

Minutes of BSI, Kew and CWEH Meeting on Future Collaborations

30th June 2017

Royal Botanical Gardens, Kew

Attendees:

Paramjit Singh (BSI)

Tim Utteridge (Kew)

Alan Paton (Kew)

Vinita Damodaran (Sussex)

Mike Rayner (Sussex)

The meeting was preceded by a guided tour of the herbaria and the digitisation rooms. This enabled the visitors to fully understand the processes employed by Kew in the digitisation of their collections. The collections are available upon request to any bona fide researchers and are also displayed periodically to the general public on herbarium open days. In total, Kew's herbaria have approximately 50 visitors per week.

The herbaria are divided up according to a number of areas, India being included in area 5, which also includes surrounding areas such as Sri Lanka and Burma. Area 5 accounts for approximately 300,000–350,000 specimens. Tim and Alan explained that it is easier to digitise area 5 in its entirety than just India, as time would be saved researching the collections to determine which are from India. Their ideal would be to digitise all collections at once, so that no research will be needed at all. Issues of digitising were discussed. A common misunderstanding is that once the herbaria are digitised, there will be no further use for the original specimens. However digitisation can never capture chemical properties, textures or the heritage value of these historical items. The East India Trading Company Herbarium has already been completely digitised including the Wallich collections. However many of these were misidentified by Wallich and so money also needs to be raised to correctly identify these.

The digitisation process uses Leaf back cameras and one Nikon camera. The former allows for 100% zoom with 600 dpi, whereas the latter is approximately 400 dpi. The specimen is photographed and minimal data is recorded. The remaining data is completed by volunteers on crowd funding websites, such as digivole and notes from nature. OCR is currently not advanced enough to use even for the typed labels, but this may be an option in the future. The fields that need to be completed are according to the GBIF data standard to ensure that there is compatibility with other institutions. Each digitised specimen is approximately 250 MB. They are freely accessible to the public on the Kew website, as well as JSTOR and GBIF.

The meeting began with Vinita giving a brief overview of previous collaborations. CWEH has worked on a number of projects with the LAA section of Kew, and expanding this relationship to Kew's science team could prove to be very fruitful and could potentially

lead to a number of research projects. BSI and Kew science also have a long history of collaboration, as the BSI formerly sent scientists to Kew to engage in research and to act as an Indian Botanical Liaison Officer (IBLO).

Paramjit, Alan and Tim were enthusiastic to rekindle collaborations, but stressed that they needed to ensure that these collaborations were set up correctly. Since 1990, Kew has had difficulty conducting fieldwork in India, owing in part to restrictions from the Convention on Biological Diversity (CBD) and the Indian Ministry of Environment, Forest and Climate Change (MOEFCC). If official collaborations were established, there would be no need for individual permits. The Kew scientists were particularly enthusiastic to collaborate on the phylogeny of Indian specimens. The specimens found at the borders of India, Burma and China are of such variety that DNA is often required to identify them to genus level. The 4,700 species held at the BSI could be of great value in building a complete phylogenetic tree of all known plant and fungus species.

It was suggested that the most effective way of initiating collaborations was to bring botanists from the two institutes together, so that there is more awareness of what each side is doing. The Indian Botanical Society and the Indian Association of Angiosperm Taxonomy are both holding conferences this year, in September and November respectively. These conferences were suggested as venues for networking between the two institutes.

Action Points: Paramjit Singh, Tim Utteridge and Alan Paton to invite colleagues to the two conferences.

Communication between the two institutes could also be facilitated by reviving the IBLO programme. The IBLO programme had become unpopular at the BSI, as Indian scientists would move to the UK to work at Kew for 1 to 3 years and on return would find that they had been out of the system for too long and their promotion prospects suffered. Paramjit suggested that this programme could be more popular if the placements were shortened to 5 or 6 months. These placements would be more focused, with BSI scientists who had specific reasons to research Kew's collections given priority. In this role, they would be expected to learn what is happening at Kew and how collaborations with the BSI could help, rather than simply responding to requests from their colleagues in India. The first IBLOs could focus their attention on completing the area 5 digitisations, and this will likely spark off other collaborations. Tim and Alan were happy to revive this programme and agreed to put in writing that they have use of IBLOs to assist with the digitisation of specimens.

Action Points: Tim Utteridge and Alan Paton to draft an email, detailing their enthusiasm for the IBLO scheme to be revived and to send to this to Paramjit Singh for checking.