

Report on Professional Gardeners Trust Award

Julie Clos, Cambridge, January 2017

I have been a gardener for 10 years now. In the past few years my career has evolved towards botanical horticulture and this has broadened my scientific interest. I have been working as a Systematic Horticulturist at Cambridge University Botanic Garden for over 4 years as part of a team of 3, consisting of my supervisor and a student. I have therefore tried to expand my knowledge in taxonomy and plant evolution. The Cambridge Systematic Beds were designed in 1845 by the first Curator of the Botanic Garden, Andrew Murray, following a book written in 1819 by renowned Swiss botanist Augustin de Candolle. As of 2015 the beds have lost the fluent design of 1845 and at the beginning of the year the Botanic Garden was awarded a significant grant to redesign the area updating and incorporating a genetic understanding of plant evolution: The Plant Taxonomy of The Angiosperm Phylogeny Group which is now the universally recognised DNA classification.



I was looking for a short course to help me understand the more scientific side of my work that would be required in aiding me whilst the new development but also a course that would help me to progress in my career. The Institute of Continuing Education at Madingley Hall offered a part time course as an Undergraduate Certificate in Evolutionary Biology which was well suited to benefit me.

The Trust kindly awarded me £600 towards the total cost of £1800. Classes were on a Saturday and included field trips and Lab days. The course was separated into 3 trimesters throughout the year. The first was on Darwin's idea with an overview of modern evolutionary biology and the history of Darwin's discovery. This unit included some lovely and very practical demonstrations of the history of the discovery of evolution which really highlighted the human part of the story of scientific discovery. In particular, we were lucky to see Darwin own collection of beetle collected during his voyages and of the collection of the Finches collected during his travels in the Galapagos Islands. There was also a behind the scene tour of the Zoology Department in Cambridge and a trip to Down House in Kent, where Darwin lived with his family. The rest of the trimester consisted of class work on Evolutionary Genetics, Natural Selection and Genetic Drift. During the second part of the year we focused on species diversity in natural ecosystems and the interplay in functioning communities as well as behavioural characteristic and their consequences for reproduction and survival. During the last trimester the emphasis was on plant evolution and their co-evolution with animals and this was the area of the course I found most interesting. A highlight for me, working in the Botanic Garden, was a tailored tour of the Botanic garden from a different perspective from my daily view, with Professor Beverley Glover and Curator Sam Brockington focussing on the diversity of flowering plants and speciation. This course was technically complex for someone with no formal scientific training, and challenging to balance with full time work, but nevertheless very interesting. We had an array of high quality experts and researchers from the University of Cambridge, which gave us real insight on the theory of evolution and how ecosystem operates. At times however I found the more dense science difficult to follow, though the course has made me less fearful of scientific language in general and given me some help in structuring how I approach taxonomy.



The work has now started on the Thalamiflorae side and the Monochlamydeae side of the Systematic beds, the beginning and end chapters of de Candolle's text book. The curation and horticultural group in which I'm part of is now in charge of redesigning the beds to maximise their fidelity to APG. Our aim is to safeguard and improve the curation and horticulture. Its remit is to develop and implement horticultural display principles, a taxonomic verification plan and propagation plan. I feel more confident to be part of the key team and able to present my ideas forward. I will also be looking to help the visitors and also teach the trainees about why and how the uniqueness of the design was conserved and emphasised within a universally recognised classification system.

