

Bentham-Moxon awards 2012 / 2013

Awards for field work and overseas travel

- ✿ **Bakoly Andrianaivoravelona** awarded £1,000 to visit St. Petersburg Herbarium as part of the Grasses of Madagascar Project. Here she will research collections of the Russian grass specialist Nikolai Tzelev. Little is known of Tzelev's work from the 1970s to 1990s as he and other Russian botanists left no duplicate specimens in Madagascar or the other main herbariums holding collections such as Kew and Paris. Data gained will help to reconstruct the evolutionary history of endemic grass lineages and help solve problems such as the origins of grasslands in Madagascar.
- ✿ **Marie Briggs** awarded £3,250 to study *Saurauia*, a poorly known genus of small to medium sized trees and shrubs in the kiwi fruit family. The genus is taxonomically problematic and specimens are difficult to name (for example Kew has around 500 individual specimens of un-named *Saurauia*). This project will help to name specimens both at Kew and other institutions such as Lieden, Singapore and Bogor and as part of a larger field research expedition in the Tamrau Mountains on the island of New Guinea will foster links with other institutions such as UNIPA (Universitas Negri Papua) in Manokwari, West Papua. In addition to the above work, Marie carried out general collection of plant species to give a better understanding of the species composition in the area.
- ✿ **Ruth Clark** awarded £960 towards the cost of collecting specimens of Legumes (the pea and bean family) in the Eastern and Western Cape regions of South Africa, following on directly from her attendance at the International Legume Conference in Johannesburg. Legumes are an extremely diverse group in South Africa and under-represented in Kew's collections. Fieldwork will be carried out in conjunction with the University of Cape Town. In addition, species from the genus *Indigofera* will be collected to facilitate the work of Dr Brian Schrire (q.v) who is working on the evolutionary history of the genus.
- ✿ **Frances Crawford** and **Timothy Harris** awarded £1,212 for fieldwork in Ethiopia continuing Kew's collaboration with the University of Addis Ababa and the University of Copenhagen. There has been considerable botanical work in Ethiopia in recent years but due to the countries size and difficult terrain much work remains with new records of species still being collected. Targeting new collecting areas, there will be an emphasis on collecting woody specimens with the aim of producing a handbook on Ethiopian and Eritrean trees and shrubs. This award continues Bentham-Moxon Trust's support for previous fieldwork in Ethiopia in 2010, 2011 and 2012.
- ✿ **Iain Darbyshire** awarded £3,200 towards the cost of creating a conservation atlas of East African *Acanthaceae* (the acanthus family), a collaborative project with Makerere University, Uganda, the University of Dar es Salaam, Tanzania and the University of Copenhagen. The acanthus family is widely distributed in a large variety of habitats in East Africa with high levels of rare and threatened species. It has therefore been chosen

as an indicator family that can highlight Important Plant Areas and give guidance on wider conservation issues that affect the region and subsequent conservation planning strategies.

- ✿ **Aaron Davis** and **Justin Moat** awarded £3,500 towards the cost of assessing climate change on wild Arabica coffee in Ethiopia. Coffee is one of the world's most important traded commodities and supports the livelihoods of around 100 million people worldwide. The forests of southwest Ethiopia are home to the largest remaining populations of Arabica coffee and the preservation of the coffee gene-pool is essential for the long-term survival of coffee and coffee-based livelihoods. This project is part of Kew's involvement in coffee research since the 1980s and builds on a previous project supported by Bentham-Moxon in 2009/10.
- ✿ **Bryn Dentinger** awarded £2,000 for a fungal diversity survey at the Gunung Mulu National Park in Sarawak (Malaysian Borneo) as part of an international multi-disciplinary expedition led by scientists from the Royal Ontario Museum (Toronto, Canada). The Park was recently designated as a UNESCO World Heritage site due, in part, to its spectacular biodiversity, yet its fungi are virtually undocumented. Fungi will be collected along an elevational transect from near sea level to over 2000m, and documented as part of Kew's fungi collection including DNA barcoding (this uses a DNA sequence rather like a barcode to identify the species). This project follows on from two previous visits to Sarawak in 2011 and 2012 funded by Bentham-Moxon and will enhance knowledge of the poorly known macrofungi of southeast Asia and improve access to information on them via a public website (www.sarawakfungi.org).
- ✿ **Bryn Dentinger** awarded £1,700 for a fungal diversity survey of the Itremo Massif Protected Area in the highlands of central Madagascar. This is the first ever survey of fungi conducted at Itremo and will provide a baseline for future research, including conservation focused projects. This work will enhance Kew's collections for an area currently poorly represented and provide new specimens with well-preserved DNA. The project also includes the delivery of a short training course on fungi for the Kew Madagascar Conservation Centre botanists who manage Itremo and will build their capacity to carry out independent survey work.
- ✿ **Martin Hamilton** awarded £3,700 for fieldwork on two Caribbean conservation projects. The first project is in the Turks and Caicos Islands (TCI), restoring the Caicos pine tree that is under serious attack by an exotic invasive scale insect that threatens to destroy an entire ecosystem. This work is in close collaboration with the TCI Government Department of Environment and Marine Affairs. Bentham-Moxon Trust previously supported fieldwork in TCI during 2012 which followed on from their support for an initial survey carried out in 2006. The second project is in the Puerto Rican Bank (Puerto Rico, Vieques and British Virgin Islands) mapping the distribution of the critically endangered shrub *Varronia rupicola* in the Boraginaceae family (the borage or forget-me-not family). This work is carried out in close cooperation with a number of other

organisations including the International Institute for Tropical Forestry, the US Fish and Wildlife Service and the Puerto Rico Department of Environment and Natural Resources.

- ✿ **Rogier de Kok** awarded £3,033 for collecting plants and researching their uses within the tradition of Boti, West Timor (Indonesia). Boti is a traditional community set in the hills of central Timor that have maintained their traditions of land stewardship with local plants supplying their medicinal, dyeing, weaving and construction materials. Their approach also ensures year-round food and water supplies on an island frequently experiencing drought and food shortages. To ensure their knowledge was available to future generations a research project was begun in 2010 (funded in part by Bentham–Moxon) and this year’s research completes the work with a book to be published in Indonesian, English and the local language, Dawan.
- ✿ **Sven Landrein** awarded £3,100 towards the cost of a 30-day expedition researching *Caprifoliaceae* (the honeysuckle family) in the temperate areas of Mexico, including the states of Durango, Michoacan and Oaxaca. The work will be carried out with colleagues at Herbario ANSM and Herbario del Centro Regional del Bajío. The main purpose of the research is to collect herbarium specimens, DNA samples and distribution data to develop Kew’s collections. The honeysuckle family includes many genera of horticultural or economic importance and this expedition will contribute towards a world checklist leading to a taxonomic monograph for this family, an important tool for future conservation projects.
- ✿ **Tom Prescott** awarded £3,175 for ethnobotanical research amongst the Sokhok and Aigon people who inhabit Papua New Guinea’s West New Britain Province. This is a “scoping” project in collaboration with Papua New Guinea’s Forest Research Institute and Lae Herbarium. The long-term aims of the project are to catalogue the plants used by villagers to treat rainforest fungal infections (and investigate the active molecular mechanism) and also to collect good quality, accurately named ethnobotanical herbarium specimens. Specimen data will be added to the Papua New Guinea Plants Database and inform future conservation suggestions for the island.
- ✿ **Brian Schrire** awarded £2,650 for fieldwork in preparation for an interactive identification guide to *Indigofera* in Southern Africa. *Indigofera* is the third largest genus of Legumes (the pea and bean family), with around 750 species, comprising a significant group of economically important indigo dye-producing species. This is Phase 2 of the project with Bentham-Moxon also providing some funding for Phase 1. In South Africa the need for accurately named plants is acute, particularly when legumes are used for pasture because some species are palatable and others toxic. With rapidly increasing threats to natural habitat in Southern Africa, this project also aims to deliver conservation assessments of each species directly to users in the field.
- ✿ **James Wearn** awarded £2,100 for researching the ecology of the genus *Clerodendrum* in the eastern-low and mid-altitude evergreen forest zones of Madagascar. The genus *Clerodendrum* (with around 200 species) is one of the largest in the family *Lamiaceae* (the mint or deadnettle family) and has been inadequately studied considering their

horticultural importance and the fact that the genus also includes invasive species of international concern. This project will build upon longstanding collaborative work with Parc de Tsimbazaza Herbarium and the Centre National Recherche Appliquee au Development Rural (both in Madagascar) and the Missouri Botanical Garden.

- ✿ **Oliver Whaley** awarded £2,457 to enable Carlos Madalena to travel to the arid coastal region of Peru and to provide training in nursery management, seed propagation, plant cutting and grafting techniques. Despite Peru being strongly agriculturally focussed, there is little expert knowledge on growing wild species. In particular, guidance will be given to local project staff for experimental propagation of species from the rare lomas fog ecosystems. The region is also home to a number of crop wild relatives such as those of the Tomato and the techniques developed during the trip will support the outcomes and conservation priorities of the Crop Wild Relatives project based at the Millennium Seed Bank, Wakehurst Place.

Botanists visiting and working at Royal Botanic Gardens, Kew

- ✿ **Martin Cheek** awarded £1,700 to support a visit by **Mohammed Swaray**, of the Gola Forest Programme (GFP), Sierra Leone, to visit and train at Kew. GFP is a partnership between the Forestry Department of the Government of Sierra Leone, the Conservation Society of Sierra Leone and the UK's RSPB and is responsible for managing the recently-declared Gola Rainforest National Park. GFP run a substantial research programme and Mohammed is the team's lead botanist and his time at Kew will, amongst other things, improve his knowledge of the formal botanical process and establish stronger links between Kew and GFP. Developing the capacity within Sierra Leone for botanical work is one of the highest priorities for a country seeking to capitalise on its natural resources.
- ✿ **Aaron Davis** awarded £1,620 to contribute towards enabling **Alex Arriola** from the Philippines University of Santo Tomas to visit Kew and work on three specific tribes within *Rubiaceae* (the coffee family). The Philippine flora remains desperately understudied despite the pressing need to understand the implications of massive forest clearance during the 1940s. The species to be studied by Alex represent key indicators of forest health and will help in understanding more fully the conservation issues facing Philippine forest ecosystems.
- ✿ **Charlie Heatubun**, based in Indonesia at the Universitas Negeri Papua (UNIPA), awarded £3,100 to travel to Kew and work on Palms. He is a key figure in HLAA's ambitions to develop research activities in New Guinea. Dr Heatubun has collaborated with Kew since 1998 on several projects including the Palms of New Guinea Project and the Mount Jaya project. He completed a highly productive visit to Kew funded by the Bentham-Moxon Trust in 2011 and published three papers. The current funding will contribute towards revisionary work for the Palms of New Guinea Project including the description of new species and develop collaborations with Kew on the New Guinea flora. A visit planned for November 2013 will further the relationship between Kew and UNIPA with

the signing of a Memorandum of Understanding by the Director of Kew and the Rector of UNIPA.

- ✿ **Melissa Jaegar**, a graduate student in Brazil, was awarded £780 to visit and work at Kew's Jodrell Laboratory on Brazilian Brittlegill mushrooms (family *Russulaceae*). Recent fieldwork in Brazil recovered over sixty specimens belonging to *Russulaceae*, several of which are new species. However, diagnosing species and properly classifying them requires DNA sequencing and comparison with authenticated specimens of neotropical *Russulaceae*, many of which are held at Kew. The project involves sequencing the ITS region (Internal Transcribed Spacers – a region on the DNA used like a barcode) to build a reference library with which the contemporary collections can be compared. This project is a core component of a Master's thesis and will provide duplicate specimens for Kew's fungarium.
- ✿ **Gerhard Prenner** awarded £1,800 to cover the laboratory costs for **Juliana Paulino**, of the Universidade de Sao Paulo, who will continue her studies on Legumes (the pea and bean family) at Kew's Jodrell Laboratory. She will investigate Heteranthery, a phenomenon where different forms of stamens are found within one flower, with one set producing fertile pollen for fertilization and another set producing sterile pollen as a reward for pollinators. Juliana will look at the various Heteranthery mechanisms used by papilionoid legumes, the largest of the Legume families. This work will foster Kew's leading role in research of the economically important Legume plant family. In 2011 Bentham-Moxon co-funded a visit by Juliana for research work on legumes.
- ✿ **Clare Trivedi** awarded £2,600 to enable **Elene Japaridze** of the National Botanic Garden of Georgia (NBGG) to attend the Kew International Diploma in Botanic Garden Management. NBGG has been a partner of Kew's Millennium Seed Bank Partnership since 2005 and there is a strong programme in place to conserve the country's plant diversity. As part of the Caucasus Biodiversity Hotspot, Georgia is home to over 4,000 plant species including the crop wild relatives of wheat, rye, barley, nuts and fruits. There is low awareness among the Georgian public of the value and global importance of plants in their country. Development of the skills of the NBGG staff will help develop the gardens and the skills to address plant-based issues.
- ✿ **Emma Williams** awarded £2,300 to enable **Josephat Kalugasha** from Tanzania to attend the Tropical Plant Identification Course and work with the Drylands Africa Team for herbarium curation experience. Josephat is a herbarium technician at the University of Dar es Salaam herbarium (DAR) and following his training at Kew will return with improved plant identification skills. In Tanzania there are very few senior taxonomists so it is important to ensure training like the Kew identification course is available to young herbarium staff. Kew has a long collaboration with DAR and this is the first time that a Tanzanian botanist has attended this course.

Marjorie Hurley Fund award for wild flowers at Kew and Wakehurst Place

- ✿ **Sandra Bell** awarded £1,820 to aid insect pollination in the Gardens by providing and maintaining at least two active hives of honey bees on the site of the new Quarantine House at Kew. About 80% of the 350 or so wildflower species native to the Gardens are insect pollinated and honeybees are excellent general pollinators. Since bees forage over considerable distances, the pollination service which they provide will spread outside the Gardens into Kew and Richmond. They should improve seed set for wild flowers along the Thames towpath, an important wildlife corridor, as well as improving fruit and flower pollination in local gardens, benefitting residents and wildlife.

Conference awards

- ✿ £8,000 awarded to Kew's Jodrell Laboratories and Herbarium, Library, Art and Archive staff for attendance at the International Legume Conference, Johannesburg and the Monocot Conference in New York.