

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

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Affiliation/Position	Primate Research Institute/D2
Name	Raquel Costa

1. Country/location of visit
Bwindi Impenetrable National Park, Uganda and International Primatological Society Conference, Nairobi, Kenya.
2. Research project
“How gorillas perceive the world: assessing the current impact of mountain gorilla ecotourism in Bwindi Impenetrable National Park (Uganda)”
3. Date (departing from/returning to Japan)
2018.05.18-2018.09.27
4. Main host researcher and affiliation
Dr. Gladys Kalema Zikusoka, Conservation Through Public Health, Uganda
5. Progress and results of your research/activity
<p>This report presents the progress of my PhD project which aims to assess the behavioural responses of habituated mountain gorillas (<i>Gorilla beringei beringei</i>) during tourist visits in Bwindi Impenetrable National Park, Uganda. In this third field work season I continued the behavioural data collection (focal and scan sampling) in the presence and absence of tourists. Therefore, so far, we have a 6-month data base set (two 3-month periods within December 2017-August 2018) on one habituated group (N=12 individuals) in Bwindi Impenetrable National Park, Uganda. Kruskal Wallis and Mann Whitney tests were used to compare pre-contact, during contact and post-contact periods, and to correlate the gorillas` behaviour with the distance to tourists and human group size. Preliminary analysis shows that “Human directed behaviour” increases 3.5 times during the tourist visit (Kruskal- Wallis=10.029, P=0.027 Bonferroni correction) and is present only when tourist are within 3 meters of the gorillas. Moreover, group social dynamics are affected by close distance to humans - affiliation, agonism and submission behaviours increase within 3 meters from the tourists. Further analysis is necessary, but the present results caution a disturbance in the gorilla`s behaviour related to the visit of tourist. The problems are most pronounced when people get too close to the gorillas, in violation of standard rules (to keep 7 meters from gorillas). More data is needed to deepen our understanding of this issue. We plan to collect additional data on a second group of gorillas with a different level of habituation to human presence (i.e. recently habituated and visited by tourists) to stablish a comparison.</p> <p>Following my return to Japan, my data was presented in Uganda by my colleague Ryoma Otsuka, as part of the training workshop for local guides and trackers, aiming to decrease human-gorillas` direct physical interactions.</p> <p>In addition to the main data collection effort, I was privileged to witness some interesting events concerning the gorillas` life and daily routine.</p>

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- Integration of 2 adult females and 2 babies (first encounter June 1st)
- Infanticide of one of the newly integrated babies and mother carrying the dead infant's body (June 5th)
- Inter group interaction (studied group and a wild/non-habituated group of gorillas) (July 10th) resulting in severe wounds in one black-back of our subject group, which was posteriorly followed by the Gorilla Doctors.
- Intensive mating between the recently joined female with both silver-back and a black-back (August).

Following the field season, between August 19th and 25th, I attended the International Primatological Society Conference (IPS), in Nairobi, Kenya. I left Bwindi in August 17th, traveling to Nairobi from Entebbe in the next day. In the first day of the conference, taking advantage of the conference late schedule, we took the opportunity to visit some wildlife centers in Nairobi (the David Sheldrick Elephant Orphanage Sanctuary and the Giraffe Center of the African Fund for Endangered Wildlife, Kenya) and a cultural center as well (Bomas Cultural Center).

During the IPS conference I presented the preliminary data analysis of my study as a poster and received very interesting comments and kind support from other researchers in the field and other fields. I also attended the talks I previously selected, based on my interests and curiosity. I have learned the tourism issues in other sites, general conservation issues of several species, sites and habitats, human-primates' conflicts and ethnoprimate works. I also revisited some topics of my undergraduate studies and lectures such as human evolution and animal welfare.

Following the IPS conference and before my return to Japan, I also took the chance to visit the Nairobi National Park. In this park, I had the unique opportunity to observe safari animals such as giraffes, lions, zebras, buffalos, crocodiles, hyraxes, impalas, vervets, baboons and, the very special, black rhinoceros. This was the perfect end for this field work season and conference.



Figure 1. Infant mountain gorilla from Rushegura group, Bwindi NP, Uganda.

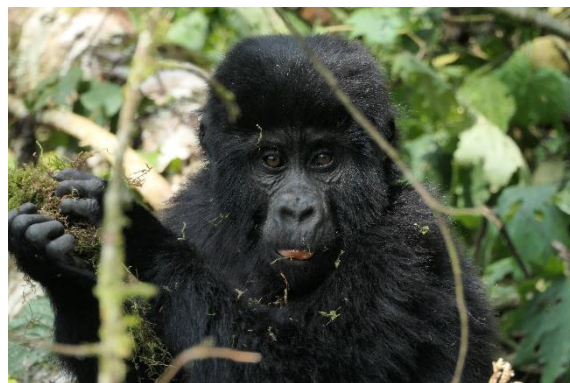


Figure 2. Infant mountain gorilla from Rushegura group, Bwindi NP, Uganda.

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Figure 3. Black-back from Rushegura group, after the inter-group interaction, Bwindi NP, Uganda.



Figure 4. Adult female migrated to Rushegura group, who lost the infant to the infanticide event, Bwindi NP, Uganda.

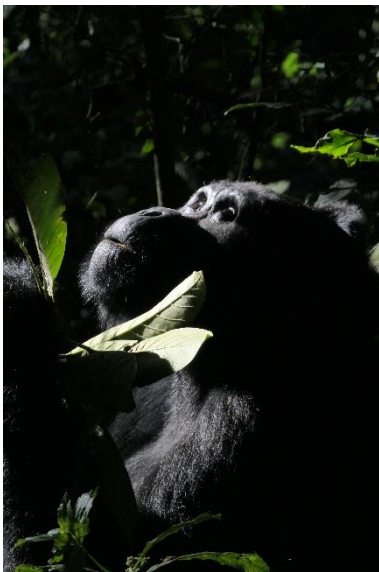


Figure 5. Silverback from Rushegura group, Bwindi NP, Uganda.



Figure 6. Rushegura group, Bwindi NP, Uganda.

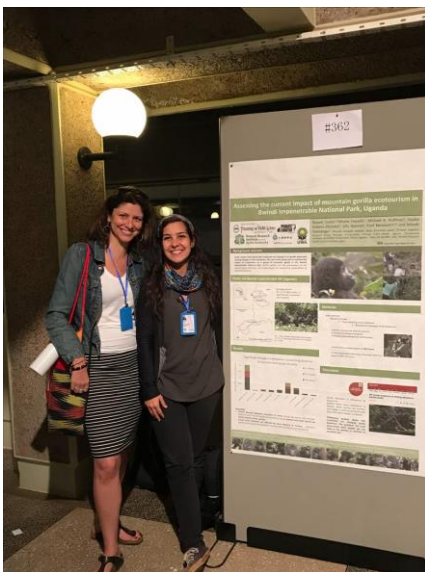


Figure 7. Poster presentation during IPS, Nairobi, Kenya.



Figure 8. Group photo (trackers, rangers, researchers and volunteers) in Bwindi NP, Uganda.

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Figure 9. Infant African elephants (*Loxodonta africana*) in the David Sheldrick Sanctuary Wildlife Trust, Nairobi, Kenya.



Figure 10. Infant elephants being bottle feed in the David Sheldrick Sanctuary Wildlife Trust, Nairobi, Kenya.



Figure 11. Masai Giraffe (*Giraffa tippelskirchi*) in Nairobi NP, Kenya.



Figure 12. Yellow-spotted rock hyrax (*Heterohyrax brucei*) in Nairobi NP, Kenya.



Figure 13. Impala (*Aepyceros melampus*) in Nairobi NP, Kenya.



Figure 14. Southern white rhinoceros (*Ceratotherium simum simum*) in Nairobi NP, Kenya.

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Figure 15 and 16. Plains zebras (*Equus quagga*) in Nairobi NP, Kenya.

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. To my colleague and friend, Ryoma Otsuka and Prof. Gen Yamakoshi for their support and encouragement. I also would like to thank Prof. Fred Bercovitch, Prof. Colin Chapman, Dr. Angela Brandao and Dr. Lilly Arajova for their support and helpful comments. I am also grateful to CTPH staff and volunteers, the UWA staff for their continuous support and the scientific permit to conduct this research. I am forever in debt 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, the CCSN program and, especially to Prof. Matsuzawa, for believing and supporting this field work.