

THE GREEN-WOOD CEMETERY

LIVING COLLECTIONS POLICY

Adopted by the President and the Board of Trustees of The Green-Wood Cemetery on 11 December 19

1. INTRODUCTION

1.1 Arboretum Mission Statement

Green-Wood's arboretum mission statement (AMS) is: to serve as an ambassador for "nature," within the Cemetery's thematic core of art, history and nature; to champion the Cemetery's identity as arboretum and urban oasis; to preserve and steward the cultural significance and integrity of the historic landscape and its collections of living plants; to further develop and maintain a diverse, sustainable, and resilient collection of woody plants; to support and host research into the urban forest and environmental change; and to enhance the role of the Cemetery as a public garden, wildlife habitat, and accessible community resource.

1.2 Purpose of this Policy

The purpose of the Living Collections Policy is to provide guidelines in developing, managing and sustaining Green-Wood's living collections. This policy applies to all woody plants that are accessioned or otherwise recorded, both currently and in the future. This policy seeks to ensure that Green-Wood's living collections are developed and managed in accordance with the AMS and supportive of the goals of the Department of Horticulture.

1.3 Governance

This Policy was drafted by the Department of Horticulture ("Department"). The Director of Horticulture and Curator ("Director") will be responsible for the administration of this policy, and the staff of the Department, or their agents, will be responsible for implementing it.

Significant changes to the policy will be proposed by the Director and approved by the President and the Board of Trustees.

1.4 Administration

Planning for and authority over the living collections are the responsibility of the Director and the staff of the Department, as informed by the guidelines in this document. Review and update of the collections is

a continual process. The Director and designated staff conduct annual reviews of the living collections, at which time annual and long-term goals are set. The Department is responsible for implementing these goals. Collection-development priorities are informed by this Collections Policy, which will undergo a comprehensive and systematic review on a three-year basis.

Components of the Living Collections Policy are to be described in detail in two forthcoming companion documents: the Collections Management Manual and the Plant Records Manual.

2. OBJECTIVES OF THE LIVING COLLECTION

At Green-Wood, limited space and resources, as well as curatorial intent, require that proposed additions to the collections be considered in relation to their support of the principles of the AMS, as described herein.

1. To maintain and complement the tranquil, inspirational, and historic rural character of Green-Wood's varied landscapes as envisioned by the Cemetery founders and interpreted by Cemetery stewards, while enhancing the landscape's long term sustainability and resilience.
2. To display a highly biodiverse collection of woody plants that represent flora native to the United States, as well as exotic species.
3. To enhance the significance of the living collection and enhance educational opportunities and interpretational resources of the natural history of the landscape.
4. To enable and support access to the collection for research purposes, with an emphasis on studies related to environmental change, preservation of the urban forest, and citizen science.
5. To protect and manage the Cemetery as a resource for wildlife by practicing sustainable horticulture practices with sensitivity toward life cycles and habitat needs.
6. To welcome the surrounding community with enhanced programming and initiatives to engage and educate visitors in the preservation of the natural world.

3. THE COLLECTION

3.1 Definition

For purposes of this policy, the "living collections" are defined as the group of woody plants curated by the Department, which function in support of the AMS.

3.2 Scope of Living Collection

Green-Wood was founded on agricultural and wooded lands. Today, Green-Wood's surrounding community is flat, urban, densely populated, and diverse in ethnicity, income, and age, but Green-Wood's landscape structure today is virtually unchanged since its founding in 1838 and expansion to its current size of 478 acres in 1895. The rolling terrain, curvilinear road system with its rubble stone gutters, the canopies of mature trees, the shape of its four remaining water bodies, its ornamental iron fencing, as well as its exquisitely designed historic structures and monuments, all contribute to Green-Wood's historic design integrity, and to the picturesque quality of its historic core.

Green-Wood was not originally intended to serve, nor historically curated, as an arboretum, and therefore its living collections are divided into several categories, all of them discrete and none of them mutually exclusive. All collections will be managed with consideration for future National Accreditation through the Plant Collection Network (PCN) under the auspices of the American Public Garden Association (APGA). The first two collections for which National Accreditation will be sought are: membership in the *Quercus* (Oak) Multi-Site Group, and *Nyssa* (which as of January, 2019 is not yet represented by another institution).

Some genera listed in the collections are in decline due to environmental stressors, increased vulnerability to insect and disease pathogens, and other disturbance factors. In order to guide the collection in the wake of potential future losses, efforts will be made to preserve and maintain these specimens, but not necessarily develop their genera further through future acquisition. Instead, visual continuity of the landscape will be achieved through efforts to expand diversity.

Additionally, some genera are overrepresented in the collections (*Acer*, *Prunus*) due to certain species having invasive or naturalizing tendencies. Efforts will be made to first reduce the invasive members of the collection before further acquisitions are made to those genera.

3.3 Collection Categories

1. Historic Collection

Defined broadly as woody plants that fall within the following two subcategories:

- Mature, i.e. veteran, woody plants that represent extraordinary specimens of their size/age class.

- Any and all woody plants that preserve the rural, romantic, and historic character of the site; the 2016 Cultural Landscape Report (Rhodeside & Harwell, VA) provides additional documentation.

2. Core Collection

- Defined as genera (and species) that enrich the landscape and enhance its historic character and reflect its natural history. This includes, but is not limited to the following genera: *Acer*, *Carya*, *Cornus*, *Diospyros*, *Fagus*, *Liquidambar*, *Liriodendron*, *Magnolia*, *Nyssa*, *Pinus*, *Platanus*, *Prunus*, *Quercus*, *Sassafras*, *Taxus*, *Tilia*, *Rhododendron*.
- Contains aesthetic value, such as seasonal interest, and/or wildlife value by providing resources to beneficial native fauna.
- Contains diversity within selected families and genera so as to chart the taxonomic lineage of a given genus and add to the genetic diversity of the collection.
- Includes specimens which serve as established landscape features (tunnel of *Fagus sylvatica* 'Pendula' (weeping European beech); grove of *Populus tremuloides* (quaking aspen)) and those that preserve the aesthetic of the landscape (such as the allées of *Platanus x hispanica* (London plane), *Quercus palustris* (pin oak), *Tilia americana* (American linden), and *T. x euchlora* (Crimean linden)) .

3. Diversity Collection

Defined as specimens selected to expand the species diversity or for curatorial purposes beyond that of the Core Collection, including under-represented genera of interest at the discretion of the Director.

4. Shrub Collection

- Defined as existing shrubs, including specimens that overlap with Historic, Core, and Diversity collections.
- U.S. native taxa with strong wildlife/pollinator attraction are the foundational elements of the shrub collection.

5. Educational/Interpretational Collection

Defined as plantings curated with specific educational or interpretational intent (ie. the planting of specimen of *Quercus virginiana* (southern live oak) obtained from the U.S. National Arboretum Woody Plant Germplasm Repository).

3. COLLECTION ACQUISITION AND ACCESSIONING

3.1 Objectives

The living collections are the primary focus of the arboretum. Any and all woody plants acquired for the collections by Green-Wood or for the arboretum by its designated contractors must meet the goals and objectives as defined by the AMS and within the Collections Scope, and be in accordance with the selection criteria delineated in this policy.

Project plant lists for Green-Wood-initiated landscape construction projects must be reviewed and approved by the Director as part of the design review process.

3.2 Criteria for Acquisition

All acquisitions must meet the following criteria:

1. Taxa must be appropriate to the climactic and general cultural attributes of the site (i.e., drought or flood tolerant as needed, and adaptable to local temperature extremes, soils, and levels of insolation and exposure).
2. Taxa selected for acquisition must fulfill at least two of the categories within the Scope of Collections.
3. Only taxa of known name and origin or source may be acquired.
4. Acquisitions are contingent on adequate funding and staff time available for proper care, curation, and management.
5. Accessions will be managed whenever possible to provide connections to and synergies with public programming.
6. Acquisitions should be sited in advance and coordinated with the Cemetery's Vice President of Operations, or otherwise sited in a location previously inhabited by a tree or shrub or location of established availability.
7. Plant material may be acquired from botanical institutions, field collectors, reputable commercial sources, or as gifts, at the discretion of the Director.
8. Acquisitions of horticulturally derived plants should be made with a goal to acquire authentic cultivars from:
 - The original plant breeder, nursery or institution that produced the plant.
 - Where this is not possible plants should be acquired from sources that are reputable and proven to have high standards of botanical nomenclature and plant identification.

3.3 Accessioning

Woody plant material will be accessioned upon acquisition; herbaceous plant material, woody plant material used for seasonal displays, such as within container plantings, and woody plant material under a minimum threshold diameter of six inches within the semi-maintained wood- lots will not be accessioned. Any specimens existing in a collection that have not been previously accessioned, and which enrich the overall collection, will be accessioned.

Upon acquisition, each plant in the collection is assigned a unique identifying number that serves as the accession number, which remains with it through its lifespan; accession numbers are not repurposed for proceeding plants. This “PlantCenter ID” is unique to the plant accessioned, and all geospatial and plant attributes, as well as maintenance records, are attached to this number.

The following are the minimal records required of all accessions:

- PlantCenter ID (Island and Tree Tag Number)
- Plant Date (Date of Planting)
- Scientific name (Family, Genus, Specific Epithet, Variety or Cultivar if applicable)
- Primary Name
- Provenance
- Source (i.e. Nursery)
- Diameter of trunk at breast height (inches)
- Stem Count
- Leaf Persistence
- Tree Status (Current Tree, Archive Record, or Current Stump)
- Location (Latitude, Longitude)

3.3.1 Deaccessioning/Disposal

Taxa may be removed/deaccessioned from the collection for a variety of reasons including safety, sanitation, aesthetics, invasiveness, or the needs of cemetery operations. Decisions on removals with significant aesthetic or public relations impacts, will be made with the approval of the Vice President of Design & Landscape and President.

Prior to deaccessioning, all relevant explanation of the removal will be recorded in the management plant database. Upon removal, the PlantCenterID becomes an archive record, and the accession ID is never reused, although the geospatial location is reserved for future planting.

Requests to deaccession living plants, particularly including the disposal or transplanting of plants within the Historic or Diversity collections (including any vulnerable to cemetery operations and landscape construction projects) will be submitted to the Director. The decision to dispose of a living tree should be consistent with the goals and mission of the arboretum.

Further details on the rate of replanting to maintain canopy density can be found in the Management Plan (2019).

Disposal of material from the Living Collections will follow the law (Appendix x) regarding any quarantines governing taxa within the collection.

Whenever possible, all debris resulting from removal will be diverted from landfills; Green- Wood will seek to offer organic material from its collection to reuse and recycling facilities.

3.3.2 Legal and Ethical Considerations

Green-Wood will not knowingly purchase or acquire plants that have been illegally collected or imported, nor will it encourage through its acquisitions the over-collecting of plants in the wild that diminishes the health or strength of a particular species' population.

Plants accepted as gifts must meet the same criteria as plants that are purchased by the Cemetery. The disposition of any plants given as gifts will be determined by Green-Wood, unconditionally. Green-Wood will not appraise gift plants nor be responsible for the cost of an appraisal.

Activities related to the development, management, and use of Green-Wood'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), the New York State Department of Environmental Conservation (DEC) 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; these are not distributed for horticultural use, but may be distributed for research purposes.

Green-Wood participates in the seven preventive measures as outlined in the St. Louis Voluntary Codes of Conduct. (See Appendix)

4. DOCUMENTATION

A critical management component in curating all collections is verification of the authenticity of plant identity and maintenance of suitable data resources. All reasonable attempts will be made to document and record available provenance data for each accession, including but not limited to botanical name, propagation/collection method, year of acquisition, permanent location in the arboretum, and detailed source data. All collection records will be created and maintained in accordance with the Plant Records Manual.

4.1 Standards

Green-Wood is committed to the maintenance of accurate, up-to-date, and pertinent records on its accessioned living collections. The Department's Project Manager is directly responsible for the maintenance of all plant records, under the supervision of the Director.

Information about plants determined by the Director to be part of collections will be maintained in Green-Wood's GIS-based Plant Records System. This system will maintain accurate, complete and up-to-date life history information on all plants in the living collection as well as their geospatial attributes. A field-check of the entire collection will be conducted on a 10-year cycle.

Taxa that have been deaccessioned will remain as an Archive Record and exist within the Plant Center GIS-shapefile of the collection.

Any staff member, or any external contractor, who acquires a plant for use on the grounds, or arranges for its acquisition, should immediately report its acquisition and provide all pertinent source information to the Project Manager. Changes in a plant's status should be reported to the plant records office as soon as the change is accomplished.

4.2 Labelling

All accessions will be publicly identified in the arboretum's interpretive web-application, <http://www.green-wood.com/trees>, as well as in the internal Plant Records System (Botanical Repository).

Interpretive labels, which contain PlantCenterID, species, cultivar (if applicable), taxonomic family, and native range will be affixed to exemplar taxa in the collection, as well as taxa adopted under the Historic Fund's Memorial Tree program.

Additional information on labelling strategy may be found in the Plant Records Manual.

5. PRESERVATION

Green-Wood seeks to balance preservation, collections diversity, public safety, and cemetery functionality in the management of its living collection. Any and all interventions will be made to preserve veteran specimens in the living collection in accordance with best practices in arboriculture and will follow the procedures outlined in the Collections Management Manual, prior to undertaking its removal. Additional information on the approach to management of the collection may be found in the Collections Management Manual.

5.1 Plant Healthcare/Integrated Pest Management

Plant health care interventions will be considered in order to maintain collection diversity and to preserve high priority taxon. To that end, Green-Wood will employ the principles of integrated pest management (IPM) in managing the living collection, which relies on knowledge of the life cycles of plant material and their pests, active monitoring/scouting, and the most economical and least hazardous combination of cultural, physical, biological, and/or chemical controls to prevent unacceptable levels of pest activity and damage.

6. RESEARCH|DISTRIBUTION|ACCESS TO THE COLLECTIONS

Green-Wood is committed to open access to its Living Collections and its landscape for research, conservation, education, and horticultural display purposes.

Green-Wood will pursue, enable, and support collaboration with other botanic gardens, arboreta, academic, governmental, and research institutions, as well as host citizen science initiatives whenever possible.

No material can be collected or removed from the collection without prior permission. This includes all access for teaching, research, and propagation purposes. Green-Wood 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. Any requests for special requests must be approved by the Director. Access to wood material for reuse purposes is subject to quarantine regulations and discretion of the Department.