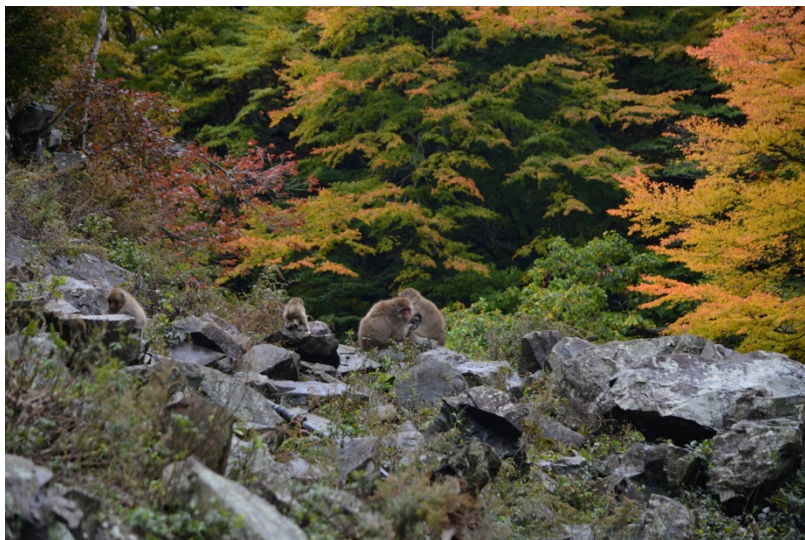


Research Activity Report
Supported by “Leading Graduate Program in Primatology and Wildlife Science”
(Please be sure to submit this report after the trip that supported by PWS.)

2014. 01, 08	
Affiliation/Position	Primate Research Institute/D2
Name	Rafaela Sayuri Cicalise Takeshita

1. Country/location of visit
Jigokudani, Nagano prefecture, Japan
2. Research project
Hormonal profile of free-ranging Japanese macaques: effects of environment, social behavior and reproductive state
3. Date (departing from/returning to Japan)
2014.10.20 – 2014. 12. 15 (56 days)
4. Main host researcher and affiliation
Mr. Haruo Takehushi, Director of Jigokudani Monkey Park
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.
After 4 months, I went back to Jigokudani to conduct the second part of my research on the free-ranging Japanese monkeys. In the first part, I covered the spring birth season. This time, I observed and sampled the same subjects during the mating season, which corresponds the end of fall and beginning of winter.
As soon as I arrived at the park I already noticed lots of differences from the previous season. First, the weather was getting colder and the leaves changed colors, as a signal of the autumn (Figure 1). Second, the monkeys' fur looked longer and thicker (Figure 2), probably because of the decrease in the temperature. Not surprisingly, I noticed that they spent more time in the hot spring during cold days. Also, most of the monkeys had a darker red skin color than before, which could mean that the mating season had begun, so I immediately started my data collection, using the same methods as before.

Figure 1. Japanese monkeys in late autumn at Jigokudani Monkey Park.

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Figure 2. Alpha male (Togura95) in spring (left) and winter (right). Note that the face becomes darker and the fur thicker during winter

From the 18 subjects selected previously, I could only follow 17, because one subordinate male had disappeared 2 months prior my return. From the 12 females, I found out that 8 females gave birth this year, not 7 (one female delivered the baby around late July). Thus, for this season I had 7 females lactating (since one female lost her baby) and 5 females cycling. What is curious, though, is that some of the lactating females showed relatively high rates of mounting behavior, especially the highest ranking female. In addition, one of those high-ranked females has been giving birth every year since 2011, despite of her age (22 years old). This fact shows how the dominance hierarchy may have an influence on reproductive success in this species.

As for the males, I noticed that the individuals on the rank positions 1st, 2nd, and 5th displayed a lot of mating behaviors. In contrast, males 3rd and 4th frequently followed females, but instead of mounting, they often displayed masturbation (Figure 3). In this season, the monkeys (especially males) seem to become more aggressive, and I observed an increase in the agonistic behaviors and injuries (Figure 4). I believe that this change in the behavior is linked with increase in the steroid hormones. Further analysis of the fecal samples shall test this hypothesis.



Figure 3. The 3rd male of the hierarchy (Toraya93) ejaculating after masturbation

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Figure 4. The 2nd male of the hierarchy (Toraiti96), with an injury on the lower lip.

In total, I collected 204 fecal samples and approximately 174 hours of behavioral observation. Before going back to the field I thought that data collection would be much harder during fall, since the monkeys disperse more in the mountains due to the food availability. However, it appears that this fall did not provide such fruit abundance, so luckily I could easily find monkeys everyday. The difficult part was towards the end of November and early December, when the temperature dropped down to -10°C , and there was heavy snow almost every day (Figure 5).



Figure 5. Sayuri collecting behavioral data (left) and a fecal sample (right)

This trip was probably the last part of the fieldwork for my PhD. Upon my return to Inuyama, I will process and analyze the data collected and write up my PhD thesis. With this research I intend to achieve the following aims: (1) Investigate hormonal profile of free-ranging Japanese macaques and changes with biological (age, gender, and reproductive state), environmental (season, climate) and social factors (behavior, dominance hierarchy), and (2) Compare the hormonal profile of Japanese macaques in their natural habitat (Jigokudani, Japan) with a group of free-ranging Japanese macaques living in a large outdoor mesquite bush, desert habitat (Texas, USA - data collection in July), as well as with individuals living in captivity (PRI - previous study).

6. Acknowledgements

This study would not have been possible without the support of PWS and Nippon Zaidan. I would like to express my sincere gratitude to Prof. Matsuzawa, my advisors Prof. Michael Huffman and Prof. Bercovitch, Prof. Yumoto, the hosts at Shimaya Ryokan (Mr. and Ms. Yumoto) and the staff at Jigokudani Monkey Park (Mr. Takehushi, Mr. Hagiwara, Ms. Miyata, Mr. Takizawa and Mr. Sato) for all the help and assistance with this work.

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Sayuri and the staff at Jigokudani Monkey Park



Sayuri at Shimaya Ryokan with the hosts and guests

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