

The Truth About Trees

Although trees offer benefits, they also can have unfavorable effects on turf and the game of golf.

BY DAVID A. OATIS



Trees with low branching habits should not be located in high-play areas. They punish golfers indiscriminately and create a hazard for which there is no reward for a skillful recovery shot.

A recent search of all USGA publications on the Turfgrass Information File database (TGIF) for articles that mentioned trees yielded a remarkable 198 hits! Additional investigation shows that many of the articles written since the 1970s discuss the need for tree removal. Furthermore, the number of courses that are planning, implementing, or have completed major tree work is growing each day. So why, in the last 35 years, has tree removal become a thoroughly discussed and popular topic? A further review of some of the older tree articles yields the answer. Tree planting was very popular in the first three quarters of the 20th century, and the early golf course tree planting programs around North America achieved remarkable success. Large, open areas were gobbled up by tree plantings, and many greens, tees, and fairways were effectively encircled with trees. Many courses now are paying the price for the success of those tree planting and course beautification programs, as the combination of reduced sunlight and reduced air circulation have contributed to a host of turf problems. Innumerable playability problems also have been created.

Making matters worse, many courses gave little thought to the specific characteristics of the various species that were planted. It seems many courses chose the short-term economy of planting nursery overstock. While some courses planted more desirable species, many other courses planted fast-growing, short-lived, soft-wooded, disease-prone, and invasive-rooted species. These are trees that compete most effectively with turf. Perhaps the saddest part of the story is that some courses are continuing to plant too many trees, effectively perpetuating the problem.

So what about the original question, *the truth about trees*? There are many truths, some of which identify the positive benefits of trees. Trees are valuable to many landscapes, both aesthetically and environmentally. Trees can create definition and separation, and they are helpful in screening unwanted views and softening the appearance of structures. Trees can have a pleasing, naturalizing effect on the landscape. Some species provide valuable food, cover, and habitat for wildlife. In fact, retaining dead and dying trees can provide homes for cavity-nesting birds and other wildlife. Even though turf does not perform as well in the

shade, golfers certainly appreciate shade on hot days. Trees also can function as wind breaks, which can be helpful in harsh, windswept environments. Perhaps more significant than anything else, most people love trees, and they enjoy planting them.

GOLFER SAFETY

Now for some of the negatives: trees also can be dangerous. Few like to admit it, but trees can

around greens and tees, and the entry/exit areas around cart paths.

GROWING ENVIRONMENT

An inescapable agronomic truth is that trees can make it physically impossible to grow healthy turf that plays well, is reasonable to maintain, and is reliable. Light is the fuel source that runs the photosynthesis engine, and trees block sunlight



damage property and injure or even kill people. A poorly maintained stand of trees can be a liability and can be very expensive to rectify. Potentially hazardous trees can be found on many golf courses. Although a structurally flawed tree that is located deep in the rough or in the woods may not be much of a concern, structurally flawed trees in high-play or high-traffic areas create unreasonable hazards and should be removed forthwith. Failure to do so could be considered negligence! Surprisingly, golfers and committee members frequently argue against removing hazardous trees. Essentially, they are arguing that trees are more valuable than the health and well-being of their golfers!

TRAFFIC

Trees located in high-traffic areas create permanent traffic patterns that funnel traffic and concentrate wear problems. The combined effects of concentrated traffic, shade, and root competition frequently push turf over the edge and make it virtually impossible to maintain turf cover. Trees and healthy turf simply cannot coexist in high-traffic areas. Such areas include walk-on/off areas

very effectively. Insufficient light prevents the engine from running at or near optimum efficiency, and this produces a weaker, less wear-tolerant turf. Tree roots compete very effectively with turfgrass for moisture and nutrients, and when they are surface roots, playability suffers and turf maintenance equipment and golf carts may sustain damage as well. Areas that are heavily treed with dense-canopied and surface-rooted species often lack turf cover and may even experience soil erosion. Playability is especially poor in these types of locations.

It is a commonly held belief that tree root systems extend out to the drip line of the tree, but that is far from the truth with many tree species. Depending on the species, a tree's roots may extend hundreds of feet outward from the trunk of the tree. Tree root systems are soil robbers. They use and greatly benefit from nutrients and moisture intended for the turf. As a result, the growth rate of trees on golf courses can be considerably faster than those in the wild. This rapid growth rate can fool golfers into believing the trees are much older than they are and even into believing that the trees predated the course. This

Trees located in front of bunkers create a "double hazard" because they block advancement from the bunker.



Tree roots compete very effectively with turf for moisture and nutrients and, depending on the species, can extend outward two to three times the height of the tree.

is particularly the case with faster-growing species. Even though the growth rate is rapid, it usually goes unnoticed, so tree problems can sneak up on courses. Trees that may not cause significant shading or air blockage in year one may become major problems by year 15–20. Some tree species grow more than a foot vertically a year, so 20 years of growth can mean a 20- or 30-foot difference in height!

Lest we forget, more obvious damage also can be caused by tree

root systems. Surface-rooted species can destroy cart paths in just a few years. Frequently, paths are resurfaced without addressing the underlying tree-root problem, so the solution is expensive, but temporary at best. Trees also can inflict significant damage to maintenance equipment, golf carts, and even golfers. Hidden surface roots can hurt!

Excessive tree plantings are a common ingredient in the development of poor grass-growing environments. Poor air circulation reduces the cooling potential of the turf and helps to raise the relative humidity level. Higher humidity creates an ideal environment for fungal pathogens to infect, and weakened, less-vigorous turf is extremely susceptible. Turfgrass responds to a low-light environment by altering its growth habit. Turf grown in a shaded environment assumes a more open growth habit, becoming longer and leggier (etiolated), and the leaves become fatter and more succulent. This leaves the turf more susceptible to wear injury from both golfers and maintenance equipment. Increased wounding potential, combined with an ideal environment for fungal growth and development, produces predictable results: more and more severe disease outbreaks, especially on greens. Making matters worse, the reduced sunlight reduces the rate of recovery accordingly. Minor injury and minor disease outbreaks that might go nearly unnoticed in vigorously growing turf become a significant problem with weak turf.

WINTER INJURY

Winter injury, a phenomenon common in some areas, is often very closely related to the growing environment. Although winter sunlight may be discounted as unimportant, winter sunlight can have a major impact on the incidence of crown hydration injury. Thus, trees that are far away from a green or too short to influence sunlight penetration during longer day-length days, may block a great deal of light during short day-length days. As an example, full sun until early afternoon may accelerate melting, but the water may refreeze rapidly as a result of early afternoon shade. A lack of sunlight in the fall also can influence the turf's ability to harden off properly, also increasing the likelihood of winter injury. Poor light penetration in the early spring increases the thaw period, also increasing the potential for winter injury. The combination of shade and traffic can be especially devastating in more southerly climates to warm-season grasses such as bermudagrass. Spring green-up, growth, and recovery also will be slowed accordingly on all grasses. From a golfer's standpoint, shaded turf prolongs frost delays.

PLAYABILITY

From the playability perspective, excessive and/or poorly located trees take away options and can leave a course with a claustrophobic feel and "one-dimensional" playability. Good topography is a key ingredient in designing a topnotch golf course, and interesting and strategic topography can be hidden and neutralized very effectively by indiscriminate tree plantings.

Trees can provide some measure of strategy to the game, but they frequently create unfair and overly penal situations. Trees located between hazards and a green can make advancement impossible. These are termed *double hazards*. Trees with dense canopies that extend down to the ground (e.g., spruce trees) penalize indiscriminately as they create a severe penalty for which there is no reward for a skillful recovery shot. Finding their golf ball under such a tree, both the expert and less-skilled players are left with the same option: take an unplayable lie or back under the tree and try to hack the ball back into play. Conversely, more skill is required to extricate an errant shot from deep rough or a severe bunker. Many golfers wind up being affected when this type of tree is located in a high-play area, and if the location is such that short hitters and/or high-

handicap players are most affected, a severe and highly undesirable inequity results. The game is difficult enough for these players; they do not need an additional challenge!

It takes great imagination, knowledge, and foresight to plant trees so that they are properly located when they reach their mature size. A young tree that is close enough to influence play will likely be too close once it reaches maturity. Trees that extend well out into the fairway where they can block shots to the green from the fairway may be too penal. New tree plantings should look sparse for many years if there is to be enough room for them to reach maturity without impinging on one another. A good rule of thumb is that any new tree planting that looks good initially is likely overdone. In theory, over-planted trees could be thinned out and moved as they get larger, but this almost never happens. Finally, consider the look that is desired. Many golf courses hope to achieve a “natural” appearance. Assuming that is the desire, straight-line, half-moon, and neat circular arrangements should be avoided. Plantings should be as random as possible and should not appear too evenly spaced or too perfect.

THE BOTTOM LINE: COST

Trees are remarkable natural resources that provide many benefits. However, too many trees

elevate the cost of golf course maintenance, reduce turfgrass reliability, increase disease pressure, reduce turfgrass wear tolerance, and slow turfgrass recovery.

While the cost of planting trees is easy to calculate, the long-term costs of maintenance are impossible to compute and are rarely considered. These can include leaf, branch, and fruit removal, pruning (both above and below ground), fertilization, pest control, and eventual removal. Long-term costs of tree and turf maintenance dwarf the initial planting expense. Keep in mind that the costs of years of these activities add up quickly, particularly considering that some tree species live well over 100 years.

As with many other things in life, moderation is the best policy with respect to golf course tree plantings. Far too many courses get caught up in the “quantity” versus the “quality” aspect of tree planting. Virtually every aspect of most courses can be improved by systematically removing undesirable, hazardous, and unnecessary trees. Turf and playability can be improved and the relative value and quality of tree plantings can be increased at the same time.

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An overabundance of trees blocks sunlight and air circulation and is the primary cause of poor growing environments. Turf located in these types of areas usually fares poorly.