

# Preface

Plants are essential for human and other animal life on Earth in that they capture energy from the sun and convert it into food in the form of their seeds, leaves and roots. Human life is further sustained by the medicines, building materials and fuel that plants provide. Plants are central to many ecological processes such as climate regulation (including carbon dioxide absorption), soil fertility and the purification of both water and air. In spite of their importance, more than 80,000 seed-bearing plant species (20% of the total) are currently under threat. The threat of extinction is largely due to habitat degradation, invasive alien species and over-exploitation, and is likely to be exacerbated by climate change. This plant diversity will be essential to solving some of this century's major challenges in the areas of food security, energy availability, water scarcity, climate change and habitat degradation.

It is estimated that humans have modified more than 50% of the world's land surface, with approximately 40% given over to agriculture and livestock. For plants with natural distributions that fall within these transformed areas, *ex situ* conservation may be the only way they can survive. Even in national parks and wilderness areas not altered or actively managed by people, plant populations may be vulnerable – particularly to invasive species, pests, diseases and a changing climate. In this context, botanic gardens offer the opportunity to conserve and manage a wide range of plant diversity *ex situ*, and *in situ* in the broader landscape. The rationale that botanic gardens have a major role to play in preventing plant species extinctions is based on the following assumptions:

- There is no technical reason why any plant species should become extinct. Given the array of *ex situ* and *in situ* conservation techniques employed by the botanic garden community we should be able to avoid species extinctions.
- As a professional community, botanic gardens possess a unique set of skills that encompass finding, identifying, collecting, conserving and growing plant diversity across the entire taxonomic spectrum.

Botanic gardens are a diverse community, fulfilling multiple objectives including attracting visitors, education, scientific research, horticulture and conservation. They have the potential to maximise their societal impact by becoming better organised as a professional community, and effectively communicating their role and objectives in plant conservation and use to policy makers, funders and the general public.

Central to this mission is the garden itself and the documented collections that it holds. Every living collection in a botanic garden or seed bank has value, particularly if it is correctly named and documented, because it is part of a living laboratory from which we can learn how to conserve or manage plant species. A correctly named specimen is linked to a wealth of literature about its origins, value and uses, and the specimen itself is available for research into how to grow, conserve or use the species that it represents. As more and more plant species become extinct in the wild, the role of botanic gardens as the last refuges for declining species will grow, as will their importance as sources of material for human innovation, adaptation and resilience.

Botanic Gardens Conservation International (BGCI) published the *Darwin Technical Manual for Botanic Gardens* in 1998<sup>1</sup> at a time when very little development and management guidance was available to botanic garden managers. Today, in 2016, this is still the case as evidenced by the requests for technical support received by BGCI on a regular basis. The new *BGCI Manual on Planning, Developing and Managing Botanic Gardens* is a direct response to that demand – and to the growing importance, sophistication and complexity of the world's network of botanic gardens and arboreta over the past 20 years. This is reflected in this new Manual which goes into great depth and covers a wide range of subjects related to the establishment and management of today's botanic gardens. In order to prevent what has turned into a vast tome from becoming unwieldy, and to make it easily navigable by the reader, this Manual is published in a series of fascicles:

**Part A: From Idea to Realisation – Bringing a Big Idea to Life** is primarily aimed at people who wish to create a new botanic garden or substantially modify an existing garden. It covers the process involved in transforming the idea of a botanic garden into reality with all of the planning, building and development in between.

**Part B: Organisational and Operational Essentials** sets out the governance models, processes, human resources and financial mechanisms required to operate a botanic garden.

**Part C: The Plant Collection – Linchpin of the Botanic Garden** is the heart of the Manual, covering the plant collection that the botanic garden is built around. Topics covered in this fascicle include: the development of a collection policy; collection record management systems; horticultural management; and uses of the collection.

**Part D: Botanic Gardens as Models of Environmental Sustainability** sets out how botanic gardens around the world are addressing sustainability challenges such as energy, water and recycling.

Botanic Gardens Conservation International represents a network of botanic institutions in over 100 countries, including the largest and most influential botanic gardens and arboreta in the world. Our mission is *to mobilise botanic gardens and engage partners in securing plant diversity for the well-being of people and the planet*. We do this through: promoting the role of botanic gardens to policymakers and funders; leading innovative and strategic projects; acting as a knowledge hub for best practice, training, resources and expertise; and by mobilising funding to deliver plant conservation impacts in the botanic garden sector and wider society.

We hope that this Manual will make a substantial contribution towards achieving our mission and we very much hope that you are able to make full use of it. This is a living document that, with your help, we will amend and enhance over time. Comments and suggestions are welcome!

**Dr Paul Smith**

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<sup>1</sup> Leadlay, E. and Greene, J. (eds) (1998). *The Darwin Technical Manual for Botanic Gardens*. Botanic Gardens Conservation International, Richmond, UK.