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.)

	2015. 06. 29
Affiliation/Position	Primate Research Institute/D2/L4
Name	Rafaela Sayuri Takeshita

1. Country/location of visit

Bukit Merah, Perak, Malaysia

2. Research project

Non-invasive analysis of adrenal hormones in orangutans

3. Date (departing from/returning to Japan)

2015.06.11 – 2015. 06. 24 (14 days)

4. Main host researcher and affiliation

Dr. Sabapathy, Bukit Merah Orang Utan Island Foundation

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.

In this trip I could visit for the first time a rehabilitation center for orangutans, Bukit Merah Orang Utan Island Foundation (OUI - Figure 1), located at Semanggol, Perak, Malaysia. Since 2000, Orang Utan Island has progressed from being a sanctuary, where visitors experienced first-hand awareness and education on the orangutan, to a recognized ex-situ conservation facility and referral center for the endangered Bornean orangutan.

My impression of the place was much better than I expected. After seeing animals in the zoos, I was expecting to see a very restricted area, with scarce vegetation to facilitate the procedures for monitoring the individuals. However, I found that most of the animals spend the day in a large outdoor fenced enclosure, highly vegetated with tall trees, where we can see many nests (Figure 2). There are several ropes for climbing and a few wooden platforms over the lake where they can drink water (Figure 3). By late afternoon, the animals return to their cages to sleep. Currently, there are about 26 individuals at OUI, from infants to adults. Most of them are kept isolated overnight, except some juveniles that are kept together and an infant male, kept in a larger cage with his mother.

Figure 1. Entrance of Orang Utan island

Figure 2. Orangutan nest

Figure 3. Two juveniles drinking water from the lake at OUI.

Furthermore, some individuals live in a nearby island, called BJ (Figure 4). There, the animals are free-ranging all day, with provisioned food. We could follow Ah Ling, a 21 years old male (Figure 5A). I was very impressed and happy to see a flanged male so close. One very interesting thing I noticed was that, in comparison to the flanged male at OUI (called BJ - Figure 5B), Ah Ling's flanged are small. This is probably a reflection of competition, since there are 3 adult males at OUI, whereas Ah Ling is the only male at BJ island.

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Figure 4. BJ island

Figure 5. Flanged males (A) Ah Ling from BJ island and (B) BJ from OUI.

As part of my doctoral research with wild and captive orangutans, my colleague Renata Mendonça and I stayed about 10 days in OUI, to obtain fecal and urine samples from the orangutans. With the help of the local staff, all samples were collected from the cage floor and placed in plastic bags (feces) and microtubes (urine).

The purpose of this study is: (1) to develop and validate a non-invasive assay to measure steroid hormones from feces and peptide hormones from urine of orangutans; (2) to investigate the rate of excretion of hormonal metabolites in urine and feces; (3) to compare hormonal levels between wild and captive individuals and (4) to investigate the effect of age, sex and reproductive state on hormonal concentrations.

The veterinary in charge of OUI, Dr. Sabapathy, kindly received us and helped us to conduct our study. Thanks to him, to the nurses and rangers, we were able to sample 14 individuals, including females, males, infants, juveniles, one flanged male, one pregnant and one lactating female.

Dr. Sabapathy also talked to us about the routine procedures conducted at OUI for the care of orangutans. We could see him collecting blood from a few individuals for hematology and biochemical analysis.

By the end of the study period, we obtained in total 69 urine samples and 59 fecal samples. All samples were brought to Japan for further analysis. We plan to measure testosterone, estrogen, progesterone, glucocorticoids and DHEAS. In addition, we will measure oxytocin and prolactin from the urine of the females. Then we will compare the results with samples from wild orangutans of Danum Valley Conservation Area and with captive orangutans from Japanese zoos.

In summary, this trip was successful in terms of research, education and networking. I finished the data collection for my doctoral research, I learned about management of captive orangutans and projects of reintroduction, and I obtained a good collaboration contact in Malaysia. Dr. Sabapathy and staff of OUI were very kind and helpful. He told me that he is willing to collaborate with our study and even possible future projects from Brazil.

Dinner with Renata, Dr. Sabapathy, his wife and Mr. Siva

6. Acknowledgements

I would like to express my sincere gratitude to the PWS program and Prof. Tetsuro Matsuzawa for supporting this study. I also thank my advisors, Prof. Michael Huffman and Prof. Fred Bercovitch for their guidance and support, to Renata Mendonça for the collaboration in this study, to Prof. Hayashi for helping us to contact the site and submit our study plan, and to Dr. Sabapathy and staff of OUI for hosting us and assisting us during our stay.