

Research Activity Report
Supported by “Leading Graduate Program in Primatology and Wildlife Science”
 (Please be sure to submit this report after the trip that supported by PWS.)

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| | 29 Oct 2018 |
| Affiliation/Positionn | Primate Research Institute/D1 |
| Name | Nelson Broche |

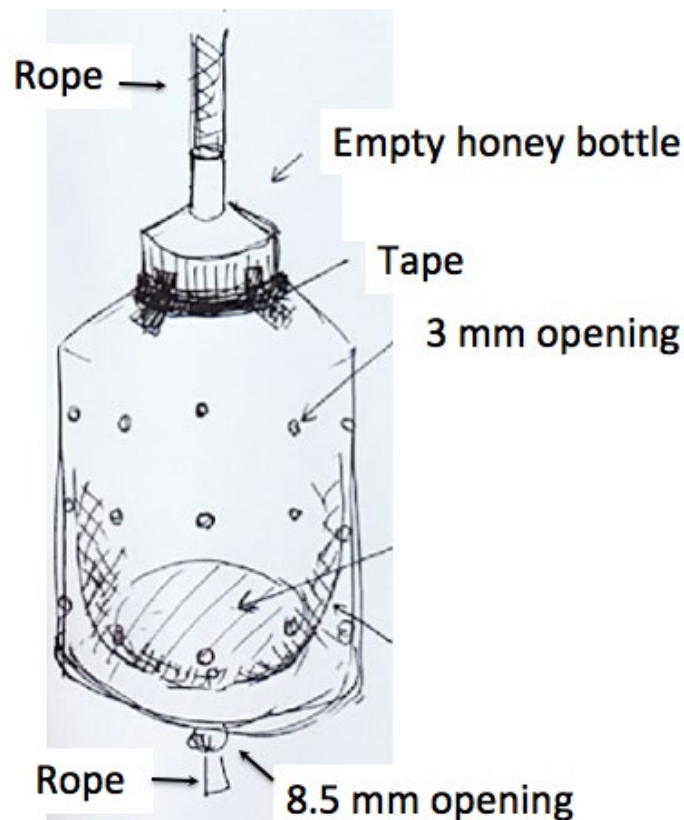
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| 1. Country/location of visit |
| Uki, Kumamoto, Japan |
| 2. Research project |
| Animal Welfare Course |
| 3. Date (departing from/returning to Japan) |
| 23 - 26 Oct 2018 (4 days) |
| 4. Main host researcher and affiliation |
| Professors Satoshi Hirata & Naruki Morimura (Kumamoto Sanctuary) |
| 5. Progress and results of your research/activity (You can attach extra pages if needed) |
| Please insert one or more pictures (to be publicly released). Below each picture, please provide a brief description. |
| <p>Schedule</p> <p>23 Oct = travel; introduction lecture; touring facilities; enrichment project preparation</p> <p>24 Oct = chimpanzee enrichment</p> <p>25 Oct = bonobo enrichment; finalize results</p> <p>26 Oct = present findings; concluding remarks; return travel</p> <p>The animal welfare course is a part of the PWS student curriculum and is held at Kumamoto Sanctuary. The goal of this course is to learn about animal welfare for captive animals, in our particular case for chimpanzees (<i>Pan troglodytes</i>) and bonobos (<i>Pan paniscus</i>). In teams of 2-3 participants, we were able to develop our own enrichment devices for each species and then make behavioral observations. At the end of the course we evaluated our findings and discussed future improvements of our enrichment ideas.</p> <p>On our first day, Dr. Morimura and Dr. Hirata provided introduction lectures of Kumamoto Sanctuary and then we toured the facility. We learned that Kumamoto Sanctuary was originally constructed and used by Sanwa Kagaku Kenkyusho Co., Ltd. as a pharmaceutical research facility for animal experiments starting in the 1980s. Since 2011, Kyoto University staff have taken over and turned the facilities into Kumamoto Sanctuary, which currently provides a home to over 60 chimpanzees and bonobos. Research is now limited to non-invasive studies such as animal welfare and environmental enrichment. Hence, all course participants were given a hands-on opportunity to develop enrichment devices for two groups: a group of chimpanzees (1 male, 4 females, estimated age range = 28 – 44 years) and a group of bonobos (3 females, age range = 26 – 36). By the late afternoon we created teams and began planning our respective enrichment projects. Different from previous courses, we were limited in not introducing enrichment devices that could be used for food foraging by our subjects, or that is, no food was allowed to be given directly to the chimpanzees and bonobos. This condition was due to an annual health check occurring around the same time of the course.</p> <p>The participants in my group consisted of Rafaela S. C. Takeshita and Tamao Maeda. Together we decided to explore olfactory enrichment by using [1] shiso (mint family), [2] dried rosemary mixed with dried bay leaves, [3] dark chocolate (85% cacao), [4] grapefruit peel, [5] and paper as a control. We reused empty 1,000g plastic honey bottles by drilling 24 holes (3 mm diameter), equally spaced about 2 – 3 cm in a square pattern along the side of the bottles, then added one 8.5 mm diameter opening in the center bottom of the bottles. The top of the bottles already contained an opening so both top and bottom holes were used for securing the olfactory devices by braided rope in a stationary location along each respective habitat enclosure. Bottles were then cleaned with warm soapy water, dried, and then used for olfactory stimuli. For chimpanzees we used a blue net in order to secure the dried rosemary/bay leaf mix but found this was not effective and we did not use the same netting for bonobos. The amount of olfactory material used in each bottle was proportional to whether we could smell the contents (minus the paper condition) from about 5 – 10 cm distance from the face.</p> |

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We found for chimpanzees only 3 out of 5 individuals came to the olfactory enrichment station and manipulated the devices for 1.3 minutes in 1 hour. Chimpanzees only manipulated the rosemary/bay leaf mix and shiso. For bonobos, 3 out of 3 individuals came to the olfactory enrichment station and manipulated all enrichment devices for a total of 10.2 minutes in 1 hour. Bonobos manipulated all five olfactory devices but predominantly manipulated the grapefruit peels (350+ seconds) and dark chocolate second (150+ seconds).

During each one-hour observation our enrichment devices were simultaneously competing with two other groups who introduced tactile/visual and acoustic devices into each enclosure. For the chimpanzee enclosure, our olfactory devices were located in a relatively obscure location away from where the main group were situated and nearly one fourth of the station was covered by a large bush. For bonobos the location of the olfactory devices was visibly clear but individuals seemed more interested in other enrichment devices. Location, value of enrichment devices, and their familiarity could explain why both groups spent little time at the olfactory enrichment station, especially in the case of the chimpanzee group. If time spent manipulating enrichment devices is the goal of enrichment, then tactile related enrichment devices may better serve this purpose. However, as secondary environmental enrichment, I’m interested in what ways olfactory stimulation can provide enrichment to captive non-human primates.

Overall, this was a useful exercise in gaining hands-on experience of environmental enrichment with both chimpanzees and bonobos. I am very appreciative to all staff at Kumamoto Sanctuary who facilitated our stay there and Professors Hirata and Morimura for leading this course – thank you.



Schematic of the olfactory enrichment device. Olfactory stimuli were placed inside. (Illustration by Tamao Maeda)

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Example of olfactory device placement.



Bonobo manipulating grapefruit peels.

6. Others