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Tackling the COVID-19 crisis to create a new era for chimpanzee research and conservation

The first year of the COVID-19 pandemic, which has engulfed the people of the world, is coming to an end. For researchers of the two *Pan* species, it has been a year of emergencies and turmoil. The pandemic began in Wuhan, China in December 2019, spread to Europe in February, and gained momentum in March. In late March, African countries began to lock down because there were fears of an influx of patients, and research and conservation activities in each study site suffered significant negative impacts in a variety of ways.

The long-term project at Mahale is no exception. A graduate student who had three months left in her stay in the field had to return to Japan urgently before the airlines ceased operations, and the researchers who were due to stay this year had to postpone their plans. Since then, some postdocs in Kyoto have vigorously engaged in remote communication with local staff to maintain minimal functions at the Kansyana Research Station that allows for health monitoring to ensure that chimpanzees are not exposed to the new virus, together with collection of basic data, such as demography of the M-group chimpanzees. However, the Mahale project has traditionally emphasised direct observation. Continuous direct observation is particularly important for the study of social relationships. In fact, for the first time in eight years, we were watching a political drama in the forest where the alpha male might be overthrown. Six months before, during my fieldwork from August–September 2019, I noticed a change in the behaviour of the alpha male. Although this was the season when chimpanzees aggregated in large parties with many adult males, the alpha male repeated short stays in the core parties, while spending most of his time absent, presumably forming consortship with a cycling female. During this time, the beta male behaved as if he were the alpha male. For several months thereafter, graduate students and postdocs continued to observe the changing situation, and by the end of 2019, we received word that the alpha male had been replaced. I was excited and looking forward to hearing how things progressed, but then there was a break in the news.

When SARS-CoV-2 started to spread in Europe, researchers were quick to suggest that the virus would be more likely to infect great apes and that immediate measures such as suspension of ecotourism and reduction of field research should be taken from a conservation perspective (IUCN 2020; Gillespie & Leendertz 2020). Behind this quick action was the ordeal caused by several outbreaks of human respiratory diseases in chimpanzee study groups at several long-term study sites (Leendertz *et al.* 2006; Hanamura *et al.* 2015; Scully *et al.* 2018; Negrey *et al.* 2019). There is widespread recognition that all great apes must be protected from the risk of infection to viruses of human origin (Woodford *et al.* 2002; Carne *et al.* 2014).

In this context, it would be very helpful to know how researchers at other sites are protecting the health of their staff and the chimpanzees from the threat of COVID-19, while continuing to collect research data. Primatologist Prof. Sabrina Krief, who is a veterinarian and Director of the Sebitoli Chimpanzee Project in Kibale National Park, Uganda, presented a report about her project just after the lockdown at a UNESCO webinar on 11 June, “COVID-19 and Biodiversity Loss: Another Threat to Great Apes?” I asked her to contribute similar and updated information to Pan Africa News (PAN). She readily agreed and reported on the situation at Sebitoli in the first four months of the COVID-19 lockdown in Uganda (Krief, this issue). Her interest was not only focused on how to adapt our research activities to a pandemic, but also to how the social changes caused by a pandemic might affect the conservation status of chimpanzees and their habitat. The results challenge the optimistic expectation that restricted human access will have a positive effect.

How should we tackle the pandemic in the second year? I believe that there are four possible directions. First, we need to build “new styles of research” and provide the structures to support them. It is important to make *sustainable* and *proactive* changes that are not ad hoc, but will be positive for activities in the post-pandemic era. The time has already come for researchers to be connected to their research sites to varying degrees via the Internet. New styles of research could be devised, with local assistants trained remotely to minimise the number and duration of human visits to apes and to carry out high-priority research and conservation activities in a minimal, but productive manner. However, there are many tasks that researchers have had to perform in the field, such as direct communication with local counterparts and authorities, and negotiations regarding the livelihood, employment, and education of local staff. There is also a need to remotely replenish the research and conservation equipment and supplies that have previously been transported by researchers to the field. It is difficult to carry out these tasks while balancing the responsibilities that have doubled in Japan because of the adaptation to remote working. Therefore, it is necessary to secure stable agents and financial resources. Likewise, the conservation activities of the Mahale Wildlife Conservation Society, which until now relied on the volunteer services of researchers in the field, must all be carried out remotely from Japan.

Second, we should accelerate our efforts to disseminate our accumulated knowledge and experience, realising that this information may now be of some use in saving human lives around the world. Researchers of African great apes have witnessed the tragic deaths of chimpanzees to lethal outbreaks of viral infections (see above). In particular, chimpanzee researchers have painfully learned that their subjects are highly susceptible to human res-

piratory viruses, and that virulence can sometimes be as lethal as the Spanish flu in chimpanzees, while humans usually only show common cold symptoms. Most of the infection prevention measures recommended as effective in preventing COVID-19, including keeping a safe distance and wearing a mask to prevent droplet infection, are familiar to great ape researchers and ecotourism workers, who have been practicing them for more than a decade (Macfie *et al.* 2010; Gilardi *et al.* 2015). In a world where some people deny the threat of the virus and others refuse to wear masks and follow social distancing practices, we have the experience and responsibility to speak for the effectiveness of such prevention measures.

Third, for some researchers who have studied wild animals at the human–wildlife interface, it is natural to see that most pandemics are the result of environmental problems (Kretchmer 2020). If this is true, then it is human responsibility to solve it. Some have likened the COVID-19 pandemic to a natural calamity, like an earthquake or typhoon. While this is true in terms of precautionary stockpiling of food and water and people helping each other in times of trouble, it is not appropriate to see a pandemic as a natural phenomenon unrelated to human activities. The recognition that modern humans' excessive proximity to wildlife has led to outbreaks of new viruses is a reality very close to our nightmares in the field. It has been estimated that about 75% of emerging viruses are zoonotic pathogens (Taylor *et al.* 2001), and like HIV, Ebola, and other notorious emerging viruses, the origin of SARS-CoV-2 is likely to be linked to the trafficked wild animals (Andersen *et al.* 2020; Tang *et al.* 2020). Dr. Jane Goodall, an associate editor of PAN, called for people to take earnest action to reduce the consumption of meat, from both farmed and wild animals. She even suggested that if we do not take this opportunity to rethink our relations with nonhuman animals, there will be no future for humanity (Kretchmer 2020).

Lastly, it is important that we *Pan* Africanists stand in solidarity and promote the exchange of information and ideas between our study sites. While researchers are rivals for scientific achievements, they are also linked by a responsibility to cooperate on common interests. In the wake of the recent pandemic, it is easy to imagine that national and international societies and journals will have similar concerns, and PAN would also like to provide a hub. In the next issue, I would like to put together an article in which *Pan* researchers can share their experiences of the COVID-19 crisis and their outlook for the future. I would be very grateful for any suggestions regarding my ideas.

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COVID-19 and chimpanzees from a field perspective: Mitigation measures, ecological and economical situation after four months in Sebitoli, Kibale National Park, Uganda

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INTRODUCTION

The SARS-CoV-2 outbreak has led to the confinement of about two-thirds of the world's population (Bates *et al.* 2020). The emergence of the virus seems to be related to the increase in the interaction between wild animals and humans. Two main drivers have been proposed to explain it (1) the encroachment of human activities into wild areas and forests, and (2) the (legal and illegal) expanding international market of bushmeat and live wild animals from tropical and sub-tropical areas for food and traditional medicine, sold in unsanitary conditions (Volpato *et al.* 2020). While the biology underlying susceptibility to SARS-CoV-2 infection remains to be fully elucidated, it is now well-established that the virus infects the endothelial cells in targeting the angiotensin-converting enzyme-2 (ACE2) receptor. Apes exhibit the same set of amino-acid residues in ACE2 as humans, making them highly susceptible to SARS-CoV-2 (Melin *et al.* 2020).

With the restriction of national and international traffic to limit the virus transmission, many benefits were expected for wildlife from this “anthropause,” as a consequence of reduced habitat disturbance (Rutz *et al.* 2020). However, the reverse also has been noticed in some places, with an increase in poaching and illegal activities (Rutz *et al.* 2020). Besides the dramatic consequences on human health of Coronavirus disease 2019 (COVID-19), this unique case of global reduction of human mobility and activities may be viewed as an opportunity to better estimate both positive and negative effects of human impact in different ecosystems and on different species (Bates *et al.* 2020).

Before the COVID-19 pandemic, Sebitoli chimpanzees living in the north of Kibale National Park (Uganda) experienced a high level of pressure from human activities, such as intensive agriculture, road traffic and related pollution (Cibot *et al.* 2015; Bortolamiol *et al.* 2016; Krief *et al.* 2014; 2017; 2020; Spirhanzlova *et al.* 2019). They also were indirect victims of wire snares set by poachers to catch duikers for bushmeat (Cibot *et al.* 2016). During the COVID-19 pandemic, the Sebitoli Chimpanzee Project (SCP) monitored the direct and indirect consequences of COVID-19 in terms of health, environment and the economy in order to mitigate them. Based on our preliminary results, we propose perspectives for researchers and conservationists on possible tools and measures

to protect great apes and their habitats in the contexts of such pandemics.

STUDY SITE

The home range of the Sebitoli chimpanzee community covers 25 km² in the far north of the Kibale National Park, Uganda (795 km²; 0°13' to 0°41'N and 0°19' to 30°32'E). Since 2008, SCP has monitored daily this community of about 80 chimpanzees. In 2020, before the pandemic, SCP consisted of 25 Ugandan field assistants working to: collect scientific data, conduct anti-poaching operations, implement education and community-based programmes, and maintain the trail systems, managed by one of us, JPO, coordinator. During the lockdown decided by the Ugandan government and Uganda Wildlife Authority, eight of the assistants were confined in the National Park, i.e. they did not have contact with the population outside of the research station. Food was ordered and delivered at the gate of the station and communication between France (direction of the project) and Ugandan team was maintained daily with social networks and weekly with visioconferences.

METHODS

We adapted the usual protocols to record chimpanzee behaviour and health and to reduce threats of poaching in accordance with Uganda Wildlife Authority guidelines. We set up 14 camera traps at the most commonly-visited locations (feeding trees and crop-fields) and memory cards were collected twice weekly for immediate reading. We designed new datasheets: identity of chimpanzees and when possible, general condition, injuries, respiratory function (sneezing, coughing), locomotion, appetite, faecal consistency, reproductive status of females were scored. We collected data on illegal activities during anti-poaching patrols five days per week. Two teams were dedicated to this task during the COVID-19 period, whereas usually only one was active. We counted twice weekly, the number of vehicles travelling in both directions along the road inside the protected area. On 19 May and 27 July, 2020, we collected all plastic bottles and other litter discarded by people from the vehicles along the 4.6 km of roadsides (4 m each side of the tarmac within the national park).

Table 1. Confinement measures and Standard Operating Procedure (SOP) taken in Uganda

Date	Event and measure
18 March 2020	Public gatherings (religious, cultural meeting, school) suspended.
21 March 2020	The first case of COVID-19 recorded at the Entebbe International Airport.
22 March 2020	Travel from abroad suspended except for drivers of cargo trucks (PCR tests done before entering Uganda). Moto-taxis allowed to carry only food and material. Private cars allowed but to carry no more than three people including, the driver.
25 March 2020	Communication from Uganda Wildlife Authority management to stop primate research, filming and tourism.
27 March 2020	Public and private transport suspended.
30 March 2020	Total lock-down declared. Curfew 19:00–06:30 hr.
31 March 2020	Private car traffic suspended.
26 May 2020	Private cars allowed to operate from 06:30–19:00 hr in 95 of 135 districts.
4 June 2020	Public transport (bus and minibus) allowed to operate, provided they followed SOPs and only in some districts. No public transport in border districts.
21 July 2020	Moto-taxis allowed to carry passengers provided they followed SOPs. During entire period, cargo trucks continued to operate.
30 July 2020	SOP for research activities in UWA estates—Reopening of the Park Area (PA) during COVID-19 pandemic. i) All researchers coming into the PAs or close proximity of wild animals must wear clean clothing and disinfected footwear prior to going to the field for data collection. ii) Every researcher must carry into the field a hand sanitiser. iii) Time spent conducting research activities near primates shall be limited to a maximum of five hours per designated research day. iv) The research team shall comprise a maximum number of three people to ensure safety and health monitoring. v) A distance of not less than 10 metres from the primates shall be maintained at all times. vi) A surgical facemask must be worn by anyone coming within 10 metres of primates.

RESULTS

Protecting Seditoli chimpanzees and local communities : sensitization by SCP

From 21 April through July 2020, a series of measures were adopted by the government and Uganda Wildlife Authority, modulating the level of human activities in and around Kibale National Park (Table 1). Although SCP, even before the pandemic, had implemented preventive measures against transmission of human respiratory diseases to chimpanzees (e.g. keeping distance between observers and apes, wearing surgical masks, using sanitizer, not spitting in the forest...), to reduce an emergent risk of the new coronavirus transmission, SCP initiated communication related to safety recommendations. The SCP team designed posters using pictograms to highlight the risks and the measures to reduce them (Figure 1). The targeted public was: (1) SCP field assistants at the research station and in the forest when authorized to carry out health monitoring, anti-poaching patrols, and transect maintenance in the National Park; (2) villagers, especially those who neither know how to read nor speak English, thus the simplicity and pictorial nature of the messages.

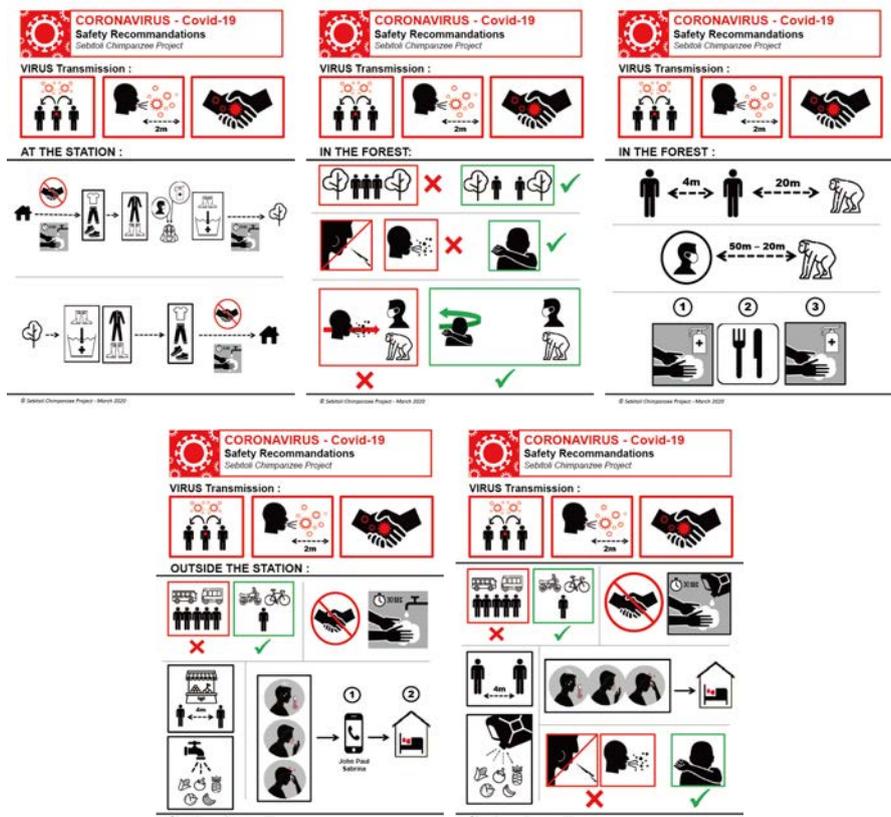


Figure 1. Posters designed to sensitize SCP staff and local farmers to COVID-19

Indirect monitoring of the chimpanzees using camera traps

Over the first eight weeks, 51 chimpanzees were seen

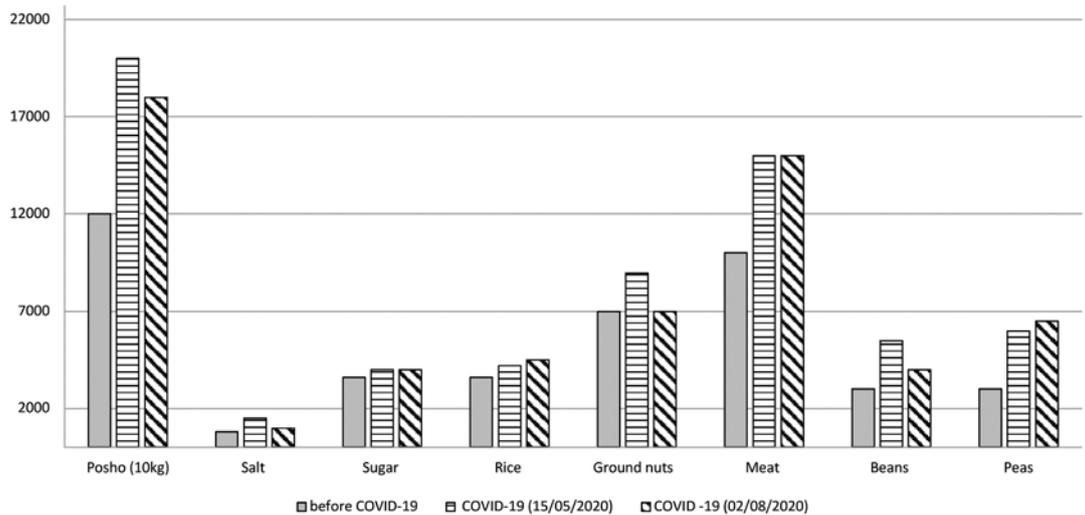


Figure 2. Cost of some basic food items eaten locally around the study area before the COVID-19 period and during the COVID-19 period. Prices are given in Uganda shillings for 1 kg of food except for posho (maize flour, 10 kg).

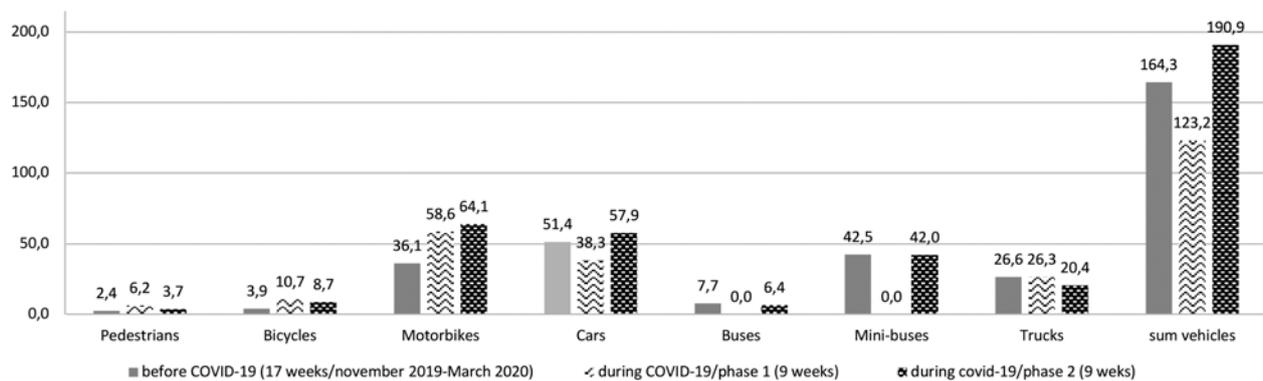


Figure 3. Traffic (mean number of pedestrians and vehicles/hour) on the tarmac road from Fort Portal to Kampala before and during the COVID-19 period.

a total of 612 times. None was diagnosed as showing severe symptoms (sneezing, coughing, apathy), which can indicate COVID-19. Injuries were observed (see below, poaching section).

Economic situation during the four months of COVID-19 confinement

We made very basic estimates of the economic consequences for local communities, using as a proxy of the cost of living, the price of common foods. Over eight weeks after the traffic was suspended (15 May, 2020), all food-item prices had increased (Figure 2).

Ecological situation during the four months of COVID-19 confinement

Public transport (by bus, minibus) was almost absent between 25 March and 4 June, i.e. over more than two months (Figure 3).

Despite this substantial reduction of traffic,

- A subadult female chimpanzee, CP (Chapati) estimated age of 14 year, was knocked dead by a vehicle on the tarmac road on 8 May, 2020 (Figure 4). Since 2012, three Sebitoli chimpanzees were killed on this portion of road (Krief *et al.* 2020).



Figure 4. Chapati, subadult female fatality from a car accident on 8 May 2020 on the tarmac road crossing the Sebitoli chimpanzee home range in Kibale National Park.

- On 27 July, 2020 : 2626 bottles (52 kg) and 26 kg of other plastic waste were collected with the assistance of the Uganda Wildlife Authority. Seventy-eight kg of such litter had accumulated in only 10 weeks (19 May to 27 July, 2020) since the last collection during the confinement. Twice as many bottles were collected during the COVID-19 period (1170/month) compared to a mean number of 601 bottles/month in the four months, at the end of 2019 (Table 2; Figure 5).

Table 2. Plastic collection along the Fort Portal-Kampala road, in the section crossing Kibale National Park and the home-range of Sebitoli chimpanzees.

Date of plastic collection	Number of plastic bottles	Weight of plastic (kg)	Number of bottles per month since last collection
July 2019	3090	92	
December 2019	2406	96	601/month
May 2020	1884	70.5	376/month
July 2020	2926	78	1170/month
Total for year	10306	336.5	



Figure 5. Litter collection by Sebitoli Chimpanzee Project assistants 19 May 2020 on the tarmac road crossing the Sebitoli chimpanzee home range in Kibale National Park.

The total number of snares recovered was similar during a four-month period (25 March to 31 July) in 2019 and 2020. Patrols found a mean number of 0.70 snare/day during the COVID-19 period (64 in 91 working days) against 0.85/day in 2019 during the same period (58 in 68 working days). However, other illegal activities related to flora increased by a factor of 2.5 in 2020, especially those that generate income, such as *Piper guineense* (13 cases vs 2) and tree cutting for getting bark from medicinal trees (such as *Prunus africana*) (22 vs 1) (Table 3). Also, several observations indicated an increase of illegal activities, including poaching:

One of the camera traps was stolen on 7 May, 2020, and the presence of dogs attacking chimpanzees in the forest was also observed in camera-traps and reported to the Uganda Wildlife Authority (two dogs observed in four occasions).

We also observed three cases of severe injuries to chimpanzees caused by poaching over the COVID-19 period, while no case had been observed in 2019:

Subadult male GR (17 April, 2020) had a large wound (at least 4 cm) on his left thigh, attributed to a spear;

Infant female, dependant of FR (27 May, 2020) had a severe injury on her right foot from a snare;

Subadult male LK (14 July, 2020) had a severe injury on his left hand from a snare (Figure 6).

DISCUSSION

In the Sebitoli area, a strict sanitary protocol was applied for the field team confined in the protected area. The

Table 3. Illegal activities recorded during patrols of Sebitoli Chimpanzee Project in chimpanzee home-range from 25 March – 31 July in 2019 and in 2020 (since confinement was declared in Uganda).

Type of illegal activities	Number of evidences recorded during patrols from 20 March – 31 July	
	2019	2020 (COVID-19)
Debarked trees	1	22
Firewood collection sites	20	28
<i>Piper guineense</i> harvesting	2	13
Tree cutting	27	41
Snares	58	64
Total	116	210



Figure 6. Subadult male LK severely injured his left hand by a snare. Image captured by camera-trap on 14 July 2020.

direct effects of COVID-19 on the chimpanzees' health, as monitored by camera traps, did not reveal respiratory symptoms. Camera traps enabled us to discover severe injuries caused by poaching (wires and spear) on Sebitoli chimpanzees. While the number of snares recovered by the anti-poaching patrols did not increase compared to the same period in 2019, damages to the habitat have more than doubled likely due of loss of revenues in local communities. Despite the fact that public transport was banned, no detectable positive consequences were noted along the road inside the park, with a female chimpanzee being knocked dead and the number of plastic bottles along the road having more than doubled compared to the period before the lockdown. Unfortunately, the relaxation of the pressure expected on wildlife did not occur and the indirect effects of COVID-19 on wild chimpanzees and their habitat in Sebitoli area seems more negative than positive, in general. This case study in a small part of a protected area emphasized: (1) the relevance of camera-traps' use to reduce proximity with apes in such circumstances, and (2) the importance of strengthening efforts to contain illegal activities. We suggest that sharing local experiences with other study-sites, harmonizing protocols, and increasing indirect monitoring of apes' habitat (e.g. drone, camera trap) are necessary to be ready to react to future emerging disease outbreaks.

The potential cascading impacts of COVID-19 from

international travel restriction, reduced tourism, local food insecurity, poverty increase, and funding reduction due to global economic shrinkage show the importance of supporting local agencies and civil society. This point is proposed to IUCN World Congress 2021 in the motion 115 – “Strengthening great ape conservation across countries, in and outside of protected areas, involving local actors” and shall be also considered to diversify revenue-operating actions from wildlife areas (Lindsey *et al.* 2020).

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Development of bonobo tourism in the Lomako Yokokala Faunal Reserve, the Democratic Republic of the Congo

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INTRODUCTION

The bonobo (*Pan paniscus*) is an endangered endemic species (IUCN & ICCN 2012) in the Democratic Republic of the Congo (DRC). The main threats are deforestation, poaching, and disease transmission. The current population is estimated to be between 15,000 and 20,000 individuals as a minimum value (IUCN & ICCN 2012). Sustainable and viable management of protected areas (PAs) as strongholds of priority bonobo populations is crucial for bonobo conservation (IUCN & ICCN 2012). Currently, two national parks and six reserves are home to free-ranging bonobo populations. Most of these face a lack of financial and/or technical support needed for good management, putting the PAs at risk to become so-called 'paper parks' (Bruner *et al.* 2001).

Apart from law enforcement by rangers, the presence

of researchers and tourism activities is known to contribute to the conservation status of PAs (Pusey *et al.* 2007; Tranquilli *et al.* 2012). The presence of researchers and tourists, even if very limited and focused on a specialised niche, is not only a known deterrent for poachers but also a way to increase the visibility as well as awareness of the existence and importance of sometimes very remote and less well-known PAs. The Lomako Yokokala Faunal Reserve (RFLY) is one such location.

Lomako forest has been known as a long-term study site of bonobos since 1974 (Badrian & Badrian 1977; White 1996), with teams from a number of universities and institutes (Stony Brook University, Max Planck Institute, Royal Zoological Society of Antwerp, Antwerp University, etc.) attempting to set up long-term research sites (Dupain & Van Elsacker 2001). In the 1980s, at-

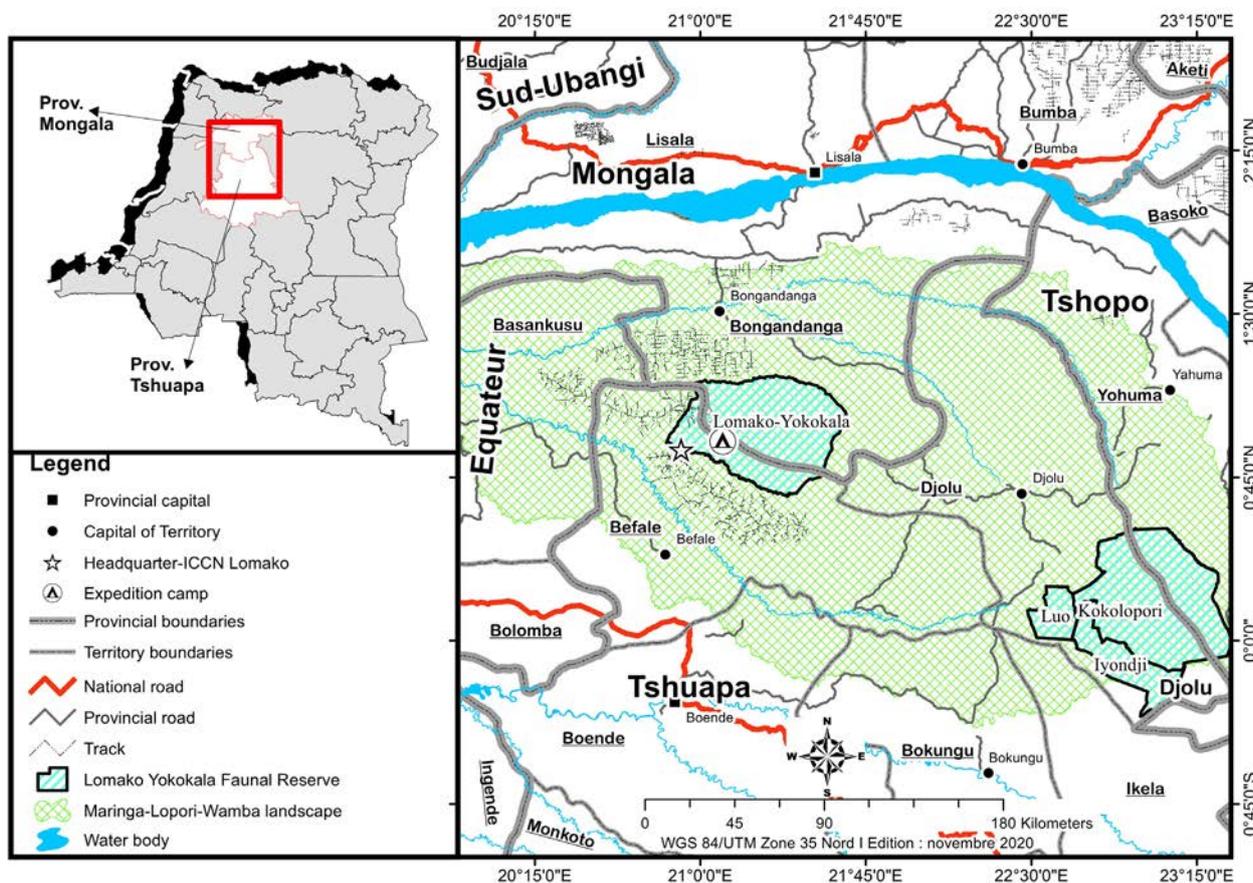


Figure 1. Map of Lomako Yokokala Faunal Reserve in the Democratic Republic of the Congo.

tempts were made to create a formally protected area in the Lomako forest, but the civil unrest and warfare in DRC in the 1990s interrupted the activities for bonobo study and conservation (Dupain & Van Elsacker 2001). Finally, in 2006, in the frame of the USAID-funded Central African Regional Program for Environment, the 3,625 km² RFLY was officially gazetted (Figure 1).

Since its creation in 2006, RFLY has been managed increasingly well by the Congolese Institute for the Conservation of Nature (ICCN). Due to performance-based management, with a focus on efficient law enforcement and community outreach, the RFLY is witnessing increasing numbers of fauna. Forest elephants are returning and bonobos are now ranging in places where they have not been observed for many years (Maptula *et al.* 2020; our personal observation).

The Antwerp Zoo Foundation (AZF) of the Royal Zoological Society of Antwerp, together with a Congolese NGO, Juristes pour le Renforcement et l'Application de la Loi dans le secteur de l'Environnement (JURISTRALE), signed a memorandum of understanding with the DRC National Office of Tourism (ONT) and ICCN in 2019 and 2020, respectively, to prepare the Lomako for the tourism and scientific research that focus on bonobos. In this paper, we report the identification and habituation of bonobo communities. We discuss the potential for tourism development in RFLY and the involvement of local communities.

HABITUATION OF BONOBOS

Since the creation of the RFLY in 2006, intermittent efforts to habituate bonobos for tourism and scientific research continued until 2018. Representatives of the local communities have been involved in all stages of these efforts. The local communities are the traditional owners of the Lomako forest who agreed with the creation of the PA in 2006 and expressed their desire that the PA would bring improved livelihoods to their communities through bonobo-related employment. Permanent research camps in Lomako have played an important role in regular monitoring of bonobo populations and biodiversity. They have

also provided various researchers with opportunities to conduct field studies and select tourists to visit bonobos.

In agreement with the ICCN, the AZF/JURISTRALE took up the responsibility to ensure the continuation of the above-mentioned efforts and provided all financial as well as technical support to continue habituation and tourism development in mid-2019. A bonobo habituation expert (the first author, TS) improved the capacities of local assistants to follow bonobos from morning to evening. The assistants were also trained to recognise individual bonobos.

Over the last year, the number of bonobos who accepted human observers at a distance of 10 m gradually increased. To date, we identified and named 21 individuals in one group: 10 females (6 adults, 2 subadults, and 2 infants) and 11 males (5 adults, 3 subadults, 2 juveniles, and 1 infant). Two or three adult males have not yet been individually recognised. This group is named 'Tolende' from the name of small tributaries in its ranging area, covering approximately 20 km². We confirmed at least three neighbouring groups around the Tolende group.

Most bonobos in the Tolende group are well habituated to the presence of observers, allowing for behavioural studies. In January–July 2020, monthly observation days and time were 23 days (median, range = 18–23 days; no surveys on weekends) and 84.1 hours (mean, range = 59.2–132.5 h), respectively. However, the observation conditions are still unstable. Figure 2 shows the weekly observation time of bonobos from January to July in 2020, indicating much fluctuation week by week. We typically followed bonobos continuously when they ranged in a relatively large party (10 individuals or more), while we frequently lost them and observation time was cut short when they split into several small parties.

POTENTIAL FOR TOURISM

The current progress of bonobo habituation, the existence of a permanent camp with trained assistants, and the history and reputation as a long-term study site are favourable indicators for attracting tourists and researchers to the Lomako forest. The good performance of the

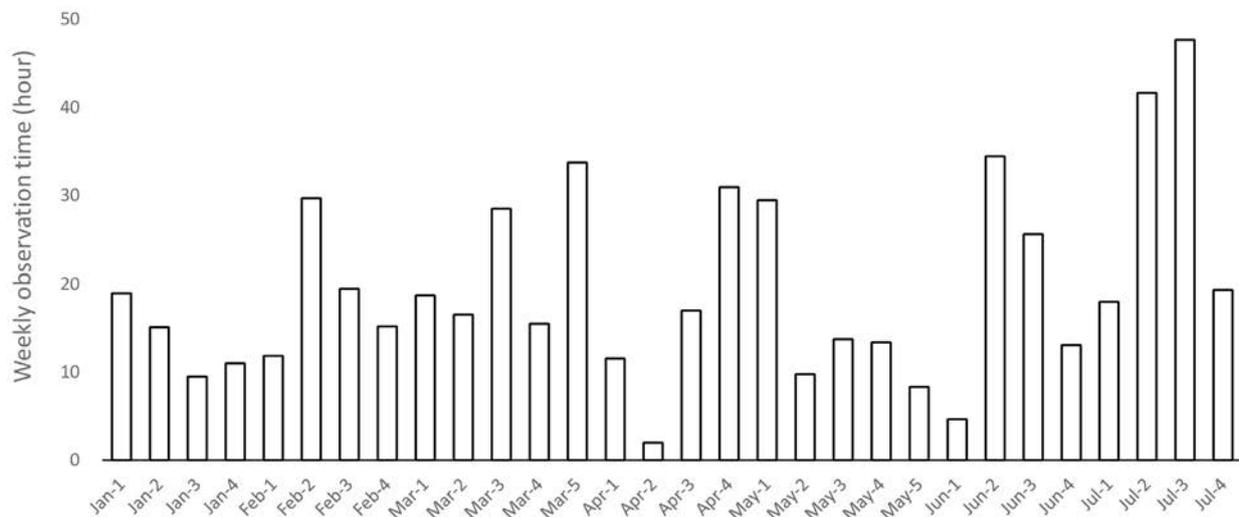


Figure 2. Fluctuation of weekly observation time of bonobos from January to July in 2020.

protected area authority, the ICCN, and the ongoing efforts for the best coordination between the ICCN and the tourism initiative create confidence for success. Further, the Lomako forest is not only attractive for its bonobos. Between January and July 2020, we recorded calls from Congo peafowls (*Afropavo congensis*) at our camp every 2.25 days. *Birdquest*, a British specialised-tour operator, successfully brought 6–8 clients to observe the Congo peafowls in Lomako on both endeavours in 2015 and 2017. Forest elephants (*Loxodonta cyclotis*) occasionally range in a part of the main study area. Four diurnal primates, black crested mangabey (*Lophocebus aterrimus*), red-tailed monkey (*Cercopithecus ascanius*), Wolf's monkey (*C. wolfi*), and Angola colobus (*Colobus angolensis*) daily visit the camp, and Allen's swamp monkey (*Allenopithecus nigroviridis*) are frequently observed along the Lomako River. Along with the river travel opportunities, travel agencies agree that there is an opportunity for a combination of packages for a variety of tourists.

On the other hand, the remoteness of the Lomako forest and the lack of convenient access increase the cost and time needed for any visits. The bonobos in Lomako will never attract the same level of tourism and investment as the chimpanzees in Uganda and Tanzania or the mountain gorillas. However, this is not the intention either. Successful but albeit limited specialised niche tourism can improve the level of protection of the Lomako forest and its biodiversity. This can help avoid the RFLY becoming a forgotten park and a forgotten bonobo priority site. Well-chosen activities of tourism and research will improve the awareness of the existence of this important area for bonobo conservation and attract worldwide attention. This, in turn, also draws attention from Congolese governmental stakeholders (as is already the case).

CONTRIBUTION TO LOCAL COMMUNITIES

The development of specialised bonobo eco-tourism and scientific research is done in close collaboration with local communities. All local assistants and guides were selected from and appointed by these communities. At the yearly coordination meetings, representatives of the communities receive progress reports and discuss further plans. They also receive reports on the creation of income, if any, and their share. A general sense of ownership is embraced.

Communities are proud to be visited by 'the outside world' even when limited. Not only the arrival of foreign researchers and tourists but also continued contact with former visitors through social media, for example, is highly appreciated. There is a general feeling that positive experiences by outside visitors can pull 'Lomako' out of its isolation and contribute to the well-being of the local community. This in return will improve the conservation

status of this priority bonobo population.

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Chimpanzee Culture Wars: Rethinking Human Nature alongside Japanese, European, and American Cultural Primatologists

By Nicolas Langlitz

Princeton University Press, 352 pp.

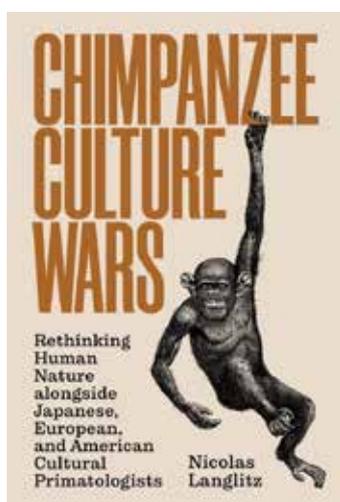
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When the editor-in-chief of *PAN* contacted me to review this book, I was somewhat hesitant. This was not because I was uninterested, but because it takes me a significant amount of time to read through a 352-page academic book in English. The reading process actually took three weeks, not simply because of my modest English ability, but also because the book contained rather

intricate philosophical discussions referring to Rousseau, Heidegger, Merleau-Ponty, etc. Nonetheless, I felt compelled to finish because the book's theme is quite relevant to my own research and many of the people mentioned in the text are familiar to me.

In brief, this book is an ethnography of “cultural primatologists” studying chimpanzees. Two famous primatologists, one from Europe and another from Japan, are the main figures of the book, although many other supporting individuals appear at relevant points. These two eminent scholars differ in various ways, which readers will learn in detail from the book, but I would like to highlight their commonalities. First, both study western subspecies of chimpanzees, field studies of which started later than those of eastern subspecies. Second, both belong to academic institutions where they were able to delve entirely into research, avoiding the need to devote time to undergraduate teaching. Third, the two were heads of their respective institutions while also conducting their own research projects (so, they have long been “alpha males!”). Fourth, their research teams are highly international in terms of membership. I draw attention to these points as I think they can affect the behaviors of researchers in the same way as the leaders' regional or cultural origins.

The descriptions of these two stalwarts by Langlitz were quite interesting and useful. Being Japanese myself, I was more familiar with the situation in Japan, but discovered a great deal from accounts of the Max Planck team. For example, it was interesting to learn of the very refined hygiene measures taken at the field site, the important role of a specialized statistician at the institute, the overhabituation problem of chimpanzees, and the tendency for students to rely exclusively on electronic devices to take data and even to read e-books in the forest (though this last point may be more of a generational difference than a cultural one), etc. Perhaps Western readers can learn likewise from descriptions of the Japanese side.

The aim of this book is not just to describe the behaviors of two human alpha males, of course. By going into the field sites and laboratories of these primatologists, Langlitz's ultimate aim is to understand the reflections of “cultural primatologists” from the viewpoint of cultural anthropology. While Langlitz is well aware that his observations are “very much skewed toward the researchers who allowed me” (p. 12), he looks more broadly at the controversy over whether or not chimpanzees have cultures by comparing the backgrounds of “field studies vs. laboratory studies” and “Euro–American studies vs. Japanese studies.”

I felt slightly awkward to find myself mentioned on p. 12 alongside big names of cultural primatology. While I felt honored to be grouped among such eminent scholars, honestly speaking this accolade should rather belong to Toshisada Nishida. Nishida also deserves to be mentioned more often elsewhere in the text, at least in my view. For example, Langlitz did not refer to Nishida even as a representative of Mahale. Instead, he repeatedly arranged “Goodall's Gombe” and “Itani's Mahale” consecutively (e.g., pp. 20–21, p. 59, p. 106). I do not deny the significance of Itani's role in the initial stage of Mahale research. Calling Mahale “Itani's,” however, seems almost like calling Gombe “Leakey's,” as it disregards those who actually worked on site. It was Nishida who stayed at Mahale for a long time, accomplishing the habituation of K and M group chimpanzees, and subsequently writing many influential papers about the site, and maintaining it over

the long-term. I understand that Langlitz could not study Nishida (in the form of participant observation or interview) because, by the time of his research on this topic, Nishida was already deceased. Nonetheless, it might have been better if more credit had been given to this important player, at least in the context of comparing Euro-American and Japanese cultural primatologists.

Perhaps in conjunction with the paucity of references to Nishida, very few papers or books written in the Japanese language are cited in the book. In my understanding, anthropological studies are usually performed in the languages of the target audience (at least my anthropologist colleagues use local languages to undertake interviews and participant observations). If texts exist in the language of the targets of an anthropological study, this local literature should also be a very important source for investigation, especially in the specific context of research on diversity between cultures.

While reading books of this kind on science studies (or anthropology of science), I sometimes become confused about whose voices are really represented in the text. For example, even when the words of a scientist are placed in quotation marks, it is not really easy to tell whose message this is. Of course, the words were originally those of the scientist, but it is the anthropologist (the author) who selected them from among many other things that the scientist may have said in the interview or during more casual conversations with the anthropologist. Thus, the final decision over which words to use in the book seems to belong to the anthropologist. To further confuse matters, such words are not usually presented independently, but may be connected to other words or writings by different actors, which are then woven into a story. Perhaps some important actors were inevitably excluded from the story. What may superficially seem to represent the voice of a scientist is actually the result of careful selection by the anthropologist to fit his/her story.

Conversely, human informants do not always tell “truths.” As Langlitz cites the words of William McGrew, “Large-brained, intelligent creatures practice deception, and one of the easiest ways of doing so is by telling lies” (p. 129). I do not want to claim that the primatologists

in this book are telling “lies” to deceive the author, but I can easily imagine that prominent scientists may be quite good at presenting themselves well at least to the public and to the media. Perhaps such great figures’ loud and clear messages are more easily adopted in this kind of anthropology of science, precisely because they are loud and clear. However, might there not be minorities who would not even dare to speak their “truth” for fear that they may be regarded as defying the alpha? Would there be a completely different story if the author compiled such different voices? It might be interesting for a study to be undertaken on the academic conduct of anthropologists (how they choose target scientists or how they select words of the scientists, etc.) just as anthropologists study the academic conduct of primatologists.

Although I have raised several concerns (some of which I understand are overly demanding), I can assure that this book is both an important ethnography as well as a philosophical essay that raises some significant questions regarding cultural primatology. I found it especially interesting to read the discussion of certain similarities between Kinji Imanishi’s epistemology and recent trends in science studies. If I understand correctly, both pose doubts over the presuppositions of the Modern, such as the *a priori* division of nature and culture, which may be perpetuating the deep gap between the academic domains of humanities and natural sciences.

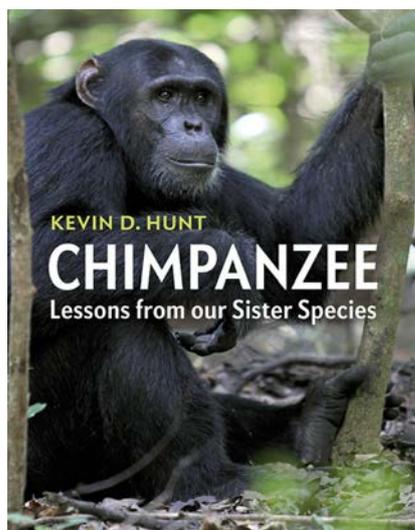
“It is such deviations from the habitual that get us to think” (p. 307), Langlitz says in the concluding chapter. I completely agree. Whether anthropologists or primatologists, this is the main reason that we do fieldwork.

SOME MINOR NOTES:

- “Kazutaka Sugawara” (p. 31) should read “Kazuyoshi Sugawara” (even many Japanese mistakenly read Sugawara’s first name in *kanji* as Kazutaka).
- The patterns of grooming hand-clasp in Mahale K and M groups (p. 131) are reversed.

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Kevin D. Hunt

Chimpanzee: Lessons from our Sister Species

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The chimpanzee is one of our planet's best-loved and most instantly recognisable animals. Splitting from the human lineage between four and six million years ago, it is (along with its cousin, the bonobo) our closest living relative, sharing around 94% of our DNA. First encountered by Westerners in the seventeenth century, virtually nothing was known about chimpanzees in their natural environment until 1960, when Jane Goodall travelled to Gombe to live and work with them. Accessibly written, yet fully referenced and uncompromising in its accuracy and comprehensiveness, this book encapsulates everything we currently know about chimpanzees: from their discovery and why we study them, to their anatomy, physiology, genetics and culture. The text is beautifully illustrated and infused with examples and anecdotes drawn from the author's thirty years of primate observation, making this a perfect resource for students of biological anthropology and primatology as well as non-specialists interested in chimpanzees.

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