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Tropical Plant Identification Kew
Herbarium

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Kew Tropical Plant Identification Course 2016

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Introduction

This year the Kew Tropical plant Identification Course ran from the 15th to the 22nd of May, and was held at Kew Gardens world class Herbarium facility.

The course has been running for several years now and has proven a worth while and successful exercise for the participants. Those partaking the course come from a range of scientific backgrounds all which have strong link to tropical botany. People working out in the field gathering samples for herbariums around the world, scientists who are working with plant DNA to classify the worlds plants, herbarium curators and tropical horticulturalists.

This is a course that I have been wanting to participate in for the last few years. The course is integral to my career development and improvement of my tropical plant knowledge integral to my job. For the past six years I have been working as Horticultural Team Lead in the Rainforest Biome at the Eden Project. My role involves the making sure that the Biome is cared for and

maintained to the best standards, the continuing development and improvement of the plant collections and exhibit, and to develop and maintain my teams professional development. I am incredibly thankful to the Professional Gardeners Guild Lironi fund for providing £500 funding that enabled me to participate in the Tropical Plant Identification Course at Kew 2016. This training will prove in valuable for my future career and I will endeavor to pass on the knowledge learned to my colleagues, apprentices and students. Thus the Professional gardeners guild will benefit even more horticulturalists.

Aims and Objectives

The main aim of attending the Kew Tropical plant Identification course improve, extend and formalise my current knowledge of tropical plant families. Intern this will help me in the management of our extensive tropical plant collection at the Eden Project and pas on that knowledge to colleges apprentices and students.

The Eden Project has also just stared to extend its Horticultural apprentice take up, and has also began to two Horticultural degree courses.

Part of my role includes the training and development of these Horticultural learners, as well as the training and development of my team of four professional tropical horticulturalists. This also means that I must have the best training and knowledge base possible so that I can pass on the correct information to my staff and students. Attending the Kew Tropical Plant Identification course enables me to pass on the correct and most up to date information on to Horticultural learners at the Eden Project. I hope to role out an in house set of Tropical Plant Identification Workshops for our Apprentices in the the new Educational year.

We house a collection of almost 2000 species of tropical plants, many with a strong ethobotanical connection. The collection is now in its 15th year, and we are still working on how to best manage our plants in the this unique modern conservatory. We face some unique challenges because of the buildings design and scale. One of these challenges is keeping an up to date inventory of the plants we house in the Rainforest Biome. Some areas of the 3 acres of biome are

kept quite wild in order to replicate a real Rainforest, which is one of aesthetic aims. We have a permanent planting into beds which are mulched each year in order to replenish and feed the soil. Unfortunately many of our plant accession labels are situated in the ground and unfortunately some of these get buried in the annual mulching. This does not help us in the annual stock take and occasionally we come across plants that need identifying and re labelling. Hence this is one other important reasons for taking up the Kew Tropical Identification course.

Course Content

The course took place over a period of two weeks at the Kew herbarium facility. The course program was developed and co-ordinated by Dr Tim Utteridge and Dr Gemma Bramley who also wrote the wonderful accompanying book; The Tropical Plant Identification Handbook.

The course has been running for a number of years now and has benefited many tropical



botanists, conservationists and horticulturalists from around the world. The content has grown and developed through the years and now provides learners with an extremely comprehensive understanding of 70 of the worlds most prevalent Tropical Plant Families.

Along with covering these 70 family's other important and relevant subjects are covered. We had an over view from each the Tropical Herbarium Teams- Africa, Americas and South East Asia. This focus on the work they have accomplished and current projects. Much of today's focus is on conserving areas that are species rich and contain undiscovered species and to catalogue all of the worlds plant species an ambitious objective that has been set for 2020.

We also recapped upon morphology, terminology and how to look for and identify key Characteristics. An in depth session on CITES and CBD was also included as part of the two week course. Plant Identification applications and data bases and on line flora resources, was also a particularly useful session, which enables us to access some fantastic resources form the internet.

Each group of plant families was covered and taught by an expert in that particular field of expertise, people who had worked with that particular family for a number of years. Meaning that we were learning from people who had dedicated much of their working life to study a particular family or group of families. The knowledge of the particular subjects they covered was incredible. Each family was covered in excellent detail. With each family getting a general overview to begin with and then drilling down more thoroughly into the key characteristics. We would generally work through a power point presentation, with time for questions. Then working through a set of herbarium specimens, so we could investigate and find the key characteristics for ourselves and investigate the differences and similarities between species in that family. If available we would be able to observe freshly collected material which was particularly useful. There were also opportunities to use microscopes to get a closer look at some of the key characteristics for certain families. For example looking for the T shaped stellate hairs of the Euphorbiaceae family, or the glands at the base of petals in the Malpigiaceae family. All in all 70 plant families were covered during the two week course. The families were grouped in their orders as we learnt them, thus aiding students in differentiating and comparing through the related families. The families were taught using the APG 111 classification system, the most current at the time, but students were made well aware that molecular studies are constantly being carried out and some classifications are subject to change with further research. Please find the detailed itinerary of the course in the appendix.

Herbarium Tour and Library

During our first day of study we had the privilege of being given an extensive and in depth tour of the herbarium facility at Kew. David Goyder from Kew East Africa Team led the tour and gave us a fantastic insight into the history, development and upkeep of the herbarium. We were shown samples taken from the very beginning of the collection two centuries ago. It was amazing to see the specimens carefully pressed, mounted and cared for, and how long these delicate specimens will last. Walking through the herbarium was like a journey through its history, starting in the older buildings and moving through additions made in the 19th and 20th centuries. How design had to change in order to house this huge collection of 350 000 type specimens with 30 000 more arriving each year.

We were shown some of the challenges in collecting some species for example how exactly do you press a banana. We were also given an insight into how the current collection is now being

documented in to computerised format and the work that goes into this. The tour also brought home how important a sample collected a couple of hundred years ago, can be crucial in identifying new unknown specimens brought in by Kew conservation teams today.

The library was also a fascinating resource and we were taken through the process of how to find things and where. We were able to use this resource through out the course, which was very useful.

General sorts

The class was able to take part in three general sorts which gave us a great insight into the work of Kew Conservation teams working in the tropical regions of the world. We learnt about why teams are working in certain areas, and the importance this has to conserving the plants and eco systems of these regions. The teams are not just looking for new or unknown species there are many other reasons to catalogue plants. Plants are being cataloged to; find crop wild relatives, this is of great importance to crop breeders and creating disease resistant varieties. At other times it is a race to catalogue and area before it is lost to intensive agriculture or other development. And sometimes the cataloging itself can help to define the importance of the area and save it from development.



We were able to go through some of the most recently arrived specimens sent from West Africa, South East Asia and Tropical South America. Enabling us to look at recently dried material yet to be mounted and identified. It was absolutely fascinating and great fun to really use the skills we had learnt to try and identify to family each sample. We would go through trying to identify significant characteristics and narrow it down to a family, always with an expert on hand to help when we got completely stumped by some unusual specimen. This was a thoroughly enjoyable way to learn and hone skills.

Garden Tours

We are able to partake in two garden tours- one each week. This was a very important learning experience. Having learnt to observe and note key characteristics in dried and pressed specimens it is then very important to learn that the living thing can look very different. Adding three dimensions colour, texture and fragrance in to the plant identification tool kit. We were able to observe plants from the families we had studied that week in the Palm House, Princess of Wales



house and
outside
gardens.
Students were
able again to
take notes,
photos to help
build on our
plant
characteristics

portfolios, and test out the identification skills we had learnt again. These exercises really brought alive our learning and again was an extremely beneficial and inspiring experience to walk through Kew's incredible plant collections. It was also a real pleasure to appreciate the gardens with students who had not visited Kew or indeed England before and see their relationship to the collection.

Assessments

At the end of each week we had an assessment on the plant families we had covered during the week. Before the assessment we had recap sessions in which we walk the tropical conservatories at Kew to look at the plants we had been studying as herbarium specimens in the "flesh". We also had a good amount of revision in which to recap and refresh our memories on the families' key characteristics we had covered.

The assessments were presented under examination conditions and we were given 2 hrs to complete the tests. A herbarium specimen was chosen for each of the families and each one was laid out on the tables with the name covered and replaced by a number. This specimen was often chosen for its good key characteristic qualities and could be any one of the hundreds and thousands of specimens held in the herbarium, and could some time be a couple of hundred years old. Which just goes to show the value and usefulness of taking these herbarium cards. Sometimes some of the collecting information was kept visible as country or place of origin could be key to the plant family identification.

We were allowed to use notes from the sessions and the Tropical Plant identification handbook. The assessments were challenging and quite intense but the the results from the classes proved the standard of the teaching given during the week with good results through out the participants.

Future education plans

My first steps in passing on the knowledge learnt from the course will be directly to my Rainforest Horticultural Team members. Many of them already have a good knowledge of tropical plants but by adding to their knowledge and formalising their Tropical Plant families knowledge I am positive they will reap the rewards and really enjoy learning more about the plants and their care. This will really improve the way we manage our plant collection. helping to make any anomalies in our stock checks for easy to deal with. Create staff that are more knowledgeable about the plants in the exhibits the care for and will enable them to pass on their knowledge as a horticulturalist at the Eden Project as we work as an Educational charity.

This Autumn I intend to add to our second year apprentices educational resources by providing Tropical Plant families identification work shops. This will run along side their current weekly plant identifications and hopefully enrich their learning and understanding of Botany, taxonomy and plant families, in the same way the participating in the Kew Tropical Plant Identification course has done for me.

I plan to build upon the work that a previous course participant and former Eden Horticultural team members by building up Tropical plant families information sheets that student apprentices and team members can use for workshops and quick learning reference.

I am currently working with one of the Eden Horticultural Degree course tutors on building in more practical and enriching elements to this years new students. I would also like to offer the

tropical Plant Identification workshops to those students also, if they would find it beneficial and fits in with their curriculum.

This Autumn I am also providing several walk and talks for our Eden Friends members, a group of people with a fascination for Eden and its plants and I am very positive that I will be using the knowledge learnt from the Kew Tropical Plant Identification Course to enhance the talks. Many of the group have a fantastic knowledge of plants already and it would be great build interest and knowledge further within the group.

Summery

It was a real privilege to partake in such an excellently taught Tropical Plant Identification course. The teaching was excellent and very comprehensive. As well as learning key characteristics for 70 of the worlds most prevalent tropical plant families, we gained insight into important policy and legislation governing the conservation of plants. We learnt the value and importance of keeping a modern herbarium collection, and saw how one of the worlds largest herbarium collections is managed.

As well as learning from dried samples we where given the the opportunity to learn from fresh specimens, and gain insight into Kew excellent living collection. It truly is and excellent learning experience and has improved my understanding of Tropical plant Identification, taxonomy and botany to a great degree. Learning that we stand me in great stead for many years and that I hope to pass on to colleagues apprentices and student s at the Eden Project.

The course was an excellent opportunity to meet with tropical taxonomy experts from around the world, and build working relationships that will prove very useful to improving and developing Eden's Tropical Plant collection.

Acknowledgements

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