Research Activity Report
Supported by "Leading Graduate Program in Primatology and Wildlife Science"

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Affiliation/Position	Primate Research Institute/D1
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1. Country/location of visit

Yakushima Island, Kagoshima, Japan

2. Research project

Training course in Yakushima Field Site: "Parasites of Wild Deer and Rodents in Yakushima: Identity, Abundance and Distribution"

3. Date (departing from/returning to Japan)

2014. 05. 13 – 2014. 05. 19 (6 days)

4. Main host researcher and affiliation

Prof. Okamoto (PRI, Kyoto University), Prof. Nariaki Nonaka (Miyazaki University), Prof. Sawada (Kyoto Pref. University), Prof. Yumoto (Kyoto University), Prof. Hanya (PRI, Kyoto University), Prof. Hondo (PRI, Kyoto University).

5. Progress and results of your research/activity

The focus of this training course was to identify the endo and exoparasites of deer and rodents in Yakushima Island and providing some clues on their abundance and distribution. Several species of gastrointestinal parasites were found in Sika deer elsewhere (*Cervus nippon)* (Kobayashi et al., 2011), but there is no reported information on Yakushima Sika deer (*Cervus nippon yakushimae)* parasites. On the other hand, 9 species of nematodes were found in rodents in Yakushima (*Apodemus speciosus* and *A. argenteus*) in low altitude areas (Asakawa et al., 1998). Endoparasites have different life cycles but one thing in common is that eggs are transmitted in the host feces. Hence, during this field course we could collect and analyze: 1) the organs and content of 5 Sika deer individuals, both macro and microscopely, as well as the ticks found in the carcasses; 2) collect ticks from ground vegetation by tick dragging method; 3) to trap mice (*Apodemus argenteus*) with Sheman traps, to collect pinworm from perianal region of the individuals through the scotchtape method, as well as to collect ticks from their skin and the feces on the traps. Our results show the presence of at least two species of endoparasites in Sika deer in the lung (lung worm), abomasum and large intestine (nematodes). However, we found only 8 individual parasites. Considering that nematodes are expelled through feces as eggs and that live on grasses for the initial stages of their development until they are consumed by the animals through grassing, it appears that Yakushima Sika deer may not rely in grassing for feeding. In fact, southern Sika deer were found to eat many food varieties, such as fruits (helped by monkey droppings), seeds and leaves (Takatsuki, 2009). In the mice, we found 3 types of nematodes, one protozoan and one cestode species in the feces, including larvae and eggs, in large quantity.

Concerning the exoparasites, we identified one species of genus Haemophysalis, in both adult and nymph forms (98 individuals), one single individual of the genus Ixodes, one unknown larvae, one unknown individual and one Hippoboscidae on deer. In the ground vegetation, we found 13 individuals of two species of Haemophysalis and one unknown species. In the mice sampling, we found only nymphs of the genus Ixodes (8 individuals). It appears that nymphs are present mostly in smaller mammals, while the adults prefer mostly larger animals. Regarding the species distribution, our results suggest that Haemophysalis is present on lower altitudes, while Ixodes is present on higher altitudes.

More data is needed to understand the parasites abundance and distribution in Yakushima. Through this experience, I have developed the notion of how to work in team, overcome problems and obstacles related to research. Currently, we are working on a poster presentation for an International Seminar, based on these results.

Fig. 1. Processing of the organs in Sika deer for posterior microanalysis and microanalysis of the content.

Fig. 2. Nematode found in Sika deer.

Fig. 3. Haemophysalis type 1 (exoparasite).

Fig. 4. Haemophysalis type 2 (exoparasite).

Fig. 5. Ixodes (exoparasite).

Fig. 6. Processing mouse after trapping.

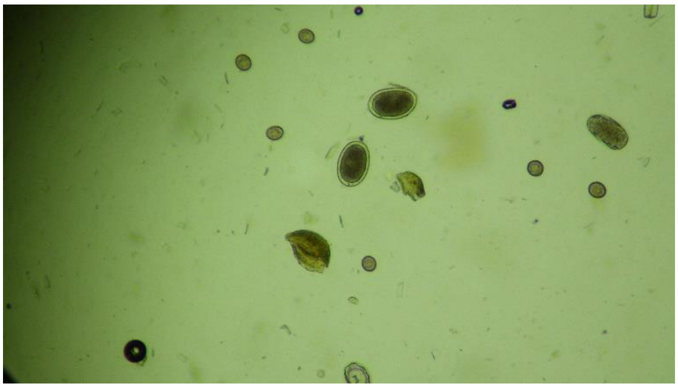

Fig. 7. Endoparasites found in mice (nematodes and protozoa).

6. Others

I wish to express my gratitude Prof. Okamoto, Prof. Nariaki Nonaka, Prof. Sawada, Prof. Yumoto for their guidance and patience; to Prof. Hanya, Prof. Hondo, Dr. Miura Higo and my colleagues and staff at ISSO Field station for their support and suggestions. I'm also thankful to the Yakushima local community for their hospitality. I'm very thankful to PWS for supporting this training.