

BGCI's Annual Member's Review 2016

Connecting people • Sharing knowledge • Saving plants



BGCI

Plants for the Planet





Message from BGCI's Secretary General



Dear BGCI members,

Welcome to BGCI's Member's Review for 2016, our annual report that summarises BGCI's work supporting our professional community of botanic gardens, and alerting you to new benefits and opportunities.

2016 has been a very productive year for BGCI and for our sector. Working with the Cambridge University Botanic Garden, our analysis shows that the living collections conserved and managed in the botanic gardens that have uploaded their data to PlantSearch cover **33% of known plant species, 56% of plant genera and 75% of plant families**. It really is no exaggeration to say that botanic gardens conserve and manage a far greater array of plant diversity than any other sector. This is the basis of BGCI's Global System – a botanic garden-centred, cost effective, rational approach to conserving and managing all rare and threatened plant diversity in the landscape to avoid species extinctions and to enable human innovation, adaptation and resilience (see **Publications**).

BGCI's **advocacy** work this year has continued to focus on the Global Strategy for Plant Conservation (GSPC), working closely with the Secretariat of the Convention on Biological Diversity and the Global Partnership for Plant Conservation (GPPC). The GPPC meeting in St Louis in June assessed progress against the GSPC goals, and produced a study on the strong links between plant conservation and the Sustainable Development Goals (see **Publications**). In May, BGCI US led on the development of the North American Botanic Gardens Strategy for Plant Conservation 2016-2020. In addition, BGCI re-constituted its **International Advisory Council** – 22 botanic garden directors from six continents – who met at Kew, and agreed terms of reference establishing the group as a global leadership forum for our sector, and providing strategic guidance to BGCI. At the regional level, BGCI provides the secretariat for the **European Consortium** of Botanic Gardens, the **Southeast Asia Botanic Gardens (SEABG) Network** and supports the **Caribbean and Central American Botanic Garden Network**, all of whom met in 2016. In order to better support the regional networks, BGCI has opened an office in SE Asia in partnership with the Cecilia Koo Botanic Conservation Center in Taiwan, and will shortly be opening an office in Kenya to support the African network of botanic gardens. Finally, recognizing that many smaller botanic gardens struggle to pay BGCI's (modest) subscription fee, we have launched a membership sponsorship scheme that we will be promoting vigorously in 2017. Please do get in touch if you would like to be considered for this scheme.

BGCI's work **leading innovative projects** and communities of practice has continued this year, with some very significant milestones reached. Under the **Global Tree Assessment (GTA)**, we renewed our membership of IUCN's Red List Partnership for a further five years, including a commitment to assessing all tree species by 2020. The first major step to achieving this goal was accomplished this year – **GlobalTreeSearch** (www.bgci.org/globaltreesearch), the first global list of tree species, georeferenced to country level. This list will form the backbone of the GTA, and is complemented by **ThreatSearch** (www.bgci.org/threat_search.php), the most comprehensive list of plant conservation assessments in the world, and covering nearly half of known plant diversity. BGCI's **Global Seed Conservation Challenge** now includes **180 member institutions in 60 countries**. Seed bank data has been uploaded for **69 gardens**, helping to identify gaps and providing gardens with data on those priority species that are

still not in collections. Through the **Global Trees Campaign**, which BGCI manages in partnership with Fauna & Flora International, BGCI has supported the conservation of **more than 30 rare and threatened tree species in 8 countries** in 2016, employing an integrated (*ex situ* and *in situ*) conservation approach, and working closely with local communities. Work has also begun on a Species Recovery Handbook. The **Ecological Restoration Alliance of Botanic Gardens (ERA)** has grown significantly, and now comprises **30 participating gardens and arboreta** and **148 restoration projects at a scale of 0.1 Ha to 50,000Km²**. In the ERA network **537 specialists** are engaged in restoration activities, and **\$158 million** has been raised over the past 5 years. In plant health, BGCI's **International Plant Sentinel Network (IPSN)** has entered its second phase with **17 partner organisations** participating in developing an early warning system for emerging plant pests and diseases. Finally, BGCI's **Big Picnic** public engagement project commenced this year working with **19 partners** to communicate the importance of plants for food security. This three year, €3.4 million EU-funded flagship project will connect plants and the work of botanic gardens to one of the biggest challenges of the 21st Century.

Sharing knowledge is at the heart of BGCI's work. This year saw the launch of BGCI's new **Botanic Garden Manual**, covering all aspects of establishing and managing a botanic garden. An exciting new data tool developed and available to users via the BGCI website is **ThreatSearch** (www.bgci.org/threat_search.php). Good progress has also been made in developing the first ever list of the world's trees (**GlobalTreeSearch**). A test version of this, together with an advanced version of **PlantSearch** are now available for BGCI members to consult on-line. BGCI's capacity building programme in 2016 involved training **>300** people from **126** institutions from **30** countries, and we supported meetings and symposia in **Argentina, China, Cuba, Ecuador, Mexico, the USA, Panama, Peru, Indonesia** and **Taiwan**.

Finally, BGCI **disbursed funds** totaling **US\$2,945,000** to botanic gardens and other institutions in 2016. This figure is more than **10 times** what we receive in subscriptions from you, our members. If you aren't already a BGCI member, I urge you to become one (see www.bgci.org/joinin/members/). It is too good an opportunity to miss!

Dr Paul Smith,
BGCI Secretary General

BGCI disbursed funds totaling US\$2,945,000 to botanic gardens and other institutions in 2016, which is more than 10 times what we receive in subscriptions from our members.

CONNECTING PEOPLE

Conferences and Congresses held in **Asia, South America, Central America, North America and Europe**

SHARING KNOWLEDGE



Two editions of **BGJournal** were published, one focusing on Early Warning Systems for Plant Health (January 2016) and the other on Ecological Restoration (July 2016).

www.bgci.org/resources/bgjournal/



Two issues of **Roots** were published. The April issue of **Roots** focused on science communication and the issue published in December looked at volunteers in botanic gardens

www.bgci.org/public-engagement/roots/

In 2016 five issues of BGCI's e-newsletter **Cultivate** were published and sent to around 6,500 recipients

www.bgci.org/news-and-events/ournewsletter/

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BGCI generated

811
tweets

to date

8,120
total number
of followers

32,337
profile views

attracted

1,761
new followers



SAVING PLANTS

A total of **337 tree taxa** were assessed by BGCI, submitted and accepted on the IUCN Red List.

BigPicnic consortium includes **19 institutional partners in 12 countries**

BGCI's **Global Seed Conservation Challenge**

now includes

180
member institutions in
60
countries.



The Ecological Restoration Alliance currently has **30 participating gardens** carrying out

148
restoration projects with **537**
specialists engaged in restoration activities, and **\$158 million** raised over the past 5 years.



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Advocacy and policy support



The Global Partnership for Plant Conservation (GPPC)

BGCI provides the Secretariat for the Global Partnership for Plant Conservation (GPPC), an informal partnership of more than 50 institutions with international programmes in plant conservation. A conference of the GPPC was held from 28-29 June in St Louis, USA, organised by Missouri Botanical Garden, in collaboration with the Secretariat of the Convention on Biological Diversity (SCBD) and BGCI. The conference, entitled '*Plant Conservation and the Sustainable Development Goals*' attracted over 120 participants and the proceedings will be published as a special issue of the *Annals of Missouri Botanical Garden*.

Following the conference, a one-day round-table workshop was held for representatives of GPPC member organizations, including from Australia, Brazil, Canada, China, France, Indonesia, Ireland, Jordan, South Africa, Switzerland, UK and USA. The workshop focused on the future of the Global Strategy for Plant Conservation (GSPC), particularly with respect to linkages with the CBD's Strategic Plan for Biodiversity and the Sustainable Development Goals (SDGs). A policy paper on Plant Conservation and the Sustainable Development Goals was produced by BGCI and Missouri Botanical Garden for discussion at the conference and workshop. More information is available at (www.plants2020.net/global-implementation/)

North American Botanic Garden Strategy for Plant Conservation 2016-2020

BGCI US led the writing and publication of the North American Botanic Garden Strategy for Plant Conservation, 2016-2020, in collaboration with the United States Botanic Garden (USBG). We worked collaboratively with the American Public Garden

Association, Center for Plant Conservation, Plant Conservation Alliance and the Mexican Association of Botanic Gardens. An editorial committee of more than 40 botanic garden and plant conservation experts from Canada, Mexico, and the U.S. was established to determine new targets and content for the updated Strategy. The Strategy was written and finalized by February 2016 and printed in hard copy in April 2016. The document was publicly announced at the APGA Annual Conference in Miami, FL in June 2016, released electronically by sponsoring organizations that same month, and was mailed out in hard copy to more than 1,300 botanic gardens and plant conservation stakeholders in October 2016. The electronic Strategy and supporting information is currently online at (www.northamericanplants.org/)

We are pleased to be initiating projects in 2017 focused on the implementation of the Strategy through the resulting North American Plant Conservation Initiative, and building awareness and coordinated action.

The European Botanic Gardens Consortium

BGCI convenes the European Botanic Gardens Consortium, which consists of one representative from each of the European countries. The Consortium meets twice yearly, with meetings in 2016 hosted in Slovenia (the University of Ljubljana Botanic Garden) and Austria (University of Vienna Core Facility Botanic Garden). Key issues addressed by the Consortium this year focused on the botanic garden response to the introduction of new European Regulations on Invasive Species and on Access and Benefit Sharing (implementation of the Nagoya Protocol).

The Consortium also looked at the various ways in which botanic gardens are defined across Europe and considered developing a Europe-wide definition.

The Southeast Asia Botanic Garden Network

A significant outcome of the 5th Southeast Asia Botanic Gardens (SEABG) network conference in Bali in November 2015 was the generous offer by the Dr. Cecilia Koo Conservation Center (KBCC) in southern Taiwan, to host a BGCI SEABG network programme office. During 2016, BGCI and KBCC developed the modalities for establishing the office and successfully recruited a BGCI SEABG network coordinator. The role of this position is to i) manage and further develop the programme of work of the SEABG network; ii) secure funding for the continued development of the programme; and iii) facilitate the organisation of SEABG network meetings and training courses. One of the immediate tasks of the network coordinator is to facilitate the forthcoming 6th SEABG network conference in Bidoup-Nui, Vietnam, 24-28 April 2017. In conjunction with this gathering, a training course in *ex situ* conservation approaches for exceptional species will be held.



Above: One of the several conservation units at Dr. Cecilia Koo Conservation Center, Taiwan

BGCI's International Advisory Council

BGCI's International Advisory Council (IAC), comprising 22 botanic garden directors from six continents, met at Kew on May 25th 2016. Key elements of the agenda this year were agreeing the terms of reference of the group, guiding BGCI's 5 year Business Plan, agreeing a peer-reviewed procedure for selecting Global Botanic Garden Congress venues, and discussing the establishment of a Global Botanic Garden Fund aimed at supporting plant conservation activities in smaller gardens. Significant progress was made on all of these items, and a range of other cross-cutting issues were discussed that this group could tackle. The IAC requested that BGCI carries out a feasibility study into establishing a Global Botanic Garden Fund, and produces technical reviews and reports on:

- Criteria that define a botanic garden,
- Measures and Key Performance Indicators specific to the work of botanic gardens

This work will be incorporated into BGCI's work plan for 2017.

The Marsh Awards for international plant conservation and botanic garden education

In 2016, we were delighted to announce that the Marsh Award for International Plant Conservation was awarded to Jenny Cruse Sanders of Atlanta Botanical Garden. Jenny has been hugely influential leading plant conservation efforts in the SE United States and more widely. The Marsh Award for Botanic Gardens Education was awarded to Iwa Kolodziejska of the University of Warsaw Botanic Garden. Iwa's expertise in developing educational resources on a modest budget has been an inspiration to many. BGCI would like to congratulate both recipients on their richly deserved awards.

BGCI's Garden Sponsorship Scheme

In October 2016, in response to requests from small gardens for whom membership of BGCI is a stretch financially, BGCI launched its botanic garden sponsorship scheme (see www.bgci.org/joinin/sponsor-a-garden/).



Barney Wilczak

Africa

BGCI's Africa programme has expanded during 2016 with new projects launched in Malawi and Tanzania. As a result, we now have practical conservation projects with botanic garden partners in six countries in Africa. All projects demonstrate and promote the important role that African botanic gardens can play in conservation and ecological restoration. In 2017 BGCI is opening an office in Nairobi which will help expand this programme and provide further support to botanic gardens in Africa.

Leading innovative projects



Barney Wilczak

The Global Tree Assessment



Despite the importance of trees, many are at risk from habitat destruction, over-exploitation, pests, diseases, invasive species

and climate change. In order to estimate the impact of such threats to trees there is an urgent need to conduct a complete assessment of the conservation status of the world's tree species – the Global Tree Assessment. The goal of the Global Tree Assessment is to provide prioritization information to ensure that conservation efforts are directed at the right species so that no tree species becomes extinct. In order to achieve this target by 2020 a complete global list of the world's tree species has been generated at BGCI - GlobalTreeSearch (www.bgci.org/globaltreesearch).



This resource will help us to track progress towards the Global Tree Assessment, and will be used for gap analysis to help set priorities for conservation action. The Global Tree Assessment is an initiative led by BGCI and the IUCN/SSC Global Tree Specialist Group. Work is ongoing to develop an even more extensive global collaborative partnership, involving the coordinated effort of many institutions and individuals.

The Global Seed Conservation Challenge



The Global Seed Conservation Challenge (GSCC) aims to increase the contribution of botanic gardens towards

achieving Target 8 of the Global Strategy for Plant Conservation (GSPC) which calls for **'75% of threatened plant species in ex situ collections, preferably in the country of origin, and at least 20% available for recovery and restoration programmes by 2020'**. Seed collections can be used to restore habitats, reintroduce species and carry out research as well as being conservation collections. In 2016 we launched a new online learning resource on seed conservation, with knowledge testing components. Six modules have been created which cover major aspects of conservation through seed banking focusing on planning, collection, handling and storage (www.bgci.org/plant-conservation/seed_learning/). We have also been adding resources to our seed conservation 'hub' (www.bgci.org/plant-conservation/seedhub/) and adding additional case studies on botanic gardens banking seed (www.bgci.org/plant-conservation/seedbanking/). To date the GSCC is a network of 180 member institutions in 60 countries. Seed bank data has been uploaded for 69 gardens, helping to identify gaps and providing gardens with data on those priority species that are still not in collections.



The Global Trees Campaign



Through the Global Trees Campaign (GTC), which BGCI manages in partnership with Fauna & Flora International, BGCI has supported the conservation of more than **30 rare and threatened tree species in 8 countries** in 2016, employing an integrated (*ex situ* and *in situ*) conservation approach, and working closely with local communities. Prioritisation of which species are most at risk of extinction is a core activity. Development of GlobalTreeSearch, and work towards a Global Tree Assessment throughout 2016 is improving our prioritisation approach, enabling us to deliver training and initiate projects in areas where tree conservation action is most required. In June, we launched a Darwin Initiative funded project in Malawi to restore populations of the Critically Endangered Mulanje Cedar, *Widdringtonia whytei*, on Mulanje Mountain where unsustainable harvesting of timber has led to the near extinction of this species. The project is led by BGCI, the Mulanje Mountain Conservation Trust and the Forestry Research Institute of Malawi (FRIM) and is bringing in experts from the BGCI network to identify optimum growing conditions for Mulanje Cedar and to explore the potential for Mulanje cedar to be grown and sustainably harvested as a timber tree across Malawi creating an alternative livelihood source. In November, Dan Luscombe from Bedgebury Pinetum in the UK provided training to staff from the National Botanic Garden of Malawi in Zomba and FRIM. These staff will in turn, train 150 people employed in ten community nurseries that have been set up around Mulanje Mountain to propagate a supply of seedlings for restoration and sale.



In October, BGCI joined the University of Oxford Botanic Garden and Arboretum and the University of Tokyo Forests on a trip to collect seed from recently discovered populations of *Betula chichibuensis*. Seed was shared between Japanese institutions, UK botanic gardens for the establishment of back-up living collections, and the Royal Botanic Gardens Kew's Millennium Seed Bank for long-term storage. Assessed as Critically Endangered in the Red List of Betulaceae in 2014, newly discovered populations of this species and increased conservation action will likely result in *Betula chichibuensis* being listed in a lower threat category in future.

The Ecological Restoration Alliance



The Ecological Restoration Alliance of Botanic Gardens (ERA) has grown significantly, and now comprises 30 participating gardens and arboreta, carrying out 148 restoration projects at a scale of 0.1 Ha to 50,000Km². In the ERA network 537 specialists are engaged in restoration activities, and \$158 million has been raised over the past 5 years. A five year strategy for ERA was produced, setting out what we aim to achieve by 2020. Capacity building is a strong component of the strategy, aiming to build expertise and improve restoration practice both within and beyond our sector. In March we ran the first in a series of ERA training courses on ecological restoration in Kenya, and at the annual ERA business meeting, held in Mexico in December, the Alliance committed to delivering further training and publishing new resources on the ERA website throughout 2017.



The International Plant Sentinel Network (IPSN)



The IPSN came to the end of its initial phase in April (a 3 year project running from March 2013), and this culminated with a conference on Tree and Plant Health Early Warning Systems in Europe - organised in collaboration with the UK citizen science project Observatree. This meeting was held at the Royal Botanic Gardens, Kew (UK) in February and provided an opportunity for the IPSN to illustrate the work that had been done over the last 3 years. It was attended by over 150 people from 18 different countries; including participants from New Zealand and the U.S. It was a great opportunity to share, learn and understand the work being done in this area. In addition, an issue of *BGJournal* was published that focused on the important role botanical institutes can play in plant health research.



The IPSN has secured funding and participation to continue as a second Euphresco project, and BGCI will now lead the project. This new phase will aim to utilize the network and resources put in place over the last three years, providing key research to government organisations to help support the prevention and early detection of damaging organisms. The IPSN will also continue to train staff in plant health and good biosecurity practice, as well as raise awareness of current threats and the key issues facing native plants. The project has gained significant participation from around the world with 17 Euphresco partners coming from within Europe and elsewhere, including partners from the U.S. and Turkey. Furthermore, the IPSN currently has 30 member gardens, with another 10 in the process of joining. The new Euphresco project is due to officially launch in January 2017.

Big Picnic Big Questions – engaging the public with Responsible Research and Innovation on Food Security

Big Picnic

The BigPicnic project kicked off in May 2016, since when the project has established its

communication channels and provided training for partners on the innovative public engagement methods that will be employed throughout its duration. Through BigPicnic, botanic gardens will bring together the public, scientists, policy-makers and industry to help tackle the global challenge of food security. Nineteen partners in twelve countries across Europe and Uganda will develop exhibitions, activities and participatory events. These will be co-created with a range of stakeholders, to generate dialogue and build greater understanding of food security issues. The results will be communicated to policy makers to encourage Responsible Research and Innovation.

BigPicnic has seven objectives:

- Build the capacity of botanic gardens across Europe to develop and deliver co-creation approaches with their local and regional audiences
- Develop botanic gardens as centres that promote dialogue between the public, researchers and policy makers

- Improve the understanding and realization of Responsible Research and Innovation through the provision of best practice case studies for an RRI toolkit
- Increase engagement with local and global food security issues through outreach exhibitions and science cafés among diverse audiences
- Co-create, with diverse audiences, accessible and novel mechanisms to facilitate interaction and bridge the gap between the public, policy makers and researcher.
- Utilize the findings of other EU funded projects: INQUIRE, PLACES and VOICES.
- Co-develop tools for measuring the engagement of partners and co-creation teams with RRI and the benefits of the co-creation participatory approach adopted in the project.

Learn To Engage – a modular course for botanic gardens



By developing and piloting a modular blended-learning course, the LearnToEngage project will address the training

needs of botanic garden professionals who are responsible for education, building their capacity for engaging people with plants and conservation. Over the next three years, BGCI and the LearnToEngage partners will develop four modules on interpretation, working with diverse audiences, science communication and research and evaluation. Each will involve a week's residential training as well as online aspects. The first module will be run between September and November, 2017. Since the project began in August, 2016 partners have been working on establishing learning outcomes for the first 2 modules (interpretation and working with diverse audiences).

LearnToEngage has the following objectives:

- Enhance inclusive education in botanic gardens through practitioner training
- Develop innovative blended learning models for training botanic gardens on public engagement
- Enhance botanic garden professionals' access to training through embedding it in the digital era
- Improve services through training in new areas of work for botanic gardens
- Support the development of transnational standards for evaluating informal education
- Increase botanic gardens' capacity for showcasing the value of plants and plant science to society





Sharing knowledge

Barney Wilczak

Data services

2016 saw the launch of BGCI's **ThreatSearch** database (www.bgci.org/threat_search.php), the most comprehensive database of conservation assessments of plants. ThreatSearch lists global, regional and national conservation assessments for plants from a variety of sources, and is a one-stop shop to find conservation assessments for plants. Together with our two main collaborators - the National Red List (www.nationalredlist.org) and the Royal Botanic Gardens, Kew (www.kew.org) - we have assembled currently available conservation assessments for plants into a single list. We are continuing to add new conservation assessments, as well as older, non-digital sources. ThreatSearch data will be used to measure progress toward several targets of the Global Strategy for Plant Conservation. First and foremost, it helps to track progress towards Target 2 (an assessment of the conservation status of all known plant species, as far as possible, to guide conservation action). ThreatSearch will further help to measure Target 7 (at least 75 per cent of known threatened plant species conserved *in situ*) and Target 8 (at least 75 per cent of threatened plant species in *ex situ* collections, preferably in the country of origin, and at least 20 per cent available for recovery and restoration programmes).



BGCI continues to promote and develop PlantSearch. By the end of 2016, the database contained over 1.3 million taxon records provided by over 1,100 institutions around the world. Recognising the value of the data contained in PlantSearch,

we introduced new data-use and data-sharing agreements in 2016. These acknowledge the rights that gardens exercise over their data and determine how the data can be used (see www.bgci.org/agreement-provider.php).

In 2016, we also launched an advanced version of PlantSearch, accessible to BGCI member's only. This version provides access to location details for plant taxa recorded in PlantSearch – where the data-provider has agreed for such records to be made available.

In 2016, BGCI developed the **GlobalTreeSearch** database a complete list of the world's tree species and their country level distributions. GlobalTreeSearch will provide a valuable resource to botanic gardens as well as other stakeholders including international and national forestry bodies, land managers and conservation practitioners. This searchable tree list will also provide the backbone for the Global Tree Assessment.

Collection assessments

In 2016, BGCI US assessed the conservation value of the United States Botanic Garden's (USBG) plant collections to identify *ex situ* strengths, gaps, and potential collaborations. Collections data from USBG and BGCI's GardenSearch and PlantSearch databases were used, and Mary Galea and BG-Base™ collaborated on the assessment. Action-oriented collections priorities are highlighted in a uniquely-tailored assessment report provided to USBG and intended to facilitate collection-building efforts by staff. This project allowed BGCI US to design a conservation collections assessment model, intended as a service to offer standardized metrics for identifying the conservation value of living collections throughout the world.





Training courses

In 2016 BGCI trained >300 people from 126 institutions from 30 countries. Our courses covered a wide range of topics in plant conservation policy, practice and education. Details are provided in the Table on p18.

Modern Plant Conservation Techniques

A training course on modern plant conservation techniques was held in Fiji in April in partnership with the Martin Luther University Halle-Wittenberg (MLU), German Centre for Integrative Biodiversity Research (iDiv) and with support from Chicago Botanic Garden (CBG). 12 Fijian scientists attended the workshop mainly from the Fiji Government's Department of Forestry. A number of other organizations and NGOs participated in selected elements of the course. The course included identifying plant conservation needs in Fiji and training in red list assessments, species distribution modelling (SDM), population viability modelling (PVM) and *ex situ* conservation. Through a course evaluation, the trainees expressed a high level of satisfaction with the course.

Red listing

A week-long tree red list training and assessment workshop took place in Suva, Fiji in July this year. It was co-organised by BGCI and NatureFiji and funded by the Japan Biodiversity Fund. It had 11 participants and included training in the IUCN Red List categories and criteria, GIS mapping and work in the relevant databases. At the end of the week over 30 trees had been assessed and mapped. This work is currently being used to develop species action plans for a selection of species and to plan *in situ* and *ex situ* conservation work.

In conjunction with *Flora Malesiana* in Edinburgh this summer, BGCI also co-hosted a workshop on "Submitting Global Red List Assessments to the IUCN Red List". This workshop highlighted data requirements, including mapping standards, and common pitfalls in the red listing process. The participants were able to troubleshoot their existing assessments, and enter new assessments into the IUCN Species Information Service (SIS) database. The course was aimed at those who have produced provisional or national red list assessments and who wanted to learn more about submitting global assessments to IUCN.

BGCI red list staff also played pivotal roles in two review workshops for all European trees (and selected shrubs). The workshops took place in Zagreb, Croatia (focused on *Sorbus* ~200 assessments) and in Pavia, Italy (focused on ~300 species of trees and shrubs). Assessments and maps had been prepared by BGCI, which were reviewed by relevant experts. In Zagreb there were 12 participants and in Pavia there were 26 participants.

In addition BGCI red list staff have been involved in various other training and advocacy opportunities including:

- IUCN World Conservation Congress: Hosted a one day Conservation Campus on Red Listing: teaching a Red List crash course and also provided information on the Specialist Groups, the GTA, and how to host a Red List workshop at your garden/organization. About 15-20 people attended.
- US Forest Service "Gene Conservation of Tree Species" conference: A talk that compared and contrasted four different threat assessment platforms/processes that are used in the US: Red List, NatureServe, Endangered Species Act listing, and Project CAPTURE (US Forest Service) (~50 attendees).
- APGA's annual conference: A session about how to host a Red List workshop at your garden (~40 attendees).

Seed conservation

During 2016 two training courses were held as part of the Global Seed Conservation Challenge to build capacity in botanic gardens to conserve species via seed banking. In Kerala, India we brought together 16 botanic gardens from Tamil Nadu and Kerala in southern India to train staff on seed conservation techniques. Participants learned the basics of seed collection, processing and storage. Each institution received a small seed collecting kit to facilitate future collection. As a follow-up to training, we provided fieldwork funding to five gardens. The fieldwork involved carrying out seed collection for conservation of threatened species.





In Panama, after the Botanical Bridges Conference, BGCI ran a seed conservation training course for participants from Caribbean and Central American gardens. The course took place at Summit Municipal Park with practical fieldwork carried out at Soberiana National Park. 25 individuals attended from 19 institutions. This course was funded by the Japanese Biodiversity Fund.

Tree conservation, nursery training & forest restoration

One of the aims of the Global Trees Campaign is to build capacity for conservation of threatened tree species. In addition to providing resources on the GTC website (www.globaltrees.org), we deliver training courses in countries with a high number of threatened trees and low capacity for conservation. In March 2016, a five day training course on forest restoration was held at Brackenhurst Botanic Garden in Kenya. The course was delivered by the Ecological Restoration Alliance of Botanic Gardens (ERA) in collaboration with ERA member gardens; Brackenhurst Botanic Garden, the Royal Botanic Gardens Jordan, and the Forest Restoration Research Unit of Chiang Mai University in Thailand. Participants learned how to effectively plan forest restoration, including identification of appropriate native species to incorporate in restoration. Training was also provided in propagation and nursery management, planting and monitoring, enabling participants to grow their own material and adopt a scientific approach to restoration. Since March, BGCI and partner botanic gardens in Kenya, have continued to provide further support to course participants, to help them initiate forest restoration. This has included carrying out baseline survey work in Mount Kenya forest with International Tree Foundation partners in support of their 20 Million Trees for Kenya's Forests campaign, of which BGCI is a partner.

A two day workshop was held at the International Institute for Tropical Agriculture (IITA) Forest Unit in Ibadan, Nigeria on integrated tree conservation techniques in June 2016. Training was delivered by BGCI, IITA Forest Unit staff and Adam Harrower, Senior Horticulturalist and Tree Specialist at Kirstenbosch National Botanical Garden in South Africa. 30 participants joined from academic, NGO and government institutions across Nigeria. Many participants were meeting for the first time, making this an important event in a country where high deforestation rates mean that cross-institutional collaboration is essential for conservation success.

In November 2016, BGCI delivered a training course on botanic garden development and tree conservation in Tanzania. Attended by 25 representatives from government, university and private botanic gardens, this practical training course highlighted the high diversity of tree species in Tanzania, the threatened status of many species, and provided participants with the skills to initiate conservation programmes for threatened trees, incorporating *ex* and *in situ* actions. The training course was opened by the Chief Executive of the Tanzania Forest Service and training sessions were led by BGCI, Missouri Botanic Garden and representatives from national institutions including the Tanzania Tree Seed Agency and the University of Dar es Salaam Herbarium.

Enhancing capacity for conservation horticulture in botanic gardens

As institutions holding documented collections of living plants for the purposes of scientific research, conservation, display and education¹, botanic gardens provide a unique link between living plant collections and their use in the wider landscape to meet societal needs. To sustain this relationship, botanic gardens need sufficient, well-qualified and motivated personnel who maintain the landscapes and develop the living plant collections. A general decline in horticulture staff numbers and standards witnessed in botanic gardens over the past two decades is having detrimental impacts on the quality of plant collections and their significance for research, conservation and public outreach.



¹ Wyse Jackson, P.S. (1999). Experimentation on a large scale – an analysis of the holdings and resources of botanic gardens. *Botanic Gardens Conservation News* 3(3). www.bgci.org/resources/article/0080

In 2016, BGCI launched a new initiative to assist in strengthening capacity in conservation horticulture. This aims to develop plant collections that i) are genetically diverse, representative and healthy; ii) provide plant material for *in situ* conservation measures including population reinforcements and reintroductions, and iii) support conservation education and environmental awareness. In collaboration with Captured Planet Ltd. and Yachay Botanic Garden (YBG), northern Ecuador, a technical training course was held at YBG from 1-8 October 2016. Delivered in a series of theoretical and practical modules covering themes of plant structure and physiology, soils, growing media, feeding and watering, vegetative and seed propagation, collection and accessioning methodologies and documentation, planting, pruning and pest and disease control, the training was attended by 25 participants from 10 Ecuadorian botanic gardens and other conservation organisations. The feedback from the course participants was unanimously positive.

International Plant Sentinel Network – In-field diagnosis

This year the IPSN ran a workshop at the Royal Botanic Gardens, Kew (UK); 21 people attended representing a total of 12 botanic gardens and institutes involved in plant health from around the UK and New Zealand. The one day workshop focused on showcasing in-field technology for the diagnosis of plant pests and diseases. This included a number of methods that can be used by botanic gardens and arboreta to aid in pest identification. The day included demonstrations of various technologies as well as hands-on experience using plant material collected by attendees from the garden. In addition to familiarising participants with new technology, the workshop offered a valuable networking opportunity for staff from botanical and plant health institutes alike. A representative from the Better Border Biosecurity team in New Zealand attended to gain an understanding of the capabilities that exist within the UK for in-field diagnosis, and to learn how to run a similar workshop in New Zealand.



Communities in Nature

In response to the evaluation of the first phase of Communities in Nature in 2015, BGCI has been running webinars to offer an online training opportunity focused on the social role of botanic gardens. Since May 2016 four webinars have been delivered - each hosted by guest presenters who represent well-known professionals and

leading experts. The webinars focused on accessibility, research and evaluation, fundraising and organizational change. The webinars were attended by 76 individuals from around the world. After the series finale in January, 2017, videos of the webinars will be made available through the BGCI website, (www.bgci.org/public-engagement/communities_in_nature_webinars/) along with details of how to contact webinar attendees. This will allow a global community of practice related to the social role of botanic gardens to be established.



Interpretation, consultation and evaluation

In November 2016, BGCI carried out a bespoke training course for the Royal Botanic Garden, Serbithang, Bhutan. The 3-day training consisted of an introduction to interpretation, consultation and evaluation, and was attended by eight members of staff from the garden. In addition, a consultation session was held that aimed to gather views from local teachers about how the botanic garden can meet the needs of the curriculum as well as build relationships between the organisations; this was attended by 19 individuals including botanic garden staff. This work forms part of BGCI's project focused on Conservation of Tshenden in the Dangchu Valley, Bhutan and will result in the development of an exhibition within the botanic garden which will encourage local people to value Bhutan's biodiversity.

Co-creation and RRI

A BigPicnic Train the Trainers Meeting was held at the Waag Society, Amsterdam and Hortus Botanicus Leiden on 10th to 12th October, 2016. Co-ordinated by BGCI, this 3-day training course was delivered by the Waag Society, who developed the co-creation training, and visitors from University College London who ran a session on the RRI Tools Project. The aim of the course was to build BigPicnic partners' capacity in co-creation and Responsible Research and Innovation (RRI) – two key methodologies that will be adopted during the project. Co-creation will be employed in designing outreach exhibitions with various stakeholders and RRI is a key model for influencing research and innovation in food security. The course was attended by 52 participants representing the 19 BigPicnic partners.

Resources

A “Care for the Rare” mobile app was designed in early 2016 in collaboration with GeoGardens™ and the United States Botanic Garden. The app was built using base code created by GeoGardens, and its functionality and final design were guided by an advisory group made up of five public garden technology experts: Michele Dunham, GeoGardens; Steve Gensler, San Francisco Botanical Garden; Brian Morgan, ESRI; Nathan Strout, University of Redlands; and Donna Tremonte, The Arnold Arboretum of Harvard University. A User Guide was developed to describe the app structure and functionality. At the conclusion of the initial design phase, the advisory group members agreed on a recommended strategy for further testing and development of the mobile app, which is being implemented in late 2016 and early 2017.



Meetings and symposia

International Workshop on Oak Conservation in Mexico and Central America

From March 13-16, 2016, 50 experts from seven countries convened for an International Workshop on Oak Conservation at the Escuela Nacional de Estudios Superiores at UNAM in Morelia, Mexico, hosted by The Morton Arboretum and UNAM, in collaboration with the Global Trees Campaign and the Global Oak Conservation Partnership. The objective of the workshop was to facilitate collaborations and catalyse action for oak conservation in Mexico and Central America (MX & CAM) by identifying critical knowledge gaps, defining conservation objectives, prioritizing next steps, and strengthening the network of oak research and conservation experts. The agenda included presentations and group discussions on a range of topics relating to MX & CAM oak species, which fell under three broad themes: *in situ* conservation, *ex situ* conservation, and fundamental research. The most significant outcome of the workshop was the establishment of the Oaks of the Americas Conservation Network (OACN), a consortium of experts from universities, botanical gardens, arboreta, industry, conservation NGOs, and government agencies dedicated to protecting threatened oak species. OACN committed to writing a scientific paper outlining the importance of oaks and oak diversity in MX & CAM and calling for additional



resources and effort towards oak research and conservation. The workshop also identified the urgent need for a conservation gap analysis for oaks in MX & CAM (a protocol for which is now being developed by The Morton Arboretum and the Global Trees Campaign) and identified critical training and capacity building needs, especially in the area of oak taxonomy and field identification. Specific conservation opportunities were identified and collaborative projects involving OACN members are now underway. Follow up workshops and oak-focused conference sessions are being planned for 2017.

Gene Conservation of Tree Species – Banking on the Future

BGCI co-hosted this workshop with the US Forest Service, The Morton Arboretum, Chicago Botanic Garden, USDA Agricultural Research Service, and the American Public Garden Association in Chicago from May 16-19 to facilitate the exchange of the latest information, research, and action on genetic conservation of tree species, especially those species at risk from stresses such as pests, diseases, drought, and development. Around 120 attendees included experts from public gardens, arboreta, natural resource management, conservation non-profits, the forestry industry, and academia. The workshop highlighted risk assessments that help to inform genetic conservation strategies as well as major actions taken by organisations for long-term conservation of tree genetic material. An online proceedings of the workshop will be published in 2017 and a special issue of the journal *New Forests* will highlight a selection of talks from the workshops. A set of actions were developed that will form and strengthen partnerships, and foster collaborations across sectors to accelerate genetic conservation efforts. These efforts have already resulted in new partnerships and projects, such as a US Forest Service-funded gap analysis for US oaks, spearheaded by BGCI US and The Morton Arboretum.

Developing *ex situ* conservation strategies for exceptional species native to Southeast Asia

Exceptional species are defined as plants that cannot be conserved *ex situ* through standard seed banking methods, and include taxa that produce non-orthodox, recalcitrant seeds which are desiccation sensitive or cannot be subjected to below-freezing temperatures without losing viability². While estimates of seed recalcitrance range from 20-25% of the global angiosperm and gymnosperm flora, up to 47% of the native plant diversity in tropical, evergreen rainforests is thought to produce recalcitrant seeds³.

A useful approach to conserve long-lived, exceptional species is through living *ex situ* collections or field gene banks. However, living collections have many practical challenges, such as space requirements and hybridization, as well as the financial implications for their maintenance. Under the umbrella of the Southeast Asia Botanic Gardens (SEABG) network efforts are under way to enhance the conservation know-how of exceptional species native to the region. Co-organised with BGCI and generously hosted by Dr. Cecilia Koo Botanic Conservation Center (KBCC) in Taiwan, a planning workshop was convened on 12-13 September 2016 to establish the elements of a capacity building programme at the forthcoming 6th SEABG network conference, Bidoup-Nui, Vietnam, 24-28 April 2017. Attended by 15 representatives from 11 SEABG countries, priority plant groups qualifying as exceptional species were considered. In particular, threatened species in Dipterocarpaceae, encompassing over 260 species in the region, were identified as of main concern for *ex situ* conservation. In conjunction with the training workshop during the 6th SEABG network conference in 2017 selected taxa will be further examined regarding their suitability to pilot a regional network of *ex situ* conservation collections. Strengthening the capacity for the establishment of effective and cost-efficient living *ex situ* collections for threatened, exceptional species and developing other techniques to extend the longevity of seeds of recalcitrant plant taxa, is of vital need to secure Southeast Asia's tropical flora for future generations.



Barney Wilczak



The IUCN World Conservation Congress



BGCI was strongly represented at the IUCN World Conservation Congress in Honolulu, 1-10th September, 2016. BGCI

launched the Global Tree Assessment (www.bgci.org/plant-conservation/globaltreeassessment/), attended a planning workshop for the establishment of a Seed Conservation Specialist Group under IUCN's Species Survival Commission, presented an *ex situ* assessment of orchids at a special orchid conservation session, and signed a new Memorandum of Understanding with IUCN's Red List Partnership. The meeting was a great success with a strong emphasis on species conservation, and many botanic gardens present. We would like to congratulate the National Tropical Botanical Garden for being instrumental in bringing the WCC to Hawaii.

The 4th UNESCO Biosphere Reserves Congress

BGCI participated in the 4th UNESCO Biosphere Reserves Congress on behalf of the Ecological Restoration Alliance and at the invitation of UNESCO. We co-organised a session on ecological restoration, and signed a Memorandum of Understanding with UNESCO MAB to provide technical support to Man and Biosphere Reserves carrying out restoration activities. UNESCO MAB's commitment to restoring degraded reserves is articulated in its 10 year action plan (see www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/Lima_Action_Plan_en_final.pdf).

Botanical Bridges Conference

The Caribbean and Central American Botanic Garden Network (CCABGN) in conjunction with BGCI hosted the Botanical Bridges conference in Panama in September. Over 60 botanical professionals representing 18 countries from across the region attended the conference to discuss core issues affecting botanic gardens. Simultaneously translated sessions were run on various subjects including; 'Funding for Botanic Gardens', 'Education, Interpretation and Community Outreach', 'Training and Development for Staff' and 'Native Plant Conservation'. Delegates were given the opportunity to introduce the work of their gardens and discuss challenges and successes with others. The final session focussed on 'Developing a Sustainable Network'

² Pence, V. (2011). Evaluating costs for the in vitro propagation and preservation of endangered plants. *In Vitro Cellular & Developmental Biology - Plant*, 47(1), 176-187.

³ Walters, C., Berjak, P., Pammenter, N., Kennedy, K. and Raven, P. (2013). Preservation of recalcitrant seeds. *Science* 339(6122), 915-916. doi: 10.1126/science.1230935.

where a steering group was assembled, including a BGCI representative. The group will guide the network for the next two years leading up to the next meeting in 2018.

Observatree/IPSN conference

The Observatree/IPSN conference on Tree and Plant Health Early Warning Systems in Europe was held at the Royal Botanic Gardens, Kew (UK) February 23rd to 24th 2016. The conference was organised in collaboration with EPPO (European and Mediterranean Plant Protection Organisation) included updates of current early warning systems and explored the perspectives of volunteers, scientists and policy-makers working in plant health. Overall the conference boasted 25 talks, 20 posters and 2 workshops over the 2 days, with around 150 attendees representing 18 countries not only from Europe but also further afield, including New Zealand and the U.S. The event was a unique opportunity for people to discuss and network with others working in tree and plant health and early warning systems from a range of sectors.

Restoring for the Future – the 3rd public symposium of the Ecological Restoration Alliance of Botanic Gardens

On 29th November the Ecological Restoration Alliance of Botanic Gardens (ERA) held a public symposium at Jardin Botanico Francisco Javier Clavijero in Xalapa, Mexico. The symposium was attended by restoration practitioners from Mexico and presentations were given by ERA members including South China Botanical Garden, Meise Botanic Garden, The Morton Arboretum, Missouri Botanic Garden and Chicago Botanic Garden. The symposium was followed by a tour of the cloud forest restoration plots and sanctuary at Jardin Botanico Francisco Javier Clavijero, and then by the annual business meeting of the ERA.

Bgen/BGCI/LEEF Annual joint networking day: adopt and adapt

This third annual joint networking event between the Botanic Gardens Education Network (bgen) and the London Environmental Educators Forum (LEEF), held on the 25th August at Kew, attracted 23 delegates plus 5 representatives from the host organisations. The day offered participants the opportunity to meet individuals working in outdoor and environmental education as well as learn about Kew and LEEF's educational offer with particular focus on resources related to adaptation.

Bgen Annual conference 2016, Alnwick Gardens

BGCI, helped to organise the annual conference of the UK Botanic Garden Education Network, hosted by Alnwick Gardens. The title of this year's conference was 'connecting people with places; making a difference to everyone's lives' and this was broken down into three themes:

- Connecting with people – meaningful engagement with communities
- Connecting with places – bringing landscapes to life
- Connecting with mind, body and soul – wellbeing and happiness



21 interactive sessions including networking and social events were attended by 56 delegates from botanic gardens and other outdoor learning sites across the UK and Ireland. BGCI staff delivered interactive workshops on co-creation and valuing landscapes as well as a presentation about BigPicnic as a method to engage communities.

Publications

BGCI journals, newsletter and social media

BGjournal

In 2016, two issues of *BGjournal* were published, one focusing on Early Warning Systems for Plant Health (January 2016) and the other on Ecological



Restoration (July 2016). The January issue of *BGjournal* was distributed at the successful Observatree/IPSN conference on Tree and Plant Health Early Warning Systems in Europe and included case studies from botanic gardens around the world that are involved in pest and disease monitoring and surveying. The July issue of *BGjournal* marked the first issue in a new format with new regular features designed to appeal to the non-specialist reader. As well as articles on ecological restoration from members of the Ecological Restoration Alliance of Botanic Gardens, the journal included an image gallery, a plant-hunting story and an interview with a plant conservation expert.

Cultivate

In 2016 five issues of BGCI's e-newsletter *Cultivate* were published. Each issue contains a round-up of recent news, events and publications and is sent to around 6,500 recipients. You can sign up to *Cultivate* or view previous issues at (www.bgci.org/news-and-events/ournewsletter/).

Twitter	BGCI	GlobalTrees	IPSN	Education
Number of tweets	258	317	101	135
Profile Views	14932	12573	2105	2727
Followers	3579	2373	489	1679
New followers in 2016	985	466	139	171

Roots

Two issues of *Roots* were published in 2016, and the topics covered were chosen by *Roots* readers through a survey carried out in 2015. The April issue of *Roots* focused on science communication and the issue published in December looked at volunteers in botanic gardens.



BGCI-US conducted an initial assessment of orchid taxa in botanic gardens in August 2016 in partnership with the United States Botanic Garden. By cross-referencing a list of 31,000+ orchid taxa provided by the World Checklist of Orchidaceae (RBG-Kew) with taxa reported in living collections in BGCI's PlantSearch database, only 20% of orchid taxa were confirmed to be maintained *ex situ*, and 45% of those taxa are reported in only one collection. Additionally, fewer than 15% of 529 threatened orchid taxa are held *ex situ*. Results were presented at the IUCN World Conservation Congress in Hawaii, and are serving as a foundation for an in-depth assessment taking place in late 2016 and early 2017.

Red list assessments

In March 2016, BGCI published *The Red List of Magnoliaceae*, a new updated and extended red list of Magnoliaceae including all the species in the family. For the first time all assessments are also available electronically on the IUCN Red List website. The red list shows that, despite being a well known iconic plant family, nearly half of all species are threatened with extinction. *The Red List of Magnoliaceae* aims to stimulate conservation action for *Magnolia* species under threat. The aim is for these conservation assessments to guide conservation action and policy decisions for the very rare and threatened species.



BGCI produced 157 red list conservation assessments which were published on the IUCN Red List in 2016. In addition, a further 180+ have been submitted and accepted and will be published in the first update of 2017. BGCI and the Global Tree Specialist Group are also consulted in the review of all tree conservation assessments submitted to IUCN Red List.

Scientific papers

Abu Taleb, T., Aronson, J., **Shaw, K.** (2016) Rays of Hope from the Ecological Restoration Alliance of Botanic Gardens following its recent meeting in Amman, Jordan. *Restoration Ecology* 24(5) 573–576.

Baena, S., Boyd, D.S., **Smith P.**, Moat, J. & Foody, G.M. (2016). Earth observation archives for plant conservation: 50 years monitoring of Itigi-Sumbu thicket. *Remote Sensing in Ecology and Conservation* 2(2) 95-106. DOI: 10.1002/rse2.18



Ex situ surveys

The Red List of Magnoliaceae published in March 2016 also included an *ex situ* survey of the family. It collated information based on 9,918 records from 490 institutions in 61 countries. It showed that more than half of all species are not found in *ex situ* collections (many of these are threatened species). It also showed that most species in botanic gardens are represented by a single *ex situ* collection. There is therefore a need to ensure that species conserved *ex situ* are shared with other botanic gardens and also to increase the genetic diversity in *ex situ* collections.



Barney Wilczak

Barham, E., Sharrock, S., Lane, C., & Baker, R. (2016).

The International Plant Sentinel Network: a tool for Regional and National Plant Protection Organizations. *EPPO Bulletin*, 46(1), 156-162.

O. Seberg, G. Droege, K. Barker, J. A. Coddington, V. Funk, M. Gostel, G. Petersen and **P. P. Smith** (2016). Global Genome Biodiversity Network: saving a blueprint of the Tree of Life – a botanical perspective. *Annals of Botany*. doi:10.1093/aob/mcw121, available online at www.aob.oxfordjournals.org

Reinout Havinga, Anneleen Kool, Frédéric Achille, Jože Bavcon, Christian Berg, Costantino Bonomi, Michael Burkart, Dirk De Meyere, Joke 't Hart, Mats Havström, Paul Keßler, Barbara Knickmann, Nils Köster, Rémy Martinez, Havard Ostgaard, Blanka Ravnjak, Anne-Cathrine Scheen, Pamela Smith, **Paul Smith**, Stephanie A. Socher & Vibekke Vange (2016). The *Index Seminum*: Seeds of change for seed exchange. *Taxon* DOI <http://dx.doi.org/10.12705/652.9>

Smith, P. P. (2016). Building a Global System for the Conservation of all Plant Diversity: a Vision for Botanic Gardens and for Botanic Gardens Conservation International. *Sibbaldia* 14, 5-13.

Sharrock, S and Wyse Jackson, P. (2016). Plant Conservation and the Sustainable Development Goals: A policy paper prepared for the Global Partnership for Plant Conservation. Paper presented at a conference of the Global Partnership for Plant Conservation, 28-29 June 2016, Missouri Botanical Garden, St. Louis, USA.

Smit, M., M. Lobdell, **A. Hird**, J. Frett, R. Lyons. 2016. *What is the value of the current collection of Magnolia macrophylla var. ashei for potential integrated conservation efforts?* *Magnolia*. The Magnolia Society International, 52(100) 1-5.

Consortia and partnerships

Botanic Garden Partnership Programme

In 2016 BGCI launched a partnership programme through which gardens with complementary interests, resources and expertise can be matched to create mutually beneficial partnerships. Gardens interested in participating in the programme were identified through an initial survey and a follow-up questionnaire allowed more details relevant to the programme to be gathered. The data was analysed and a series of potential pilot partnerships identified. Matching gardens were identified on the basis of complementary 'needs' and 'offers'. Details of the partnership programme are presently being finalized with the gardens and the first formal partnerships will shortly be announced. In partnership with the Morton Arboretum, BGCI will be establishing a challenge fund to support the establishment of further partnerships in 2017.



The Global Oak Conservation Partnership

The Global Oak Conservation Partnership is a Global Trees Campaign project that was initiated in 2015 between BGCI, FFI and The Morton Arboretum. The project's aim is to prevent extinctions and ensure healthy populations of oak species for the future. This is accomplished by identifying and prioritizing threatened oak species and integrating tailored *in situ* protection and management activities in coordination with genetically diverse *ex situ* collections of living trees. Major outputs of the project for 2016 include: 1) the publication of 20 IUCN Red List threat assessments for oak species, 2) hosting a workshop in Morelia, Mexico that brought together 50 oak experts from seven countries and established the Oaks of the Americas Conservation Network, 3) Initiation of a US Forest Service-funded conservation gap analysis for US oak species, 4) promotion and advocacy for the GTC and oak conservation through presentations at over 10 conferences, seminars, and workshops.

Fundraising and funds disbursed

BGCI disbursed funds totaling US\$2,945,000 to botanic gardens and other institutions in 2016 (see Table 2). This figure is more than 10 times what we receive in subscriptions from our members.

Table 1: Participants in BGCI training courses, 2016

Institution	Country	Topic
Department of Forestry	Fiji	Modern Plant Conservation Techniques / Red List Training
NatureFiji/MareqetiViti	Fiji	Modern Plant Conservation Techniques / Red List Training
South Pacific Commission (SPC)	Fiji	Modern Plant Conservation Techniques / Red List Training
Jawaharlal Nehru Tropical Botanic Garden and Research Institute	India	Seed Conservation Training
Calicut University -Botany department	India	Seed Conservation Training
Foundation for Revitalisation of Local Health Traditions (FRLHT)	India	Seed Conservation Training
Indian Institute of Horticultural Research,	India	Seed Conservation Training
Nilgiri Biosphere Reserve	India	Seed Conservation Training
M S Swaminathan Research Foundation	India	Seed Conservation Training
Auroville Botanical Gardens	India	Seed Conservation Training
Malabar Botanical Garden and Institute of Plant Sciences	India	Seed Conservation Training
University of Kerala	India	Seed Conservation Training
Rapinat Herbarium	India	Seed Conservation Training
Athreya Research Foundation	India	Seed Conservation Training
Protect Our Environment Trust	India	Seed Conservation Training
Kerala Forest Department	India	Seed Conservation Training
GREENS Biodiversity Sanctuary	India	Seed Conservation Training
Kerala Forest Seed Centre	India	Seed Conservation Training
Peermade Development Society (Sahyadri Botanical Garden)	India	Seed Conservation Training
Leon Levy Native Plant Preserve	Bahamas	Seed Conservation Training
Botanic Garden University of Utrecht	Netherlands	Seed Conservation Training
Jardín Botánico Cecon-Usac	Guatemala	Seed Conservation Training
Federacion de Clubes de Jardineria de Panama	Panamá	Seed Conservation Training
Jardín Botánico Lankester, Universidad de Costa Rica	Costa Rica	Seed Conservation Training
Jardín Botánico Arco Luna	Panama	Seed Conservation Training
Universidad de Panamá	Panamá	Seed Conservation Training
St. Vincent Botanical Garden	St. Vincent & The Grenadines	Seed Conservation Training
Botanical Garden of Cienfuegos	Cuba	Seed Conservation Training
Crater Valley Gardens	Panamá	Seed Conservation Training
Botanical Garden Cupaynicu	Cuba	Seed Conservation Training
Parque Municipal Summit	Panamá	Seed Conservation Training
Jardín Botánico Nacional, Cuba	Cuba	Seed Conservation Training
Jardín Botánico Nacional Simón Bolívar	Costa Rica	Seed Conservation Training
Botanique Cayes Haiti	Haiti	Seed Conservation Training
Universidad de Panamá, Herbario (PMA)	Panamá	Seed Conservation Training
Naples Botanical Garden	United States	Seed Conservation Training
Ghini/Bauble and Botanical gardens the Netherlands (Planten voor de toekomst)	Netherlands	Seed Conservation Training
Ministerio de Ambiente/ CEDESAM	Panamá	Seed Conservation Training
Royal Botanic Gardens, Kew	UK	IPSN Training
Royal Botanic Gardens, Edinburgh	UK	IPSN Training
Oxford Botanic Gardens	UK	IPSN Training
Eden Project	UK	IPSN Training
RHS Wisley	UK	IPSN Training
Down House, English Heritage	UK	IPSN Training
Myddelton House Gardens	UK	IPSN Training
London Gardens and Grounds	UK	IPSN Training
Better Border Biosecurity	New Zealand	IPSN Training
RHS Garden Hyde Hall	UK	IPSN Training
Royal Botanic Garden Serbithang	Bhutan	Interpretation, Consultation and Evaluation

Institution	Country	Topic
Universität Innsbruck	Austria	Co-creation and RRI
Agentschap Plantentuin Meise	Belgium	Co-creation and RRI
Waaq Society	Netherlands	Co-creation and RRI
University College London	UK	Co-creation and RRI
Comune Di Bergamo	Italy	Co-creation and RRI
Hortus botanicus Leiden	Netherlands	Co-creation and RRI
Uniwersytet Warszawski	Poland	Co-creation and RRI
Universidade De Lisboa	Portugal	Co-creation and RRI
Hellenic Agricultural Organization-Demeter	Greece	Co-creation and RRI
Sofiiski Universitet Sveti Kliment Ohridski	Bulgaria	Co-creation and RRI
Agencia Estatal Consejo Superior De Investigaciones Cientificas	Spain	Co-creation and RRI
Universidad de Alcalá	Spain	Co-creation and RRI
Leiterin Schulbiologiezentrum, Landeshauptstadt Hannover	Germany	Co-creation and RRI
Freie Universitaet Berlin	Germany	Co-creation and RRI
Wissenschaftsladen Bonn EV	Germany	Co-creation and RRI
Universitetet I Oslo	Norway	Co-creation and RRI
Tooro Botanical Gardens	Uganda	Co-creation and RRI
Royal Botanic Garden Edinburgh	UK	Co-creation and RRI
Brackenhurst Botanic Garden	Kenya	Forest restoration
Multiplant International Medicinal Conservation	Kenya	Forest restoration
African Forest	Kenya	Forest restoration
Mount Kenya Trust	Kenya	Forest restoration
Mount Kenya Environmental Conservation	Kenya	Forest restoration
Tanga Coastal Forest Botanic Garden	Kenya	Forest restoration
Tooro Botanical Garden	Kenya	Forest restoration
Gullele Botanic Garden	Kenya	Forest restoration
Marewa Trust Company	Kenya	Forest restoration
Kakamega Rainforest Tour Guide Group	Kenya	Forest restoration
Kenya Forestry Research Institute	Kenya	Forest restoration
Green Belt Movement	Kenya	Forest restoration
Warega Nature Trail	Kenya	Forest restoration
Nairobi Botanic Garden	Kenya	Forest restoration
Nigerian Conservation Foundation	Nigeria	Tree conservation techniques
Department of Forestry, Wildlife and Fisheries Management, Ekiti State	Nigeria	Tree conservation techniques
Ekiti State Tree Growers Association	Nigeria	Tree conservation techniques
University of Benin	Nigeria	Tree conservation techniques
Federal University of Agriculture, Akure	Nigeria	Tree conservation techniques
Wise Administration of Terrestrial Environment and Resources (WATER)	Nigeria	Tree conservation techniques
Okomu National Park	Nigeria	Tree conservation techniques
Omo Forest Reserve	Nigeria	Tree conservation techniques
Queen's Forest Reserve	Nigeria	Tree conservation techniques
Osun State University	Nigeria	Tree conservation techniques
Coalition for Environment	Nigeria	Tree conservation techniques
Cross River State Forestry Commission	Nigeria	Tree conservation techniques
National Centre for Genetic Resources & Biotechnology (NACGRAB)	Nigeria	Tree conservation techniques
University of Ibadan	Nigeria	Tree conservation techniques
Forestry Research Institute of Nigeria (FRIN)	Nigeria	Tree conservation techniques
Ari-Mlingano	Tanzania	Botanic garden management & tree conservation
COSTECH	Tanzania	Botanic garden management & tree conservation
ECHO East Africa	Tanzania	Botanic garden management & tree conservation
Forestry Training Institute	Tanzania	Botanic garden management & tree conservation
Friends of Dar Botanic Garden	Tanzania	Botanic garden management & tree conservation
Ilala Municipal Council	Tanzania	Botanic garden management & tree conservation
Institute of Traditional Medicine	Tanzania	Botanic garden management & tree conservation
Mpingo Conservation Development Initiative	Tanzania	Botanic garden management & tree conservation
National Museum	Tanzania	Botanic garden management & tree conservation
Natural History Museum, Arusha / Arusha Mini Botanic Garden	Tanzania	Botanic garden management & tree conservation
Nelson Mandela African Institute for Science & Technology	Tanzania	Botanic garden management & tree conservation
Salama Heritage Ecovillage (SHE) Tanzania	Tanzania	Botanic garden management & tree conservation
Tanga Coastal Forest Botanical Garden	Tanzania	Botanic garden management & tree conservation
Tanzania Forest Conservation Group	Tanzania	Botanic garden management & tree conservation
Tanzania Forest Service	Tanzania	Botanic garden management & tree conservation

Institution	Country	Topic
Tanzania Tree Seed Agency	Tanzania	Botanic garden management & tree conservation
Udzungwa Forest Project	Tanzania	Botanic garden management & tree conservation
University of Dar es Salaam Herbarium	Tanzania	Botanic garden management & tree conservation
Village Museum	Tanzania	Botanic garden management & tree conservation
Zanzibar Museum	Tanzania	Botanic garden management & tree conservation
Fundación Charles Darwin	Ecuador	Conservation horticulture
Jardín Botánico Padre Julio Marrero	Ecuador	Conservation horticulture
Jardín Botánico Huertos La Macarena	Ecuador	Conservation horticulture
Jardín Botánico Piatua	Ecuador	Conservation horticulture
Jardín Botánico Ishpingo (Fundación Jatun Sacha)	Ecuador	Conservation horticulture
Jardín Etnobotánico Hacienda VerdelInsert name	Ecuador	Conservation horticulture
Herbario QCA, Quito	Ecuador	Conservation horticulture
Jardín Botánico Milpe	Ecuador	Conservation horticulture
Yachay Tech y Jardín Botánico Yachay	Ecuador	Conservation horticulture

Table 2: Institutions supported by BGCI with funding in 2016

Institution	Country
Jardín Botánico Carlos Thays	Argentina
Universität Innsbruck	Austria
Agentschap Plantentuin Meise	Belgium
Tshenden Steering Committee	Bhutan
Royal Botanic Garden Serbithang	Bhutan
Fundacao Flora de Apolo a Botanica	Brazil
Sofiski Universitet Sveti Kliment Ohridski	Bulgaria
Planta! Plantlife Conservation Society	Cuba
Chengdu Institute of Biology, CAS	China
Chengdu Kanghua Community Development Center	China
College of Life Science, Zhejiang University	China
Guilin Botanical Garden, Guangxi and CAS	China
Kunming Botanical Garden, CAS	China
Shangri-La Alpine Botanical Garden	China
Shenzhen FairyLake Botanical Garden, Shenzhen and CAS	China
Sichuan Provincial Academy of Natural Resource Sciences, Chengdu	China
South China Botanic Garden	China
Tarim University, Xinjiang	China
Turpan Eremophytes Botanic Garden, CAS	China
Xi'an Botanical Garden	China
Xiaojie Primary School, Xishuangbanna	China
Xinjiang Botanical Society	China
Xishuangbanna Tropical Botanical Garden, CAS	China
Yunnan Institute of Environment	China
Zhoushan Institute of Forestry	China
Jardín Botánico Yachay	Ecuador
Ethiopian Biodiversity Institute	Ethiopia
Wondo Genet College Arboretum	Ethiopia
NatureFiji-MareqetiViti	Fiji
Institute of Botany Ili State University	Georgia
National Botanic Garden of Georgia	Georgia
Freie Universitaet Berlin,	Germany
Leiterin Schulbiologiezentrum	Germany

Institution	Country
Wissenschaftsladen Bonn EV	Germany
Hellenic Agricultural Organization-Demeter	Greece
Foundation for Revitalisation of Local Health Traditions	India
Greens Biodiversity Sanctuary	India
Jawaharlal Nehru Tropical Botanic Garden	India
Peermade Development Society	India
Rapinat Herbarium and Centre for Molecular Systematics	India
Comune Di Bergamo	Italy
Museo Delle Scienze di Trento	Italy
Brackenhurst Botanic Garden	Kenya
Forest Research Institute of Malawi	Malawi
Mulanje Mountain Conservation Trust	Malawi
Stichting Waag Society	Netherlands
Universiteit Leiden	Netherlands
Universitetet I Oslo	Norway
Uniwersytet Warszawski	Poland
Universidade De Lisboa	Portugal
Universidade De Lisboa	Portugal
Agencia Estatal Consejo Superior De Investigaciones Cientificas	Spain
Universidad de Alcalá	Spain
Tooro Botanical Garden	Uganda
Tooro Botanical Gardens	Uganda
CAB International	United Kingdom
Royal Botanic Garden, Edinburgh	United Kingdom
UK Forest Research	United Kingdom
Royal Botanic Garden Edinburgh	United Kingdom
University College London	United Kingdom
Nottingham Trent University	United Kingdom
Royal Botanic Garden Edinburgh	United Kingdom
Chicago Botanic Garden	USA
Missouri Botanic Garden	USA

7 reasons to be a member in 2017

New services for our members that we will deliver in 2017 include the following:

- 1** Access to the new Member's Area of the BGCI website, with exclusive tools, resources and content for BGCI members.
- 2** A major discount on registration for the 6th Global Botanic Gardens Congress in Geneva, June 26-30th.
- 3** Publication of a review of criteria that define a botanic garden, and how to measure the success of activities and outputs specific to botanic gardens.
- 4** Access to BGCI's Conservation collection assessments service launched via the BGCI-US website, and the BGCI Conservation Accreditation Scheme to be launched at the Global Botanic Gardens Congress in June.
- 5** The opportunity to join our technical networks, including the Global Tree Assessment, the Global Seed Conservation Challenge, the Ecological Restoration Alliance, the International Plant Sentinel Network and Communities in Nature.
- 6** The opportunity to participate in training courses in plant conservation techniques and public engagement (200 training places are available).
- 7** Our new Francophone BGCI website, to be launched in June, and with a suite of key resources available in French.

If your institution is not already a member of BGCI, then you are missing out! Here is where you can join us
www.bgci.org/joinin/members/

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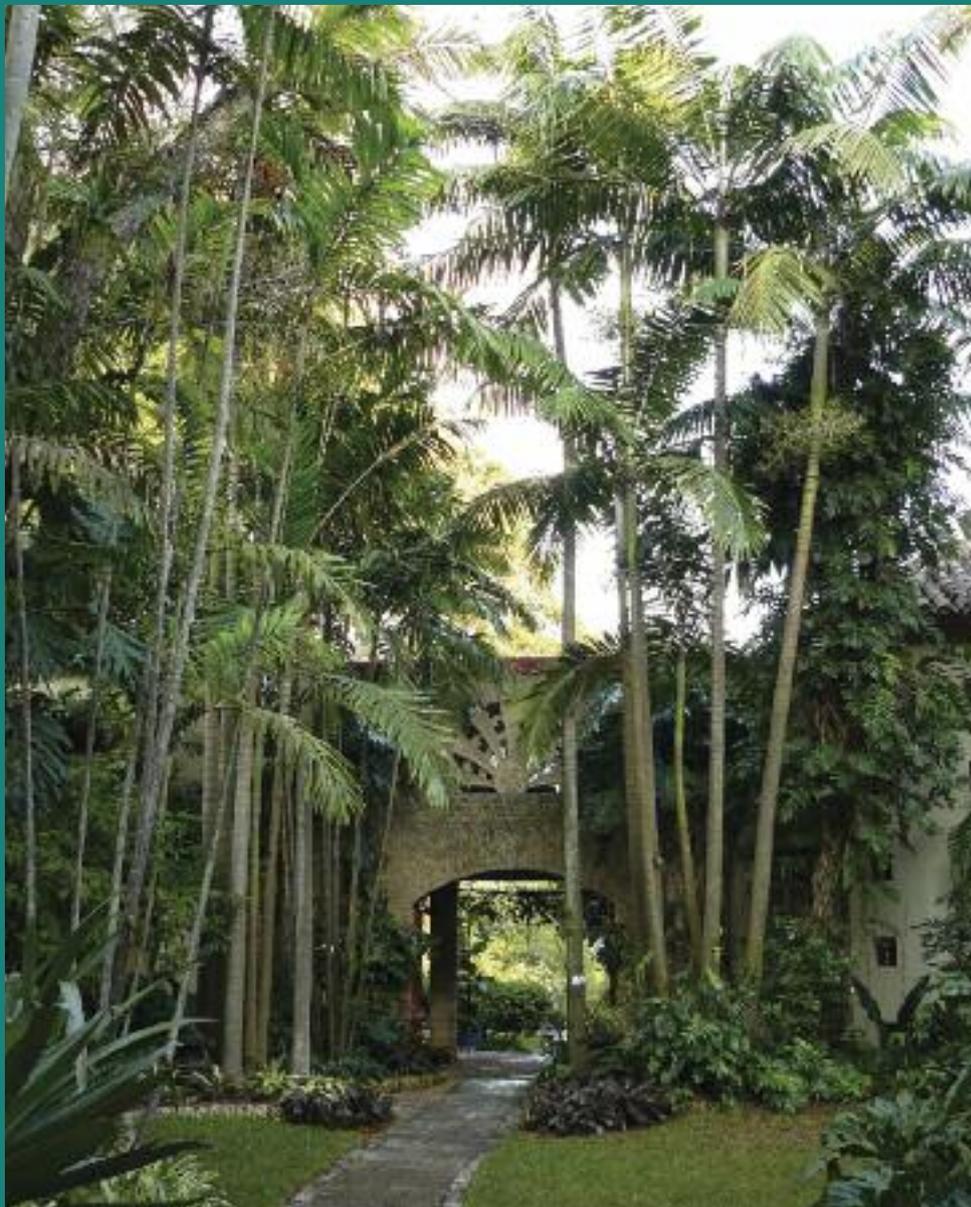
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