T8

Banking on Nature

Objective II: Plant diversity is urgently and effectively conserved

II

Target 8: At least 75 per cent of threatened plant species in *ex situ* collections, preferably in the country of origin, and at least 20 per cent available for recovery and restoration programmes

Antonina Shmaraeva

Ex situ plant conservation is defined as the conservation of plant diversity outside its natural habitat. *Ex situ* conservation plays a complementary role to *in situ* conservation, providing a safety 'back-up' and an insurance policy against extinction in the wild. Given the fact that ecosystems are already changing as individual species react differently to climate change, *ex situ* conservation is assuming a new and important role in conservation strategies.


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There are various forms of *ex situ* conservation:

Seed conservation: This is useful for plants with 'normal' seeds that can be dried and stored at low temperatures for long periods. It is the most cost efficient and common form of *ex situ* conservation.

***In vitro* conservation**: This includes plant tissue culture and cryopreservation. In these types of conservation, small parts of the plant (typically growing points) are removed and conserved in sterile conditions at low temperatures (very low in the case of cryopreservation). These techniques are useful for plants whose seeds are 'recalcitrant', or cannot be dried and stored at low temperatures.

Field genebanks: These are more commonly used for maintaining the genetic diversity of agricultural crops that cannot be stored as seeds (see Target 9). They are less common for the conservation of wild plant species.


Bian Tan

Kew's Millennium Seed Bank (MSB) partnership is the largest *ex situ* plant conservation project in the world. Working with a network of partners across 50 countries, the MSB has successfully banked 10 per cent of the world's wild plant species. Their aim is to save 25 per cent by 2020, with a focus on plants and regions most at risk from climate change and the ever-increasing impact of human activities.

In Taiwan, the **Dr. Cecilia Koo Botanic Conservation Center** has become an important *ex situ* sanctuary for tropical plants. The aim over the next 20 years is to preserve at least 25,000 species of living tropical plants. Currently the centre has over 12,000 species, almost half of which are tropical orchids.

Robert Benson


BGCI

"In the face of an uncertain future, an urgent priority now must be conservation through seed-banking and living collections for as many plant species as possible, by way of an insurance policy."

BGCI report on Plants and Climate Change: Which Future?

Living collections of botanic gardens: The plant collections of botanic gardens include a large number of threatened wild plant species. Well-documented, genetically representative plant collections are valuable for *ex situ* conservation as well as having additional value, in that they provide material for:

- Horticulture and research
- Propagation of plants to remove or reduce pressure from wild harvesting
- Display, education and community engagement activities
- Species reintroduction and habitat restoration programmes

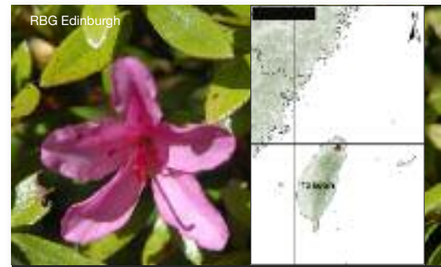

Bian Tan

Where are we now?

Botanic gardens are the main institutions involved in the *ex situ* conservation of wild plant diversity. The number of botanic gardens in existence around the world has more than doubled in recent years and their combined plant collections consist of more than 100,000 species, nearly one third of all known plants, including many threatened species. These are documented in BGCI's PlantSearch database. In a number of countries, national botanic garden networks have adopted this target as a particular focus for their activities.

Find out more:

www.bgci.org
www.kew.org
www.centerforplantconservation.org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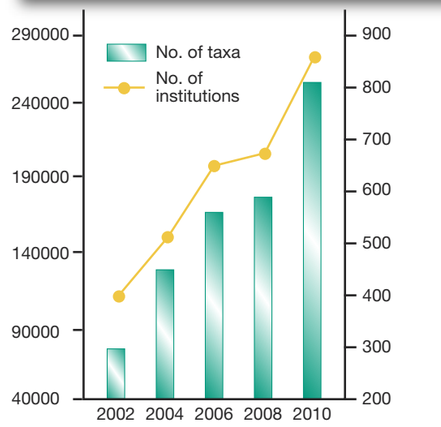
Rhododendron kanehirae is considered to be extinct in the wild, following flooding of the river banks around its only known natural locality in Northern Taiwan. However, an ex situ conservation project is being run by the Taiwan Endangered Species Research Institute. As a result, plants have now been distributed to botanic gardens in Taiwan, and elsewhere to ensure the future for this unique species.



No. of taxa and no. of institutions providing data to BGCI PlantSearch database since 2002