

**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, 28	
<b>Affiliation/Position</b>	Graduate School of Science, Kyoto University/M1
<b>Name</b>	Yusuke Fuke

<b>1. Country/location of visit</b>
Yakushima Is., Kagoshima Pref., Japan
<b>2. Research project</b>
Yakushima Field Science Course
<b>3. Date (departing from/returning to Japan)</b>
2017. 05. 13 - 2017. 05. 19 (7days)
<b>4. Main host researcher and affiliation</b>
Dr. Wataru Shinohara professor at Kagawa university, Dr Hiroshi Kudoh professor at Kyoto university and PWS
<b>5. Progress and results of your research/activity</b> (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>In Yakushima field science course, our purpose is to learn knowledge and skills of field survey, data analysis, communication in English, through survey to investigate and compare the species composition of fern gametophytes and sporophytes at different altitudes in Yakushima.</p> <ul style="list-style-type: none"> <li>• Schedule           <ul style="list-style-type: none"> <li>May 13 Arrival at Yakushima Is.</li> <li>May 14-16 Field work and lab work</li> <li>May 17 Data examination, analysis</li> <li>May 18 Data analysis, presentation</li> <li>May 19 Leaving Yakushima Is.</li> </ul> </li> <li>• Field work           <p>We collected ferns at 3 altitudinal level (high, middle, low). First day, we went to Onoaida trail at low altitude, and looked for gametophyte and sporophyte. It was difficult to find gametophytes, because they are very small as 5 mm or less. Second, we went to high altitude site by car, and walked down on Onoaida trail. Third day, we looked for gametophyte in the rain. After field work, we went to Onoaida hot spring for refresh every day.</p> </li> <li>• Lab work           <p>After fieldwork, we treated the samples and made specimens in the field station. Sporophyte samples put between newspapers. Gametophyte samples were carefully washed, were cut into half for molecular analysis and specimen, and then preserved in ethanol 100%.</p> </li> <li>• Presentation           <p>93 sporophytes we collected were identified based on morphological traits (<i>e.g.</i> leaf arrangement, spore appearance and root morphology), then we confirmed 56 species and 2 unknowns. 349 gametophytes will be identified using DNA analysis in next Genome science course. We revealed number of individuals and species for each altitude.</p> </li> </ul>

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Fig. 1. Sampling site



Fig. 2. *Pupinella* sp.



Fig. 3. Gametophyte of fern



Fig. 4. Sporophyte of fern



Fig. 5. Japanese freshwater crab (*Geothelphusa dehaani*)



Fig.6. Yakushima freshwater crab (*G. marmorata*)

## 6. Others

We are grateful to PWS for funding this course. I would like to thank Prof. Shinohara and Prof. Kudoh for training us. I would also like to thank Plant team members.