JAMES RENNIE BEQUEST

REPORT ON EXPEDITION / PROJECT / CONFERENCE

Expedition/Project/ Conference Title: Island Biogeography Summer School with the University of the Azores

Travel Dates: 16.7.-29.7.2023

Location: Terceira, Azores, Portugal

Group member(s): Luisa-Marie Dickenmann

Aims: Learn about the local biodiversity and associated challenges, be introduced to advanced metric and model calculations, and learn about tested and new sampling methods

Photography consent form attached: *(please refer to your award letter)*

☐ Yes
☒ No

OUTCOME

During this second edition of the University's Summer School, 13 researchers were invited to lecture on their areas of expertise, introduce the participants to current topics in biogeography and macroecology, and present innovative methodologies to answer complex site-specific, local, regional, or global questions.

The Summer School was organised in whole-day lectures including question sessions, practicals on analysing data in R Studio, and two field trips. The first day focused on an introduction on how to survey a plot of native Azorean laurel forest (*Figure 1*) for mosses, ferns, trees, and herbaceous flowering plants (*Figure 2*) following a standard protocol. Rosalina Gabriel, who has been working on Azorean mosses for over 30 years and is one of the lead experts on moss identification in the archipelago, gave an interested group of us an overview of native moss species, their distribution and ecological role.

Figure 1 *Remnant native Azorean forest, including laurel erica, and juniper*

Figure 2 *A sample of moss is cut out on-site to be identified in the lab.*

The second field day included a visit to the course organiser's invertebrate traps in different ecosystems on the island including applying parts of both the COBRA and BALA invertebrate sampling protocols.

For the theoretical part, Robert Whittaker introduced us to the history of island biogeography and the associated equilibrium theory. Joaquín Hortal shared his expertise on measuring species diversity with

various metrics. And Rosemary Gillespie talked about colonisation, diversification, invasion, and conservation on oceanic islands.

The practicals were led by Pedro Cardoso to estimate total diversity from incomplete sampling, and by François Rigal who showed how to quantify functional diversity in community ecology.

While some of the content expanded on lecture material I had previously encountered, many topics and applications were entirely new to me and broadened my horizon more than I had expected. There were also parts that I was not able to comprehend during the lecture, but I always had the chance to ask the lecturer further questions and all presentation material was made available to the students.

The course concluded with each participant giving a presentation on their current project, which ranged from almost finished PhDs to Master's theses to my undergraduate dissertation for which I had just finished collecting the data.

I was most delighted to find much overlap between three of the lecturer's content and the analysis I had planned for my dissertation. Not only was my understanding of functional diversity deepened, but I was also introduced to advanced computing and analytic methods that my data and research question were suitable for. It was highly beneficial to discuss my project with international researchers and to be met with an interest in Scotland's west-coast Atlantic rainforest ecosystems. I hope that what I learned in this course will help me understand the difference in the functional diversity of herbaceous understory vegetation between forests of plantation and semi-natural origin.

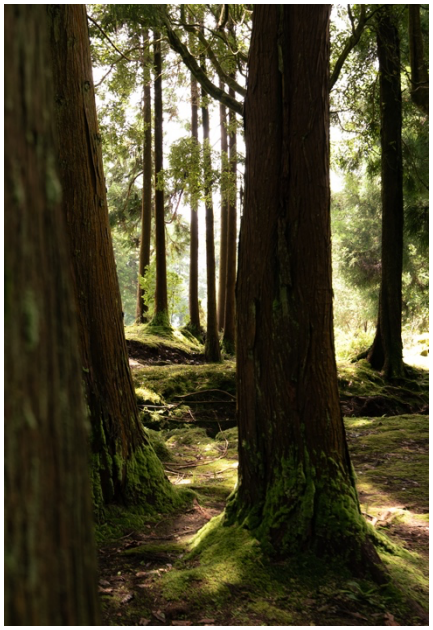

Figure 3 *A C. japonica plantation: aesthetically pleasing but significantly denuded of understory compared to the native forest in Figure 1*

I was originally interested in this course because I had a strong fascination for this archipelago that I had visited previously on holiday. By meeting local researchers, non-scientists, and enthusiastic students, I was finally able to learn more about the botanic history of these islands and the challenges their unique flora was facing. Especially as a rather old island group, its native and/or endemic species (*Laurus azorica, Juniperus brevifolia, Picconia azorica,* and *Erica azorica*) are struggling with agricultural lands encroaching on native habitats that exist nowhere else and many invasive alien species (e.g., *Pittosporum undulatum, Cryptomeria japonica* and *Hedychium gardnerianum, Figure 3*) introduced by trade and tourism.

Now, almost three months later, I look back to those two weeks and I feel extremely fortunate that the James Rennie Bequest fund has made this experience possible. I have met people from all over the world who both valuable contacts for current and future projects and have also become valued friends.