



Many of trees that filled our country's first urban parks have come to the end of their life cycle. Plans must be made to replace them.

THE TREE CHALLENGE

Plans to replace the trees that stood as forerunners in America's first urban parks were never made. Is it too late?

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Trees are the most important living components of a park or historic garden. No one can argue the beauty of the lawns and the other plantings. But trees are the most irreplaceable element in the natural landscape.

Trees, unfortunately, have not been treated well in many of our most prestigious gardens and parks. In contrast to lawns that require, and are

provided, regular attention, trees are often treated with benign neglect.

Many of the most important trees in these sites are in poor condition, suffering from abuse and lack of care. At the present level of tree management, large losses can be expected by the beginning of the 21st century.

However, it is not too late to begin to restore the trees in these gardens and parks. How we manage these

areas in the 1990s will determine their condition in the early part of the 21st century.

First, a commitment must be made to the responsible management and preservation of shade trees in parks and gardens. We must also recognize and then protect trees from all activities detrimental to their health. Large attractive shade trees can always be present in our urban areas if we can continually protect and restore our trees.

Historical perspective

Many parks and historic gardens were created between 100 and 125 years ago, shortly after the period when Olmstead designed Central Park as a model for using urban space. This great social experiment was soon repeated throughout the United States.

Trees that were planted during that period and still survive are very old.

Their replacements should have been planned and losses anticipated many years ago. But, in most cases, they were not. Instead, I often find a great fear for removing any living trees, regardless of poor health or obvious defective condition. This strict adherence to preservation has caused many problems in parks and gardens and is contrary to the natural life cycle of trees.

We need to learn more about the cycle of life and death of trees, and how to protect trees from stresses that shorten their lives.

Life and death

A living landscape is subject to constant change. Responsible management is needed to plan for the inevitable changes that must occur in the living components of that landscape. Trees, due to their potentially long lifespans, are often overlooked when plans for changes are considered. Mature trees are often considered "permanent" components of a landscape and are expected to remain in an essentially static condition.

This situation has resulted in most parks greater than 100 years old having many large, old trees in various stages of decline and few, if any, replacements. Trees, like all living things, pass through stages of youth, maturity, decline and eventually death. Tree removals are always painful, but are essential to maintain healthy and safe trees on a site.

I have found the overall health of the trees on a site is often directly related to the number of trees planted each year. A program of tree replacement must be continual, and must be planned many years in advance of an-



Construction remains one of the biggest threats to trees. Injuries are caused by raising or lowering of grade and by trenching near the tree. Still, injured trees may take years to die.

anticipated tree removals.

A program of regular tree maintenance, however, can often extend the useful life of a tree indefinitely.

Management and preservation

It must begin when the tree is healthy, and must be sustained. Pruning dead, dying, and defective branches; regular fertilization; and using soil aeration and cushioning mulches to alleviate soil compaction, are examples of tree maintenance activities that promote vigor and extend life. Preventive tree maintenance on healthy trees is a much more successful strategy than attempting to preserve trees in severe decline.

Conflicts in tree care with the care of lawns and gardens are also a threat to the survival of shade trees. Lawns near trees are often treated with lime-based fertilizers and broadleaf herbicides. Most trees grow best at pH levels much lower than lawns. Many of the herbicides used on lawns are known to cause injury to trees.

We now know that trees roots routinely extend from the trunk twice the height of the tree, and sometimes extend further. Roots are not restricted to the area under the branches, or "drip-line."

Small absorbing roots of trees form in the same area as turf roots. Consequently, lawn care chemicals applied anywhere around trees can be expected to affect tree roots.

Injury by equipment

Injuries to trunk and roots from lawn care equipment can often cause cankers and decay. Similar injuries to roots can be caused by rototilling in annual beds near trees.

Sod should be removed from around the trunks and buttress roots, and a "mulch zone" should be established. This zone should be as wide as possible, and can be covered with a

decorative mulch that will eliminate the need for entry of any lawn care equipment near the tree. Only perennial plantings can be allowed on this mulch zone, if any vegetation is desired. Annual plantings, which require periodic soil disturbances, should be restricted to areas far from any woody plants.

Trees can survive and remain healthy where turf and annual plants are grown, but adjustments in lawn and garden care must be made. The use of lawn care chemicals—especially herbicides—must be eliminated or minimized. Careful attention to the soil pH around trees must also be made to avoid high pH stress induced by turf fertilizers. A regular program of tree fertilization using a method, such as liquid soil injection, to both aerate and provide nutrients is also recommended.

Injuries to trunks and roots from lawn and garden equipment must be avoided to prevent root diseases, like shoestring root rot, a leading killer of stress and injured shade trees.

Construction as cause

Construction is the ultimate cause of death of many shade trees. Many trees in parks and gardens, especially in urban areas, are killed each year as a result of earthmoving activities, such as building construction and the installation or repair of underground utilities. The injuries caused by raising or lowering grade, and by trenching around trees, are often fatal.

Construction-damaged trees may take many years to die, but will often begin to decline soon after the construction has been completed. These weakened trees are often attacked by secondary pathogens and/or insects which accelerate their decline.

Because of weakened roots, construction-damaged trees may also be (or can become) hazard trees that con-

stitute a danger to staff and visitors. Preventing all construction activities near trees is essential to their survival.

Frequent pressure for construction projects in parks and gardens is a fact of life in the urban environment. Communication must be established with those planning any construction activities in a park or historic garden before any construction begins. During planning stages, construction activities can often be steered away from trees to minimize their impact.

Establish barriers

Barriers to construction activities must be erected around trees before construction begins to prevent any "accidental" intrusion near trees. Barriers must be placed as far away from the trees as possible, and must not be moved until all construction activities have been completed. Whenever possible, large areas encompassing many trees and shrubs should be fenced from construction to protect them.

I have found that slatted "snow fences" secured by metal stakes work very well as tree protection barriers. They are easy to install, available and inexpensive.

Effective tree protection focuses on protecting the roots and soil near trees from any and all construction activities during the entire project.

Trees are critical components of parks and historic gardens. Trees must be managed and protected. Change is inevitable, and some trees must be replaced every year to make room for the next generation of trees. This change is natural and essential if the trees are to remain healthy, safe and available for generations to come.

Trees, however, must be protected from activities detrimental to their health. It is unthinkable to sacrifice a beautiful shade tree for a "weed-free" lawn. Lawn and garden activities around trees must be consistent with what will not harm the tree. Construction activities around trees must be avoided if possible, carefully planned in advance if necessary, and then, firmly restricted in scope, using tree protection barriers to minimize damage to trees.

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