

Research Visit to New York Botanical Garden and Harvard University Herbaria – 2018

Andy Griffiths

Between the 8th April and 6th May 2018, I completed a research visit to both the New York Botanical Gardens (NYBG) and the Harvard University Herbaria. The aim of this trip was to develop research investigating the climatic distribution trends of plants within the Tropical Andes Biodiversity Hotspot. The trip was made possible thanks to financial assistance from the E³ DTP Overseas Fund and the Centenary Agroforestry 89 Fund.

At NYBG I was introduced to many of the different divisions of the garden, as well as some of the culture and sights of New York. However, the principle achievements of the trip were made working closely with Dr. Fabian Michelangeli, the world's leading expert on the mega-diverse plant family Melastomataceae, in the William and Lynda Steere Herbarium. With a vascular plant collection of approximately 7.8 million specimens, the herbarium is one of the most important and extensive in the world.

A key ambition of the visit was to improve my ability to identify species of *Miconia* (a genus within the Melastomataceae). By consulting with Dr. Michelangeli on important identification characteristics, and making comparisons with herbarium collections, I was able to attach scientific names, for 43 species, to samples I collected across a 3000m elevation gradient along the Amazonian flank of the Peruvian Andes. In addition, we believe that we have identified a species previously unknown to science, though this is to be confirmed. Making definitive identifications such as these is essential to understanding, and reporting on, the conservation status of these species. I also held preliminary discussions with Dr. Michelangeli over future research questions that could be addressed by linking my collections with those he has made at other locations along the Amazon to Andes gradient.

From New York, I travelled to the Harvard University Herbaria, Cambridge, Massachusetts, to work with phylogenetic experts investigating evolutionary trends in the distribution of plants between the Amazon and the Andes. Understanding the extent to which evolution and environment interact to determine the distribution of plants in these montane forests is essential for developing our knowledge of this threatened ecosystem, and how it may respond to environmental change. The visit culminated in a presentation of my work to the research group of Professor Charles Davis.

