

**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.)

	2017. 05, 30
<b>Affiliation/Position</b>	LFCE / Instituto Nacional de Pesquisas da Amazônia (INPA)
<b>Name</b>	Renata Schmitt

<b>1. Country/location of visit</b>	Yakushima Island, Kagoshima, Japan.
<b>2. Research project</b>	Yakushima Field Science Course - Plant Team Altitudinal Variation of Fern Community in Yakushima Island, Japan
<b>3. Date (departing from/returning to Japan)</b>	2017. 5.13 – 2017. 5.19 (7days)
<b>4. Main host researcher and affiliation</b>	Dr. Wataru Shinohara, Professor at Faculty of Education, Kagawa, University; Dr. Hiroshi Kudoh, Center for Ecological Research, Kyoto University.
<b>5. Progress and results of your research/activity</b> (You can attach extra pages if needed)	<p>Please insert one or more pictures (to be publicly released). Below each picture, please provide a brief description.</p> <p>The ferns are vascular plants that don't produce seeds - they reproduce by spores, which give rise to an individual of short live, the gametophyte - that produces gametes to give rise to a new plant. These plants are formed by a stem, usually a Rhizome and their leaves are often composed or recomposed, or in the form of a spiral. The leaves have, on your lower face, small organs, which contain the spores that can be wide spread by the wind. The aim of the plant team work in this field course was to collect the both different stages of ferns, sporophyte and gametophyte in different altitudes to compare the species composition in these altitudes. Some few works on Yakushima's ferns diversity had been done in the past years, but this will be the first one comparing diversity among different altitudes.</p> <p>May 13<sup>th</sup>: Kyoto students departure towards Yakushima Island from Itami International airport in Osaka. Arriving at Yakushima, we met with Inuyama students for a brief drive road and walking around Seiburindou area to observing the local flora and fauna (Yakushima Sika Deer - <i>Cervus nippon yakushimae</i> and Japanese Macaque - <i>Macaca fuscata yakui</i>). Backing on the PWS research station, after the dinner, members of plant team had a short meeting plan for the next day activities.</p> <p>May 14<sup>th</sup>: We left PWS station about 7AM towards Onoaida Hot Spring where we climbed up around 270m on Onoaida Trail. On the first meters of climbing, professors Kudoh and Shinohara taught us how to find, collect and keep the sporophyte stage of ferns. Therefore, we were able to collect sporophytes all the way long until we stop and start to collect the gametophytes. The gametophytes are a little harder to collect, once they are very small (about 5mm) and can be easily confused with moss for those with no field collecting experience in ferns like us. For collection on gametophytes we used tweezers and small plastic bags (Ziploc type) to keep them. We sampled the gametophytes in two different sample sites and then we came back to PWS station. At night, back at PWS Station, we learn how to</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.)

preserve the sporophytes in exsiccata and keep them as is. After taking care of the sporophytes, we sorted the collected gametophytes using a stereomicroscope. The gametophytes were separated from the soil and other dirt particles and after that, were cut in half and each half was preserved in 1.5ml micro tubes full with 100% ethanol for voucher and molecular procedures (DNA extraction).

During May 15 and 16, we did exactly the same but in different sample sites. On May 15, we visited Yodogawa trail and collected on two sample points at 1300 m high along the end of Onoaida sidewalk. Already on May 16, we left PWS station towards Anbou road and collected samples at 500 m and 800 m high along the road. In both days, we treated the samples the same way as described for the first day. At the end of May 16, we started to identify the sporophyte species with a species key and fern encyclopedias.

On May 17<sup>th</sup>: We stayed at PWS field station and finished to identify the sporophyte species. After lunch, we started to analyze our data on sporophyte and making our presentation for the next day. On May 18<sup>th</sup>, we spent the morning working on our power point presentation, which happened at 3PM on the same day. During the presentation time, we had the opportunity to explain and discuss our work with the other groups and lecturers as to learn with other groups works. At night, we had a barbecue and watched sea turtles in Nagata beach.

On the morning of May 19<sup>th</sup>, we cleaned PWS field station before we leave to Shirataniunsuikyoku for sightseeing and then back to Kyoto.

**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.)

**Photos**



**Figure 1:** Fern sporophyte sp. 1



**Figure 2:** Fern sporophyte sp. 2



**Figure 3:** Fern sporophyte sp. 3



**Figure 4:** Sample site



**Figure 5:** Fern gametophyte in field



**Figure 6:** Fern gametophyte in field



**Figure 7:** Ribon like gametophyte



**Figure 8:** Heart like gametophyte



**Figure 9:** Heart like gametophyte with beginning of the sporophyte

## 6. Others

I wish to express my gratitude to professors Wataru Shinohara and Hiroshi Kudoh, Center for Ecological Research, Kyoto University for their guidance and patience; to Prof. Hanya and my colleagues and staff at ISSO Field station for their support and suggestions. I am also thankful to the Yakushima local community for their hospitality. I am very thankful to PWS for supporting this training.