



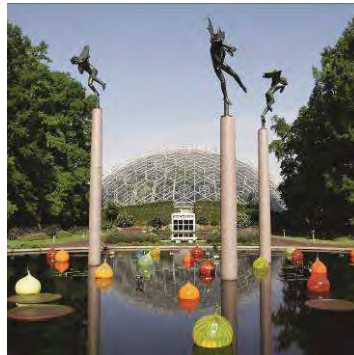
BIODIVERSITY

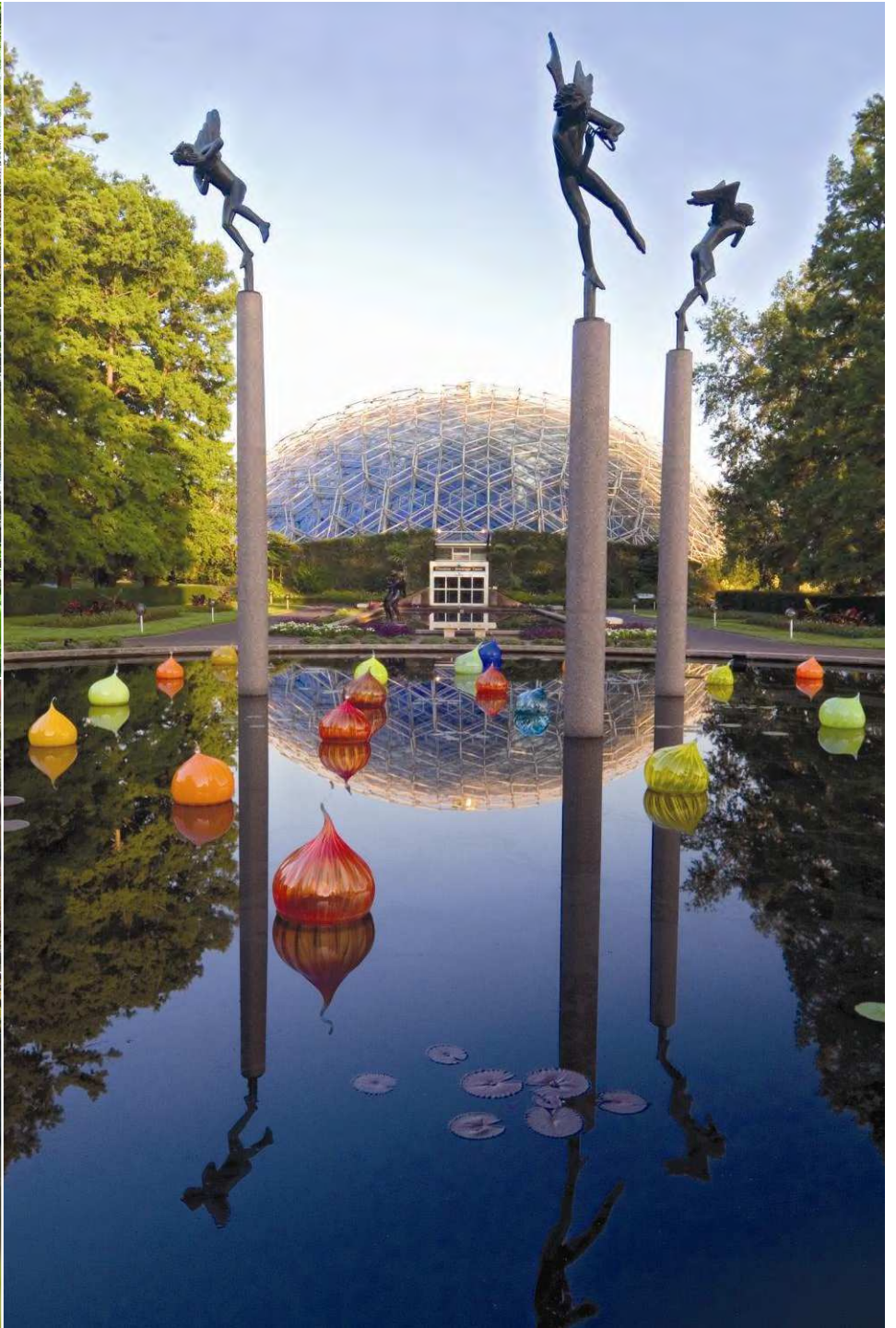
FOR A BETTER WORLD

Wild Ideas Worth Sharing

St. Louis, MO • April 26–May 1, 2015

BGCI's 9th International Congress on Education in Botanic Gardens





Remarkable growth in education role of botanic gardens

- **1970s and 1980s**
- Labels on (some) plants
- Student classes for university teaching
- A very occasional education staff member (often part-time on temporary funding)
- **THEMES**
- Education about plants
- Focus on information about plants and the botanic gardens themselves



Remarkable growth in education role of botanic gardens

- **1970s and 1980s**
 - Labels on (some) plants
 - Student classes for university teaching
 - A very occasional education staff member (often part-time on temporary funding)
- **TODAY**
 - Most botanic gardens regard Education as central to their Mission
 - Most significant botanic gardens worldwide have education staff and many have special Education Departments or Divisions
 - Outreach is an essential role
- **THEMES**
 - Education about plants



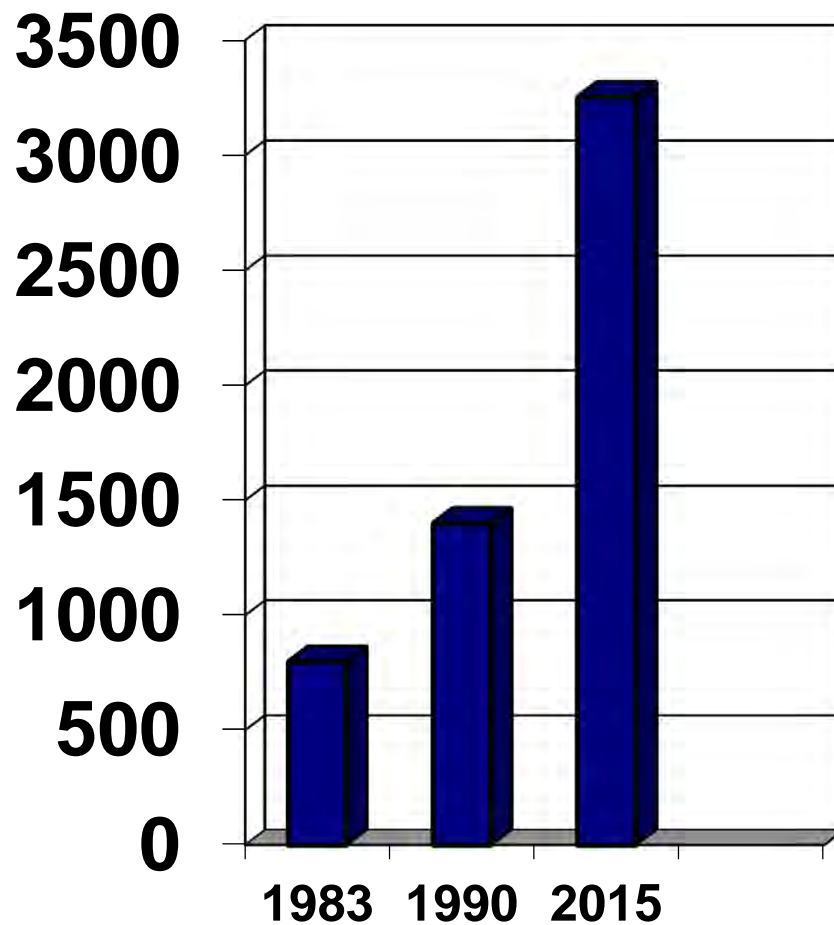
Remarkable growth in education role of botanic gardens

- **1970s and 1980s**
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- **THEMES**
- Education about plants



- **THEMES**
- Children's Education
- Adult education
- Education for sustainability
- Biodiversity education
- Informal education
- Public environmental awareness
- Advocacy on environmental issues
- Teacher training
- Home gardening support
- Education about plants
- Science education
- Primary, secondary, tertiary & post-graduate education & training
- Education for sustainable development
- Environmental literacy
- Outdoor education
- Social inclusion
- Education and the social role of botanic gardens
- Capacity building for biodiversity conservation
- Training in taxonomy
- Policy development support
- Lifelong learning
- Inquiry-based science education
- Education for plant conservation
- Interpretation for sustainability
- Environmental education research
-

Extraordinary growth in the number, diversity and distribution of botanic gardens worldwide over 3 decades



1983: 798

1990: 1,400

2015: 3,253

■ **Number of
Botanic
Gardens**

2015 figures based on data from the
BGCI Garden Search, 17th April, 2015

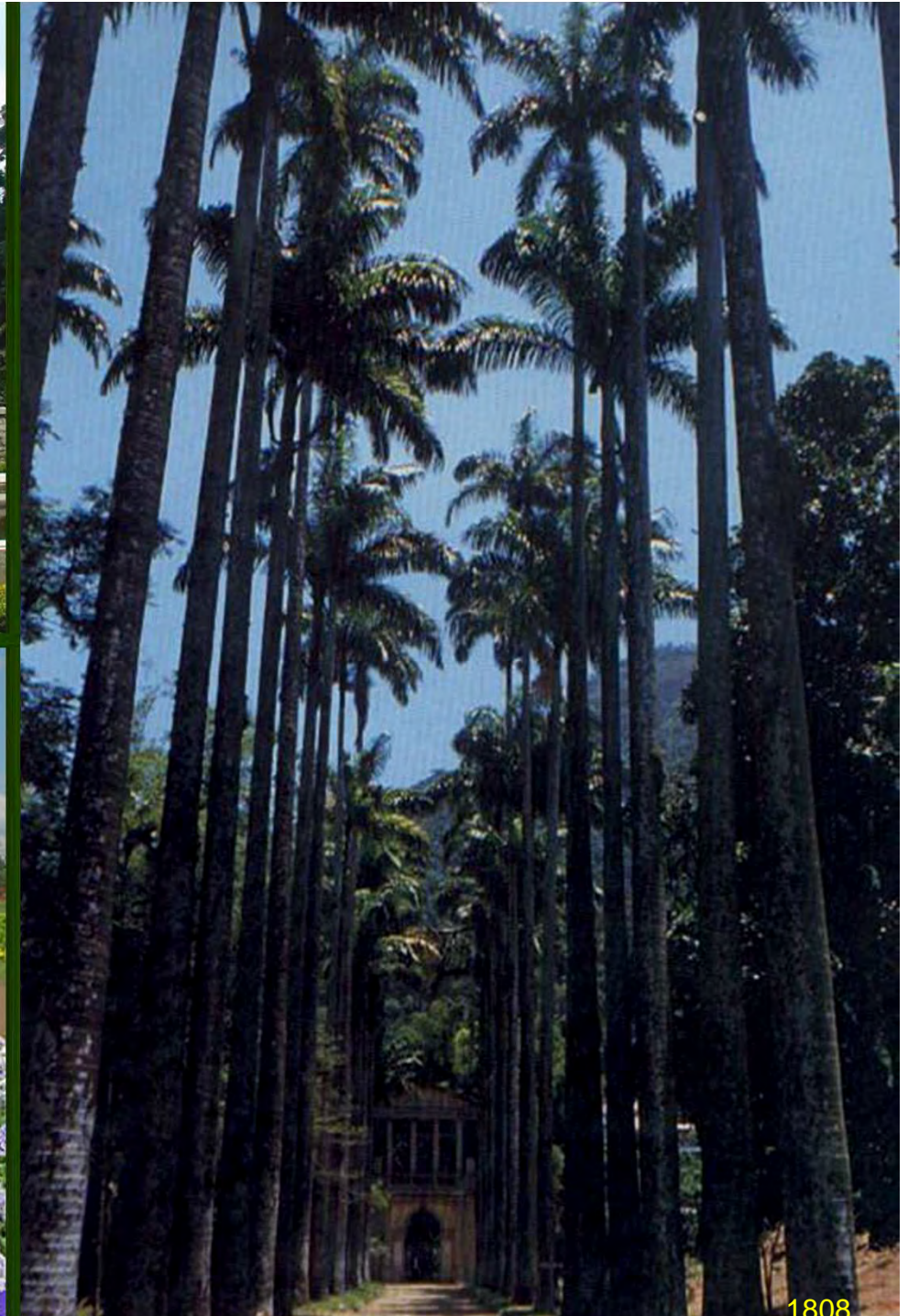
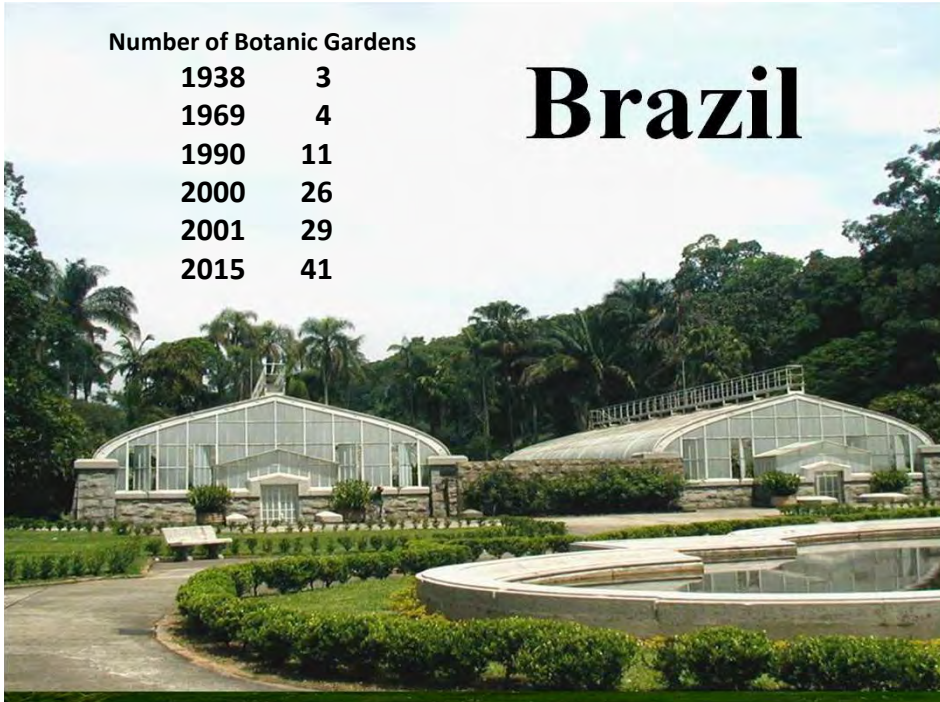
Botanic gardens – a remarkable worldwide network



Number of Botanic Gardens

1938	3
1969	4
1990	11
2000	26
2001	29
2015	41

Brazil

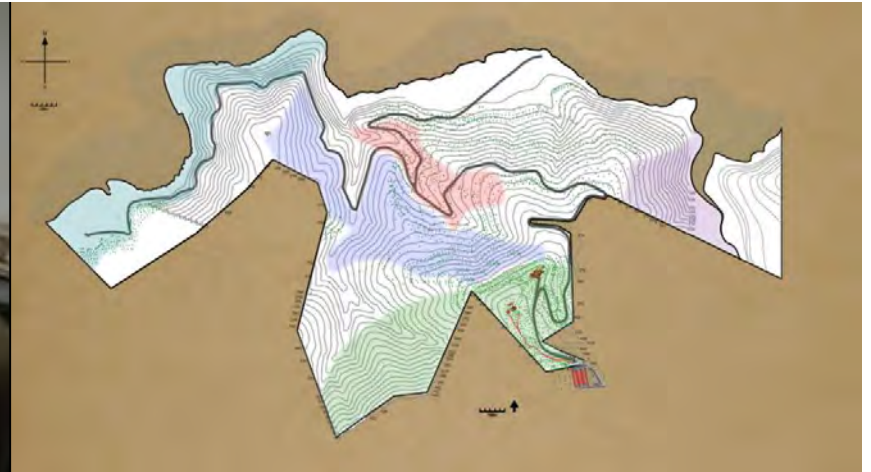


1990: 51

China

- Today, 2015: 158 botanic gardens
 - Mainly established since 1980s
 - Chinese Academy of Sciences
 - Many new city botanic gardens



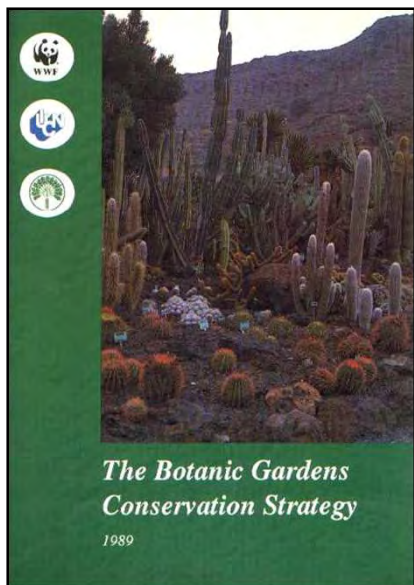


Founder, HRH Princess Basma bint Ali, receiving the Henry Shaw Medal from the Missouri Botanical Garden in 2012

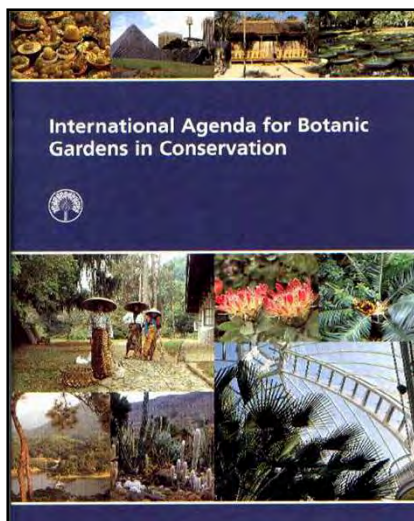
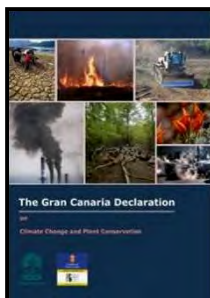
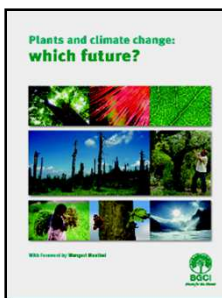
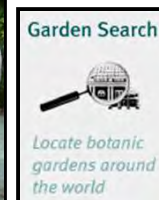


Royal Botanic Garden, Jordan

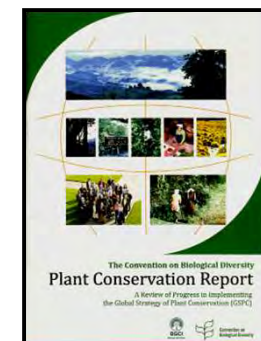
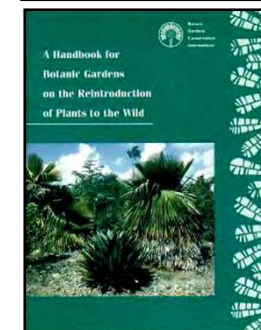
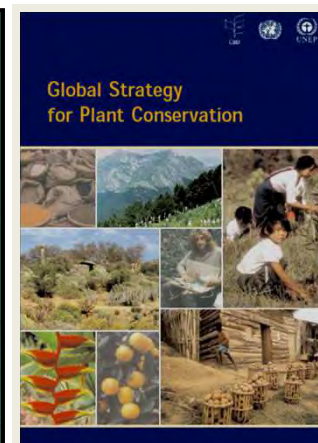
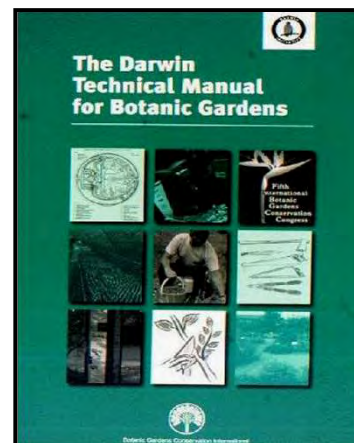




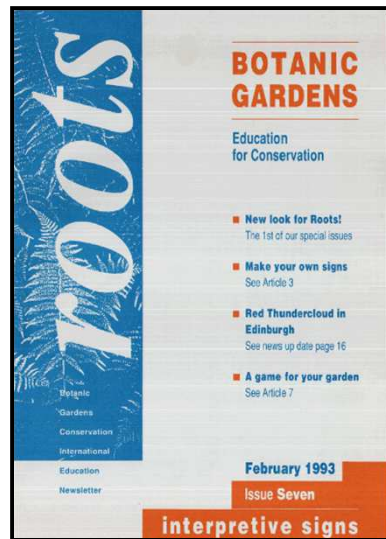
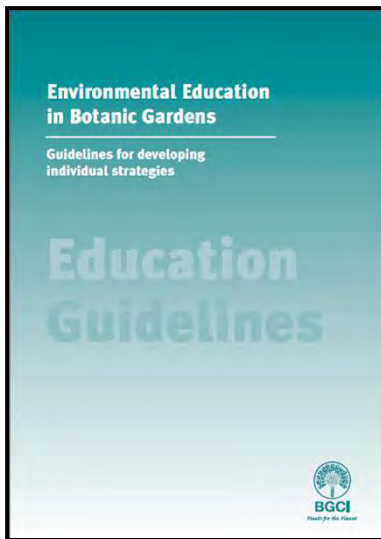
Influential role played by BGCI



28 Years of Achievement

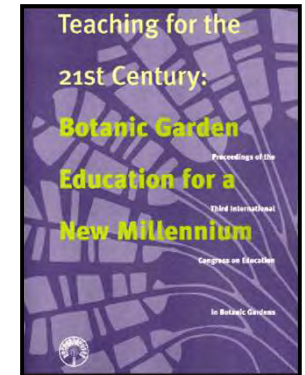


Influential role of BGCI in helping to grow and shape education in botanic gardens worldwide



BGCI

Plants for the Planet



Education centre



Education resources

Find out more
[Roots Education Review](#)



INQUIRE

A European Union project at botanic gardens for science-based learning
[Read the INQUIRE conference conclusions](#)



Education projects

Find out more
[Climate Change Education Portal](#)
[Global Competition 2012/13 Plants and H2O](#)
[Plant Conservation Messages](#)



Education news

Find out more
[Sign up to receive our education newsletter](#)



Education events

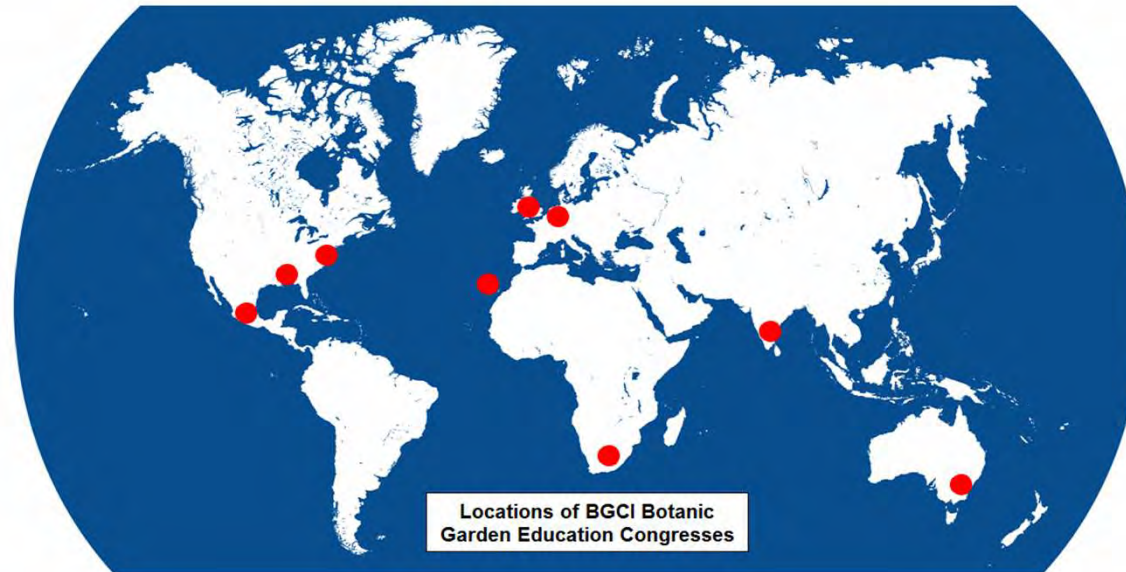
[Summary - Mexico Education Congress](#)
[International Diploma Course in Botanic Garden Education](#)



Social Inclusion

[Communities in Nature: Growing the Social Role of Botanic Gardens](#)
[Islamic gardens in the UK](#)
[Seeds of Unity](#)

BGCI International Botanic Garden Education Congresses



- 1st Utrecht, The Netherlands, 1991
- 2nd Gran Canaria, Spain, 1993
- 3rd Brooklyn, U.S.A., 1996
- 4th Trivandrum, India, 1999
- 5th Sydney, Australia, 2002
- 6th Oxford, U.K., 2006
- 7th Durban, South Africa, 2009
- 8th Mexico City, Mexico, 2012
- 9th **St Louis, U.S.A., 2015**



Botanic gardens worldwide receive over 250 million visitors each year







The world's plant diversity is gravely threatened

Plant conservation: an urgent global priority

- **C.400,000** plant species worldwide
- **100,000** species now threatened with extinction





Global Strategy for Plant Conservation (GSPC)

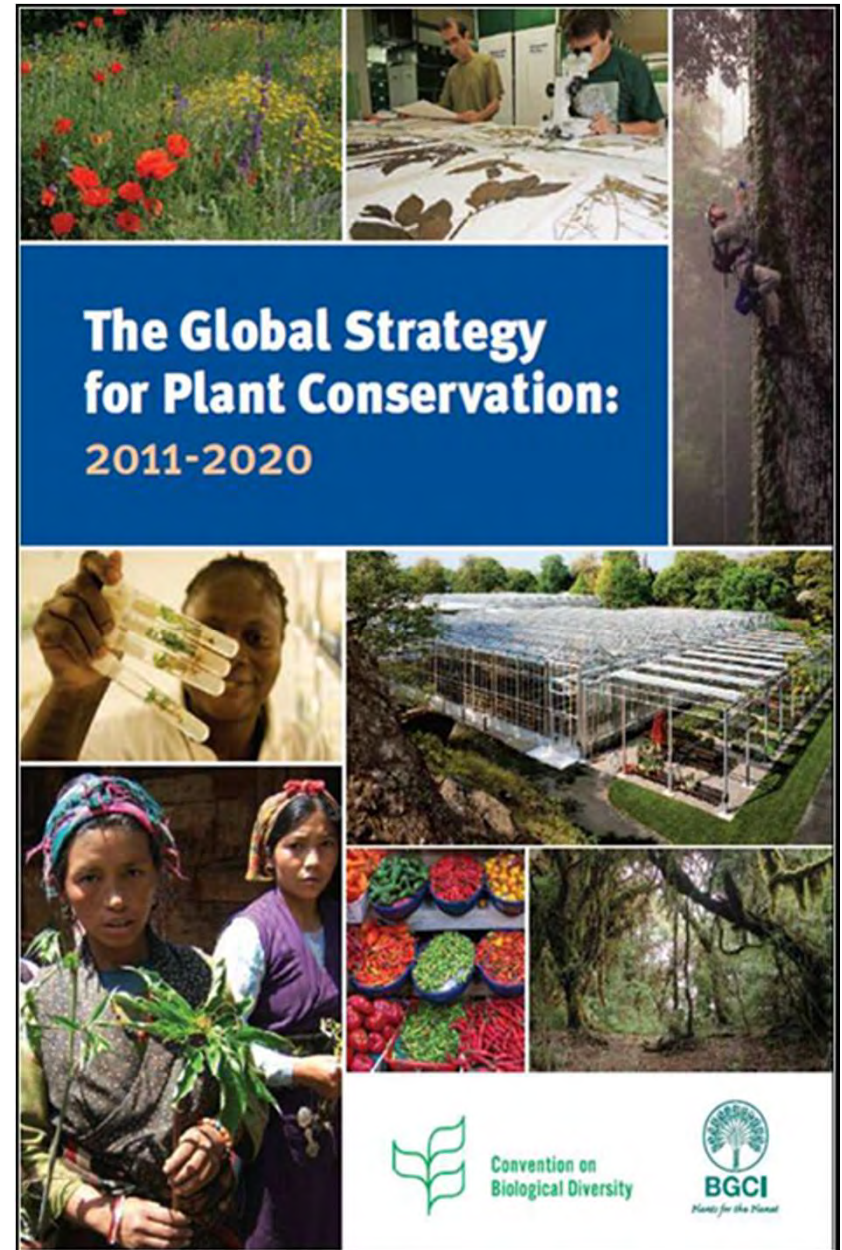
of the U.N. Convention on Biological Diversity

Updated for 2011–2020:
(29 October 2010, Nagoya, Japan)

16 targets

*To halt the loss of plant diversity
worldwide by 2020*

*Key role of botanic gardens in the development
and implementation of the GSPC*



Objective 4 and Target 14
OF THE GLOBAL STRATEGY FOR PLANT CONSERVATION 2011-2020

- **Objective 4:**

Education and awareness about plant diversity, its role in sustainable livelihoods and importance to all life on Earth is promoted

- ***Target 14:***

The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes.



MISSOURI BOTANICAL GARDEN

Likely GSPC Stakeholders (by target)



Botanic gardens identified as primary stakeholders in 50% of targets

Target

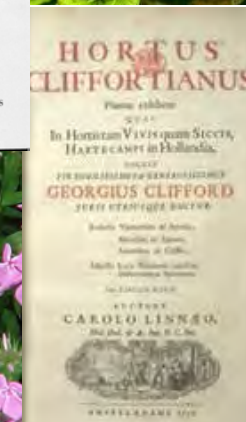
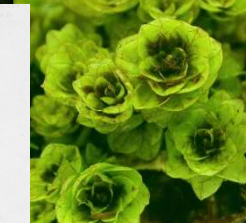
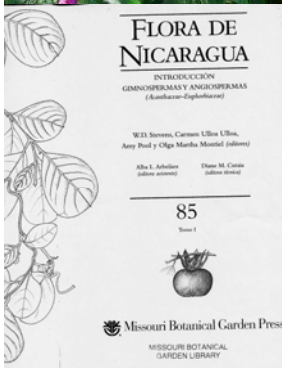
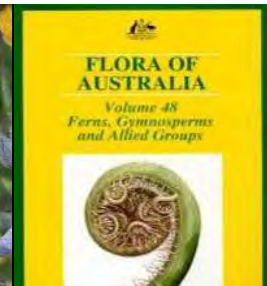
- 1 Herbaria, **Botanic gardens**, Bioinformatics specialists, GBIF Focal Point, Universities with taxonomy departments, National Flora Societies
- 2 Herbaria, **Botanic gardens**, Conservation specialists, Universities, Research Institutes, National Red List Authority, IUCN Specialist Groups
- 3 Universities, Research institutes, **Botanic gardens**, Indigenous and local communities
- 4 Protected area managers, Ecologists, Community Based Organizations(CBOs)
- 5 Protected area managers, Universities, Research Institutes, **Botanic gardens**, Indigenous and local communities, Environmental NGOs, CBOs
- 6 Farmers and land owners, Agri-business sector, Forest managers, Logging companies, CBOs, Women's associations
- 7 Protected area managers, **Botanic gardens**, National flora societies, Universities
- 8 **Botanic gardens**, Seed banks, Universities, Research institutes, CBOs
- 9 Plant genetic resource institutes, Seed banks, Agricultural research institutes, Plant breeders, Universities, indigenous and local communities, Women's Associations, Traditional healers, Farmers' associations
- 10 Protected area managers, Quarantine agencies, Horticultural trade, Research institutes, Universities
- 11 National CITES authority, Customs officials, medicinal plant traders, plant product (timber etc.) importers/exporters, horticultural trade.
- 12 Local and indigenous communities, plant product importers /exporters, medicinal plant and horticultural trade, Women's associations, Traditional healers
- 13 Local and indigenous communities, Universities, Women's associations
- 14 **Botanic gardens**, Teachers, Environmental NGOs, Communication specialists, Universities, Media groups, CBOs
- 15 Universities, Schools, Research Institutes
- 16 **All stakeholders**



GSPC at the Missouri Botanical Garden – some examples

- Target 1: World Flora On-line project
- Target 2: Red List assessments worldwide
- Target 3: Propagation protocols for threatened plants; Methodologies to understand plant richness
- Target 4: 150,000 acres protected in 13 sites in Madagascar
- Target 5: Important sites for plant diversity identified in Madagascar; Management plans for 3 parks (5 million acres) in Peru, Ecuador and Bolivia
- Target 6: Sacred Seeds Program
- Target 7: Inventories of protected areas in Bolivia, Madagascar, Peru
- Target 8: Native plant Garden with 700 spp. New seedbank. Threatened plant gardens developed in Nicaragua and Vietnam
- Target 9: Research on sustainable use of medicinal plants in Latin America and Vietnam
- Target 10: Research on control of invasive plants in U.S. midwest
- Target 11: Highlighting illegal trade in ebony in Madagascar
- Target 12: Community based conservation in Vietnam, Bolivia, Peru and Madagascar
- Target 13: Repatriation of local and indigenous knowledge in Peru
- Target 14: 95,000 children participate in Garden's annual education programs in the US and abroad
- Target 15: International Professional Development Fellowships; Training courses in conservation & sustainable development
- Target 16: Garden hosts conference for the Global Partnership for Plant Conservation and the 9th BGCI International Congress on Education in Botanic Gardens



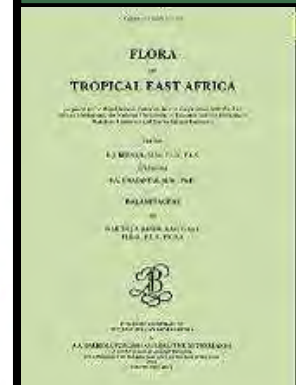
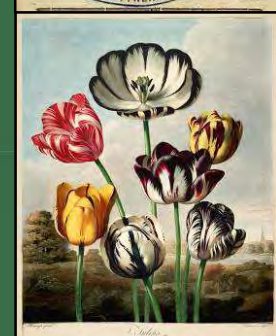
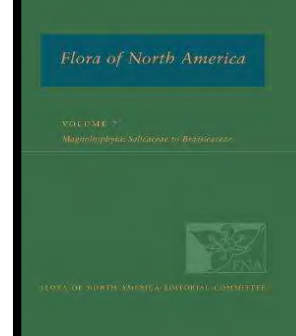


GSPC
Target 1



World Flora Online

www.worldfloraonline.org





GLOBAL STRATEGY FOR PLANT CONSERVATION

2011-2020

VISION

Updated GSPC adopted
Nagoya, 29th October, 2010

***Without plants, there is no life.
The functioning of the planet, and our survival,
depends upon plants.
The Strategy seeks to halt the continuing loss of
plant diversity.***

New focus on plants for human wellbeing, livelihoods, ecosystem services

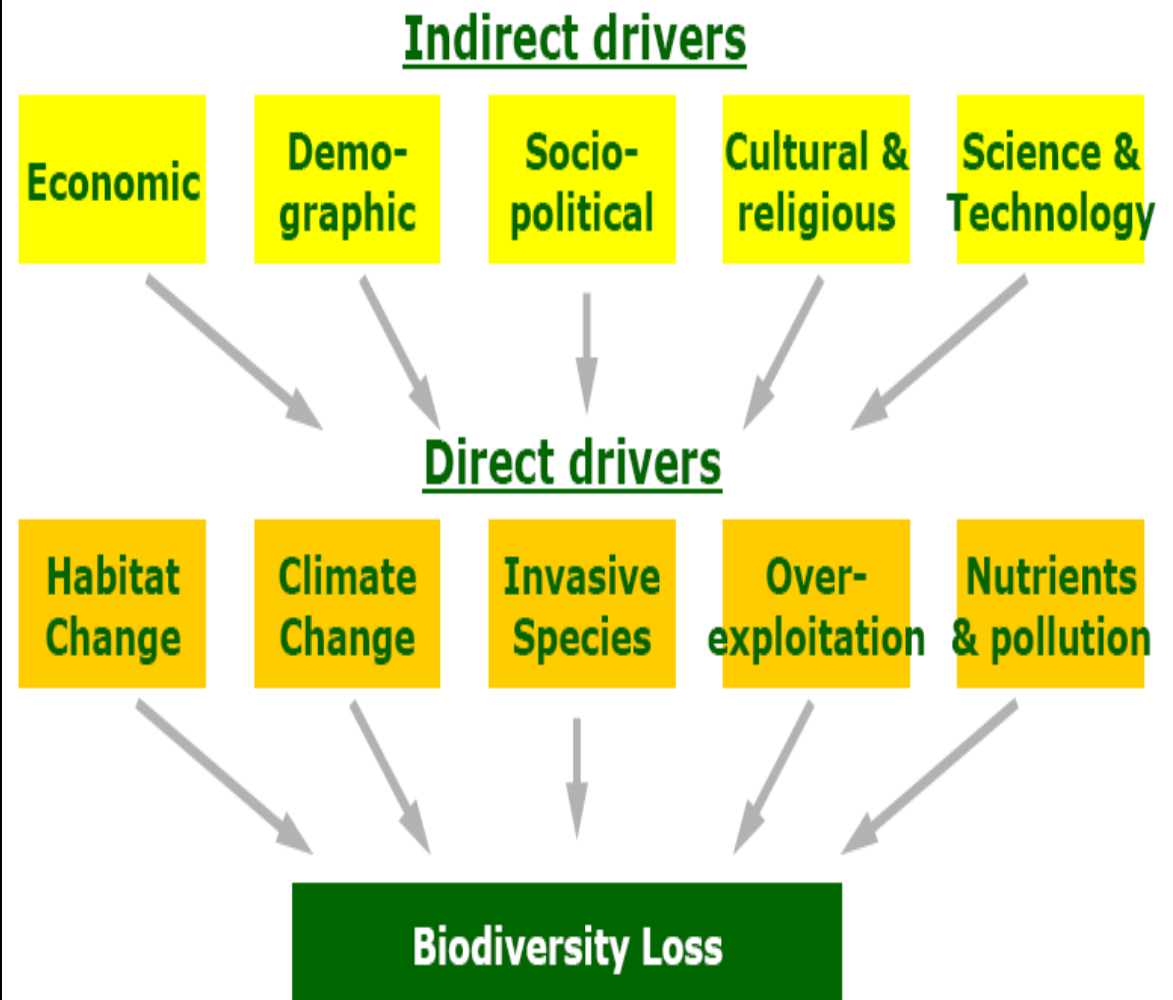


2020 Biodiversity Target

- **Take effective and urgent action to halt the loss of biodiversity by 2020**
- in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services,
- thereby securing the planet's variety of life, and contributing to human well-being, and poverty eradication

- Why is the link with human wellbeing, livelihoods, poverty alleviation and ecosystem services so important?

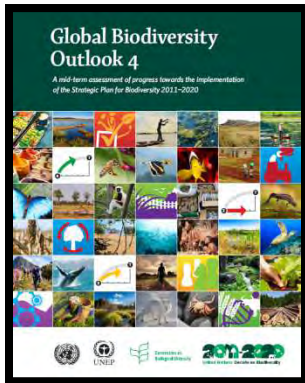
Drivers of Biodiversity Loss





Darwin Initiative (U.K.) grants awarded 2015

- Securing livelihoods, health and biodiversity through seascape-scale sustainable fisheries co-management.
- Mainstreaming biodiversity conservation and climate resilience at Yayu Biosphere Reserve.
- To move to sustainable and resilient livelihoods, whilst conserving local biodiversity.
- Collaborative conflict management for community livelihoods and conservation.
- Supporting community conserved areas in Uganda for biodiversity and livelihoods.
- To demonstrate that ecosystem services and cultural values support the establishment and participatory management of three conservation areas.
- To improve market opportunities and skills in sustainable harvesting practices to increase income of 1000 low-income households in Vietnam.
- Mainstreaming biodiversity and ecosystem services into community forestry in Nepal.
- To enable smallholder farmers to implement science-based interventions for enhancing and restoring ecosystem services and biodiversity in East African agricultural systems.
- Demonstrate to the conservation community the value of forest regeneration for biodiversity and livelihoods.



Aichi Target 1

Target 'dashboard'—A summary of progress towards the Aichi Biodiversity Targets, broken down into their components



TARGET



Awareness of biodiversity increased

By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Why this target is important¹⁰

Addressing the direct and underlying drivers of biodiversity loss will require behavioral change by individuals, organizations and governments. Understanding, awareness and appreciation of the diverse values of biodiversity help to underpin the willingness of individuals to make such changes. Public awareness also underpins the political will for governments to act. Meeting this target requires that people are aware not only of the values of biodiversity in an abstract way, but know the concrete contributions of biodiversity to their lives, as well as the actions that can be taken to conserve and sustainably use biodiversity.

SUMMARY OF PROGRESS TOWARDS THE TARGET

TARGET ELEMENTS (BY 2020)

STATUS

People are aware of the values of biodiversity



People are aware of the steps they can take to conserve and sustainably use biodiversity



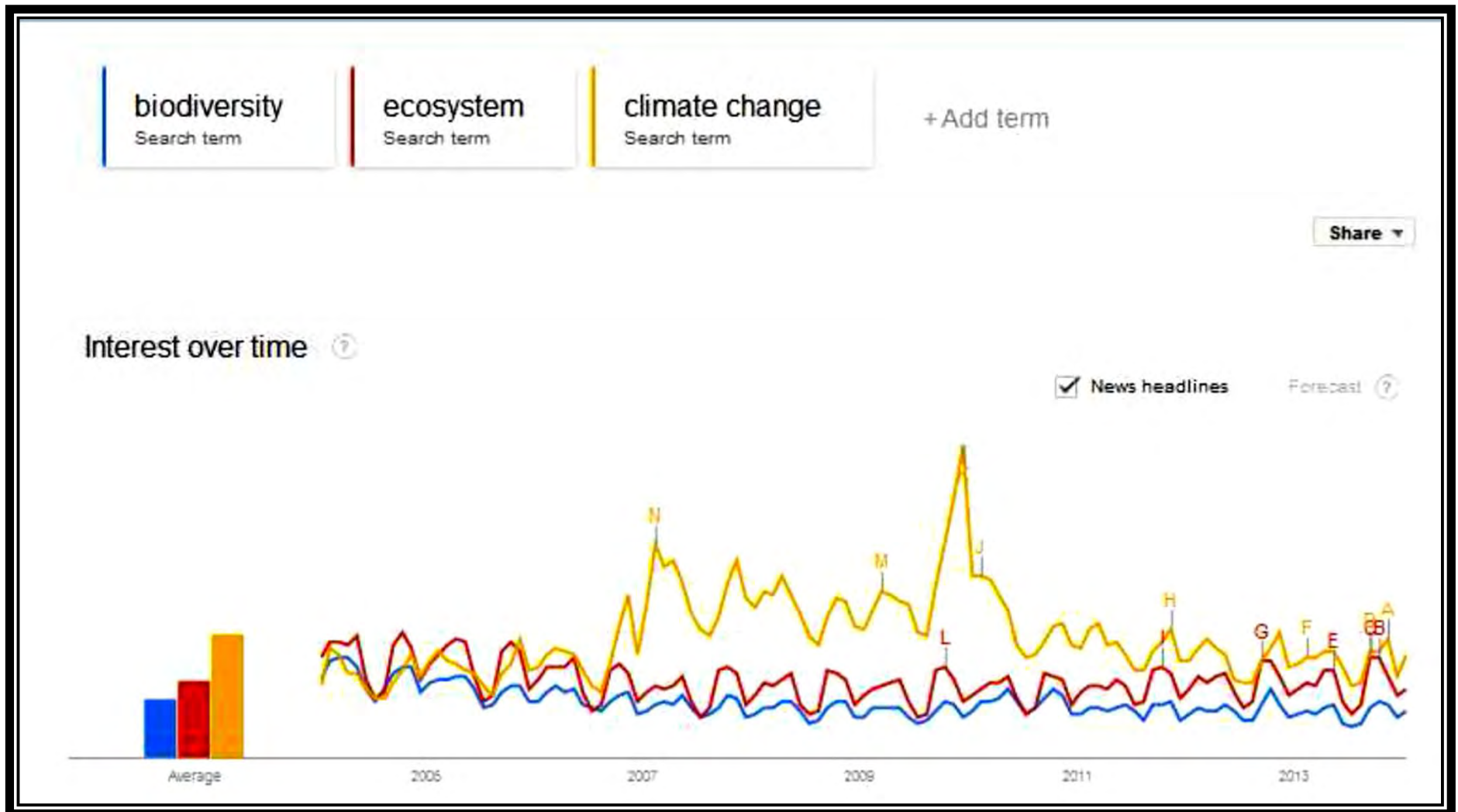
Public Awareness of Biodiversity

Table 1.1: Biodiversity Barometer results for 2013. *Source: Union for Ethical Bio Trade 2013.*

Country	Percentage of respondents that have heard of biodiversity	Percentage of respondents that could provide a partial or correct definition of biodiversity	Percentage of respondents that could provide a correct definition of biodiversity
Brazil	96%	76%	51%
China	94%	86%	64%
France	95%	67%	39%
Germany	48%	34%	24%
India	19%	9.4%	0.4%
Japan	62%	50%	29%
Peru	52%	44%	7%
South Korea	73%	63%	47%
Switzerland	83%	55%	37%
United Kingdom	64%	39%	20%
USA	54%	36%	21%

* Table from the Global Biodiversity Assessment

Information derived from Google Trends for the search terms:
“biodiversity” (blue), “ecosystem” (red) and “climate change” (yellow)
between January 2004 and February 2014.



Missouri Botanical Garden

- Growing our audience to support environmental awareness

2014

- Garden Attendance: **1,046,000**
- Visitors to the Children's Garden: **126,000**
- Students & teachers participating in education programs: **80,000**
- Visitors to drop-in educational activities: **220,000**
- Volunteers: **1,850** (150,000 hours worked)
- Members: **43,000**



Education programs at the Missouri Botanical Garden

- **50** professional educators
- **200** education volunteers
- Hundreds of classes, tours and workshops for adults and children each year
- Doris I. Schnuck Children's Garden
- Teacher development resources



MBG Education & Community Outreach

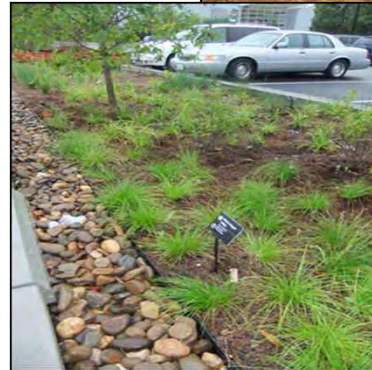
Connecting and relationship-building... starting where people live, work, learn, and play →



Driving behavior change in individuals... →



Driving changes in institutional policies in practices... →



Driving landscape change... →

Q: In what ways could the landscapes around us improve quality of life for all?

Sustainability

- Certified sustainable buildings
- Coordinates the greening of businesses
- Promotes sustainable building practices throughout the St. Louis region
- Annual Green Homes and Great Health Festival
- Provides "green resources" answer service
- Sustainable parking lots
- Single stream recycling
- Certified Green restaurant

Community

- Local regeneration
- BiodiverseCity St Louis



Sophia M. Sachs Butterfly House

- Established in 1995 to "foster a greater understanding of plant and animal relationships in the environment in order to promote the conservation and restoration of natural habitats."
- Integrated into the Garden in 2001
- Important center for children's environmental education



Shaw Nature Reserve

2,400 acres of Ozark border landscape

- Native plants
- Conservation
- Ecological restoration (prairies, woodlands, wetlands)
- Reconnecting with nature

- Dana Brown Overnight Center



Social networking – potential and opportunity

- **2014**
- Visitors online to Missouri Botanical Garden: **10 million**
- Total visits via mobile devices: **3 million**
- Social network followers: **130,000** (Up 35% on 2013)
- MBG Gardening Help online: **14 million** visitors
- TROPICOS: **18 million** page views



Collecting localities over last 10 years.



The Missouri Botanical Garden in Madagascar



*Catalogue of the
vascular plants of
Madagascar*



The Missouri Botanical Garden in
MADAGASCAR



Celebrating 25 Years of Exploration, Discovery, and Conservation on the "Eighth Continent"









Community outreach - +10,000 children in MBG Madagascar education programs



29.10.2008 11:33

Need to link our local botanic garden actions in biodiversity conservation more closely with future international, national & local policies, priorities and practices in -



- Sustainable development
- Community development, including poverty reduction
- Building public awareness of the essential importance of biodiversity in achieving sustainable development.





The United Nations is defining **Sustainable Development Goals** for a new sustainable development agenda to be launched at the Sustainable Development Summit in September 2015.

What is this Congress about?

- Sharing experiences
- Propagating ideas
- Evaluating progress
- Determining future directions
- Deciding priorities
- Setting targets
- Celebrating success
- Inspiring leadership





United Nations Decade on Biodiversity

IT'S TIME TO
INSPIRE

Thank You!



MISSOURI BOTANICAL GARDEN