



Guide to New Haven's Trees



URI

Urban Resources Initiative

New Haven, Connecticut

Guide to New Haven's Trees



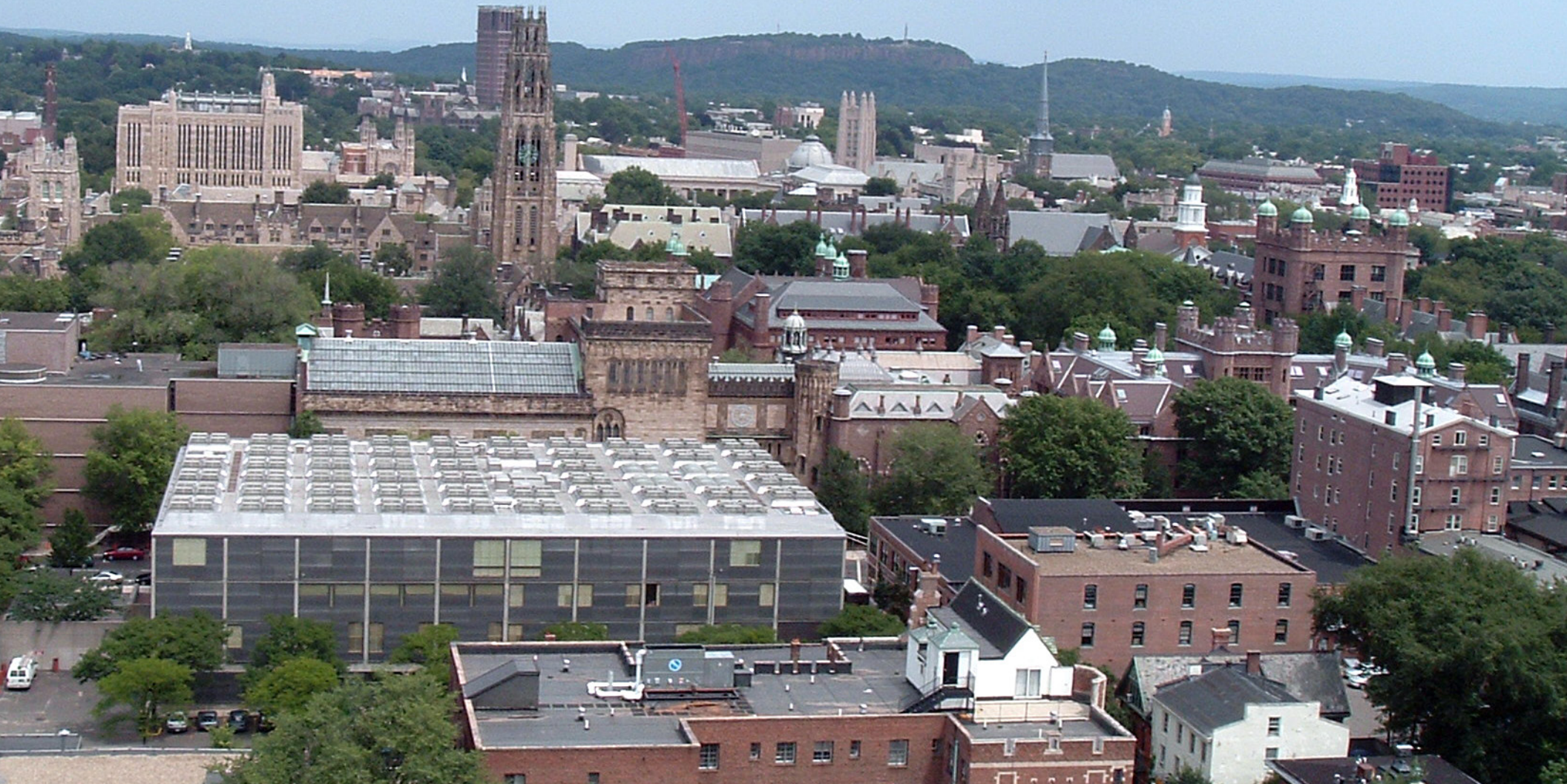
Urban Resources Initiative

New Haven, Connecticut

Philip Marshall, Ph.D

Acknowledgements

The development of this publication is a reflection of the dual mission of the Urban Resources Initiative: to provide Yale students a clinical experience in urban community-based forestry and to foster citizen-driven environmental stewardship. Earlier versions of the book depended on the work of Yale graduate students Yi-Wen Lin and Jacob Holzberg-Pill. Philip Marshall advanced the beta document to this more comprehensive edition, which can readily serve anyone living in or around the City of New Haven. The document is designed to help people develop tree identification skills and guide in the selection of appropriate trees for streetscape plantings. We are especially grateful to Josephine Bush and the Robbins de Beaumont Foundation for their support, which made updating New Haven's tree inventory and producing this publication possible.





Contents

Introduction.....	2
List of Tree Species.....	9
Dichotomous Leaf Key.....	15
Tree Species.....	23
Appendix:	
Species Suitable for Planting.....	117
Glossary.....	123
Sources.....	129



Introduction

New Haven's Tree Canopy

In 2000, the City of New Haven hired a private firm to conduct a complete census (or inventory) of New Haven's street trees. The inventory data included 30,000 entries detailing tree species, location, condition (live, dead, stump), size, and maintenance observations. The Department of Parks provided URI the data in 2007 to update the inventory. Yale School of Forestry & Environmental Studies graduate student Suzy Oversvee, working with Jeff Ward at the Connecticut Agricultural Station, converted the data into a format compatible with ArcGIS. Since 2007, URI has hired local teens to update the data every summer. Resurrecting this data provides valuable information regarding the street tree canopy, including distribution by species and size and overall population. Another Yale School of Forestry & Environmental Studies graduate student, Casey Brown, converted the ArcGIS inventory data into a Google platform so that it is publicly accessible via www.environment.yale.edu/uri. Anybody can now look up addresses and retrieve inventory information about a tree in front of their home.

In addition to her work with ArcGIS, Suzy ran a STRATUM analysis (Street Tree Resource Analysis Tool for Urban-Forest Managers) to determine the economic benefits of ecosystem services provided by street trees. (For example, reductions in carbon dioxide, storm water runoff, air particulates, and energy demand). Using the STRATUM model, she found the total economic benefits of New Haven's street trees exceed \$4 million per year.

Key findings of economic values associated with the ecosystem services from street trees are:

ENERGY CONSERVATION (valued at \$1,700,000 per year)

- In summer, trees lower ambient temperatures by:
 - Intercepting solar energy and using it for photosynthesis and biomass production.
 - Producing shade that lowers the temperature on the ground by as much as 10 degrees Fahrenheit. Cooling costs are significantly reduced in areas with healthy tree canopies.
- In winter, trees lower wind speeds, reducing heating costs.

AIR QUALITY (valued at \$356,000 per year)

- Roughly 60,000 pounds of pollutants, like ozone and particulates, are removed from the atmosphere each year, either by being deposited on leaves or consumed during photosynthesis.
- Trees use carbon from the atmosphere (carbon dioxide— one of the most prevalent greenhouse gases) to build biomass (branches, leaves, and other plant tissue). This is called carbon sequestration. Every year in New Haven, roughly 7,500,000 pounds of carbon dioxide is removed from the atmosphere and sequestered in tree biomass.
- Trees prevent the release of additional carbon to the atmosphere by lowering energy use during summer and winter.

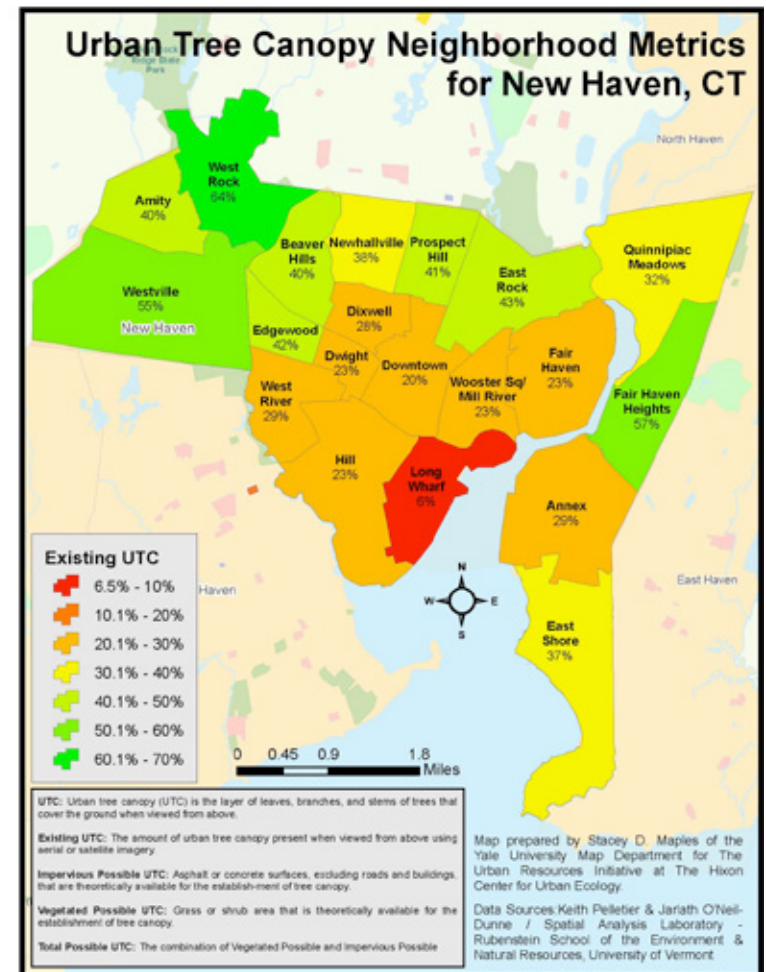
STORM WATER RUNOFF REDUCTION (valued at \$425,000 per year)

- New Haven trees intercept about 53,000,000 gallons of water each year. This decreases the amount of polluted water that ends up in our water bodies after flowing over impervious surfaces like sidewalks and roads, where it collects oil, pesticides, fertilizers, fecal matter, and trash.

AESTHETICS (valued at \$1,550,000 per year)

- Real estate values of homes with trees are higher than comparable homes without trees in front of the property.

In 2009, URI expanded its focus from street trees to all city trees with a grant from the U.S. Forest Service – from 30,000 to the city's entire tree canopy. Many partners helped to conduct an analysis of New Haven's full tree canopy (the City of New Haven, F&ES, the University of Connecticut's Center for Land Use Education & Research, and the Connecticut Department of Environmental Protection). Jarlath O'Neill Dunne at the Spatial Analysis Laboratory of the University of Vermont's Rubenstein School of the Environment and Natural Resources conducted satellite imagery analysis. As depicted by the map below, the percent tree cover varies substantially by neighborhood.



This research coupled with the inventory data provided valuable detail for the City's policymaking. In October 2009, Mayor John DeStefano announced "**Tree Haven 10K**," a tree planting goal of 10,000 trees over five years. New Haven thus joined the ranks of many other cities – Baltimore, Boston, Denver, Detroit, Los Angeles, Miami, Milwaukee, New Orleans, New York, Providence, and others – that have recently adopted major tree planting goals. Launching Tree Haven 10K in partnership with the City of New Haven, URI will plant 5,000 trees on public land, with particular attention paid to neighborhoods most in need of tree canopy cover.

The uneven distribution of trees throughout the city, made obvious by the map, is in fact largely a product of historical land use and planting regimes. Known as the "Elm City," New Haven streets were once lined with majestic elm trees. Mature American Elms, *Ulmus americana*, exhibit a broad, open canopy shape ideal for city streets (Trees with a more pyramidal form often obstruct site lines and provide minimal shade.). Unfortunately, Dutch Elm Disease, a fungal infection spread by beetles, wiped out most of the elms in the 1950s and 1960s.

When the elms died, they were replaced with the invasive Norway Maple, *Acer platanoides*. Approximately one in four street trees in New Haven today is a Norway Maple. Although they initially seemed to do well in the urban environment, Norway Maples have proven to be short-lived, and the first generation of trees planted in the 1950s is now dying out. Nonetheless, each year this invasive species drops massive crops of seed that spread through the city, perpetuating the dominance of an ill-suited species. This invasion is especially problematic because Norway Maples outcompete native trees like Sugar Maples.

Additionally, in the wake of Dutch Elm Disease, other major threats are compromising the health of urban trees nationwide. The Emerald Ash Borer has decimated ash trees in cities like Ann Arbor, MI; the Asian Long-Horned Beetle has destroyed maple trees in Worcester, MA, Brooklyn, NY, and parts of Long Island, NY. Given the spread of these pests and illnesses, which present imminent threats to the trees of Connecticut, URI works to select appropriate species for a given site and diversify plantings across the city.

Structure of This Guide

The first part of the guide is a taxonomic key. By looking at a leaf and/or branch and referring to a series of "either/or" questions, users will be able to work their way through the key to determine the species at hand. Some species are very distinct while others closely resemble related or unrelated species. The key will help guide you through what questions to ask when you wish to identify a tree. For example, when examining a tree with leaves, determining if the leaves are opposite or alternate and if they are simple or compound will drastically reduce the number of possibilities. Leaf characteristics are not the only way to identify trees — fruit, pods, cones, seeds, flowers, bark, buds, twigs, and overall *gestalt*, all provide helpful clues in solving the identification mystery.

The main body of the book consists of a series of short articles on the common tree species of New Haven and the surrounding region, organized in alphabetical order by scientific name. Some of these are exotic species that do not occur naturally in Connecticut but are commonly planted along streets and in yards and smaller city parks. Others are native species that you are unlikely to encounter outside of parks with considerable areas of forest and other native vegetation, like East Rock and Sleeping Giant.

As an appendix, we include a chart that depicts a range of species characteristics to aid in the selection of trees for urban plantings. Planting smaller-statured trees below utility lines avoids problems of line interference and subsequent heavy pruning by utility companies. Larger planting sites provide greater soil volume for spreading roots and, coupled with the absence of utility lines, often create opportunities to plant larger canopy species like oaks and maples. In general, planting the largest possible tree for each location is optimal because larger trees provide greater ecosystem services. There are, of course, many other site factors to consider in selecting the appropriate species, all of which are explored in this manual.

This book is designed to help you develop the tools for identification. If your tree is not in this book, hopefully the following pages will provide enough of a foundation to point you in the right direction.



List of Tree Species

Trident Maple (<i>Acer buergerianum</i>).....	23
Hedge Maple or Field Maple (<i>Acer campestre</i>).....	24
Boxelder (<i>Acer negundo</i>).....	25
Japanese Maple (<i>Acer palmatum</i>).....	26
Norway Maple (<i>Acer platanoides</i>).....	27
Red Maple (<i>Acer rubrum</i>).....	28
Sugar Maple (<i>Acer saccharum</i>).....	29
Silver Maple (<i>Acer saccharinum</i>).....	30
Horsechestnut (<i>Aesculus hippocastanum</i>).....	31
Tree-of-Heaven (<i>Ailanthus altissima</i>).....	32
Serviceberry, Shadbush, or Juneberry (<i>Amelanchier spp.</i>).....	33
Black Birch or Sweet Birch (<i>Betula lenta</i>).....	34
River Birch (<i>Betula nigra</i>).....	35
Paper Birch or White Birch (<i>Betula papyrifera</i>).....	36
European Hornbeam (<i>Carpinus betulus</i>).....	37
American Hornbeam or Musclewood (<i>Carpinus caroliniana</i>).....	38
Shagbark Hickory (<i>Carya ovata</i>).....	39
Northern Catalpa (<i>Catalpa speciosa</i>).....	40
Atlas Cedar (<i>Cedrus atlantica</i>).....	41
Hackberry (<i>Celtis occidentalis</i>).....	42
Katsura Tree (<i>Cercidiphyllum japonicum</i>).....	43
Eastern Redbud (<i>Cercis canadensis</i>).....	44
Yellowwood (<i>Cladrastis kentuckea</i>).....	45
Flowering Dogwood (<i>Cornus florida</i>).....	46
Kousa Dogwood (<i>Cornus kousa</i>).....	47
Cornelian Cherry Dogwood (<i>Cornus mas</i>).....	48

Turkish Filbert or Turkish Hazel (<i>Corylus colurna</i>).....	49
Hawthorn (<i>Crataegus spp.</i>).....	50
Hardy Rubbertree (<i>Eucommia ulmoides</i>).....	51
American Beech (<i>Fagus grandifolia</i>).....	52
European Beech (<i>Fagus sylvatica</i>).....	53
White Ash (<i>Fraxinus americana</i>).....	54
Green Ash (<i>Fraxinus pennsylvanica</i>).....	55
Ginkgo or Maidenhair Tree (<i>Ginkgo biloba</i>).....	56
Honeylocust (<i>Gleditsia triacanthos</i>).....	57
Kentucky Coffeetree (<i>Gymnocladus dioica</i>).....	58
American Holly (<i>Ilex opaca</i>).....	59
Black Walnut (<i>Juglans nigra</i>).....	60
Eastern Red-Cedar (<i>Juniperus virginiana</i>).....	61
Goldenrain Tree or Varnish Tree (<i>Koelreuteria paniculata</i>).....	62
Sweetgum (<i>Liquidambar styraciflua</i>).....	63
Tulip Tree, Tulip Poplar, or Yellow Poplar (<i>Liriodendron tulipifera</i>)....	64
Amur Maackia (<i>Maackia amurensis</i>).....	65
Saucer Magnolia (<i>Magnolia x soulangiana</i>).....	66
Flowering Crabapple (<i>Malus spp.</i>).....	67
Dawn Redwood (<i>Metasequoia glyptostroboides</i>).....	68
White Mulberry (<i>Morus alba</i>).....	69
Red Mulberry (<i>Morus rubra</i>).....	70
Black Gum, Tupelo, or Pepperidge (<i>Nyssa sylvatica</i>).....	71
Hop-Hornbeam or Ironwood (<i>Ostrya virginiana</i>).....	72
Sourwood (<i>Oxydendrum arboreum</i>).....	73
Royal Paulownia or Princess-Tree (<i>Paulownia tomentosa</i>).....	74

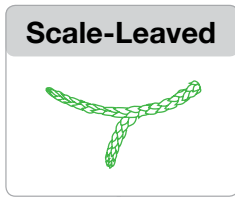
Amur Cork Tree (<i>Phellodendron amurense</i>).....	75
Norway Spruce (<i>Picea abies</i>).....	76
Colorado Spruce or Blue Spruce (<i>Picea pungens</i>).....	77
Pitch Pine (<i>Pinus rigida</i>).....	78
Eastern White Pine (<i>Pinus strobus</i>).....	79
American Sycamore (<i>Platanus occidentalis</i>).....	80
London Plane (<i>Platanus x acerifolia</i>).....	81
White Poplar (<i>Populus alba</i>).....	82
Eastern Cottonwood (<i>Populus deltoides</i>).....	83
Myrobalan Plum or Purple-Leaved Plum (<i>Prunus cerasifera</i>).....	84
Black Cherry (<i>Prunus serotina</i>).....	85
Flowering Cherry (<i>Prunus spp.</i>).....	86
Callery Pear (<i>Pyrus calleryana</i>).....	87
White Oak (<i>Quercus alba</i>).....	88
Swamp White Oak (<i>Quercus bicolor</i>).....	89
Scarlet Oak (<i>Quercus coccinea</i>).....	90
Pin Oak (<i>Quercus palustris</i>).....	91
English Oak or Pedunculate Oak (<i>Quercus robur</i>).....	92
Red Oak (<i>Quercus rubra</i>).....	93
Black Oak (<i>Quercus velutina</i>).....	94
Black Locust (<i>Robinia pseudoacacia</i>).....	95
Staghorn Sumach (<i>Rhus typhina</i>).....	96
Weeping Willow (<i>Salix babylonica</i>).....	97
Black Willow (<i>Salix nigra</i>).....	98
Sassafras (<i>Sassafras albidum</i>).....	99
Japanese Stewartia (<i>Stewartia pseudocamellia</i>).....	100

Japanese Pagoda Tree (<i>Styphnolobium japonicum</i>).....	101
Tree Lilac (<i>Syringa reticulata</i>).....	102
Bald-Cypress (<i>Taxodium distichum</i>).....	103
Common Yew (<i>Taxus baccata</i>).....	104
Northern White-Cedar or Arborvitae (<i>Thuja occidentalis</i>).....	105
Basswood or American Linden (<i>Tilia americana</i>).....	106
Littleleaf Linden (<i>Tilia cordata</i>).....	107
Bigleaf Linden (<i>Tilia platyphyllos</i>).....	108
Eastern Hemlock (<i>Tsuga canadensis</i>).....	109
American Elm (<i>Ulmus americana</i>).....	110
Chinese Elm or Lacebark Elm (<i>Ulmus parvifolia</i>).....	111
Slippery Elm or Red Elm (<i>Ulmus rubra</i>).....	112
Zelkova (<i>Zelkova serrata</i>).....	113



Dichotomous Leaf Key

Scale-Leaved or Needle-Leaved Trees



Opposite

Eastern Red-Cedar 61

Northern White Cedar 105

Needle-Leaved



Needles Borne Singly



Opposite, Evergreen

Common Yew 104

Eastern Hemlock 109

Opposite, Deciduous

Dawn Redwood 68

Bald-Cypress 103

Alternate

Norway Spruce 76

Colorado Spruce 77

Needles in Bundles



In Bundles of 3

Pitch Pine 78

In Bundles of 5

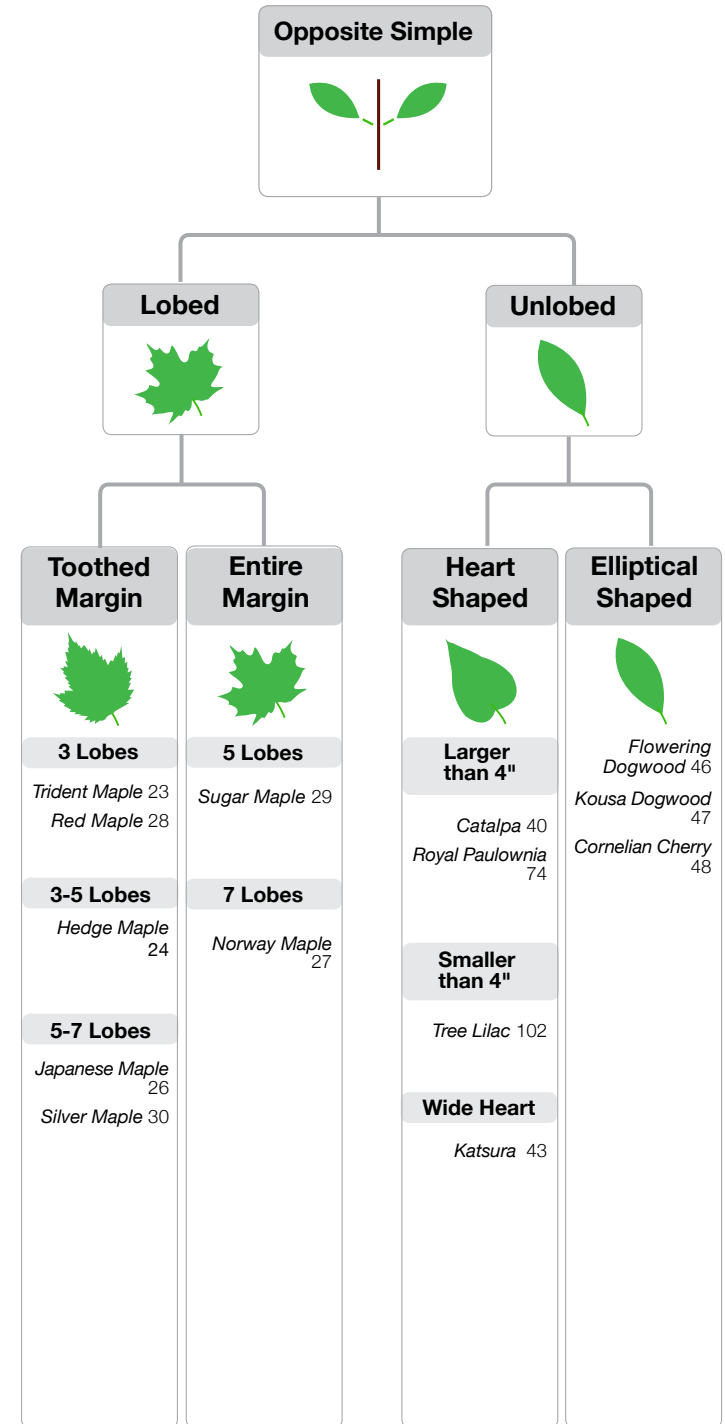
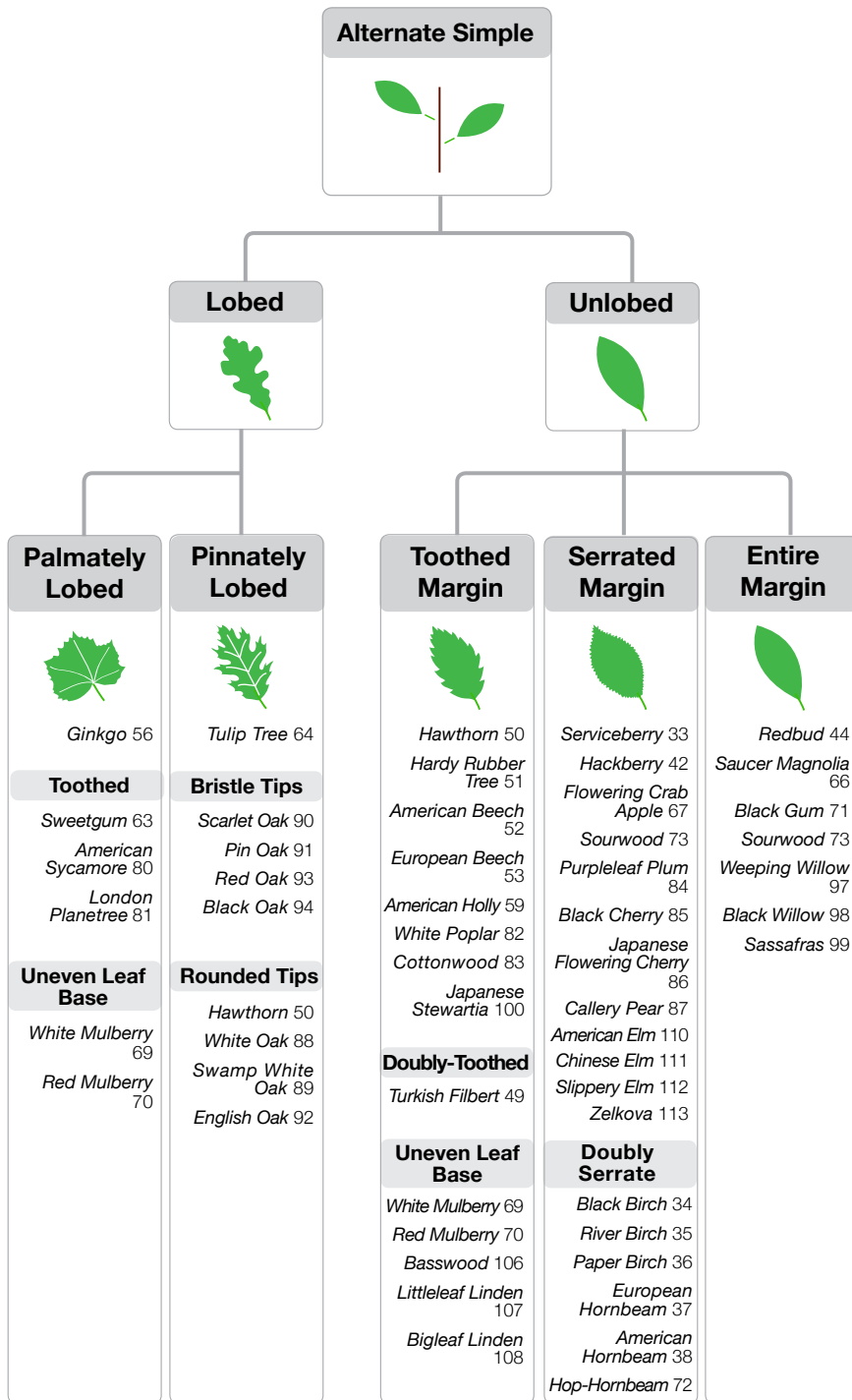
Eastern White Pine 79

Needles in Whorls

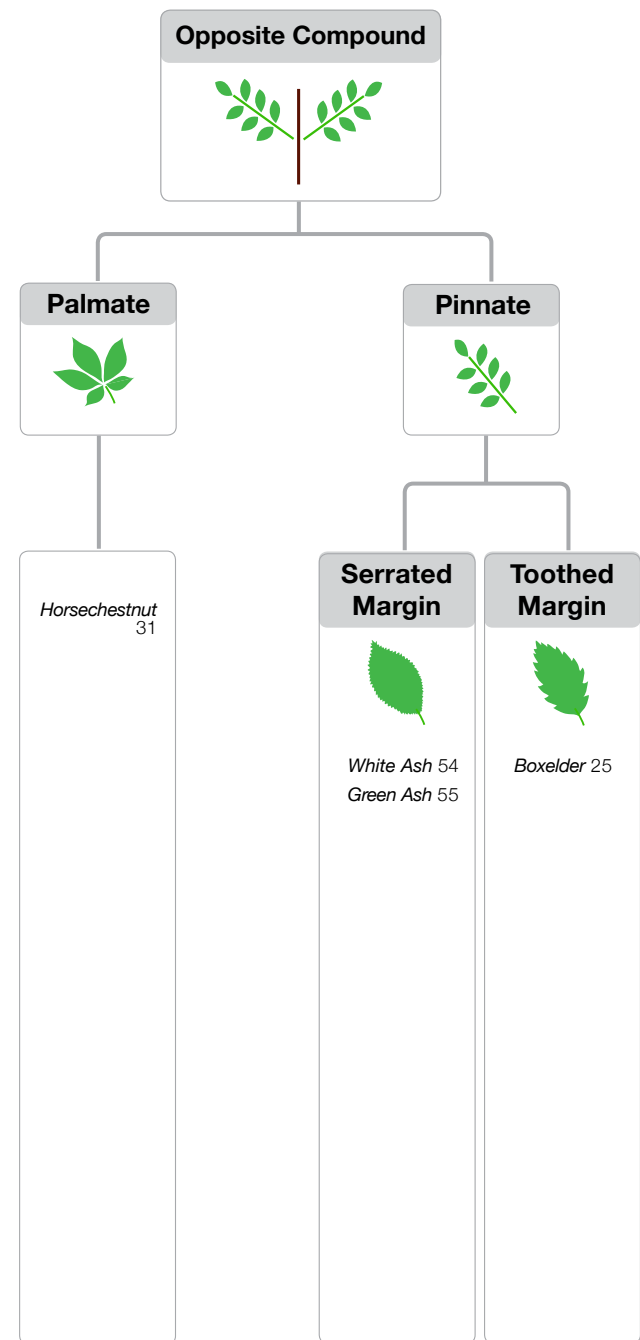
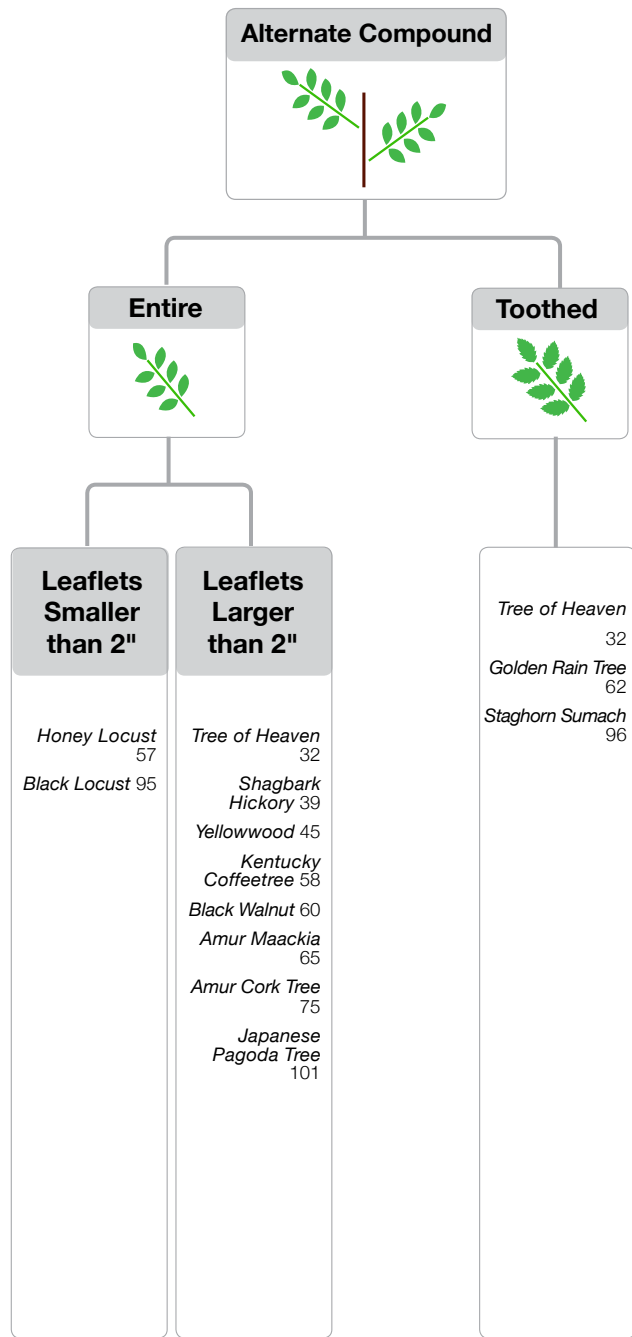


Atlas Cedar 41

Broad-Leaved Trees



Broad-Leaved Trees



 ***Tree Species***

Trident Maple

Acer buergerianum



Soapberry Family (Sapindaceae)

Opposite, simple

CHARACTERISTICS

- | | |
|---|--|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input checked="" type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input checked="" type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

30-40 ft

BARK

Reddish gray, on older trees breaking into long, thin, scaly plates

TWIGS

Slender, smooth; buds small, with 4-8 pairs of scales

LEAVES

Opposite
Simple
3 shallow palmate lobes
Toothed

NOTES

Intolerant of drought but otherwise well adapted to urban conditions, Trident Maple is native to China and the Korean peninsula.



Full Tree



Leaf



Bark



Fruit

EXCELLENT SPECIMEN

28" DBH. 44 Pearl St., East Rock

Hedge Maple or Field Maple

Acer campestre



Soapberry Family (Sapindaceae)

Opposite, simple

CHARACTERISTICS

- | | |
|---|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input checked="" type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

To 35 ft

BARK

Gray-brown, and broken by shallow longitudinal fissures into more or less rectangular plates

TWIGS

May be smooth or hairy, but often with corky outgrowths

LEAVES

Opposite,
Simple
3-5 lobes, rounded or coarsely dentate
To 4" in length

NOTES

Native to Europe, western Asia, and north Africa, Hedge Maple is an attractive medium-sized tree with good fall color that does well in urban environments.



Full Tree



Leaf



Flower



Bark

Boxelder *Acer negundo*



Soapberry Family (Sapindaceae) Opposite, compound

CHARACTERISTICS Not for Streets

- | | |
|---|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input checked="" type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

30-60 ft

BARK

Thin, light brown, divided by branching furrows that deepen as the tree ages



Leaf

TWIGS

Stout, green to purplish green in color, and often covered with a waxy bloom; buds ovoid, with 2 pairs of visible scales.



Branch

LEAVES

Opposite
Compound 3-5 leaflets, each 3 1/2"
Coarsely toothed

NOTES

Boxelder is a fast-growing tree of roadsides and disturbed areas, especially on moist soil. Its generally poor form and weak wood (prone to storm damage) make it unsuitable as a street tree, and it is seldom planted. Native to most of the central and eastern US but not New England, it is widely naturalized. The species is dioecious: fruits (ash-like samaras) are produced on female trees only.



Bark

EXCELLENT SPECIMEN

42" DBH. 44 Rock St., East Rock

Japanese Maple *Acer palmatum*



Soapberry Family (Sapindaceae) Opposite, simple

CHARACTERISTICS Not for Streets

- | | |
|---|--|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input checked="" type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input checked="" type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

10-30 ft

BARK

Smooth and green, on older trees becoming greenish-gray.



Leaf

TWIGS

Slender, smooth, green; buds small, with 4 pairs of scales

LEAVES

Opposite
Simple
5-9 palmate lobes
Finely toothed
Leaf color ranges from green to red to purple



Flower

NOTES

Japanese Maple is not recommended as a street tree, as it is intolerant of drought and sensitive to road salt, but also because its expansive form tends to impede sightlines. However, it does make a very attractive small specimen tree for parks and the home landscape. The species is native to mountain forests of Japan and the Korean peninsula.



Bark

EXCELLENT SPECIMEN

40" DBH. 485 Lighthouse Rd., East Shore

Norway Maple *Acer platanoides*



Soapberry Family (Sapindaceae)

Opposite, simple

CHARACTERISTICS Not for Streets

- | | |
|---|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input checked="" type="checkbox"/> invasive |

HEIGHT

40-70 ft



Full Tree

BARK

Dark gray, tightly fissured



Leaf

TWIGS

Moderately stout, green to light gray; buds ovoid and blunt

LEAVES

Opposite
Simple
Palmately Lobed
Entire

NOTES

Broken leaves and detached petioles exude milky latex, an important diagnostic feature for this species. Although it is often claimed that Norway Maple has an allelopathic effect on competing vegetation, there is little evidence to support this assertion, and the invasiveness of the species may simply be a function of its fast growth and extreme tolerance of shade. It is native to central and northern Europe.



Bark



Fruit

EXCELLENT SPECIMEN

60" DBH. 1129 Quinnipiac Ave., Fair Haven Heights

Red Maple *Acer rubrum*



Soapberry Family (Sapindaceae)

Opposite, simple

CHARACTERISTICS

- | | |
|--|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input checked="" type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

40-60 ft



Full Tree

BARK

Smooth and light gray on young trees, on older trees breaking into long narrow, scaly plates separated by shallow fissures



Leaf

TWIGS

Slender, dark red, lustrous, dotted with lenticels, odorless when broken; terminal buds obtuse with 2-4 pairs of visible red scales

LEAVES

Opposite
Simple
3 palmate lobes
Toothed



Flower

NOTES

Red Maple is considered the best maple for planting as a street tree in this region. A native species that is highly variable in both morphology and ecology, occurring on both wetland and upland sites, it is adapted to most soils and does well in urban conditions. At least one part of this tree is red at each season of the year: in the fall, the leaves are bright red, in the winter young twigs and buds are red, in the spring the flowers are red, and in the summer the leaf petioles and young fruits are red.

EXCELLENT SPECIMEN

70" DBH. 270 Elaine Ave., Annex



Bark

Sugar Maple *Acer saccharum*



Soapberry Family (Sapindaceae)

Opposite, simple

CHARACTERISTICS

- native
- narrow canopy
- wide canopy
- drought tolerant
- salt tolerant
- weak wood
- wide tree pit needed
- good fall color
- showy flowers
- acceptable under wires
- good for wildlife
- invasive

HEIGHT

60-75 ft

BARK

Gray, deeply furrowed, on older trees developing long thick plates

TWIGS

Slender, brown, shiny; buds conical and acute

LEAVES

Opposite
Simple
5 palmate lobes
Entire

NOTES

In early spring, Sugar Maples are tapped for their sap, which is boiled down to make maple syrup. Sugar Maple is sensitive to soil conditions and is not tolerant of salt or pollution, so it is not usually recommended for urban plantings though it does make an attractive specimen tree for parks and larger yards.



Full Tree



Leaf



Bark

EXCELLENT SPECIMEN

60" DBH. 277 Mckinley, Westville

Silver Maple *Acer saccharinum*



Soapberry Family (Sapindaceae)

Opposite, simple

CHARACTERISTICS Not for Streets

- native
- narrow canopy
- wide canopy
- drought tolerant
- salt tolerant
- weak wood
- wide tree pit needed
- good fall color
- showy flowers
- acceptable under wires
- good for wildlife
- invasive

HEIGHT

50-70 ft

BARK

Silvery gray, on older trees breaking into long, thin, scaly plates

TWIGS

Moderately stout, dark red, malodorous when broken

LEAVES

Opposite
Simple
5 deeply palmate lobes
Toothed, more deeply cut than Red Maple
Silver back

NOTES

Silver Maple is a fast-growing riparian tree species whose weak wood makes it prone to damage in storms, and it is therefore not recommended as a street tree.



Full Tree



Leaf



Flower



Bark

EXCELLENT SPECIMEN

68" DBH. 6 Plant, Amity

Horsechestnut

Aesculus hippocastanum



Soapberry Family (Sapindaceae) Opposite, compound

CHARACTERISTICS Not for Streets

- | | |
|---|--|
| <input type="checkbox"/> native | <input checked="" type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input checked="" type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

50-70 ft

BARK

Red-brown to dull gray-brown, on older trees exfoliating in strips or plates

TWIGS

Brown-hairy when young; terminal buds in winter acute and very prominent, often over 1 in long, covered in glossy resin

LEAVES

Opposite
Compound palmate 14"
7 leaflets (native Buckeye has 5)

NOTES

Horsechestnut and the Buckeyes (i.e. the several North American species of *Aesculus*) are our only trees with opposite, palmately compound leaves. The large dark brown nuts are poisonous and should not be mistaken for those of the true chestnut (genus *Castanea*). Horsechestnut grows well in urban conditions, and was formerly widely planted, but the foliage is susceptible to anthracnose blight and the nuts can create a hazard on sidewalks, so it is not usually recommended as a street tree. (The cultivar *Baummannii* is seedless, however, and is sometimes planted in New Haven.) The species is native to southeastern Europe.

EXCELLENT SPECIMEN

40" DBH. 000 Elm, Downtown



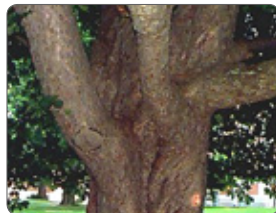
Full Tree



Leaf



Flower



Bark

Tree of Heaven

Ailanthus altissima



Quassia Family (Simaroubaceae) Alternate, compound

CHARACTERISTICS Not for Streets

- | | |
|---|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input checked="" type="checkbox"/> invasive |

HEIGHT

40-60 ft

BARK

Gray, smooth with pale stripes, becoming shallowly fissured

TWIGS

Red to bronze, minutely hairy when young

LEAVES

Alternate
Opposite 24"
Numerous 4" leaflets
Toothed at base

NOTES

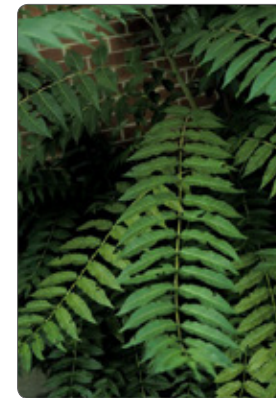
Tree-of-Heaven is a fast-growing species native to northern China that is considered highly invasive; the planting, sale, or transport of the tree is now illegal in Connecticut.

EXCELLENT SPECIMEN

45" DBH. 190 Hillside Ave., Annex



Full Tree



Leaf



Flower



Bark

Serviceberry, Shadbush, or Juneberry

Amelanchier spp.



Rose Family (Rosaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|---|--|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input checked="" type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input checked="" type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input checked="" type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input checked="" type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

20-40 ft

BARK

Smooth and light gray in color, with characteristic longitudinal stripes

TWIGS

Unarmed, with pointed buds in winter

LEAVES

Alternate

Simple, to 3½" in length

Serrated, slightly heart shaped, oval

Blunt pointed tip



Leaf

NOTES

Among the earliest trees to flower in the spring, the Serviceberries represent several species that hybridize freely and are not easily differentiated in the field, though the most common species found in the wild in New England are *Amelanchier arborea* and *A. canadensis*. The unusual common names borne by this genus require some explanation. "Shadbush" refers to the upstream migration of the anadromous fish called the shad, our largest herring, which is said to coincide with the tree's flowering, and Juneberry the ripening of the fruit in the month of June. Contrary to popular myth, the name Serviceberry does not refer to springtime funereal services but comes from an alternate common name for the Rowan or Mountain Ash (*Sorbus spp.*), which bears a similar fruit.



Bark



Fruit

EXCELLENT SPECIMEN

22" DBH. 26 Academy, Wooster Square

Black Birch or Sweet Birch

Betula lenta



Birch Family (Betulaceae)

Alternate, simple

CHARACTERISTICS Not for Streets

- | | |
|---|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input checked="" type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

40-55 ft

BARK

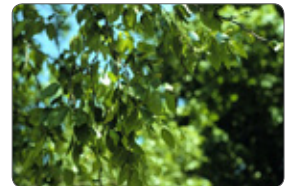
Smooth and reddish-brown to black with horizontal lenticels on young stems, eventually becoming gray and rough with large, thickened, loose-edged rectangular plates on older stems



Leaf

TWIGS

Slender, green to reddish brown, with a strong wintergreen (methyl salicylate) odor when bruised or broken



Branch

LEAVES

Alternate

Simple 4"

Finely double-toothed

NOTES

Black Birch is common in moist forests of southern New England, often in association with Hemlock (*Tsuga canadensis*). Its seeds can remain dormant in the soil for many years, forming a "durable soil seed bank" that will germinate only when a treefall or other disturbance creates an opening in the forest canopy.



Bark

River Birch *Betula nigra*



Birch Family (Betulaceae)

Alternate, simple

CHARACTERISTICS Not for Streets

- | | |
|---|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input checked="" type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

50-70 ft

BARK

Exfoliating, shaggy and colorful

TWIGS

Reddish brown, slender, buds acute

LEAVES

Alternate
Simple 3"
Coarsely double-toothed

NOTES

River Birch is a riparian species that is well adapted to urban conditions, though its weak wood makes storm damage a risk. It is the most heat-tolerant of the birches, and the exfoliating bark provides winter interest.



Full Tree



Leaf



Bark

EXCELLENT SPECIMEN

40" DBH. 3 Raynham Rd., East Shore

Paper Birch or White Birch *Betula papyrifera*



Birch Family (Betulaceae)

Alternate, simple

CHARACTERISTICS Not for Streets

- | | |
|---|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input checked="" type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input checked="" type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

50-70 ft

BARK

Smooth and reddish-brown in younger trees, becoming white and peeling with age.

TWIGS

Slender, dull reddish-brown to orange-brown, dotted with small light-colored lenticels, buds ovoid and resinous

LEAVES

Alternate
Simple 4"
Coarsely double-toothed

NOTES

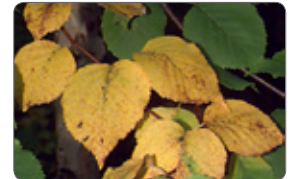
The most widely distributed of the North American birches, Paper Birch represents an expansive polyploid complex that stretches from the central Appalachian Mountains in the southeast to Alaska in the northwest. In the northern part of its range it forms extensive pure stands on the sites of earlier forest fires, but in the eastern US it occurs more often in mixed stands on moist, rocky uplands. Other white-barked birch species that may be encountered in the New Haven landscape include the native Gray Birch (*Betula populifolia*) as well as the European White Birch (*Betula pendula*).



Full Tree



Leaf



Autumn Foliage



Bark

EXCELLENT SPECIMEN

18" DBH. 78 Barnett, Westville

European Hornbeam *Carpinus betulus*



Birch Family (Betulaceae)

Alternate, simple

CHARACTERISTICS

- native
- wide tree pit needed
- narrow canopy
- good fall color
- wide canopy
- showy flowers
- drought tolerant
- acceptable under wires
- salt tolerant
- good for wildlife
- weak wood
- invasive



Full Tree



Leaf



Bark



Seeds

HEIGHT

40-60 ft

BARK

Smooth, blue-gray or ash-gray, with a muscle-like fluted texture

TWIGS

Slender, gray, covered with light gray downy hairs on new growth

LEAVES

Alternate
Simple, to 3½" in length
Oval
Doubly-serrate

NOTES

Native to Eurasia, this slow-growing species does well in urban conditions, and makes an attractive small- to medium-sized specimen tree, as well being suitable for street plantings. The common name "hornbeam" refers to the hardness and density of the wood, which was thought to resemble animal horn.

EXCELLENT SPECIMEN

18" DBH. 139 Goffe, Dixwell

American Hornbeam or Musclemwood *Carpinus caroliniana*



Birch Family (Betulaceae)

Alternate, simple

CHARACTERISTICS

- native
- wide tree pit needed
- narrow canopy
- good fall color
- wide canopy
- showy flowers
- drought tolerant
- acceptable under wires
- salt tolerant
- good for wildlife
- weak wood
- invasive



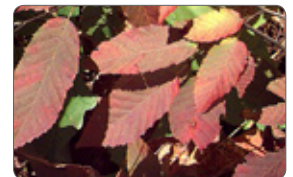
Full Tree



Leaf



Bark



Autumn Foliage

HEIGHT

To 30 ft

BARK

Smooth, blue-gray or ash-gray in color, with a muscle-like fluted texture

TWIGS

Slender, zig-zag, with the terminal bud lacking

LEAVES

Alternate
Simple, to 3½" in length
Oval
Doubly-serrate

NOTES

Native to moist upland forests throughout eastern North America, American Hornbeam is a small understory tree that is extremely shade-tolerant. Unlike its close relative the European Hornbeam, it is seldom planted. The common name "hornbeam" refers to the hardness and density of the wood, which was thought to resemble animal horn, and "musclemwood" refers to the distinctive texture of the bark.

Shagbark Hickory

Carya ovata



Walnut Family (Juglandaceae)

Alternate, compound

CHARACTERISTICS

- native
- narrow canopy
- wide canopy
- drought tolerant
- salt tolerant
- weak wood
- wide tree pit needed
- good fall color
- showy flowers
- acceptable under wires
- good for wildlife
- invasive

HEIGHT

70-80 ft

BARK

Distinctly shaggy, peeling off in long curling strips

TWIGS

Stout, gray-brown to reddish brown, somewhat pubescent, with large terminal buds ½" to ¾" long, pith solid

LEAVES

Alternate
Compound, to 11" in length
5-7 leaflets, 5" each

NOTES

Shagbark Hickory is the most easily recognized of the four hickory (*Carya*) species present in New England. Much like Black Walnut (*Juglans nigra*), Shagbark Hickory is not widely planted in cities, partly because its deep taproot makes it difficult to transplant, and partly because the dropping fruits can pose a hazard on streets. Hickory wood is used for tool handles and makes excellent firewood (sometimes used for smoking meats).

EXCELLENT SPECIMEN

39" DBH. 36 Elmwood, Westville



Full Tree



Leaf



Bark



Fruit

Northern Catalpa

Catalpa speciosa



Trumpet-creper Family (Bignoniaceae)

Opposite, simple

CHARACTERISTICS Not for Streets

- native
- narrow canopy
- wide canopy
- drought tolerant
- salt tolerant
- weak wood
- wide tree pit needed
- good fall color
- showy flowers
- acceptable under wires
- good for wildlife
- invasive

HEIGHT

40-60 ft

BARK

Reddish brown, thick and scaly

TWIGS

Stout, gray; terminal bud lacking, lateral buds small and hemispherical

LEAVES

Opposite or whorled
Simple
Heart shaped
Entire

NOTES

Despite its name, Northern Catalpa is native to the southern US. It has become widely naturalized in New England and is frequently encountered on roadsides and in disturbed areas.

EXCELLENT SPECIMEN

32" DBH. 151 Westwood, Westville



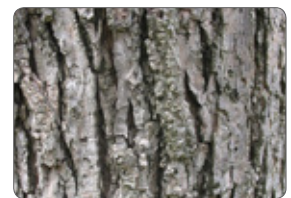
Full Tree



Leaf



Flower



Bark

Atlas Cedar *Cedrus atlantica*



Pine Family (Pinaceae)

Needle-leaved, whorled

CHARACTERISTICS Not for Streets

- | | |
|--|--|
| <input type="checkbox"/> native | <input checked="" type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input checked="" type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input checked="" type="checkbox"/> evergreen |

HEIGHT

30-50 ft

BARK

Dark brown to dark gray, smooth in younger trees, becoming fissured into roughly square gray-brown plates

TWIGS

Pale brown, finely hairy when young, and dimorphic: long shoots bear foliage in spiral arrangement, while foliage on short shoots is in dense clusters (known as "pseudowhorls")

LEAVES

Needles in clusters of 20 to 30

1/2"-1" long

Greenish-bluish silver color

NOTES

Native to the Atlas Mountains of North Africa, this is a true cedar, unlike species such as Eastern Red-Cedar (*Juniperus virginiana*) and Northern White-Cedar (*Thuja occidentalis*) that are merely called "cedars". Erect and narrow-crowned when young, Atlas cedar develops a wide-spreading vase shape as it matures, thus requiring a large space such as a park or large backyard. The cones are about 3" long and are borne upright. Related species include the Cedar of Lebanon (*Cedrus libani*) of the Middle East, mentioned in the Bible and the Epic of Gilgamesh, and the Deodar Cedar (*Cedrus deodara*) of the Himalayas.

EXCELLENT SPECIMEN

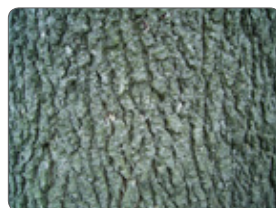
10" DBH. 258 St. Ronan St., Prospect Hill



Full Tree



Leaf



Bark



Cone

Hackberry *Celtis occidentalis*



Hemp Family (Cannabaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|--|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input checked="" type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input checked="" type="checkbox"/> salt tolerant | <input checked="" type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

40-60 ft

BARK

Gray and distinctly rough-textured, covered in corky protuberances

TWIGS

Slender, zig-zag in arrangement, lacking terminal buds

LEAVES

Alternate

Simple 3 1/2 "

Serrated

Uneven base

Pointed tip

NOTES

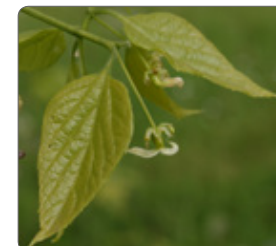
Hackberries are closely related to the elms, and trees with good form can resemble American Elm. Although not yet widely planted in New Haven, this species holds great potential as a street tree.

EXCELLENT SPECIMEN

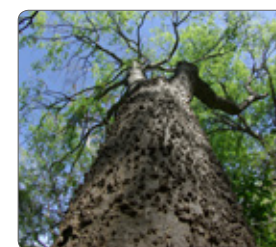
38" DBH. 63 Sea St., Hill



Full Tree



Leaf



Bark



Fruit

Katsura Tree

Cercidiphyllum japonicum



Katsura Family (Cercidiphyllaceae)

Opposite, simple

CHARACTERISTICS

- | | |
|---|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input checked="" type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

40-60 ft

BARK

Deeply furrowed, on older stems peeling off in thin plates

TWIGS

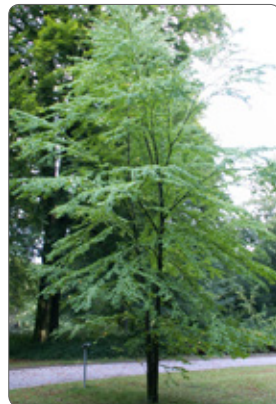
Slender, red-brown

LEAVES

Opposite
Simple
Blunt-toothed
Rounded heart shape

NOTES

Katsura Tree is an attractive and fast-growing medium-sized tree that prefers moist forest soils, and so is not well adapted to more challenging urban situations. Native to low-elevation mountain forests of Japan and eastern China, the species is dioecious: fruits (woody pod-like follicles) are produced on female trees only. The Latin name *Cercidiphyllum* refers to the similarity of the leaves to those of the redbuds (*Cercis* spp.), whereas the common name refers to the famous gardens of the Katsura Imperial Villa in Kyoto, Japan.



Full Tree



Leaf



Bark

Eastern Redbud

Cercis canadensis



Legume Family (Fabaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|---|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input checked="" type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

20-40 ft

BARK

Smooth, dark gray to black

TWIGS

Slender, brown to black, terminal bud lacking, leaf scars with a fringe of hairs on top

LEAVES

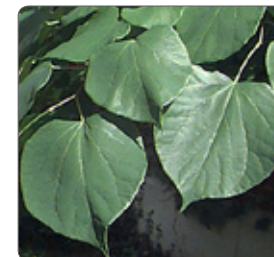
Alternate
Simple
Entire
Heart shaped, 3-5"

NOTES

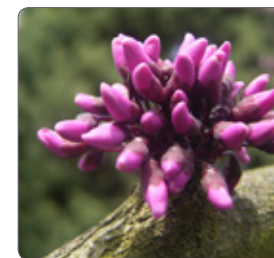
Redbud is a showy small leguminous tree native to the central and southern US that is unfortunately difficult to transplant. An understory species in the wild, it is intolerant of heat and drought. The small pink or purple flowers are borne on naked twigs in the early spring, before most other woody plants are in bloom, a feature that makes the species a very attractive addition to the landscape.



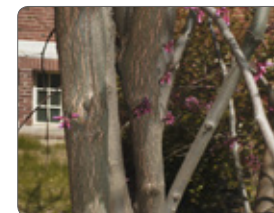
Full Tree



Leaf



Flower



Bark

EXCELLENT SPECIMEN

9" DBH. 66 Elmwood, Westville

Yellowwood *Cladrastis kentuckea*



Legume Family (Fabaceae)

Alternate, compound

CHARACTERISTICS Not for Streets

- | | |
|---|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input checked="" type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input checked="" type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

30-50 ft

BARK

Smooth and gray, developing knotty protuberances in older trees



Leaf

TWIGS

Slender, green to gray, with the lateral buds completely hidden under the petiole bases

LEAVES

Alternate

Compound to 10" in length
5-11 oval leaflets



Flower

NOTES

Yellowwood makes an attractive small specimen tree for parks and yards, but its wood (which is bright yellow in color when freshly cut) is too weak to be considered safe for planting on streets. Native to the southern Appalachians, the species does not occur naturally in New England.



Bark

EXCELLENT SPECIMEN

60" DBH. 36 Cleveland, Westville

Flowering Dogwood *Cornus florida*



Dogwood Family (Cornaceae)

Opposite, simple

CHARACTERISTICS

- | | |
|--|--|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input checked="" type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input checked="" type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input checked="" type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

20-30 ft

BARK

Gray, rough-textured, divided in to small blocks



Leaf

TWIGS

Slender, somewhat angled, purplish-green and often covered in a waxy bloom; stalked, subglobose terminal flower buds represent a distinctive feature in the winter



Flower

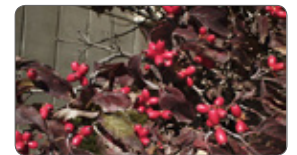
LEAVES

Opposite 4 1/2 "

Simple

Entire

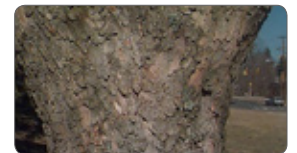
Veins curve to follow leaf to tip



Fruit

NOTES

A widely planted native small tree, Flowering Dogwood is shade-tolerant and sensitive to soil moisture (because of its shallow rooting depth), and in a forest context it attains its best development when growing in the understory beneath larger hardwoods. The flowers feature four large white (or sometimes pink) bracts with notched tips, and are followed by small clusters of red berries, which are relished by birds for their high lipid content. The species is susceptible to anthracnose infection, and is in decline throughout its native range. It is also known as *Benthamidia florida*.



Bark

EXCELLENT SPECIMEN

30" DBH. 79 Anderson St., East Rock

Kousa Dogwood *Cornus kousa*



Dogwood Family (Cornaceae)

Opposite, simple

CHARACTERISTICS

- native
- narrow canopy
- wide canopy
- drought tolerant
- salt tolerant
- weak wood
- wide tree pit needed
- good fall color
- showy flowers
- acceptable under wires
- good for wildlife
- invasive



Full Tree

HEIGHT

20-30 ft

BARK

Gray and yellow, exfoliating in blocky flakes



Leaf

TWIGS

Slender, somewhat angled but more erect in orientation than those of the native flowering dogwood



Flower

LEAVES

Opposite 4"

Simple

Entire

Veins curve to follow leaf to tip

NOTES

Kousa Dogwood is large shrub or small tree native to east Asia that is increasingly planted as a replacement for the native flowering dogwood. The fruit is a fleshy, strawberry-like red ball. The species is also known as *Benthamidia kousa*.



Fruit



Bark

EXCELLENT SPECIMEN

14" DBH. 68 Pope St., East Shore

Cornelian Cherry Dogwood *Cornus mas*



Dogwood Family (Cornaceae)

Opposite, simple

CHARACTERISTICS

- native
- narrow canopy
- wide canopy
- drought tolerant
- salt tolerant
- weak wood
- wide tree pit needed
- good fall color
- showy flowers
- acceptable under wires
- good for wildlife
- invasive



Full Tree

HEIGHT

20-25 ft

BARK

Grayish brown, exfoliating in thin flakes



Leaf

TWIGS

Slender, covered in gray-green hairs when young

LEAVES

Opposite

Simple

Entire

Veins curve to follow leaf to tip



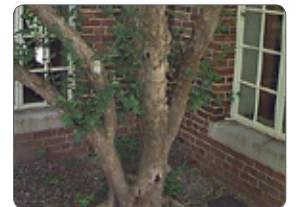
Flower

NOTES

Native to southern and eastern Europe, this early-flowering small tree is well adapted to urban conditions. The fruit is a large red berry enjoyed by wildlife, as well as being widely utilized by the human inhabitants of its native range for preserves and sorbet.



Fruit



Bark

Turkish Filbert or Turkish Hazel

Corylus colurna



Birch Family (Betulaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|---|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

50-65 ft

BARK

Buff-brown, furrowed, becoming scaly



Leaves and Nut

TWIGS

Densely glandular-hairy

LEAVES

Simple

Alternate

Heart-shaped, with crinkly double-toothed margins

To 4 ½ inches in length and width



Branch

NOTES

The Turkish Filbert is unusual among members of the hazels (*Corylus* spp.) in that it grows not as a shrub but as a large-straight-boled tree. Native to southeast Europe and Asia Minor, it has attractive bark and develops a symmetrical pyramidal crown shape once mature.



Bark

Hawthorn

Crataegus spp.



Rose Family (Rosaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|---|--|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input checked="" type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input checked="" type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input checked="" type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

15-25 ft

BARK

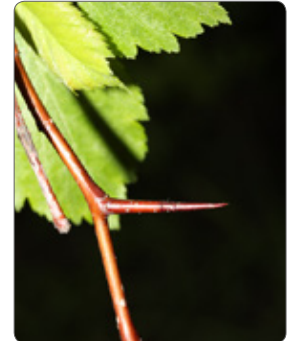
Variable, but typically somewhat rough in texture with scales or small plates.



Leaf

TWIGS

Armed with numerous thorns formed from modified lateral short shoots



Thorn

LEAVES

Alternate

Simple 1-3"

Jaggedly toothed

Lobed or unlobed

Highly variable

NOTES

The hawthorns represent more than 100 species (and hybrids thereof) of North American, European, and Asian origins whose relationships are complex and poorly understood, even by specialists. Outside of cultivation, they are commonly found in disturbed or early-seral sites such as hedgerows and woodland edges, or in pastures. The fruits resemble small apples, and often occur in clusters. The thorns of some species, in particular *Crataegus crus-galli* and *C. phaenopyrum*, are especially well developed, so these should be treated with caution.



Fruit

EXCELLENT SPECIMEN

54" DBH. 188 Central, Westville

Hardy Rubber Tree *Eucommia ulmoides*



Eucommia Family (Eucommiaceae)

Alternate, simple

CHARACTERISTICS

- native
- narrow canopy
- wide canopy
- drought tolerant
- salt tolerant
- weak wood
- wide tree pit needed
- good fall color
- showy flowers
- acceptable under wires
- good for wildlife
- invasive



Full Tree

HEIGHT

40-60 ft

BARK

Brownish-gray, developing into irregular plates

TWIGS

Hollow

LEAVES

Alternate

Simple

Toothed



Leaf



Bark



Fruit

NOTES

The most northern latex-producing tree species, Hardy Rubbertree is not often encountered. Nonetheless, it may be identified easily by tearing a leaf and pulling apart the two halves, which will remain connected by instantly hardened strings of exuded latex. Native to central China, it is not related to the rubber tree of commerce.

American Beech *Fagus grandifolia*



Beech Family (Fagaceae)

Alternate, simple

CHARACTERISTICS Not for Streets

- native
- narrow canopy
- wide canopy
- drought tolerant
- salt tolerant
- weak wood
- wide tree pit needed
- good fall color
- showy flowers
- acceptable under wires
- good for wildlife
- invasive



Full Tree

HEIGHT

50-70 ft

BARK

Smooth and gray (sometimes likened to the skin of an elephant)



Leaf

TWIGS

Smooth and gray with slender pointed buds $\frac{3}{4}$ " to 1" long

LEAVES

Alternate

Simple 4"

Wavy margin

Pointed tips where veins meet leaf margin



Bark

NOTES

A native tree of rich upland forests, American Beech is susceptible to disease (especially the beech bark disease caused by the *Nectria* fungus) and troublesome sprouting from the roots. As with European beech, the smooth gray bark is often defaced with carvings and graffiti.



Fruit

European Beech *Fagus sylvatica*



Beech Family (Fagaceae)

Alternate, simple

CHARACTERISTICS Not for Streets

- | | |
|---|--|
| <input type="checkbox"/> native | <input checked="" type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

50-60 ft

BARK

Smooth and gray like an elephant



Leaf

TWIGS

Smooth and gray with slender pointed buds $\frac{3}{4}$ " long

LEAVES

Alternate
Simple 3"
Wavy margin



Bark

NOTES

The European Beech makes an attractive specimen tree in parks and larger yards, and can attain massive dimensions. The smooth gray bark is often defaced with carvings and graffiti. Many cultivars are available, including copper- or purple-leaved (*Fagus sylvatica* var. *purpurea*), columnar (var. *fastigiata*), and weeping (var. *pendula*) forms.



Fruit

White Ash *Fraxinus americana*



Olive Family (Oleaceae)

Opposite, compound

CHARACTERISTICS

- | | |
|---|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

50-70 ft

BARK

Ashy gray, sometimes with an orange tinge, on older trees becoming dark gray and divided by diamond-shaped furrows and narrow forking ridges



Leaf

TWIGS

Stout, dark green to gray-green or occasionally purplish, either hairy or glabrous; terminal buds broadly ovoid, obtuse.

LEAVES

Opposite
Compound 12"
Usually 7 (5-13) leaflets
4" long



Bark

NOTES

White Ash does not perform as well under urban conditions as green ash, and appears to be in decline throughout its range as a result of Ash Yellows disease and the exotic Emerald Ash Borer insect. Ash wood is used for the manufacture of baseball bats and tool handles. The species is dioecious: fruits (samaras) are produced by female trees only.



Fruit

EXCELLENT SPECIMEN

52" DBH. 150 Huntington St., Prospect Hill

Green Ash

Fraxinus pennsylvanica



Olive Family (Oleaceae)

Opposite, compound

CHARACTERISTICS

- | | |
|---|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

50-70 ft

BARK

Gray-brown, thick, furrowed into narrow, interlacing, scaly ridges

TWIGS

Stout to moderately slender, flattened at the nodes, gray to greenish brown, either velvety or pubescent; terminal buds conical to ovate, rusty brown, hairy.

LEAVES

Opposite
Compound 9"
5-9 leaflets, 3 1/2" long

NOTES

Green Ash performs better under urban conditions than White Ash, but it is no longer recommended for planting because of the spread of the exotic Emerald Ash Borer insect and Ash Yellow's disease. The species is dioecious: fruits (samaras) are produced by female trees only.

EXCELLENT SPECIMEN

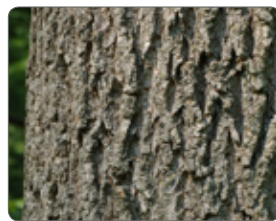
22" DBH. 140 Prospect St., Dixwell



Full Tree



Leaf



Bark



Fruit

Ginkgo or Maidenhair Tree

Ginkgo biloba



Ginkgo Family (Ginkgoaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|--|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input checked="" type="checkbox"/> narrow canopy | <input checked="" type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input checked="" type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input checked="" type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

50-80 ft

BARK

Reddish brown, deeply furrowed

TWIGS

Angular branching structure

LEAVES

Alternate
Simple
Entire
Fanned veins, no mid vein
Leaves grow from spurs

NOTES

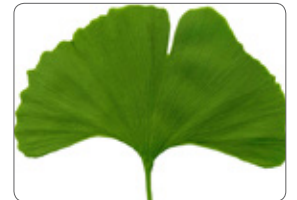
Ginkgo is our only tree with fan-veined leaves, a tough and adaptable species that is a good street tree as much as it can make a bold and attractive specimen planting in a park or yard. The genus *Ginkgo* is known from the fossil record as early as 200 million years ago, so the single extant species represents one of the oldest distinct lineages of woody plants and is unrelated to any other living tree. Native to China, where it has been cultivated in temple gardens for centuries and is possibly extinct in the wild. Ginkgo is dioecious, the female trees bearing fruit-like fleshy seeds with a highly disagreeable odor that has been compared to rancid butter or dog vomit, so only male trees should be planted in urban settings. Unlike most other gymnosperms, Ginkgo is deciduous and develops attractive yellow pigmentation before losing its leaves in the fall.

EXCELLENT SPECIMEN

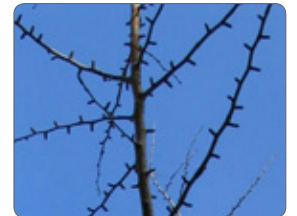
34" DBH. 42 Pierpont St, Fair Haven



Full Tree



Leaf



Branch



Fruit

Honeylocust *Gleditsia triacanthos*



Legume Family (Fabaceae)

Alternate, compound

CHARACTERISTICS

- native
- narrow canopy
- wide canopy
- drought tolerant
- salt tolerant
- weak wood
- wide tree pit needed
- good fall color
- showy flowers
- acceptable under wires
- good for wildlife
- invasive

HEIGHT

30-70 ft

BARK

Grayish brown to black, with conspicuous lenticels, often covered in clusters of large, branched thorns

TWIGS

Greenish brown to reddish brown, lustrous, bearing one-to three-branched thorns

LEAVES

Alternate
Compound
Sometimes twice-compound
6" leaves have 15-30 1" leaflets

NOTES

Widely planted in the late 20th century as a replacement for American Elms killed by Dutch Elm Disease, Honeylocust is one of the most numerous street trees in New Haven and other northeast US cities. Wild-type trees have large, multi-branched thorns on their stems as well as large pods (fruits), both of which are undesirable on street trees, but improved cultivars have been developed that are thornless and fruitless. Honeylocust needs a wide tree pit when planted as a street tree or it may cause heaving of sidewalks.

EXCELLENT SPECIMEN

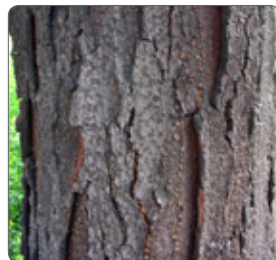
40" DBH. 180 Westwood, Westville



Full Tree



Leaf



Bark

Kentucky Coffeetree *Gymnocladus dioica*



Legume Family (Fabaceae)

Alternate, compound

CHARACTERISTICS Not for Streets

- native
- narrow canopy
- wide canopy
- drought tolerant
- salt tolerant
- weak wood
- wide tree pit needed
- good fall color
- showy flowers
- acceptable under wires
- good for wildlife
- invasive

HEIGHT

40-60 ft

BARK

Gray, deeply furrowed

TWIGS

Stout, brown, with large leaf scars and salmon-colored pith; terminal bud lacking, axillary buds partly concealed by petiole bases

LEAVES

Alternate
Compound
Bipinnately compound, huge in size, up to 30" in length
5-9 pairs of leaflets, each with 6-14 oval pointed subleaflets

NOTES

Kentucky Coffeetree is an unusual and striking leguminous tree of the central US. It has very large bipinnate leaves, as well as stout pods up to 5" long that often persist on the naked twigs well into winter. The large black seeds within the pods were formerly roasted and ground as a substitute for coffee, but are poisonous if consumed raw.



Full Tree



Leaf



Pod



Bark

American Holly *Ilex opaca*



Holly Family (Aquifoliaceae)

Alternate, simple

CHARACTERISTICS Not for Streets

- | | |
|--|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input checked="" type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input checked="" type="checkbox"/> evergreen |



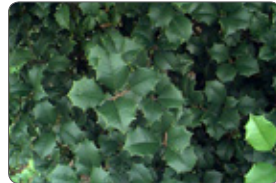
Full Tree

HEIGHT

20-40 ft

BARK

Smooth, yellowish- or greenish gray



Leaf

TWIGS

Slender, gray, with small and almost inconspicuous black buds

LEAVES

Alternate
Simple
Toothed with sharpe spines
Hard and curved



Bark

NOTES

Holly is one of our few native broadleaved evergreen trees. Connecticut is near the northern limit of the species' native range, so wild populations are mostly restricted to shoreline locations where the winters are mild. The species is dioecious: fruits (red berries) are produced by female trees only.



Fruit

Black Walnut *Juglans nigra*



Walnut Family (Juglandaceae)

Alternate, compound

CHARACTERISTICS

- | | |
|---|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

50-75 ft

BARK

Dark brown to grayish black, deeply furrowed, with thin ridges arranged in a diamond-shaped pattern

TWIGS

Stout, light brown to orange brown, spotted with small lenticels, pith cream-colored and chambered



Leaf

LEAVES

Alternate
Compound 18"
13-23 narrow pointed leaflets, 4" each

NOTES

Black Walnut is not widely planted in urban environments, partly because its deep taproot makes transplanting difficult, but also because the large fruit (a fleshy green drupe with the nut at its center) it produces can create a hazard on sidewalks and streets. The edible nuts provide a natural dye for textiles (from the husks) as well as abrasive grit (from the shells) that is used in industry for cleaning metal and in drilling oil wells. The valuable dark brown wood is used for furniture and gunstocks.



Bark



Fruit

Eastern Red-Cedar *Juniperus virginiana*



Cypress Family (Cupressaceae) Scale-leaved, opposite

CHARACTERISTICS Not for Streets

- | | |
|--|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input checked="" type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input checked="" type="checkbox"/> salt tolerant | <input checked="" type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input checked="" type="checkbox"/> evergreen |

HEIGHT

30-50 ft

BARK

Light brown, exfoliating in long, thin strips

TWIGS

Green and covered in foliar scales, otherwise slender and light reddish brown

LEAVES

Tiny, scale-like (or needle-like on young growth), opposite

NOTES

The most widespread native tree species of eastern North America, Eastern Red-Cedar is at home on dry rocky ledges, old fields, and along the shoreline. The aromatic wood is highly rot-resistant, and is used for fence posts as well as insect-repellant chests and closets for clothing and bedding. The species is dioecious: the berrylike blue cones borne on female trees are a favorite food of many bird species, which distribute the seeds widely.



Full Tree



Leaf



Fruit

EXCELLENT SPECIMEN

38" DBH. 164 Glen Haven Rd., Quinnipiac Meadows

Golden Rain Tree or Varnish Tree *Koelreuteria paniculata*



Soapberry Family (Sapindaceae) Alternate, compound

CHARACTERISTICS

- | | |
|---|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input checked="" type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

40 ft

BARK

Grayish brown, with small orange fissures

TWIGS

Red-flushed on young growth

LEAVES

Alternate

Compound, up to 12" in length

Leaflets coarsely toothed and often divided

NOTES

Native to northern China and the Korean peninsula, Goldenrain Tree makes an excellent and showy street tree, tolerant of urban conditions. It is distinguished by loose panicles of yellow flowers in summer when few other trees are in bloom, but weak wood means it is prone to storm damage.



Full Tree



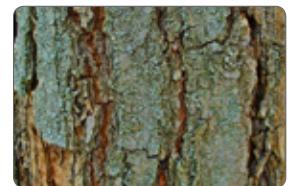
Leaf



Flower



Fruit



Bark

Sweetgum *Liquidambar styraciflua*



Sweetgum Family (Altingiaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|---|--|
| <input checked="" type="checkbox"/> native | <input checked="" type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input checked="" type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

60-75 ft

BARK

Grayish brown, deeply furrowed into narrow, somewhat rounded flaky ridges

TWIGS

Stout, often with distinctive corky wings

LEAVES

Alternate
Simple
Lobed
Finely toothed
Star-shaped

NOTES

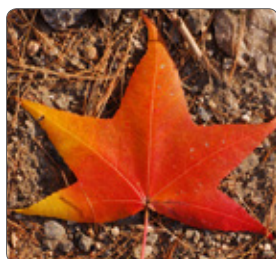
Sweetgum is an adaptable native tree species with fine fall color that makes a very good street tree on larger sites. Leaf shape is variable, with the leaves on some cultivars being long and pointed while those of other cultivars may be short and rounded. Sweetgum fruits are spiky, dangling balls about 1" in diameter, which may sometimes create a hazard on sidewalks. Southern Connecticut is the northern limit of the species' native range, which extends as far south as Latin America.

EXCELLENT SPECIMEN

59" DBH. 275 Judwin Hill



Full Tree



Leaf



Bark



Fruit

Tulip Tree, Tulip Poplar, or Yellow Poplar *Liriodendron tulipifera*



Magnolia Family (Magnoliaceae)

Alternate, simple

CHARACTERISTICS Not for Streets

- | | |
|---|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

70-90 ft

BARK

On young trees, dark greenish or orange-brown and smooth with small white spots, on older stems becoming ashy gray and divided into long, interlaced rounded ridges; inner bark bitter and aromatic

TWIGS

Moderately stout, reddish brown, bitter to the taste when chewed

LEAVES

Alternate
Simple
Lobed
Entire
Golden yellow in autumn

NOTES

A major component of the "cove hardwoods" association of Appalachian forests, Tulip Tree is our tallest eastern hardwood species, forming a canopy-emergent layer above the crowns of adjacent trees. The species typically exhibits a strong central leader, growing very tall and very straight, with large tulip-like greenish-yellow flowers borne at the tips of the branches in late spring. Because of their soft, weak wood, tulip tree is not recommended as a street tree, but makes an excellent specimen for parks and larger yards.

EXCELLENT SPECIMEN

42" DBH. 21 Rosette St. Hill



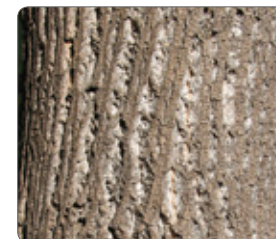
Full Tree



Leaf



Flower



Bark

Amur Maackia

Maackia amurensis



Legume Family (Fabaceae)

Alternate, compound

CHARACTERISTICS

- | | |
|---|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input checked="" type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

20-30 ft

BARK

Peeling, coppery in color

TWIGS

Slender, green; resembling yellowwood except that lateral buds are exposed

LEAVES

Alternate
Compound 10"
7-11 broad oval leaflets, 2" each

NOTES

Amur Maackia is a small, slow-growing leguminous tree native to eastern Asia that makes an attractive specimen in small urban yards.



Full Tree



Leaves with flowers



Bark

Saucer Magnolia

Magnolia x soulangiana



Magnolia Family (Magnoliaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|---|--|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input checked="" type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input checked="" type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

20-30 ft

BARK

Gray, smooth

TWIGS

Stout, with large hairy buds in winter

LEAVES

Alternate
Simple
Entire

NOTES

Saucer Magnolia is the most commonly cultivated magnolia, growing well in urban settings and on a wide variety of soils. A hybrid of two Asian magnolia species, *Magnolia denudata* and *M. liliiflora*, Saucer Magnolia originated in China. The large pink flowers are said to resemble a porcelain teacup and saucer, hence the name.



Full Tree



Leaf



Flower



Bark

EXCELLENT SPECIMEN

30" DBH. 201 Townsend Ave., East Shore

Flowering Crabapple

Malus spp.



Rose Family (Rosaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|---|--|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input checked="" type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input checked="" type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

15-30 ft

BARK

Light brown to gray, becoming scaly.

TWIGS

Slender to stout, light brown, sometimes bearing thorn-like lateral short shoots with hair-tufted buds (giving rise to flowers and fruit).



Leaf with fruit

LEAVES

Alternate
Simple 3"
Finely toothed
Oval in shape

NOTES

"Crabapple" is a catchall term for wild or small-fruited apples of various species. There are no native apples in New England, but species commonly planted include *Malus baccata* (native to China and Japan), *M. floribunda* (native to Japan), and *M. sargentii* (also native to Japan). Naturalized individuals of the cultivated apple, *Malus domestica*, are also sometimes encountered, particularly on roadsides, old fields, and waste places; where old apple trees are found in the forest, it is usually indicative of the location of a vanished farmstead.



Flower

EXCELLENT SPECIMEN

30" DBH. 120 Ogden St., Prospect Hill

Dawn Redwood

Metasequoia glyptostroboides



Cypress Family (Cupressaceae)

Needle-leaved, opposite

CHARACTERISTICS Not for Streets

- | | |
|---|--|
| <input type="checkbox"/> native | <input checked="" type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> evergreen |

HEIGHT

70-100 ft

BARK

Reddish brown, often peeling off in strips

TWIGS

Green when first formed, then becoming orange-brown

LEAVES

Needle-leaved
Opposite
Bright green in summer, turning orange-brown in fall
Deciduous



Full Tree



Leaf

NOTES

Dawn Redwood has the distinction of being the only extant tree species to have been described as a fossil before it was known as a living tree. Discovered in 1941 in Szechuan province, China, it is a fast-growing riparian species that grows best on moist soils, but which is well adapted to urban conditions and will develop into an impressive specimen tree when given sufficient space. Most Dawn Redwoods in the US are descended from a small number of seedlings propagated after World War II by the Arnold Arboretum at Harvard University in a successful attempt to bring the species back from the very edge of extinction. The most cold-hardy of the redwoods, Dawn Redwood is deciduous, losing its needles in the fall.



Bark



Cone

White Mulberry *Morus alba*



Mulberry Family (Moraceae)

Alternate, simple

CHARACTERISTICS Not for Streets

- | | |
|---|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input checked="" type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input checked="" type="checkbox"/> invasive |



Full Tree

HEIGHT

30-60 ft

BARK

Yellowish brown, exuding latex from the inner bark when wounded

TWIGS

Slender, brown, covered in downy hairs in spring that are soon lost; broken twigs exude latex

LEAVES

Alternate
Simple
Toothed
Lobed or unlobed
Smooth and glossy on the upper surface
Hairless below



Leaf

NOTES

More common in urban settings than the native Red Mulberry, White Mulberry is native to China and was introduced to North America beginning in the 1600s as part of an attempt to establish a domestic silk industry. The species is dioecious: fruits (resembling blackberries) are produced by female trees only.



Bark



Fruit

EXCELLENT SPECIMEN

18" DBH. 888 Winchester Ave., Newhallville

Red Mulberry *Morus rubra*



Mulberry Family (Moraceae)

Alternate, simple

CHARACTERISTICS

- | | |
|--|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input checked="" type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

30-60 ft

BARK

Yellowish brown, bleeding latex from the inner bark when wounded

TWIGS

Slender, brown, thinly hairy

LEAVES

Alternate
Simple
Toothed
Lobed or unlobed
Sandpapery rough on upper surface
Hairy below



Leaf

NOTES

Red Mulberry is a tree of moist lowland forests, and so is rarely encountered in urban settings. The species is dioecious: fruits (resembling blackberries) are produced on female trees only. Red Mulberry trees in Connecticut often show evidence of hybridization with the exotic White Mulberry.



Bark

EXCELLENT SPECIMEN

50" DBH. 55 Eastern St., Fair Haven Heights

Black Gum, Tupelo, or Pepperidge *Nyssa sylvatica*



Dogwood Family (Cornaceae)

Alternate, simple

CHARACTERISTICS

- native
- wide tree pit needed
- narrow canopy
- good fall color
- wide canopy
- showy flowers
- drought tolerant
- acceptable under wires
- salt tolerant
- good for wildlife
- weak wood
- invasive

HEIGHT

60-80 ft

BARK

Blocky, with the appearance of alligator skin

TWIGS

Slender to stout, reddish brown; terminal buds small, yellowish, rounded

LEAVES

Alternate, 4" long

Simple

Entire

Leaf clusters often appear compound

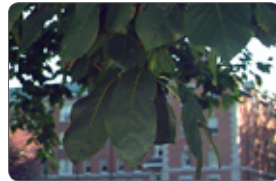
Brilliant fall color

NOTES

Like many wetland species, Black Gum makes an excellent street tree and is adaptable to all soil types. Some of the oldest known trees in New England are Black Gums; as a slow-growing species with very hard wood, in a forest context it tends to be found on marginal sites that were avoided by early European settlers, so many native stands have apparently never been cut. Black Gum develops brilliant red leaf color in the fall, and so makes an attractive addition to the landscape, but it needs to be planted young because older trees dislike being moved.



Full Tree



Leaf



Bark



Fruit

Hop-hornbeam or Ironwood *Ostrya virginiana*



Birch Family (Betulaceae)

Alternate, simple

CHARACTERISTICS

- native
- wide tree pit needed
- narrow canopy
- good fall color
- wide canopy
- showy flowers
- drought tolerant
- acceptable under wires
- salt tolerant
- good for wildlife
- weak wood
- invasive

HEIGHT

To 60 ft

BARK

Light tan to gray and "shreddy" in texture, broken into small, thin, narrow vertical strips that curve away from the trunk

TWIGS

Slender, zig-zag, with the terminal bud lacking; finely hairy when young, but becoming smooth with age

LEAVES

Alternate

Simple, to 3½" in length

Oval

Doubly-serrate

Finely hairy when young, but becoming smooth with age

NOTES

Native to upland forests of New England and throughout eastern North America, Hop-Hornbeam is a small understory tree that is extremely shade-tolerant. As with the true hornbeams (genus *Carpinus*), the common names "hornbeam" and "ironwood" refer to the hardness and density of the wood. It is seldom planted.



Full Tree



Leaf



Bark



Fruit

Sourwood

Oxydendrum arboreum



Heath Family (Ericaceae)

Alternate, simple

CHARACTERISTICS Not for Streets

- | | |
|---|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input checked="" type="checkbox"/> narrow canopy | <input checked="" type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

20-60 ft

BARK

Longitudinally furrowed

TWIGS

Slender, yellow-green to red, with buds partially embedded

LEAVES

Alternate

Simple

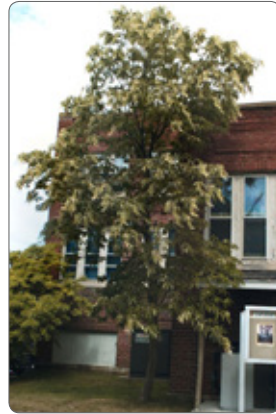
3-8" long and 1-3" wide

Bright red in the fall

Sour-tasting

NOTES

Native to the southern US, Sourwood is a very decorative small- to medium-sized tree that deserves to be more frequently planted, though its preference for a shady position and acidic, moist, well-drained soil may be challenging to satisfy in an urban environment outside of small private yards. The common name refers to the high oxalic acid content of the foliage, which has a sour taste when chewed as a result. In mid- to late summer, Sourwood bears large sprays of fragrant white flowers that are an important nectar source for honeybees, and sourwood honey is much prized.



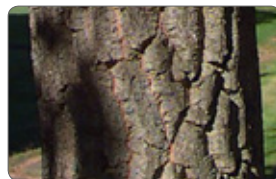
Full Tree



Leaf



Autumn Foliage



Bark

Royal Paulownia or Princess Tree

Paulownia tomentosa



Trumpet-Creeper Family (Bignoniaceae)

Opposite, simple

CHARACTERISTICS

- | | |
|---|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input checked="" type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input checked="" type="checkbox"/> weak wood | <input checked="" type="checkbox"/> invasive |

HEIGHT

30-50 ft

BARK

Smooth, gray to light brown

TWIGS

Sparse and very stout, hairy when young

LEAVES

Opposite

Simple

Heart shaped 9"

Entire

NOTES

Paulownia is fast-growing species native to central and western China that is considered highly invasive; its planting, sale, or transport is now illegal in Connecticut. It was named in honor of Anna Paulowna, daughter of Czar Paul I of Russia.



Full Tree



Leaf



Flower



Bark

Amur Cork Tree *Phellodendron amurense*



Rue/Citrus Family (Rutaceae)

Alternate, compound

CHARACTERISTICS Not for Streets

- | | |
|---|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input checked="" type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input checked="" type="checkbox"/> invasive |



Full Tree

HEIGHT

30-40 ft

BARK

Pale gray, thick and corky, with deep grooves



Leaf

TWIGS

Yellow tinged with gray to yellow tinged orange

LEAVES

Alternate
Compound 12"
3-11 leaflets
Long, shiny, pointed, pale veins



Bark

NOTES

A species once recommended for planting because of its picturesque wide-spreading crown and tolerance of urban conditions, Amur Cork Tree should now be avoided because of its invasiveness.



Fruit

EXCELLENT SPECIMEN

34" DBH. 466 Howard Ave., Hill

Norway Spruce *Picea abies*



Pine Family (Pinaceae)

Needle-leaved, alternate

CHARACTERISTICS Not for Streets

- | | |
|---|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input checked="" type="checkbox"/> evergreen |



Full Tree

HEIGHT

60-80 ft

BARK

Gray to reddish brown, flaky

TWIGS

Dark yellow-green, covered by peg-like leaf bases, drooping

LEAVES

Needles
Stiff, prickly
1/2"-1" long
Dark green color



Leaf

NOTES

The common spruce tree of northern Europe, Norway Spruce was widely planted in the eastern US in the early 1900s, and many specimen trees in New Haven date from this period. The trees are tall and statuesque, with drooping side limbs and pendulous cones 4-6" long hanging from the upper branches.



Cone

EXCELLENT SPECIMEN

36" DBH. 934 Whaley Ave., Westville

Colorado Spruce or Blue Spruce

Picea pungens



Pine Family (Pinaceae)

Needle-leaved, alternate

CHARACTERISTICS Not for Streets

- | | |
|--|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input checked="" type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input checked="" type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input checked="" type="checkbox"/> evergreen |

HEIGHT

30-60 ft

BARK

Gray to reddish brown, furrowed with scaly round ridges

TWIGS

Stout, yellow-brown, covered in peg-like leaf bases

LEAVES

Needles
Stiff, four-sided
3/4"-1 1/4" long
Dark green to gray-blue in color

NOTES

Colorado Spruce is native to the western US and is among the most popular ornamental tree species, being both adaptable and attractive. Although commonly known as "blue spruce", only approximately one in four trees exhibits the blue needle color for which the species is known. The side branches are horizontal to erect, with pendulous cones 2-4" long.

EXCELLENT SPECIMEN

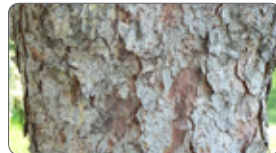
30" DBH. 20 Hillside Ave, Annex



Full Tree



Leaf



Bark



Cone

Pitch Pine

Pinus rigida



Pine Family (Pinaceae)

Needle-leaved, in bundles of 3

CHARACTERISTICS Not for Streets

- | | |
|--|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input checked="" type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input checked="" type="checkbox"/> evergreen |

HEIGHT

50-60 ft

BARK

Dark and scaly on young trees, then becoming thicker and smoother with brownish-yellow flattened plates separated by narrow, irregular fissures. The boles of trees are often covered in small tufts of foliage (i.e. epicormic buds).

TWIGS

Orange-brown, resinous

LEAVES

Needles, borne in bundles of 3
Light yellow-green color

NOTES

The northernmost representative of the "southern pines", Pitch Pine is a species of dry upland sites such as sand plains and rocky ridges, but is also found along the shoreline. Its presence in the wild is often associated with a history of forest fire. While Pitch Pine is seldom planted, relic native stands can still be found in several of New Haven's larger parks, such as in the College Woods section of East Rock Park along Cold Spring Street.. The common name refers to the high resin content of the wood, which made possible Connecticut's early "naval stores" (tar and turpentine) industry in the colonial period.



Full Tree



Leaf



Bark

Eastern White Pine

Pinus strobus



Pine Family (Pinaceae) Needle-leaved, in bundles of 5

CHARACTERISTICS Not for Streets

- | | |
|--|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input checked="" type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input checked="" type="checkbox"/> evergreen |

HEIGHT

50-100 ft

BARK

Thin and smooth on young stems, soon furrowed, becoming divided into narrow, roughly rectangular blocks on older stems

TWIGS

Orange-brown, resinous

LEAVES

Needles, borne in bundles of 5
Long, thin
Blue-green color

NOTES

White Pine is among the tallest trees of eastern North America, forming a canopy-emergent layer above the crowns of adjacent hardwoods in mixed stands. Large White Pine logs were used by Native Americans to make dugout canoes, and during the colonial period the felling of White Pines was regulated by several acts of the Parliament in order to guarantee a supply of masts for the sailing ships of the British Royal Navy. White Pine is intolerant of salt and air pollution, as well as being too large for most small city backyards, so it is not usually recommended for urban plantings although it can make a fine specimen tree where sufficient space is available for its development.

EXCELLENT SPECIMEN

38" DBH. 58 Mountain, Amity



Full Tree



Leaf



Bark



Cone

American Sycamore

Platanus occidentalis



Sycamore Family (Platanaceae) Alternate, simple

CHARACTERISTICS Not for Streets

- | | |
|---|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

75-90 ft

BARK

Molted, whitish, cream gray brown color

TWIGS

Zigzag, terminal bud lacking, lateral buds divergent

LEAVES

Alternate
Simple
Lobed
Maple-like

NOTES

Sycamore is among of the most massive hardwood trees of eastern North America, forming a canopy-emergent layer in mixed stands as well as developing an impressive bole diameter. It is a riparian species, typically found on the banks of flowing streams. The leaves resemble those of maples, but are alternate rather than opposite. The fruit is a fuzzy tannish-brown ball about 1" in diameter, borne singly, which breaks apart to release the individual seeds, which are dispersed by water. The mottled bark is cream-colored, lighter in hue than that of London Plane.

EXCELLENT SPECIMEN

58" DBH. 250 West Rock, Westville



Full Tree



Leaf



Bark



Fruit

London Plane Tree *Platanus x acerifolia*



Sycamore Family (Platanaceae)

Alternate, simple

CHARACTERISTICS

- native
- wide tree pit needed
- narrow canopy
- good fall color
- wide canopy
- showy flowers
- drought tolerant
- acceptable under wires
- salt tolerant
- good for wildlife
- weak wood
- invasive

HEIGHT

60-80 ft

BARK

Molted, whitish cream gray brown color

TWIGS

Zigzag, terminal bud lacking, lateral buds divergent

LEAVES

Alternate
Simple
Lobed
Maple-like

NOTES

London Plane is a hybrid of the American and Oriental Sycamores that first arose in Europe in the 1600s and became the favorite street tree species in London. The species is more tolerant of urban conditions (both atmospheric pollution and soil compaction) than almost any other temperate-zone woody plant, but its planting is now discouraged because of its susceptibility to powdery mildew and anthracnose disease. (Old established trees tend to soldier on in the face of disease, but young trees will often succumb to anthracnose within a few years of planting, though some cultivars show resistance.) The leaves of London plane resemble those of maples, but are alternate rather than opposite. The fruit, a fuzzy tannish-brown ball about 1" in diameter, is usually borne in pairs, and mottled bark is olive-colored, darker than that of American Sycamore.

EXCELLENT SPECIMEN

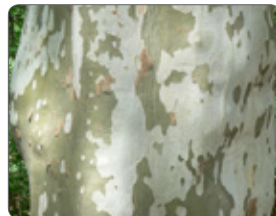
60" DBH. 227 Davenport Ave., Hill



Full Tree



Leaf



Bark



Fruit

White Poplar *Populus alba*



Willow Family (Salicaceae)

Alternate, simple

CHARACTERISTICS Not for Streets

- native
- wide tree pit needed
- narrow canopy
- good fall color
- wide canopy
- showy flowers
- drought tolerant
- acceptable under wires
- salt tolerant
- good for wildlife
- weak wood
- potentially invasive

HEIGHT

Up to 60 ft

BARK

Smooth, gray

TWIGS

Covered in silvery white hairs

LEAVES

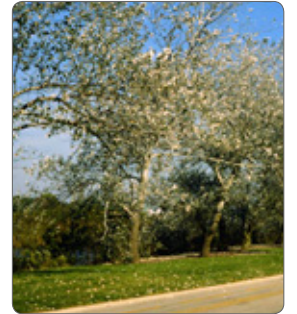
Alternate
Simple
Lobed, 3-5"
Coarsely toothed or wavy
Underleaf woolly white

NOTES

White Poplar is a fast-growing tree species native to southern and central Europe, north Africa, and central Asia. The silver color of the leaf undersides and bark is a great source of visual interest in the home landscape.

EXCELLENT SPECIMEN

10" DBH. 117 Lawrence St., East Rock



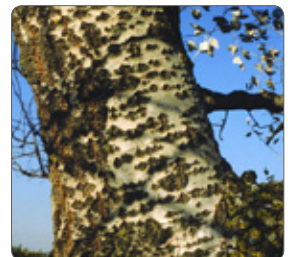
Full Tree



Leaf



Leaf Underside



Bark

Eastern Cottonwood

Populus deltoides



Willow Family (Salicaceae)

Alternate, simple

CHARACTERISTICS Not for Streets

- | | |
|---|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input checked="" type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

75-100 ft

BARK

Light greenish yellow when young, becoming gray, corky, and deeply furrowed on older stems

TWIGS

Stout, angular, yellowish brown, the terminal buds large and resinous, the axillary buds smaller and divergent



Leaf

LEAVES

Alternate
Simple
Coarse, rounded teeth
Triangular

NOTES

Cottonwood is a fast-growing (2-4 feet per year) tree species of floodplains and eroding streambanks, found throughout the eastern half of North America. The wood is soft and breaks easily, and the large glossy dark-green leaves feature flattened petioles that make them wave back and forth in the wind.



Bark

EXCELLENT SPECIMEN

62" DBH. 80 Oakly, Annex

Myrobalan Plum or Purple-Leaved Plum

Prunus cerasifera



Rose Family (Rosaceae)

Simple Alternate

CHARACTERISTICS

- | | |
|---|--|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input checked="" type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input checked="" type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input checked="" type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

15-30 ft

BARK

Dark gray to black, with a rough texture developing on older stems.



Leaf

TWIGS

Slender, dark gray to black

LEAVES

Alternate
Simple 2"
Serrated
Pointed tip
Purple color in certain cultivars



Flower

NOTES

Native to southeastern Europe and adjacent Asia Minor, the Myrobalan Plum is an attractive small tree with delicate white (or sometimes pink) flowers in early spring that is well suited to the urban landscape as long as it is not planted in hot, sunny, or dry locations. Forms with purple foliage are among the most popular, hence the common name "Purple-Leaved Plum". However, infestation by scale insects is often a major health problem for this species.



Fruit

Black Cherry *Prunus serotina*

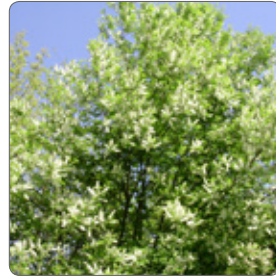


Rose Family (Rosaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|---|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input checked="" type="checkbox"/> salt tolerant | <input checked="" type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

50-60 ft

BARK

Bark of mature trees is covered in coarse dark flakes, often said to resemble burnt potato chips



Leaves with flowers

TWIGS

Slender, reddish brown or gray in color, with a bitter almond smell when broken.

LEAVES

Alternate
Simple 4"
Uneven base
Pointed tip
Serrated



Fruit

NOTES

Black Cherry is not planted as a street tree, but self-sown individuals (from seeds deposited by birds, who enjoy the fruit) occur frequently in edge habitats of all kinds, both urban and rural. A major timber species in much of its range, it occurs from southeastern Canada to Guatemala.



Bark

EXCELLENT SPECIMEN

68" DBH. 435 Lighthouse Rd., East Shore

Flowering Cherry *Prunus spp.*



Rose Family (Rosaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|---|--|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input checked="" type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input checked="" type="checkbox"/> acceptable under wires |
| <input checked="" type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

20-40 ft

BARK

Young trees typically have smooth bark with numerous horizontal lenticels.

TWIGS

Variable, but usually stout and glossy, and light brown in color

LEAVES

Alternate, Simple
2- 4½" in length, serrate
Two glands on petiole



Leaf

NOTES

The ornamental flowering cherries represent a complex of several species and their hybrids, mostly of Japanese origin, and are among the most frequently planted small flowering trees. The most common types encountered in New Haven include Higan Cherry (*Prunus x subhirtella*), Yoshino Cherry (*Prunus x yedoensis*), and Kwanzan Cherry (a member of what is referred to as the *Prunus* Sato-zakura Group, thought to be derived from *Prunus serrulata*). Kwanzan Cherry has stout twigs and an upright growth habit and blooms in late spring after the leaves have formed, whereas Yoshino and Higan Cherries tend to be thin-twigged and drooping in habit and bloom in early spring, prior to the emergence of the foliage; the weeping form of Higan Cherry, known as *Prunus x subhirtella* 'Pendula', is especially popular. Yoshino Cherry was first introduced to the US in 1902 as a gift from the government of Japan, and is the famous flowering cherry of Washington, DC, beloved for its delicate flowers and graceful habit. Because of their short period of bloom and relative brief lifespan, flowering cherries should be used only sparingly and conservatively in the landscape. They are not generally recommended for use as street trees, although their short stature does make them suitable for planting under overhead wires.



Flower



Bark

EXCELLENT SPECIMEN

30" DBH. 185 Upson Terr., East Shore

Callery Pear *Pyrus calleryana*



Rose Family (Rosaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|---|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input checked="" type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input checked="" type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input checked="" type="checkbox"/> weak wood | <input checked="" type="checkbox"/> invasive |

HEIGHT

30-60 ft

BARK

Smooth to scaly

TWIGS

Stout, with numerous lateral short shoots bearing glossy dark green leaves (turning red or orange in the fall) and showy white flowers in the spring.

LEAVES

Alternate
Simple 2 ½"
Serrated
Rounded with blunt tip
Wavy margin

NOTES

This is a commonly planted ornamental tree that is now falling into disfavor, partly from overuse and partly from the tendency of older trees to suffer disfiguring damage in storms, particularly when their weakly connected branches become overloaded with heavy snow or ice. Native to Asia, Callery Pear has become naturalized in much of eastern North America and is now regarded as an invasive species. The fruit resembles a small light brown crabapple. The most common cultivar of this species is 'Bradford'.

EXCELLENT SPECIMEN

22" DBH. 68 Pope St., East Shore



Full Tree



Leaf



Flower



Fruit

White Oak *Quercus alba*



Beech Family (Fagaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|--|--|
| <input checked="" type="checkbox"/> native | <input checked="" type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input checked="" type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input checked="" type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

60-80 ft

BARK

Light gray, broken into blocks or strips

TWIGS

Moderately stout, purplish gray to greenish red; terminal bud 1/8" to 1/4" long, reddish brown

LEAVES

Alternate
Simple 6 ½"
Deeply lobed rounded tips

NOTES

White Oak is not often encountered in urban environments because its deep taproot makes successful transplanting difficult. Nonetheless, it makes a fine specimen tree for parks and large yards where it can be afforded the space required to develop. White Oak provides the traditional material for wooden shipbuilding as well as tight cooperage (wooden barrels and casks), and oak barrel staves were among the principal exports of Connecticut in the colonial period. It is the state tree of Connecticut, in recognition of the famous Charter Oak in Hartford. The acorns are ¾" long with a shallow cap, ripening in the first autumn after pollination.

EXCELLENT SPECIMEN

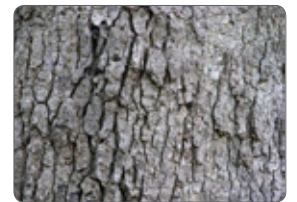
72" DBH. 10 Birch, Westville



Full Tree



Leaf



Bark



Acorn

Swamp White Oak

Quercus bicolor



Beech Family (Fagaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|---|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

50-60 ft

BARK

Resembling that of white oak, but thicker and shaggier

TWIGS

Straw-brown, dull; terminal buds 1/16" to 1/8" long, orange brown

LEAVES

Alternate
Simple 6 1/2"
Very shallow rounded lobes
Light-colored and velvety on the under side

NOTES

Swamp White Oak shows great promise as a street tree, and is being planted more and more in New Haven and other cities in the eastern US. Much like Pin Oak, Swamp White Oak is naturally a wetland species, and so is tolerant of the low-oxygen environment of compacted urban soils, and its fibrous root architecture means it is easily transplanted than White Oak. The acorns are 1" long with a deep cap bearing fringed scales, ripening in the first autumn after pollination. A similar and closely related native species of dry, upland sites is Chestnut Oak (*Quercus montana*, also listed as *Quercus prinus* in some literature).

EXCELLENT SPECIMEN

36" DBH. 520 Whitney Ave., Prospect Hill



Full Tree



Leaf



Bark

Scarlet Oak

Quercus coccinea



Beech Family (Fagaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|--|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input checked="" type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input checked="" type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

60-80 ft

BARK

Dark brown to black, broken into irregular ridges, often becoming flaky on upper limbs; generally similar to black oak, except with inner bark red in color.

TWIGS

Slender, reddish brown; terminal buds ovoid, 1/8" to 1/4" long, with pale hairs toward the apex

LEAVES

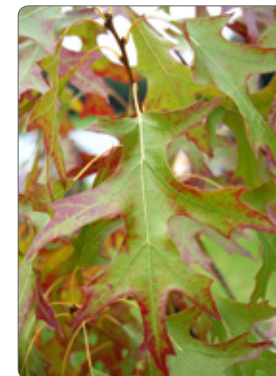
Alternate
Simple
Deeply lobed
Bristle tipped
Narrow sinuses, 6"

NOTES

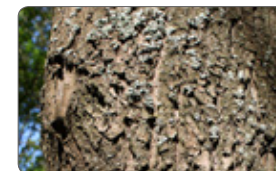
Scarlet Oak is naturally a species of xeric upland sites, but its attractive rounded crown and dramatic red fall color mean that it is frequently planted in parks and yards. The species is often confused with Black, Red, and Pin Oaks, a problem complicated by frequent hybridization. The acorns are 0.75" long and the cap deep and hemispheric, ripening in the second autumn after pollination.



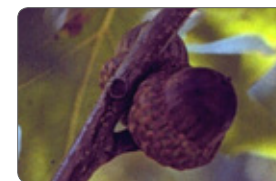
Full Tree



Leaf



Bark



Acorn

Pin Oak *Quercus palustris*



Beech Family (Fagaceae)

Alternate, simple

CHARACTERISTICS

- native
- wide tree pit needed
- narrow canopy
- good fall color
- wide canopy
- showy flowers
- drought tolerant
- acceptable under wires
- salt tolerant
- good for wildlife
- weak wood
- invasive

HEIGHT

60-80 ft

BARK

Grayish brown, smooth when young, on older trees developing low scaly ridges separated by shallow fissures

TWIGS

Slender, reddish brown; terminal buds ovoid-acute, 1/8" long

LEAVES

Alternate
Simple
Deeply lobed, bristle-tipped
Narrow sinuses 5 1/2"

NOTES

Pin Oak is among the most common street trees. It has a strong central leader, and a distinctive branching pattern with lower branches reaching down, middle branches horizontal, and upper branches reaching skyward. Trees do not self-prune well, and so the lower part of the crown is typically cluttered with the residue of dead branches. The acorns are small, 0.5" long, with a shallow cap. As the Latin word *palustris* ("of swamps") indicates, Pin Oak is a wetland species, and so is tolerant of the low-oxygen environment of compacted urban soils. Two other oak species with similar ecological requirements that are sometimes planted in urban settings are Shingle Oak (*Quercus imbricaria*), and Willow Oak (*Quercus phellos*).

EXCELLENT SPECIMEN

70" DBH. 197 Willard, Westville



Full Tree



Leaf



Bark

English Oak or Pedunculate Oak *Quercus robur*



Beech Family (Fagaceae)

Alternate, simple

CHARACTERISTICS

- native
- wide tree pit needed
- narrow canopy
- good fall color
- wide canopy
- showy flowers
- drought tolerant
- acceptable under wires
- salt tolerant
- good for wildlife
- weak wood
- invasive

HEIGHT

50-60 ft

BARK

Gray-brown, deeply fissured

TWIGS

Waxy bluish green

LEAVES

Alternate
Simple, 5"
Shallow rounded lobes
Very short leaf stalks

NOTES

English Oak is not planted as a street tree but is occasionally encountered in parks and on university campuses where it can be afforded the space required to develop its characteristic broad-spreading crown. (The columnar form of the cultivar *fastigiata*, however, is much better adapted to small urban spaces.) The species is native to northern Europe, where it occurs on rich lowland sites (the adjacent uplands being occupied by its sister species the Durmast Oak or Pedunculate Oak, *Quercus petraea*) and occupies an iconic status in history and culture. The acorns are 3/4" long and stout in form, with a small cap, ripening in the first autumn after pollination.

EXCELLENT SPECIMEN

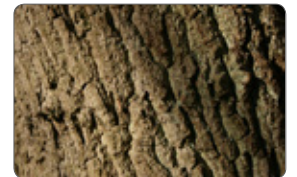
34" DBH. 56 Autumn St., Prospect Hill



Full Tree



Leaf



Bark



Acorn

Red Oak *Quercus rubra*



Beech Family (Fagaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|---|--|
| <input checked="" type="checkbox"/> native | <input checked="" type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

60-80 ft

BARK

Has "ski trail" patterning; inner bark orange-red

TWIGS

Moderately stout, reddish brown; terminal buds pointed, ¼" long

LEAVES

Alternate
Simple
Lobed
Bristle tipped, 7"

NOTES

One of the most commercially important tree species of New England forests, Red Oak also does well in urban conditions and transplants more easily than most other oaks. The acorns are 1" long with a shallow flattened cap that resembles a beret, ripening in the second autumn after pollination.

EXCELLENT SPECIMEN

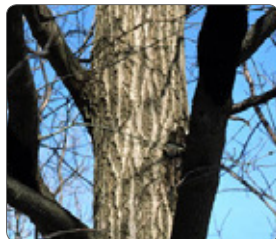
75" DBH. 424 Fort Hale Rd., East Shore



Full Tree



Leaf



Bark



Acorn

Black Oak *Quercus velutina*



Beech Family (Fagaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|--|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input checked="" type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

50-60 ft

BARK

Grayish brown to black, with thick scales formed by deep vertical furrows and numerous horizontal breaks, inner bark bright yellow.

TWIGS

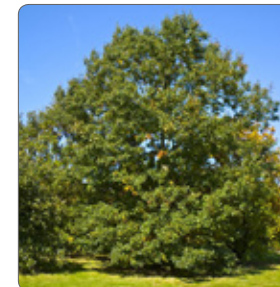
Stout, reddish brown; terminal buds ovoid, ¼" to ½" long, hairy

LEAVES

Alternate
Simple 7 ½"
Variably lobed bristle tipped

NOTES

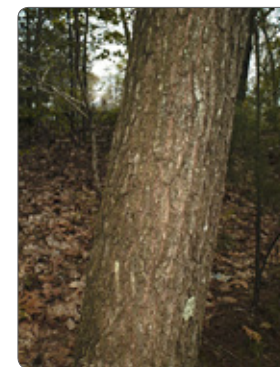
Black Oak is not planted as a street tree but is frequently encountered in parks and yards, usually as a relic of natural vegetation from prior to development. In natural stands, Black Oak typically occupies more xeric upland locations than Red Oak, but there is some overlap in habitat and hybridization between the two species is frequent, producing offspring of intermediate morphology that can complicate identification. The acorns are ¾" long with a deep and hemispheric cap, ripening in the second autumn after pollination.



Full Tree



Leaf



Bark

Black Locust *Robinia pseudoacacia*



Legume Family (Fabaceae)

Alternate, compound

CHARACTERISTICS

- native
- wide tree pit needed
- narrow canopy
- good fall color
- wide canopy
- showy flowers
- drought tolerant
- acceptable under wires
- salt tolerant
- good for wildlife
- weak wood
- potentially invasive

HEIGHT

40-60 ft

BARK

Gray to reddish brown to nearly black, on mature trees corky and deeply furrowed

TWIGS

Moderately stout, angular, somewhat zig-zag in arrangement, with a pair of stipular spines below the insertion point of each leaf

LEAVES

Alternate
Compound
17-19 leaflets, 1" long each

NOTES

Thought to be native to the central Appalachians, Black Locust has spread widely beyond its historical range and is now common in New England as well as parts of Europe (where it is considered an invasive species). Black Locust is frequently encountered on roadsides, old fields, and waste places, where it often occurs in thickets of genetically identical trees formed by root sprouts. Black Locust wood is highly rot-resistant, and one of the ways the species has expanded its range is by farmers planting the trees for future fenceposts. The large clusters of white flowers in early spring are a favorite of honeybees.

EXCELLENT SPECIMEN

28" DBH. 175 Division St., Newhallville



Full Tree



Leaf



Flower



Bark

Staghorn Sumach *Rhus typhina*



Cashew Family (Anacardiaceae)

Alternate, compound

CHARACTERISTICS

- native
- wide tree pit needed
- narrow canopy
- good fall color
- wide canopy
- showy flowers
- drought tolerant
- acceptable under wires
- salt tolerant
- good for wildlife
- weak wood
- invasive

HEIGHT

15-25 ft

BARK

Gray to brown, smooth

TWIGS

Covered in fuzzy velvet

LEAVES

Alternate
Compound 15"
11-31 narrow pointed leaflets, each 3½" long
Brilliant Fall color

NOTES

Staghorn Sumach is large shrub or small tree of early-successional communities such as old fields and roadsides that tends to grow in large colonies or thickets. The fruit, a hairy red berry, occurs in large terminal spikes. The name "staghorn" refers to the velvety hair covering the twigs, which resembles the velvet on the antlers of deer.



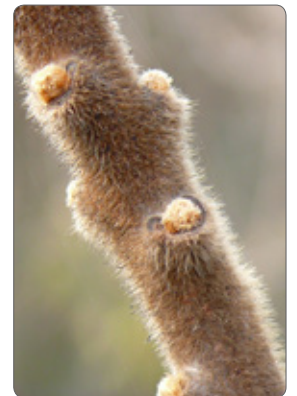
Full Tree



Leaf



Flower



Twig

Weeping Willow *Salix babylonica*



Willow Family (Salicaceae)

Alternate, simple

CHARACTERISTICS Not for Streets

- | | |
|---|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input checked="" type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

30-40 ft

BARK

Yellowish to light brown, with shallow fissures and thin, interlacing ridges becoming thicker at the base in older trees

TWIGS

Slender, long and pendulous, olive or yellow-brown in color

LEAVES

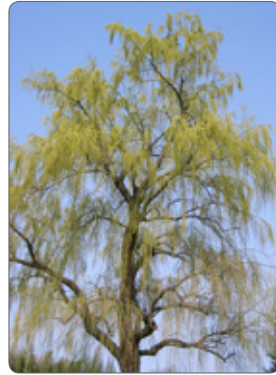
Alternate
Simple
Finely toothed
Narrow, 4" long

NOTES

Little is known of the origins of Weeping Willow, which has been planted widely throughout Eurasia for many centuries, but it is thought to have originated in northeast China. An extremely fast-growing tree, it is well adapted to the moist soil of wetland edges, but its very extensive shallow root system is capable of damaging drainpipes and building foundations so it is better suited to parks than small urban backyards. As with other willows, it is easily propagated asexually by planting sections of twigs, but it does reproduce by seed and has been reported to hybridize with the native Black Willow.

EXCELLENT SPECIMEN

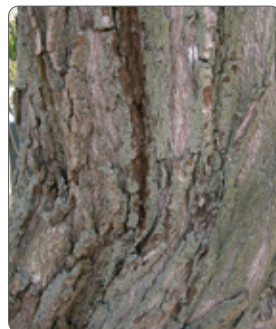
60" DBH. 61 Portland, Quinnipiac Meadows



Full Tree



Leaf



Bark

Black Willow *Salix nigra*



Willow Family (Salicaceae)

Alternate, simple

CHARACTERISTICS Not for Streets

- | | |
|---|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input checked="" type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

Up to 70 ft

BARK

Brown to nearly black, with deep fissures and thick, interlacing ridges

TWIGS

Slender, purplish green to yellow

LEAVES

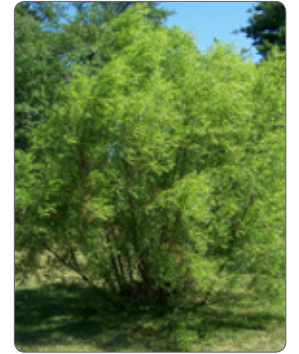
Alternate
Simple
Finely-toothed
Narrow, often curved, 5" long

NOTES

Black Willow is the largest and most tree-like of our native willow species, most of which are small and shrubby in form. It is commonly found near streams, ponds, and wetland edges, and often grows with multiple stems where fallen trees have rooted along the length of their original boles.

EXCELLENT SPECIMEN

52" DBH. 256 Front St., Fair Haven



Full Tree



Leaf



Flower

Sassafras

Sassafras albidum



Laurel Family (Lauraceae)

Alternate, simple

CHARACTERISTICS

- native
- wide tree pit needed
- narrow canopy
- good fall color
- wide canopy
- showy flowers
- drought tolerant
- acceptable under wires
- salt tolerant
- good for wildlife
- weak wood
- invasive

HEIGHT

20-40 ft

BARK

Light brown on the surface, orange beneath, becoming corky and deeply furrowed, aromatic

TWIGS

Green with prominent light colored dots (lenticels), aromatic when broken

LEAVES

Alternate
Simple
Lobed or unlobed
Mitten shaped, can have 3, 2, or no lobes
Entire margins

NOTES

Sassafras is a mid-sized early successional tree that can sprout from underground roots to form thickets of genetically identical stems. Sassafras leaves are variable in shape, being single-lobed, double-lobed, or unlobed, and release a pleasant aroma when crushed. The twigs, bark, and roots can be used to make tea or root beer, but recent studies suggest that preparations of the plant may actually be carcinogenic. Once thought to be a cure for syphilis, Sassafras bark was one of the largest export crops from the American colonies in the 1600s. Sassafras can be very difficult to transplant, so it is not recommended for planting.

EXCELLENT SPECIMEN

28" DBH. 39 Carroll St. Fair Haven Heights



Full Tree



Leaf



Flower



Bark

Japanese Stewartia

Stewartia pseudocamellia



Camellia Family (Theaceae)

Alternate, simple

CHARACTERISTICS

- native
- wide tree pit needed
- narrow canopy
- good fall color
- wide canopy
- showy flowers
- drought tolerant
- acceptable under wires
- salt tolerant
- good for wildlife
- weak wood
- invasive

HEIGHT

To 40 ft or more, but more often in cultivation just a large shrub to 15 ft.

BARK

Dark red and peeling off in large irregular pieces, creating a mottled appearance

TWIGS

Smooth, reddish-brown

LEAVES

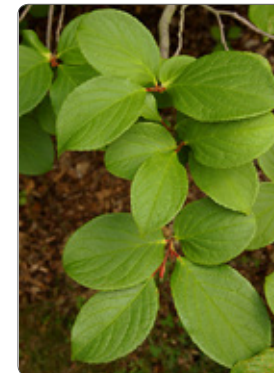
Alternate
Simple
2-4" in length
Sparsely toothed
Bright red in fall

NOTES

Stewartia is a very attractive small tree that makes a beautiful addition to the landscape, but it requires a shady situation and acidic, moist, well-drained soil, conditions that may be difficult to supply in an urban environment except in private yards. It is difficult to transplant, so young nursery stock is preferred and should be placed in its permanent location from the very start. In addition to the visual interest of its exfoliating bark and fall leaf color, Stewartia is also known for its cup-shaped creamy white flowers resembling those of Flowering Dogwood, which are borne in mid- to late-summer.



Full Tree



Leaf



Flower



Bark

Japanese Pagoda Tree

Styphnolobium japonicum



Legume Family (Fabaceae)

Alternate, compound

CHARACTERISTICS

- | | |
|--|---|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input checked="" type="checkbox"/> showy flowers |
| <input checked="" type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

50-70 ft



Full Tree

BARK

Gray, corrugated



Leaves with flowers

TWIGS

Downy when young, later glossy gray with pale lenticels

LEAVES

Alternate
Compound 8"
7-19 oval leaflets



Pod

NOTES

Japanese Pagoda Tree is a fast-growing and shapely round-headed leguminous tree that does very well in urban environments. The fragrant and showy flowers are followed by delicate pods that resemble beaded necklaces and persist through the winter. The species is native to China and Korea.



Bark

EXCELLENT SPECIMEN

23" DBH. 342 Munson St., Dixwell

Tree Lilac

Syringa reticulata



Olive Family (Oleaceae)

Opposite, simple

CHARACTERISTICS

- | | |
|---|--|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input checked="" type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input checked="" type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input checked="" type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

20-30 ft



Full Tree

BARK

Reddish-brown, lustrous, shaggy on older stems

TWIGS

Red-green, becoming shaggy with exfoliating bark

LEAVES

Opposite
Simple
Heart shaped 5"
Entire



Leaf

NOTES

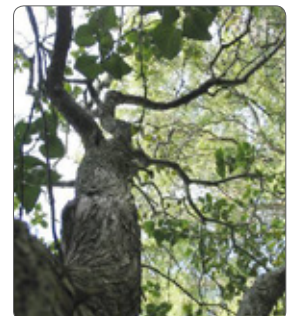
Native to Japan, Tree Lilac does well in urban settings and makes a very attractive small flowering tree. A recent addition to New Haven's streets, most Tree Lilacs in the city are still young.



Flower

EXCELLENT SPECIMEN

12" DBH. 16 Morris Ave., East Shore



Bark

Bald-Cypress *Taxodium distichum*



Cypress Family (Cupressaceae) Needle-leaved, opposite

CHARACTERISTICS

- native
- narrow canopy
- wide canopy
- drought tolerant
- salt tolerant
- weak wood
- wide tree pit needed
- good fall color
- showy flowers
- acceptable under wires
- good for wildlife
- invasive

HEIGHT

To 120 ft in the wild, but much smaller in cultivation

BARK

Reddish to light brown with shallow furrows, exfoliating in narrow strips

TWIGS

Green at first, but becoming light brown, the most apical leaf-bearing portions often being shed with the foliage in autumn

LEAVES

Narrowly linear,
Distichous: leaves occurring in two ranks
Deciduous

NOTES

Native to wetlands of the southeastern US, Baldcypress is not naturally present in Connecticut. That said, the species is being planted with increasing frequency in urban landscapes, to which it appears well adapted. Baldcypress bears a strong resemblance to its (distant) relative the Dawn Redwood, and like that species it is best suited to larger sites and should not be used as a street tree.



Full Tree



Leaf



Bark

Common Yew *Taxus baccata*



Yew Family (Taxaceae) Needle-leaved, opposite

CHARACTERISTICS

- native
- narrow canopy
- wide canopy
- drought tolerant
- salt tolerant
- weak wood
- wide tree pit needed
- good fall color
- showy flowers
- acceptable under wires
- good for wildlife
- evergreen

HEIGHT

30-60 ft

BARK

Light reddish-brown, flaky

TWIGS

Green to reddish brown

LEAVES

Needles
Flat
Short
Pointed ends
Distichous-needles grow in two rows

NOTES

A species native to calcareous uplands of western Europe, Yew is a commonly planted evergreen shrub or small tree that performs well under urban conditions. Easily pruned to any desired height or shape, yew is a favorite species for topiary and foundation plantings. However, the species is also browsed by deer, so it is not recommended for planting in areas with high deer populations. The seeds, which are poisonous (as is the foliage), are surrounded by a distinctive berry-like red aril. Yew wood is the traditional material for archers' bows.



Full Tree



Leaf with fruit-like aril



Bark

Northern White-Cedar or Arborvitae *Thuja occidentalis*



Cypress Family (Cupressaceae)

Scale-leaved, opposite

CHARACTERISTICS Not for Streets

- | | |
|--|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input checked="" type="checkbox"/> evergreen |

HEIGHT

30-50 ft

BARK

Shreddy, light brown

TWIGS

Green, covered in foliar scales and forming fanlike sprays

LEAVES

Tiny
Scale-like
Flattened sprays

NOTES

Northern White-Cedar, more commonly known as arborvitae in horticultural contexts, is an evergreen species native to bogs and swamps of the northeast US and southeast Canada. It is well adapted to urban conditions, and is often used for hedges or privacy screens. The name Arborvitae (Latin for "tree of life") is said to refer to its use by the native peoples of the St. Lawrence River valley in Canada as a remedy for scurvy, as taught to Jacques Cartier.

EXCELLENT SPECIMEN

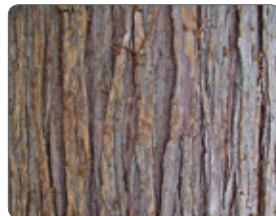
30" DBH. 204 Elaine Ave., Annex



Full Tree



Leaf



Bark



Cone

Basswood or American Linden *Tilia americana*



Mallow Family (Malvaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|---|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

60-80 ft

BARK

Green to grayish green on young trees, becoming dark gray to brown and divided into narrow ridges

TWIGS

Thicker and stouter than non-native Lindens

LEAVES

Alternate
Simple
Heart shaped, 7"
Uneven base, toothed

NOTES

Basswood reaches its best development on moist, deep, loamy soils, especially those underlain by limestone, so it is only occasionally encountered in New England forests. Like its congeners the lindens, Basswood is often ringed by numerous sprouts arising from the base of the tree. The soft, fine-grained wood is favored by woodcarvers, and the strong phloem fibers of the inner bark ("bast") which are the origin of the tree's name can be made into rope. The distinctive nutlike fruit hangs from long peduncles attached to the persistent leaf-like floral bract.

EXCELLENT SPECIMEN

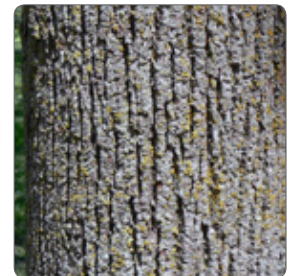
44" DBH. 92 Barnett, Westville



Full Tree



Leaf



Bark



Fruit

Littleleaf Linden *Tilia cordata*



Mallow Family (Malvaceae)

Alternate, simple

CHARACTERISTICS

- native
- wide tree pit needed
- narrow canopy
- good fall color
- wide canopy
- showy flowers
- drought tolerant
- acceptable under wires
- salt tolerant
- good for wildlife
- weak wood
- invasive

HEIGHT

60-80 ft

BARK

Smooth and silver-gray on young trees, becoming browner and shallow-fissured, often with numerous suckers growing from the base of the tree

TWIGS

Thinner than that of native basswood

LEAVES

Alternate
Simple
Heart shaped, 2½"
Uneven base
Toothed

NOTES

Like their congener Basswood, Lindens are often ringed by numerous sprouts arising from the base of the tree. The distinctive nutlike fruit hangs from long peduncles attached to the persistent leaflike floral bract. The Littleleaf Linden is native to northern Europe.



Full Tree



Leaf



Bark



Fruit

EXCELLENT SPECIMEN

65" DBH. 15 Wright, Amity

Bigleaf Linden *Tilia platyphyllos*



Mallow Family (Malvaceae)

Alternate, simple

CHARACTERISTICS

- native
- wide tree pit needed
- narrow canopy
- good fall color
- wide canopy
- showy flowers
- drought tolerant
- acceptable under wires
- salt tolerant
- good for wildlife
- weak wood
- invasive

HEIGHT

60-80 ft

BARK

Rough, gray, fissured

TWIGS

Thinner than native Linden

LEAVES

Alternate
Simple
Heart shaped, 6"
Uneven base
Toothed

NOTES

Like their congener Basswood, Lindens are often ringed by numerous sprouts arising from the base of the tree. The distinctive nutlike fruit hangs from long peduncles attached to the persistent leaflike floral bract. The Bigleaf Linden is native to the higher elevations of southern Europe.



Full Tree



Leaf



Flower



Bark

Eastern Hemlock *Tsuga canadensis*



Pine Family (Pinaceae)

Needle-leaved, opposite

CHARACTERISTICS Not for Streets

- | | |
|---|---|
| <input checked="" type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input checked="" type="checkbox"/> evergreen |

HEIGHT

40-70 ft

BARK

On young trees flaky or scaly, on older trees thick and deeply furrowed; freshly cut surfaces show purplish streaks

TWIGS

Slender, light brown, pubescent

LEAVES

Needles
Flat, short, rounded edges
White lines on underside
Distichous-needles grow in two rows

NOTES

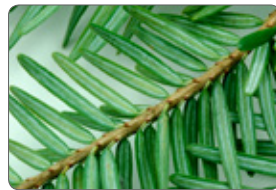
A native evergreen tree that was formerly much planted in home landscapes, sometimes even trimmed into hedges or privacy screens, Eastern Hemlock is now threatened by an exotic insect, the Hemlock Woolly Adelgid. Infestations can be detected on the underside of needles and look like tiny wads of cotton. It is possible to spray individual trees to control the pest, but most unsprayed trees in New Haven will be dead within a few years of infection.

EXCELLENT SPECIMEN

17" DBH. 19 Carroll St., Fair Haven Heights



Full Tree



Leaf



Leaf with Woolly Adelgid



Cone

American Elm *Ulmus americana*



Elm Family (Ulmaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|---|--|
| <input checked="" type="checkbox"/> native | <input checked="" type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input type="checkbox"/> good fall color |
| <input checked="" type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |

HEIGHT

60-80 ft

BARK

On older trees, typically divided into a network of flat-topped ridges surrounding diamond-shaped fissures.

TWIGS

Smooth and zigzag-shaped with large buds

LEAVES

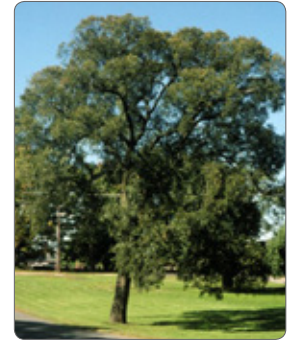
Alternate
Simple 5"
Uneven base, coarsely serrated, rough above

NOTES

Developing a grand and majestic vase-like shape, the American Elm is a native riparian species that was formerly widely planted as a street tree (in New Haven as early as the 1690s) and is the namesake of New Haven's familiar epithet, "The Elm City". Dutch Elm Disease, a fungal affliction of Asian origin spread by bark beetles and through root grafts between adjacent trees, has killed most of the American Elms in New Haven and other cities since the 1950s, and much research has been devoted to breeding American Elm strains that are resistant to the disease; cultivars exhibiting some resistance include 'Colonial Spirit', 'Jefferson', 'New Harmony', 'Princeton', and 'Valley Forge'. American Elms should never be planted next to one another, to avoid spreading the disease from infected to uninfected trees through root grafts. The developing growth form of the tree is also an important consideration with elms; when selecting stock for planting, preference should be given to narrow 'whips' rather than round-headed trees that may have been topped or otherwise over-pruned at the nursery, and attention must be given to proper pruning in subsequent years so as to avoid the formation of narrow branch angles that may lead to split trunks or other damage in storms.

EXCELLENT SPECIMEN

58" DBH. 56 Lakeview, Westville



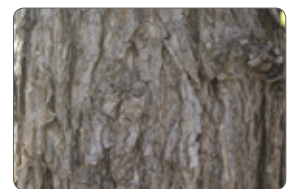
Full Tree



Leaf



Branch



Bark

Chinese Elm or Lacebark Elm

Ulmus parvifolia



Elm Family (Ulmaceae)

Alternate, simple

CHARACTERISTICS

- native
- wide tree pit needed
- narrow canopy
- good fall color
- wide canopy
- showy flowers
- drought tolerant
- acceptable under wires
- salt tolerant
- good for wildlife
- weak wood
- invasive

HEIGHT

40-50 ft

BARK

Exfoliating

TWIGS

Slender, with minute gray down

LEAVES

Alternate
Simple 1-2"
Narrow
Serrated

NOTES

Lacebark Elm is mid-sized elm species that grows well in urban settings and is resistant to Dutch Elm Disease. Exfoliating bark provides winter interest. It is native to China.

EXCELLENT SPECIMEN

48" DBH. 633 Washington Ave., Hill



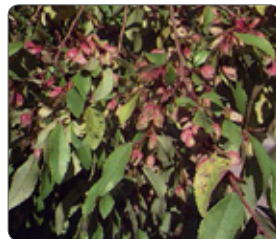
Full Tree



Leaf



Bark



Fruit

Slippery Elm or Red Elm

Ulmus rubra



Elm Family (Ulmaceae)

Alternate, simple

CHARACTERISTICS

- native
- wide tree pit needed
- narrow canopy
- good fall color
- wide canopy
- showy flowers
- drought tolerant
- acceptable under wires
- salt tolerant
- good for wildlife
- weak wood
- invasive

HEIGHT

40-50 ft

BARK

Dark reddish brown, with nearly parallel ridges as opposed to the diamond-shaped fissures seen on American Elm; the inner bark is mucilaginous, with an aromatic flavor.

TWIGS

Rough-textured and hairy, with winter buds covered in red-brown hair

LEAVES

Alternate
Simple 3-4"
Narrow
Serrated
Rough-textured

NOTES

While American Elm is the most frequently planted native elm, it is Slippery Elm that is the common elm of moist upland forests in the New Haven region. Slippery Elm may be distinguished from American Elm by the rough texture of its leaves and the fine red hairs that cover the buds in winter, visible under a magnifying glass if not by the naked eye. Seen from a distance, mature Slippery Elms exhibit a characteristic arching form, less upright in habit than the American Elm.



Full Tree



Leaf



Bark

Zelkova

Zelkova serrata

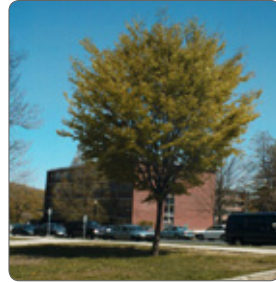


Elm Family (Ulmaceae)

Alternate, simple

CHARACTERISTICS

- | | |
|---|--|
| <input type="checkbox"/> native | <input type="checkbox"/> wide tree pit needed |
| <input type="checkbox"/> narrow canopy | <input checked="" type="checkbox"/> good fall color |
| <input type="checkbox"/> wide canopy | <input type="checkbox"/> showy flowers |
| <input type="checkbox"/> drought tolerant | <input checked="" type="checkbox"/> acceptable under wires |
| <input type="checkbox"/> salt tolerant | <input type="checkbox"/> good for wildlife |
| <input type="checkbox"/> weak wood | <input type="checkbox"/> invasive |



Full Tree

HEIGHT

50-70 ft

BARK

Gray, smooth to scaly, with horizontal lenticels on younger stems



Leaf

TWIGS

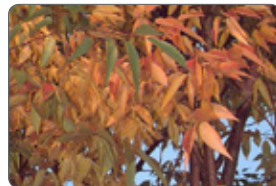
Very thin

LEAVES

Alternate
Simple 4"
Narrow
Serrated

NOTES

Zelkova is a close relative of the elms that is often planted in an attempt to replace our lost American Elms. It grows well in urban environments and because it is not an elm it is therefore not susceptible to Dutch Elm Disease. The species is native to Japan.



Autumn Colors



Bark

EXCELLENT SPECIMEN

36" DBH. 437 Whitney Ave., East Rock



***Appendix:
Species Suitable
for Planting***



Full Sun



Part Shade



Full Shade



Attracts and supports native birds



Attracts and supports insect pollinators



Provides food for migratory birds

COMMON NAME	LATIN NAME	HEIGHT/SPREAD (FT)	UNDERNEATH WIRES		SUN/SHADE	SHOWY FLOWERS	FALL COLOR	DROUGHT TOLERANT	SALT TOLERANT	NATIVE	SUITABLE FOR STREETS	WIDE PIT NEEDED	BIRD FUNCTIONS
Amur Maackia	<i>Maackia amurensis</i> (pg. 50)	30/30	Yes			Yes	No	Yes	No	No	Yes	No	
Black Gum	<i>Nyssa sylvatica</i> (pg. 98)	50/30	No			No		No	Yes	Yes	Yes	No	
Cherry Species	<i>Prunus spp.</i> (pg. 51)	30/20	Yes			Yes	Varies	No	No	No	Yes	No	
Coffee Tree	<i>Gymnocladus dioicus</i> (pg. 47)	75/50	No			No		Yes	Yes	No	No	Yes	
Crabapple Species	<i>Malus sp.</i> (pg. 54)	20/20	Yes			Yes	Varies	No	No	No	Yes	No	
Dogwood, Kousa	<i>Cornus kousa</i> (pg. 96)	30/30	Yes			Yes		No	No	No	Yes	No	
Elm, American	<i>Ulmus americana</i> (pg. 63)	80/50	No			No		Yes	Yes	Yes	Yes	Yes	
Elm, Lacebark	<i>Ulmus parvifolia</i> (pg. 62)	50/50	No			No	No	Yes	Yes	No	Yes	No	
Ginkgo	<i>Ginkgo biloba</i> (pg. 23)	60/30	No			No		Yes	Yes	No	Yes	No	
Goldenrain Tree	<i>Koelreuteria paniculata</i> (pg. 91)	40/40	No			Yes		Yes	Yes	No	Yes	No	
Green Ash	<i>Fraxinus pensylvanica</i> (pg. 99)	60/30	No			No		Yes	Yes	Yes	Yes	No	
Hackberry	<i>Celtis laevigata</i> (pg. 58)	50/40	No			No		Yes	No	Yes	Yes	No	
Hardy Rubber Tree	<i>Eucommia ulmoides</i> (pg. 105)	50/50	Maybe			No	No	Yes	No	No	Yes	No	
Hawthorn	<i>Crataegus spp.</i> (pg. 56)	35/35	Yes			Yes		Yes	Yes	Yes	Yes	No	
Honeylocust	<i>Gleditsia triacanthos</i> (pg. 45)	45/35	No			No		Yes	Yes	No	Yes	Yes	
Hophornbeam	<i>Ostrya virginiana</i>	40/30	Maybe			No		Yes	No	Yes	Yes	No	
Hornbeam, American	<i>Carpinus caroliniana</i>	30/30	Yes			No		No	No	Yes	Yes	No	
Hornbeam, European	<i>Carpinus betulus</i> (pg. 70)	50/35	Maybe			No	No	Yes	No	No	Yes	No	
Horsechestnut	<i>Aesculus hippocastanum</i> (pg. 90)	70/55	No			Yes		No	Yes	No	No	Yes	
Katsura Tree	<i>Cercidiphyllum japonicum</i> (pg. 39)	60/60	No			No		No	No	No	Yes	No	
Lilac Tree	<i>Syringa reticulata</i> (pg. 101)	30/25	Yes			Yes	No	Yes	Yes	No	Yes	No	
Linden spp.	<i>Tilia spp.</i>	70/45	No			Yes		Yes	No	No	Yes	No	
Linden, American	<i>Tilia americana</i> (pg. 80)	80/40	No			Yes		No	No	Yes	Yes	No	
Magnolia	<i>Magnolia spp.</i> (pg. 35)	Varies	No			Yes		Yes	No	No	No	No	
Maple, Hedge	<i>Acer campestre</i>	35/35	Yes			No		Yes	Yes	No	Yes	No	



Full Sun



Part Shade



Full Shade



Attracts and supports native birds



Attracts and supports insect pollinators



Provides food for migratory birds

COMMON NAME	LATIN NAME	HEIGHT/SPREAD (FT)	UNDERNEATH WIRES		SUN/SHADE	SHOWY FLOWERS	FALL COLOR	DROUGHT TOLERANT	SALT TOLERANT	NATIVE	SUITABLE FOR STREETS	WIDE PIT NEEDED	BIRD FUNCTIONS
Maple, Red	<i>Acer rubrum</i> (pg. 85)	60/40	No			No		No	No	Yes	Yes	No	
Maple, Sugar	<i>Acer saccharum</i> (pg. 84)	75/50	No			No		No	No	Yes	No	No	
Maple, Trident	<i>Acer buergeranum</i> (pg. 87)	35/25	Maybe			No		Yes	No	No	Yes	No	
Oak, Bur	<i>Quercus macrocarpa</i>	70/70	No			No		Yes	No	No	Yes	Yes	
Oak, Chestnut	<i>Quercus montana</i>	60/60	No			No		Yes	No	Yes	Yes	Yes	
Oak, English	<i>Quercus robur</i> (pg. 79)	60/60	No			No	No	Yes	Yes	No	Yes	No	
Oak, Pin	<i>Quercus palustris</i>	70/40	No			No		Yes	Yes	Yes	Yes	Yes	
Oak, Red	<i>Quercus rubra</i>	70/70	No			No		Yes	Yes	Yes	Yes	Yes	
Oak, Scarlet	<i>Quercus coccinea</i> (pg. 79)	70/50	No			No		Yes	Yes	Yes	Yes	Yes	
Oak, Shingle	<i>Quercus imbricaria</i>	60/60	No			No		Yes	Yes	No	Yes	Yes	
Oak, Shumard	<i>Quercus shumardii</i>	60/40	No			No		Yes	Yes	No	Yes	Yes	
Oak, Swamp White	<i>Quercus bicolor</i>	75/60	No			No		Yes	No	Yes	Yes	Yes	
Oak, White	<i>Quercus alba</i>	75/60	No			No		Yes	Yes	Yes	Yes	Yes	
Oak, Willow	<i>Quercus phellos</i>	60/40	No			No		Yes	No	No	Yes	Yes	
Pagoda Tree	<i>Styphnolobium japonicum</i> (pg. 49)	50/40	Maybe			Yes	No	Yes	Yes	No	Yes	No	
Plum, Purpleleaf	<i>Prunus cerasifera</i> (pg. 53)	25/25	Yes			Yes		No	No	No	Yes	No	
Redbud, Eastern	<i>Cercis candensis</i> (pg. 44)	30/35	Yes			Yes		No	No	No	Yes	No	
Serviceberry	<i>Amelanchier</i> spp. (pg. 57)	30/25	Yes			Yes		No	No	Yes	Yes	No	
Sourwood	<i>Oxydendron arboreum</i>	30/20	No			Yes		No	No	No	No	No	
Stewartia, Japanese	<i>Stewartia pseudocamellia</i>	30/20	No			Yes		No	No	No	Yes	No	
Sweetgum	<i>Liquidambar styraciflua</i> (pg. 38)	75/50	No			No		Yes	No	Yes	Yes	No	
Tulip Tree	<i>Liriodendron tulipifera</i> (pg. 34)	90/50	No			Yes		No	No	Yes	No	Yes	
Turkish Filbert	<i>Corylus colurna</i>	50/35	Yes			No	No	Yes	No	No	Yes	No	
Yellowwood	<i>Cladrastis kentuckea</i> (pg. 48)	50/55	No			Yes		No	No	No	No	No	
Zelkova	<i>Zelkova serrata</i> (pg. 64)	60/40	Maybe			No		Yes	No	No	Yes	No	



Glossary

Alternate: Having a single leaf at each node. (Compare with opposite, whorled.)

Berry: Any pulpy or juicy fruit; more technically, the simplest form of fleshy fruit, derived from a single floral ovary and containing one or more seeds.

Bole: The major stem or trunk of a tree.

Branch: One of the divisions of the crown of a tree; the most recent year's growth of a branch is termed the twig.

Bud: The structure at the end of a twig, or at one of the nodes along the twig, that represents an undeveloped leafy shoot or flower in its resting form.

Calcareous: Containing the element calcium; said of soil or rock.

Compound (leaf): Having more than one leaf blade on each petiole; the arrangement of leaflets on a compound leaf may be palmate or pinnate.

Cone: The reproductive structure of trees such as pines or spruces, which serve the same functions in the tree's life cycle as flowers. The small male cones produce pollen, whereas the larger female cones produce the seeds. (Conifers are monoecious, so both male and female cones are found on the same tree.)

Congener: Another representative of the same genus. (For example, two species of oaks would be considered congeners, because they are both members of the genus *Quercus*.)

Conifer: A tree, such as a pine or spruce, which produces cones. (Note: This is different from being evergreen. Not all conifers are evergreens.)

Crown: The upper portion of the tree that is covered in leaves, as opposed to the bole or trunk that holds up the crown.

Cultivar: A variety or sub-species that exists only in cultivation. The word is a contraction of "cultivated variety".

Deciduous: Losing all of its leaves in the autumn, so that the twigs are bare for the winter; the opposite of evergreen.

Decussate: Having pairs of opposite leaves set at 90° to those above and below on the same twig.

Dentate: Toothed along the margin with coarse, outward-facing teeth. (Compare to serrate.)

Dioecious: Having separate male and female trees, of which only the females produce fruit; the opposite of monoecious.

Distichous: Having leaves in two vertical rows or ranks, side by side (but not necessarily opposite).

Entire: Having no teeth along the leaf margin. (Compare with dentate, serrate.)

Epicormic Bud: A bud arising directly on the surface of the bole or stem of a tree, rather than in the normal position at the end of the twig. Epicormic bud growth is a characteristic feature of pitch pine, for example, but may also be observed under certain conditions on other species such as the oaks and also red maple.

Evergreen: Holding green leaves or needles through the winter; the opposite of deciduous. Evergreen trees may drop a portion of their leaves or needles in the autumn, but always hold onto some of their foliage for the winter. (Note: This is different from being a conifer. Not all evergreens are conifers.)

Exotic (species): Originating in another part of the world, and therefore not part of the natural vegetation of a region; the opposite of native. (See also invasive.)

Internode: The length of a twig between two adjacent nodes.

Invasive (species): An exotic species that tends to grow and reproduce itself aggressively, such that it becomes established in areas of natural vegetation to the detriment or exclusion of the native species that would otherwise be present at that location. Tree of Heaven and Royal Paulownia are two tree species that are considered invasive in the New Haven area.

Leaflet: One of the several small leaf blades of a compound leaf.

Lenticel: A pore in the bark through which the woody portion of the tree respire, exchanging oxygen and carbon dioxide with the atmosphere. Lenticels on the bark of birches and cherries take the form of horizontal lines or stripes.

Monoecious: Having male and female flowers on the same tree; the opposite of dioecious.

Native (species): Forming part of the natural vegetation of a region, as it existed historically or prior to widespread modification by human activity; the opposite of exotic.

Node: A point on the length of a twig at which one or more leaves are attached. (Compare with internode.)

Nut: A relatively large, dry (as opposed to fleshy), single-seeded fruit, such as an acorn or hickory nut.

Opposite: Having leaves in pairs, situated directly across from one another at each node. (Compare with alternate, whorled.)

Palmate: Having three or more leaflets arising from a common point at the end of the petiole, thus resembling the fingers of a human hand. (Compare with pinnate.)

Petiole: The stalk that connects the blade of a leaf to the twig.

Pinnate: Having two rows of leaflets arranged along a central axis, thus resembling a feather. (Compare with palmate.)

Pubescent: Covered in hairs.

Riparian: Growing along rivers or streams.

Scale: Any small, thin, flat structure, such as the foliage of Northern White Cedar, or the similar non-foliage structures on a pine or spruce cone or the cap of an acorn.

Serrate: Toothed along the margin with sharp, forward-pointing teeth. (Compare to dentate.)

Short Shoot: A short side branch of determinate length, which may bear a tuft of foliage (as on Atlas Cedar), flowers and fruit (as on Crab Apple), or may be modified into a protective thorn (as on Hawthorn).

Simple (leaf): With a single leaf blade on each petiole; the opposite of compound.

Twig: The youngest portion of a branch, formed by the current year's growth (or the previous year's growth if it is winter and the tree is dormant).

Whorled: Having three or more leaves together at each node. (Compare with opposite, alternate.)

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