

Host: Koji Tojo
Institute of Mountain Science
Shinshu University campus at Matsumoto

This was a Long Term Fellowship from March 28 2017 to January 5th 2018 based at the Institute of Mountain Science of Shinshu University at Matsumoto, which is about 160 km southwest of Tokyo amongst the Japanese Alps. The focus of the research was alpine streams in a changing climate. Alpine areas are some of the most sensitive to climate change and predictions for Japan's mountainous areas indicate river discharge will change significantly with air temperature rise due to increased rainfall and decreased snowmelt in early spring. The research was focused in Kamikochi National Park, 60 km by road west of Matsumoto. We selected 6 tributary sites of the main Asuza River, three fed by groundwater and three fed by snowmelt. Water samples were collected monthly to quantify the percent contribution from the different water sources, and how this changes throughout the year using ionic tracers. Water temperature and discharge were monitored continuously at each site to characterize physicochemical habitat and macroinvertebrate and algal samples were collected monthly to determine ecological community structure. Predictions will be made about how water sources will change in Japanese alpine streams with climate change and we will be able to model the ecological response in terms of macroinvertebrate structure and functionality. The strength of this research lies also in comparison to the similar research in other geographical regions worldwide to place the response of Japanese alpine streams in a global context. This is the first study of traits and functionality of macroinvertebrate communities in Japanese alpine streams and will be critical with relation to the conservation of taxa and functionality in a changing climate.

My host Koji was extremely helpful with his time and his students were always willing field assistants. One aspect of Japan you will soon appreciate are the ubiquitous vending machines even in remote places like Kamikochi where you can get a hot coffee on a cold day. We shared the Park with the snow monkeys, which we saw on every field trip except one, and now are doing a study of their diet using eDNA as they have been observed to eat aquatic invertebrates in the winter when other food sources are low.

Securing a furnished place to rent for the duration of our stay was not possible, as all apartments were unfurnished. This meant purchasing second hand furniture and appliances, which was quite an expense and effort. Be prepared some kitchens are very basic and we survived on 2 gas burners and no oven. Internet or a sim card for an unlocked phone is not always easy as you often need a Japanese credit card to sign up and rates can be quite expensive and the Internet is not unlimited. However, there are packages available for expats to rent mobile Internet and sim cards on a monthly basis where you can pay with a foreign debit/credit card. As my wife and I were there 9 months buying a car seemed preferable to renting being more reasonable. However, this is not an easy process and when the paperwork was finally completed and we could pick up the car it was over 3 weeks from when we said we wanted to buy it. This article sums up the process beautifully;

<https://www.city-cost.com/blogs/City-Cost/z82Ww>. After 9 months, we only got back just over 1/3 of what we initially laid out.

Japan has to be one of the safest countries and you never have to worry in that realm. People were extremely helpful and friendly and the food is a delight. Matsumoto Brewery had one of the finest pale ales I have ever tasted. Our host managed to find additional funding for a postdoc, Catherine Docherty, who joined part way through the fellowship and is continuing the research until the end of July.



Snow Monkey



Kamikochi Field Site