



# ***Gorilla Journal***

*Journal of Berggorilla & Regenwald Direkthilfe*

*No. 68, June 2024*



**Revitalising the  
Management  
of the Itombwe  
Nature Reserve**

**When Gorillas  
'Rescue'  
Themselves**

**The Usala  
Corridor – a Win-  
Win for Gorillas  
and People**

**Put them in the  
Ground and Let  
them Grow**



# BERGGORILLA & REGENWALD DIREKTHILFE

## CONTENTS

<b>D. R. Congo</b>	
Revitalising the Management of the Itombwe Nature Reserve and Collaboration with the Local Population	3
Support for Itombwe When Gorillas 'Rescue' Themselves	3
The Usala Corridor – a Win-Win for Gorillas and People	5
Unveiling the Conservation Journey: Insights from the 26 <sup>th</sup> Tayna Gorilla Reserve General Assembly	6
<b>Uganda</b>	10
Put them in the Ground and Let them Grow: Bwindi Tree Network Project	12
<b>Gorillas</b>	14
Dear Relatives	14
The Gorilla Doctors Michael Cranfield Regional One Health Laboratory	16
Ranges of Western Lowland Gorillas	18
<b>Reading</b>	19
<b>Berggorilla &amp; Regenwald</b>	
<b>Direkthilfe</b>	20
Finances	20

### Gorilla Journal 68, June 2024

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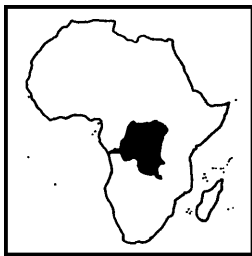
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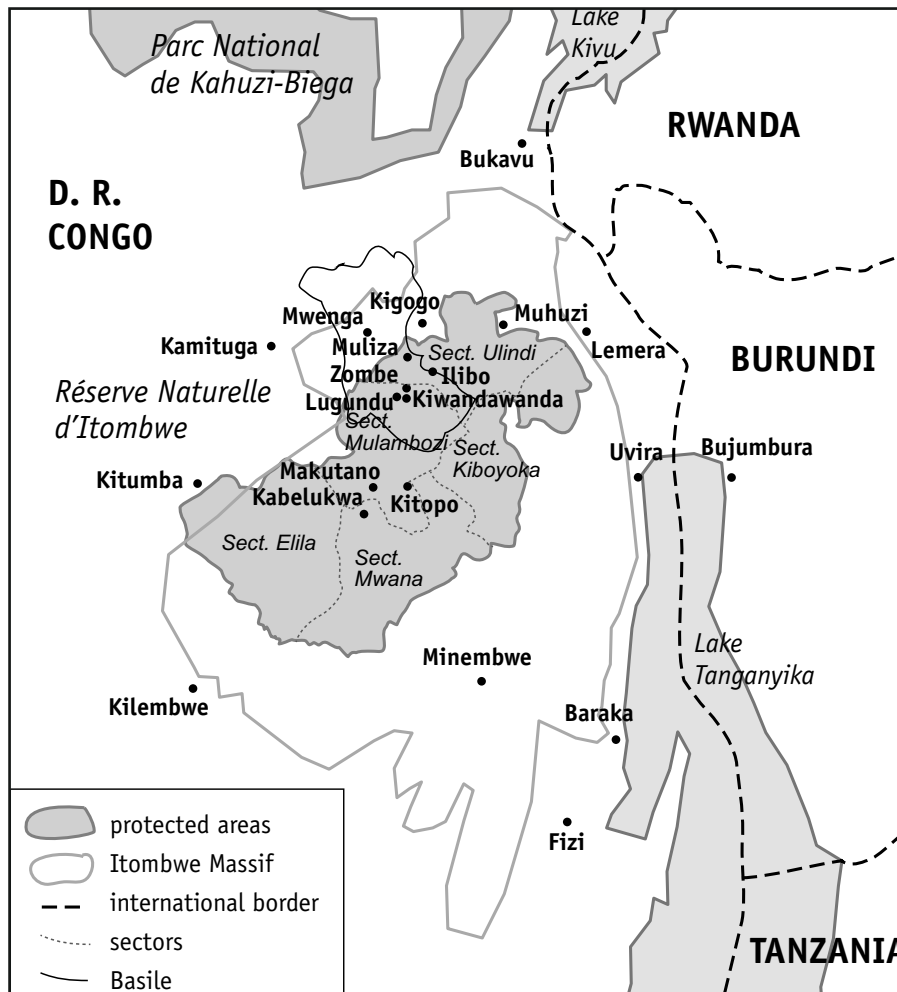
# D. R. CONGO

## Revitalising the Management of the Itombwe Nature Reserve and Collaboration with the Local Population

Since 2021, relations between the Congolese Institute for Nature Conservation (ICCN)/Itombwe Nature Reserve (INR) and the local population of the Itombwe Nature Reserve have deteriorated, with consequences for activities in the reserve. A large part of the reserve was not monitored from 2021 until early 2024, in particular the gorilla concentration zones, such as the Basile village group and the Kigogo village group at Luindi. A few patrols were carried out in the Ulindi sector, in a zone close to Mwenga. This conflict has caused the deterioration of the good relations that previously existed between these chiefdoms and the ICCN, leading to the degradation of biodiversity and the discouragement of most of the partners who should be contributing to the sustainable management of this Protected Area and to the socio-economic development of the local communities. The conflict has led to the Grand Chief (Mwami) of the Basile Chiefdom, Mr Kalenga Riziki Lwango, prohibiting eco-guards from entering the forest under his jurisdiction, thereby closing this part of the INR to conservation activities.

The main challenges to conservation in the reserve are as follows:

- Threats resulting from illegal human activities, such as the resurgence of commercial and subsistence hunting, the search for timber (planks), grazing on the highlands, fires and shifting cultivation in the multiple-use zone and artisanal mineral exploitation.
- Weaknesses and constraints due to the lack of equipment, both in the field and in the office, low staff motivation and poor governance, in par-



Sectors of the Itombwe Nature Reserve

Map: Angela Meder

ticular the deterioration in the climate of collaboration between the reserve and other stakeholders, the refusal of access to the forest by traditional chiefs in the Basile chiefdom, and the concerns of local communities regarding natural resources and the support they expect.

However, assets and strengths for the conservation of the INR remain, as follows:

- High biodiversity, with several flagship animal species (eastern lowland gorillas, elephants, chimpanzees), constitutes the first asset for conser-

vation. Status as a category VI Protected Area with multiple-use zones, a buffer zone and a priority conservation area. Monitoring of freshwater ecosystems (rivers), which are rich in ichthyofauna. The appointment of site managers who are not originally from the local zones of the INR and the knowledge of the INR boundaries by several members of the community. The presence of the site headquarters in Mwenga with staff that are both patient and aware of their mission, the subdivision of the reserve into sectors, the aware-



# D. R. CONGO



**Participants at the meeting in Bukavu on 11 January 2024**

*Photo: Benjamin Kalimutima*

ness of the local communities of the importance of biodiversity conservation, local recruitment, the existence of management programmes and the abundance of medicinal plants used by the community.

**Revitalising reserve management**

In order to improve the management of the Itombwe Nature Reserve, the ICCN has assigned new managers to the site. They commenced work by identifying all the challenges to be met, as well as the assets and strengths of the INR, with the aim of restoring order to the management of the reserve. Restoring order requires the participation of all stakeholders. To achieve this, the site manager decided to meet with the stakeholders to identify the basis for a new direction for activities. The first steps were as follows:

**Contact technical and financial partners.** On 11 January 2024, all the INR’s technical, scientific and financial partners met at the Horizon Hotel, Bukavu, to discuss what action needs to be taken and the support that will be required in 2024. A total of 14 people took part in the meeting, including supporting partners, representatives of the

Itombwe site, the ICCN Provincial Directorate and a moderator.

During this meeting, the current status of the reserve was presented and an operational plan was discussed. Comments were then made before adoption of the operational plan. Each partner presented the activities they

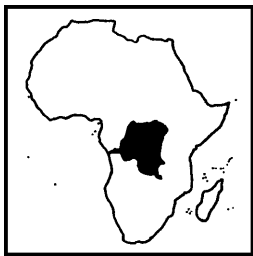
were planning to conduct in 2024 or the support they intended to provide.

**Revitalising relations with traditional chiefs.** After identifying the challenges, two resolutions were adopted, namely the need for involvement of all stakeholders in the governance of the reserve and the reinitiation of dia-

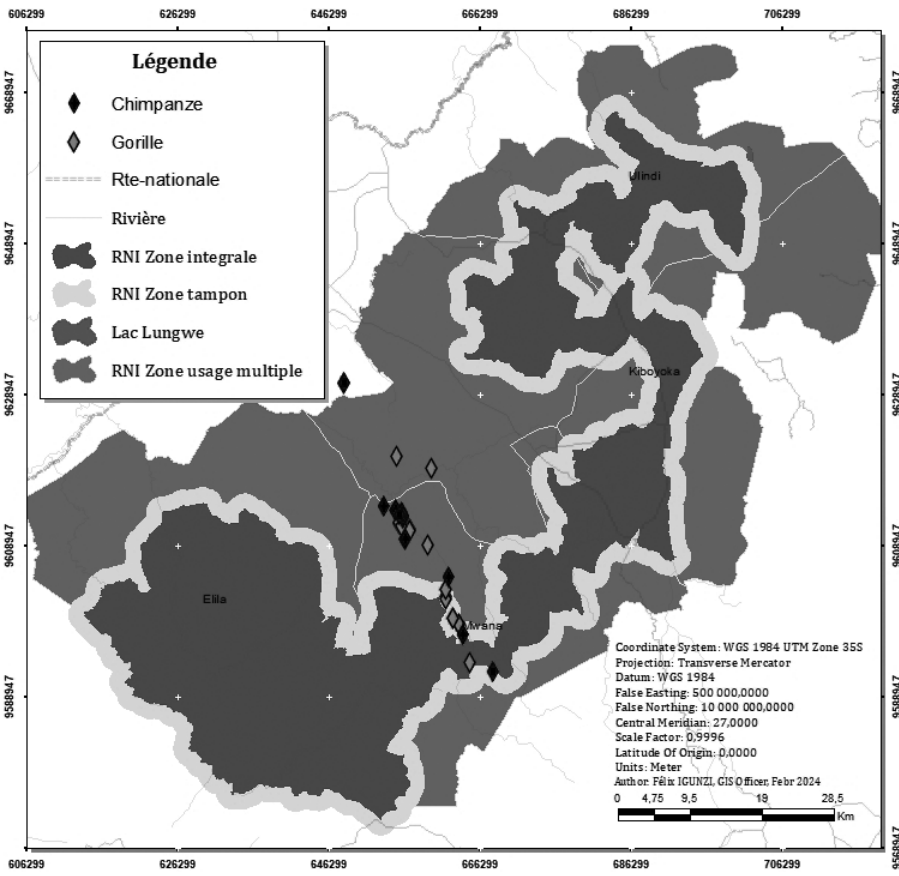


**Reinstalment of the eco-guards in the Kalungu Patrol Post that had been closed in 2022**

*Photo: ICCN*



# D. R. CONGO



**Traces of gorillas (grey diamonds) and chimpanzees (black diamonds) found during a patrol in February 2024 in the Itombwe Nature Reserve**  
 Map: ICCN

logue with the neighbouring communities, especially those of the Basile chiefdom. As part of the implementation of these resolutions, the traditional Grand Chief of the Basile chiefdom organised a dialogue for 20 March 2024, during which all the problems between the INR and the chiefdom were examined. Proposed solutions were put forward and a final statement was signed by all parties.

Subsequently, the traditional chiefs reopened the forest with traditional ceremonies and authorised the eco-guards to resume their activities in the Kalungu patrol post, which had been closed since 2022.

**Patrol activities carried out from January to March 2024**

Three major patrols were carried out, one in January in the Ulindi sector

**Support for Itombwe**

Some patrols are carried out in the Itombwe Reserve with support from B&RD. However, their numbers are far from sufficient and they are very poorly equipped. Only a part of the reserve is patrolled regularly, although patrols are also necessary in the remainder of the reserve to ensure protection of the forest and the animals that live there. The men lack equipment and food. They have to carry heavy packs, which makes collecting data very difficult while travelling.

Many things are needed to facilitate existing patrols and to make additional patrols possible:

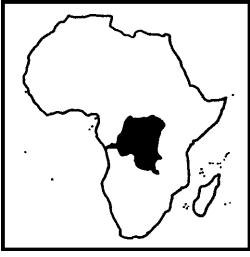
- rations (400–500 USD/month)
- medical care (100 USD/month)
- equipment (GPSs, rubber boots, uniforms, raingear, sleeping bags, medicines, tents and cooking utensils ...)
- wages for porters to carry the camping equipment
- bonuses to increase motivation

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**If these funds were available on a sustained basis, one or two additional patrols per month could be organised. Help us to make this possible!**

You are also welcome to donate via PayPal if you prefer this:  
<http://www.berggorilla.org/en/help/donate>

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## D. R. CONGO

and two in February and March in the Mulambozi sector and in the Mwana valley.

These three patrols, which lasted a total of 38 days, covered 134 quadrants measuring 2.5 x 2.5 km out of a total of 1,009 quadrants constituting the reserve, *i.e.* 13.46 % of the reserve. These patrols are ample proof of the resumption of good collaboration between the INR and the local communities.

In the Ulindi sector, the patrol lasted 9 days and covered 19 quadrants. No evidence of the presence of gorillas was found in this sector

In the Mulambozi sector and the Mwana valley, two patrols – one lasting 14 days in February and one lasting 15 days in March – took place. These two patrols covered 42 and 73 quadrants, respectively. They identified five gorilla sites and observed several chimpanzees.

*Claude Sikubwabo Kiyengo and Séguin Kaziga Bisuro*

### When Gorillas ‘Rescue’ Themselves

On the morning of 19 February 2024, Dr. Lina Nturubika, a field veterinarian with Gorilla Doctors, hiked out from our Tshivanga field station at Kahuzi-Biega National Park, Democratic Republic of the Congo. It was a little before 9:00 AM, and she was planning a routine health check of Bonane group, a family of nine Grauer’s gorillas led by silverback Bonane.

Not far into the forest, Lina Nturubika and the four park trackers heard the gorillas screaming before they saw them, and it was not a usual vocalization. Following the gorilla group’s tracks in the forest – broken branches, partially eaten vegetation, and fresh feces – they discovered adult female Mukono trapped in a snare with silverback Bonane right by her side.



***Mukono with the blind right eye***

*Photo: Gorilla Doctors*

When Bonane saw Lina Nturubika and the trackers he remained calm. Everyone, including the rest of Mukono’s gorilla family, watched in tense anticipation as Mukono tried to free herself from the snare. And then, suddenly, she broke the wire with her teeth! Mukono ran off with a small piece of the snare still stuck to her arm, but thankfully later it fell off.

Once Mukono was free, Bonane became quite agitated and “on guard,” according to Lina Nturubika’s report. The other gorillas in the group surrounded Mukono and kept a close eye on her.

Eventually the group calmed down and began feeding and playing. Bonane moved up into the trees and Lina Nturubika observed Mukono playing with her infant. It is such a thrill for the veterinarians when the gorillas can ‘rescue’ themselves and do not require the Gorilla Doctors to intervene – it is the BEST possible outcome!

Mukono has an incredible story. As a juvenile, she was caught in a snare, but

unfortunately, was not able to free herself. The snare caused severe wounds and Mukono lost her right hand and right eye.

Her wounds healed well and today Mukono is a thriving adult with multiple surviving offspring. Her youngest infant, Youssoupha, is named after the famous French-Congolese rapper who serves as an ambassador and champion of Kahuzi-Biega National Park. Grauer’s gorilla Youssoupha turned one year on March 22<sup>nd</sup>. He is the positive ‘downstream effect’ of Mukono’s snare survival when she was still a juvenile.

*Gorilla Doctors*

### The Usala Corridor – a Win-Win for Gorillas and People

There are very few communities left in the world that require a difficult, seven-day trek through dense jungle and



# D. R. CONGO

across rushing rivers to reach. Deep in the rainforest of the Congo Basin, such a place exists – Rama. And if we hurry, we can keep the towering primary forest around it intact and protect a corridor for gorillas between two biodiversity hotspots while securing permanent land rights for local communities.

### The “Road to Rama”

In December of 2023, a team from GRACE (Gorilla Rehabilitation and Conservation Education), the Union of Gorilla Conservation Associations for Community Development in eastern Democratic Republic of the Congo (UGADEC), and the Usala Gorilla Reserve (RGU) made the arduous multi-day trek through the rainforest to meet with the elders and members of the Rama community and surrounding areas to confirm their support for the creation of a 284,000-acre Usala Corridor community forest concession.

The traditional chief of this region, Mwami Eric Mwaka Eliba, had been trying to protect this land for a decade, knowing it would benefit the communities living in the area. He approached UGADEC, RGU, and GRACE for help with financing and navigating the complicated, almost ‘serpentine’, legal process for creating a community forest concession.

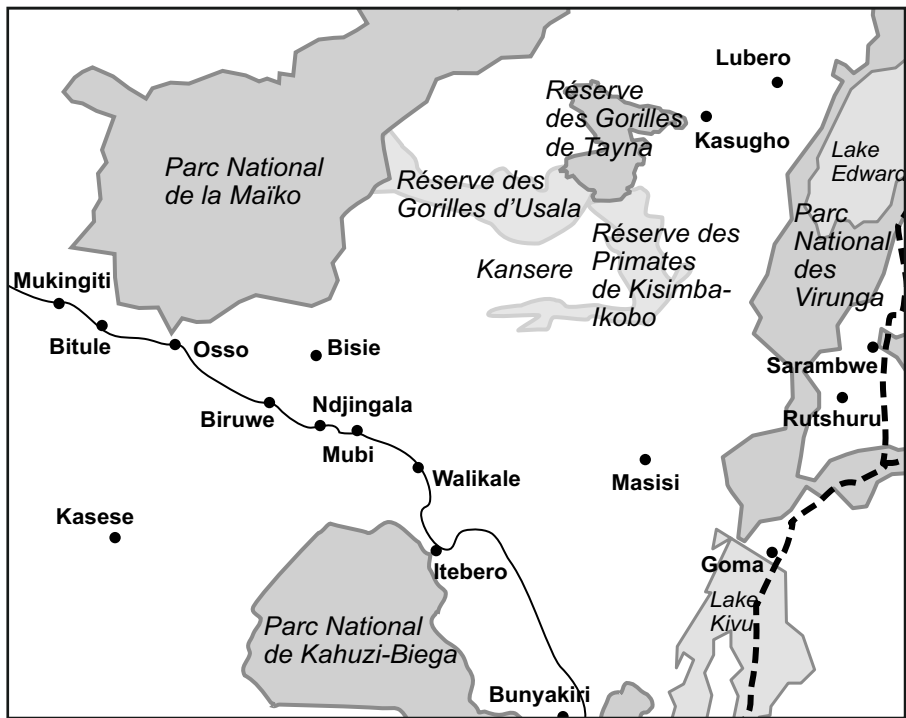
### What is so important about the Usala Corridor?

The Congo Basin, spanning six countries, removes an estimated 1.1 billion metric tons of carbon from the atmosphere annually. At more than 700 million acres, it is the world’s second-largest tropical rainforest behind the Amazon. Perhaps most significantly, the Congo Basin is the world’s largest carbon sink, absorbing more carbon than it releases, whereas recent research has shown that the Amazon



**The team trekked seven days through the rain forest to reach the village of Rama. The picture below shows one of hundreds of river crossings on the road.**

*Photos: GRACE*



**The Réserve des Gorilles d'Usala between Maiko and Tayna.**  
Map: Angela Meder

Basin is now a net carbon emitter due to industrial-scale logging and agricultural development. There is no solution to climate change that does not involve saving the Congo Basin’s forests.

This is also one of the most bio-diverse regions of Africa, with many threatened and endemic species including forest elephants, gorillas, chimpanzees, leopards, golden cats, and



## D. R. CONGO

more. In eastern D. R. Congo, Maiko National Park and Tayna Nature Reserve are two great ape strongholds of global significance. Maiko and Tayna are separated by an area known as the Usala Forest.

There is a wave of deforestation pulsing westward toward the Tayna Nature Reserve and the lush forests beyond. This growing human population acts as an impenetrable barrier for wildlife between Tayna Nature Reserve and Virunga National Park to the east. If further deforestation is allowed to encircle the Tayna Nature Reserve, the reserve is at risk of becoming an isolated biological island, also cut off from the much larger Maiko National Park.

At the moment, most of the forest in the proposed Usala Corridor is intact. The best and most cost-effective way to preserve important ecological functions is to protect the existing forest. It can take centuries to regenerate a rainforest, and the ecological complexity may never be the same. There are very few places on Earth where it is still possible to protect such a massive

area with staggering biodiversity, and the time to act is now.

### **Why is GRACE involved in creating this corridor?**

Our motto at GRACE is “a future for gorillas, based on community.” We know that our work to protect forests and gorillas cannot succeed without the leadership of local communities.

The GRACE Grauer’s gorilla sanctuary, which began operations in 2008 and is staffed by a stellar all-Congolese team, has given us a permanent presence in the area. As the rescued gorillas in our care rely on us, we continue our work even through Ebola outbreaks, the COVID-19 pandemic, and when insecurity affects the area. We are the only international conservation organisation working in this important biodiversity hotspot (although we welcome new partnerships) and our permanent presence has allowed trust to build between us and the local communities.

Because of this trust, after a decade of trying to protect the Usala Forest,

Mwami Eric Mwaka Eliba approached us for assistance in creating a community-managed conservation area that would benefit his people. With generous funding from the Rainforest Trust and other donors, GRACE is partnering with UGADEC and RGU to create the Tayna-Usala Conservation Corridor by establishing three adjacent Local Community Forest Concessions (CFCL).

### **Local Community Forest Concessions (CFCLs) – a mechanism for community empowerment and conservation**

Until recently, there was no accessible legal mechanism for people in rural areas of Democratic Republic of the Congo to own their land despite customary tenure that has been recognized locally for generations. This leaves communities vulnerable to powerful logging or mining interests and migration into the area of people fleeing unrest or extraction industries elsewhere in the region. As these communities rely almost exclusively on small-scale agriculture and forest resources for their survival, they have to take action quickly to protect their rights and their lands, or their ability to feed their families will be compromised.

A relatively new land conservation mechanism is making it possible for them to do so. Local Community Forest Concessions, or CFCLs, offer secure land tenure to communities in exchange for managing their forests sustainably. This will allow these communities to continue economic and subsistence activities within the forest with the oversight of a locally elected management body that ensures the activities are not detrimental to the overall health of the forest.

There are numerous ways CFCLs benefit communities and the planet:

By granting communities the right to own and manage their forests, the balance of control shifts from distant authorities to those who live closest to the



*Our team is welcomed into the village of Rama – a remote community that rarely receives visitors from outside the area.*

*Photo: GRACE*





# D. R. CONGO

## About GRACE

Gorilla Rehabilitation and Conservation Education (GRACE) Center is an NGO that operates the sanctuary for Grauer’s gorillas in Eastern Democratic Republic of the Congo (DRC). The largest primate in the world, Grauer’s gorillas only live in war-torn eastern DRC.

GRACE cares for 14 orphaned gorillas rescued from poachers and works to rehabilitate them so they can one day return to the wild. At GRACE, the gorillas live in a single gorilla group that functions as a surrogate family and spend their days in protected forest habitats.

GRACE also leads field research and partners with local communities on education and conservation initiatives to protect a critical population of wild gorillas living in Tayna Nature Reserve. For more about GRACE, visit [gracegorillas.org](http://gracegorillas.org).

cludes zoning for different activities, takes into account traditional uses and customs in addition to setting aside sensitive ecosystems that need higher levels of protection.

The CFCL mechanism empowers communities, protects biodiversity, and offers a pathway to sustainable livelihoods. Each concession in DRC can include up to 50,000 hectares of forest. The Usala Corridor will consist of three concessions, protecting a significant amount of forest long into the future.

### Free, Prior and Informed Consent (FPIC) – a human rights-based approach

A crucial part of creating the CFCLs is getting the agreement of everyone who has a claim to the lands or will be impacted by the new concessions. The gold standard process for this is known as Free, Prior, and Informed Consent (FPIC).

*Free:* People cannot be coerced, through threats or financial incentives, into offering their support for the project. They must freely agree to it.

*Prior:* Stakeholders must be consulted and freely give their consent *before* the concession is established.

*Informed:* All parties must fully understand the legal structure of the agreement and how the new concession will impact their lives and be given the opportunity to provide feedback on the process and design in their own time.

*Consent:* This is not a top-down process where land is being taken away and put under the control of a government authority with little input from locals. This is a community-driven process that must benefit the people affected by it, and the people affected must agree to the creation of the forest concession or it will not move forward. Consensus must be reached among traditional landowners and consent must be given in a way that is meaningful to them, such as through public meetings and ceremonies.

In such a vast and inaccessible region, this is no small task. Teams from GRACE and UGADEC have canvassed communities across the Usa-

land. People living in or near the forest are the most invested in its protection and are the most impacted by its destruction.

Intact forests stabilize the local (and global) climate, protect water supplies, and ensure an ongoing supply of the resources people need to survive. The mechanism allows sustainable economic activities to continue, reducing poverty and offering an alternative to illegal hunting, illegal logging, and destructive mining practices.

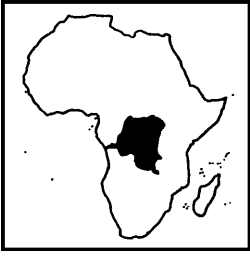
Communities will continue to have access to important non-timber forest products (NTFPS) such as medicines and edible plants, enhancing nutrition, health, resilience, and food security during times of instability.

The planning process, which in-



**Community meetings are held across the Usala region in support of the FPIC process**

*Photo: GRACE*



# D. R. CONGO

la region and spoken with more than a thousand stakeholders in towns and villages so far. Rather than simply making the information available and expecting individuals to find it, our teams are proactively disseminating the information in person and in the most effective ways possible.

These intrepid teams go above and beyond to ensure a thorough and respectful process. The original plan was to hold meetings in the administrative center of the Usala region in Bukucha, a one-day walk from the nearest road. However, through a series of stakeholder meetings, the team found that the traditional seat of authority was in Rama, a much more remote village that requires trekking through dense forest and crossing numerous rivers to reach.

Rather than take the easy way and confer only with the leadership in Bukucha, the team insisted on taking the difficult journey by foot to speak with the traditional leaders in Rama as well. The integrity and dedication of these individuals continue to shine in every aspect of this process.

### Connectivity and hope for gorillas and people in eastern DRC

The Usala Corridor project is a sustainable and culturally appropriate approach to great ape conservation that will protect biodiversity and help mitigate climate change long into the future. It will establish land rights for local communities, increase local stewardship of the land, and help prevent the fragmentation of gorilla populations and other critically endangered species.

It will need pro-active 'aggressive', multi-layered action on the part of the entire world to address the great challenges of our warming planet. Despite being a region that is largely ignored in the media, the Congo Basin is a place of significance for everyone. We cannot control the climate without it, and

we rely on it for the very air we breathe.  
*Mark Jordahl*

*Special thanks to Paluku Mbusa Omer, Maneno Kakule Ndavugha, and Mitondo Hamisi Alain who undertook the arduous trek to Rama for the FPIC outreach. Important support for this project was also received from GRACE DRC Director Jackson Kabuyaya Mbeke, RGU Coordinator Papy Zephirin Mahamudi Kabaya, and GRACE Usala Project Manager Dominique Tresor Valyanzizi.*

### Unveiling the Conservation Journey: Insights from the 26<sup>th</sup> Tayna Gorilla Reserve General Assembly

The Réserve Naturelle de Tayna (Tayna Nature Reserve), where lush forests cradle some of the world's most endangered species, is a testament to the dedication and resilience of local communities committed to conservation. On the 9<sup>th</sup> of March 2024, the community-elected management authority Réserve des Gorilles de Tayna

(RGT) hosted its 26<sup>th</sup> Ordinary General Assembly, marking another milestone in its journey towards preserving the region's rich biodiversity. More than 300 stakeholders travelled from miles around to attend this annual gathering.

### A Rich Legacy

The traditional chiefdoms of Bamate and Batangi created the Tayna Nature Reserve out of a collective desire to safeguard the forest and preserve the spiritual practices and sustainable uses of the land. The reserve now stands as a barrier between intense pressures of deforestation and human population growth advancing from the east and the lush, intact forests to the west.

The land for the reserve was donated by 21 local families, known as barazas, and the management council for the reserve is made up of representatives from these families. Over the years, Tayna has evolved into a model of community-driven conservation, managed by local stakeholders in partnership with international organisa-



**Mwami Mukosenge presents his remarks to the Assemblée Générale**

*Photo: GRACE*



# D. R. CONGO

tions, including GRACE (Gorilla Rehabilitation and Conservation Education).

In 2021, we coordinated the first great ape survey ever conducted in Tayna Nature Reserve. The teams found evidence of an estimated 150–300 Grauer’s gorillas and a robust population of endangered eastern chimpanzees. Trail cameras captured images of mother and baby gorillas, indicating encouraging trends as a result of conservation interventions. Additionally, the survey highlighted the importance of maintaining connectivity between Tayna Nature Reserve and Maiko National Park through the Usala Corridor to ensure the long-term viability of wildlife populations.

### Reflecting on Progress

The 26th General Assembly was an opportunity to reflect on the accomplishments of the last year. Participants received updates on biomonitoring efforts and the successes of

community education and development initiatives. The structure of the Tayna Nature Reserve allows for sustainable livelihood activities to continue in the forest, and the presentations and discussions reaffirmed a commitment to the well-being of both people and wildlife.

Jackson Kabuyaya Mbeke, DRC Director of GRACE, and Pierre Kakule Vwirasihikya, Esteemed Founder of GRACE and College des Fondateurs de RGT, shared insights into recent endeavors, including the expansion of education, livelihood, and training programs to the communities in Bunyatenge and Muhanga, near the border of Tayna Nature Reserve, and in Burusi, near Mt. Tshiabirimu (or Tshiaberimu) in Virunga National Park.

### Looking Ahead

As discussions unfolded, it became clear that the local communities are dedicated to increasing their ability to

manage the forest responsibly. They specifically requested capacity-building resources in conservation management, entrepreneurship training, and infrastructure developments such as schools and a health center to benefit the communities.

In the next year, GRACE will also build three field research stations in remote areas of Tayna Nature Reserve, allowing on-the-ground surveys and bioacoustics monitoring. This will greatly enhance our ability to customize conservation interventions based on the species present and provide jobs and training for local community members. We fully expect to be stunned by the diversity and abundance of species we will find.

### A Unified Effort

The conservation journey is ongoing and requires collective effort: every voice matters and every action counts. As the sun sets on another RGT General Assembly, it illuminates the path forward – a path guided by passion, resilience, and a shared vision of a robust future for communities, gorillas, and the forests we all rely on.

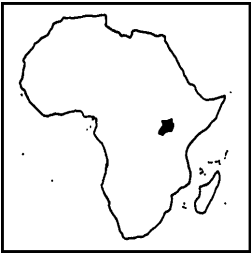
*Josias Kambale Kamaliro and Mark Jordahl*

*This article is dedicated in memory of four Tayna conservation heroes who have passed away in the last five years. They have made a lasting impact in Tayna and beyond: Jérôme Kayumba, Tendresse Makosano, Tsongo Mutati, and Muhindo Bulongo Ngike.*



**Pierre Kakule Vwirasihikya, esteemed founder of GRACE Center**

*Photo: GRACE*



## UGANDA

### Put them in the Ground and Let them Grow: Bwindi Tree Network Project

When traveling on the roads of Rubanda district, Uganda, you see pine trees everywhere: tall ones, short ones, big ones, small ones. Some trees may be lying on the ground waiting to become a chair, a part of a bed, a house, or used to keep a family warm. You might think, “Growing pine trees must be easy because everyone has pine trees. Therefore, having a pine plantation must be a piece of cake” ... well ... It’s not like that.

The goal of the Bwindi Tree Network Project is to provide community members living next to Bwindi Impenetrable National Park, Uganda with seedlings of pine, fruit, and indigenous trees to grow on their land. The aim of the project is two-fold: to prevent people from extracting resources from the forest and to improve their quality of life. The wood from the pine trees and the fruit can be used by the family who owns the trees or sold to earn a small income. Additionally, indigenous seedlings with medicinal uses are provided to discourage people from harvesting such resources from the forest. Overall, the plan is to increase awareness for conservation, emphasize the importance of traditional knowledge, and help conserve the natural forest.

The project began in April 2022. We planned to purchase the fruit tree seedlings from a commercial grower in a nearby town. The indigenous tree seedlings would be bought from the Institute of Tropical Forest Conservation, the research institute in Bwindi, which has permission from the Uganda Wildlife Authority to harvest the seeds from trees within the park as well as the knowledge to grow these seedlings, which is known to be difficult. For the pine, we decided to grow the seed-



*Tree seedlings*

*Photo: Martha Robbins*

lings ourselves since we already had some experience doing so with the local schools and we thought it would be a way to further involve community members in the project. In other agroforestry projects, it is common to end up with about half the number of pine seedlings as the number of seeds initially planted, so we were not expecting 100% success.

Nonetheless, we naively thought that growing the seedlings would basically entail constructing the nursery bed, planting the seeds in pots, waiting a few weeks for them to germinate, watering them from time to time, and then after a few months have thousands of pine seedlings. However, as is often the case with agricultural projects, it turns out that growing seedlings is not as straightforward as anticipated. We have met many challenges over the past two years and we continue to learn. Many conservation projects are hesitant to admit their mistakes, but we were encouraged by B&RD to write about the various challenges we have had with this project. We would also like to stress that this is a side project

of the Bwindi Gorilla Project. As embarrassing as it is to admit mistakes, we would like to add that we primarily focus on gorilla research and we did not enter this project as agroforestry experts.

First, we created a small nursery located in Katooma village, less than 1 km away from the boundary of Bwindi. The basic construction of the nursery features beds made of pine trees in which to grow the seedlings and a fence to provide protection from cows, goats, and pigs. The nursery beds are covered with a basic ‘roof’ made out of fern leaves to shield the seedlings from intense sunshine or heavy rain.

For our first attempt, we planted about half a kilogram of seeds, expecting as many as 50,000 seeds to germinate, but we had only about 7,000 seedlings poke out of the soil. We initially speculated that this was due to the very heavy rain that fell almost daily for the first two weeks after planting. Perhaps the seeds became waterlogged. The community members who manage the nursery, Peter Tumwesigye and Patrick Muhwezi, suggest-



## UGANDA

ed that mice were eating the seeds and the small seedlings so we built a small fence around the nursery beds to discourage rodents. However, in all likelihood, we had bought bad quality seeds. We now buy seeds from the National Forest Authority only a short time before we intend to plant them and we also soak them in water briefly before planting.

Unfortunately, we also had many seedlings dying within a week or so of germinating. Again, there were a handful of possible causes. We had initially mixed the local soil (which is heavy in clay) with sand to have a mixture that the roots could grow in and yet also not remain too wet. However, the soil in the area is of relatively poor quality due to heavy agricultural use. Therefore, we are now mixing manure from local farmers in with the soil and sand as well as applying liquid fertilizer to the seedlings. Some of the seedlings were also dying because of fungus, so we also apply a fungicide.

Because we plant the seeds in soil in the nursery beds, the small seedlings need to be transferred to pots of soil when they are about 5 cm in height. This must be done before they are too big and the roots of the different seedlings start to become entangled, making the process of moving them to the pots harder. This process requires careful handling to prevent root damage. The process of transplanting the seedlings causes stress to the seedlings, resulting in some dying. We also tried germinating the seeds directly in the pots to circumvent the stress of transplantation, however, lower germination rates were obtained.

During the duration of the project, community reception has been positive. Throughout, we have hired local community members, including many women, to assist with putting soil in the pots and transplanting the seedlings to the pots. We also buy many supplies locally, such as the manure, wood, and

the covers for the beds.

Once the seedlings reached a certain size, it was time to distribute them to the communities. We coordinate with the local village leaders to generate a list of community members who will receive the seedlings. Having a representative of the local government is helpful to avoid problems and to ensure that the people receiving the trees are inhabitants of the nearby villages. To date we have distributed seedlings to six villages, including 625 households. They have received approximately 23,000 pine seedlings that we grew as well as 1,500 indigenous tree seedlings we obtained from the Institute of Tropical Forest Conservation (ITFC), and 1,400 lemon seedlings that we purchased. On the days we distribute the seedlings, community members arrive early with containers to carry the seedlings; they are happy to receive them. We have attempted to monitor the survival of the seedlings after distribution. So far, we have information from 40 households approximately one year after they received the seedlings, with the following survival rate: Pine seedlings 64 %, Lemon trees 88 % and indigenous seedlings 46 %.

A question we are frequently asked is why are we distributing pine and lemon seedlings, and not only indigenous trees. We are aware that pine trees are not native species to the area, as are the indigenous trees. In reality, many of us have a romantic idea of conservation, where we all hold hands and go together to the forest, plant millions of trees and grow a forest again. However, in all honesty, that's what everybody wishes, but that is not how conservation usually works on the ground.

Conservation cannot be done without the community; it is not just arriving at a place, telling people what to do and then leaving. The project may finish one day, but the community is there for generations. It is important to understand the context in which peo-

ple are living. Before we started the project, we consulted with community members and they clearly stated that they wanted pine trees and lemon trees much more than indigenous trees. Pine trees were chosen due to their economic potential and utility in meeting daily needs like firewood, holding sticks for crops like beans, construction of fences, house building or improvement, etc., mitigating reliance on forest resources.

The project not only tries to avoid having people going to the forest in the search of resources, but also to improve the quality of life for the local community members through these trees. Pine trees are considered as a long-term investment, helping community members economically. Fruit trees, particularly lemons, support long-term income generation and they bear fruit within a few years of planting. Indigenous trees were provided to meet medicinal needs, reducing reliance on forest harvesting of bark, leaves or roots for local medicinal treatments. In this way, knowing the community context and necessities as well as understanding why people still go into the forest, the project aims to choose the better options to stop dependency on the forest and give alternatives to do so.

In conclusion, the challenges of this project are not unique to tree distribution projects throughout the world. Like elsewhere, this project underscores the importance of integrating local knowledge and community participation for conservation success. Additionally, it provides employment opportunities, further benefiting the local community. True conservation involves collaboration, empowerment, and understanding community needs for long-term success.

*Mathias Banshekuura, Cristian Alvarado Tamayo and Martha M. Robbins*

*We are grateful to Mondberge for funding the Bwindi Tree Network project.*



# GORILLAS

## Dear Relatives

### Are the Virunga Mountain Gorillas' closest relatives the Bwindi Mountain Gorillas?

Gorillas are subdivided into two species and four subspecies. In recent years, habitat loss, poaching and disease outbreaks have led to three of the four subspecies being listed as Critically Endangered by the IUCN (International Union for Conservation of Nature) Red List. Genome-wide sequencing is greatly expanding our knowledge of wild species. It provides insights into population structure, diversity, evolutionary history and local ecological adaptation being crucial for current and future conservation efforts, as it can be used to identify endangered populations and develop effective conservation measures.

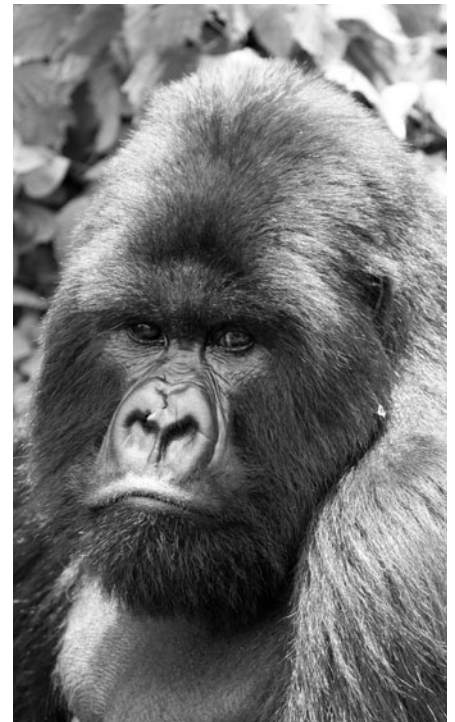
A recently published genome-based

study on the evolutionary history of gorillas found that western gorillas (*Gorilla gorilla*) and eastern gorillas (*Gorilla beringei*) diverged around 150,000–180,000 years ago. Further splits into today's subspecies occurred within the western gorillas around 80,000 years ago (western lowland gorillas and Cross River gorillas), while the eastern gorilla subspecies (mountain gorillas and Grauer's gorillas) separated only 10,000–20,000 years ago. It is generally thought that the ancestors of the Grauer's gorillas and mountain gorillas split first, followed by the separation of the two mountain gorilla populations, Bwindi and Virunga.

However, a striking finding of the new study is the closer genetic relationship between Grauer's and Virunga mountain gorillas than between Virunga and Bwindi mountain gorillas. In addition, the genetic analyses provide evidence

for subsequent gene flow among populations with evidence of genetic admixture between Cross River gorillas and Grauer's gorillas around 9,000–12,500 years ago and even after the latter diverged into Grauer's and mountain gorillas. Given the current distribution, this observation may seem surprising at first. However, the results can be reconciled with changing environmental conditions during the last ice age and subsequent humid climatic periods in Africa. These climatic changes could have favoured the expansion and contraction of gorilla territories.

The authors of the study propose the following scenario: After the split between western and eastern gorillas, but before the Last Glacial Maximum (50,000–26,000 years ago), eastern gorillas had a wide range that covered large parts of East Africa. During the Last Glacial Maximum (26,000–20,000

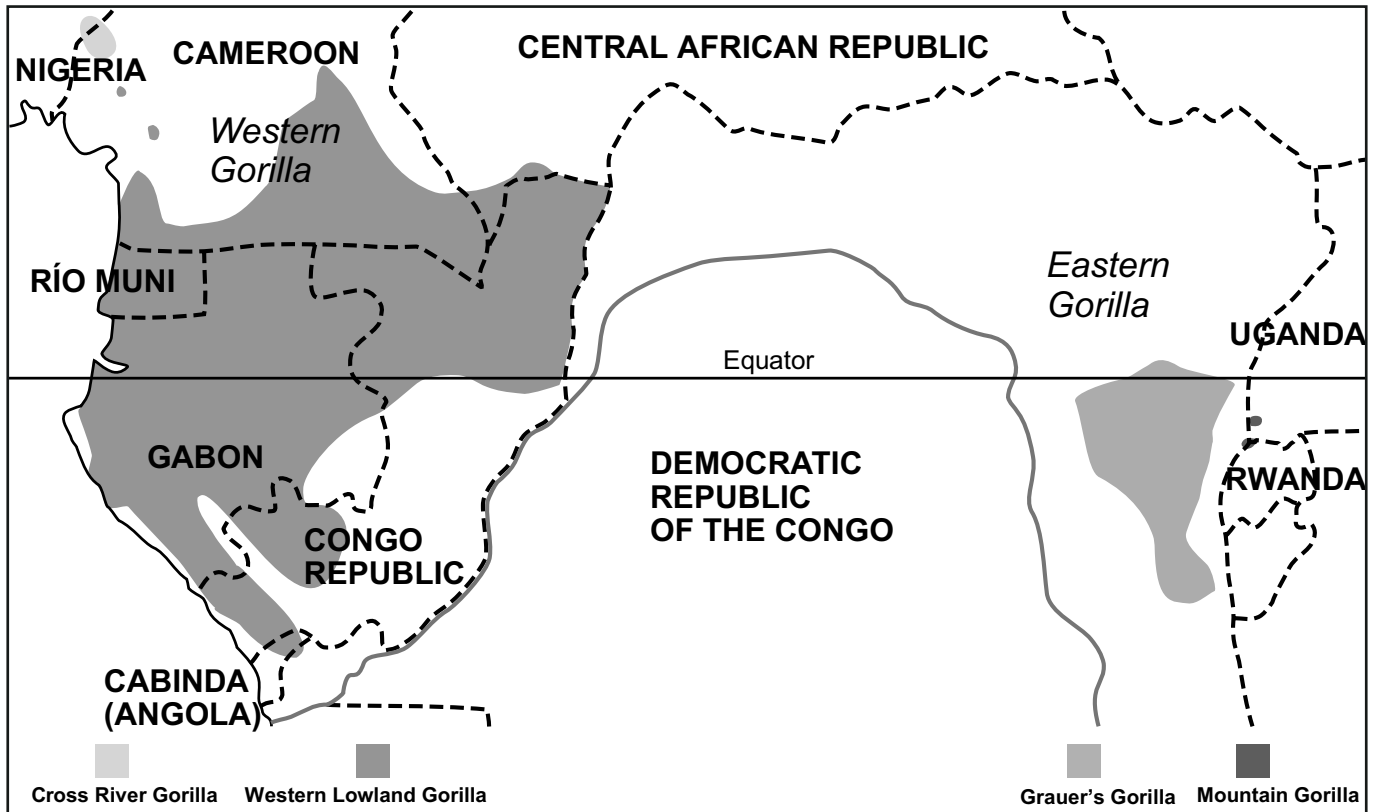


Portraits of three eastern gorilla silverbacks – one Grauer's gorilla and two mountain gorillas. From left to right: Chimanku in Kahuzi-Biega, Rushegura in Bwindi, Charles (Umubano group) on the Virungas

Photos (left to right): Wolfram Rietschel, Uwe Kribus, Wolfram Rietschel



# GORILLAS



years ago), the landscape changed due to lower temperatures, less rain and decreasing humidity. Forests became savannahs and lakes dried up. This change led to the separation of the Virunga and Bwindi mountain gorillas. When humidity increased again (around 14,500 years ago), lakes filled and forests expanded, enabling the Virunga gorillas to spread into areas inhabited by Grauer's gorillas today. At the same time, the Cross River gorillas spread eastwards, resulting in genetic exchange with the ancestors of today's Grauer's gorillas. After the end of the wet period (6000–5000 years ago), there was a further decline in suitable habitat, leading to isolation between populations. Anthropogenic influences have exacerbated this.

The research team also found that western gorillas exhibit higher genetic diversity than eastern gorillas. How-

ever, the very small population size of the Cross River gorillas (fewer than 250 adults) and the drastic population decline over the last 200–250 years appear to have already imprinted a genomic signature. Genetic diversity in eastern gorillas is significantly reduced compared to western lowland gorillas. However, mountain gorilla populations in particular have experienced severe population declines over the past 100,000 years due to their limited and fragmented range, and are therefore likely to have higher rates of inbreeding. The higher incidence in the Virunga mountain gorillas is partly due to bottleneck effects in the population in the 1960s.

Although recent gene flow events have occurred from a geological perspective, all gorilla subspecies show local adaptive traits. The study identified genes under selection and unique gene

variants specific to each gorilla subspecies. These genes encode functional traits related to immunity, nutrition, muscle development, hair morphology and behaviour, suggesting potential local adaptation. Functional differences can be seen clearly in the different diets of the populations. In particular, the relative proportion of fruit varies greatly. Different pathogens, habitat preferences and social structure may also be involved.

Overall, this comprehensive genomic analysis provides valuable insights into gorilla diversity, local adaptations and evolutionary relationships. The results emphasize the importance of genomic resources in the development of conservation strategies for these highly endangered primates.

**Original article:**  
*van der Valk, T., Jensen, A., Caillaud,*



# GORILLAS

*D. & Guschanski, K. (2024): Comparative genomic analyses provide new insights into evolutionary history and conservation genomics of gorillas. BMC Ecology and Evolution 24, 14*

## The Gorilla Doctors Michael Cranfield Regional One Health Laboratory

On January 31, 2024 Gorilla Doctors welcomed guests from around the world to celebrate the official opening of their state-of-the-art diagnostics laboratory at Gorilla Doctors regional headquarters in Musanze, Rwanda.

*Gorilla Doctors veterinarians can now get a report from a tracker about a coughing gorilla, collect a non-invasive sample, and identify the infectious respiratory pathogen in that sample that very same day.*

### From Field to Lab

Gorilla Doctors is the only organization in the world dedicated to saving wild eastern gorillas one gorilla patient at a time using veterinary medicine and science with a One Health approach. Their international veterinary team provides hands-on medical care to ill



**Exterior of Gorilla Doctors Michael Cranfield Regional One Health Laboratory in Musanze, Rwanda**

*Photo: Gorilla Doctors*



**Parasitology and Hematology Room in the Michael Cranfield Regional One Health Laboratory**

*Photo: Gorilla Doctors*

and injured mountain and Grauer's gorillas living in the national parks of Rwanda, Uganda, and the Democratic Republic of the Congo (D. R. Congo). With only 1,063 mountain gorillas, and an ever-decreasing number of Grauer's gorillas left in the world today, the health and well-being of every individual gorilla is vital to the species' survival.

Not surprisingly, given their close genetic similarity to humans, eastern gorillas are susceptible to human pathogens. Second to trauma, respiratory disease is the second most common cause of morbidity and mortality in habituated mountain gorillas, and outbreaks occur annually. As far back as the initial days of mountain gorilla tourism in the 1980s, human measles was assumed to be the cause of a widespread respiratory illness outbreak in habituated mountain gorillas in Volcanoes National Park, Rwanda in 1988, based on clinical signs and histopathology (Hastings et al. 1991). Human metapneumovirus was determined to

be the primary cause of fatal pneumonia in an adult female mountain gorilla and her infant in 2009 in Volcanoes National Park, Rwanda, during a respiratory disease outbreak that affected most individuals in the group (Palacios et al. 2011). Respiratory illness in mountain gorillas in Volcanoes National Park in 2012 and 2013 was determined to be caused by human respiratory syncytial virus (Mazet et al. 2020).

Historically, identification and confirmation of these types of infectious disease cases have required Gorilla Doctors to collect specimens and undergo lengthy shipping processes to conduct confirmatory diagnostics in international reference laboratories. This approach has enabled advancement in scientific understanding of disease and overall population health of the gorillas but has done little to impact clinical case management in real time. With the support of the Rwanda Development Board, IGCP and other founding donors, Gorilla Doctors has established a world-class diagnostics labo-





# GORILLAS

ratory at the base of the Virunga Massif in Rwanda to serve this very important and timely function.

The Gorilla Doctors Michael Cranfield Regional One Health Laboratory enables comprehensive diagnostic testing on biological specimens from gorillas and other wildlife to support optimal clinical case management and scientific research. The laboratory is equipped to perform hematology, serology, virology, bacteriology, parasitology, and histopathology and is located in a brand-new building engineered for optimal biosafety and biobanking of specimens. As the largest and only gorilla health diagnostic laboratory in the region it facilitates the work of Gorilla Doctors and its partners in Rwanda, Uganda, and D. R. Congo.

The laboratory is fully equipped to perform molecular diagnostics and genetic sequencing of viruses, bacteria, and parasites that impact the health of the gorillas. Gorilla Doctors monitors all suspected outbreaks of infectious disease that are observed among habituated eastern gorillas through daily health observations and the collection of non-invasive specimens such as feces and chewed plant samples. If a gorilla becomes ill enough to warrant a clinical intervention with full chemical immobilization, additional specimen types are collected including swabs and blood samples. All specimens collected can now be analyzed using quantitative PCR for a suite of pathogens using molecular PCR techniques and results can be obtained in time to guide outbreak response or individual case management.

The laboratory also features a comprehensive histopathology suite which facilitates processing and analysis of clinical diagnostic as well as post-mortem tissues. Gorilla Doctors maintains the largest database of histopathological cases of any free-living great ape species in the world. Historical cases in this database were generated through

collaborations with the University of California Davis School of Veterinary Medicine and other collaborating regional veterinary schools. While these important consulting partnerships will continue, Gorilla Doctors has recently hired our first regional diagnostic pathologist and will now be conducting all histopathology analyses at the Gorilla Doctors Michael Cranfield Regional One Health Laboratory. This will greatly reduce the time required to obtain diagnostic information while also increasing the volume of cases that can be examined. It also builds critically needed capacity for pathology in the region.

## Cutting Edge Research

Gorilla Doctors has recently launched a new project to investigate the microbiome of the mountain gorilla and to investigate microbiome abnormalities associated with different observed clinical diseases in the gorillas. Located in the bacteriology wing, this research project will help advance our understanding of the connections between the gut-microbiome and systemic diseases as well as build capacity for microbiology techniques that are critical to Gorilla Doctors' clinical cases. To best serve the scientific community, Gorilla Doctors has curated the largest clinical database and biobank of biological specimens for any free-living great ape species in the world. Every time Gorilla Doctors saves an individual gorilla, the health data and specimens are archived for future scientific research. The new facility now enables us to house the majority of this biobank in the region, with the biosecurity and power backup protections required to keep this critical resource safe for today's as well as tomorrow's wildlife health scientists.

## One Health for All

While the laboratory is focused on providing timely clinical diagnostics for gorilla cases it is also designed

to be a resource for broader wildlife and One Health research in the region. Gorilla Doctors has been the lead implementing partner for several global emerging disease surveillance projects in the region including the USAID-funded PREDICT project (2009–2020) and the ongoing National Institutes of Health-funded Centers for Research in Emerging Infectious Diseases. With the addition of this laboratory, Gorilla Doctors now has both the veterinary surveillance as well as laboratory capacity to conduct laboratory screening needed for these kinds of global One Health projects. A One Health approach understands that animal, human, and environmental health are inextricably linked (e.g., Zinsstag et al. 2011). The health of one group impacts the health of all and is foundational to Gorilla Doctors contributions to mountain gorilla conservation.

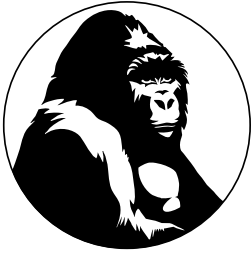
## Saving a Species One Gorilla at a Time

Gorilla Doctors clinical care and research of individual gorilla cases help advance the health of the entire population. Research has shown that up to 40% of the annual population growth rate can be attributed to veterinary care (Robbins et al. 2011). For a long-lived, slow to reproduce animal, every individual counts towards saving the entire species.

*Tierra Smiley Evans*

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- Palacios, G. et al. (2011): Human metapneumovirus infection in wild mountain gorillas, Rwanda. Emerging infectious diseases 17 (4), 711
- Mazet, J. A. K. et al. (2020): Human respiratory syncytial virus detected in mountain gorilla respiratory outbreaks. EcoHealth 17, 449–460
- Zinsstag, J. et al. (2011): From "one medicine" to "one health" and systemic approaches to



# GORILLAS

health and well-being. Preventive veterinary medicine 101 (3–4), 148–156

## Ranges of Western Lowland Gorillas

Western lowland gorilla ranges are in general larger than those of mountain gorillas – this has been the general opinion among researchers for a long time. This was attributed to ecological differences in resource availability and diet, with more frugivorous species having larger home ranges than folivorous species, since fruit trees tend to be more spread out in space (location) and time (seasonal fruiting).

The results of a new 8-year study in the Ndoki Forest, Republic of Congo, suggest a different picture. The team collected data for five habituated groups of gorillas. Two of these groups were from the Goualougo Triangle and three from Mondika: Loya (3–6 individuals during the study period), Makassa (2–3 individuals), Kingo (5–13 individuals), Buka (5–11 individuals) and Métélé (11–15 individuals).

The average annual home range size was 5.39 km<sup>2</sup> and the average core area was 1.54 km<sup>2</sup>. Home ranges overlapped with those of other groups for all five groups on average with 78%. For core areas, the overlap was on average 72%. In mountain gorillas, average overlaps were 82% for home ranges and 76% for core areas.

The researchers found that the gorillas they observed had small, consistent home ranges and that between-group differences in space use were associated with intergroup overlap. Annual home ranges were smaller in this study than those reported in other western lowland gorilla studies. The average annual home range sizes recorded in this study were comparable to those of mountain gorilla groups with similar group sizes, which means that western lowland gorillas do not in general have

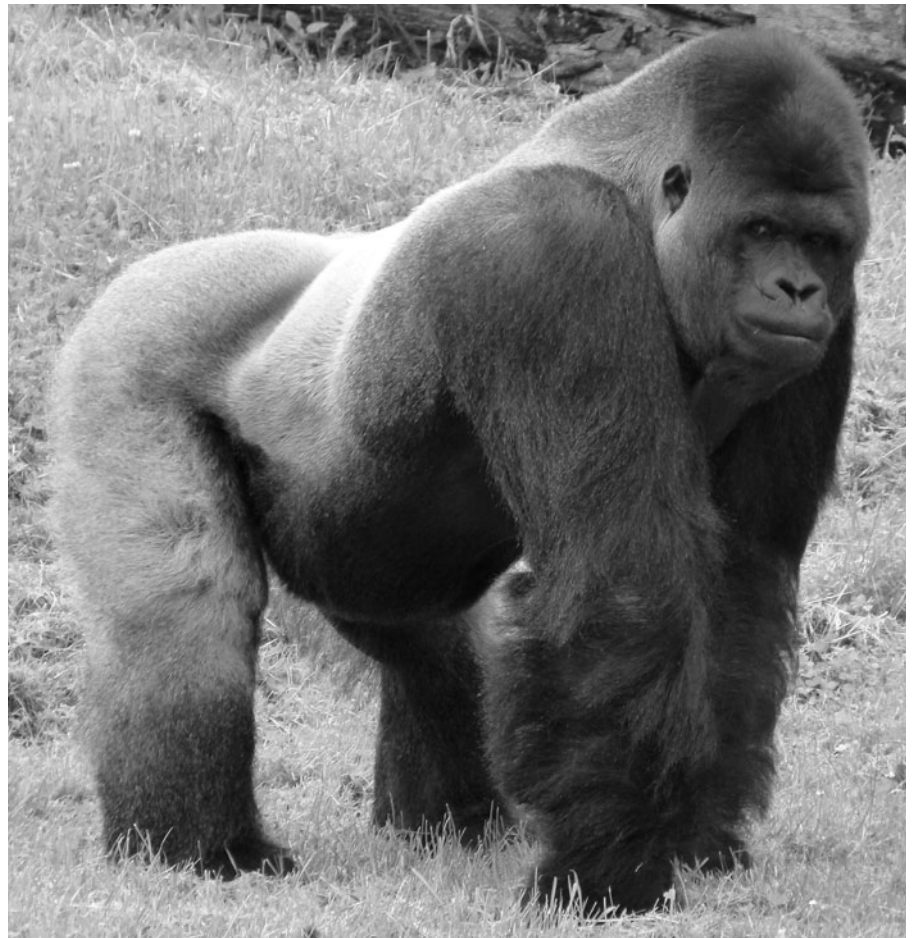
larger home ranges than mountain gorillas. Differences in home range size across western lowland gorilla populations could be linked to differences in food availability, but it is also possible that the relatively smaller home range size in this study relates to social dynamics.

For all groups in the study, group size was a predictor of monthly range size and monthly core area size. There was evidence for high levels of intergroup overlap and utilisation, including two instances of core area overlap. There are indications for a social component to intergroup overlap. Variation in intergroup spatial overlap and utilisation

can also be influenced by specific features of these social relationships. But for a more thorough interpretation, additional research is necessary.

### Summary of this publication:

Judson, K., Sanz, C., Ebombi, T. F., Massamba, J. M., Teberd, P., Abea, G., Mbebouti, G., Matoumona, J. K. B., Nkoussou, E. G., Zambarda, A., Brogan, S., Stephens, C. & Morgan, D. (2024): Socioecological factors influencing intraspecific variation in ranging dynamics of western lowland gorillas (*Gorilla gorilla gorilla*) in Ndoki Forest. *American Journal of Primatology* 86, e23586



Western lowland gorilla in the Gaia Zoo, Kerkrade

Photo: Angela Meder



## READING

**Tracie McKinney, Siân Waters and Michelle A. Rodrigues**  
**Primates in Anthropogenic Landscapes:** Exploring Primate Behavioural Flexibility Across Human Contexts. Cham, Switzerland (Springer) 2023. 359 pages. Hardcover ISBN 978-3-031-11735-0, paperback ISBN 978-3-031-11738-1, eBook ISBN 978-3-031-11736-7

### New on the Internet

**United Nations Security Council Report of the Secretary-General on the United Nations Organization Stabilization Mission in the Democratic Republic of the Congo.** 21 March 2024, S/2024/251. 21 pages.

Download PDF (660 kB): <https://daccess-ods.un.org/access.nsf/Get?OpenAgent&DS=S/2024/251&Lang=E>

**United Nations Security Council Letter dated 15 December 2023 from the Group of Experts on the Democratic Republic of the Congo addressed to the President of the Security Council.** Midterm report of

the Group of Experts on the Democratic Republic of the Congo. S/2023/990. 160 pages.

Download PDF (8.5 MB): <https://daccess-ods.un.org/access.nsf/Get?OpenAgent&DS=S/2023/990&Lang=E>

**IPIS (International Peace Information Service), ASSODIP (Association pour le Développement des Initiatives Paysannes), DIIS (Danish Institute for International Studies) The M23 “version 2”** – Local stakes, motivations, perceptions, and impacts. Goma/Antwerp/Copenhagen, April 2024. 38 pages. <https://ipisresearch.be/publication/the-m23-version-2-local-stakes-motivations-perceptions-and-impacts/?hilitte=Enjeux+motivations+perceptions+et+impacts+locaux>.

Download PDF (French, 7.7 MB): [https://ipisresearch.be/wp-content/uploads/2024/06/20240403\\_Le-M23-version-2-Enjeux-motivations-perceptions-et-impacts-locaux.pdf](https://ipisresearch.be/wp-content/uploads/2024/06/20240403_Le-M23-version-2-Enjeux-motivations-perceptions-et-impacts-locaux.pdf)

**Human Rights Watch “Working On Oil is Forbidden”.** Crackdown against Environmental Defenders in Uganda. November 2023.

50 pages. ISBN 979-8-88708-075-8. <https://www.hrw.org/report/2023/11/02/working-oil-forbidden/crackdown-against-environmental-defenders-uganda>

Download PDF (4.3 MB): [https://www.hrw.org/sites/default/files/media\\_2023/11/uganda1123web\\_2.pdf](https://www.hrw.org/sites/default/files/media_2023/11/uganda1123web_2.pdf)

**WWF Forest Pathways Report 2023.** 89 pages. [https://wwf.panda.org/discover/knowledge\\_hub/all\\_publications/?9899941/Forest-Pathways-Report-2023](https://wwf.panda.org/discover/knowledge_hub/all_publications/?9899941/Forest-Pathways-Report-2023)

Download PDF (10.28 MB): <https://wwfint.awsassets.panda.org/downloads/wwf-forest-pathways-report-2023-web.pdf>

**Rainforest Foundation UK Credits where they are not Due:** A Critical Analysis of the Major REDD+ schemes. July 2023. 67 pages. Mapping: <https://storymaps.arcgis.com/stories/15dc099ba6054b6da1ae9646a3f706d8>

Download PDF (10.1 MB): [https://www.rainforestfoundationuk.org/wp-content/uploads/2023/07/Carbon-Credits\\_final\\_ENG.pdf](https://www.rainforestfoundationuk.org/wp-content/uploads/2023/07/Carbon-Credits_final_ENG.pdf)

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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.

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# BERGGORILLA & REGENWALD DIREKTHILFE

## Finances

### Income in 2023

Subscriptions	26,080.00 euro
Donations	124,405.76 euro
Sales, mobile phone recycling	1,996.50 euro
Currency differences	196.93 euro
Refund meeting	519.00 euro
<b>Total</b>	<b>153,198.19 euro</b>

### Expenses in 2023

Administration	3,773.88 euro
Gorilla Journal	2,143.54 euro
Website	510.00 euro
Postage	2,252.57 euro
Pay/top-ups	11,200.00 euro

### Sarambwe

Support of trackers, kitchen personnel, supplies	32,300.00 euro
Equipment	1,950.00 euro

### Mt. Tshiaberimu

Tracker top-ups	14,700.00 euro
Equipment	2,984.00 euro
Basket weaving project	4,000.00 euro

### Itombwe

Ranger top-ups	28,800.00 euro
Office rent	3,000.00 euro

### Maiko

Ranger top-ups and medical care	22,800.00 euro
Emergency patrols	4,500.00 euro

### Bwindi

School (SaveBwindi)	1,500.00 euro
Tree network	7,500.00 euro
Posters tourist center	136.37 euro

### Virunga Conservation Area

Gorilla Doctors	8,150.00 euro
<b>Total</b>	<b>152,200.35 euro</b>

## Our Donors

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Many thanks to all donors, also to those we could not name here!



*The wine producing cooperative Fellbacher Weingärtner started selling "gorilla wine" 12 years ago after Wolfram Rietschel's suggestion. The wine is still a success for the producers and for us: we receive 1 euro per bottle for our gorilla conservation activities.*