

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. 11. 06	
Affiliation/Position	Network Centre of the Research in Anthropology, Lisbon, Portugal Primate Personality Group, Lisbon, Portugal
Name	Raquel Costa

1. Country/location of visit
Inuyama, Aichi-Prefecture, Japan
2. Research project
Genome Course on Deer Feces as a Source of Added Information to Enhance Population Census Data in Sika Deers (<i>Cervus nippon yakushimae</i>) of Yakushima Island
3. Date (departing from/returning to Japan)
26. 10. 2015 – 2015. 10. 30 (5 days)
4. Main host researcher and affiliation
Prof. Goro Hanya, Dr. Takashi Hayakawa and Prof. Kodzue Kinoshita, Primate Research Institution, University of Kyoto
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>The main focus of this genome course was to identify gender of Sika deers via DNA analysis. Specifically, we had to compare our results from the molecular analysis to our field observations of the animal’s gender. During this genome course, we first extracted DNA from our samples collected in the field (Yakushima Field Course). Next we purified the sample and quantified of the DNA in the samples, using the Qlamp Fast DNA Stool Mini Kit. However, our quantification showed a very low DNA concentration. Subsequently, we performed a PCR (Polymerase Chain Reaction) using primers SRY (to determine the Y autosome) and ZFX (to determine X and Y autosomes) followed by an Electrophoresis. The results showed that DNA is in fact a good tool to determine gender. However, some points have to be considered in the future: DNA preservation is difficult and PCR is not stable. In order to address these problems, we should improve extraction methods and adapt the PCR conditions to the samples.</p> <p>The second part of this course was sex identification by hormonal analysis. Our aim in this part of the course was to identify deer gender via hormonal analysis, by comparing concentration levels between sexes and also between breeding season (our sample) and non-breeding season (a previous sample collected in August). In order to do that, we used a spectrometer to measure the concentrations of hormones in ours samples. Results showed no difference between males and</p>

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.)

females in each season, but showed a significant difference in Estradiol-17B between seasons (with higher level during the non-breeding season). Our results may be explained by the high standard deviation, from the inefficient data collection method and for contamination in the lab.

To summarize, we came to the conclusion that the three methods (direct observation in the field, DNA and hormonal analysis) are together an effective tool to determine the gender of deers. This knowledge is of most importance for animal management’s policies, and in this particular case, for the development of an appropriate hunting policy, concerning the Yakushima panorama.

I used this opportunity to learn basic methods in of DNA and hormonal analysis, which will be of great help in the future for my own research.

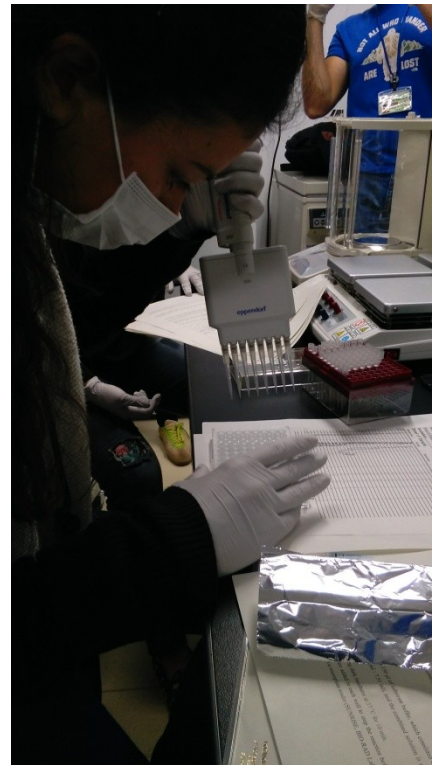


Fig. 1, 2 and 3. Preparation of samples.

Fig. 4. Electrophoresis.

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.)

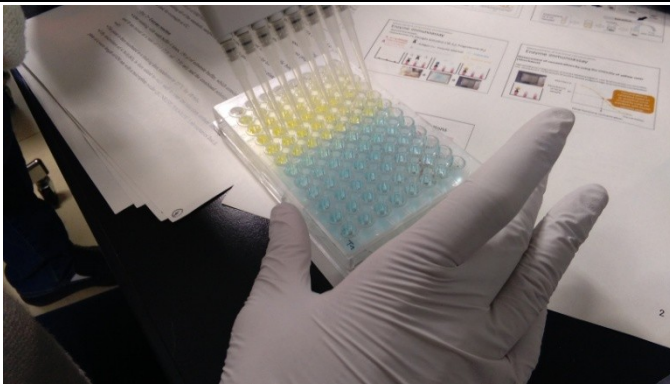


Fig. 5. Assay procedure.

6. Others

I wish to express my gratitude to Prof. Goro Hanya, Dr. Takashi Hayakawa and Prof. Kodzue Kinoshita for their guidance and patience; to my colleagues for their support and suggestions. I'm also very thankful to the PWS program, to Japan Society for the Promotion of Science, and especially to Prof. Tetsuro Matsuzawa and Prof. Misato Hayashi for supporting this trip.