



# **LIVING COLLECTIONS POLICY**

# Mission Statement

The Arnold Arboretum of Harvard University discovers and disseminates knowledge of the plant kingdom to foster greater understanding, appreciation, and stewardship of Earth's botanical diversity and its essential value to humankind.

## I. INTRODUCTION

### A. PURPOSE OF THE LIVING COLLECTIONS POLICY

The Living Collections Policy of the Arnold Arboretum guides the development, management, and enhancement of the institution's Living Collections, and applies to all plants outlined below under Scope of the Living Collections. The Living Collections Policy is written by the Living Collections Advisory Board, which is chaired by the Curator of Living Collections and comprises the Director and Manager of Horticulture, as well as external members that are representative of the scientific and botanical garden communities. The Living Collections Policy is reviewed at least every five years and revised as needed. The Horticulture Management Team (Curator of Living Collections, Manager of Horticulture, Manager of Plant Production, and Director of Operations) is charged with the administration of this policy as well as other operational procedures detailed in other Arboretum documents including but not limited to *General Procedures for Managing the Flow of Plants through the Department of Horticulture* (January, 2007); *The Landscape Management Plan* (3<sup>rd</sup> Edition, 2012); and *Plant Inventory Operations Manual* (2<sup>nd</sup> Edition, 2011). Definition of terms used are provided in the Appendix.

### B. PURPOSE OF THE LIVING COLLECTIONS

The Living Collections of the Arnold Arboretum are essential to achieving its mission as a research institution dedicated to improving the understanding, appreciation, and preservation of woody plants. As a national and international resource for research in the various fields of plant biology and beyond, the Arboretum's Living Collections are actively developed and managed in its historic landscape to support scientific investigation, conservation, education, and horticultural display.

### C. LEGAL AND ETHICAL CONSIDERATIONS

Activities related to the development, management, and use of the Arnold Arboretum's Living Collections comply with all relevant local, state, federal, tribal, and international laws. This includes compliance with import and access regulations of the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS), as well as the Convention on International Trade in Endangered Species (CITES) and the Convention on Biological Diversity (CBD). It is the responsibility of the individual acquiring plant material to research current national access laws and quarantines governing the collection, movement, and distribution of plants within and outside the United States prior to acquisition. All taxa are evaluated for their potential invasiveness, and should invasive or potentially invasive plants be retained for their scientific and education value, additional management procedures are put into

place for containment purposes; they are not distributed for horticultural use, but may be distributed for research purposes.

#### **D. ACCESS AND USE**

The Arboretum provides open and reasonable access to the Living Collections for research, conservation, education, and horticultural display purposes. Public areas of the Arboretum are open for visitor enjoyment and casual study during all hours of operation. However, no material can be collected or removed from the Arboretum without prior permission. This includes all access for teaching, research, and propagation purposes. The Arboretum maintains the right to refuse access to the collections and/or associated documentation due to, but not limited to, considerations of resource limitation, availability of material, or other applicable restrictions.

## **II. Scope of the Living Collections**

The Living Collections are divided into three primary categories: Core, Historic, and Special Collections; within each are secondary collections. This organization allows priority to be assigned to all extant, as well as potential, accessions within each category, thus guiding collections development, management, and enhancement decisions. It should be noted that none of the primary, or secondary, collections are mutually exclusive and that accessions may fall into multiple categories. Also note that some plants are grown at the Arnold Arboretum exclusively for research and experimental purposes by the faculty of Harvard University and the senior scientists of the Arboretum and are outside the Scope of this Living Collections Policy.

#### **A. CORE COLLECTIONS**

The Core Collections are of highest priority and receive the greatest focus with respect to development, management, and enhancement. In general, these collections are intrinsic to the core mission of the institution through their research use, and preference is placed on material of documented wild origin. Exceptions to provenance preferences are made only in specific cases when the value is significant enough to warrant accessioning. By and large, these collections are regarded as obligatory.

##### 1. Priority Genera.

###### a. PCN Genera

As part of its commitment to the Plant Collections Network (PCN), the Arboretum maintains and develops collections of botanical taxa within the following genera: *Acer*, *Carya*, *Fagus*, *Stewartia*, *Syringa*, and *Tsuga*. Because they are the most valuable in the collections, these generic collections maximize species diversity, with a goal that each species should be represented by at least three distinct wild provenances representing a broad portion of the species' range.

###### b. Robust Genera

Although not part of the PCN, four additional genera (*Carpinus*, *Forsythia*, *Ginkgo*, and *Ostrya*) are some of the best documented in cultivation. Maximum species representation

is a goal for *Carpinus*, *Forsythia*, and *Ostrya*, with each species represented by at least one distinct wild provenance; *Ginkgo* is to include wild as well as landrace/cultigen genotypes to maximize intraspecific diversity.

### c. Biogeographic Genera

Although the Living Collections contain many genera that exemplify the North America – Eastern Asia disjunct theme, eight are distinguished for it specifically: *Cornus*, *Hamamelis*, *Hydrangea sensu lato*, *Magnolia*, *Taxus*, *Viburnum*, and *Weigela & Diervilla*. Species representation within these genera is to be synoptic, but with priority placed upon species that broadly represent the phylogenetic breadth of each genus. Each species is to be represented by at least one distinct wild provenance.

## 2. Conservation Collections

Species under threat from extinction are maintained and developed for research, preservation, and education goals. These include species grown under the Arboretum's commitment with the Center for Plant Conservation (CPC), as well as other taxa of conservation value with the goal of preserving as high a level of intraspecific diversity as is practicable.

## 3. Synoptic Collections

Because of the Arboretum's broad mission to preserve and document biodiversity, the Living Collections are to provide a synoptic representation of Earth's temperate woody flora. Thus, the Living Collections should maximize generic diversity, and then interspecific diversity as is practicable.

## **B. HISTORIC AND PRIORITY CULTIVAR COLLECTIONS**

The Arboretum's early and ongoing contributions to plant exploration and horticultural improvement are manifested in a number of valued Historic and Cultivar Collections. In general, these collections are maintained, but not actively developed except in cases where authentic material of Arboretum origin can be repatriated, or the material is sufficiently unique to warrant accessioning.

### 1. Historic Collections

#### a. Early Arnold Arboretum Introductions

Plants collected by early Arboretum staff (e.g., C. S. Sargent, E. H. Wilson, J. G. Jack, J. Rock) may lack sufficient documentation, or be of garden or unknown provenance. However, because they represent important historical chapters in the development of the institution, they are maintained in the Living Collections. In some cases, these accessions may represent genotypes no longer extant in the wild because of local extinction and thus have high conservation value.

#### b. Nurseries and Horticulturists

Accessions derived from historically significant nurseries, botanical institutions, and horticulturists (e.g., H. J. Veitch, T. Meehan, M. Vilmorin) may lack full documentation, but are maintained in the Living Collections. These often represent the initial

introductions of species into cultivation and are, in all probability, wild-collected. In some cases, these accessions may represent genotypes no longer extant in the wild because of local extinction and thus have high conservation value.

## 2. Cultivar Collections

### a. Distinctive Cultivar Collections

Early and throughout its development, the Arboretum has established diverse collections of garden selections intentionally or now regarded as cultivars within various plant groups (e.g., *Malus*, *Rhododendron*, *Syringa*, dwarf conifers). These collections are maintained, and development is limited to acquisitions that notably expand the group's breadth; they are not to be comprehensive.

### b. Cultivars with names proposed prior to 1953

The Living Collections contain a number of historic cultivars with Latinized names that were proposed in a botanical context (typically *formae*) prior to 1953. As a general rule, these are maintained, particularly when they represent material unique in cultivation. However, these collections are not actively developed.

### c. Arnold Arboretum Cultivar Introductions

Throughout its history, the Arboretum has selected and introduced a number of named clones to horticulture, many of which were initially regarded as botanical *formae* but are now recognized as cultivars. Because they arose at the Arboretum, they are maintained and development occurs to repatriate genotypes lost by the Arboretum, as well as to select new cultivars worthy of introduction.

## **C. SPECIAL COLLECTIONS**

In addition to those within the above collection categories, The Living Collections comprise plants grown for other special purposes, to achieve display effects, or for reasons that may fall outside of traditional scope and not even be accessioned. However, because they play important roles in the Arboretum's research, horticultural, and educational work, they are included within the Living Collections. Development decisions for Special Collections are made on a case-by-case basis.

### 1. The Dwarfed Potted Tree Collection (Bonsai/Penjing)

This premier collection comprises notable examples of bonsai as well as other styles of penjing. In addition to maintaining historic accessions (particularly the Larz Anderson Bonsai), the collection is actively developed to expand the number of non-traditional species cultivated in these styles, particularly those of North American origin or those belonging to some of the Priority Genera above. The collection is also developed as a means to add marginally hardy species to the Living Collections.

### 2. Display Collections

Plants of cultivated origin, particularly cultivars belonging to the Priority Genera, may serve important research and education roles; however, their primary value is for display. Examples include plants with exceptional ornamental qualities, strong adaptability to New England

(including resistance to stress, insects, and diseases), and those under further evaluation. These collections are regarded as discretionary and are developed and maintained as needed, with the acknowledgement that accessions may be deaccessioned when their value no longer meets the appropriate standard.

### 3. Natural and Naturalized Areas; Spontaneous Flora

The Arboretum landscape contains several natural areas representative of the New England Flora (e.g., North Woods, Hemlock Hill) as well as an urban wild (Bussey Brook Meadow). Generally, these regions are maintained through natural regeneration of the existing vegetation; however development may occur under certain circumstances (e.g., restoration following major disturbance). Spontaneous generation of native, as well as exotic, plants occurs, and these may be removed because of their noxious characteristics. On occasion, plants in the natural areas may be formally accessioned.

### 4. Interior, Greenhouse, and Nursery Collections

A number of accessions are cultivated at the Dana Greenhouses and the Weld Hill Research Facility because they lack winter hardiness and cannot be cultivated outdoors in the permanent collections. Their development and maintenance are governed by this policy. However, other plants are grown for experimental, observational, and other programmatic functions outside the scope of production for the accessioned Living Collections. Development and maintenance of these plants are the responsibility of the primary investigator or other assigned staff member, with the understanding that these may be formally accessioned at a later time.

## **Appendix: Definition of terms used and in support of the Living Collections Policy**

An **accession** is the basic unit of a collection and identified by a unique accession number. By definition it represents a single taxon, from a single source, acquired at one time, and through one means of propagation. It may comprise a single plant, or multiple plants, each identified by a letter qualifier following the accession number, or MASS in the case of mass plantings (e.g., 3-48\*A, 21087\*MASS).

**Accessioning** is the process of adding specimens to the Arboretum's Living Collections and occurs immediately at the time of entry regardless of its stage (e.g., plant, cutting, scion, seed). All accession records are permanent and are not expunged should deaccessioning occur.

**Acquisition** of new accessions may be through field collection, exchange, gift, or purchase. All acquisitions must meet specific collections development goals in accordance with the Scope detailed in this Living Collections Policy.

A **collection** is defined as a group of accessions organized by a particular category for curatorial, educational, research, display, or other use. A collection need not be physically grouped together, and a single accession may be part of multiple collections.

**Curation** is the process of managing the Living Collections to guarantee its conservation, guide its development, ensure its documentation, and facilitate its enhancement.

**Deaccessioning** is the process of removing a living or dead accessioned plant from the collections, but does not include the deletion of any records. Deaccessioning decisions are made by the Curator of Living Collections.

**Development** is the process by which the Living Collections undergo change through the acquisition of new accessions and the deaccessioning of accessions no longer needed.

**Discretionary** collections meet specific research, display, education or other programmatic needs, but are not necessarily central to the mission of the Arboretum; they can be regarded as temporary.

**Enhancement** is the process of adding value to the Living Collections namely through documentation and research.

The **Living Collections** comprise all plants formally accessioned, and in a broad sense also contain unaccessioned plants in natural areas and spontaneous flora.

**Maintenance**, from a curatorial standpoint, is the practice of vegetatively repropagating an accession in order to preserve and perpetuate its genetic lineage. Multiple accessions of the same lineage are genetically identical.

**Obligatory** collections are those central to the mission of the Arboretum.

A **taxon** (plural, taxa) is a unit of any rank within the taxonomic hierarchy (e.g., family, genus, species, variety, cultivar).