

Importance and functions of Botanical Gardens

Introduction

First modern Botanical garden was established by Luca Ghini at Pisa, Italy in 1544. Today, there are about 2500 botanical gardens in the world. Together, these botanical gardens cultivate more than 6 million accessions of living plants, representing around 80,000 taxa, or about one-quarter of the estimated number of vascular plant species in the world. These gardens thus play a central role in the ex situ conservation and exploration of global plant biodiversity. Botanical gardens also have an important role in the preservation of species necessary for human use and well-being, and this role is likely to become increasingly important as climate change becomes more severe. The range of scientific activities conducted by botanical gardens often includes conservation, propagation, horticulture, seed science, taxonomy, systematics, genetics, biotechnology, education, restoration ecology, public education, and much more (http://www.bgci.org/garden_search.php). Education, promoting awareness, and capacity building, involving both the public and staff at botanical gardens, are also vital functions of modern botanical gardens. These functions provide unique opportunities for plant biodiversity research, horticulture, and conservation biology in popular public places.

The functions of botanical gardens

Scientific research

Botanical gardens are good locations for many branches of scientific research. Botanical gardens not only serve as taxonomic and systematic research centers, but they also play an important role as valuable sources of plant ecology data collection such as phenological indication of climate change, plant physiology and plant growth tactics, and plant animal interactions. Botanical gardens can provide a large set of species to study functional trade-offs between species traits and plant performance. Botanical gardens are suitable locations for investigations into pollination ecology, seed dispersal, , plant conservation genetics and naturalization of alien species.

Herbarium and library

Several botanical gardens have herbaria and libraries as an integral part of their facilities and offer taxonomic materials for research and education.

Conservation and utilization

Living plant collections are the main contribution of botanical gardens and Botanical Gardens Conservation International (BGCI) estimates that there are 6.13 million accessions in botanical gardens, comprising more than 80,000 species (<http://www.bgci.org/resources/1528>). The

conservation of living plants in botanical gardens, especially of species that are threatened in the wild, has a long tradition and has greatly contributed to our understanding of threatened species. Ex situ conservation is defined as the conservation of components of biological diversity outside their natural habitats. Ex situ conservation, which plays an important role in saving threatened plant species, is generally associated with botanical gardens. One of the major objectives of botanical gardens is to create and support collections of native taxa, and to build and maintain stocks of plants for ex situ conservation and sustainable utilization of plant resources in the world. A basic framework for integrated plant species conservation in a botanical garden includes identification and management of threats, long-term ex situ and/or in situ germplasm storage, research and development information management, horticulture and living collections, conservation priorities, and environmental education.

Seed Exchange

More than 500 botanical gardens of the world operate an informal seed exchange scheme, offering annual lists of available species and a free exchange of seeds.

Education

In botanical gardens collections of plant are displayed according to families, genera or habitats and can be used for instruction or demonstration purposes. Botanical gardens also provide information to public about identification of native and exotic plant species, methods of propagation and supply plant materials for educational purposes.

Aesthetic appeal

As botanical gardens harbor large collections of native and exotic plants, they have an aesthetic appeal. They attract large number of visitors for observation of general plant diversity as well as exotic and curious plants.

Important botanical Gardens of the World and of India

Learn at least two names, their location and year of establishment from Hait Vol II