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.)

	2016.06.03
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1. Country/location of visit

Yakushima Island, Japan

2. Research project

Study on diversity of Fig and Fig wasp in Yakushima Island

3. Date (departing from/returning to Japan)

2016. 05.21 – 2014. 05. 27 (07 days)

4. Main host researcher and affiliation

Dr. Shiro Koshima, Wildlife Research Centre of 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.

I visited Yakushima island as a part of field work conducted under the JSPS CCTBio programme 2016. The field work was designed to provide training for the international and Japanese students to collect data like behaviorial observations, morphological measurments, etc; from wild animals and plants in field. There were three main groups focusing on different questions and study animals. The fig-insect group, the deer group and the monkey group. I was assigned to the fig-insect group.

The purpose of the fig-insect group was to document the diversity of *Ficus* species and fig wasps on Yakuhima island. We started with collecting Syconia from different species of figs. From the five species found in Yakushima island, we tried to collect as many as possibly we can collect. Then these syconia were brought back to the lab and were dissected to collect fig wasps. The fig – fig wasp relationship is one of the most intricate relationships in nature. Every *Ficus* species has a specialized symbiont wasp species. However, we can also find parasitic wasps and other insects like Weevils and fig wasp predators. In this field work we were supposed to collect as many syconia from various fig species on the island and as many fig wasps from these syconia as possible. We also collected the data from the syconia regarding its size, color, hardness and stage of maturity. Over the next five days we recorded and analyzed this data. We also collected leaves from these five fig species and preserved in silica gel for DNA extraction. These leaves and the insects collected from the fig species will be used for genetic analysis to understand the relationship between the figs and fig wasps in Yakushima island. The genetic analysis will be conducted in the genome course at Primate Research Institute, Inuyama. Its result is not included here.

Results:
We collected 485 syconia belonging to five *Ficus* species and from these we collected insects from 169 syconia. The syconia from *Ficus pumila* were found to be the largest in terms of diameter (mm) while the smallest syconia belonged to *F. microcarpa* (Figure 1). We also found that as the syconium becomes more mature, it gets bigger in size (Figure 2). Also, as the syconia becomes bigger in size, it becomes softer and darker (figure not shown). For *F. erecta* and *F. sarmentosa* we could collect only the male syconia.

Conclusion:
The increase in size with maturity is not surprising as we can see with any species in nature that it grows in size as it becomes old and mature. There were some young syconium which were dark in colour, comparable to the matured ones, this can indicate that they infected by some weevil or fungus and it may be an adaptive strategy of the figs to exclude the infected syconia. The absence of female syconia in our collection, for *F. erecta* and *F. sarmentosa*, might be because of the pollination strategy of these figs where in the female syconia comes out to match the coming out of pollinator female fig wasps from the male syconia to enhance the pollination success.

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6. Others

Overall, it was a very good learning experience for me. I got to learn a lot of new things regarding the Fig-fig wasp relationship from Prof. Yumoto, Prof. Okamoto and Dr. Hayakawa. It was very exciting for someone like me to observe the fig wasp very closely and learn about their intricate relationship with the figs. Also, going to an island and doing a field work is a great combination, I have never been to such an island before. Along with the field work, I also got a chance to see the Japanese monkey and Sika deer up close in the wild. I also saw some logger head turtles laying eggs on the beach in front of the field station (PWS house). It was a very exhilarating moment for me as it was my first time to see a turtle laying egg in wild. If got a chance again, I would definitely like to visit Yakushima again and do some more field work.

Japanese Monkey (Macaca fuscata) grooming in the middle of the road at yakushima Island, Japan

Japanese Sika deer at the road side in Yakushima island, Japan

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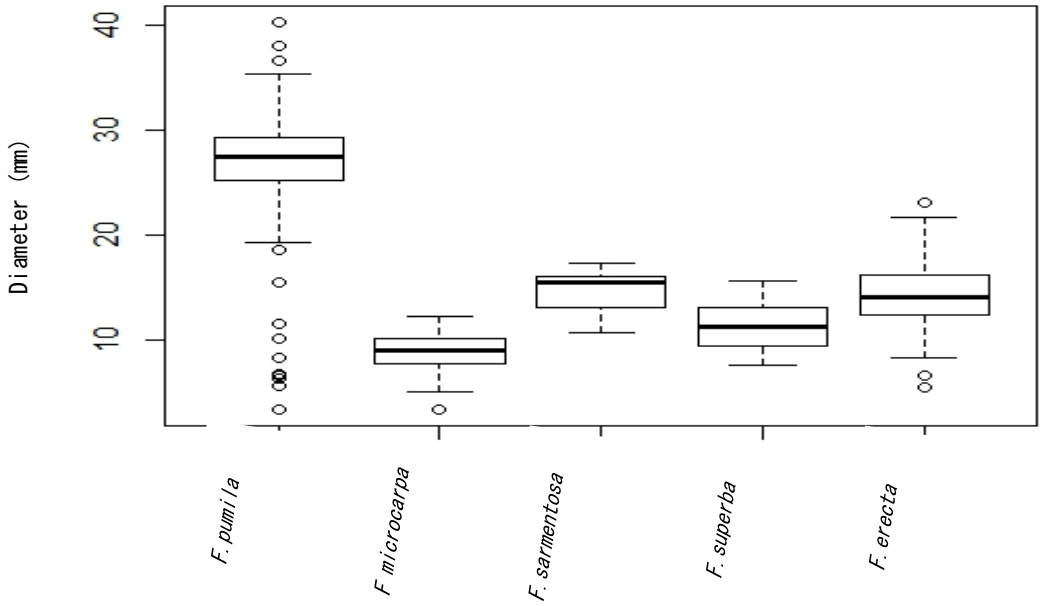

Figure 1: Box plot of syconia size (diameter in mm) for each species of *Ficus* collected at

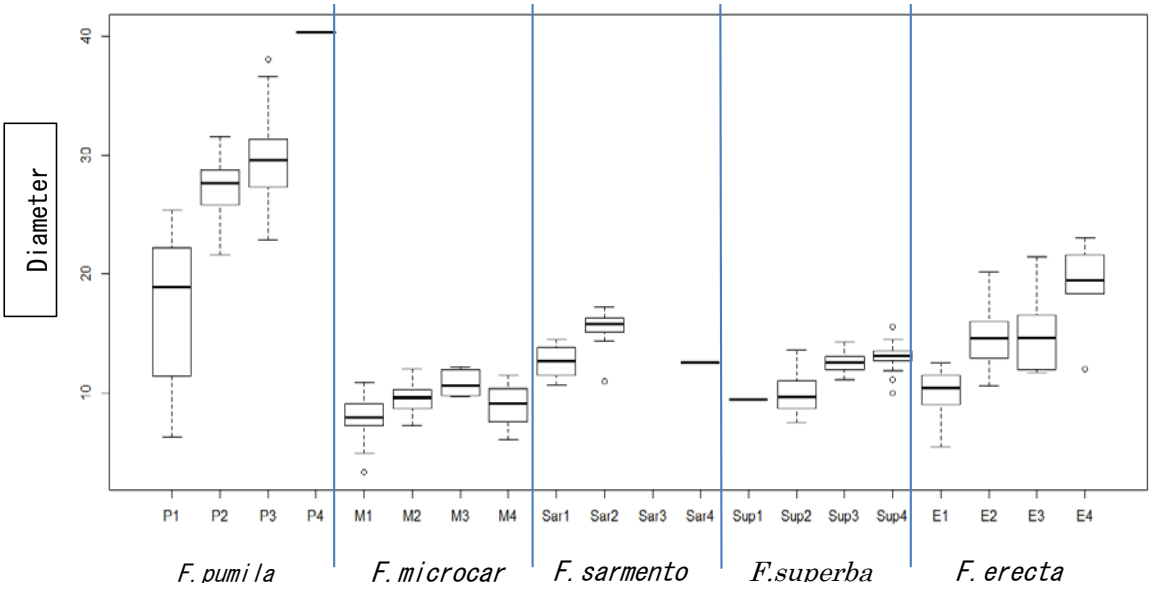

Figure 2: The boxplot shows the stage of maturity of each species of *Ficus* relative to their