

**Research Activity Report**  
**Supported by “Leading Graduate Program in Primatology and Wildlife Science”**

2017. 11, 08	
<b>Affiliation/Position</b>	Primate Research Institute/D1
<b>Name</b>	Raquel Costa

<b>1. Country/location of visit</b>
Kampala and Bwindi Impenetrable National Park, Uganda
<b>2. Research project</b>
“How infants perceive the world: assessing the current impact of mountain gorilla ecotourism in Bwindi Impenetrable National Park (Uganda), through the eyes of the youngsters”
<b>3. Date (departing from/returning to Japan)</b>
2017. 09.19 – 2017.10.25
<b>4. Main host researcher and affiliation</b>
Dr. Gladys Kalema Zikusoka, Conservation Through Public Health
<b>5. Progress and results of your research/activity</b>
<p>The focus of my research project is to assess the behavioural responses of habituated mountain gorillas during tourist visits in Bwindi Impenetrable National Park, Uganda. Specifically, I wish to understand the possible impact that human-gorilla close encounters may have in gorillas` infants and juveniles and how adults are modulating these interactions. First attempts to understand adult gorilla responses to tourist were made by Muyambi in 2005 but not further investigation was conducted in this field site and very little is known on human-related responses of mountain gorillas in general. Hence, this research may provide important information for local government agencies and organizations responsible to create managing plans of Ecotourism, in an area strongly devoted to Ecotourism, with 12 habituated groups (approximately, half of the gorilla population in the NP). The aim of this trip was to grant the necessary scientific authorization from the Ugandan Government to conduct the proposed field work in the country as well as to collect preliminary data on gorilla behaviour.</p> <p>In the very first week of this trip (20/09/2017 – 25/09/2017), I stayed in Kampala and visited both UWA and UNCST offices to submit the requested documents. In this process, I received the official letter from UWA which allowed me to start the data collection in Bwindi.</p> <p>On August 25<sup>th</sup>, I travelled to Bwindi, where I get lodged in Gorilla Conservation Camp, the field base for the local ONG, Conservation Through Public Health (CTPH). This organization aims to protect and conserve mountain gorillas by reducing human-gorilla conflict. CTPH uses a multidisciplinary approach focusing on the prevention of zoonotic disease and parasite transmission between people, gorillas and livestock. By doing so, CTPH is contributing not only to gorilla conservation but also to the promotion of local communities` health and wellbeing, increasing directly the quality of life of these impoverished families who otherwise pose a serious threat to the national park ecosystem.</p>

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Figure 1. Alex Ngabirano, CTPH camp manager making a presentation on family planning



Figure 2. CTPH volunteers and staff.



Figure 3. Alex Ngabirano, CTPH camp manager in a visit to the local community traditional healer and wife who is the responsible of family planning education among the women in Mukuno village.



Figure 4. Local children holding gorilla drawing which they sell to tourists after the gorilla tracking.

A good example of CTPH work in the community is the family planning program and general health education of the local community. Such work has to take into consideration the local beliefs and culture. In that sense, CTPH is working in close collaboration with a local healer, who has a special social role within the community. By introducing family planning methods, and “demystifying” modern human medicine practices, it is possible to improve the health and overall life quality for the local population. In addition, CTPH is also developing the “Gorilla Conservation Coffee”, which aims to empower the local farmers and spread the Gorilla conservation message worldwide. In this particular project, CTPH is helping people to give up on the unsustainable practices, which depletes the forest resources (wood, bushmeat, etc), and turn to a more sustainable lifestyle with economic benefits, contributing simultaneously to Gorilla Conservation effort. In fact, this species conservation entails significant economic benefits for the human population as well, especially on a national level. In Uganda, great ape related tourism is now responsible for

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52% of all tourism profits in the country (Wrangham, 2008 in Nakamura and Nishida, 2009). Most of this great ape tourism is related to Gorilla Ecotourism, as the country is considered to be the safest destination for such kind of tourism, with developed and comfortable means of transportation and accommodation when compared with neighbouring countries. For this reason, in the last few years 12 gorilla families were habituated for the purpose of Ecotourism in Bwindi, with two groups being now currently in the process of habituation. This consists in approximately half of the population of mountain gorillas in Bwindi, which is estimated to be a total of 400 individuals of the overall global population of 880 individuals (compassing Virunga population). Hence, it is crucial to develop management plans of the Ecotourism activity in order to preserve gorilla population health and species-specific behaviour. For example, the development of the 7-m rule aims to prevent disease transmission between tourist visits and the gorillas. However, due to many constrains, this rule is often unrealistic. During the data collection I could observe frequently the violation of this rule, by not only the tourist, but by the gorillas themselves. Hence, it is urgent to understand how gorillas adapt to the human presence, how quickly and with what consequences as such behavioural responses may dictate the success or downfall of conservation endeavours.

With this in mind, I started my field work by identifying the individuals of a particular group, Rushegura group. The group is currently composed by four adult females, one silverback, two blackbacks, four juveniles and three infants and it is one of the oldest habituated groups – in fact, it was originated during the fission of another group who was habituated in the 1990s and which is still in our days open to tourism activity, Habinyanja.



Figure 5-7. Silverback (left) and blackbacks (middle and right) of Rushegura group.

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Figure 8-11. Adult females of Rushegura group.



Figure 12-15. Juveniles of Rushegura group.

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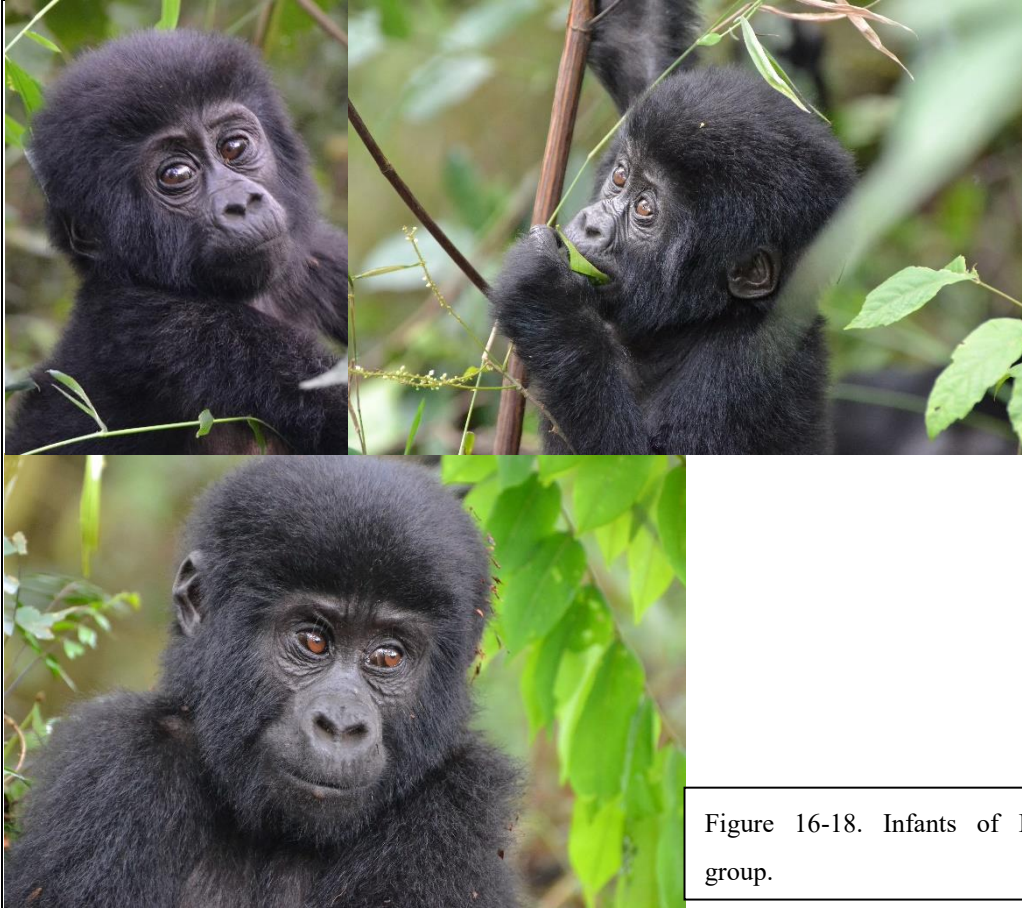


Figure 16-18. Infants of Rushegura group.

Due to my lack of experience and skills, the first couple of weeks was also an adaptation to data collection and improvement of my methodology. I used focal sampling behaviour recording method, focusing on both individual (activity budgets) and social behaviours (social interactions, with both conspecifics and human visitors). I collected for all adults and juveniles, in a total of 108 hours of preliminary data, which are divided in three periods: before the tourists' arrival, during the tourist visits and after the tourist left. Infants' behaviour was recorded in relation and simultaneously to the adults' behaviour. This should grant me the general view of gorillas' behavioural changes during the presence of human visitors. Currently, I am in the process of inputting all data and debating the applied methods with my supervisors and colleagues. I have done a very simple and preliminary analysis of the data inputted so far, which I presented the last SAGA 20 meeting as poster (November 4<sup>th</sup>, 2017). Although these results should be interpreted very carefully as I am still inputting the data, it seems that the gorillas in Rushegura group interrupt feeding, play and infant directed behaviours (see pictures 19 and 20) during the tourist visits.

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Figure 19. Mother nursing the infant.



Figure 20. Juvenile playing with infant before tourist arrive.

Currently, I continue to input the data, analyzing it and preparing the next field work trip which should start in next December. In this next phase of the field work, I should apply the skills I have learn during the preliminary data collection period and include other gorilla families.

This first experience in the field was indeed vital for the progress of this research project as it granted me the first legal permit to conduct this research and allowed me to test and evaluate the methods I wish to apply.



Figure 21. UWA trackers.



Figure 22. UWA and CTPH researchers, veterinarians and trackers.

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Figure 23. Recording of behavioral data.

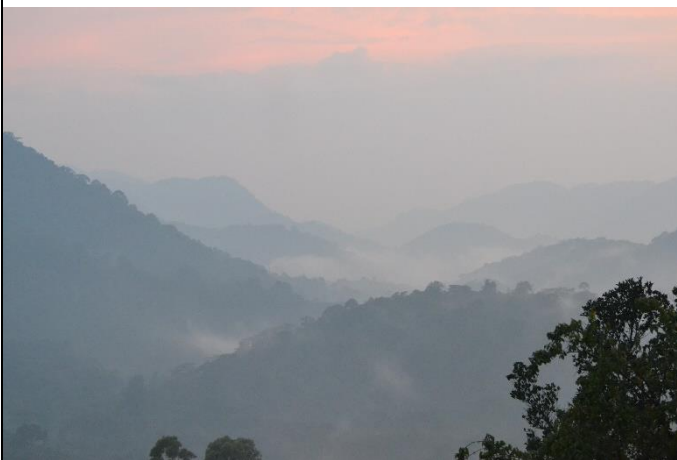


Figure 24. Gorilla Conservation Camp view of Bwindi.

## **6. Others**

I wish to express my gratitude to my academic supervisors Prof. Misato Hayashi, Prof. Michael A. Huffman and Prof. Masaki Tomonaga and to my supervisor in the field, Dr. Gladys Kalema Zikusoka. I also would like to thank Dr. Lilly Arajova for her support and helpful comments. I am also grateful to Ryoma Otsuka, Richard Bagyenyei, Alex Ngabirano, CTPH staff and volunteers, the UWA staff for their continuous support. I am forever in doubt to UWA trackers for their patience and help during the field work. I am also thankful to the Buhoma and Mukuno local community for their hospitality. A special thank you to PWS program and, especially to Prof. Matsuzawa, for believing and supporting this field work.