



PRESERVATION IN PRACTICE: LANDSCAPE MAINTENANCE

REPLACING HISTORIC PLANTS WITH ALTERNATIVE TYPES

Topics covered in this brief:

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National Center for Preservation
Technology and Training
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Vegetation in historic landscapes includes individual plants, such as a specimen tree or shrub, or groups of plants that form an orchard, hedge, shrub bed, or a woodlot. In different landscapes, vegetation may include woody plants such as evergreen or deciduous trees, shrubs, and ground covers, and herbaceous plants such as ferns, annuals, perennials, and herbs. Often, vegetation that dates from the historic period of a property contributes to the site's significance because of a direct association with a person or event, horticultural rarity or genetic value, or because it helps to reveal the authentic character, function, or aesthetic of the site.

The cover photograph from 1910 depicts American elms (*Ulmus americana*) planted at the Longfellow House-Washington's Headquarters National Historic Site in Cambridge, Massachusetts. The nineteenth century elms needed to be removed due to decline resulting from Dutch elm disease. The National Park Service replaced the trees with substitute varieties of American elms resistant to Dutch elm disease.

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IMPORTANCE OF HISTORIC LANDSCAPES

Vegetation can be very important for conveying the qualities and significance of a historic property, but unlike built landscape features such as structures and fences, plants are a living and dynamic component of the landscape which grows, ages, deteriorates, and dies. When original plants need to be removed from a landscape because of issues such as irreversible damage, deterioration, or death, it is best to meet historic preservation goals by replacing the plant with the same species. This may be possible by propagating a seedling of the original plant or purchasing a replacement from a reputable commercial nursery.

However, exact replacement of an original plant is not always possible; issues of pests and diseases, lack of commercial nursery availability, local/state/federal restrictions on growing certain types of vegetation, changes in site conditions, etc. may prevent the replanting of the original plant type. In such cases, alternative or “substitute” plants can be carefully selected and planted in the location of the original.



SELECTION OF SUBSTITUTE PLANTS

When substitutions are necessary, the replacements should match the characteristics of the original as closely as possible. Specific qualities of the original plant that should be documented, evaluated, and considered when comparing to potential substitutes include:

- **Growth habit and form.** Does the original plant grow as a shrub, tree, vine, ground cover, etc.? Does it have a particular growth habit, such as columnar, weeping, upright and spreading, etc.? Is it woody or herbaceous; evergreen or deciduous; annual or perennial?
- **Size.** How tall and wide is the original plant?
- **Foliage.** Are the leaves needle-like, broad, serrated, lobed, etc.? Do they exhibit unique qualities such as color, variegation, pattern, pubescence/fuzziness, etc.?
- **Flowers.** What color are the flowers and what is the timing of bloom? How tall are the flower stems? What is the shape and form of the flower? Do the flowers have a particular fragrance?
- **Fruit.** What is the color, size, and shape of the fruit?

In addition, once a preliminary list of possible substitute plants that closely match the important qualities of the original is identified, each of the plants on the list should be evaluated for their feasibility in the landscape. For example, review each plant for:

- **Availability.** Is the desired plant and quantities needed readily available at a commercial nursery?
- **Cost.** Is the acquisition affordable?
- **Regulatory.** Are there any local, state or federal regulations that restrict the use of the plant due to invasiveness, impacts to natural resources, pests, diseases, etc.?
- **Maintainability.** Will the level of maintenance required for the plant be sustainable? Will the maintenance of the plant require any specialized skills, tools, or materials not readily available at the site?
- **Impacts.** Will the growth and development of the plant negatively impact adjacent resources (historic structures, archaeological resources, adjacent historic plants, etc.)?



DOCUMENTATION

After a substitute is used to replace an original plant in an historic landscape, make sure to document information associated with considerations, relevant issues, determinations and justifications that were used in making the decision. Information to record should include:

- Why was the replacement necessary: severe insect or disease issues, local/state/federal planting restrictions, lack of availability from commercial nursery, etc.? How does the substitute address these issues; disease/pest resistance, readily available at nurseries, etc.?
- What characteristics of the original plant were most important to match when selecting the substitute: height, leaf shape/color, growth habit, flower shape/form, etc.? How closely matched is the substitute to the original, and are there any variations?
- Who made the decision?
- When was the original plant removed? When was the substitute planted? Where was the substitute acquired? Where was it planted?

This information will be valuable when evaluating other plants for replacement by providing consistency and efficiency in process, as well as assisting future stewards of the landscape with an understanding of why a substitution was made.



CASE STUDY #1

Although Hall's honeysuckle (*Lonicera japonica* 'Halliana') is an original feature of the Vanderbilt Mansion National Historic Site landscape, it is a highly invasive vine. The National Park Service recommended planting trumpet honeysuckle (*Lonicera sempervirens*) as a less invasive substitute.



Left: Hall's honeysuckle (<http://www.plantmaster.com/gardens/eplant.php?plantnum=383>)
Right: trumpet honeysuckle (<https://plants.ces.ncsu.edu/plants/lonicera-sempervirens>)



CASE STUDY #2

The original ash (*Fraxinus Americana* 'Rosehill') trees at the Gateway Arch National Park had to be removed due to susceptibility to the invasive insect, emerald ash borer. After thoughtful consideration, the London Plane (*Platanus x acerifolia*) tree was selected as a substitute.



Above: Original ash trees (<https://pxhere.com/en/photo/1231968>)

Left: London Plane tree
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REFERENCES

- NPS Landscape Line 12: Treatment of Plant Features <https://irma.nps.gov/DataStore/DownloadFile/515105>
- The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes <https://irma.nps.gov/DataStore/DownloadFile/514832>



ABOUT NCPTT

The **National Center for Preservation Technology and Training (NCPTT)** is the principal research, technology and training center within the National Park Service.

NCPTT helps preservationists find better tools, better materials, and better approaches to conserving historic buildings and landscapes, archaeological sites, and museum collections. It conducts research and testing in its laboratories, provides cutting edge training around the U.S., and supports research and training projects at universities and nonprofits. NCPTT pushes the envelope of current preservation practice by exploring advances in science and technology in other fields and applying them to issues in cultural resource management.

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