

# LONGWOOD GARDENS

## **CORE COLLECTION**

The Peirce Collection

## **CORE COLLECTION CURATOR**

Scott Wade, Horticulture Assistant, Certified Arborist PD 1990 A

## **CURATOR'S VISION**

Restore and maintain the Peirce collection of historic trees to embody and display the Victorian era of plant collection. Following in the Quaker tradition, build a collection representing the pinnacle of plant exploration in the 1800s to include the plants that were available and popular at that time. Preserve, share and interpret these traditions in the living Peirce historic tree collection at Longwood Gardens.

## **MANAGEMENT PLAN**

Revised March 23, 2017 by Scott Wade

## **INTRODUCTION**

The Peirce Collection currently consists of 276 trees, 163 are identified as planted from 1798 to 1880 by the brothers Joshua and Samuel Peirce, and George W. Peirce located in close proximity to the Peirce du Pont House, and in Peirce's Park, east of the Peirce du Pont House. The remainder are historically accurate replacements from a variety of sources. The maturity of the collection and the number of trees in the collection provide a living testament to what an estate collection was like in the 19<sup>th</sup> century and the Victorian period in particular in the United States. It represents the birth of horticultural exploration, discovery and collection. The additional 113 trees are replacements made over time that represent taxa available during this time period.

## **HISTORY**

In 1700, George Peirce purchased a tract of land consisting of 402 acres from William Penn. This land is part of present day Longwood Gardens in Kennett Square, Pa. George's great grandsons, Joshua and Samuel Peirce eventually inherited 202 acres of the farm and by 1798 started collecting and planting trees from around the world in their estate garden. Planting by the Peirce brothers continued until 1851 when Joshua died and the property was passed down to George W. Peirce, who continued planting and developing the park until his death in 1880. The result was a collection of several hundred trees. The original number of taxa is unknown. Today 163 trees have been identified that remain from this period, some over two hundred years old.



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## **DESCRIPTION**

The Peirce Collection encompasses the original 202 acres owned by Joshua and Samuel Peirce. As more research is completed, trees believed to be of the time period 1798-1880, will be added to the collection. This will include woodland trees and specimen trees. Going forward the entire garden will be utilized for the display of the collection. This will allow proper planting of species that will not tolerate the shade of the original alleé. This collection includes varieties of trees representing the original intentions of the Peirce brothers. The collection currently consists of 50 taxa, as documented by the Peirce's Park Map. In 1916, a survey completed by Pierre du Pont, showed 70 taxa present. In an effort to represent what the Peirce brothers collected in the 19th century, the collection will seek to add specimens from the 150 taxa that were known to be available and popular in that time period and this region in order to restore what was lost. For more information see *Supporting Document: Taxa List*

## **MAINTENANCE**

Trees identified in the Peirce Collection are maintained on an as needed basis as outlined in the Tree Management Plan. For more information see *Supporting Document: Tree Management Plan*. Within the Tree Management Plan, please refer to the appendix *Peirce Collection Canopy Management Plan 2014*

In addition to regular maintenance as stated in the Tree Management Plan, Tree preservation will be practiced in order to preserve the trees as long as possible. For more information see *Supporting Document: Tree Preservation*.

## **CURATION**

### **Documentation:**

Trees included in the Peirce Collection are mapped using BG-Map. The collection is documented using BG-BASE. Any and all information about the tree, its care, and any other pertinent data is entered into the database. We will determine approximate ages for the trees by ring counting dead or hazardous branches removed from the trees, noting the height at which they were removed, and extrapolating an age based on the data. Coring of the trunk to obtain a ring count is not an option we wish to pursue at this time.

The collection is being vouchered through herbarium specimens. This process will continue until all of the plants in the collection are vouchered at an individual level. It is expected that this process will be completed by 2020.



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## **Labeling:**

Each tree has an identifying brass tag on the north side of the tree at or about 4.5' above the ground. The tag includes an accession number individual to the tree. Each accession number begins with the prefix 1800 to identify original trees in this collection. All trees in the collection are noted in BGbase. The Latin and common name of the tree, along with a description of the part of the world where the tree is native is also on the tag.

## **Inventory:**

Quarterly inventories will be conducted by the Curator of the Peirce Collection. The collection will also be assessed by the Breeder and Curator during the growing season at least every ten years. Assessments will be recorded in BG-BASE. An assessment entails measuring the height, girth and spread, capturing a current image, and analyzing for defects and needs. Additional assessments will be conducted during any arboricultural work that takes place in the interim. Gardeners also inspect the trees frequently as a part of their daily duties.

## **DEVELOPMENT**

In the Peirce's time the collection consisted of approximately 1100 individual trees. Currently, the collection consists of 50 taxa which include 276 individual trees. Records show that in 1916 there were 70 taxa represented in the collection with 674 individual trees. Additional research of similar arboretums of the 19<sup>th</sup> century in south eastern Pennsylvania provides over 150 taxa that were collected, traded and planted during this time period among the gentlemen tree collectors in the area. Longwood will supplement the collection with trees, proven to be hardy in this area, that are supported by documentation from historical records.

Some examples of records utilized:

1. Longwood Historical records
2. Period books making mention of trees at Peirce's Park
3. Specimens currently alive and dating to this period at other locations

Trees will be added to the collection in a manner as not to create large age classes of trees and to continue the style of planting, in rows, of the Peirce brothers. Taxa that do not tolerate shade will be installed in areas of the gardens that are more suitable for their growth. Following in the tradition of Quaker gentleman trading collected specimens, we will collaborate with other properties in the area and seek to propagate trees for our collection from existing original trees from the era of Peirce's Park. The following institutions represent a portion of local estates in the region of south eastern Pennsylvania.



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## **Bartram Gardens, Philadelphia PA:**

John Bartram (1699-1777) was a third-generation Pennsylvania Quaker, born in nearby Darby imbued with a curiosity and reverence for nature, as well as a passion for scientific inquiry. Bartram purchased 102 acres from Swedish settlers in 1728, and systematically began gathering the most varied collection of North American plants in the world.

## **Tyler Arboretum, Media PA:**

The Arboretum began as the private collection of two brothers, Jacob and Minshall Painter. The brothers were fascinated by the popular 19th century study of natural history. During their lifetimes, they managed to amass large collections of dried plants, rocks, and other specimens. In 1825, the brothers set aside some of their land to begin the systematic planting of more than 1,000 varieties of trees and shrubs.

## **The Woodlands, Philadelphia PA:**

The estate of William Hamilton in 1786, it was later transformed into a rural cemetery in 1840. This preserved the collection, which would have been otherwise lost.

## **National:**

**Spring Grove Cemetery and Arboretum**

**Cave Hill Cemetery**

**Several other collections exist, further research is needed**

## **INTERPRETATION GOALS**

### **Staff:**

Yearly training sessions on The Peirce Collection are conducted for volunteers, guest services, and the education department who in turn interact with the public and answer questions regarding the trees. Both theoretical and practical training sessions are offered to Longwood students and interns.

### **Public:**

One sign currently in place provides interpretive information. Improved materials, modifications to the layout and design of the signage, as well as better placement of the signs will be considered in keeping with Longwood overarching interpretive strategy. Various social media tools, including blog postings, will be explored as a means of sharing the information on the Peirce Collection. Upon PCN accreditation, an article will be written for the Chimes. The curator of the Peirce Collection will develop a new Continuing Education course on old growth and aging of trees in the landscape that will be based on Longwood's collection.



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## **RESOURCES**

### **Staff:**

Gardeners, Arborists, students, and volunteers work with the Collection on a regular basis. Interactions with the collection include assessment, pruning, mulching, soil analysis and other operations. Longwood arborists pursue continuing education annually to maintain their certified arborist status with the International Society of Arboriculture through attending conferences and classes. Procedures for the care of the trees in the Collection are outlined in Longwood's Tree Management Plan.

### **Greenhouses and Nursery space:**

Propagules of trees in the collecting will be taken as needed and deemed by the Curator of the Pierce collection. Longwood's Nursery will be used to propagate, graft, grow and/or hold trees for the collection. Trees becoming too large for the nursery can be planted in the perimeter areas of the property as a genetic bank. Many taxa are currently propagated and in "stock". Use of propagation, greenhouse, nursery or perimeter space will be as needed. Procedures are detailed in Longwood's Specimen Tree Replacement Plan.

Connect with other institutions locally to store genetic material through planting our specimens on their sites. This process insures the availability of the original genetic material should the original specimen be lost. This will add redundancy to the collection.

Tree replacement plan: Replace in kind where possible.



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## **Library, Archives and Herbarium:**

Library, Archives and Herbarium support the Peirce Collection through providing professional-level botanical and horticultural information resources pertaining to professional development, education, programming, and research activities. Rare or unique works documenting the horticultural history of Quaker arboreta, the surrounding area of south eastern Pennsylvania and northern Delaware, and references to tree trade and collecting are currently held in Longwood's library system. The library collection will continue to grow as documents pertinent to the collection arise.

Vouchering of the Peirce collection will take approximately three years. Due to the height of the trees, specimen collection will take longer than normal. There are 163 trees to be vouchered.

For more information see *Supporting Documents: Peirce Collection Resources*.

## **PLAN OF ACTION**

Curation goals:

The ongoing goal of the collection is to preserve the germplasm of the species that were collected by the Peirce family. Secondly, through sourcing and obtaining material, preserve the germplasm of other collections and individual trees attributed to the same time period. By exchanging genera with other institutions and individuals, specimens will be protected from catastrophic loss. Continued research will provide additional data to build the collection. Using periodicals of the time period, it can be determined what species and genera were available and popular in the 1800's and add them to the collection.

The proposed tasks are in addition to existing tasks and will be reviewed and approved by the Plant Collections Committee.

1. Restore the alleé east of the Peirce du Pont House in keeping with the original planting of the 1800's.
  - a. Plant new trees in the alleé
    - i. Trees should be from the original Taxa (see attached document, management Policy 1992) or documented to be in other collections in SE Pennsylvania from the same time period.
    - ii. When feasible and as part of the Specimen Tree Replacement Plan, propagules will be taken from existing tree in order to preserve germplasm.
    - iii. Trees should be no closer than 20' on center (Boxwood excluded)



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- iv. Plant *Tsuga canadensis*, although not to the extent of the original planting due to hemlock woolly adelgid, an introduced insect that feeds on hemlock. Utilize an integrated pest management program to control the adelgid. See current Hemlock Management Plan.
  - v. Reintroduce missing taxa, such as *Castanea*, to the alleé using hybrids or resistant cultivars.
  - vi. Planting should occur at various times, and just a few trees at a time. This will create a stand of trees with varied ages. Stands of trees comprised of a more varied age group are healthier and more sustainable than those that consist of one dominant cohort.
  - vii. Install additional *Buxus sempervirens* var. *arborescens* in between tree specimens to return to the original look of the alleé. (to be collected onsite, or work with the boxwood curator to include part of that collection)
  - viii. Evaluate recent replacement trees and determine if they can be included in the collection.
  - ix. Curator will be involved in the process of deciding if a tree in the collection is to be removed.
- b. Continue to research the existing trees.
- i. Through branch cuts and documentation to determine approximate age.
  - ii. Add or remove trees from the collection as data is collected and a change is deemed necessary.
  - iii. Continue research of periodicals to find historical sources describing the collection.

Below are proposed tasks and associated projected costs for the next five years in order to support the collection. The proposed tasks and associated costs are in addition to existing tasks and cost and will be reviewed and approved annually by the Plant Collections Committee.

2015

1. Reintroduce *Castanea* hybrids to several of the vacant tree locations that once had *Castanea* historically. (\$800 estimate) **postponed 2017**
2. Install 3-5 missing trees that were present historically (\$400 each estimate) **complete**
3. Establish ground cover under sections of trees to prevent erosion (\$1200 estimate) **complete**
4. Correct drainage issues in the rows of trees (\$750 estimate) **complete**
5. Begin vouchering the collection by collecting herbarium specimens (in house) 33% of the collection will be completed the first year, with the entire collection vouchered in three years. **complete**



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6. Initiate discussion of interpretation and signage with the Interpretation team.  
**complete**

2016

1. Restore section to alternating *Tsuga canadensis* and *Buxus sempervirens* var. *arborescens* (in house) **complete**
2. Propagate the taxa that do not have existing propagules (in house) **started**
3. Install 1-2 missing trees that were present historically (\$400 each estimate)  
**complete**
4. Continue ground cover improvements (\$1200) **complete**
5. Continue vouchering by collecting herbarium specimens (in house) **complete**
6. Implement interpretation and signage ( \$1000 estimate) **postponed 2017**

2017

1. Assess areas on site to plant species that were present historically, but due to canopy closure, will not prosper in the alleé.
2. Create a planting list of trees missing from the collection to be installed in the areas in bullet one.
3. Start dialogue with other institutions to populate the planting list.
4. Continue ground cover improvements (\$1200)
5. Continue vouchering by collecting herbarium specimens (in house)

2018

1. Complete herbarium specimen collection
2. Begin trading plants with other historical sites. Begin locally, and then investigate other sites out of state.
3. Meet with Longwood gardeners to incorporate new material into the garden.
4. Continue ground cover enhancements (\$TBD)

2019

1. Install 1-2 trees in the rows, replace in kind where necessary.
2. Continue trading plants with other sites.
3. Assess the five year plan, make changes where necessary
4. Finalize list of species available from 1798 to 1880, share with other sites





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## SUPPORTING DOCUMENTS

Tree Management Plan

History of Peirce Collection: see [Tulip Trees and Quaker Gentlemen](#), by Leslie Walter, Joan Spraker, Kennett Square, PA 1975.

[Horticulture at Peirce's Park](#), by Frederick Roberts, Newark DE, 1971.

Peirce Collection Resources

Peirce Collection Map

Peirce Collection Accessions

Taxa list

Tree preservation

Specimen Tree Replacement Plan

Hemlock Woolly Adelgid Management Plan

