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. 30
Affiliation/Position	Tanzania Wildlife Research Institute/ Serengeti Wildlife
Name	Bugwesa Zablon Katale

1. Country/location of visit

Japan, Wildlife Research Centre of Kyoto University

2. Research project

Study on Establishment and application of individual identification method of Yaku Sika deer using polymorphisms of microsatellite DNA

3. Date (departing from/returning to Japan)

2014. 05. 15 – 2015. 06. 10 (30days)

4. Main host researcher and affiliation

Prof Shiro Kohshima, Wildlife Research Centre of Kyoto University

5. Progress and results of your research/activity (You can attach extra pages if Please insert one or more pictures (to be publicly released). Below each picture,

During this visit, I conducted research on Establishment and Application of individual identification method of Yaku Sika deer using polymorphisms of microsatellite DNA. Specifically, the study established method for individual identification of deer by DNA analysis from faces, investigated the rate of successful extraction of DNA from feces under various conditions and investigated the relationship between genetic distance and social interaction. We used DNA collected from faeces collected from Yaku Sika deer and collected behavioral data from interacting groups in Yakushima Island. Multiplex PCR was used to amplify the DNA from faces and later on the amplicons were electrophoresed to establish the size of DNA bands. In addition to that the amplicons were sequenced to identify individuals and establish relationships among individuals of deers in Yakushima Islands.

After analyzing the DNA samples and sequenced the DNA using next generation sequencer, it was revealed that the IDVGA29 locus was the most polymorphic locus among 24 microsatellites loci investigated in Yaku Sika deer in Yakushima Island. Moreover, the heterozygosity of Yakushima population was similar to other populations sampled from Hyogo, Yamaguchi, Shimane, Tsushima, Nagasaki and Kinkazan in Japan. Furthermore, we found that the higher and longer exposure of feces under rain or ultraviolet light, the lower success of the DNA extraction. Faecal samples exposed in room condition were found to yield more DNA samples as compared to those exposed in ground and forest conditions. In terms of social interactions, we found that not only kinship relations exist, but also other relationships between social interaction pairs.

I used this opportunity to learn how the DNA can be extracted from faecal samples, the best conditions where faecal samples can be collected and acquired knowledge and skills of DNA analysis using the next generation sequencer.

Through this experience, I have learned DNA sequencing using the next generation sequencer and data analysis using Peak scanner software and GenAIEx6.6, the best way of collecting faecal samples from animals and developed a clear vision on how these techniques can be applied in other areas for future conservation of wildlife.

I am currently working on a cross species transmission of zoonotic diseases at human-animal interface areas and hope the knowledge I have acquired in the course will be of great help in identification of diseases pathogens from faces using genotyping and sequencing techniques.

6. Acknowledgement

Photo: Molecular laboratory, Kyoto University

Photo: Group picture of the deer members

I would like to thank the Wildlife Research Centre of the Kyoto University for organizing the genome field course in Japan. Prof Idani, the Director of the Wildlife Research Centre of the Kyoto University, for inviting us to attend the genome course. Prof Shiro Kohshima of the Wildlife Research Centre of the Kyoto University for his cooperation and facilitation of our training in Japan. Dr Inoue of Kyoto University, Dr Sugiura, Dr Agetsuma, Ms Agetsuma for supporting us in Yakushima field science course and Genome science course. I also thank Mia Otani, Kaori Mizuno, Kei Matsushima, Yuko Tawa, and Hiroko Sakunagi for facilitation of accommodation and guidance of our stay in Kyoto city. Finally, I would take this opportunity to welcome you all in Tanzania.