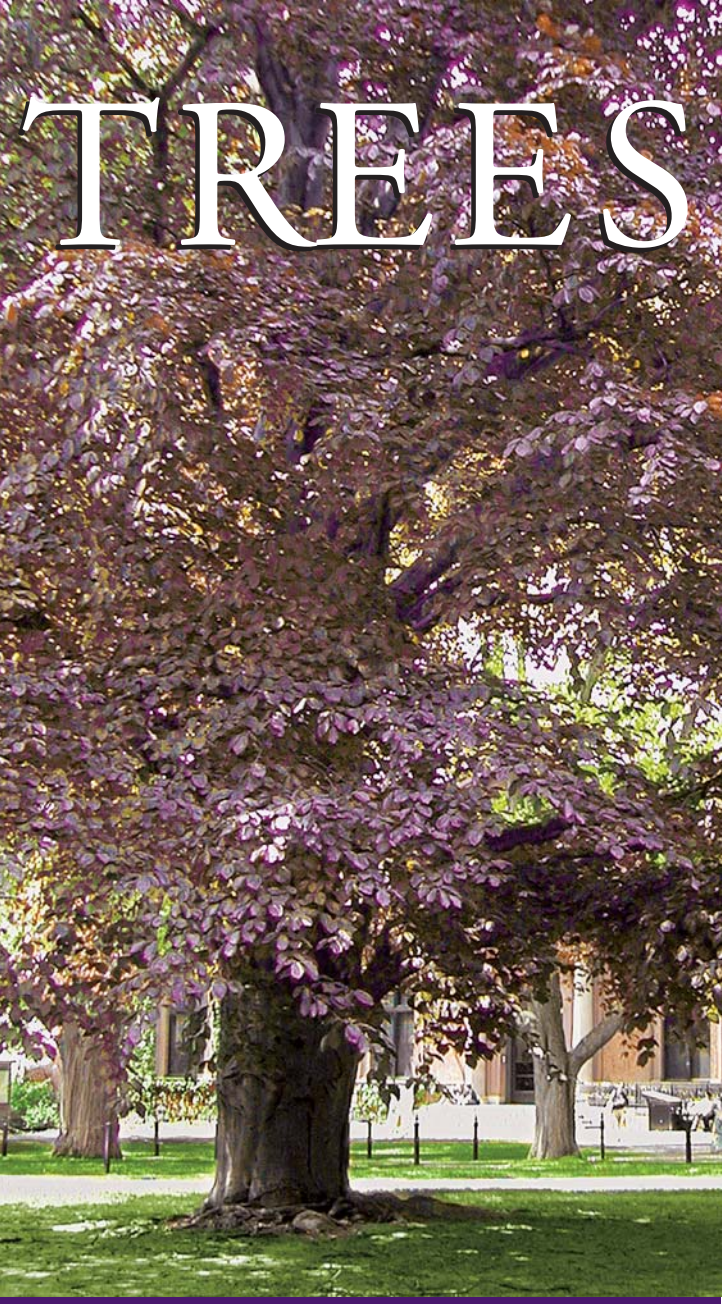


TREES

The Botanic Garden of Smith College

The Smith College campus is a scenic landscape that has provided a garden setting for academic life for over a hundred years. The entire campus, originally planned and planted as a botanic garden and arboretum, was designed by the landscape architecture firm of Olmsted, Olmsted, and Eliot. Today, the Botanic Garden encompasses the 125 acre Campus Arboretum, the Lyman Plant House and Conservatory, and a variety of specialty gardens. The plant collections are documented and labeled to provide a resource for teaching, research, public education, and botanical displays.

We invite you to enjoy the trees on the Smith campus. The Botanic Garden was established during a period of active plant explorations and widespread introductions of hardy plants from Asia. Among the interesting trees on campus are numerous mature Asian specimens. While this walking tour represents only a sampling of our collection and does not include trees on the other side of Elm Street, you will make the acquaintance of many beautiful and unusual trees. We hope that you will enjoy the tour, that your appreciation of trees will increase, and that you will be inspired to go home and plant a tree.

The **Botanic Garden** of Smith College

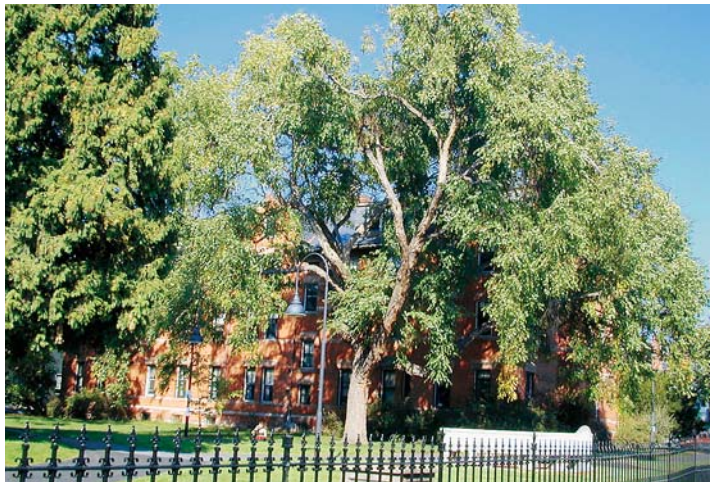
Northampton, MA 01063
413-585-2740

www.smith.edu/garden

Margaret P. Holden ©1999

Botanical illustrations by Alexandra Chitty (Smith class of 2001)

Spring blossoms of the mountain silverbell, *Halesia monticola,* (number 39 on tour) shower down onto the gardens beside the President's House.



River birch, *Betula nigra* (number 25 on tour)

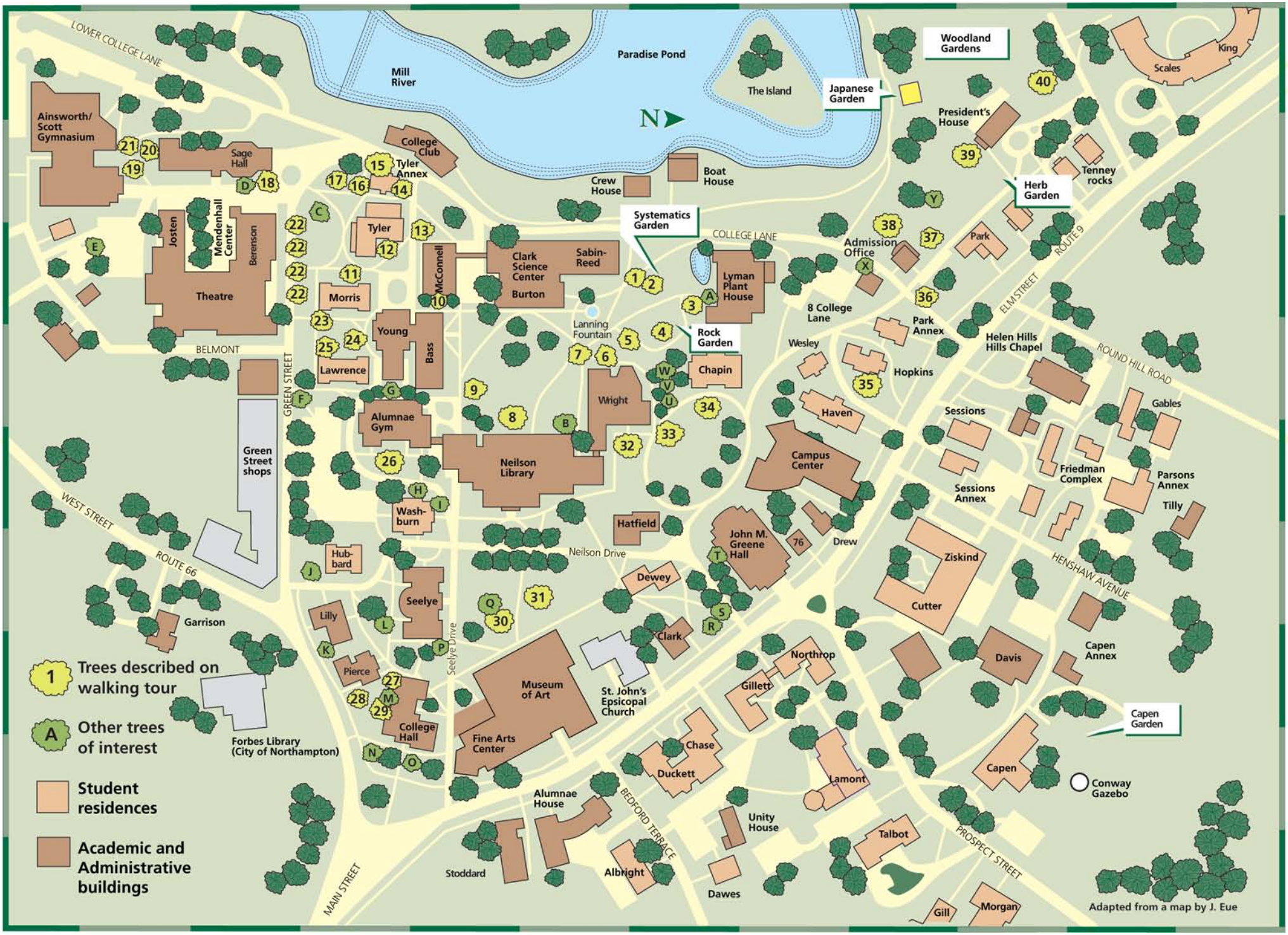
Trees of the Botanic Garden of Smith College

A vast array of tree species arose during the evolution of higher plants. Deciduous hardwoods and broadleaf and needle evergreens now form a mosaic of green across the land. Some tree species exist in many parts of the globe, while others remain isolated in remote regions. Botanists have documented the rise and fall of thousands of tree species over the history of our planet. Remarkably, exciting tree stories are still unfolding. The latest is the discovery of a new conifer, the Wollemi pine, in 1994, just 93 miles from Sydney, the largest city in Australia! Many more unknown tree species exist in the tropics and explorations continue to document the many species of life on Earth.

Trees offer us much more than beauty. Forests provide oxygen and habitats for animals. Most trees reproduce from seed; and while some trees without showy flowers (e.g., pines, maples, and oaks) depend on wind to spread pollen, many others have evolved showy flowers that attract bees, birds, and bats to assist in pollination. The diversity we see among trees is a result of adaptations to the many different environments that trees inhabit. The Smith College Botanic Garden cares about the diversity of tree species on Earth. We are actively engaged in preserving biodiversity for future generations. The Garden not only plants trees to enhance the scenic beauty of the campus, but also uses trees as learning tools for students and visitors, and we exchange seed with botanic gardens worldwide.

There is much to learn from the labels on our plants. In addition to common names, which can vary from place to place, the labels display universally accepted scientific names. The labels also give the plant family and information on geographic origin. In most cases the year that the specimen was placed in the Smith landscape is on the label.

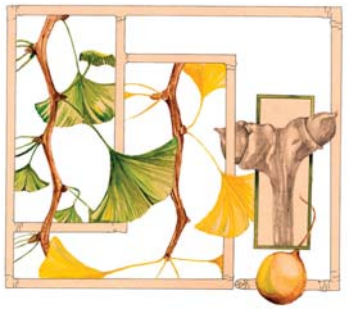
- Last two digits indicate year added to our collection (2002 for this dogwood)
- PA indicates pre-1971 (when we began our current numbering system)



Smith College Campus

1. *Ginkgo biloba*

Maidenhair Tree Ginkgoaceae (China)



Growing on earth for 150–200 million years, this gymnosperm is the only remaining member of an ancient plant family. In autumn, its deciduous leaves turn a golden yellow and cascade to the ground, sometimes all within one day. Asian cultures consider the ginkgo sacred and it is said to have medicinal properties of improving brain function. It is an excellent urban tree as it is tolerant of difficult conditions (avoid females which produce messy, malodorous seed). This magnificent male is over one hundred years old.

2. *Sciadopitys verticillata*

Japanese Umbrella Pine

Sciadopityaceae (Japan)

The unique needles of *Sciadopitys* radiate around the stems like the spokes of an umbrella. Pollen of this species was found in North American fossils from the upper Triassic period. Scientists hypothesize that New England was part of its prehistoric range before being reintroduced from Asia in 1861 by the Massachusetts Agricultural College. It is the only species in its family and, despite its common name, is not a true pine. In 1914, this specimen had a trunk diameter of 3" and is now one of the largest in Massachusetts.

3. *Ulmus glabra* 'Camperdownii'

(also known as *U.* × *vegeta* 'Camperdownii')

Camperdown Elm Ulmaceae (Garden Origin)

Creeping in habit, this cultivar is grafted onto the understock of an upright elm for a dramatic display of pendulous branches. 'Camperdownii' originated from a seedling found growing at Camperdown House near Dundee, Scotland, in the early 1800s. The graft union is visible on the trunk where the furrowed and cross-checked barks join. The rough, sandpaper-like leaves turn yellow in fall. Olmsted's original plant lists include this tree as well as the *Ginkgo*, *Sciadopitys*, and *Cercidiphyllum*.

4. *Cornus kousa*

Kousa Dogwood

Cornaceae

(Japan, Korea, China)

This kousa dogwood is a true four-season tree and is more disease resistant than the native *C. florida*. It also blooms later than our native flowering dogwood, with an outstanding display of flowers shrouding the tree in June after it has leafed out. The showy white bracts that surround the small yellow flowers are pointed at the tips. In late August through October pendulous red fruits resembling raspberries hang from the tree. The fall color combines a brilliant palate of reds, oranges, and yellows. Notice the beautiful mottled bark.

5. *Franklinia alatamaha*

Benjamin Franklin Tree

Theaceae (Georgia)

First encountered growing along the Altamaha River in Georgia in 1765 by American botanists John and William Bartram, this member of the tea family is now extinct in the wild. All trees in cultivation are descendents of those distributed by the Bartrams. The striking white flowers with golden stamens appear late in the summer and in autumn the leaves turn orange, red, and purple. *Franklinia* is only marginally hardy in western Massachusetts. This specimen died back to the ground after the extremely cold winter of 1980 but has since recovered.

6. *Taxodium distichum* var. *nutans*

(also known as *T. ascendens*) **Pond Cypress**

Taxodiaceae (SE United States)

This deciduous conifer with its buttressed trunk is rare in this region. Tolerant of wet swampy areas, it grows naturally in the southern United States and ranges north to Delaware. It often extends aerating projections called "knees" up from the water. In fall, the threadlike leaves turn a rusty orange before dropping. Our records indicate that this tree had a trunk diameter of 11" in 1931.

7. *Cercidiphyllum japonicum*

Katsura Tree

Cercidiphyllaceae

(Japan & China)

The katsura is dioecious (separate female and male plants). While the leaves emerge in spring with a reddish purple color, in autumn they turn a bright apricot yellow and give off an aroma reminiscent of burnt sugar. As the tree ages its bark becomes shaggy. Paper-thin winged seeds are folded within the tiny pealike pods that appear in clusters along the branches of this female. Her male counterpart is across the campus, next to Clark Hall.

8. *Metasequoia glyptostroboides*

Dawn Redwood Taxodiaceae (W China)

Delicate fernlike leaves complement the noble size and structure of this majestic tree. Fossils of *Metasequoia* were found in rocks of the Eocene epoch (54–35 million years ago). It was thought to be extinct until 1941 when Chinese botanists discovered a small grove in China's Szechwan province. This tree was planted in 1948 from seeds collected from those trees in China, and was recognized by the National Arborist Association as one of the largest in New England. An extremely fast grower, it has reached this size despite being relocated to its current site in 1964.

9. *Gleditsia triacanthos* var. *inermis*

Honey Locust Fabaceae (North America)

The reddish-brown seedpods rattle on the branches of this particular specimen through the winter, although there are cultivars available that do not produce pods. The pods and the pinnately compound leaves are clues that the honey locust is a member of the legume family. The species can easily reach heights of 60 feet, and the leaves provide a fine texture with light dappled shade. The variety *inermis* does not have the vicious thorns typical of the species.

10. *Amelanchier* × *grandiflora* 'Cumulus'

Apple Serviceberry Rosaceae (hybrid of *A. arborea* and *A. laevis,* both of E North America)

An early spring bloomer, *Amelanchier* is also called shadbush or shadblow since it flowers when the shad-fish spawn. This hybrid produces masses of small white flowers that are larger and showier than either parent species. Juneberry is another name that is used because the flowers are followed by maroon-purple, edible berries, which are quickly eaten by birds. In the fall the foliage turns an orange or reddish shade. Serviceberry is generally a good choice for a small tree in the landscape.

11. *Juglans regia*

English or Persian Walnut

Juglandaceae (E Europe)

While native to southeastern Europe, this species is often found growing in the wild east to China. The nuts, which grow to 2" in diameter, have been harvested since the earliest times, and the trees have long been cultivated commercially. Today California is one of the largest English walnut producers. As a folk remedy, the leaves and fruit were used to treat a wide variety of ailments including anthrax, asthma, dysentery, eczema, and syphilis. Its high quality wood is used for furniture. This particular tree was planted here in 1939 when it was only six feet tall.

12. *Stewartia koreana*

Korean Stewartia Theaceae (E Asia)

One of the great attributes of this tree is the intermingled mosaic of colors of the exfoliating bark. Rich lavender and jade hues curl away to reveal the golden undersides. In July, this hardy camellia relative produces 2–3" white flowers. The stunning bark and exotic flowers make it an excellent choice for the home landscape. The Botanic Garden grew this specimen from seed acquired from the Arnold Arboretum in 1952.

13. *Sophora japonica*

Chinese Scholar Tree or Pagoda Tree

Fabaceae (Korea and China)

A handsome late summer bloomer, *Sophora* creates a milky carpet of fragrant bell-shaped flowers on the ground below when shedding its blooms. A member of the legume family, it produces green pods resembling irregular strings of beads. This species is highly tolerant of urban pollution.

14. *Carya ovata*

Shagbark Hickory

Juglandaceae
(E North America)

In fall, the rich sulfur yellow leaves contrast beautifully with the deep brown branches. The tree produces nuts that are sweet and much sought after by humans and squirrels alike. The distinctive shaggy bark peels in long vertical strips that are free at both ends. This species can reach heights of up to 90 feet. This specimen is over 100 years old and is among the largest of its kind in New England.

15. *Quercus rubra*

Northern Red Oak

Fagaceae (E North America)

Although this tree was not on the original 27 acres belonging to Smith College, it is noted as being one of the oldest and largest trees on the campus today. The wood of this important lumber tree has a reddish color and the leaves turn red in the fall. Unfortunately, in 2006 this tree was removed as it had become structurally unsound and it was a hazard.

16. *Liriodendron tulipifera*

Tulip Tree or Tulip Poplar

Magnoliaceae (E North America)

Neither a tulip nor a poplar, this magnolia relative bears broadly lobed waxy leaves of a distinctive shape. Its extremely straight trunk was used for canoes and is now a common timber wood. Mature trees produce tulip-shaped flowers high in the upper branches. Winged seed, to be dispersed by the wind, form in conelike structures that perch on the bare winter branches.

17. *Aesculus hippocastanum*

Common Horsechestnut

Hippocastanaceae (N Greece & Albania)

This stately tree is commonly found in cities and gardens throughout Europe. The deep brown polished fruits are encased in a spiky sheath. Though the nuts are toxic to humans, squirrels are often seen collecting them. The leaves emerge from very large sticky buds and are palmately compound. In late spring showy pyramidal clusters of ivory flowers appear, resembling Chinese temples.

18. *Oxydendrum arboreum*

Sourwood Ericaceae (E United States)

Clusters of pendulous white flowers are produced in midsummer by this rhododendron relative. It is one of the earliest trees to reveal its striking fall colors, starting mid to late summer. Long, dry seed capsules contrast with the arching canopy of blazing red leaves in early fall and are a good identification feature in the winter.

19. *Acer japonicum*

Full Moon Maple

Aceraceae (Japan)

Reaching heights of only 10–15 feet, this small elegant tree flaunts a firey explosion of color in the fall. Its handsome leaves are deeply incised with seven to eleven palmate lobes.

20. *Populus deltoides*

Cottonwood Salicaceae (E North America)

Often regarded as a weedy tree, cottonwood is very messy in the landscape, dropping lots of leaves, flowers, twigs, and branches. The wood is weak and very susceptible to storm damage. The name cottonwood derives from the silky or cottony hairs surrounding the seeds, which are released in great profusion in late spring. In fact, this specimen seeded itself here. The species loves moist areas, especially along rivers, and in the home landscape the roots often find their way into sewer systems.

21. *Acer saccharum* 'Newton Sentry'

Newton Sentry Sugar Maple

Aceraceae (E and Central US)

Its extreme columnar form makes this cultivar the narrowest sugar maple. While this growth habit is rare in the wild, it can be particularly useful in the landscape. This tree was discovered near the entrance to Newton Cemetery in Newton, Massachusetts, propagated, and introduced into the nursery trade in 1885. It has yellow-orange fall color. The columnar sugar maple just to the right that is not as slender is the cultivar 'Temple's Upright.'

22. *Ulmus* spp.

Elm Hybrids Ulmaceae (Horticultural Origin)

Dutch elm disease has killed millions of American elms, *Ulmus americana*. Although "disease resistant" elms are on the market, it is still risky to plant too many as they might eventually succumb to the disease. Along Green Street we have planted hybrids that do not have any American elm "blood." While they will not mature to look like American elms, they are somewhat similar, are less prone to disease, and grow just as fast. They include *Ulmus parvifolia* 'Emer II,' known in the trade as Allee®, *U. japonica* 'Discovery,' *U. parvifolia* 'Dynasty,' *Ulmus* 'Homestead,' *U. wilsoniana* 'Prospector,' and *Ulmus* 'Morton,' known in the trade as Accolade®.

23. *Thuja plicata*

Western Red Cedar or Giant Arborvitae

Cupressaceae (NW America)

This stately tree has aromatic overlapping leaves resembling the scales of a serpent. The evergreen leaves are a rich glossy green above with faint white markings beneath. Clusters of small cones form along the branches. Native Americans made canoes from the hollowed out trunks and wove the fibrous inner bark into mats, baskets, and hats. The tough roots were even used as fishhooks. Today, its durable timber is the principal wood used to manufacture shingles.

24. *Juglans nigra*

Black Walnut

Juglandaceae (E and Central United States)

The finely grained wood was used for plane propellers and is still prized for high quality furniture. Black walnut timber was once so valued that nighttime operations of "Walnut Rustlers" stole whole trees using helicopters. The inner surface of the pulpy green nut husk contains a powerful black dye. The nuts are oily and sweet but hard to crack. Nearly all parts of this tree exude a chemical called juglone, which stunts or prevents the growth of other nearby plants.

25. *Betula nigra*

River Birch

Betulaceae (E and Central United States)

This graceful tree grows naturally along rivers, reducing soil erosion with its tightly woven roots. Historically, the wood of this Massachusetts native was used for ox yokes, wooden shoes, and rice cask hoops. Sap can be fermented to make birch beer or vinegar. River birch flowers in the spring, with male and female catkins on the same tree. It is the only birch that disperses its seed in the spring. This huge specimen had a 10" trunk diameter in 1914.

26. *Nyssa sylvatica*

Sour Gum Tree, Black Gum, or Black Tupelo

Nyssaceae (E and Central United States)

In classical mythology, Nyssa was the name given to a water nymph. This native tree flourishes in swampy woods and displays sprightly fall colors of scarlet red, burgundy, yellow, and purple, pleasantly contrasting with small blue fruits.

27. *Maackia amurensis*

Amur Maackia Fabaceae (Manchuria)

Named for a Russian naturalist, Richard Maack (1825–1886), this tree bears pinnately compound leaves and tightly packed, small pealike white flowers in midsummer. The smooth bark is an olive-bronze stippled with yellow diamond-shaped patterns.

28. *Kalopanax septemlobus*

Tree Aralia

Araliaceae (Asia)

This tree's large, glossy, palmately lobed leaves create a tropical effect. It blooms in late July with small individual flowers borne in great quantity. The fruit clusters persist into winter, attracting birds. Yellow prickles form on the young stems of the deeply ridged bark.

29. *Davidia involucrata* var. *vilmoriniana*

Dove Tree or Handkerchief Tree

Nyssaceae (Central China)

Growing outside of its usual hardiness range, this elegant tree is one of the more unusual specimens on campus. It was moved to its current location in April 2000 during the Fine Arts Center renovation. *Davidia* is often described as the most handsome of flowering trees. In May, graceful white flowers appear, with two long pendulous bracts of unequal size. In the wind, these dangling bracts wave among the leaves like white handkerchiefs or twittering doves.

30. *Platanus* × *acerifolia*

London Planetree

Platanaceae (Amerasian hybrid)

This hybrid is a cross between the American *P. occidentalis* and the *European P. orientalis*. It was first found growing in London during the Renaissance. In winter, the white snow accentuates the remarkable olive-green, sienna, and ivory colors of its exfoliating bark. Globular clusters of bristly fruits send particles of fluff into the spring air. It is commonly used as a street tree because of its tolerance of low soil oxygen. This specimen is a New England Champion.

31. *Fagus sylvatica* 'Atropunicea'

Copper European Beech (pictured on cover)

Fagaceae (Central Europe)

Smooth beech bark was used as a substrate for recording the written word since the first fledgling forms of writing were developed. The Anglo-Saxon word *beece* (beech tree) gave rise to *boc*, which meant character or letter, from which came our modern English word book. Interestingly, an astonishing number of cultivars have arisen from the European beech, while no named cultivars have come from the American beech, *Fagus grandifolia*.

32. *Cedrus libani*

Cedar of Lebanon

Pinaceae (Lebanon, NW Syria, Central Turkey)

Hailing from the mountains of Asia Minor, this species was first introduced to America during colonial times. This tree was planted at Smith in 1955 when it was 15" tall and was moved here in 1981. After especially cold winters it sometimes shows signs of winter damage to the needles. Male cones on the lower branches release clouds of powdery yellow pollen in the fall, while female cones form on the upper branches. Cited in religion and mythology, it is said to be the embodiment of history, and to cut one down signifies the end of history itself.

33. *Ulmus americana*

American Elm Ulmaceae (E North America)

The regal fountain-like structure of the American elm, the state tree of Massachusetts, is what made it so beloved. North American landscapes changed forever with the arrival of Dutch elm disease. Caused by a fungus spread by bark beetles, the disease was first detected in America in 1920. The beetles arrived as stowaways on elm logs that were shipped to the United States for wood veneer. By 1987, the nation had lost 40 million elms. The few remaining on the Smith Campus are maintained by regular fungicide injections.

34. *Acer griseum*

Paperbark Maple Aceraceae (Central China)

Thin glossy peeling bark distinguishes this small tree from other maples. The trifoliate leaves are bluish-green and change to scarlet in the fall. Delicate winged seeds hold fast to the stems and helicopter into the snow throughout winter. This tree is a wonderful choice for the small garden.

35. *Fagus sylvatica* 'Pendula'

Weeping Beech Fagaceae (Central Europe)

Planted in 1932, this tree has grown into something out of a Grimm's fairy tale. The long weeping branches arch to the ground and take root, forming a tentlike chamber. In any season, it is a magical feeling to walk below the skeletal architecture of this biologically created dome.

36. *Zelkova serrata*

Japanese Zelkova Ulmaceae (Japan)

Though this fast growing tree does not have the graceful form of its relative, the American elm, it is resistant to Dutch elm disease. Leaves are elegantly serrated and the bark peels back exposing orange brown inner patches.

37. *Fagus sylvatica* 'Roseo-marginata'

Tricolor Beech Fagaceae (Central Europe)

The leaves of this beech are mottled with fresh greens, pinks, and whites. This tree, planted in 1966, has grown slowly due to the reduced amount of chlorophyll in the leaves.

38. *Quercus robur* 'Fastigiata'

Upright English Oak

Fagaceae (Europe, N Africa, W Asia)

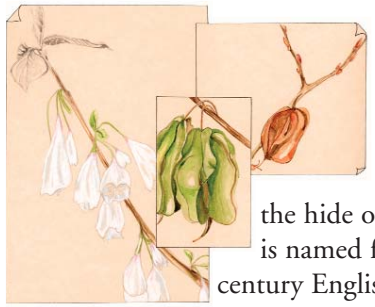
This upright form of English oak was first discovered in a forest in Germany in 1783 and brought into cultivation. It breeds true from seed about 80–90 percent of the time, with some seedling variation. It is a good choice for urban areas as the species is very tolerant of air pollution, compacted soil and poor drainage, as well as drought. The plant may reach upwards of 50' tall with a spread of only 10' to 15'. Powdery mildew is sometimes a problem.

39. *Halesia monticola*

Mountain Silverbell

Styracaceae (Appalachian Mountains)

This dignified tree shrouds itself in early May with short-lived white bell-shaped flowers. The four-winged seedpods that follow are distinctive in design and change from green to a light brown as they dry. The long floppy leaves fade to a yellow in fall and the smoky brown bark is often said to look like the hide of a crocodile. The tree is named for the eighteenth century English physiologist Dr. Stephen Hales, who is considered the founder of experimental plant physiology.



40. *Fagus sylvatica* 'Laciniata'

Cut-leaf Beech Fagaceae (Central Europe)

The fernlike leaves of this beech cultivar turn a subdued yellow in autumn. Knotty beech wood is resistant to decay and is often made into clothespins, spoons, fence posts, and crates. A former president of Smith College once saw a cut-leaf beech elsewhere and liked it. When he returned to the college, he asked the head horticulturist, Bill Campbell, if the campus could acquire one. Mr. Campbell then pointed to this specimen, already growing in the president's front yard.

Other trees of interest:

- **A.** *Acer palmatum* 'Ornatum' – Red threadleaf Japanese maple
- **B.** *Magnolia virginiana* – Sweetbay magnolia
- **C.** *Corylus colurna* – Turkish filbert
- **D.** *Acer miyabei* – Miyabe maple
- **E.** *Acer diabolicum* – Devil maple
- **F.** *Carpinus betulus* – European hornbeam
- **G.** *Syringa reticulata* – Tree lilac
- **H.** *Aesculus* × *carnea* – Red horsechestnut
- **I.** *Aesculus glabra* – Ohio buckeye
- **J.** *Picea abies* – Norway spruce
- **K.** *Acer mandshuricum* – Manchurian maple
- **L.** *Quercus macrocarpa* – Bur oak
- **M.** *Paulownia tomentosa* – Princess tree
- **N.** *Phellodendron amurense* – Amur corktree
- **O.** *Acer campestre* – Hedge maple
- **P.** *Quercus palustris* – Pin oak
- **Q.** *Quercus prinus* – Chestnut oak
- **R.** *Tilia tomentosa* – Silver linden
- **S.** *Tilia* × *europaea* – European linden
- **T.** *Styrax obassia* – Fragrant snowbell
- **U.** *Chamaecyparis pisifera* 'Plumosa' – Plume sawara falsecypress
- **V.** *Abies homolepis* – Nikko fir
- **W.** *Abies concolor* – Concolor fir
- **X.** *Fagus sylvatica* 'Purpurea Pendula' – Weeping purple beech
- **Y.** *Acer saccharum* – Sugar maple