is Project Assistant for WCS in Kahuzi-Biega and has been involved in the Mwana Valley project.

**Janika Wendefeuer** is studying biology in Hamburg. She volunteered in the PHP under supervision of Terence Fuh.

**David Williams** is AWF's Program Director, Conservation Geography.

**Guian Zokoe** works in the Dja Reserve and with the SC-RFD.



## D. R. CONGO

### The Virunga Communications Post Installation

Security problems in the Virunga National Park, Democratic Republic of the Congo, have been a severe danger for the park's wildlife and its forests, and for the rangers who try to protect it. In order to improve the communication of the rangers, a new communication system was needed that covers the whole park and permits the park personnel to act quickly when problems are noticed anywhere.

A Mototrbo Digital VHF radio communications system was successfully commissioned for service for Virunga National Park on 06<sup>th</sup> July 2016 as part of Project Virunga VHF (Phase Two).

The system was designed to replace an ageing Motorola VHF analog radio system in the Virunga National Park (VNP). Phase One of the project centred around the installation of a small Mototrbo digital VHF system specially for the rangers assigned to the protection of elephants within the central sector of the park.

The Mototrbo digital VHF radio with GPS tracking was selected as the communications system of choice for ensuring effective command and control of the entire VNP. The management of this system is the responsibility of the park's technicians. It was selected for its increased capacity and spectrum efficiency, encryption, integrated data communications and enhanced voice

capability. Across Africa it is fast becoming the defacto standard for wildlife protection organisations.

The budget was set at USD 350,000 and came at USD 345,650. Those managing the project were able to negotiate pricing and source direct from manufacturers where necessary and where appropriate. They were able to deliver system capabilities, procure unbudgeted spares and complete the equipment procurement earlier than expected and significantly below budget.

### The Procurement Phase

This phase commenced on the 28 March 2016 following the signing of an agreement with the Virunga Foundation. The phase included 16 steps and a tight deadline of 8 weeks for delivery of 28 specific types of equipment, into Uganda. The timeframe had been stipulated by the Virunga Foundation.

The radio equipment was delivered 7 days earlier than the deadline, but unfortunately due to a rebel attack the Virunga Cessna 206 was out of service and an alternative aircraft had to be chartered resulting in equipment being delivered into Rumangabo on 06<sup>th</sup> June 2016.

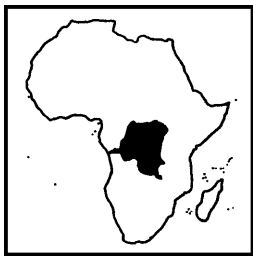
### The Deployment Phase

This phase commenced on the 04<sup>th</sup> June 2016, but delays in the locally procured solar system resulted in the deployment date being pushed back to 18<sup>th</sup> June 2016. The installation and training of Virunga radio engineers commenced immediately upon the consultant's arrival on 20<sup>th</sup> June 2016. Delays, to include misplaced equipment and differing opinions, had a negative impact on the amount of time available for training the engineers, but they did receive sufficient on-the-job training to enable them to manage and maintain the radio system. The system was commissioned for operation on the 4<sup>th</sup> July 2016.



*The mobile ops vehicle*

*Photo: Kevin Marriott*



## D. R. CONGO

### Digital VHF Mototrbo Repeater Network:

There are three repeaters located in positions around the park and an additional three repeaters for redundancy and use as back-up repeaters for future installations and network expansion as required. The coverage is very good, although there are still some 'black spots'.

**TRBOnet Dispatch Console:** The computer has been provided and will function as the operations centre for the VNP. The main operations room, known as CCOPS, has been temporarily moved from Rumangabo to Rwindi and as a result temporary installations had to be made. The TRBOnet Dispatch Console provides the operations room with an easy application that at a glance will enable the watch keeper to see which radios are active on the net and where they are. There are seven key features identified regarding the dispatch console. There are communications challenges between Rwindi and the southern sector repeater, and, as such, it has been recommended that VNP revert back to the original plan and have the CCOPS (GPS monitoring) and voice monitoring base station for the southern sector in Rumangabo in order to have effective command and control.

The mobile ops vehicle is a huge asset as radios have the capacity to have situational awareness of ranger positions within a single sector. The vehicle radio installation with GPS tracking have enabled effective fleet management and accountability of the vehicle drivers, and solutions have been put in place to ensure that the battery is always charged and the antenna is transmitting. It also addresses the issue of possible irregularities in fuel consumption and unauthorised vehicle usage.

The Smartphone Zello System has been implemented using custom-built technology to enable the radio voice network to be extended to other smartphone users running the Zello Push-to-Talk application. This system is suitable for use by covert users providing a closed system with radio access being controlled within the Virunga CCOPS/ Security Office.

### Ongoing Phase

Remote support is being delivered to two Virunga engineers who identified a couple of issues that either have now been or are in the process of being rectified. These include poor repeater battery power, wind turbine generator, and repeater constant transmit cycle.

### Recommendations

In order to satisfy the requirements for the expansion of the parks communications system and in order to accommodate an increase in subscribers, we have made some additional recommendations for further enhancing the park's communication capability, as well as providing ongoing training to include professional development specifically of the VNP technicians.

*Robert Muir and Kevin Marriott*

## Charcoal Trade Destroys Part of the Virunga National Park

According to a new report of the Enough Project, an illegal charcoal cartel is helping to finance one of the most dangerous militias in eastern Democratic Republic of the Congo; this is destroying parts of Africa's oldest national park. Nursing alliances with Congolese army and police units and operating remote trafficking rings in protected forests, the Democratic Forces for the Liberation of Rwanda (FDLR) is a kingpin in Africa's Great Lakes region's organized crime networks and a continuing threat to human security. For years, the group has helped sustain its activities by exploiting valuable natural resources, including minerals, ivory, fish, and marijuana. But one of the FDLR's most successful revenue-generating businesses is the illicit charcoal trade in the Virunga National Park.

Headquartered deep in the remote southwestern sector of Virunga, the illegal charcoal trade is estimated to have an annual value of up to US\$ 35 million. In the regular course of business, the FDLR also commits a range of domestic and international crimes, including forced labour and illegal taxation. Its business elements are distinct from its traditional combat structure

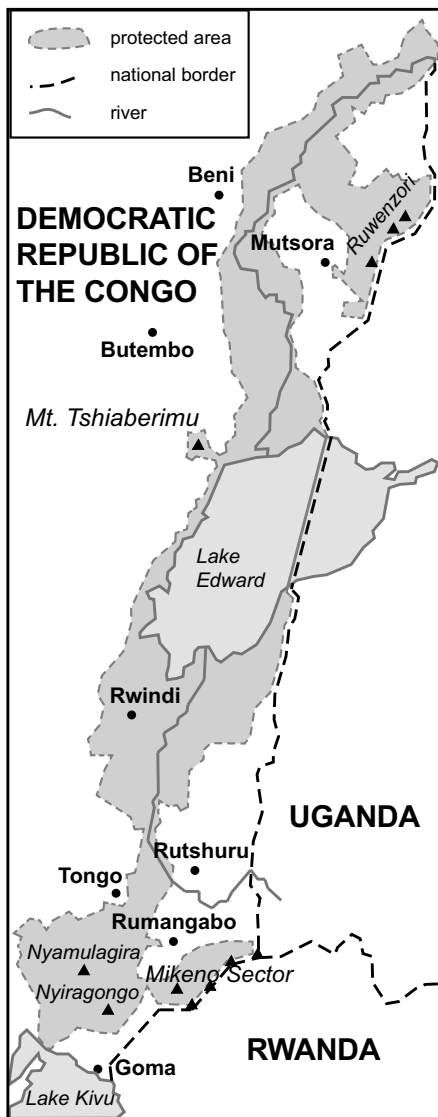


*Equipment with computer*

*Photo: Kevin Marriott*



# D. R. CONGO



**The Virunga National Park**  
Map: Angela Meder

and “have become the main *modus operandi* for FDLR survival,” according to a 2014 U.N. study.

Virunga faces a number of threats, including poaching and oil exploration, but the illegal charcoal trade is uniquely damaging. This was already noticed in 2008, and since then, demand for charcoal has only grown. The illegal charcoal trade is also a serious threat to regional human security. By providing

funding to the FDLR and other armed groups, including Congolese state actors, it helps sustain patterns of corruption and violence, not just by the FDLR, but also by police, politicians, and businessmen. An estimated 92% of charcoal used in North Kivu comes from Virunga. While the demand is concentrated in Congo, smugglers also transport illegal charcoal from Virunga into Uganda and Rwanda.

Some Congolese national police and military commanders are involved in the illegal charcoal trade and draw significant revenues from profit-sharing with the FDLR, as well as their own production, trafficking, and taxation of illegal charcoal. Some state officials also provide critical protection to the FDLR’s commanders and officers in Virunga. Civilians are also a critical component of the illegal charcoal trade, with the FDLR recruiting local people by force or through economic pressure to help produce, guard, transport, and sell charcoal from Virunga.

The Congolese Institute for the Conservation of Nature (ICCN) and Virunga’s rangers have effectively protected some parts of the park from deforestation and armed group takeover. However, they are outmatched militarily by the FDLR in direct combat scenarios, and rangers do not currently patrol Virunga’s southwestern sector where charcoal production is rampant. Policymakers should view the FDLR not as a strictly military, political, or ideological threat; it is also a profit-seeking organized crime network with state and civilian collaborators. In order to counter Congo’s charcoal mafia, high-ranking FDLR commanders and their partners within the Congolese army should be targeted for sanctions and prosecuted for their roles in the illegal trade. Authorities should improve sustainable defection opportunities for low-ranking soldiers within the FDLR in Virunga, to deprive the illegal trade of essential manpower. Perhaps most impor-

tantly, given widespread dependence on charcoal as a primary source of fuel among households across the region, efforts to end the charcoal trade such as military operations and targeted arrests must be accompanied by alternative fuel initiatives to prevent a sudden deficit of cooking fuel among millions of people in the region.

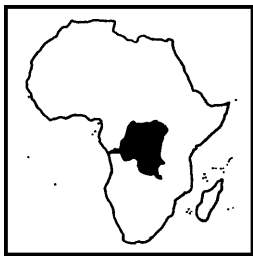
*Summary of the following report: Holly Dranginis: The Mafia in the Park. A charcoal syndicate is threatening Virunga, Africa’s oldest national park. Enough Project, June 2016. 45 pages. Download PDF (1.62 MB): [http://www.enoughproject.org/files/report\\_MafiaInThePark\\_Dranginis\\_Enough\\_June2016.pdf](http://www.enoughproject.org/files/report_MafiaInThePark_Dranginis_Enough_June2016.pdf)*

## Implication of the Local Communities for the Management of the Maiko National Park

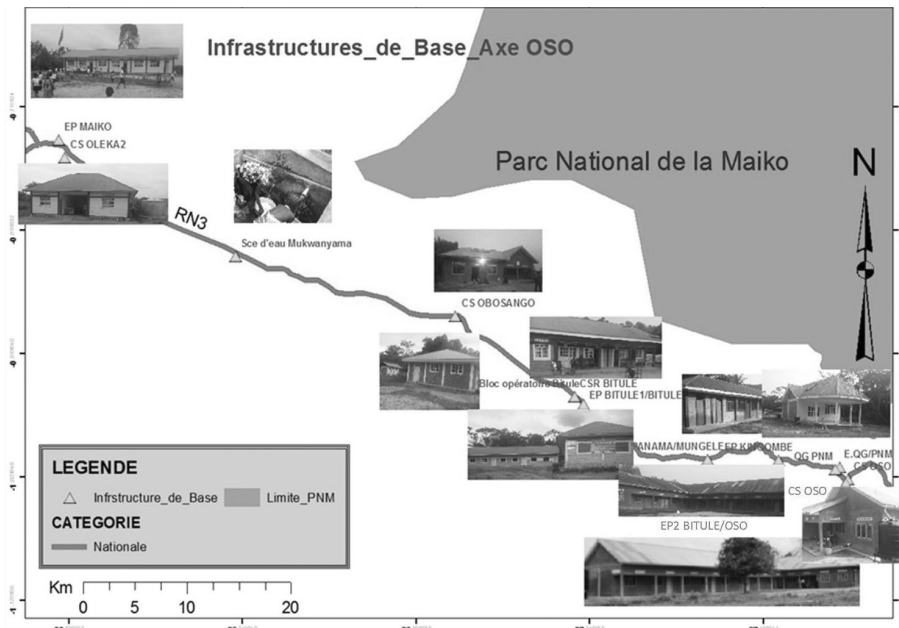
Over several decades, humans cohabited with the organisms in their environment more or less harmoniously. But recently, the use of modern tools in natural resource exploitation has tarnished the picture of this symbiosis, which has disappeared extensively over time in some regions of the planet.

During the post-colonial period, several protected areas in Africa were created, especially in the Democratic Republic of the Congo; as a consequence of this, local property owners’ rights, inherited from their ancestors in accordance with local customs was divested in favour of wildlife conservation regulations without any dialogue, which entailed a climate of distrust and hostility between local communities and administrators of these protected areas.

Created in 1970, the Maiko National Park (MNP) did not remain safe from these curses. In such a context, peaceful cohabitation between the surrounding populations and the administrators



# D. R. CONGO



**Base infrastructure close to the Maiko National Park**

*Photos and map: Boji Dieudonné/ICCN*

of the park remained for a long time out of reach. The surrounding communities, not being aware of the importance of the MNP as a protected area, developed negative attitudes against it.

Faced with the deterioration of the environmental situation due to the increasing population pressure and massive competition to extract the natural resources indiscriminately, MNP managers have set up, since 2004, a community conservation approach aiming to involve local communities in the reduction of these threats to the park's resources. The present article offers a brief description of a few achievements of this participative approach in Maiko National Park.

A climate of confidence is now gradually developing between the CCC (Comités de Conservation Communautaire – Committees of Community Conservation) and CLD (Comités de Développement Local – Committees of Local Development), based on long-term work started since 2004 and reinforced in 2011 through a community

conservation approach to the national park.

To promote the involvement of local communities, permanent committees of communication have been established in accordance with the National Strategy of Community Conservation adopted by the ICCN and its partners. It is in these settings of dialogue and exchange that all questions of conservation and development are debated and shared by the local communities with the technical accompaniment



**Participative cartography**

*Photo: Boji Dieudonné/ICCN*

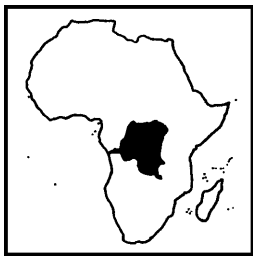
of the park's community conservation team. One of more important renovations brought by this new MNP management approach is the reduction of hostility and bringing together local populations and park administrators through the CCCs.

In the neighbouring communities (Bapere and Bitule, in Lubero and Lubutu zones respectively), the CCC and the CLD have been able to gather information on the aspirations of the population and facilitated the collection of socio-economic data in the zone.

These activities have led to the sensitization of the local communities regarding the importance of the biodiversity of MNP, explanation of the laws dealing with nature conservation, hunting and fishing, the elaboration of local development plans in these two sectors, and support for alternative activities for the use of natural resources.

To improve the living conditions of communities adjacent to the park, socio-economic development projects have been undertaken. The CCCs of the North and South Sector have been assured of financial support for micro projects for agriculture, the raising of large and small livestock, and fish breeding. This applies to the CCC Twabinga-Osele, CCC Kayumba-Babongombe1, CCC Bondo-Banenu, the CCC Babongombe2 and the CCC Okoku in the Southern Sector as well as the CCC Bandulu and CCC Ombole in the Northern Sector.

Studying the legal texts creating MNP allowed community members to understand the logic of the legislation and to identify the parts of the boundary which are in dispute, or confused, so that multiparty commissions to look into the contested boundary could be put in place. This resulted in two workshops for capacity building, organized to train members of the commissions in techniques of data collection along the boundary, notably on themes such as participative cartography and the use



## D. R. CONGO



### Convention

*Photo: Boji Dieudonné/ICCN*

of GPS for collection of geographical coordinates.

Together, the neighbouring communities and PNM Managers started the participative process of demarcation of the boundary of the park. Examining of the legal texts led to agreement on the acceptance of 31 segments designated under ordinance law N°70/312 of November 20<sup>th</sup>, 1970, which created the MNP with three sectors. The joint commissions of participative demarcation of the park boundary already started to collect data on the boundary segments identified for the park and those of the community reserves adjacent to the park.

Additionally, thanks to a local partnership between UGADEC and the Congolese Institute for the Conservation of Nature (ICCN), three nature reserves based on community management are operational along the west and south boundaries of the park. This combination of efforts allying national park and community-based conservation initiatives offers the best hope to ensure the maintenance of the biodiversity of this region.

In spite of the very real and serious threats the animal populations in the Maiko National Park have to cope with, this involvement of the neighbouring communities, the implementation of the demobilization process of rebel groups (Simba) and the support of

some partners permit the ICCN/MNP to undertake regular patrols to cover about 23% of its total area.

Although with this limited protection – considering the general insecurity in some zones of the park – there still remain threats, a rich diversity of fauna remains in the three sectors of the park that comprise a priority zone for global conservation. The involvement of the local communities in the management of the park is considered an essential element for its rehabilitation by the Park Managers and the local chiefs.

Given this collaboration, in certain areas ICCN has been able to bring the control posts closer to the boundary of the park (headquarters, office of the posts, patrol post, camps on duty). The concessions obtained in the same way in Bitule, in Mundo, Wandi, in Loya/Balobe, in Manguredjipa, in Mwamba, and in Yongesa are not yet constructed. The concession that hosts the Park Headquarters in Osso is an area assigned to the park by the clans of Bayugu and of Banali under the authority of the local Chief Fazili Useni Musalabia of the Kumu community.

The construction of the first buildings of the Park Headquarters – including the rangers on duty, the welcome center, the offices, the residences of the chief park warden and officers and tourist lodging – was made possible only 45 years after the park's creation under the 1<sup>st</sup> step of the Maiko Rehabilitation Project funded by the World Bank.

Among the main positive impacts of the activities of community conservation approach, it is worthwhile to mention also the changes in behaviour of the populations living around the park:

- The reduction of conflicts between Park Managers and neighbouring communities.
- The conversion of some local chiefs and opinion leaders previously hostile to the initiatives of conserva-

tion to real protectors of biodiversity. The most prominent cases are the provincial ex-minister of justice Alphonse Igwangozi, local Chief Kimputu of Batikamwanga in Mungele, and local Chief Kongondo of Babongombe<sup>2</sup> in Peneluta.

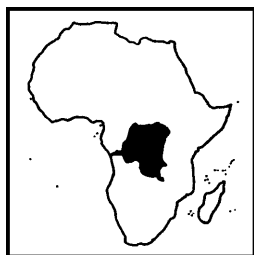
- Several cases of poaching were reported by the Board of Community Conservation and the dialogue committee of the communal reserves REGOLU, REGOUWA and REGOMUKI.
- The awareness of stakeholders (services of public authorities, civil society, eco-guards, NGOs) that biodiversity conservation is the responsibility of all and not only an affair of the Park Managers.

The efforts to conserve the natural resources that are provided by the neighbouring communities had been appreciably hampered by the weak interinstitutional collaboration around the park. This weak collaboration did not encourage solidarity between the institutions and the key actors of conservation to guarantee an environment favourable to the maintenance of biodiversity. Nowadays, the involvement of some officials (state-controlled services), and of some uncontrolled elements of the FARDC, in poaching is often decryd by these communities.



### Border demarcation in the Maiko National Park

*Photo: Boji Dieudonné/ICCN*



## D. R. CONGO

Human activities in the park are still very intense. A considerable amount of poaching activities are perpetrated, in fact all kinds of illegal exploitation, under the blessing of those that qualify themselves as untouchables. Traps and snares, mining sites, hunting and fishing camps are always found during patrols in spite of the joint efforts provided by the communities and Park Managers. Local communities remain powerless in the face of the exorbitant power exercised by the state-controlled services and the armed groups installed inside the park.

Over and above the fragility of their power and their legitimacy, adjacent community members remain poor, alternatives are almost nonexistent and food insecurity is very widespread. Meat from farming is available, but expensive and in insufficient quantity, so that most rural families are dependent almost entirely on bushmeat as source of protein.

All these problems keep them from taking a clear and decisive position in relation to the preservation of biological diversity for the benefit of present and future generations.

*Boji Dieudonné and the Maïko National Park Staff*

### Participation in the 8<sup>th</sup> World Congress of Rangers in Colorado, USA

The International Ranger Federation (IRF) is an international non-profit organisation that supports ranger groups worldwide who have chosen a challenging pathway to protect ecosystems and protected areas throughout the world. At the global level there is a committee with a seat in Australia presided over by Sean Wilmore and on every continent the association is represented by a committee that meets once a year. In Africa the association, known as the African Ranger Federation

(ARF), is based in South Africa. In the Democratic Republic of the Congo (DRC) the association is called the Congolese Ranger Association (CRA); it is led by Jean Pierre Jobogo and has ICCN Directors, Chief Park Wardens and Park Rangers amongst its current and retired members.

The IRF meets once every three years in any country in the world, chosen through consensus. It was in this setting that we took part in the 8<sup>th</sup> World Congress of Rangers (WRC) in Estes Park, Colorado, USA from 21 to 28 May 2016. The main theme of this congress was 'Connecting the Parks, Rangers and Communities'.

The aim of our involvement in this World Congress was to share and exchange experiences among rangers working in the field linked to the theme and also to look at the specific case of the DRC, where rangers are dying as they carry out their duty of guarding protected areas. The delegation from

the DRC comprised Jean Pierre Jobogo (President of the CRA), Director De Dieu Bya'Ombe (CRA Advisor), Chief Conservator Edmond Nkulu Kalala (CRA member), Chief Conservator Boji Dieudonné (CRA member), Mrs Germaine Muzuri (Association Cashier) and member Mrs Ewing Lopongo. Our contribution (Congolese) was to show to the international membership the challenges facing the park rangers of the DRC, and their value in dealing with periods of armed conflict as well as heavily armed poachers who continue to be a serious threat and drain on our natural resources.

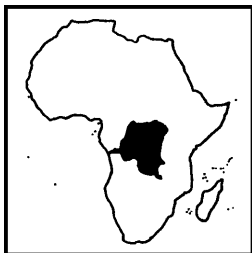
The presentations were excellent and tied in well with the theme of the conference and the celebration of the centenary of certain parks in the United States. The rangers unanimously agreed that Nepal should be the location for the 9<sup>th</sup> World Congress of Rangers in 2019, and also the need for a Green Contingency Force which could



*The Congolese delegation at the World Ranger Congress*

*Photo: ICCN*





## D. R. CONGO



intervene wherever there was an obvious need. There was also agreement for the promotion of the President of the CRA to become the Vice-President of the African Ranger Federation and recognition by the IRF of the statutes of the CRA and its logo. The congress acknowledged those who had lost their

lives in the course of doing their duty as park rangers and stressed the need for life insurance to help support those they left behind.

*Boji Dieudonné*

*We sincerely thank the Jane Goodall Institute (JGI) and Berggorilla & Regenwald Direkthilfe who agreed to fund the cost of our travel and accommodation. We also thank Robert Muir and Karen Laurenson, Directors at FZS, for starting the process of channelling support from Berggorilla within the DRC. We also sincerely thank the promoters of this conference, especially the President of the IRF Sean Wilmore, for promoting the efforts of the CRA and personally encouraging members who have raised the awareness of rangers working in protected areas to the global level.*

*Finally a big thank you to the Director General of the ICCN and his technical staff who accepted this mission and allowed us to represent the DRC, validated by the ICCN, and also the CRA and Maiko National Park, whom we represented at this International Ranger Conference.*

### Sharing Land with Gorillas: Participatory Mapping in the Itombwe Nature Reserve

The Itombwe Massif is one of the important areas for biodiversity in the Albertine Region. It is mainly known for the discovery of the eastern lowland gorilla or Grauer's gorilla (*Gorilla beringei graueri*) in the early 1900s (Doumenge & Schilter 1997; Plumptre et al. 2007). It has been visited by researchers either for biological prospectations and surveys or for social studies (Doumenge & Schilter 1997). The area is located in the eastern Democratic Republic of the Congo (DRC) and known as one of the rare high-altitude montane forests in the region. As such, it harbours a high number of species and endemics (Doumenge & Schilter 1997; Plumptre et al. 2007; Mubalama et al. 2008).

Despite these scientific efforts, the area was not gazetted until early 2006, though its gazettement was contested by local communities (Kujirakwinja et al. 2010, 2015). The contestations were meant to express anger about the disruption of the participatory process for the gazettement of the area. In 2008, conservation agencies and the civil society resumed the dialogue and developed a comprehensive plan to gazette the area with the involvement of communities and local leaders (Mubalama et al. 2013; Kujirakwinja et al. 2015). Although the agreed boundaries have been legally recognized by the DRC government, there are some areas within the reserve that are known to have conflicting land uses for wildlife and communities' needs. These zones include Mwana Valley and Zombe region.

In order to solve such issues, the joint planning consortium for Itombwe (cadre conjoint) agreed to test a participatory zoning process for specific

### Grauer's Gorilla Now Critically Endangered

During the IUCN World Conservation Congress in September 2016, updates in the Red List of Threatened Species were made public. Not surprising was that the Grauer's gorilla – the largest living primate – is now listed as Critically Endangered, the highest category. Four out of six great ape species (both orangutan and both gorilla species) are now Critically Endangered and the remaining two, chimpanzees and bonobos, under considerable threat of extinction.

The eastern gorilla (*Gorilla beringei*) was moved from Endangered to Critically Endangered due to a devastating population decline of more than 70% in 20 years. Its population is now estimated to be fewer than 5,000. Whereas the numbers of mountain gorillas have been increasing considerably, Grauer's gorilla (*G. b. graueri*) – the other subspecies of the eastern gorilla – has lost 77% of its population since 1994, declining from 16,900 individuals to just 3,800 in 2015. Hunting represents the greatest threat to Grauer's gorillas.

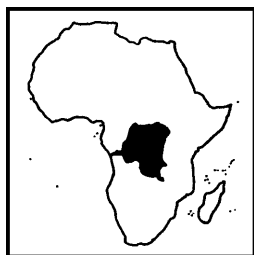
*Summary of an IUCN Red List News Release*

*For more details, check these links:*

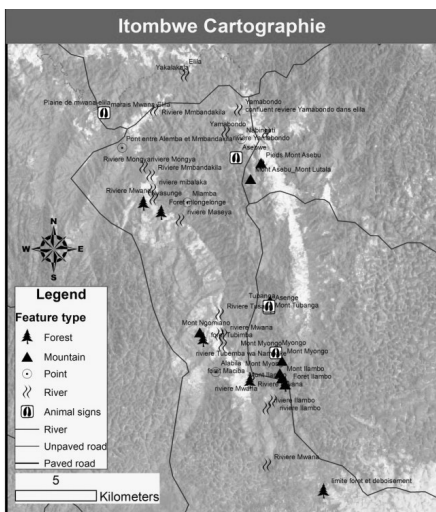
<http://www.iucnredlist.org/news/four-out-of-six-great-apes-one-step-away-from-extinction-iucn-red-list>

<http://www.iucnworldconservationcongress.org/news/20160904/article/four-out-six-great-apes-one-step-away-extinction-iucn-red-list>

<http://www.iucnredlist.org/details/39995/0>



# D. R. CONGO



**Map of Mwana Valley in Itombwe. It shows the locations of wildlife, forests, wildlife and key ecosystems in the entire valley.**

regions with communities. The Wildlife Conservation Society (WCS) developed a comprehensive zoning plan strategy that was later on tested on the ground together with local organizations and structures (RACCOMI, RACOD, IGH and AJIPD). The process resulted in an agreement for protecting the area through zoning neighbouring forests to community settlements.

### Shared Land between Wildlife and Communities

For ages, local communities have been living together with wildlife and the access to bushmeat was regulated by the traditional chief through customary laws and rules (Rodary et al. 2003). In Itombwe area, for example, hunting for gorillas and chimpanzees was prohibited and was mainly conducted for cultural ceremonies. Hunting for other species is thought to be regulated through traditional rules and beliefs. For the region, some species were protected by taboos and spiritual beliefs. Wildlife was therefore part of communities' life and spirit (Cioc 2009). They shared the same forest and land,

though they were hunting some of the species for subsistence and related uses (Rodary et al. 2003). That was the case of Mwana Valley in the Itombwe Massif.

Biological research and prospection identified Mwana Valley as one of the important regions for great apes and large mammals in the Itombwe area, though the area was also occupied by people (Plumptre et al. 2009; Kujirakwinja et al. 2010). Due to changes in land use and rights, the Itombwe Massif is facing forest degradation and species depletion in most areas. Key drivers are thought to be timber exploitation, conversion of forest into farming and pasture, artisanal mining, and bushmeat (Kirkby et al. 2015; Plumptre et al. 2016). Despite these changes, Mwana Valley is still one of the key areas for gorilla and chimpanzee conservation as the forest surrounding settled areas has a higher number of great apes than other areas (Mubalama et al. 2008; Plumptre et al. 2016).

Given the "conflicting" interest of the area (human and wildlife needs), WCS and others decided to work with communities to develop an agreed land-use plan that includes conservation of great apes, local access to resources, and human development zones (Plumptre et al. 2013). The process took about two years as it involved field work for data collection, negotiation between conservation actors, local NGOs and local communities, and validation by provincial leaders.

### Approaches

Conservation researchers have recognized the need for innovative approaches and strategies to maintain biodiversity through stakeholders' involvement (Berkes & Turner 2006). In the eastern DRC, for example, whilst conservation interventions were mainly ignoring the role of communities in forestry planning and management, current practices have recognized that

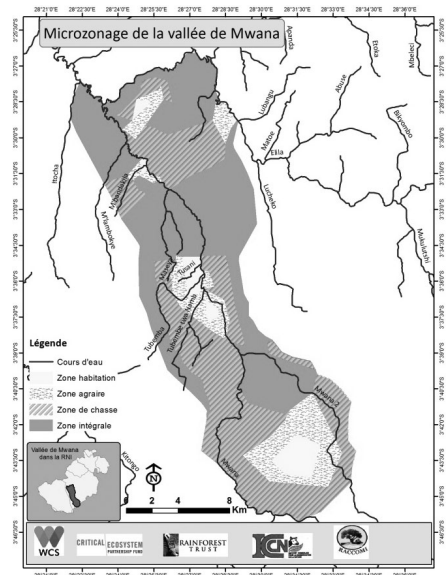
minimizing conflicts with communities by involving them in various processes can sustain critical habitats and wildlife (Kujirakwinja et al. 2010).

To ensure that communities are fully involved, we used two supplementary approaches: conflict sensitive conservation (Hammill et al. 2009) and participatory mapping (International Fund For Agricultural Development 2009).

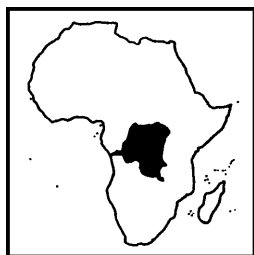
### Participatory Mapping

There are various resources for participatory mapping, aiming at ensuring that communities and experts work together to define different land uses to respond to different needs within the same landscape. For the case of Mwana, the process included (International Fund For Agricultural Development 2009):

- local stakeholders' workshop to decide on the process and commit to conduct participatory mapping,
- local meetings to identify spatial land allocation and local uses,
- Field data collection on different locations and uses,



**Zoning map of Mwana Valley with human settlements, farming, hunting and conservation zones**



# D. R. CONGO

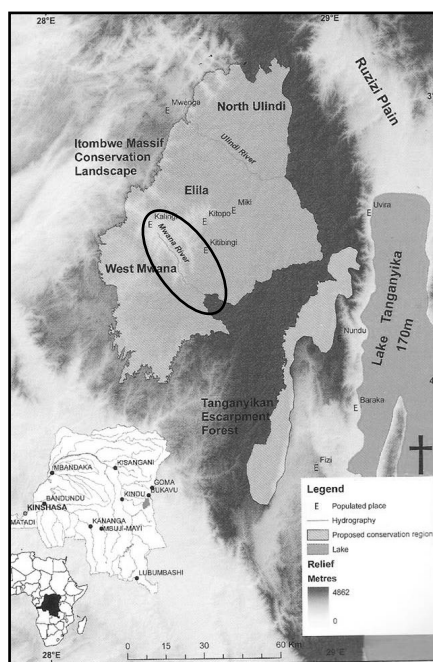
- GIS mapping and groundtruthing,
- map validation at local level,
- approval of the map by traditional chiefs and provincial leaders.

To ensure that these activities do not generate conflicts, their implementation was monitored and regular adjustments were made to accommodate controversial views. These are done through reporting and planning meetings (Hammill et al. 2009).

## Key Results

**Local support from communities and traditional chiefs:** Traditional chiefs have power over their communities and, to some extent, over land. In Itombwe, however, land rights holders are located at family level, where most discussions have to happen and be validated by the chief. There were three meetings held with traditional chiefs: the first, to agree on the process and commit themselves to support the process; the second meeting aimed at reporting on the progress; and the last to validate the map that was generated throughout the field mapping. Most fieldwork was conducted with local representatives chosen by local chiefs and their committee; thus, the process was supported by communities, besides some pitfalls identified by local community organizations that were involved later on in the process.

**Multiple use map for Mwana valley:** Through the participatory process, a generic map produced at field level was integrated into GIS to get a comprehensive map that shows different zones and their uses. Through the exercise, communities indicated areas where they know great apes are found, and identified those areas as protected by local chiefs. Therefore, meetings with communities localized areas where they usually collect resources – including hunting and honey collection. Changes were made to the maps to ensure that corridors between conserva-



**Map of the Itombwe Massif with the Mwana Valley**

tion zones are established and hunting zones are located near villages.

The validation of the map was done at provincial level to ensure that key stakeholders are aware of the ongoing work on the ground. Communities were motivated by the zoning as a way not only to protect key great apes but also as a potential for the development of the area given its level of poverty and vulnerability. To ensure that communities are involved in the management of the area, a local community management unit was put in place and rights to access resources were established and enforced.

## Key Lesson Learned

Conservation interventions in post-conflict zones are hampered by the social and economic vulnerability of local communities. They lack alternatives and markets for their agricultural products and forest products. Therefore, conservation activities in such areas should include social develop-

ment interventions to ensure that community needs are integrated into conservation interventions.

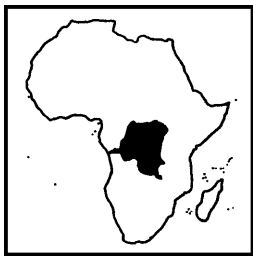
Traditional chiefs and local leaders are keys for most conservation interventions in isolated areas. Despite the specificities of areas as far as land rights are concerned, they symbolize local culture and can help to ensure that different needs converge.

At the local level in conflict and post-conflict situations, cooperation between international NGOs, national agencies and local NGOs can be a better way of making changes at the field level by sharing power and activities to be implemented. Local NGOs are mainly led by natives from these areas, and they have better knowledge of local issues and key stakeholders.

Monitoring social and sociological impacts of conservation interventions in such processes is important as it helps to tackle controversies and respond to conflicting interests by involving more stakeholders. Therefore, there is need for understanding individual interests and power to ensure that these factors do not block the process or are used against conservation and local communities' will by local elites.

## Conclusion

Itombwe Nature Reserve is recognized as one of the hotspots of the world. It is recognized as one of the most important conservation sites in the Albertine Rift both for its number of species and for its endemics. This motivated biologists and conservationists to conduct field research and support its legal gazettement process. The latter was proposed as long ago as the late 1960s and was informally launched in the early 2000s. Its gazettement in 2006 has been updated with a 2016 provincial decision recognizing boundaries established with communities. Although these boundaries include conservation and multiple uses, some areas contiguous to human



## D. R. CONGO

settlements have key species such as gorilla, chimpanzee and elephant.

After identifying these areas, participatory mapping was conducted in Mwana Valley to identify key areas that should not be deforested and should suffer minimum human impact regarding hunting, forest product collection and human settlements. Together with communities and local stakeholders, the area has been divided into different zones: conservation, human settlement, development (farming and pasture) and hunting zones.

Main challenges to the implementation of this plan are ensuring that conservation interventions include social interventions, as the area is isolated and its population is among the poorest in the Albertine Rift. Key interventions to ensure sustainable use of resources in this area included surveys in conservation zones, regular wildlife monitoring, environmental education and social development activities such as sustainable agriculture, beekeeping, and construction of schools and health centres.

*Deo Kujirakwinja, Alain Twendilonge, Onésiphore Bitomwa, Olivier Kisumbu, Bienvenu Shamavu, Léonard Milenge Eo, Luc Lukaba, Fidèle Kavuba, Sébastien Mupenda and Jeannot Katembo*

*These activities were funded by the IUCN-SOS, Critical Ecosystem Partnership Funds, Rainforest Trust Foundation and Berggorilla & Regenwald Direkthilfe. We are also grateful for the support of the members of the Cadre conjoint (Leonard Mubalama – WWF, Jean de Dieu Wasso – Africapacity) for being involved in meetings and technical advice. We are grateful to Andrew Plumpton, Andrew Kirkby and Guillain Mitamba for the technical support and mapping.*

### References

Berkes, F. & Turner, N. J. (2006): Knowledge, learning and the evolution of conservation practice for social-ecological system resilience. *Human Ecology* 34, 479–494  
Cioc, M. (2009): *The Game of Conservation: International treaties to protect the World's migratory animals*. Ohio (Ohio University Press)

Doumenge, C. & Schilter, C. (1997): *Les Monts Itombwe*. IUCN – Union mondiale pour la Nature, Brazzaville

Hammill, A. et al. (2009): *Conflict Sensitive Conservation: Practitioners' Manual*. Winnipeg (IISD)

International Fund For Agricultural Development (2009) *Good practices in participatory mapping*. Development: 59

Kirkby, A. et al. (2015): *Investigating artisanal mining and bushmeat around protected areas: Kahuzi-Biega National Park and Itombwe Reserve*

Kujirakwinja, D. et al. (2010): *Healing the Rift: Peacebuilding in and around protected areas in the Democratic Republic of Congo's Albertine Rift*. New York

Kujirakwinja, D. et al. (2015): *The Conservation of Itombwe Nature Reserve: actions and challenges*. *Gorilla Journal* 51, 3–8

Mubalama, L. et al. (2013): *L'approche cadre conjoint comme stratégie de délimitation participative du massif forestier d'Itombwe et du Bushema*. Pp. 246–258 in: M. Isumbusho (ed.) *Gouvernance des ressources naturelles collectives des écosystèmes fragiles dans la Région des Grands Lacs Africains*. CERUKI. HAL

Mubalama, L. et al. (2008): *Using GIS to assess the status and conservation considerations of large mammals in the Itombwe Massif Conservation Landscape, Democratic Republic of Congo*. *Nature et Faune* 23, 43–50

Plumpton, A. J. et al. (2007): *The biodiversity of the Albertine Rift*. *Biological Conservation* 4, 178–194

Plumpton, A. J. et al. (2009): *Itombwe Massif Conservation Project: Delimitation and zoning of the Itombwe Natural Reserve for protection of great apes*. New York

Plumpton, A. J. et al. (2013): *Zoning planning for the Itombwe Natural Reserve*

Plumpton, A. J. et al. (2016): *Catastrophic Decline of World's Largest Primate: 80 % Loss of Grauer's Gorilla (*Gorilla beringei graueri*) Population Justifies Critically Endangered Status: 1–13*

Rodary, E. et al. (2003): *Conservation de la nature et développement: l'intégration impossible?* Paris (Karthala)

## Gold Boom along Ulindi River

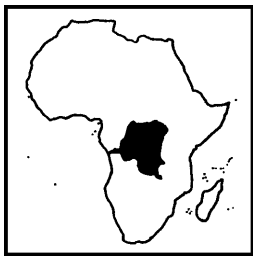
### Artisanal Dredging is on the Upswing

South Kivu has the second-richest gold deposit in the Democratic Republic of the Congo. Since the official end of the Congo War in 2003, the artisanal gold sector has long been an important source of jobs and income for the pop-

ulation, providing employment for tens or even hundreds of thousands of workers. In 2013 a new gold rush began along a section of the Ulindi River. But rather than contributing to the region's development, the gold wealth supports the fighting of armed groups. Moreover, networks of predatory companies and corrupt state officials reap the greatest benefit. Global Witness estimates that in 2014 up to 94 % of Congo's artisanal gold continued to leave the country illegally.

The Shabunda region is characterized by simple artisanal dredging done by locals – very hard and dangerous work. The divers stay underwater for hours sucking up the river sand with tubes. On the barge above, assistants look for gold in the sand and, if they see some, the workers have to stay where they are. The gold is collected on a matting that is shaken and beaten, and finally, mercury is used to bind the gold. Altogether, this process has negative impacts not only on people's health but also on the river ecosystem.

By contrast, semi-industrial mechanized dredging machines plough up and down the Ulindi river reaping alluvial gold via conveyor belts with iron buckets. They belong to organisations like the Chinese Kun Hou Mining Company, which employs its own technicians to do the work. As we now know, the majority of the gold the company produced disappeared (presumably smuggled out of the country) rather than being exported officially, depriving the province and state of much needed taxes, and breaking the Congolese mining laws and the international supply chain standards. While official documents held by the provincial office of the state mining agency SAESS-CAM state that the company produced 14 kg of gold in a nine-month period in 2014/15, additional information obtained by Global Witness reveals a gold production of up to 390 kg for this period, corresponding to US\$ 15 mil-



## D. R. CONGO

lion. It is likely, therefore, that the majority of Kun Hou's gold has been traded illegally.

### Armed Groups Benefit from the Gold

Although Congo's civil war officially ended over a decade ago, armed groups continue to survive, a source of instability and abuses in the region. A recent survey counted more than 70 such groups, and it is the trade in natural resources that helps them to finance themselves. One example is the Raia Mutomboki, who are operating along the banks of the Ulindi River. They levy taxes on the artisanal miners from the locally-made dredgers, demanding 10g every 15<sup>th</sup> and every 30<sup>th</sup> day of the month from the workers. If they are unable to pay they are whipped or kept in makeshift prisons in order to elicit money or gold in return for their release. In addition, the armed groups receive payments from the Kun Hou Mining Company. Thus, during the height of the gold boom, they will have made up to US\$ 25,000 per month, and the armed men prefer to stay in the forest from where they can prey on the gold dredging activities, rather than returning to their villages. There is no doubt that a better regulation of eastern Congo's gold trade is needed to disarm and demobilise these fighters – and attractive alternative livelihoods must be on offer. The Congolese national army has undertaken a series of operations aimed at removing the Raia Mutomboki from the forest, but the results have not been satisfactory.

### State Agencies Neglect to Manage the Boom

SAESSCAM (Services d'Assistance et d'Encadrement de Small Scale Mining) is a governmental body that was created to support artisanal miners by offering training and oversight. But the agency failed to provide them with protective equipment, tools or advice, all of which

it is mandated to do. No wonder that Shabunda's thousands of artisanal miners face a high mortality rate. Instead of supporting the local people, some agencies cooperate directly with armed groups to illegally tax gold or even disguise the origins of high-risk gold on regional export certificates. A 2013 PricewaterhouseCoopers audit of SAESSCAM concluded that, 10 years after its creation, the agency's actions could be summed up as "contradictory" to its mandate. The same report also recognized many problems in the organization that affected its ability to function, including under-qualified staff, insufficient employee numbers, and inadequate budget allocation. The Congolese government must take immediate steps to reform SAESSCAM in South Kivu and across eastern Congo.

### Shabunda's Gold Is Disappearing

Gold generated during Shabunda's boom, including that produced by the Kun Hou dredgers, was disguised in publicly available export records held by South Kivu's Mining Division. Officially, all of South Kivu's artisanal gold exports came from just one place, Walungu – because there are the only validated gold mines. A full set of production statistics for Shabunda's gold boom is not publicly available; by concealing the true origin of the gold, provincial authorities undermine domestic and international measures aimed at making Congo's mineral supply chains more transparent. Eastern Congo's mineral wealth has the potential to generate much needed revenues, but as long as the artisanal gold sector is manipulated by predatory companies, armed groups and corrupt officials, this wealth is lining the wrong pockets.

*Summary by Birgit Trogisch of the following publications: Global Witness (2016): River of gold. How the state lost out in an eastern*

*Congo gold boom, while armed groups, a foreign mining company and provincial authorities pocketed millions. For download link see page 31*

*Southern African Resource Watch (2015): Illicit gold trade and the Argor case. Conference Summary Report, 29 to 30.9.2015; <http://sarwatch.org/events/illicit-gold-trade-and-argor-case>*

### Rehabilitating Grauer's Gorillas at GRACE

The Gorilla Rehabilitation and Conservation Education (GRACE) Center is the world's only sanctuary for Grauer's gorillas orphaned by poaching and the illegal pet trade. At GRACE Center in Kasugho, North Kivu, Democratic Republic of the Congo (DRC), we currently care for 14 gorillas (11 females, 3 males) ranging in age from 18 months to 16 years. Since we began receiving gorillas in 2010, one new gorilla has arrived each year, on average. New arrivals come with various problems including psychological trauma, malnutrition, and even serious physical injuries like broken bones. Nearly all gorillas are



**Female Pinga has a surrogate mother relationship with young male Shamavu.**

*Photo: A. Bernard/GRACE*



## D. R. CONGO



**GRACE gorillas inside their large forest enclosure**

*Photo: GRACE*

younger than weaning age upon arrival. Despite being an uphill battle for the gorillas, we have thus far experienced good success with our rehabilitation efforts.

There is no instruction manual for how to rehabilitate Grauer's gorillas, as it's never been done before. Our approach is to provide a social and physical environment that is as natural as possible to help the gorillas heal and to prepare them for the possibility of reintroduction back into the wild. Because zoological institutions are the world's experts in caring for gorillas, we consult with several AZA-accredited zoos in the USA and benefit from their expertise in gorilla veterinary medicine, nutrition, facility design, behavioural research, outreach education, and animal management. Six zoos have sent 24 experts to GRACE to provide onsite assistance and staff training. Zoo experts also provide year-round support by participating in advisory groups that directly work with our DRC staff every

month. In DRC, we also partner with Gorilla Doctors for veterinary care and operate an ongoing preventative health care program for the gorillas and our staff.

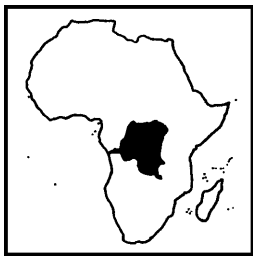
The GRACE gorilla orphans live in a single, integrated social group that is led by a 16-year-old female, since the oldest male is still young (8 years old). Once the health of a new gorilla has stabilized and he or she is behaviourally ready, the gorilla is introduced into the group. We work within the group hierarchy to ensure new gorillas are accepted first by the alpha female, an approach that has proven 100% successful thus far. There are multiple adult females, and every new gorilla has fortunately formed a close surrogate-type relationship with one of the older females. Surrogates engage in mothering behaviours such as carrying and sleeping with their 'adopted' gorilla and they also protect them within the group. These relationships are likely a key reason for our successful integrations,

since they provide strong support as young ones transition back to life with gorillas. Some surrogate relationships have even lasted for several years. Being a surrogate benefits the adult females as well by giving them mothering experience. Once in the group, gorillas are managed using protected contact (i.e. no hands-on human contact) in order to let them be gorillas.

GRACE Center is located in former Grauer's gorilla habitat, so the environment is ideal for gorillas. In 2015, we opened a 10-hectare forest enclosure and the gorillas now spend their days in this habitat. This space allows them more freedom to forage on their own, rather than relying solely on provisioned food. We monitor the gorillas throughout the day from observation towers located around the perimeter of the forest and have observed them engaging in new wild-like behaviours, such as building nests in trees and coordinating group travel.

Though the forest provides food for the gorillas, we still need to provision them in order to meet their dietary needs. In the past, we collected vegetation from the surrounding forest, but to create a more sustainable approach, we started a gorilla food farm in July 2016. We are now cultivating wild gorilla foods, such as *Aframomum* and *Pennisetum*, as well as a wide variety of vegetables. This past year, we also worked with an animal nutritionist to create a recipe for biscuits that serve as a nutritional supplement for the gorillas. The biscuits are made with locally sourced ingredients and are baked daily at GRACE for the gorillas.

An important part of our mission is to give Congolese the opportunity to learn about Grauer's gorillas and to observe the orphans living at GRACE. Our intent is to foster pride in the fact that these gorillas are only found in eastern DRC and a commitment to conservation. We host over 200 people at GRACE each month, including



## D. R. CONGO



**Schoolchildren observing gorillas at GRACE**

*Photo: GRACE*

schoolchildren and various community groups, through our local visitors program. We also work with surrounding communities on developing and implementing conservation actions such as tree planting (>2500 trees planted in 2015–2016). We are continuing to develop our educational outreach and plan to expand this work in 2017.

*Sonya Kahlenberg and  
Jackson Kabuyaya Mbeke*

To receive updates about GRACE, please visit our website ([www.grace-gorillas.org](http://www.grace-gorillas.org)) and follow us on Facebook ([GRACE4gorillas](https://www.facebook.com/GRACE4gorillas)) or Twitter ([@GRACEgorillas](https://twitter.com/GRACEgorillas)).

### Distinguishing Gorilla Nest Types in the Kahuzi-Biega National Park

All species of great apes construct night nests; sometimes in trees and sometimes on the ground. This article is based on daily long-term observations focused on the nesting and the size of the groups of the Grauer's gorillas (*Gorilla beringei graueri*) ranging in the Kahuzi-Biega National Park (KBNP), particularly groups in the highland sector.

Gorillas in general live in families, although some males can live alone. In one gorilla family, several mothers and young are led by a leader male

called a silverback. Each group has its own home range. In the highland sector of the KBNP, the home range of a gorilla group is composed of different vegetation types as well as secondary, primary, swamp and bamboo forests located between altitudes of 2050 and 2600 m. A gorilla group is observed living in its home range for many years foraging on different vegetation types depending on the seasonal availability of foods. They make new nests at a new site every day. They sleep during the night and travel during the day; leaving the night nests in the morning and beginning to move, then feeding and resting until they construct another night nest at a different site.

A gorilla family is usually composed of the silverback (the dominant male), several adult females, one or several blackbacks, juveniles and infants. Gorillas live in a hierarchy; the dominant male, the silverback, has the leadership of the group, and he protects the group, decides where to move throughout the home range and makes the choice on where to spend a night. He also has the freedom to mate with any female in oestrus and is the first member to fight when an intruder is in his home range.

Females also have a hierarchy. An aged female can be the alpha female for some time, or a female with a new born ranking higher than other females has also been observed being the alpha female. The alpha female is always next to the silverback when traveling, resting, feeding or when making nests. Blackbacks are dominated by the silverback. Juveniles are friends among themselves, play sometimes with blackbacks and often with babies during the day when the groups rest.

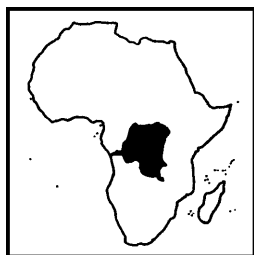
There are differences between the seasons when gorillas leave their night nest site: during the rainy season each gorilla group or solitary male leaves the nests at around 6h00 AM and begins foraging, possibly because of food

abundance; and during the dry season toward mid-August to mid-October, each group or solitary male wakes up earlier from the nest, sometimes as early as 5h30 AM, and starts feeding, possibly due to food scarcity.

There are two different nests made by the gorillas: day nests and night nests. Of these two types of nests, there are both fake nests and real nests.

After feeding during the morning, gorillas take some rest during the daytime. The members of the group sit down around the silverback. Some members, especially the youngsters (juveniles and infants), play among themselves. Adult members, such as adult females carrying babies, and the silverback groom each other. After the grooming some members start to yawn more. Some juveniles start cutting branches and gathering them together in a tree, to sleep on top of them. Adult group members sleep on the ground without constructing nests. The group stays quiet without moving as they sleep; some of them sleep deeply and can then be heard snoring. This siesta time varies between 30 minutes and 1 hour. By the end of the resting time, noises are made by either the silverback or by adult females, which is the warning to wake everybody up to leave soon. The group leaves one after the other, all following in the direction of the silverback.

The day nests are constructed by the members of the group who are capable of doing so. The unique aspect of the day nests (upper or lower) is that they do not have dung in the nests; instead urine and some dung can be observed around them. The night nests always have dung and urine either in or on the edge of the nest. Dung and urine are indicators of real gorilla nests. Some group members leave dung inside their nests and sleep on top of it in the night (possibly to stay warm during the night). The silverback does not



## D. R. CONGO



***A real night nest of a silverback showing droppings on the side***

*Photo: John Kahekwa*

construct night nests, but rather digs a sort of bowl on the ground and simply sits on top. The larger dung balls and the size of the “bowl” will indicate that it is the nest of the silverback. The silverback rarely sleeps on top of his dung, which is usually outside of the nest. Other members may not sleep on top of their dung, but rather their dung is on the edge of the nests. 10% of the Grauer’s gorilla night nests bear squashed dung, and in 90% of cases dung is found – not having been squashed – on the edge of the night nests in the highland sector of the KBNP. Flies are always observed flying on top of the night nests rather than the day nests. It is another indicator to tell which is a night nest and which a day nest.

The “fake nests” are constructed mostly by dependent group members; they are created when gorillas make nests at a site but must then discard them when the silverback does not

camp in that site. Three observations about dependent gorillas constructing fake and real nests have been made during daily observations over a period of 33 years.

The gorilla group will be led by the alpha female when the silverback delays and does not go to the head of the group. If she stops at a site, members may make nests. The silverback then crosses the area and decides to move on to another site of his choice.

When the group is led by the silverback and there is a shortage of food and there is a newborn in the group, the silverback may discard a site and move to another site. Other gorillas then have to discard their nests and follow the silverback.

If the group stops at a site where there is an ant nest, once they have built nests and sleep on them, they will be bitten by ants. The group will discard the nests and move to another site

where there are no ants. The first nests will have no dung or urine, whereas the latter will have dung (squashed and/or not squashed), urine and the associated flies flying above them in the morning.

Three short equations distinguish real nests from fake nests and day nests from night nests:

- Real nests (night nests): *urine + dung + flies*
- Fake nests: *urine, no dung, no flies*
- Day nests: *urine + flies or dung + urine or flies, no urine, no dung*

Regarding the nests, there are group members capable of constructing their own nests (silverback, blackbacks, adult females and juveniles), and members not capable of constructing their own nests (babies).

There are two methods to count the number of individuals in the group:

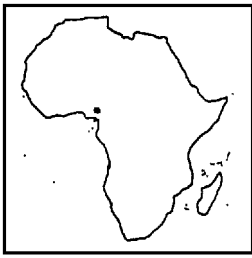
- 1) the direct,
- 2) the indirect method.

Direct method: When gorilla members are seen in a group being tracked each day, members are directly counted and their age-class identified;

Indirect method: When a group is not tracked and the members cannot be identified directly, the real nests are counted (those with dung in or around them). Dung in the nests must also be analyzed, because in nests with a female and dependent offspring there will be two sizes of dung (mother’s and baby’s).

*John Kahekwa Munihuzi*





# CROSS RIVER

## On a Road to Nowhere? The Proposed Calabar– Ikom–Katsina Ala Super- highway Project in Cross River State, Nigeria

After 16 years of continuous rule under the People’s Democratic Party (PDP) and record levels of corruption and mismanagement, Nigeria elected a new leader Muhammadu Buhari of the

All Progressives Congress (APC) on an anti-corruption ticket in May 2015. This was the first time in the history of Nigeria that an incumbent president had lost to an opposition candidate in a general election. The APC won in the majority of the 36 states, but PDP clung on to power in Cross River State.

The new Governor of Cross River State, Professor Benedict Ayade, assumed office in May 2015 and soon announced a number of new signature

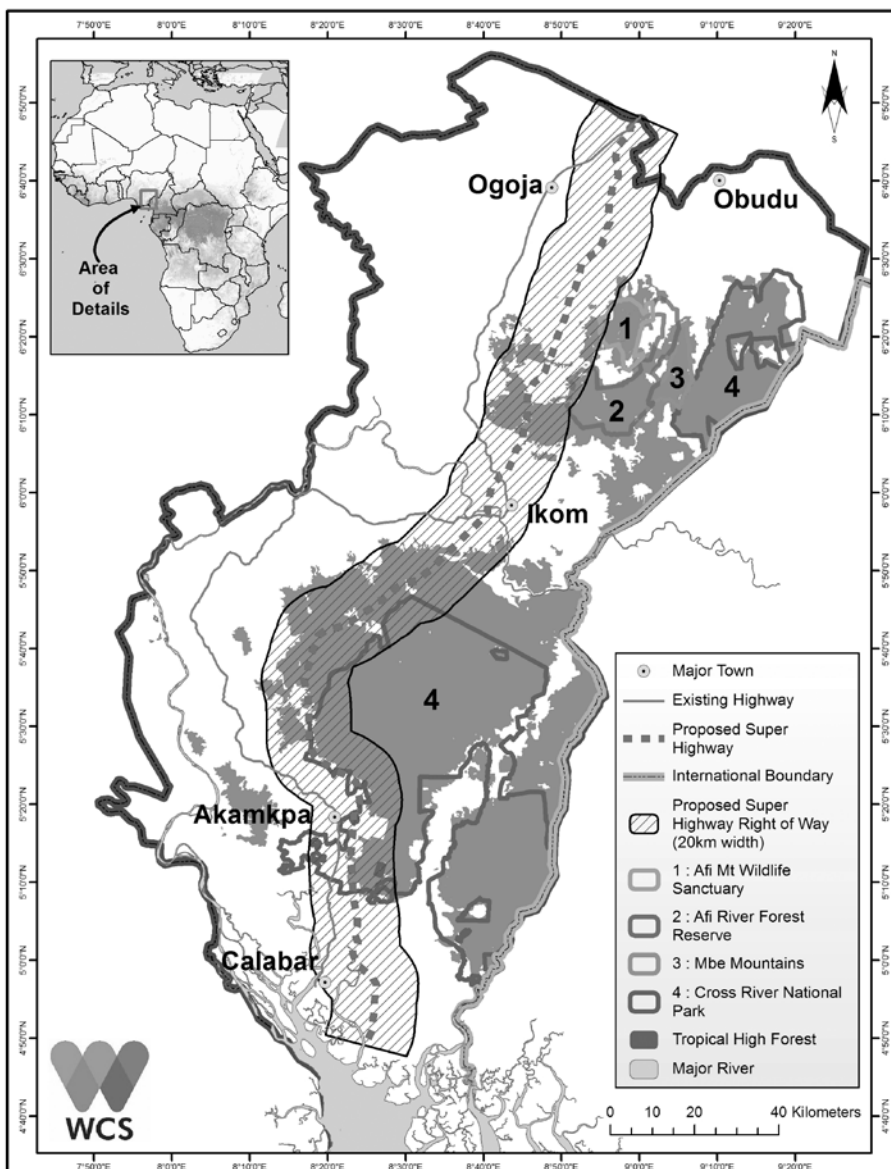
projects including construction of a superhighway to link a new Bakassi deep seaport with north-eastern Nigeria. He also announced plans for a garment factory, 5,000 new housing units, the creation of 1,000 jobs through the creation of a “green police force” to protect the state’s forests. Other plans recently announced include the Calabar Rice City, a new airline known as “CallyAir”, a pharmaceutical factory, a monorail, a medical insurance company and more. His plans were very ambitious and sounded expensive but in our excitement no one seemed to question where all the money might come from to pay for them, despite the fact that Nigeria is in the grips of its biggest ever recession and Cross River is the second most indebted state in the country.

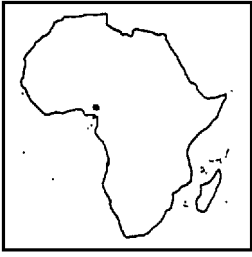
The question soon on our minds was – would the new Governor continue with the pro-forest conservation policies of the past two Governors, Senator Liyel Imoke and Donald Duke? Liyel Imoke had gone so far as to ban all logging in the state and actively promoted Cross River as a candidate for REDD+ with the UN and others, to widespread international acclaim and accolade. Donald Duke had closed down a Chinese plywood factory when it threatened the state’s remaining forest reserves. We would soon find out the priorities of the new Governor.

### Policy Shift from Forest Preservation to Forest Exploitation

Governor Ayade made some opening speeches that have since set the tone for his administration. He publicly stated that Cross River has

*over one million hectares of pristine forest and that forest which is an asset that has remained unexploited and this forest has been conserved over time without exploitation and that is not the way we are going to go forward, we are going to move from forest conservation to forest*





## CROSS RIVER

*management which means we are going to be needing two to three thousand young men who will be responsible for regeneration of forest. As we are deforesting for development by processing it into plywood and veneer for export we are also correspondingly investing hugely for regeneration.*

The writing was on the wall. In May 2015 information began to leak out that the new superhighway was not a project to renovate the existing highway as we had all imagined, and which for many years had been in a truly deplorable state, but was an entirely new highway – and one that cut straight across the middle of the Oban Division of Cross River National Park! The superhighway was to be “a digital road for the 21<sup>st</sup> century” with Wi-Fi internet access, and would comprise a massive six-lane dual carriage highway linking the new deep seaport at Bakassi to a small town on the border with the neighbouring Benue State, a distance of some 260 km. The rationale behind the superhighway appeared to have some merit – proving an evacuation route for the new deep seaport in Cal-

abar which would reduce pressure on existing seaports in Nigeria and serve cities in north-eastern Nigeria and land-locked Chad and Niger on Nigeria’s northern border. Unfortunately the superhighway stops roughly 1,000 km short of Nigeria’s northern border and the country already has eight major sea ports. Many experts doubt if there is sufficient economic justification for constructing another major seaport in Calabar particularly since the Calabar River is relatively shallow and prone to siltation, exacerbated by logging and deforestation, so periodic and expensive dredging will be required to maintain access to the “deep seaport”.

In September 2015 the initial ground breaking ceremony for the superhighway by President Buhari was cancelled at the last minute when it was realized that no Environmental Impact Assessment (EIA) had been done as required by law. This legislation prohibits activities carried out in sensitive areas where such are carried out in the absence of mandatory studies. The intention of the EIA law is to safeguard the population and environment with regard to any form of environmental degradation resulting from unplanned

development projects. Although the cancellation was a huge political embarrassment to Governor Ayade a compromise deal was soon reached and an “interim EIA” was issued by the Federal Ministry of the Environment to allow the ground-breaking ceremony to go ahead, and on the understanding that a full EIA would be submitted and that no work would start until the EIA was approved. Amidst much pomp and ceremony, the President of the Federal Republic of Nigeria, President Mohammed Buhari, finally came to Calabar on October 30, 2015 and performed the ground breaking event on the invitation of Governor Ayade. This act tacitly gave federal government consent to the superhighway project. Suitably emboldened the Governor stepped up his campaign.

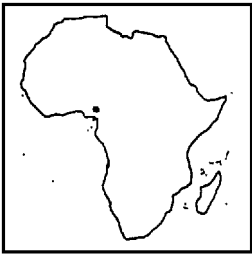
### **The Role of NGOs in Opposing the Superhighway**

On the 20<sup>th</sup> October 2015 a coalition of 13 international NGOs, national NGOs and individuals, including the Wildlife Conservation Society, the Zoological Society of London and Birdlife International, submitted a letter to President Buhari expressing their concern about the superhighway. The letter expressed support for the ongoing EIA process but expressed outrage that the superhighway was planned to pass through Cross River National Park. After the EIA was eventually published a second letter of 13 international NGOs, national NGOs and individuals, including the World Wide Fund for Nature, Fauna and Flora International and the Wildlife Conservation Society, expressed major concern about the EIA and requested that it should be redone. A number of smaller NGOs in Cross River State have been actively involved in the campaign against the superhighway, issuing press releases and letters of protest, some acting on behalf of local communities, and there are a number of lawsuits against the



**As the bulldozers cleared a swathe through the forest ...**

*Photo: WCS Nigeria*



## CROSS RIVER

state government now in court. The Ekuri Initiative (which has received international accolades for forest stewardship), the Rainforest Resource and Development Centre and NGOCE have been the most active.

With support from partners overseas, a petition of 254,000 signatures (34,000 signatures from Cross River State and 220,000 from concerned individuals worldwide) was delivered in September 2016 to President Buhari through the Ministry of Environment in Abuja. Both the press (TV, radio and newspapers) as well as social media have carried numerous stories and updates on the issue. The Nigeria office of the Heinrich Böll Foundation has actively supported the campaign against the superhighway and Rainforest Rescue in Hamburg helped organize an online petition against the superhighway that has currently generated almost 240,000 signatures to date.

### A Land Grab in Disguise?

It came as a deep shock to all when, on the 22<sup>nd</sup> of January 2016, the Cross River Government Gazette announced the revocation of all traditional occupancy titles through a "Notice of Revocation of Rights of Occupancy for Public Purpose Land Use Act 1987" within a 20 km wide corridor of land along the entire highway route. This single act dispossessed more than 185 communities. The total area seized by the state amounts to 5,200 km<sup>2</sup>, or about 25% of the state's total area. Communities that had initially supported the superhighway rose up in revolt when they realized that they had been dispossessed of their ancestral lands overnight. Many people within the state began to call the superhighway project an elaborate land-grab in disguise. But a land grab for what?

Even though the EIA had not yet been finalized, Governor Ben Ayade was impatient to start work. Following up on the revocation of their lands

the previous month, a number of bulldozers entered the forest in February 2016 and started clearing land and felling trees. Although some communities in Old and New Ekuri prevented the bulldozers from entering into their forest, more bulldozers soon appeared in communities within Boki LGA. Thousands of trees felled along the route were soon converted to valuable timber and mysteriously disappeared. No compensation has yet been paid to thousands of farmers whose farms have been destroyed by the bulldozers.

### Background

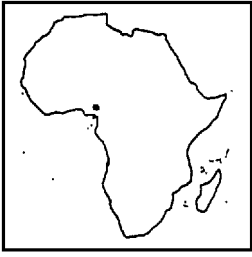
Cross River National Park is a proposed UNESCO *Man and the Biosphere Reserve* and a tentative *World Heritage Site*, the richest site in Nigeria for biodiversity and indeed one of the richest sites in Africa. It is recognised as a *Centre of Plant Diversity* by WWF and IUCN, and as an *Important Bird Area* by Birdlife International. Indeed the biological importance of the Oban Hills was first identified as early as 1912 when a large part of the area was declared a forest reserve. In 1991, the Oban forest reserve was upgraded

to create the Oban Division of Cross River National Park through which the superhighway is now expected to pass. The Oban Division covers an area of around 3,000 km<sup>2</sup> of lowland rainforest. It is the largest area of closed-canopy rainforest in Nigeria and contiguous with Korup National Park, Cameroon. The Oban Hills are an extremely important watershed, with peaks of between 500 and 1,000 m, giving rise to numerous rivers that guarantee a perennial supply of freshwater to hundreds of downstream communities in Cross River State. The Oban Hills formed part of one of the lowland rainforest refugia in Africa during the last glacial period. As a result the area is now a centre of species richness and endemism particularly for primates, amphibians, butterflies, fish and small mammals. Oban is an internationally recognized biodiversity hotspot and contains a number of rare and endangered species such as the Nigeria-Cameroon chimpanzee (*Pan troglodytes ellioti*), the drill (*Mandrillus leucophaeus*), Preuss's red colobus monkey (*Procolobus preussi*), leopard (*Panthera pardus*), forest elephant (*Loxodonta cyclotis*) and the grey-necked



... the loggers moved in and the timber soon disappeared!

Photo: WCS Nigeria



# CROSS RIVER

Picathartes (*Picathartes oreas*) as well as 75 plant species endemic to Nigeria.

## Reviewing the EIA

The EIA was finally submitted to the Federal Government of Nigeria in March 2016 for approval and was circulated for public comments in April 2016. The Honorable Minister of the Environment, Amina Mohammed, appointed an independent review panel to assess the EIA. The voluminous report was 443 pages long and had been prepared by PGM Nigeria Limited on behalf of Cross River State Government. A professional review of the EIA document was completed by Environmental Resource Management (ERM) and their report concluded that the draft EIA was totally inadequate and identified 11 main flaws with the EIA as:

- 1 the scoping process was inadequate and provided no information on the rationale or analytical process that was adopted;
- 2 baseline data were unclear, inconsistent, frequently contradictory and often incorrect;
- 3 the project description was fundamentally flawed, most critically it failed to consider any impacts due to the 20 km wide corridor of land acquired by the Government of Cross River State along the entire route of the proposed superhighway;
- 4 there was no cost-benefit analysis for each of the routes proposed and no clear justification for the superhighway and reasons for building a new road as opposed to upgrading the existing highway;
- 5 the EIA failed to consider the impacts of the superhighway on nearby protected areas namely Cross River National Park, Afi Mountain Wildlife Sanctuary, Afi River Forest Reserve, Ukpon River Forest Reserve and Cross River South Forest Reserve;

## Does the Superhighway Threaten the Gorillas?

Cross River gorillas are only found in the Okwangwo Division of Cross River National Park, an area unaffected by the proposed superhighway, and are not present in the Oban Division of Cross River National Park. However, the proposed route skirts the western edge of Afi Mountain Wildlife Sanctuary (AMWS) which is a core Cross River gorilla area, and the 20 km corridor threatens part of the Afi River Forest Reserve, an important corridor area linking AMWS to the Mbe Mountains and to the Okwangwo Division of Cross River National Park.

- 6 stakeholder engagement was extremely limited and failed to meet accepted standards as outlined by both Nigerian legislation and international best practice;
- 7 the EIA failed to identify measures required to monitor effective mitigation of the impact due to the superhighway;
- 8 mitigation measures were described at a conceptual level only with insufficient detail for implementation;
- 9 the EIA failed to mention the presence of many rare and endangered species present within the area such as the Preuss's red colobus monkey *Procolobus preussi* and the slender-snouted crocodile *Mecistops cataphractus* both of which are classified by IUCN as *Critically Endangered*, or to assess possible impacts;
- 10 the socio-economic study focused on only 21 communities whereas it is estimated that more than 180 communities within the 20 km corridor will be affected by the proposed

project. The full impact on these communities, on their livelihoods and vulnerability was not been assessed; and

11 there was no consideration of any cultural heritage data.

It was therefore impossible to effectively identify potential impacts due to the project or to recommend adequate mitigation measures. A public meeting was held in Calabar in June 2016 to allow all stakeholders present their views and opinions to the Review Panel. The EIA eventually received a "D" rating for gaping oversights and errors and was ordered to be redone.

"Nigeria needs better roads, but this is one of the most ill-conceived infrastructure projects we've seen anywhere," said Professor William Laurance, an environmental scientist from James Cook University in Australia and the director of ALERT (the Alliance of Leading Environmental Researchers and Thinkers).

## Where are the Funds Coming from?

It is known that German construction company Liebherr has held a number of meetings with the Governor of Cross River State but it is not yet clear if they are interested in investing in the superhighway project directly or simply seeking to supply the heavy-duty machinery required for the construction of the deep seaport and superhighway. It would appear more certain that a number of Chinese companies have offered to help fund construction of the deep seaport and superhighway. Some of them have made no secret of the fact that they are also interested in "mechanised agriculture if the enabling environment is created".

Nigeria's agricultural sector has been neglected since the discovery of oil in 1956 and urgently needs revitalization and investment. But where will the land come for a large mechanized agricultural project? Many have



# GORILLAS

speculated that the 20 km corridor of land seized from 180 local communities along the highway will be provided in exchange for those wishing to invest in the project. Many have speculated that the proceeds from logging alone would be massive and that the land could then be planted with oil palm.

**Present Status:** A revised EIA was submitted to the Ministry of Environment of the Federal Government in September 2016 and is currently being assessed. Early indications are that the document still fails to meet basic standards and that:

- there has still been no public consultation or dialogue with important stakeholders such as Cross River National Park;
- economic arguments for alternative project scenarios such as upgrading the existing superhighway have been poorly done;
- baseline data is still absent or weak;
- there has been no consideration of the impact of the 20 km corridor on the biodiversity of adjacent protected areas such as Cross River National Park;
- there has been no consideration of the impact on more than 185 forest-dependent communities that are expected to be displaced as a result of the superhighway.

Whether or not the Federal Government will accept or reject the revised EIA remains to be seen. Nigeria is Africa's most prosperous nation; development is needed to boost and diversify the economy which has relied solely on oil for decades. Moreover, Nigeria is a Federation with both State and Federal laws and the Governor of Cross River State has executive powers over the State which he governs as an elected Governor.

There are certain actions that the State Government can take which the Federal Government may not be in

a position to forcefully stop. In which case, the State Government can only be persuaded to tow the path of reason by following due process. As such massive and unprecedented deforestation is planned, it is ironic to note that on 22 September 2016 President Buhari signed the Paris Agreement on Climate Change and promised commitment from Nigeria as part of the global effort to reverse the negative effects of climate change. In the same month a new US\$ 12 million strategy for Nigeria was approved by the United Nations Reducing Emissions from Deforestation and Forest Degradation Plus (UN-REDD+) programme in Nigeria. The new scheme to deepen the initiative to combat climate change through improved forest governance has been validated by leaders and experts in conservation, climate and development communities. Piloted in Cross River State, the programme is jointly run by three United Nations agencies: the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP) and the Food and Agriculture Organisation (FAO) and is meant to be an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development

An update on the superhighway will be provided in the next edition of Gorilla Journal.

*Andrew Dunn*

## Gorilla Habituation for Research and Tourism in Loango National Park

Two components of gorilla conservation are research and tourism. Research provides the baseline information concerning the natural ecological and behavioural repertoire of a species and it provides a measure of the effectiveness of conservation strategies. Tourism provides much needed revenue for conservation activities and raises awareness about apes. Mountain gorillas (*Gorilla beringei beringei*) have been studied intensively for decades and ecotourism has proven to be a successful conservation strategy. In contrast, despite their much broader distribution and larger overall population size, only a few western gorilla groups (*Gorilla gorilla gorilla*) have been successfully habituated in a handful of locations. Since the late 1990s western gorillas have been habituated in Bai Hokou (Central African Republic), Mondika (Republic of Congo), and more recently, Moukalaba-Doudou (Gabon).

As a result, we know relatively little about western gorillas compared to mountain gorillas. To address this issue, the Max Planck Institute for Evolutionary Anthropology started a project to habituate western gorillas for both research and tourism purposes in Loango National Park, Gabon in 2005. The main goals of this project have been to better understand the ecology, behaviour, and demography of western gorillas as well as to establish gorilla tourism as a conservation strategy in collaboration with the Gabonese National Park Authorities.

Because gorillas are naturally afraid of humans, it is necessary to have them habituated to human presence. Habituation is the process of repeated neutral contact with human observers so that the gorillas gradually lose



# GORILLAS

their fear of humans, making it possible to watch them from close distances. It may take only one to two years to habituate mountain gorillas, whereas it can take five or more years to habituate western gorillas. The first challenge is to simply find the gorillas, because if you are not encountering any gorillas, you cannot begin to habituate them. Gorillas occur at a low density in the forest, which translates into a low probability of simply bumping into them if you are walking through the forest. However, it is possible to see footprints, remains of plants that they have eaten, or feces. Then you can 'track' where they have moved through the forest, if you are skilled enough to see the signs that are often extremely subtle and difficult to see. Mountain gorillas live in forests where there is a dense understory of herbs and shrubs so that it is relatively easy to see where they have gone, which makes them much easier to track and contributes to why it takes less time to habituate them than western gorillas.

To track gorillas, most western gorilla sites, including Loango, rely on Pygmies, a group that has been marginalized across Africa and does not have many employment opportunities. By working as trackers, they are able to use their traditional knowledge and skills concerning tropical rain forests and wildlife, providing invaluable assistance to the process of habituating western gorillas.

Once we find the gorillas, the next step is to 'convince' them that we mean no harm and that we are simply neutral items in their environment. However, initially they typically flee immediately upon seeing any humans. It can take months and months to see a change in behaviour, in which the gorillas will wait a few minutes before running away, and then even more time passes before they will exhibit their normal behaviour with people nearby. Furthermore, if the gorillas feel threatened at a



*The silverback Kamaya in an Iroko tree*

*Photo: Martha M. Robbins*

close distance, the silverback male will defend himself and his group by charging. However, these charges are primarily displays as most animals do not want to engage in actually attacking an opponent due to the risk of getting hurt themselves. Slowly over time the gorillas become more accepting, eventually develop 'trust' of their human observers, and allow us to watch their lives.

We had a few 'false starts' with habituating gorillas in Loango. Initially we were based in a region that contains very few gorillas, making it difficult to consistently follow the same group. Second, we shifted our work to an area containing more secondary forest and swamps. We focused on a group for 1–2 years that eventually diminished in

size (less than 7 gorillas), making them less than optimal for research and tourism. Starting in 2009, we have habituated the 'Atananga Group', which currently contains 16 gorillas: 1 silverback, 6 adult females, 4 juveniles, and 5 infants. We are able to spend 8 or more hours with the group on a nearly basis.

Loango is ecologically distinct from other locations where western lowland gorillas have been studied. It contains a mosaic of habitat types including coastal forest, savannah, swamps, secondary forest, and primary forest. Several of the herb and fruit species commonly eaten by western gorillas at other locations are absent or found in very low abundance in Loango. We have documented large differences in



# GORILLAS

the feeding ecology of gorillas in Loango compared to other sites. Therefore, this location provides us with an opportunity to better understand the ecological and behavioural flexibility possible in gorillas. We are using a data collection protocol that is nearly identical to the one used by my long-term research project in Bwindi Impenetrable National Park, Uganda, which will enable us to make direct comparisons of a variety of behaviours between the two species of gorillas.

The project is jointly managed by the Agence Nationale des Parcs Nationaux (ANPN), the Gabonese national park authorities. Gorilla tourism began in June 2016 and to date, there have been about 10 tourist visits. Currently ANPN is limiting tourism to only two days per week and we are adhering to the IUCN best practice guidelines for great ape tourism. These include having a maximum of only 4 tourists per one hour visit per day, maintaining a seven meter distance between humans and the gorillas, and wearing surgical masks to reduce the risk of disease transmission from humans to gorillas. We are also collecting data on the gorillas' behaviour to monitor if tourism is having a negative impact on the gorillas.

Visiting western gorillas is a different experience from seeing mountain gorillas, partially because western gorillas spend more time in the trees, group members typically do not maintain as close spatial proximity to one another, and they travel more per day. It is important to remember that western gorillas are in fact a different species of ape from mountain gorillas, living in a very different habitat – making it all the more interesting to observe them in the wild. Getting to Loango from Libreville in one day is possible and tourist facilities are available in the park. Stay tuned for more interesting findings from this project.

*Martha M. Robbins*

## The “Walk through the Dja”

The conservation action plan for western lowland gorillas and central chimpanzees identifies 18 priority landscapes (IUCN 2014). One of them is the Dja landscape with its 5,260 km<sup>2</sup> Dja Faunal Reserve (DFR). Inscribed as a World Heritage Site in 1987, there is increasing evidence that the Outstanding Universal Values of this protected area are under growing threat. Hunting exists at an alarming level, and agro-industry and infrastructure development are accelerating the threats. Without adequate control measures, this important site will soon be listed as a World Heritage in Danger.

**The African Ape Initiative (AAI) of the African Wildlife Foundation (AWF):** This program was established with the ambitious goal of protecting representative populations of all 9 African great ape subspecies and their critical habitat (Dupain 2013). At the onset of the AAI and in concordance with the IUCN Action Plan, the DFR was identified as a priority AAI site. Joint scoping missions to identify priority needs revealed a typical doughnut shaped conservation syndrome: several active conservation projects on the periphery of this landscape, but no effective anti-poaching efforts occurring within the DFR. Poaching was and remains rife. In response to this, and backed by an agreement signed with the Service de Conservation-DFR (SC-DFR), AWF offered support for verifiable and accountable anti-poaching patrols using emerging tools like CyberTracker and SMART.

During set up and initial implementation, we witnessed significant evidence of widespread uncontrolled poaching throughout the DFR. We started doubting whether our conservation efforts would have the desired impact. Simultaneously, we were confronted with a body of contradictory anecdotal infor-

mation on absence/presence of elephants, apes, large mammals, permanent hunting camps, and professional poachers in the core area of this World Heritage Site.

These conflicting accounts about the status of the reserve core motivated AAI to lead a unique 5-day trek crossing the DFR from south to north in April 2015. The objective was to get first-hand qualitative insight on the status of wildlife and poaching in the reserve core. The findings from the walk, although biased and qualitative, confirmed the serious poaching threat. The unexpectedly high number of permanent hunting camps encountered and stories from the poachers confronted in the DFR confirmed a dire need for a change of strategy to ensure effective protection.

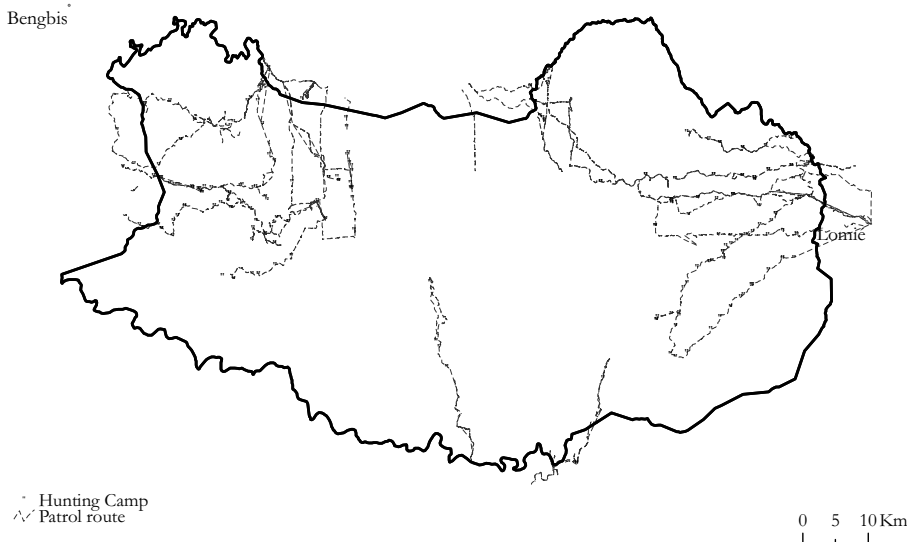
This report summarizes activities that led to today's AAI strategy to protect the Outstanding Universal Values of this World Heritage Site, including results from anti-poaching patrols using CyberTracker/SMART in 2015 through 2016. Patrol observation informed spatially explicit modelling of threats and wildlife populations in the DFR. We subsequently presented findings of the “Walk through the Dja” which we used to test the spatial models. These models can inform changes in the anti-poaching strategy and cov-

### **Patrol effort February–April 2015 and January–March 2016**

	Nr of patrols	Distance (km)	Nr of patrol days
02/2015	2	147	10
03/2015	1	72	3
04/2015	2	91	5
01/2016	4	423	51
02/2016	3	458	46
03/2016	3	193	20
Total	15	1,384	192



# GORILLAS



**Track logs of patrols, February 2015 through March 2016 and total recorded hunting camps**

erage towards more effective protection of an important sector of the World Heritage Site.

### Anti-poaching Patrols 2013–2016

Patrols are carried out following pre-identified routing, using a PDA equipped with the CyberTracker App for download to a computer running SMART. While AAI-supported anti-poaching patrol efforts at Dja span September 2013 through March 2016, we limit ourselves to the data from February 2015.

Patrols covered 1,400 km over 192 patrol days. For details see Guian et al. (2016). Tracklogs and observations of fresh elephant dung, fresh gorilla nests, fresh chimpanzee nests and encounters with hunting camps, poachers, cartridges and snares are recorded. Over 200 hunting camps were recorded and destroyed, numerous encounters with poachers were recorded as well as high levels of cartridges and snares. Recordings of fresh ape nests and/or fresh elephant dung were very limited. Only 17 gorilla and 61 chimpanzee nest sites were encountered.

30 sites with fresh elephant dung were recorded.

### The Walk through the Dja

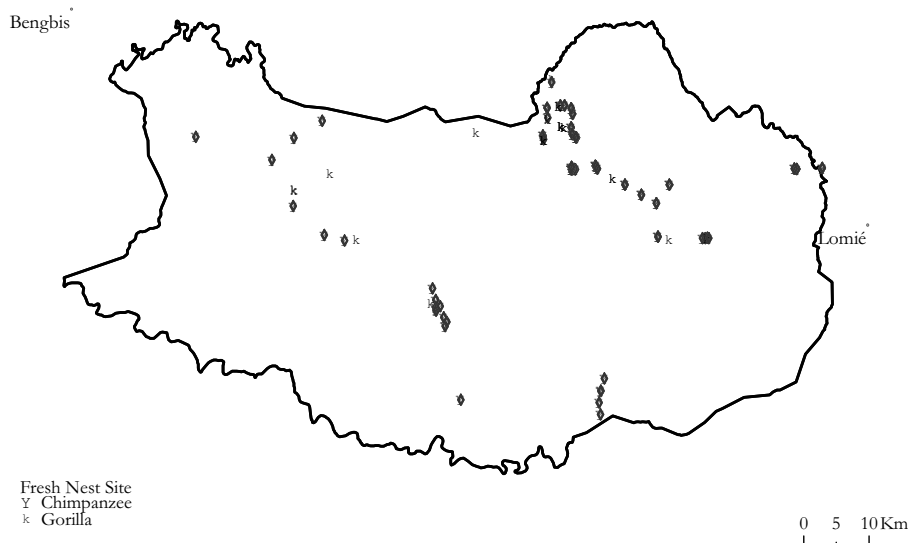
On April 25, a team of 7 friends of conservation accompanied by 8 porters embarked on a walk through the Dja. Led by 3 rangers of the SC-RFD,

the group recorded observations as according to usual anti-poaching patrols. The 98 km crossing took 5 days.

The walk started after crossing the Dja river, north of Djoum. On day 1, the clearing of Bali was reached. Despite stories of regular visits by elephants and large mammals at this clearing, remarkably little evidence of this was found on site.

On day 2, we progressed north following elephant paths. The forest was silent with almost no vocalizations of hornbills or monkeys or fresh indications of larger mammals. Many signs of human hunting pressure were encountered. We stayed overnight at an abandoned hunting camp that was probably used by a mixed group of Bantu commander and Pygmy hunters, hinting possible specialized elephant hunting.

On day 3, by midday, we ran into a poacher, well known to our ranger-guides. The poacher guided us to their hunting camp where 3 other companions were waiting for him. On this particular day, despite leaving early morning and being equipped with a gun, his catch was limited to 1 duiker. Together with his colleagues, the total catch of



**Distribution of fresh chimpanzee and gorilla nest sites**





# GORILLAS

**Indices of human hunting pressure recorded during the patrols. Indices of Kilometric Abundance (IKA): total number of observations/ distance covered**

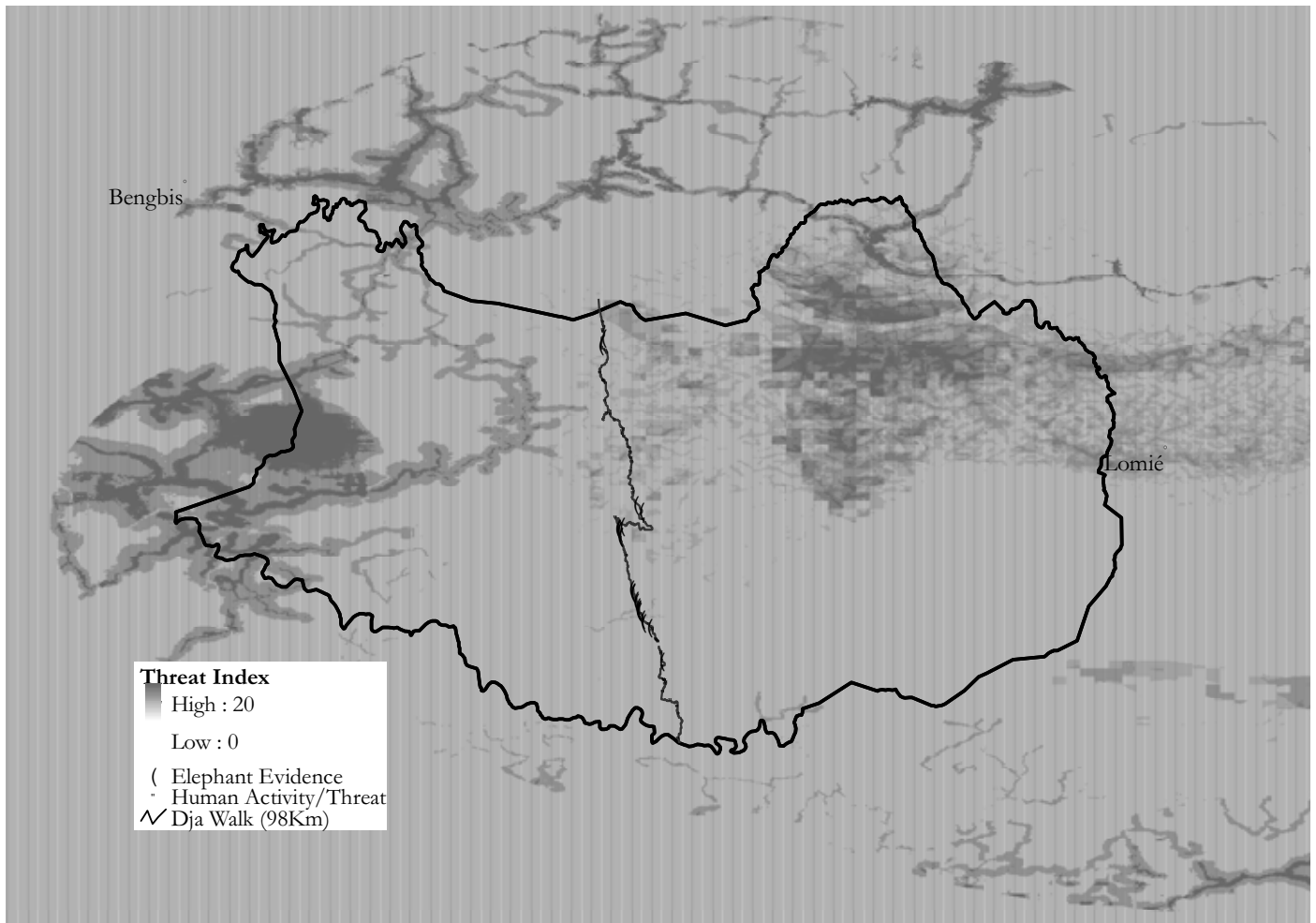
Indication of human hunting pressure	Total nr	IKA
Active hunting camps	135	0,09
Snares	999	0,72
Cartridges	706	0,51
Encounters with poachers	84	0,06
<b>Total</b>	<b>1,924</b>	<b>1,39</b>

almost a week in the core area of the DFR was less than 10 monkeys and forest duikers.

Day 4 and 5, the poachers guided us to the northern periphery of the DFR, following well established poaching trails, crossing a series of well-known hunting camps. We stayed the 4<sup>th</sup> night at the clearing Koubal, again with little sign of mammals. There was a feeling of discouragement because of the limited evidence of large mammals contrasted with continuous signs of human hunting pressure. This was acknowledged by the rangers of the SC-RFD.

### Spatial Modelling

We intersected observations from anti-poaching patrols and satellite image profiles of cultivation, deforestation, and fire against a set of spatial layers representing socio-economic (e.g., land use, roads) and biophysical influences (e.g., topography, climate) to model wildlife population and threat distributions. We used Maximum Entropy Modeling (MaxEnt), an algorithm widely used for its relative simplicity and strong performance. We combined individual threat-risk models of hunting camps, ammunition and snares, fire, cultivation-expansion,



**Dja walk transect and related observations atop MaxEnt-generated threat index**



# GORILLAS



and deforestation into one threat index. Accordingly, we combined models for chimpanzees, elephants, lowland gorillas into a wildlife index. To test if our models provide SC-RFD managers with actionable adaptive management information, we intersected the independent “Walk” observations against relevant spatial models. We built on the premise that if validated, these models can provide SC-RFD managers with actionable information for more effective adaptive management.

Using observations of threats and wildlife from the walk, we discovered that the encounter rate for wildlife was 8.6 times higher outside the modeled threat index areas and that for threats, it is 3.8 times higher inside threat index areas. Intersecting the threat and wildlife index models enabled identification of areas predicted to have a relatively high likelihood of both wildlife and threats.

Representing only 4 % of the DFR region, these areas could be targeted for more impactful and cost-effective law enforcement responses.

## Conclusion

**General observation:** The anti-poaching patrols and the findings of the “Walk through the Dja” clearly indicate that the DFR is under serious threat. While we found signs of all large mammals expected, indices of abundance are very low while indices of human hunting pressure are very high. This despite more than 2 years of support for anti-poaching and assurance from individuals of the SC-RFD on a positive impact. In 2001, Nzooh Dongmo reported about 71 hunting camps along 1,500 km of transects in the DFR. Fifteen years later, we can report about 200 hunting camps along a similar 1,400 km of transects. The situation has only worsened. Based on these findings, we

assume that our initial support to the SC-RFD is not having the desired impact and that there is a dire need to revisit our approach.

**Spatial model validation and implications for next steps:** The validations confirm that the threat index and deforestation models offer value for improved targeting of future patrols and other management actions. We consider these models to be preliminary and expect improvement with more comprehensive patrol coverage over time and refined modeling processes. Recognizing that patrol and satellite image model drivers are frequently updated, streamlined updating of the models could produce a dynamic law enforcement platform catering to more agile management responses. While we are further developing these models and testing the use of them for more effective management, we will focus over the next months on our revised anti-poaching efforts.

**Next steps:** AWF-AAI together with the new team of the SC-RFD jointly decided to stop trying to cover the 5,260 km<sup>2</sup> DFR as both financial and human resources are still lacking. Instead, we opt for effective protection of three spatially well-defined priority areas: we installed permanent patrol posts at three inselberghs in the northern half of the DFR – Chouam, Kouabal and Bouamir. Around the 3 strategic points, with permanently stationed patrol teams consisting of 4 SC-DFR rangers and 2 representatives of the local communities. During their assignment, teams perform CyberTracker/SMART guided patrols while camera traps provide continuous monitoring of large mammal visits. Simultaneously, efforts are done to sweep the northern periphery for presence of poachers and screen the area for presence of hunting guns. Local communities are involved in regular meetings with the SC-RFD and AWF to discuss latest findings and ways forward.



# GORILLAS

We hope that by the end of 2016, there will be verifiable evidence that by securing these strategic points, it translates to increased visits by large mammals and that this new strategy is ready for replication elsewhere in the World Heritage Site.

*Jef Dupain, Zokoe Guian, Manfred Epanda Aimé and David Williams*

*We thank the Ministry of Forestry and Wildlife and the Service de Conservation de la Réserve de Faune du Dja for the collaboration and partnership in our joint efforts to improve the protection of the DFR. Thanks especially to Serge Meye and Stephan Madjaye of the SC-RFD for the guidance during the walk. Thanks to the conservationists that took up the challenge: Thomas Bacha, Denis Beauquesne, Olivier Braun, Julien Cour, Carl Frosio, Juliet Wright, and the 8 porters!*

## References

Dupain, J. (2013): The African Apes Initiative. Strategy Paper. African Wildlife Foundation  
Guian, Z. et al. (2016): Rapport d'activités de lutte anti-braconnage dans la Réserve de Faune de Dja. African Wildlife Foundation  
IUCN (2014): Regional Action Plan for the Conservation of Western Lowland Gorillas and Central Chimpanzees 2015–2025. Gland, Switzerland (IUCN SSC Primate Specialist Group)

## First Twins Born to Habituated Western Lowland Gorillas in Central African Republic

At the end of January 2016 the Dzanga-Sangha Protected Areas complex in the Central African Republic recorded the first ever western lowland gorilla twins to be born in a habituated group. Since 1998 WWF through its Primate Habituation Program habituates western lowland gorillas for tourism and research, creating employment for local people, generating much-needed revenue for conservation activities and strengthening the vital links with the local community. Twins in western lowland gorillas are rare so the news was welcomed with excitement and made a “media splash”.

Very early in the morning of January 25 the habituation team found the (then) only female of the Makumba group in Bai Hokou, Malui, limping through the forest on one arm. The first thought that came to their mind was that she had an injury but as they looked closer they realized she was holding on to a baby on the other arm. At this time the group was ranging in very dense vegetation with almost no visibility. It was only two days later when the group entered a forest clearing to feed that the team observed two very little, naked babies attached one to each of Malui's breasts. It was heartwarming to see the passion and strength Malui invested in her beautiful offspring. The group stayed close together, with both Malui and the silverback (Makumba) being more protective than ever before.

The babies were later named Inguka and Inganda by the Ba'Aka forest peo-

ple whose exceptional tracking skills form the backbone of the habituation process. Inganda is a forest shrub of the family Papilionaceae of which gorillas consume the leaves (Malui used them as a cushion on which the babies were born), while Inguka is a forest shrub of the family Acanthaceae and gorillas consume its leaves especially during the dry season, when the gorillas depend more on leaves than on fruits. The highly pregnant Malui was feeding a lot on these leaves. The twins are non-identical both in size and nose prints. Inguka is slightly bigger than Inganda and has a nose print similar to Malui thus helping the identification of the individuals.

The mother of the twins (and dominant female of the group), Malui, is a very experienced female who has successfully raised three offspring sired by the silverback Makumba. Apart from



**Malui with her twins**

*Photo: Janika Wendefeuer/WWF*



# GORILLAS

the three offspring she had a stillborn in December 2011, and exactly 11 months later she had another infant who unfortunately fell off a tree two years later. As the three other females in Bai Hokou left the group after losing an infant, it was feared that Malui would also leave. Instead she stayed and surprised everyone with twins. She struggled in the beginning as the babies were unusually small and required that she carry them around pressed onto her breast for about one month. Later she would place the bigger twin (Inguka) on her back with Inganda still attached to her chest. She quickly gained the skills required for this difficult task and against all skepticism the twins are growing well.

Despite their unusually tiny nature, they soon started exploring their environment as every other gorilla baby would do, even though too small and feeble to move very far. Interestingly at this period their older sibling, an 8.5-year-old young male, Tembo, and another older half-sibling, Sopo, be-

came very curious and interested. The first approaches by the siblings were timid but after intense observation they started grabbing one of the babies and running off with it. At first Malui did not tolerate this behaviour and would follow the “hijacker” to rescue her offspring, the cue for a game of “play catch”. However, as the bigger twin (followed by the smaller one two weeks later) grew stronger and explored further away from the mother, Sopo and Tembo would grab them occasionally, and Malui would allow it.

From the end of July when the twins were 6 months old at least one of them was constantly with its siblings. Even though Malui took them back regularly, she had no problem with sharing the work raising two babies at the same time. She would even, apparently relaxed, pass both twins to the others to feed, but she would never be out of sight. The older siblings, being so keen on the twins, would involve them in their play sessions, which unfortunately would get so brutal that the babies would emit distress noises and loud cries causing the silverback and leader of the group, Makumba, to intervene. Nonetheless, as July-August is the peak of the fruiting season in Dzanga Sangha, fruit-rich diet provides all individuals with extra energy, promoting more playing for the youngsters in the group, and it became difficult for Makumba to keep them under control. On one occasion Tembo in an over enthusiastic mood even hit one of the twins on a tree and threw it on the ground.

Raising twins is undoubtedly a difficult task. It is uncertain what will happen as they grow bigger; we expect however that Malui would need assistance from the other group members especially when they get too big to carry around. It is interesting to observe that she is already accepting support not only from the subadults in the group but also from another adult female who joined the group last February. She will

also need the protection of the silverback. Makumba has proven his competence as leading silverback and protector of the group for over 19 years, siring at least 14 offspring, and he definitely has a part to play in assuring the survival of these two.

The critically endangered western lowland gorillas face serious threats from poaching, disease and habitat loss across Central Africa. Also, they have a slower life history than mountain gorillas (Breuer et al. 2009), leading to low population growth rates that will affect recovery from population crashes. Such insecure future is the reason WWF is working with governments and partners throughout the region to protect them and their forest habitat. These tiny twins therefore symbolize incredible hope and success for the region.

*Janika Wendefeuer and  
Terence Fuh Neba*

## Reference

Breuer, T. et al. (2009): Physical maturation, life-history classes and age estimates of free-ranging western gorillas – insights from Mbeli Bai, Republic of Congo. *American Journal of Primatology*, 71 (2), 106–119

## African Primatologists Form Society to Secure Future of African Primates

It is widely acknowledged that the long-term conservation of African primates depends largely on Africans themselves, and this requires that Africans become more involved and lead efforts to conserve these unique animals. Yet, to date, Africans have remained relatively less active in the field of primatology in Africa. The situation is made worse by the marked lack of coordination of efforts by African primatologists and the lack of a platform to facilitate effective engagement with primatologists and other stakeholders globally.

### Recent Twin Deaths in the Virunga Gorillas

In the last *Gorilla Journal* issue, we reported about the mountain gorilla twins that were born in January 2016 in Rwanda. Sadly, one of them died in August due to injuries sustained during an interaction with another group. In August, there was another twin birth in Rwanda: by Kalisimbi, Amahoro group. Both babies were dead one day after birth.

In the Virunga National Park, Democratic Republic of the Congo, Mafuka in the Bageni group gave birth to twins in October. At six days of age, however, one of the twins died, and the other one died the next day.



# GORILLAS

One consequence of this is the under-representation of Africans at international primatological fora. For example, until the 2016 IUCN/SSC Primate Specialist Group African Primate Red List Assessment Workshop in Rome, only a few, if any, Africans were able to participate in the Red List Assessment of African primates, which assigns defined threat categories to the different taxa and therefore sets the agenda for conservation interventions. The situation is similar for other international primatological fora such as the International Primatological Society Congresses, convened to share information about research and conservation efforts and to assess the state of the world's primates, including African primates.

This is in clear contrast to other regions of the world where well established primatological groups, societies, federations or associations exist and facilitate information sharing, coordination of research and conservation efforts, effective representation at international fora. The lack of coordination has also limited the ability of African primatologists to influence policies that impact on African primates and their ability to lend support as a regional group where needed. While there is still a dearth of Africans with expertise in primate research and conservation on the continent, such expertise is undeniably growing and needs to be harnessed for the benefit of African primates.

It was in an effort to fill this gap that the idea of forming an African primate group was conceived. This idea was discussed at a number of meetings and via email leading to the formation in 2013, of the "African Primatologists Working Group" (APWG), which was essentially an email correspondence group coordinated by an ad hoc steering committee. At the 2016 IUCN/SSC Primate Specialist Group African Primate Red List Assessment Work-



**Participants at the 2016 IUCN/SSC Primate Specialist Group's African Primate Red List Assessment Workshop, Rome, Italy**

shop in Rome, the African representatives continued these discussions and officially adopted the name "African Primatological Society (APS)" with a new steering committee constituted to coordinate the activities of the Society.

The APS aims to **promote greater involvement of Africans and African leadership in research and conservation of African primates**. Specifically the Society aims to promote: 1) information and experience sharing; 2) networking among African primatologists; 3) capacity building towards achieving a critical mass of skilled African primatologists; and 4) greater and more effective representation of African primatologists and conservationists at the international level.

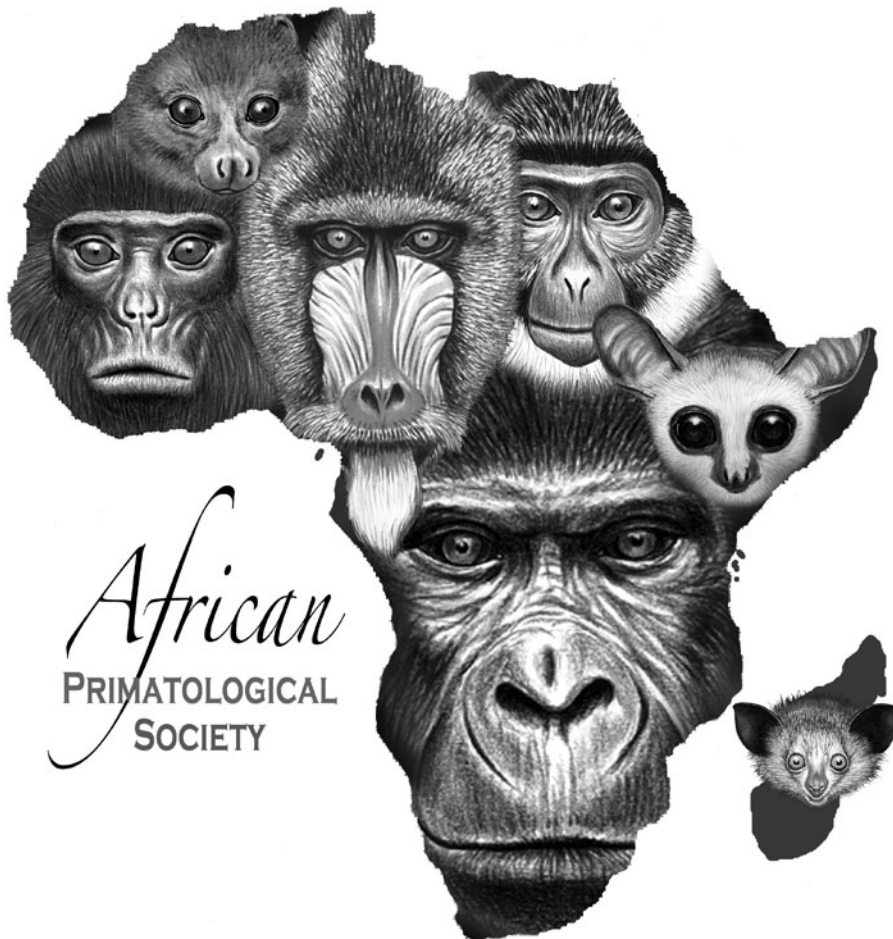
The steering committee is working towards organizing an inaugural Congress of the APS in 2017, where among other things, the structure and operational framework of the APS will be agreed, a constitution for the society adopted and officers elected to lead

and coordinate the affairs of the society moving forward. A number of activities have so far been completed under the leadership of the current Steering Committee including:

- A logo designed
- Email account created ([AfricanPrimateSociety@gmail.com](mailto:AfricanPrimateSociety@gmail.com))
- Facebook page created (<https://www.facebook.com/African.Primatological.Society/>)
- Twitter account created (@AfricanPS)
- Brief communication in *African Primates*
- Promotion of the Society at the IPS congress. For the first time, African primatologists gathered at the 2016 IPS Congress in Chicago, USA, as a regional group under the APS! This is only a small first step, but nonetheless a significant one for us and a sign that the APS is here to stay! The announcement of the birth of the APS at the Chicago 2016



## READING



**David W. Henson, Robert C. Malpas and Floris A. C. D'Udine**  
**Wildlife Law Enforcement in Sub-Saharan African Protected Areas – A Review of Best Practices.** Occasional Paper of the IUCN Species Survival Commission No. 58. Cambridge, UK and Gland, Switzerland (IUCN) 2016. XXII, 65 pages. Download PDF (3.47 MB): <https://portals.iucn.org/library/sites/library/files/documents/SSC-OP-058.pdf>

**Christoph Schwitzer, Russell A. Mittermeier, Anthony B. Rylands, Federica Chiozza, Elizabeth A. Williamson, Janette Wallis and Alison Cotton (eds.)**

**Primates in Peril.** The World's 25 Most Endangered Primates 2014–2016. Illustrations by Stephen D. Nash. IUCN SSC Primate Specialist Group (PSG), International Primatological Society (IPS) Conservation International (CI), Bristol Zoological Society 2016. IV, 93 pages. ISBN: 978-1-934151-95-2. Download PDF (5.02 MB): <https://portals.iucn.org/library/sites/library/files/documents/2015-033.pdf>

### New on the Internet

**Sasha Lezhnev**

**A Criminal State:** Understanding and countering institutionalized corruption and violence in the Democratic Republic of Congo. Enough Project, October 2016. 121 pages. Download PDF (1.94 MB): [http://www.enoughproject.org/files/A\\_Criminal\\_State\\_Enough\\_Oct2016\\_web.pdf](http://www.enoughproject.org/files/A_Criminal_State_Enough_Oct2016_web.pdf)

**J. R. Mailey and Jacinth Planer**

**Bankrupting Kleptocracy:** Financial tools to counter atrocities in Africa's deadliest war zones. Enough Project, October 2016. 59 pages. Download PDF (1.47 MB): [http://www.enoughproject.org/files/Final\\_Tools\\_Mailey\\_Planer\\_October\\_2016.pdf](http://www.enoughproject.org/files/Final_Tools_Mailey_Planer_October_2016.pdf)

IPS Congress was very warmly received, and many who attended the side meeting organized by the APS promised to support the society.

- Membership form created and circulated for interested persons (Africans and non-Africans) to complete and return with information to create a database of members. It is hoped that everyone will help contact and share the form with primate researchers and conservationists in their countries and sub-regions to gather information for the database.

The APS Steering Committee is also working towards 1) creating a fully functional website for the Society and a database of members; 2) organizing

an inaugural congress in 2017; and 3) identifying potential partner institutions, donors, and a host institution in Africa (where the society is to be headquartered).

*Inaoyom Imong, Rachel Ikemeh, Inza Koné and Denis Ndeloh Etiendem*

*The African Primatological Society thanks Dr. Stephen Nash for logo design and Conservation International for the opportunity offered to promote the society at the Chicago 2016 IPS Congress.*

*Correspondence to:  
Steering Committee*

*Email: [africanprimatesociety@gmail.com](mailto:africanprimatesociety@gmail.com);  
Facebook: <https://www.facebook.com/African.Primatological.Society/>;  
Twitter: @AfricanPS*



## BERGGORILLA & REGENWALD DIREKTHILFE

### Global Witness

**River of gold.** How the state lost out in an eastern Congo gold boom, while armed groups, a foreign mining company and provincial authorities pocketed millions. July 2016. 32 pages. Download PDF (4.03 MB): <https://www.globalwitness.org/en/campaigns/democratic-republic-congo/river-of-gold-drc/>

**Daniela Kleinschmit, Stephanie Mansourian, Christoph Wildburger and Andre Purret (eds.)**  
**Illegal Logging and Related Timber Trade** – Dimensions, Drivers, Impacts and Responses. A Global Scientific Rapid Response Assessment Report. IUFRO World Series Volume 35. International Union of Forest Research Organizations, Vienna, December 2016 146 pages. ISBN 978-3-902762-70-2. Download PDF: <http://www.iufro.org/publications/article/2016/12/03/world-series-vol-35-illegal-logging-and-related-timber-trade-dimensions-drivers-impacts-and/> or <http://www.iufro.org/science/gfep/illegal-timber-trade-rapid-response/report/>

**Senckenberg Research Institute**  
**African Plants** – A Photo Guide. An interactive photographic guide that helps to identify higher plants from Africa (excluding Madagascar). [www.africanplants.senckenberg.de](http://www.africanplants.senckenberg.de)

### New Address

At our members' meeting in April, a new Board of Directors was elected. Rolf Brunner, who was one of the founding member of our organisation, resigned because of his age. We are happy that we found a competent successor for Rolf, Burkhard Broecker. We have known him for many years and he already took over Rolf's tasks successfully.



*The Stuttgart Zoo Wilhelma has been supporting our work for many years, since 2009 mainly with proceeds from the collection and recycling of mobile phones. In 2016, Angela Meder and Anne Pfisterer presented Berggorilla & Regenwald Direkthilfe's activities and provided information for visitors at the zoo's first species conservation day – of course in front of the gorilla enclosure.*

*Photo: Ralf Schirsching*

### Our Donors

From May to October 2016 we received major donations by Angelika Dickmann, Rüdiger Dmoch, Andreas Fretz, Jürgen and Irmgard Friedrich, Emilio Garcia

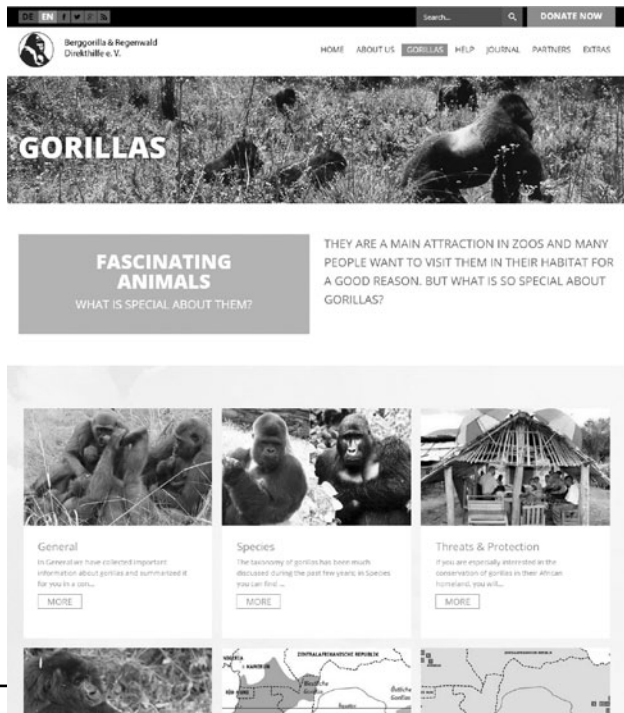
Barea, Colin Groves, Peter Günther, Andrea Helmecke, Lisa Jahraus, Elke Kastner, Isabella Löber, Hannelore Merker, Berthold Müller, Oliver Nevi, Anne Pfisterer, Piernella Pols Fonds, Birgit Reime, Wolfram Rietschel, Alfred Roszyk, Nadine Roth, Thorsten Roth, Erika Rüge, Schwabenpark-Kaisersbach, Ulrich Wedding, Christof Wiedemair, Wilhelma, Christian Wolf and Zoo Milwaukee.

Apart from several zoos and animal parks two school classes also collected donations for us. We thank the students, their teachers and the parents for their efforts!

Many thanks to everybody, including all the donors that could not be listed by name here. We are grateful for any support, and we hope that you will continue to support our work in 2017!

**Berggorilla & Regenwald  
Direkthilfe e. V.  
c/o Burkhard Broecker  
Juedenweg 3  
33161 Hoevelhof  
Germany  
[broecker@berggorilla.org](mailto:broecker@berggorilla.org)**

## Do you know berggorilla.org? Visit our new site!



## Subscription to the *Gorilla Journal*

If you become a member, you will receive the journal regularly. If you want to receive the printed journal without becoming a member, we would be grateful if you could make a donation to cover our costs. The costs to send the journal overseas are about US\$ 20 per year.

If you do not need the printed version, we can include your email address in our mailing list and you will be informed as soon as the PDF files are available (contact: meder@berggorilla.org).

You can download this issue at:  
[www.berggorilla.org/fileadmin/user\\_upload/pdf/journal/journal-en/gorilla-journal-53-english.pdf](http://www.berggorilla.org/fileadmin/user_upload/pdf/journal/journal-en/gorilla-journal-53-english.pdf)

as well as the German issue:  
[www.berggorilla.org/fileadmin/user\\_upload/pdf/journal/gorilla-journal-53-deutsch.pdf](http://www.berggorilla.org/fileadmin/user_upload/pdf/journal/gorilla-journal-53-deutsch.pdf)

and the French issue:  
[www.berggorilla.org/fileadmin/user\\_upload/pdf/journal/journal-fr/gorilla-journal-53-francais.pdf](http://www.berggorilla.org/fileadmin/user_upload/pdf/journal/journal-fr/gorilla-journal-53-francais.pdf)

## Declaration of Membership

Starting with the following date \_\_\_\_\_ I declare my membership in *Berggorilla & Regenwald Direkthilfe*

Name \_\_\_\_\_ Affiliation \_\_\_\_\_

Address \_\_\_\_\_  
 \_\_\_\_\_

Birth date \_\_\_\_\_ male  female

I want to receive a printed copy of the *Gorilla Journal*  
 I want to be informed if the new issue is available on the internet. My e-mail: \_\_\_\_\_

Yearly subscription (please mark) \_\_\_\_\_ Date and signature \_\_\_\_\_

	Europe	Overseas
Student	<input type="checkbox"/> euro 20	<input type="checkbox"/> US\$ 30
General member	<input type="checkbox"/> euro 45	<input type="checkbox"/> US\$ 80
Family	<input type="checkbox"/> euro 70	<input type="checkbox"/> US\$ 130
Donor	<input type="checkbox"/> euro 100	<input type="checkbox"/> US\$ 180

Please send to:  
**Berggorilla & Regenwald Direkthilfe**  
 c/o Burkhard Broecker  
 Juedenweg 3  
 33161 Hoevelhof, Germany  
 Fax +49-711-6159919

Bank account:  
*Berggorilla & Regenwald Direkthilfe*  
 IBAN DE06 3625 0000 0353 3443 15  
 BIC SPMHDE3E

Bank account in Switzerland:  
 IBAN CH90 0900 0000 4046 1685 7  
 BIC POFICHBEXXX