# Restoring the Harvard Yard Landscape

*Michael Van Valkenburgh and Peter Del Tredici*

**The spirit of Harvard Yard resides in its canopy of trees, tall, reaching groves that define spaces and passageways and create an evocative sense of place.**

Simplicity and understatement are the prevailing qualities of Harvard Yard's landscape, the result of a New England aesthetic that might also be termed frugal elegance. It is an almost completely built artifice that has evolved over more than three centuries of intervention and transformation. As a composition, the landscape and the buildings within Harvard Yard are inseparable. Yet it is the landscape—a simple order composed of a continuous ground plane of grass crossed with paths—that has retained the more enduring, timeless character. The lawn establishes a base on which a broad range of building types in various styles are sited. Overhead a high canopy of deciduous trees completes this majestic landscape. Combined, the lawn and the canopy unify the spaces of the Yard and engender a unique sense of place.

The maturity of the tree canopy and the imminent loss of most of the American elms have become pressing concerns. A nearly catastrophic number of trees were felled during the last two decades. Many of these were elms that were infected with the Dutch elm disease, but many others succumbed to stresses common to the urban landscape: soil compaction, root damage effected during construction projects, salt used for ice melting, and fluctuations in the water table. Still other trees were lost due to damage in the snow and ice storms of the late 1970s and early 1980s.

Despite the continual buzz of chainsaws in the Yard over the past two decades, few new trees have been planted. As a result, Harvard now needs to make up for lost time. Almost two hundred trees at semi-mature sizes must be planted throughout the larger Harvard Yard area to recreate the presence of the grove. Because trees grow slowly, the need to replant the Yard's canopy has become urgent. In 1991 the University undertook a study of the series of large and small spaces that constitute Harvard Yard, broadly defined as the Old Yard, the Tercentenary Theater, Seaver Quad, the Science Center Overpass and Memorial Hall, Quincy and Prescott Streets. As a first step, an ad hoc tree committee was convened.* The product of this group's effort, a list of trees suitable for Harvard Yard, can be seen below. Sixty-eight trees have been planted this spring. Another six will be added this fall and two more next spring.

### The New Tree Canopy

The predominating American elms *(Ulmus americana)* have imprinted themselves on all who are familiar with the Yard. As a species, the elm is fast growing, readily available, easy to transplant in large sizes; and highly tolerant of compacted soils. Its natural form provides a tall, high-branched canopy. Understandably, it was a favorite of our predecessors, but its fate strongly suggests that replanting not be domi-

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nated by a single species of trees, which might again leave the Yard vulnerable to the devastating effect of insects and diseases. All replacements must be well suited to stressful urban growing conditions, and in the interests of a unified composition, trees with odd colored bark, flowers, or leaves should be excluded since they would not blend with other species.

To recreate a canopy reminiscent of the character of the American elms—to retain not only their memorable quality but also unimpeded views across the Yard—each of the main spaces should be planted with a careful blend of two, three, or four tree species. In combining trees the visual character of each species in every season of the year must be considered: the overall form and color when the tree loses its leaves in the autumn; leaf color in spring, summer, and fall; any significant flowers or fruit. The committee left open the possibility that occasionally an additional, single species may be added, or preserved, if it is an existing tree in good health. For example, the few remaining white pines *(Pinus strobus)* should remain as effective counterpoints to the new canopy. Indeed, a new white pine will be planted this fall, along with a catalpa *(Catalpa speciosa)* and a horse chestnut *(Aesculus hippocastanum)*, not so much for canopy replacement but to help reinforce the existing specimens of the same species.

In replicating the character of the American elm grove, which retained few branches below twenty feet above ground level, it must be remembered that once a tree grows a branch, the height of that branch does not change with later growth. For this reason, high-branched specimens have been planted from the inception of the Yard's new grove. Trees grown with lower branches removed to six or seven feet above ground constitutes the minimum standard for transplanting into Harvard Yard. At the time of planting, additional low branches have been removed to a height of eight or nine feet above ground level. Branches should always be removed when they are quite small, as the larger cuts resulting from the removal of more mature branches require more time to heal. Over the next twenty years, additional branches will be removed gradually as each tree increases in height.

The recommended transplant size for new trees in Harvard Yard is five or six inches in diameter at six inches above the ground; this is typically a tree about twenty to twenty-eight feet tall. Re-training the form of the trees requires careful selection of specimens with good structural development and a strong central leader, rather than trees with several leaders.

Many of the species on the tree committee's list, including the Japanese pagoda tree *(Sophora japonica)* and red oak *(Quercus rubra)*, lend themselves, with attentive maintenance, to a high-branched and elmlike form even though their natural character, when grown in an open location, is a low-branched and rounded form. A lightly shaded growing environment where there is competition for sunlight alters the growth habit of a tree and yields a reaching elmlike character. New trees, if carefully located in the light shade of other trees in the Yard, are encouraged to grow taller as they reach for the sunlight above. New trees have not been planted directly under existing trees, but rather outside their drip line.

Within Harvard Yard there are numerous microclimates that affect tree growth. In selecting species, the nuances of each planting site have been carefully considered, with particular attention to soil type, drainage, wind, available sunlight and shade, soil moisture content created by variable drainage conditions, density of traffic, and extent of pavement coverage, which increases soil temperatures in the root zone in summer. Also considered was the proximity of new trees to existing large trees, which create root competition and shade that affect their development.

The tree committee recommended that all trees in poor condition be removed between 1993 and 1994. Trees rated in fair condition may have several years of life remaining and will not be removed—except for design rea-

*Newly planted canopy trees in the Old Yard (Karen Madsen).*

sons—until they decline further. In some instances trees in fair condition remain on our plan; these are especially venerable trees that, with special care and attention, may survive for many years.

**Old Yard**

To many, the Old Yard is Harvard Yard. It is the largest and oldest space, with generous proportions and a commanding presence. Its perimeter of enclosing buildings, which define the sides of the space, is perceptively simple but spatially sophisticated. Through time the placement of buildings has foiled what otherwise would be an unrelenting length spanning the two long sides of the Yard (750 feet), yielding instead stepped and ambiguous alignments. In contrast, the short ends of the Old Yard (250 feet) are completed with single buildings. The stepped sides coupled with the stolid ends create an impressive volume that, when filled with trees, establishes an aura of calm power.

The spirit of the Old Yard is largely attributable to its enveloping canopy of majestic deciduous trees, which create an embracing grove. While this grove has been dominated by the American elm for most of the twentieth century, other species have been included to produce a more complex composition. The form of these other trees, most notably red oak and honey locust, has been managed to make them more elmlike in character. Branches have been removed for the first eighteen to twenty feet of each tree.

In the Old Yard, we have planted a mix of honey locust *(Gleditsia triacanthos)*, Japanese pagoda tree *(Sophora japonica)*, red oak *(Quercus rubra)*, scarlet oak *(Quercus coccinea)*, and willow oak *(Quercus phellos)*. The trees have been planted in four existing north–south rows with spacing irregular within the rows. A fifth row has been re-established in front of the west

*The tree canopy in the Tercentenary Theater is reinforced with new plantings installed by Hartney/Greymont, Inc., of Needham, MA (Karen Madsen).*

side of Thayer and Weld Halls. Red oaks were used in front of Thayer and scarlet oaks in front of Weld.

Two rows of tulip poplar trees *(Liriodendron tulipifera)* form an allée to frame the statue of John Harvard. These rows start at the Johnston Gate and are embedded in the existing grove of the Old Yard. Hackberries *(Celtis* x 'Magnifica') have been planted west of the Johnston Gate, at the site opened up by the removal of the existing yews at the gate. These two trees, with their elmlike shape, take the place of two downed elms.

### Tercentenary Theater

The Tercentenary Theater is the heart of Harvard Yard and one of the major time-honored landscape spaces. The enclosure of the Tercentenary Theater was completed by Memorial Church in the 1930s. The symmetry of Widener Library and Memorial Church and the commanding nature of their broad bands of stairs create a space that has became the symbolic center of the Yard. It is its geographic center as well and is the most important ceremonial space on campus, where people from the entire university gather for graduation and other celebratory events.

The character of the grove of trees planted in the rectangular space further compliments the ceremonial quality of the Tercentenary Theater. In contrast to the darker oaks and maples at the periphery of the space, honey locusts *(Gleditsia triacanthos)*, with their fine textured foliage, allow dappled light to permeate the center ground of the space and to form a halo of light in the middle. Additional honey locust trees have been planted to supplement the existing ones. Red maples *(Acer rubrum)* have been planted as a rectangular perimeter

around the irregular placement of the honey locusts. This patterning will not be apparent until the autumn when the yellows of the honey locusts will be framed by the spectacular scarlet foliage of the red maples. Yellowwoods *(Cladrastis kentuckea),* which bloom at commencement time, have been planted irregularly at the periphery of the space. Three Kentucky coffee trees *(Gymnocladus dioicus)* and two bur oaks *(Quercus macrocarpa)* were planted on the lawn west and north of Widener Library. The three legumes share a characteristic flat-topped crown, and although clearly distinct from one another, have similar enough forms to create a sense of harmony. It is essential that all trees planted in the Tercentenary Theater be limbed up from the bottom as they grow, to allow unobstructed views throughout the landscape.

The new trees will appear young for ten to fifteen years, and then although they will still be quite small, they will begin to blend with the remaining large trees. Eventually two hundred-plus trees are to be planted; there are approximately three-hundred-thirty existing trees within the perimeter of the Yard Fence.

### The Tree List

Following is the final list of tree species selected for planting in the Yard. The tree committee gave careful consideration to overall visual character, leaf density, color, scale, and form. The list is intended to provide the landscape architect with flexibility in dealing with the unpredictable issues of size and availability that inevitably complicate any landscape job.

The list of canopy trees focuses on species with a strong tendency to form a tall, straight trunk and a broad, spreading crown in a relatively short time. Species marked with an asterisk (*) are considered secondary choices insofar as they possess some characteristic that causes maintenance problems; are slow-growing; are difficult to transplant; or hard to locate in nurseries. The decision to use these secondary species should be based on finding the right location for them as well as the size and quality of specimens available from nurseries. Tree species suitable for the periphery of the Yard are presented in Part II.

### PART I: CANOPY TREES

***Acer rubrum* (Red Maple)**

This midsized tree produces great spring and fall color and is tolerant of compacted soil conditions. Red maple will perform well in the Yard and will add interest in the fall, a feature that is currently lacking.

***Acer saccharum** (Sugar Maple)**

This tree has beautiful fall color but is intolerant of compacted soil and road salt. It has a roundheaded crown and casts a dense shade. In the Yard it will need to be carefully sited away from areas with heavy pedestrian or vehicular traffic.

***Celtis laevigata** (Sugarberry)**

This species, which is very tolerant of compacted soils, is well worth trying in the Yard although specimens may be difficult to find. It is larger and more robust than the common hackberry, ***Celtis occidentalis,*** and can be quite elm-like in its form.

***Gleditsia triacanthos* var. *inermis* (Thornless Honey Locust)**

Because of its graceful form, the honey locust is the tree that many horticulturists view as the ideal replacement tree for the American elm. We should be cautious not to overuse the tree as was done with the American elm, given that it is susceptible to a number of serious diseases. The fact that grass grows well under the light canopy of the honey locust makes it an excellent choice. Using male selections will reduce the litter problem posed by seed pods.

***Gymnocladus dioicus** (Kentucky Coffee Tree)**

Kentucky coffee tree, while it has a very sparse growth habit and stark winter outline, is a strikingly beautiful tree. Like the honey locust it casts a light, delicate shade that allows grass to prosper. Male selections should be planted if possible.

***Liriodendron tulipifera* (Tulip Poplar Tree)**
Tulip poplar tree has an upright growth habit and very beautiful flowers and leaves. It grows extremely large, so should be planted only in larger spaces. It forms a tall, straight trunk and has good yellow fall color.

***Magnolia acuminata*** (Cucumber Tree)*
Cucumber magnolia is a very stately single-trunked tree that could be used sparingly in the Yard. It does not appear to have any disease problems, but its large leaves might be seen as a litter problem in the fall.

***Quercus bicolor* (Swamp White Oak)**
Swamp white oak would be a great addition to the Yard if large specimens can be located. It is slow to establish itself, but well worth the wait. The white oak, ***Quercus alba,*** is equally acceptable from a landscape point of view but considered more difficult to transplant.

***Quercus coccinea* (Scarlet Oak)**
Scarlet oak is similar to pin oak in habit and leaf shape but is somewhat slower growing and more difficult to transplant. It does, however, have much better fall color than pin oak. ***Quercus shumardi,*** the Shumard red oak, is similar in many respects to the scarlet oak, and some growers consider it a better performer.

***Quercus palustris* (Pin Oak)**
Pin oak casts a lighter shade than red oak and needs to be limbed up in order to see its beautiful, smooth trunk. It is tolerant of both poorly drained and compacted soils. When young, this species tends to hold its brown leaves throughout the winter. This problem can be overcome by selecting trees in the nursery that have outgrown this "juvenile" trait.

***Quercus phellos*** (Willow Oak)*
The narrow, willowy leaves of this beautiful tree cast a light shade. It is relatively easy to transplant and tolerant of wet, compacted soil. A common street tree in the south, the species has traditionally been considered marginally hardy in the Boston area. However, experience indicates that trees from the northern parts of its range (central New Jersey) are hardier than plants from more southern areas. If northern trees can be located in a nursery, willow oak would make a nice addition to the Yard.

*The shadow of an American elm falls on Stoughton Hall in the Old Yard (Peter Del Tredici).*

***Quercus rubra* (Red Oak)**
Red oaks are already abundant in the yard, but a few more could well be planted. Because it casts a dense shade, trees of this species should not be planted too closely together or the grass will suffer. Many other tall oaks, including ***Q. acutissima, imbricaria,*** and ***macrocarpa,*** would perform well in the Yard, and their use is limited only by their availability.

***Sophora japonica*** (Japanese Pagoda Tree)*
The Japanese pagoda tree is a beautiful alternative to the honey locust. It does, however, have a tendency to retain its lower branches. For this reason, tall specimens that had been limbed up in the nursery should be specified for planting in the Yard.

**PART II: PERIPHERY TREES**

These are species suitable for special purposes. In general, they are somewhat smaller in stature than the canopy trees listed above; have a narrow as opposed to a spreading growth habit; or show a pronounced tendency to retain their lower limbs. They should be used near buildings or around the edges of the Yard to lower the canopy.

***Betula nigra* (River Birch)**

For planting in the Yard, river birch that has been trained to a single trunk should be used, as opposed to specimens grown as a clump. The tree has peeling, buff-colored bark and is very tolerant of compacted soil. It is the only species of birch that can be considered reliably disease-resistant.

***Cercidiphyllum japonicum* (Katsura Tree)**

This is a beautiful, midsized tree that casts a light, delicate shade. It would make a nice addition to the Yard and is relatively maintenance free.

***Cladrastis kentuckea (lutea)* (Yellowwood)**

This elegant leguminous tree has performed well in other locations at Harvard and would grow well in the Yard. The tree produces its beautiful white flowers in early June, just in time for commencement. Because yellowwood tends to keep its lower branches, it needs to be sited in locations where heavy pruning is not required.

***Fagus sylvatica* (European Beech)**

This long-lived tree is already widely planted throughout Harvard. It is an excellent choice for the north sides of buildings that are shady and cool and where foot traffic is minimal. We particularly recommend the upright form 'Fastigiata' for areas where there is not enough room for a full-sized, spreading specimen.

***Ginkgo biloba* (Ginkgo)**

While stiff and awkward when young, the tree develops great character as it ages. It is tolerant of a wide range of soil conditions, and if given enough sun and moisture, grows quickly. The fan-shaped leaves turn a beautiful clear yellow in autumn. Only male plants with a spreading habit, as opposed to the narrow 'Fastigiata' clones, should be planted.

***Larix decidua* (European Larch)**

This deciduous conifer is tolerant of compacted soil and would add a nice touch of yellow fall color to the yard. Being of relatively narrow growth habit when young, it could be used in fairly close proximity to buildings. It can be limbed up with impunity.

***Liquidambar styraciflua* (Sweet Gum)**

Sweet gum is very tolerant of compacted soils and has extremely beautiful fall color. The tree is not a favorite with maintenance people because it drops spiny "gumballs" in the winter, two months after leaf fall, necessitating a second cleanup.

***Nyssa sylvatica* (Tupelo or Black Gum)**

This species has sensational fall color and beautiful winter form. While somewhat slow to establish itself and difficult to transplant, tupelo would make a nice addition to the Yard if we could locate large specimens.

***Tilia petiolaris* (Pendant Silver Linden)**

This is one of the most beautiful of the lindens because of the silvery white underside of the leaves and because the branches are gracefully weeping. The tree grows to be quite large and, relative to other lindens, has good fall color.

***Ulmus parviflora* (Lace Bark Elm)**

This is one of the few elms that is truly resistant to Dutch elm disease. While not as tall or graceful as the American elm, it has beautiful, exfoliating bark and an airy crown composed of small leaves with good fall color. On the down side, lace bark elm tends to leaf out several weeks later than other elms.

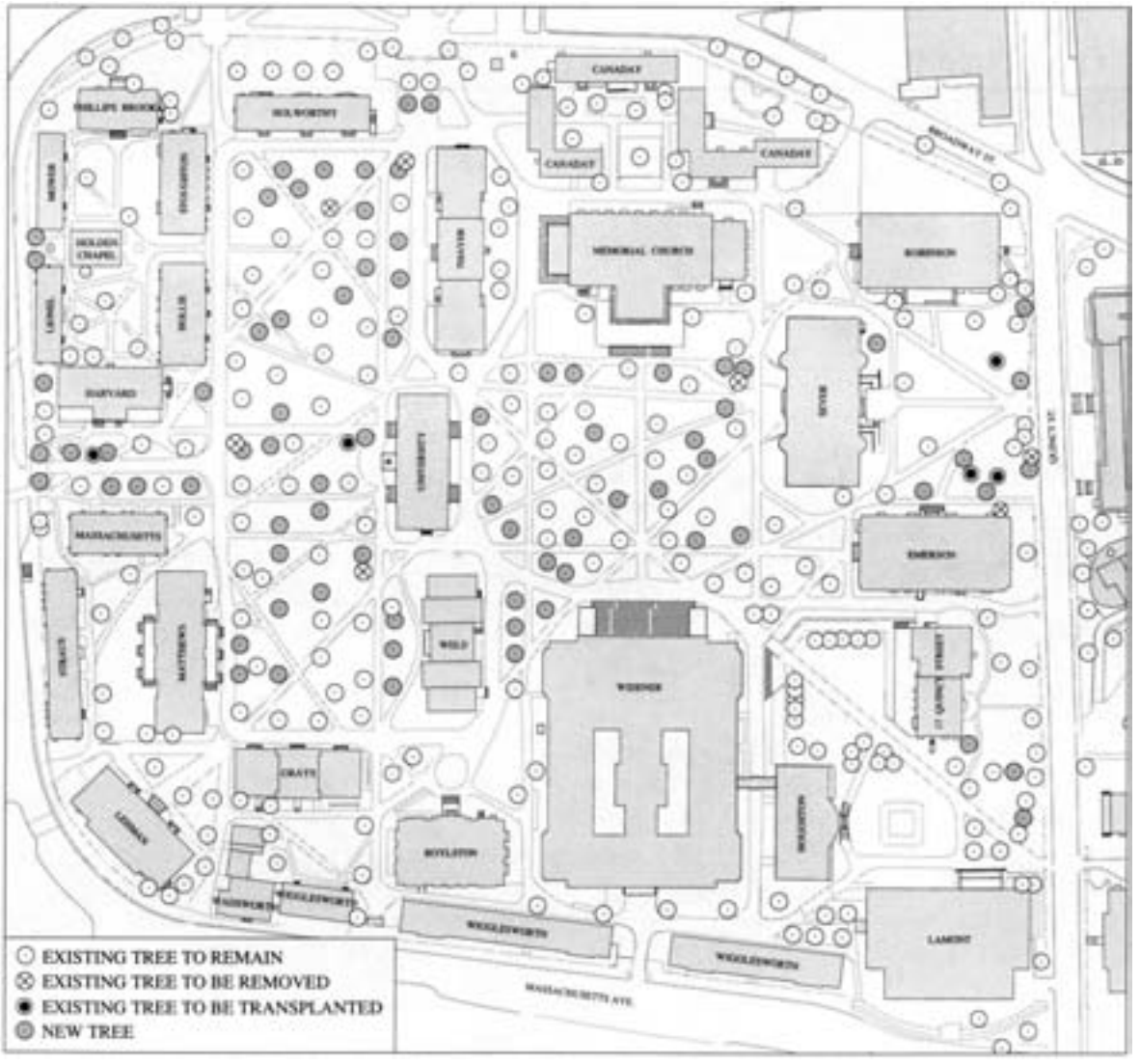
***Zelkova serrata* (Zelkova)**

This species is often touted as a replacement for the American elm, but it is considerably smaller in stature. For planting in the Yard, we recommend using one of the tall, upright selections such as 'Village Green', as opposed to random seedlings.

The previous list identifies the trees that the committee selected as appropriate for use in Harvard Yard; the list on the right gives the trees actually obtained in nurseries for the first phase in the Yard replanting program. The map shows which existing trees will be retained, which will be removed or transplanted, and where new trees will be sited.

The Old Yard (on the left of the map) is bounded by Holworthy, University, and Grays Halls. The Tercentenary Theater is delineated by Widener Library, Memorial Church, and Sever and University Halls. Sever Quad (on the right) extends from Sever Hall to Robinson and Emerson Halls and Quincy Street.

**HARVARD YARD REPLANTING PROGRAM PHASE ONE (1994)**



| Qty. | Botanical Name | Common Name | Old Yard | Tercentenary Theater | Sever Quad |
|---|---|---|---|---|---|
| 9 | *Acer rubrum* 'Red Sunset' | Red Sunset Red Maple | | 9 | |
| **2** | *Acer saccharum* 'Green Mountain' | Green Mountain Sugar Maple | **2** | | |
| 1 | *Aesculus hippocastanum* | Horse Chestnut | 1 | | |
| 2 | *Catalpa speciosa* | Catalpa | 2 | | |
| **3** | *Celtis* x 'Magnifica' | Magnifica Hackberry | **3** | | |
| 7 | *Cladrastis kentuckea* | Yellowwood | | 7 | |
| 6 | *Gleditsia* 'Shademaster' | Shademaster Honey Locust | 4 | 2 | |
| **3** | *Gymnocladus dioicus* | Kentucky Coffee Tree | | **3** | |
| 2 | *Liquidambar styraciflua* | Sweet Gum | 2 | | |
| 12 | *Liriodendron tulipifera* | Tulip Poplar Tree | 9 | | 3 |
| **2** | *Nyssa sylvatica* | Tupelo | **2** | | |
| 1 | *Pinus strobus* | White Pine | 1 | | |
| **1** | *Quercus acutissima* | Sawtooth Oak | | | **1** |
| 1 | *Quercus alba* | White Oak | | | 1 |
| **1** | *Quercus imbricaria* | Shingle Oak | **1** | | |
| 4 | *Quercus coccinea* | Scarlet Oak | 4 | | |
| 3 | *Quercus macrocarpa* | Bur Oak | | 2 | 1 |
| **2** | *Quercus palustris* | Pin Oak | **1** | **1** | |
| 4 | *Quercus phellos* | Willow Oak | 3 | | 1 |
| 5 | *Quercus rubra* | Red Oak | 5 | | |
| 5 | *Sophora japonica* | Japanese Pagoda Tree | 5 | | |

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