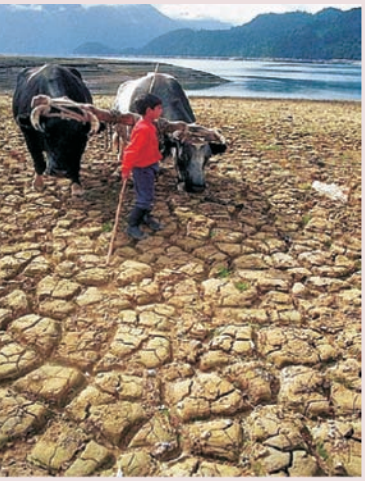





The Gran Canaria Declaration II

on

Climate Change and Plant Conservation

BGCI
Plants for the Planet

Cabildo de Gran Canaria
MEDIO AMBIENTE
JARDIN BOTANICO CANARIO VIERA Y CLAVIJO
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The world today is changing more rapidly than at any time in human history. The least predictable and potentially most disruptive alteration of all concerns the Earth's climate. Climatic changes are intimately connected with plants, which harness the energy of the sun through photosynthesis and maintain ecosystems for all life on the planet. The fate of humanity is therefore inseparable from the fate of plants. Human life is impossible without the ecosystem services provided by plants, which include:

- The production of oxygen and assimilation/sequestration of carbon dioxide in both terrestrial and oceanic systems that currently removes about 50% of anthropogenic CO2 emissions.
- The creation, stabilisation and protection of soil essential for most of the Earth's productive agricultural systems and the major carbon pool in the terrestrial biosphere.
- The creation and protection of watersheds slowing run-off rate of precipitation and promoting water infiltration and purification.
- The basis of the trophic pyramid in all terrestrial and most marine ecosystems on which we and all other animal species inevitably depend.
- The provision of a vast multitude of natural resources for humanity, especially in the developing world: plants provide all of our food, most medicines and many other materials essential for our daily lives.

Healthy ecosystems - based on plant diversity - provide the conditions and processes that sustain life and are essential to the well-being and livelihoods of all humankind. "Biodiversity can indeed help alleviate hunger and poverty, can promote human health and be the basis for ensuring freedom and equity for all." (A statement made by heads of five biodiversity related conventions: "Life Insurance for a Changing World" September 2005).

THE GLOBAL STRATEGY FOR PLANT CONSERVATION (GSPC) AND CLIMATE CHANGE

According to recent estimates, more than 100,000 plant species are currently threatened with extinction. Furthermore, the rate of extinction is expected to increase at an unprecedented rate as global temperatures continue to rise. Predictions of between 3º and 6° C rise in temperature by the end of the century and dramatically altered hydrological cycles are likely to threaten even currently common plant species. As many as half of the estimated 400,000 plant species in existence today may be under threat.

The Global Strategy for Plant Conservation (GSPC) was unanimously agreed by all Parties to the UN Convention on Biological Diversity (CBD) in 2002. The Strategy has 16 ambitious targets to be achieved by 2010 and it has motivated action to save plant diversity from extinction at national, regional and international levels. The Strategy is also being used as a model to monitor the overall CBD goal to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national levels as a contribution to poverty alleviation and to the benefit of all life on earth.

The Strategy includes actions that are necessary to maintain ecosystems as carbon sinks and to provide reservoirs of genetic and species resources as a safeguard for the future. It is also promoting action towards a better understanding of which species are most at risk, and to reduce stresses such as land-use change, over-harvesting, and invasive alien species. It has set international targets which will improve the conservation of threatened species both *in situ* and *ex situ* and it is also promoting education and awareness about plant diversity and building capacity for its conservation. All these actions will help reduce the impacts of climate change on plant communities.

There is however, a need to look beyond 2010. In planning ahead, the profound shift in environmental parameters brought about by climate change must be taken into account. Scientific evidence clearly shows that the Earth is experiencing an unprecedented period of global warming, driven by exceptional increases in gasses such as atmospheric carbon dioxide: the "greenhouse effect". Observed changes on species and ecosystems are already significant and predictive models indicate that a substantial proportion of species will go extinct within 50 to 80 years due to loss of suitable habitat. Urgent action is required. Biodiversity conservation plans and targets need to integrate mitigation and adaptation strategies against climate change. Such a response should be undertaken within the current framework of the GSPC, thereby intensifying ongoing plant conservation action, and adopting an approach that allows for adaptive conservation management of plant diversity.

Recognising the urgent need to respond to the global challenge of climate change within the framework of the Global Strategy for Plant Conservation, a meeting of the "GRAN CANARIA GROUP" * was convened in Las Palmas de Gran Canaria, Spain on the 10-11th of April 2006. As a result of the meeting the Group formulated a declaration calling for immediate action on climate change and plant conservation.

THE GRAN CANARIA DECLARATION on CLIMATE CHANGE AND PLANT CONSERVATION:

THE GRAN CANARIA GROUP

1. Recognises that the challenge of climate change to plant conservation is immense, but considers that the prevention of mass extinction is achievable through the full achievement of the GSPC Targets.

2. Strongly recommends the preparation of an ACTION PLAN correlative to the GSPC on climate change and plants for consideration by the Conference of Parties to the Convention on Biological Diversity.

3. Calls upon governments to take urgent action within the framework of the Global Strategy for Plant Conservation to increase protection for the world's plants in the face of the unprecedented threat to biological diversity from climate change.

4. Recognises that the need for increased protection measures for the world's plant diversity in the wild is vitally important to ensure the sustained functioning of ecosystems and the maintenance of the well-being of people in all countries of the world.

5. Considers *ex situ* collections to have a key role to play in securing the conservation of wild plant species as natural resources, as an insurance policy for the future, as a basis for restoration and re-introduction programmes and as support for the adaptation of livelihoods to climate change and shifting climatic zones.

6. Furthermore, considers that with over 200 million visitors annually worldwide, botanic gardens have the capacity to play a leading role in conveying important environmental messages, thus heightening public awareness of climate change and plant conservation.

ELEMENTS OF AN ACTION PLAN

The following elements of an action plan are designed to prevent plant species extinction and the failure of ecosystem functioning under current and future climate change scenarios. Modifications to biodiversity policy, research needs and conservation actions are proposed for immediate implementation. The Global Partnership for Plant Conservation established to facilitate and support national implementation of the GSPC, and with its secretariat provided by Botanic Gardens Conservation International (BGCI), should be fully engaged to take forward and promote key actions and to help re-define the relevant parts of the GSPC to respond increasingly effectively to climate change. Any redefinition should recognise that:

- Many plant communities are dynamic and adaptable, but their composition will be irreversibly altered by climate change in the future. As a result, we may need to create and/or manage the ongoing development of novel communities to optimally fulfil the need for ecosystem functions and services.
- Natural vegetation is of vital importance in water management under current and future climate change scenarios.
- Plant communities have vital importance as a 'carbon sinks', with the potential to off-set some carbon emissions.
- Coastal ecosystems are essential as buffers to rising sea levels and extreme weather events.

THE GLOBAL PARTNERSHIP FOR PLANT CONSERVATION SHOULD:

POLICY

- Contribute to the in-depth review of the GSPC and the development of the GSPC beyond 2010 taking into account climate change impacts.
- Compile and disseminate research findings on climate change and plants to provide a baseline report and information service drawing together existing work on the modelling of future plant distribution and abundance in order to guide policy and plan conservation actions.
- Transmit information on climate change and plants to the Joint Liaison Group of the Rio Conventions.
- Provide guidance to the CBD's SBSTTA on how relevant climate change impact and response activities can be integrated into the GSPC.
- Develop policy at local, sub-regional, regional levels in support of the revised global strategy.

- Develop more realistic plant diversity-climate change modelling approaches to take into account microhabitats, to detect potentially threatened species and potentially invasive species in a changing climate scenario.

- Model bioresources to increase understanding of how these will be affected by climate change.

- Develop field based monitoring programmes, focused by modelling studies of vulnerable areas, to enable assessment and long term monitoring of the impact of climate change on plant diversity.

- Identify geographical areas that will provide refugia for the maximum diversity of species (e.g. montane areas with heterogeneous relief), and prioritise such areas as Important Plant Areas for *in situ* conservation and *ex situ* collection sites.

- Review the development of biodiversity migration corridors taking into account plant life history strategies and capacity for adaptation.

- Develop methodologies to enable capture of maximum genetic diversity at population level of target species for:

  a) *ex situ* conservation

  b) species and ecosystem restoration

  c) human livelihoods

- Investigate aspects of population level diversity that have implications for human development, such as "phytochemical races" of plants (Concept of "di dao" plants in Chinese traditional medicine).

- Research and conserve key ecosystem species (keystone species), including those currently 'taken for granted', regardless of current formal threat status.

Erysimum albescens
(A Gran Canaria endemic)

- Carry out an audit of wild taxa held in existing *ex situ* collections, including seed banks as an urgent priority and consider the setting up of a global network of *ex situ* conservation centres to provide the maximum coverage for the world's threatened species.

- Conduct a gap-analysis of *in situ* and *ex situ* conservation actions for species threatened by climate change and immediately implement urgent conservation actions for taxa and communities identified as vulnerable, based on criteria such as:

  - Taxa with nowhere to go, such as mountain tops, low-lying islands, high latitudes and the edges of continents
  - Plants with restricted ranges such as rare and endemic species.
  - Taxa with poor dispersal capability and/or long generation times.
  - Species that are susceptible to extreme conditions such as flood or drought.
  - Plants with extreme habitat/niche specialisation such as narrow tolerance to climate - sensitive variables.
  - Taxa with co-evolved or synchronous relationships with other species.
  - Species with inflexible physiological responses to climate variables.
  - Keystone taxa important in primary production or ecosystem processes and function.
  - Taxa with direct value for humans or with potential for future use.

- Implement adaptive management strategies in ecosystems that are not resilient to climate change, including translocation, restoration and other interventions.

- Integrate traditional knowledge about management of plant species and land management with up to date science in order to maintain or adapt local ecosystems.

- Incorporate the effects of climate change into the Important Plant Area concept by predicting the effects of climate change on currently designated IPAs and the possible modifications necessary to maintain an effective in situ reserve network in the future.

- Increase investment in conservation actions to support maintenance of ecosystem functioning and supply of services, under current and future climate change scenarios, consistent with the Millennium Ecosystem Assessment and the Millennium Development Goals for poverty alleviation and environmental sustainability.

- Put incentives in place to encourage sustainable management of old growth natural vegetation to maintain carbon stocks (through Kyoto mechanism, International Emissions Trading, Joint Implementation and the Clean Development Mechanism and/or offsets mechanisms) and ensure any new plantings intended to offset carbon emissions are ecologically suitable, so do not detriment other ecosystem functions.

- Protect and promote the use of the wide range of adaptive traits present in wild plant species to enable human adaptation to climate change.

THE GRAN CANARIA GROUP

The Gran Canaria Group is an ad hoc group drawn from major national and international organisations, institutions and other bodies involved in biodiversity conservation. The first meeting of a Gran Canaria Group was held in April 2000, a meeting which led ultimately to the development and adoption of the Global Strategy for Plant Conservation.

Gran Canaria Group 2006

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Annie Lane, International Plant Genetic Resources Institute, Italy

Clare Trivedi, Royal Botanic Gardens Kew, UK

David Bramwell, Viera y Clavijo Botanic Garden, Spain (Chair)

Esteban Hernandez Bermejo, Cordoba Botanic Garden, Spain

Huang Hongwen, Wuhan Botanic Garden, China

Jameson Seyani, National Herbarium, Malawi

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Global Strategy
for Plant Conservation
The Gran Canaria Declaration
calling for a
Global Program for Plant Conservation

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