

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/M1
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1. Country/location of visit
Koshima, Miyazaki Prefecture, Japan
2. Research project
Koshima Field Training Course, Self-recognition based on multiple mirrors in Japanese macaques
3. Date (departing from/returning to Japan)
2016. 4. 24 – 2016. 4. 30 (7 days)
4. Main host researcher and affiliation
Dr. Tanaka, Dr. Tsuji, Assistant Professors at Primate Research Institute, Kyoto University; Mr. Suzumura, Koshima Station, Wildlife Research Center, Kyoto University
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>During this visit, I conducted research on self-recognition based on multiple mirrors in Japanese macaques in Koshima, and also visited Cape Toi to see the horses.</p> <p>Our schedule was as follows:</p> <ul style="list-style-type: none"> 4.24 arrived at Koshima station 4.25 Koshima, observation for preliminary research 4.26 Koshima, data collection 4.27 Cape Toi, observed horses 4.28 Koshima, data collection 4.29 presentation 4.30 left Koshima station <p>During this trip, I conducted preliminary research about self-recognition based on multiple mirrors in Japanese macaques in Koshima.</p> <p>Previous studies summarized several types of behavior of animals facing a mirror, including looking into mirror, social behavior, exploratory behavior, contingent behavior, and self-directed behavior. For self-directed behavior, only great apes showed this kind of behavior when looking at a mirror, while Japanese macaques (<i>Macaca fuscata</i>) showed all the above behaviors except for self-directed behavior (Inoue-Nakamura, 1997). However, researchers also managed to train Japanese macaques to use mirror to direct their responses (Itakura, 1987), which indicates that Japanese macaque may have the potential ability to understand their self-images. I was curious whether they could show self-directed behaviors after some simulation, for example, using multiple mirrors to create many reflections instead of using just one mirror.</p> <p>On 4/24 and 4/26, I collected my data in Koshima island. The experimental area was on the beach. I put three mirrors of A4 size on the beach. Two mirrors were in the opposite side to each other, and the other mirror was placed in the middle of the two. I put food in the mirror area, and when a monkey came, I video-taped until the monkey left, and then analysed the video after the experiments. According to Inoue-Nakamura (1997), I categorized the behaviors into these types: looking into mirror, social behavior, exploratory behavior, contingent behavior, self-directed behavior, and also eating behavior, looking direction change (from one mirror to another), and other behaviors (e.g. distracted by something outside).</p> <p>Through the observation, I observed all the mentioned behaviors but not self-directed behavior. The monkeys spent most time eating and looking into the mirror (also some time in looking direction change), and they also spent some time in exploratory behavior, with some time spent in social and contingent behavior. In the 30-s periods, time durations among different behaviors were not significantly different (Kruskal-Wallis test, $p = 0.8775$).</p> <p>However, there was no self-directed behavior even though monkeys were checking the mirrors and changing their</p>

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attention to different mirrors frequently. This negative result did not directly answer my research question, but there were still some interesting findings. Some monkeys did not eat the food in the mirror area at all, or they would eat the food, but after eating they still stayed in that area and checked the mirrors. The monkeys showed many exploratory behaviors, including touching the mirror using hand, touching the mirror using mouth, checking the back of the mirror, and pushing down the mirror. On the second day, the alpha male pushed all the three mirrors down. In addition, the monkeys showed limited social behavior. Only one monkey vocalized and threatened to the mirror image. Others showing social behaviors were getting frightened and ran away seeing the images in the mirrors. This was in consistence with previous report (Inoue-Nakamura, 1997).

Apart from monkey experiments, we also visited Cape Toi to see the horses there. It was raining that day, so we could not go to Koshima island. We visited the visitor center of Cape Toi, and saw many horses in the outside. It was the first time for me to observe horses that are not captive. For me it was very interesting to learn the fact that horses can sleep in their standing position, and if one family of horses sleep like this on the road, humans would have a traffic jam.

It was a meaningful trip in Koshima. I was happy to go to the island, where Japan’s primatology originated, and to observe the Japanese macaques. It was also interesting to see the horses eating, walking, sleeping, and looking at us on their beautiful grass land.



(photo by Tsuji-sensei)



(Monkeys explore the mirrors. Photo by Tanaka-sensei)



(A juvenile monkey explores the mirror and pushes it.)



(sea)

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(Koshima island)



(a horse)



(horses)



(group photo by Suzumura-san)

6. Others

Thank Suzumura-san, Tanaka-sensei, Tsuji-sensei for offering great help in our research and taking good care of us in daily life. Thank all students for their kind help and support during the trip. I had a good experience working with the monkeys and observing horses. I also enjoyed fishing, learning to play ukulele, and cooking together with all people.