



Building a Global System for the conservation of all plant diversity

The role of BGCI and its members in educating policy makers, plant conservation practitioners and broader society

Dr Paul Smith, BGCI Secretary General

The context: diminishing plant diversity



20% of plant species are currently threatened with extinction

Why plant diversity is important

Plant-based solutions are required to address all of the major environmental challenges:

- Food security
- Water scarcity
- Energy
- Human health
- Biodiversity conservation
- Climate change



Why plant diversity is important

Plant diversity enables human **innovation**, **adaptation** and **resilience**



The role of botanic gardens

Botanic gardens are **uniquely** placed to **conserve** and **manage** plant diversity. We can:

- **Find** plants using herbarium records
- **Identify** plants with our floras and expertise
- **Conserve** plants in seed banks, tissue culture, gardens and *in situ*.
- **Restore** habitats and reintroduce plant species
- **Manage** diverse species assemblages in diverse landscapes
- **Communicate** knowledge about plant diversity to broader society



The role of botanic gardens

There is **no technical reason** why any plant species should become extinct



Challenges

- Botanic gardens are **visitor attractions**, **educational** institutions, **museums**, **scientific**, **horticultural** and **conservation** organizations.
- Botanic gardens are so multi-faceted that people are often **confused about their purpose**.
- As a professional community, botanic gardens don't **speak with one voice**
- Botanic gardens are often seen as '**nice to have**' rather than essential
- **Funding** is a challenge in many parts of the world





A rational, cost-effective Global System: crop conservation

- The International Treaty on PGRFA
- A Global Plan of Action for PGRFA
- A review process (FAO SOWPGRFA)
- A network of international institutions and *ex situ* collections
- A global portal of accession-level data (Genesys)
- A universal gene bank information management system (GRIN Global).
- Advanced bioinformatics tools that allow users to mine crop characterisation data (DIVSEEK)
- An endowment fund to conserve crop diversity in perpetuity (Crop Trust)



A rational, cost-effective Global System: botanic gardens

- The Convention on Biological Diversity
- The Global Strategy for Plant Conservation
- A review process (GPPC/BIP)
- A network of international institutions and *ex situ* collections
- A global portal of accession-level data (PlantSearch)
- A universal accessions information management system
- Advanced bioinformatics tools that allow users to mine characterisation data



Working together more effectively: **what do we need to do?**

- **Organize ourselves as a professional community**, and promote our unique skills to policy makers and funders
- **Focus BG plant conservation efforts** on the rarest, most threatened, useful and challenging species
- **Promote and prioritize** plant conservation **and use** in botanic gardens
- Work with **other sectors** (e.g. forestry, horticulture, agriculture and *in situ*)
- **Raise awareness about the importance of plant diversity and enable the conservation and use of plant diversity in broader society through provision of education, tools and information**

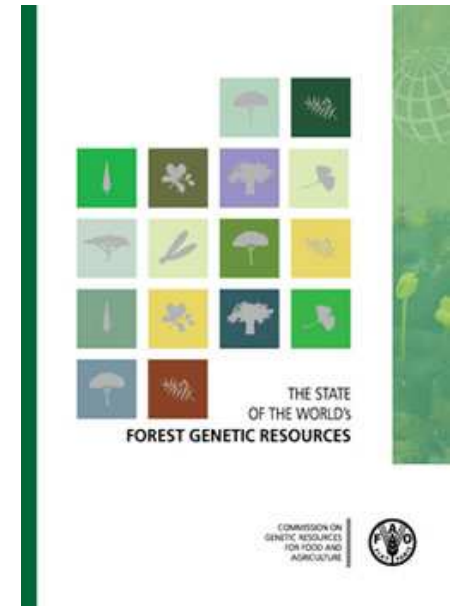
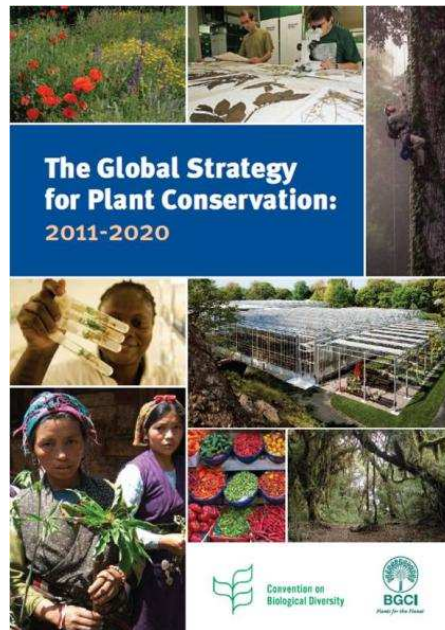
Send out a positive message!



Working together more effectively: **how can BGCI help?**

1. **Advocacy:** Promote the role of botanic gardens to policymakers and funders in delivering a botanic garden-centred, rational, cost-effective 'Global System' for the conservation and use of all plant diversity.
2. **Knowledge hub:** Build technical capacity in the botanic garden sector in plant conservation and use policy, practice and education. Clearing house for best practice, training, resources and expertise.
3. **Funding:** Mobilise funding and partnerships to deliver projects and outcomes.

1. Promoting the role of botanic gardens: advocacy



1. Promoting BGs: technical networks



MILLENNIUM
SEED BANK
PARTNERSHIP
Kew



**EUROPEAN
BOTANIC GARDENS
CONSORTIUM**



The Australian Network for Plant Conservation Inc.
working to save Australia's native plants



1. Promoting BGs: infrastructures

Garden Search



*Locate botanic
gardens around
the world*



1. Promoting BGs: collections



Total number of accessions: **1.3 million**

Estimated total number of species: **197,000**

Estimated proportion of total plant diversity
in botanic gardens & arboreta: **56%**

Estimated proportion of critically endangered
and endangered trees in botanic gardens &
arboreta: **26%**

1. Promoting BGs: public engagement



250 million people visit botanic gardens every year

We reach many millions more through our websites, publications and public engagement activities.

Botanic gardens are wonderful places to visit and are often under-used as venues.

2. Building technical capacity: BGCI as a knowledge hub

- Case studies and projects
- Training courses and resources
- References and further details
- Registers of expertise, networks and centres of excellence



2. Building technical capacity: case studies



The screenshot shows the Go Botany website, which is part of the New England Wild Flower Society. The website has a green and yellow color scheme. At the top, there is a navigation bar with links to Home, Simple Key, PlantShare, Full Key, Dichotomous Key, Teaching, and Help. A search bar is also present. The main content area features a large image of children looking at a tree, with a 'Simple ID Key' section to the right. Below this, there are three columns of content: 'PlantShare' (Connect with other plant fans!), 'Advanced ID Tools' (For experienced botanists!), and 'Teaching Tools' (New: a useful teaching resource!). Each column has a 'LEARN MORE' button. At the bottom, there is a 'Plant of the Day' section featuring *Oryzopsis asperifolia* (roughleaf ricegrass) with a 'LEARN MORE' button. A footer at the very bottom encourages donations to the New England Wild Flower Society.

Go Botany Discover thousands of New England plants

NEW ENGLAND WILD FLOWER SOCIETY

Home Simple Key PlantShare Full Key Dichotomous Key Teaching Help Search...

Simple ID Key

Want to know what that plant is? With our Simple Key, you can identify over 1,200 common native and naturalized New England plants! Observe closely, collect a sample or take a photo, answer some questions, and narrow down to the correct identification.

GET STARTED

PlantShare
Connect with other plant fans!
Join our on-line community of plant enthusiasts! Find friends, collaborate on field surveys for plants, share your discoveries, get help identifying plants, make maps, and develop checklists of plants for particular sites you are exploring.

LEARN MORE

Advanced ID Tools
For experienced botanists!
Identify over 3,000 New England plants by using our Full Identification Key, including technical multiple-access and dichotomous keys to families, genera, and species. Also learn about subspecies and varieties native to our region.

LEARN MORE

Teaching Tools
New: a useful teaching resource!
Go Botany encourages informal, self-directed education in botany for science students and beginning and amateur botanists. Professors, teachers, and environmental educators can share curricula and teaching ideas.

LEARN MORE

Plant of the Day: *Oryzopsis asperifolia* roughleaf ricegrass
White-grained rice grass gets its generic name (*Oryzopsis*) from the Greek words 'oryza,' meaning rice, and 'opsis,' meaning appearance, as it bears some resemblance to rice. It is widespread across northern North America.

LEARN MORE

Please contribute to our mission to conserve and promote the region's plants by donating to New England Wild Flower Society.

DONATE

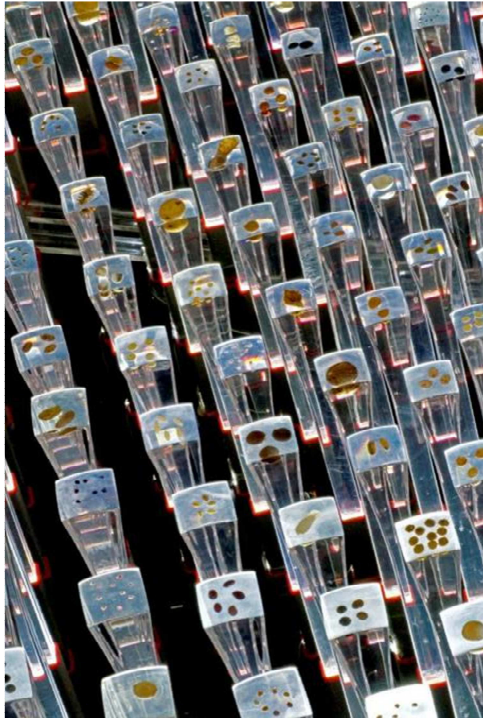
2. Building technical capacity: case studies



2. Building technical capacity: case studies



2. Building capacity: case studies



2. Building technical capacity: training courses





2. Building technical capacity: references & resources

Policy: <http://www.bgci.org/ourwork/influpolicy/>

Red listing: <http://www.bgci.org/ourwork/redlisting/>

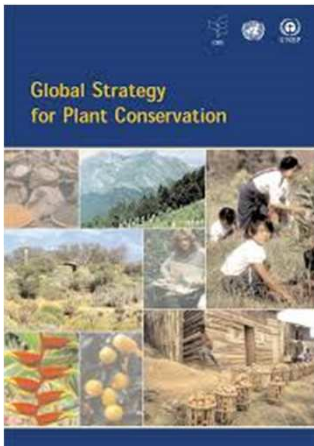
Seed conservation: <http://www.bgci.org/ourwork/seedhub/>

Ecological restoration: <http://www.bgci.org/ourwork/restoration/>

Plant health & biosecurity: <http://www.bgci.org/ourwork/ipsn/>

Tree conservation: <http://www.bgci.org/ourwork/globaltrees/>

Education: <http://www.bgci.org/education/resources/>



International Plant
Sentinel Network



3. Mobilising funding & resources

BGCI funds projects and training all around the world, **equivalent to ten times** what it receives in subscriptions from its members.

In 2014 BGCI provided funding and/or training to **107** botanic gardens on **5** continents

In 2015 we will disburse **US\$1.5 million** in project funding to botanic gardens in our network



Conclusions

The loss of plant diversity is the most **urgent** and **important** issue that botanic gardens need to focus on but it isn't always seen as a **priority**

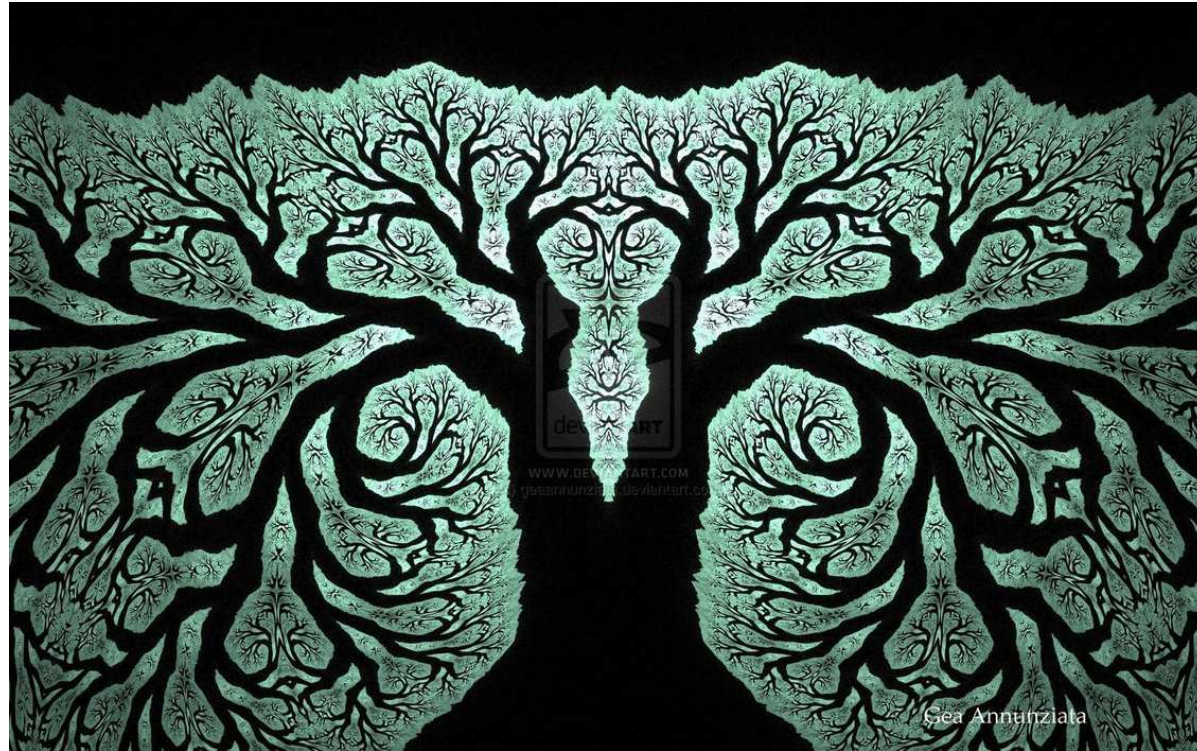
TURNER
THE IRISH TIMES
DUBLIN
IRELAND



Cartoonists International: www.flyhighcartoonists.com

Conclusions

Botanic gardens, as a professional community, have **unique knowledge** and **skills** related to **conserving**, **managing** and **communicating** the importance of **all** plant diversity.



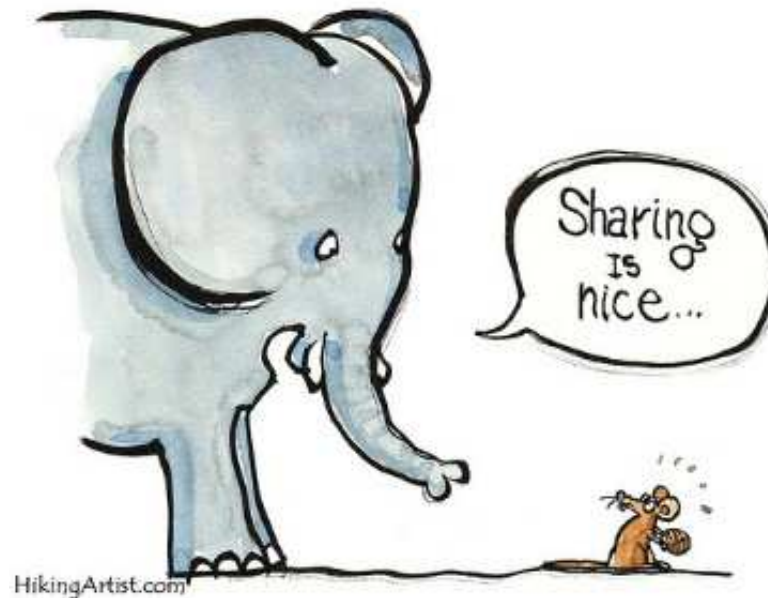
Conclusions

Botanic gardens need to show greater **leadership** in conserving, managing and communicating the importance of plant diversity



Conclusions

Botanic gardens need to build their own capacity and organize themselves in a **rational and cost-effective** way through **sharing** approaches and results

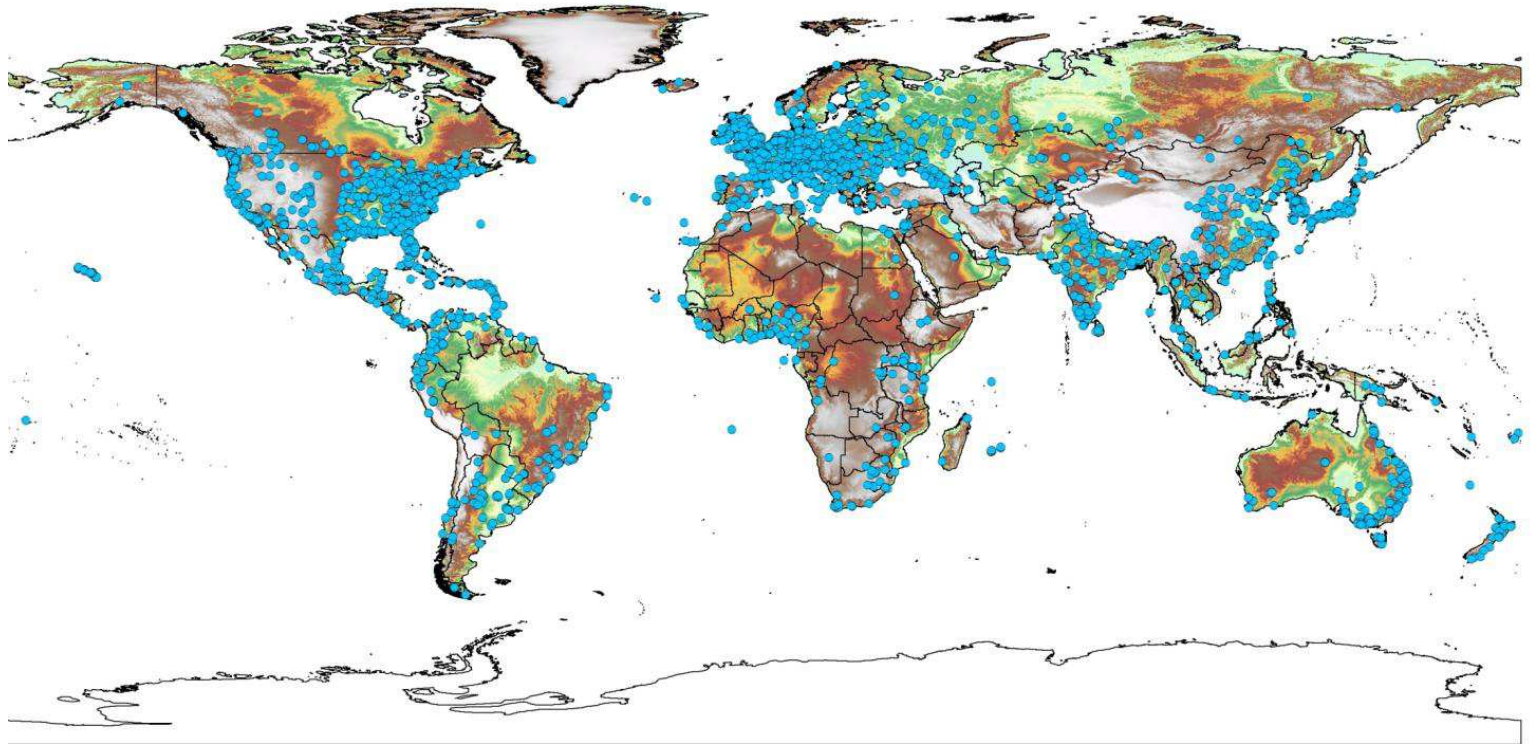


Conclusions

Botanic gardens need to **work with society** to share knowledge and effort.



Let us know your views



<http://www.bgci.org/joinin/members/>