EUROGARD VIII
Eighth European Botanic Gardens Congress:
"Botanic Gardens, People and Plants for a Sustainable World"

In support of The United Nations Decade on Biodiversity and the European Green Week

May 7-11, 2018 Lisbon, Portugal

The European Botanic Gardens Consortium,

The University of Lisbon

Jardim Botânico da Ajuda (Botanic Garden of Ajuda)

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(Last update 05/12/2017)

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EIGHTH EUROPEAN BOTANIC GARDENS CONGRESS LISBOA 2018

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Participation /Congress Venue /Excursions/Congress Theme

EIGHTH EUROPEAN BOTANIC GARDENS CONGRESS LISBOA 2018

- **Participation** : 302 people from 39 countries from all continents: (200 participants, 40 accompanying persons, 40 day-registrations

- **Venue** : the Rectorate building of the University of Lisbon –

  The history of Lisbon university dates back to the 13th century.

  Now the largest university in Portugal from the merger of 2 public universities

- **Mid-Symposium Excursion** Cultural Landscape of Sintra. Classified World Heritage by UNESCO in 1995: 3 tours organized : the Gardens and the Palace of Monserrate, the Park and Palace of Pena, the conservation area of Penina

Conference Title : Botanic Gardens, People and Plants for a Sustainable World

Scientific Program

Scientific programme addressed 6 themes opened by plenary addresses

- 140 oral presentations in 3 parallel sessions
- 4 Workshops :
    - Complete solution to the data management challenges for BGs;
    - Introduction to IrisBG : Advanced collection management made easy;
    - Learn to Engage;
    - Target 8 collection Plan for Europe;

- 43 posters with an opportunity to present posters orally
- Preparation of the conclusions under the conduct of Ana Luisa Soares with the active support of the chairs of the different sessions and the organisers

General Statements 1

- The Congress included a diverse range of subjects and topics on biodiversity conservation, especially related to plants and the complex and extensive roles of botanic gardens.
- The Congress emphasised how botanic gardens have been actively involved in shaping national and international policies and practices in plant conservation. They continue to have an influential role at all levels through their engagement with governments (that are Parties to the Convention on Biological Diversity), and through their involvement in the Global Partnership for Plant Conservation.
- It is acknowledged that botanic gardens come from very different roots but since 2002, the Global Strategy for Plant Conservation, and its update in 2010, has provided a focus and primary framework to guide botanic gardens' activities in strategic and practical contributions to plant conservation;
- The roles of botanic gardens in supporting the GSPC are manifold, from contributions of smaller gardens to single targets to potential contributions to all 16 targets by larger, better resourced, botanic gardens.
- It was pointed out during the Congress that we are coming to a crucial time for plant conservation policies as the GSPC targets are due to be attained by 2020. It is therefore essential that botanic gardens should redouble their efforts for the GSPC targets, and take a prominent role in the process of negotiating a renewed Global Strategy for Plant Conservation for the period after 2020. It is likely that this update will take into account the importance of the Sustainable Development Goals and be even more closely aligned with the Aichi Targets than they have been previously.
- The 2030 Sustainable Development Goals provide an opportunity for botanic gardens to integrate more fully their work with more socio economic concerns which impact on the conservation of biodiversity worldwide.

General Statements 2

- In addition to the GSPC, botanic gardens need to continue to engage with other key global policies, strategies and initiatives, such as the UNFCCC, the CBDs Nagoya Protocol, the World Heritage Convention, CITES, IPBES, the Florence Charter on the restoration of historic gardens, and many other national and international conventions, policies, initiatives and frameworks that are also relevant to their work in cultural, heritage, educational and social issue.
- Support for botanic garden directions was also welcomed from the representative of the DG Environment of the European Commission, Jose Sa Fernandez, who pointed out the range of existing European instruments relevant to botanic gardens, including the European Plant Conservation Strategy and the European Commission's Biodiversity Action Plan, as well as National Biodiversity Strategies and Action Plans.
- The special importance of ensuring that botanic gardens are in full compliance with the CBDs Nagoya Protocol on Access and Benefit Sharing was pointed out, as well as the EUs regulation on Access and Benefit Sharing.
- The Congress was particularly successful in showcasing a wide range of projects, case studies and initiatives that clearly demonstrate outstanding progress in many areas of endeavour related to their collective mission.
- While Europe is well supported with its own botanic gardens, many regions of the world that are rich in biodiversity still have too few and many are very under resources or supported. European botanic gardens can and should play important roles in supporting north-south cooperation and partnering with such institutions and in capacity building. The development of new models for botanic gardens in other regions of the world can be explored, to ensure that they are most suited to local situations and needs. Such models may highlight closer integration with other sectors, beyond the botanical community, to link with agriculture, forestry and commercial horticulture, as well as protected area networks and national environmental protection authorities. Linkages with communities at local levels were especially recommended, both in the urban and rural environment. Achieving sustainable communities is an essential part of attaining a sustainable environment.

Theme A: Botanic Gardens and Science

- EuroGard VIII provided a showcase for science in European botanic gardens,
- BGs and arboreta are major centres for science with over 60,000 scientists worldwide. As their missions are manifold and diverse, this too often results in competing priorities and a disconnection with research.
- In order to strengthen their profile and outreach, BGs should invest time and resources in science and research programme. Some rationales for these attempts are:
  - Aims and goals of BGs need to be based on science.
  - Science based plant collections and management shall be at the core of BGs missions.
  - Skills associated with BGs and arboreta, including plant taxonomy, horticulture, conservation biology, and seed bank management, need to have a scientific foundation.
  - Enhancing such skills can bridge the gap between research and practice.
  - BGs shall be able to demonstrate how their research helps conservation.

Potential actions for botanic gardens in science:

- Use collections as a research tool: e.g., to study phenology or conservation genetics.
- Address gaps in research, e.g. on taxonomy, evolution, ecology and conservation biology of spore plants: bryophytes, ferns and fern allies
- Further and use taxonomic knowledge crucial to understanding and describing plant diversity.
- Reorganise systematic gardens according to APG 4 and give explanations, connecting horticultural skills with taxonomic and systematic expertise.
- Bring science to the public (e.g., scientists, visitors, decision makers) by a diversity of media, e.g., by sharing and publishing best practices and research, including results from horticulture.
- Use data in databases like PlantSearch, TreeSearch, ThreatSearch to drive priorities.
- Help to create databases for informed decisions on the use of plants in urban areas, considering not only the ornamental value but also their ecosystem services.
- Make best use of what information systems can provide: sound information to support decisions, management and outreach.
- Build strong user communities both providing and using information.
- Encourage interactions between different fields of science, e.g. in pollination biology.
- Build communities of interests, e.g., on arboreta, horticultural science and practice, or on seed science research.
- Get involved in research and conservation programs like the Global Trees Campaign or the Plant Sentinel Network.
- Create connectivity between horticulturists and plant pathologists to tackle pests and diseases affecting trees and crops.
- Use horticultural expertise for conservation work in transformed landscapes.
- Encourage training of horticulturists so they are capable to work in conservation and research.

Theme B: Botanic Gardens and Global Change

Past EuroGard congresses (Helsinki 2009) have addressed the role of BGs in global changes

- Climate change is expected to have a profound impact on botanic gardens. Future garden landscapes will be altered through changes in environmental conditions, precipitation patters, temperatures, catastrophic climate events and, for coastal botanic gardens, rising sea levels.
- The following key points were presented in relation to climate change and botanic gardens :

- Each individual botanic garden may wish to develop their own **institutional Climate Change strategy**, identifying potential impacts and proposed responses, as well as the roles it may play in research, advocacy, education and climate change driven plant conservation programmes. Networking of such responses can be valuable to share expertise, experience and priorities.
- Botanic gardens' **research in climate change monitoring, mitigation and adaptations** may include :
  - Using herbarium specimens and phenological records to monitor the rates of climate change
  - Invasive species monitoring and early warning systems, including pests and diseases.
  - Tree landscapes for cities in a changed environment, including tree safety and risk assessments (Future choices of tree species for future planting can be a valuable research project to support city authorities).
  - Climate change models related to particular plants and ecosystems.
  - More long-term, multidisciplinary and multi institutional research projects into the impacts of global/climate change on plant populations and ecological communities, and vice-versa (e.g., assessing vulnerability of local species and communities, collecting weather data, monitoring phenological and other responses to climate change).
- Botanic gardens will need to incorporate climate change concerns and awareness into their **collections policies**, to ensure that they build future resilience into long-term collections planning.
- Botanic garden **seed banks** can become a valuable climate change response to ensure that loss of genetic diversity of species and populations is reduced by the storage of multiple accessions.
- **Educational activities** related to climate change in botanic gardens can focus on highlighting the best available information on the potential impacts of climate change on plants, including agriculture, land use, forests and wild ecosystems. Addressing ´plant blindness´is a valuable approach. Helping the public to understand the science behind climate change can be an important and valuable educational role.
- The special vulnerability of **alpine plants in Europe** to climate change needs urgent action and attention by botanic gardens as so many such species are facing intense new environmental and competitive pressures.

Theme C: Biodiversity conservation activities

- For the last few decades the global loss of plant diversity and ecosystems degradation has been acknowledged as a serious concern and botanic gardens have become amongst the most important and effective bodies taking action in *ex situ* and *in situ* conservation.
- This session of EuroGard addressed a very wide range of conservation actions

Theme C: Biodiversity conservation activities

Key points

- Botanic garden collections contain around 30% of known plant species diversity and although this is a significant resource for conservation purposes, the sessions demonstrated that significant tasks still face botanic gardens over the next few years if GSPC Target 8 is to be achieved.
- While some countries in Europe are making good progress in conserving their native flora, there is a particular responsibility to ensure the conservation of insular flora and support overseas plant conservation.
- It is clear that priorities need to be set and the GSPC provides a useful framework for this. On-going **red-listing activities** are helping to identify the species most in need of conservation and botanic gardens are encouraged to participate in such activities. In addition other species, such as socio-economically important plants, including crop wild relatives should also be prioritised for conservation.

Collection management

- Botanic garden collections need to be managed appropriately to support conservation, with collections being properly documented and representative of the population diversity in the wild. Building public awareness of the importance of botanic gardens in conservation is also essential if we are to attract the resources needed to sustain and develop this work. Conservation collections can be used to tell the 'story' of the garden. Botanic gardens can demonstrate their commitment to plant conservation through sharing data and participating in accreditation schemes.

Theme C: Biodiversity conservation activities

Seed banking

- Several sessions highlighted that botanic gardens across Europe are becoming increasing involved in seed banking and many are coordinated through the ENSCONET Consortium which has developed a priority-checklist on a country-by-country base of taxa which need to be collected. Non-ENSCONET Consortium members are encouraged to add data to the ENSCOBASE database to ensure a well coordinated seed banking effort across the region. The need to coordinate seed banking efforts with the agricultural and forestry sectors was also highlighted.
- As well as seed banking, cryopreservation and in vitro techniques are being used for conservation by some gardens (for example 40% of protected and endangered species of the Polish native flora are preserved in the cryogenic seed bank).

Restoration

- Botanic gardens and seed banks are a good source of material for **recovery, reintroduction and restoration** projects. A growing number of gardens are members of the Ecological Restoration Alliance, which provides a suite of resources and experience to support restoration activities.
- A number of sessions highlighted the importance of using the best available scientific research **tools, technologies and methodologies** to support conservation, restoration and recovery programmes. The role of conservation horticulture was also highlighted, with gardens encouraged to publish the results of horticultural research and support a greater role for horticulture in conservation and restoration programmes. The journal Sibbaldia was highlighted as a place for publishing horticultural research.
- **Access and benefit sharing** it is important that botanic gardens operate according to the requirements of the Nagoya Protocol. A number of resources are available to support botanic gardens in this, including Codes of Conduct and the International Plant Exchange Network (IPEN), which provides a mechanism for the non-commercial exchange of material.

Theme D: Role of Botanic Gardens in the Education Programs

Education is one of the major roles for botanic gardens, especially in the 21st century where “the number of botany students, botany classes, botany departments, and botanist’s attendance at national meetings continues to diminish” (Woodland, 2007). Furthermore Botanic Gardens are ideally placed *connect people to nature and an opportunity to change the way people interact with the world*” (Piacentini, 2010).

Theme D: Role of Botanic Gardens in the Education Programs

- Education is one major dimension included in the Global Strategy for Plant Conservation and in the UN Sustainable Development Goals.
- BGs are guardians of ethnobotanical knowledge, ancient agricultural practices, use of traditional techniques and respect for environmental conditions. These are key factors for implementing the sustainable use of resources.
- BGs are able to highlight the social role of environmental areas and the recognition of the value of biodiversity, including for human well-being.
- Education should aim at improved knowledge and interest of the target groups addressed and at a change of attitudes, values or behaviours related to plants, environment and conservation

Education activities in botanic gardens include, i.a. :

- Utilization of new technologies relevant for different target groups.
- Development of skills and knowledge about plant propagation or landscaping
- Involvement of volunteers to support education activities.
- Involvement of citizens in a diversity of projects, e.g., trees in the city
- Programmes promoting local livelihoods
- Development of bio-cultural collections.
- Involvement in inquiry-based methodologies stimulating the audience’s curiosity about plants in daily life.
- E-learning practices.
- Utilization of resources developed by BGCI.
- Evaluation tools and methodologies enhancing impact assessment of activities.
- Evaluation of education programmes and their short term and long term impacts.
- Development of strong connections with future and active school teachers through training courses.
- Installation of interdisciplinary programs between university botanical gardens and other University departments.
- Involvement in new curricular unit including botany in all types of education from primary to University.
- Interpretative interphases between plants and pollinators.
- Creation of interphases between plants and art.
- Involvement in international education projects.

Theme E: Sustainability of Botanic Gardens

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- Achieving sustainability in the 21st century requires complex, holistic thinking both on global and local level.
- By taking responsible measures on planning, managing and running botanic gardens, they have important effects, impacting on millions of visitors and in conservation work for thousands of plant species.
- Sustainability of botanic gardens includes not only sustainable practices within the garden but also the sustainability of the institutions themselves
- Botanic gardens have a responsibility to promote themselves as models for sustainability and to promote this to the public

Theme E: Sustainability of Botanic Gardens

The role and relevance of botanic gardens (including their traditional configurations) in the world today is very challenging and provocative and requires a broad overview. Not only are there increasing demands by different societal actors for the participation of BGs in addressing environmental compliance and sustainability issues, BGs are also working to become more financially sustainable, with the increasing involvement of communities (e.g.: friends associations), and are more aware of their duties and responsibility in obtaining and exchanging plant material (ABS).

- Practicing sustainable horticulture : recycling, reducing waste and energy consumption,
- Sustainable use and harvesting of plant diversity
- Water wise gardens, securing sustainable water supplies
- Integrated pest management, using monitoring systems for the inspection and identification of pest organisms in greenhouse conditions
- drought and salt tolerance,
- climate-adapted plants, green roofs, fair trade and organic produce
- Scientific management of the BG with installation of soil moisture sensors
- Plant selection
- Sustainability of horticultural practices
- Best practice and networks : International Plant Sentinel Network (IPSN) provide an early-warning system for new and emerging plant pests and diseases

Theme F: Heritage, Culture and Tourism in Botanic Gardens

Many modern European botanic garden have their roots in the medicinal plant gardens, some of the most ancient associated with the medical schools of Renaissance universities. Nowadays botanic gardens can significantly develop this historical and cultural heritage and also make an important contribution to promoting botanic gardens for tourism.

Important points raised were

- The restoration of the Ajuda BG was highlighted as an important model
- Good use of historic documents and research in planning of the restorations is essential as outlined in the Florence charter

Theme F: Heritage, Culture and Tourism in Botanic Gardens

- The evolution of plant classification systems can often be well understood within the context of historic botanic gardens

- Historic gardens play a hugely important role in tourism heritage in many important European cities and they are recognised as vital cultural assets

XV Symposium AIMJB: Spanish and Portuguese Botanic Gardens challenges and responsibilities in the countdown to 2020

- A symposium of the Ibero-Macaronesian Association of Botanic Gardens took place with the aim of assessing the work carried out to meet the Aïchi Biodiversity Targets adopted by the Iberian-Macaronesian botanic gardens for 2020.
- The XV AIMJB Symposium showed the importance of addressing the conservation of the Ibero Macaronesian Peninsula
- It was showed that botanic gardens have a fundamental role in preserving local diversity