Importance of living plants collections

FÁBIO DE BARROS[1] and ARMANDO REIS TAVARES[2]

When referring to a living plants collection the first image that comes to the mind of most persons it is a greenhouse containing potted plants. Even though this represents a collection of plants, it is only one of the different types of plant collections, which can assume much less obvious forms. In addition, such collections may have diverse formats but also different objectives. From a technical point of view, "botanical collections are ordered groups of vegetables or parts of them for scientific purposes, and may be live or dried plants properly stored" (FONSECA and VIEIRA, 2015). Here only the living collections, not the collections of dehydrated specimens (called exsiccates) that characterize the herbaria, will be discussed. In general, living collections are more expensive, requiring extra physical space, capable to cultivate species of different biomes under suitable climatic conditions, and human resources trained to cultivate live plants (Forzza et al., 2016). According to Cerati (2013), the main purposes of living plants collections are to increase the scientific knowledge, contribute to biodiversity conservation, to promote assist the value of biodiversity to the visitors, and to develop techniques for collecting, sowing, planting and reintroducing of plants.

As far as the taxonomic or geographical scope, collections can differ as diverse collections (varied vegetal groups, as in a Botanical Garden); specific plant groups (eg. collections of trees, climbing plants, ornamental plants, etc.); species of the same plant family (collections of orchids, bromeliads); genetic material of a single species or few species or varieties of the same species (eg. collections for the genetic improvement of a particular species of economic interest) or species of the same biome or region (cerrado plants, plants of a specific geographic region) for example.

Collections can be private or public. Private collections may have commercial purposes, being focused to marketable plants, such as collections maintained to provide genetic material for breeding of traditional crop plants (maize, cassava, rice, etc.) or plants with potential utility, but not usual (ornamental tropical, PANCs, rare aromatic plants, unknown medicinal plants, etc.). Private collections may also aim the delight of visitors like private gardens. Public collections may have a great or less access to visitors. In the first case the specimens are destined to "exhibition" for visiting public (Botanical Gardens, for example) and environmental education (providing information to the public about the functionality of natural systems and their maintenance, conservation and restoration). Public plants collections may also be the base for scientific research in different areas, whether basic or applied in botany, genetics, plant physiology, ecology, etc., and/or as a repository of basic material for maintaining genetic variability (diversity) (eg. new plant options for floriculture, landscaping, and the urbanization of streets and squares) or providing material for ecological restoration (recovery of deforested areas, reintroduction of these species into their natural habitat). Scientific collections should, as far as possible, cover a wide genetic variability and the greatest possible geographic range of taxa. The living collections can also be classified by the method used for plant management, such as a) specimens under cultivation in soil or containers - is usually what is imagined as a collection; b) "in vitro" germplasm banks; c) germplasm banks under freezing; d) DNA banks; and e) seed collections.

In short, live plants collections can serve a wide range of purposes, and an alternative for these collections would be to search directly in nature for these plants, besides not practical, represents an ecologically adverse behaviour.

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[1] Instituto de Botânica (IBt), São Paulo-SP, Brazil.

[2] Assistant Editor Ornamental Horticulture. Instituto de Botânica (IBt), São Paulo-SP, Brazil. 0000-0001-6006-4741