

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.)

2019/06/25

Affiliation/Position	IISc, Bangalore
Name	Sarath P K

1. Country/location of visit
India, Bangalore
2. Research project
Study on coprophilous fly assemblage in fecal matter of Yakushima macaque (<i>Macaca fuscata yakui</i>) and Yakushima Deer (<i>Cervus nippon yakushimae</i>).
3. Date (departing from/returning to Japan)
2019/05/20 – 2019/07/05 (45days)
4. Main host researcher and affiliation
Prof. Raman Sukumar, Professor at Indian Institute of Science, Bangalore
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.
<p>During the field visit in Yakushima island during 26-30 June 2019, we performed data collection, analysis and presentation of for an interesting research question; Does coprophilous flies have more affinity towards macaque feces or deer feces. The first part of the research was to develop a methodology/protocol to quantify the affinity. We decided to count as well as identify the flies over a time span of 30 min with s min interval between each observation and counting. The temporal data also allowed us to understand how the assemblage changes with time in terms of number and the types of flies attracted to the feces. Our objective was to collect as many data as possible from both monkey and deer from different kinds of habitat at different time of day. Including such variables like time of day and environment can be crucial to know how the fly composition and number can change in the data collected by different individual. We set out our data collection the same day in the afternoon where we split into groups and collected data from different places in Yakushima. The field visit was quite thrilling and fascinating. Running around following deer or monkey as they make their way through a normal day gave a different perspective of how life in field can quite interesting and hard.</p>

<p>Figure: a) A group of Japanese macaques making our data collection simple, b) A deer showing alertness soon after he/she heard our footsteps approaching, c) a monkey fecal matter which is covered with coprophilous flies.</p>
<p>The results were obvious even just by observation. The flies preferred monkey feces more than deer and attracted more different fly species. The statistical analysis also showed that not just the feces but the environment, time of the day and the mass of the feces play a crucial role in attracting flies. The exact reason for the preferential selection is something to think about. The deer feces which are small round and dispersed while monkey feces are one pile (Shown in the figure). The odor released by the monkey feces might be one reason and the deer feces were not able to release the odor necessary to attract flies.</p>

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I gained several new experiences from the field as well as the field station through this opportunity. Firstly, the collecting data from field is quite different from the experiments in laboratory which I usually do. There are several factors which decide the success of the data collection, some of which are beyond our control. Sometimes even when you do everything perfectly you might not get desired data or results. But if you look closer into the data it always tells a story, whether we like it or not. And the cooperation between the students even with language barriers was interesting. In the field it's all about data, nothing else matters. Sometimes you might need help to gather a large dataset and do analysis. In science collaboration is crucial step to extend your knowledge horizons. It's hard to excel at everything and it's important that you seek help when you are stuck at some point. Through the field work and scientific as well as non-scientific communication I was able to gain several insights into my own works, which I hope to complete in due time.

Visiting a UNESCO world heritage site is not something you can experience every day. That too a place like Yakushima with its rich biodiversity and a stable equilibrium between humans and wildlife is once in a lifetime experience. I am not a traditional wildlife ecologist but even for me it was quite exhilarating experience to watch and walk through the wilderness of Yakushima. I grew up in a generation where conservation of ecosystems became one of the greatest concerns of the society. Yakushima gave several insights about how a sustainable society where biodiversity thrives looks like. I study how the organism and environment interaction evolved through time, focusing on how ecosystems changed in the past. The isolated island with such biodiversity is a hotspot for paleo-works, and for me human migration and associated environmental changes in the island sound like an interesting experiment. One other thing that sparked during the field days was the bryophyte diversity in the island and how these can give us hints about the ecosystem patterns and evolution. I am currently trying to learn more about it and identify many of the bryophyte communities we photographed in Yakushima (given below; *photo credits: Afiyan*).



Overall this once a lifetime opportunity provided me a handful of insights regarding how human-wildlife coexistence can be achieved with minimal stress on both sides. Steps towards conservation of endemic flora as well as fauna is critical in the modern world and understanding how the organism respond to changes an essential for its success. Yakushima sets out a successful example of a biodiversity hotspot where people are aware of the treasure they possess and how to keep them as pristine as possible.

6. Others