

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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Affiliation/Position	Primate Research Institute/D1
Name	Rafaela Sayuri Cicalise Takeshita

1. Country/location of visit	Born Free USA Primate Sanctuary, Dilley, Texas, USA
2. Research project	Hormonal profile of free-ranging Japanese macaques: effects of environment and social behavior
3. Date (departing from/returning to Japan)	2014.06.30 – 2014. 07. 29 (30 days)
4. Main host researcher and affiliation	Tim Ajax, Director of the Born Free USA Primate Sanctuary
5. Progress and results of your research/activity (You can attach extra pages if needed)	<p>Please insert one or more pictures (to be publicly released). Below each picture, please provide a brief description.</p> <p>In a remote, hot and dry area, surrounded by nothing but oil companies and deserts, I see a few monkeys up in the trees, trying to get some shade to rest from the sun. This place was the Free Born Sanctuary, in Dilley, Texas (1 hour away from San Antonio), USA. Before I know about this place and its history, I never thought it would be possible to see snow monkeys living in such mesquite, desert habitat. But I was able to find over 400 monkeys living in the area, apparently quite well!</p> <p>Originally, this group was the Arashiyama A troop, a fission of the main troop from Kyoto, Japan. In 1970, the troop was so large that the monkeys begun to forage away from the forests, becoming a problem to local farmers. The solution was brought up by a team of researchers from Japan and Texas, who found a place northwest of Laredo, known as “La Moca”, to relocate the monkeys in 1972. After facing some problems with the site and management, in 1980 the monkeys were transferred to a new place in Dilley, where they are currently living.</p> <p>In comparison to Japan, this new home is much flatter, hotter and drier. I was working at the main enclosure, which is about 22.66 ha², fenced in outdoor mesquite bush, where 250 Japanese monkeys live (Figure 1). Other animals in the enclosure include feral cats (Figure 2), armadillos, snakes and one long-tailed macaque (Figure 3). It contains 2 natural ponds and a few water holes where the monkeys drink, play, and cool down from the heat (Figure 4). I could observe that this group has been split in three small troops: a large troop, containing more than 100 individuals, a small troop with about 50 individuals, and another small troop composed by peripheral males from the main troop. I targeted for the main troop and some individuals of the peripheral troop.</p>

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Figure 1. Japanese monkeys in the main enclosure during feeding time.



Figure 2. Feral cat resting among Japanese monkeys.

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Figure 3. Long-tailed monkey among Japanese monkeys

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Figure 4. Female Japanese monkey (Red) resting her feet on a water hole.

First I thought that the fieldwork in Texas would be easier than in Japan, since it does not require climbing mountains or protection from cold and snow. However, I learned that every field site has its own challenges. The thorny vegetation and the fact that the monkeys are not so habituated to humans gave me a hard time in the beginning. It was very difficult to track monkeys, who were always hiding up in the brushes. Not to mention the severe heat. After a few days, the monkeys gradually became used to my presence and allowed me to follow them.

Data collection included behavioral observation (focal animal and ad libitum sampling; Figure 5) from 12 individuals (6 females and 6 males) to establish the dominance rank and rates of agonistic and social interactions. I also collected fecal samples (Figure 6) opportunistically from adult monkeys for hormonal analysis. I observed interesting behaviors, such as mothers carrying juveniles in “horse-riding position” (Figure 7) and monkeys climbing high up in trees to jump into the pond (Figure 8).

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Figure 5. Sayuri collecting behavioral data from a focal male.

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Figure 6. Sayuri collecting a fecal sample.



Figure 7. “Horse-riding position” in Japanese macaques

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Figure 8. Juveniles jumping from trees to the pond

My impression about the western monkeys is that they are very well adapted to this environment. Despite of the fact that the males have been castrated for control of population size, I still observed a dominance hierarchy in this troop, although sometimes it is not very clear, since the males do not seem very aggressive towards each other. What caught my attention is that the western monkeys appear to be less social (they fight less and groom less) than the group I observed in Jigokudani and in PRI. Could this be a consequence of the reduced levels of testosterone after castration? Or the extreme heat that cause them to keep this distance from one another? Further analysis on hormonal levels might bring us the answers to those questions.

This research expands the study undertaken for my Master's degree, which has resulted in two publications to date (Takeshita et al. 2013, Takeshita et al. 2014). In total, I collected 54 samples and 36 hours of focal observation. The samples were frozen and brought to PRI for analysis in the future (scheduled for early 2015). The results obtained with this study will provide us insights about the endocrinological mechanisms of adaptation and survival of Japanese macaques in contrasting environments and climates. This information can be useful to improve the management of captive animals and to monitor the environmental conditions in free-ranging monkeys.

Through this experience, I use different skills such as the use of footprints to find the monkeys (Figure 9) and opening trails in the brush to follow the monkeys through the thorny vegetation (Figure 10). I also had the opportunity the interaction between Japanese monkeys and other species. By the end of the study period, I could see other enclosures and the other primate species that live in the sanctuary. Rhesus monkeys (*Macaca mulatta*), pig-tailed monkeys (*Macaca radiata*), vervet monkeys (*Chlorocebus aetiops*), and baboons (*Papio hamadrya*; *Papio anubis*) among them. It is sad, though, to know that most of these animals have been rescued from humans that kept them as pets for a long time, eliciting stereotypical behaviors and leading to a difficult adjustment to a life among other monkeys. I really hope that our efforts on studying nonhuman primates can have an impact on people's awareness about the importance of keeping these animals in a natural environment.

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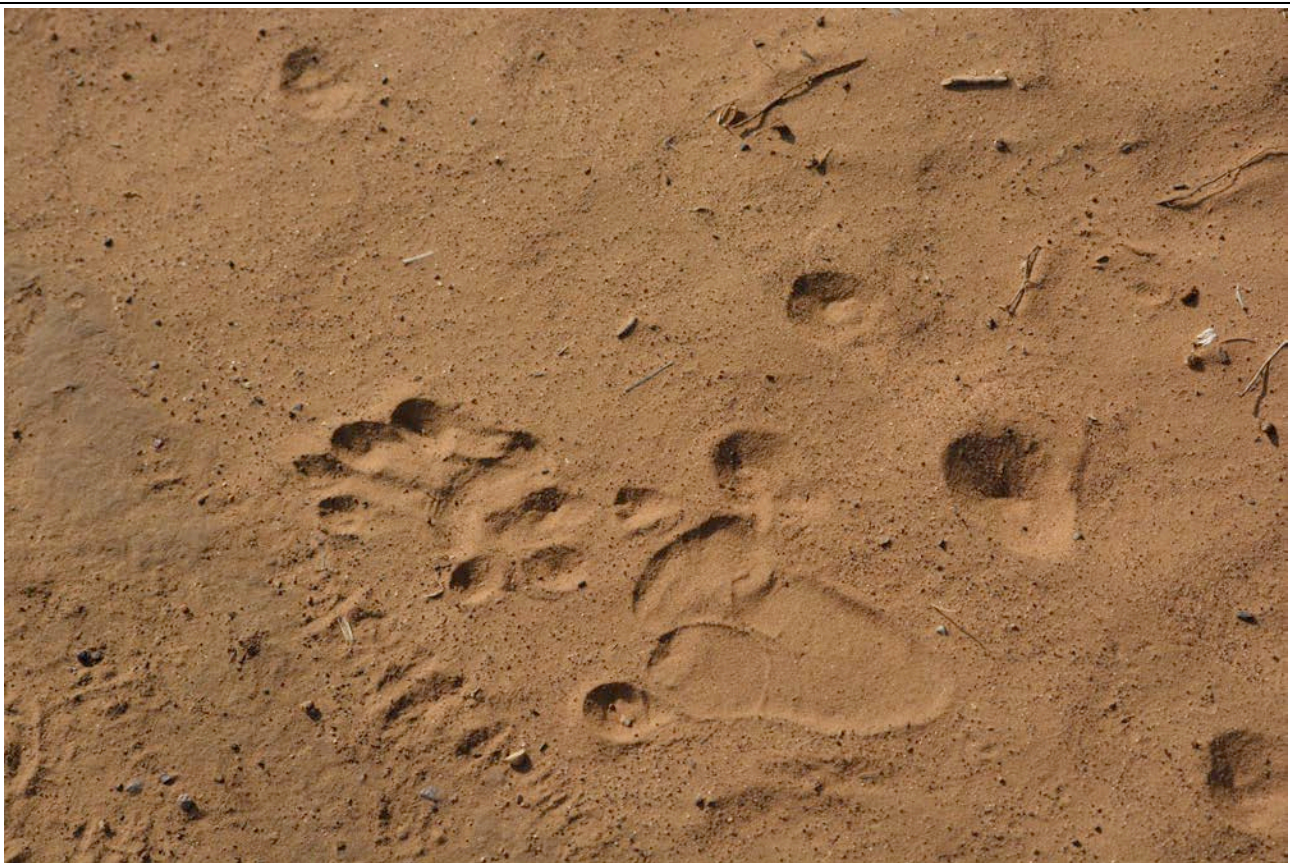


Figure 9. Footprints left by the monkeys on the sand.



Figure 10. Trail in the brush to follow the monkeys.

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6. References

Takeshita RSC, Bercovitch FB, Huffman MA, Mouri K, Garcia C, Rigail L, Shimizu K (2014). Environmental, biological, and social factors influencing fecal adrenal steroid concentrations in female Japanese macaques (*Macaca fuscata*). American Journal of Primatology (online version).

Takeshita RSC, Huffman MA, Bercovitch FB, Mouri K, Shimizu K (2013). The influence of age and season on fecal dehydroepiandrosterone-sulfate (DHEAS) concentrations in Japanese macaques (*Macaca fuscata*). *General and Comparative Endocrinology* 191: 39-43.