The Plant Doctor's LANDSCAPE TIPS

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DISC GOLF AND TREES: DO WE HAVE A PROBLEM?

Photo 1: Disc Golf Courses are being constructed at a rapid pace in many locations all over Michigan. Disc Golf is fun, challenging and a great opportunity to commune with nature.

Photo 2: During the summer of 2017, Nestrom Road Park in Fruitland Twp. was the center of the universe in regards to the politically charged climate surrounding Disc Golf and Oak Wilt. The controversy rages on …

INTRODUCTION

Disc Golf (DG) is becoming a very popular competitive sport and leisure recreation (Photo 1). Every year in Michigan, more Disc Golf Courses (DGC) are designed, constructed and installed. Some of the more popular locations for locating DGC are Michigan's forests, parks and woodlands, where trees and terrain provide a unique, natural and lovely environment . . . as well as a challenge to play.

As the awareness of the potential devastation from Oak Wilt increases, citizens associated with these natural areas and woodlands and those individuals who live near to or adjacent to DGC are expressing concern. Their concerns usually involve the attraction of Oak Wilt to these natural parks that might destroy the oak trees and subsequently impact nearby communities. Their concerns also are devoted to the changes imposed on these natural ecosystems by Disc Golf. Are these individuals' concerns well founded? Over the last several years, I have been receiving increasing queries regarding tree health, especially in regards to Oak Wilt and Disc Golf. I wanted to share my recent experiences with an example of such a controversy and its related concerns. These experiences may not only influence the development of other DGCs, but they may imply other ramifications of human activity in other areas such as landscapes, parks and natural areas.

Disclaimer: Because Disc Golf, Oak Wilt and trees have become a rather politically-charged issue at this time, I think it's important for me to be forthright in my comments – I have nothing against Disc Golf as a leisure, recreation or sport, but I do believe it is important to properly assess with facts and science the effects Disc Golf may have on trees and the ecosystems where they exist.

NESTROM ROAD PARK: THE CURRENT CENTER OF THE DISC GOLF AND OAK WILT CONTROVERSY

Nestrom Road Park is a "Nature Preserve" in Fruitland Township (Muskegon County), just south of the city of Whitehall (Photo 2). Nestrom Road Park resides on the shores of White Lake, which is essentially a bay emanating from Lake Michigan. During the spring of 2017, a DGC was designed, constructed and installed in this Nature Preserve (Photos 3 & 4). Ever since a DGC was installed in Nestrom Road Park, controversy, passion and anger has

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Photo 3: During construction of the Disc Golf Course in Nestrom Road Park in the spring of 2017, little concern was exhibited for the potential of Oak Wilt infections to fresh pruning wounds (arrows); the pruning technique that resulted in long stubs was less than professional.

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been expressed from various interested parties. Generally, two sides emerge in such struggles: those who want the DGC and those who don't. To emphasize this passion, during one of the meetings held to discuss this issue in Fruitland Twp last summer, over 100 disc golfers from all over the state of Michigan converged on Fruitland Twp. to petition and promote the desirability and benefits of disc golf to Fruitland Twp. At the request of some individuals involved in this matter, I agreed to provide an impartial assessment of tree health and the potential for Oak Wilt among other concerns for the Nestrom Road Park. I visited the park in August, 2017 and subsequently prepared a report. At the time of my visit, the DGC had been open for approximately 2 ½ months.

THE EFFECTS OF DISC GOLF ON OAK TREES

Perhaps the primary issue for many people in regards to Nestrom Road Park as well as many other locations around Michigan is the growing concern for Oak Wilt. There is no question that impacts from discs on oak trees can create sufficient wounds to attract sap beetles, which may spread the lethal disease (Photos 5 & 6). Construction of the DGC at Nestrom Road Park also caused small oak trees to be removed and branches were pruned from larger trees (Photos 3 & 4). Apparently, the individuals who installed the DGC at Nestrom Road Park had little knowledge about injury to oaks and Oak Wilt, because they injured the trees at the most appropriate time for transmission of Oak Wilt. Fortunately, Oak Wilt is apparently not in the immediate vicinity of Nestrom Road Park because there would be numerous epicenters of the lethal disease throughout the park after its construction; at the time of my visit, I saw no obvious evidence of Oak Wilt.

Photo 4: Many small oaks were cut down to make way for the "fairways" and to hopefully reduce the chances of Oak Wilt on small trees. The construction crew apparently didn't realize that freshly created stump wounds can become infected by the Oak Wilt fungus. Many of these stumps are now sprouting. Of a poignant nature, a small oak tree with a four-inch diameter trunk may be 25 years old in the competitive environment of a woodland.

THE EFFECTS OF DISC GOLF ON TREES AND THE ECOSYSTEM

All species of trees exhibited damage from disc strikes. In general, younger, thinner-barked trees showed more damage than larger, older thick-barked trees. Injury to any tree may attract diseases or pests (Photo 7), which may ultimately result in the decline and death of the affected tree. Typical of every DGC I have visited, understory plants have largely been destroyed in heavily trafficked areas (Photo 1). Compaction was also quite evident (Photo 1) and erosion was beginning to be exhibited (Photos 8 & 9).

DIVERSITY OF TREES IN MICHIGAN'S PARKS, WOODLANDS & FORESTS

Chestnut Blight has virtually made the American Chestnut extinct. Dutch Elm Disease has challenged the existence of American Elm and other native Ulmus species. The Emerald Ash Borer is cutting a path of destruction on Fraxinus sp. across North America. As with other locations around Michigan, the Hemlock Wooly Adelgid and Beech Bark Disease are near and threatening those species of trees in Nestrom Road Park. Over the past 100 years or so, the diversity of our woodlands and forests has dramatically changed. It would seem prudent to not allow Oak Wilt to flourish and decimate our oak forests due to an irresponsible attitude towards nature.

Photo 5 & 6: These types of injuries were common on oak trees from disc impacts. These injuries are sufficient to attract sap beetles, which may be carrying the deadly fungus.

Photo 7: Disc impact injuries were noted on all species of trees. Injuries to trees can attract pests and diseases. Note fungal conk in this photo of a beech tree. Trunk rot and tree failure are likely to follow.

REMEDIATION EFFORTS

There have been attempts to remediate damage from disc impacts on trees. Barriers have been erected to protect trees; sometimes these may be helpful to deflect the discs, but how they are arranged or attached to trees may be harmful. Mulch has been used to hopefully lessen compaction. In all likelihood, some of these remediation efforts will help short term, but the decline of trees and the ecosystem is inevitable with continued disc golf play at these locations (Photo 9).

Photo 8: Nestrom Road Park possesses a beautiful terrain and a fairly diverse population of plants. Unfortunately, heavily trafficked areas from disc golf are destroying the plant life and causing erosion (by stairway).

Photo 9: Forecasts for Nestrom Road Park are similar to this several-year-old Disc Golf Course in Wayne County, Michigan. Note the moonscape, impacts on trees (foreground) and erosion under the basket (goal in background). Several years ago, I was asked to evaluate this site due to the decline and death of mature trees.

FAQ OR FPC (FREQUENTLY ASKED QUESTIONS OR FREQUENTLY PROVIDED COMMENTS)

Following is a series of comments/questions (in bold) provided by interested parties (mainly by disc golfers) in relation to the Nestrom Park DGC/Tree Health Controversy followed by my responses to their comments and questions. These FAQ and FPC are typical of what we might expect from disc golf proponents who are very passionate about their sport.

1) There are not enough oaks in the course to be concerned about Oak Wilt. *Response:* Nestrom Road Park has a significant population of oak trees. Continued wounding of oak trees could eventually initiate epicenters of Oak Wilt throughout the park. In addition, because the roots of oaks may extend 1 ½-2x the height of the tree, there would be potential for Oak Wilt to be transmitted throughout the park by root graft transmission alone.

2) Local loggers are cutting during critical times of Oak Wilt transmission by overland transmission. So, why should we be concerned? *Response:* As Oak Wilt gathers momentum in Michigan, loggers, line clearing operations and other industries are making adjustments and adopting policies to prevent Oak Wilt. Furthermore, just because someone is cutting or pruning oaks 1-2 miles away doesn't automatically imply that the oaks in Nestrom Road Park are doomed; the oaks in the Nestrom Road Park need to be wounded in order for overland spread of Oak Wilt to occur.

3) Why can't you just spray for the Beetles? *Response:* The various species of sap beetles that are known to transmit Oak Wilt exist throughout the woodlands (and nature) and are a vital part of the natural ecosystem. Spraying insecticides for the sap beetles is analogous to treating our entire environment with toxic insecticides, which would have dire consequences for other critters (including other beneficial insects, pollinators, etc.), birds, other wildlife, and humans.

4) Disc damage is not significant enough to attract beetles. *Response:* Disc damage is sufficient to attract sap beetles. This issue was already addressed.

5) You will never be able to blame Oak Wilt on the disc golfers if it spreads to neighboring properties. *Response:* Oak Wilt has specific patterns of disease spread: a) Overland by sap beetles to wounds, and b) Underground through root grafts to nearby trees. While the source of overland transmission is not easily proven, the source of underground transmission is (usually) easily demonstrated. Furthermore, Oak Wilt epicenters in Nestrom Road Park will increase "disease pressure" by overland spread to nearby communities.

6) No course has ever been closed due to Oak Wilt. *Response:* This may be a true statement; or, at least, I do not have knowledge of a course being closed due to Oak Wilt. However, I can attest that there is a growing awareness and concern for Disc Golf damage and the potential for Oak Wilt. With respect to this growing concern I've experienced from the public, it is possible that plans for DGC development have been abandoned or adjusted in some locales.

7) If we do see Oak Wilt, we'll just treat for it then. *Response:* Treatment is certainly an option. However, Oak Wilt is the one of the most costly and destructive diseases I have ever encountered. Root graft disruption (trenching, vibratory plows) to the depth of 5-6 feet is not only expensive (multiple trenches, primary and secondary, are usually installed) but highly disruptive to the natural ecosystem. The other primary option to thwart Oak Wilt is prophylactic trunk injections; these trunk injections can easily cost $200-600 per tree, depending on the size of the tree. Often, if said tree is threatened by Oak Wilt from root graft transmission, the tree will need to be injected at least 3x . . . resulting in the cost of saving that one tree in the $600-1800 range . . . and then, the tree might not be saved.

8) We don't believe Oak Wilt is near this area. *Response:* The MDNR has been documenting where Oak Wilt has been confirmed; a map is available on the MDNR and Oak Wilt Coalition websites. Oak Wilt occurs in many locations not elucidated on the MDNR map. Many individuals (professionals and laypersons) have made serious errors by assuming Oak Wilt is not in their vicinity. In general, in western Michigan, Oak Wilt occurs from the SW corner of the state (Bridgeman, Stevensville) all the way up and through Manistee, Traverse City and Petoskey (and inland). Frankly, we do not know whether/where Oak Wilt occurs in every community, and I would not advise presuming it does not occur near the Nestrom Road Park or in Fruitland Twp. Because of the extensive wounding of trees (removals, pruning and disc injury) over the several months of spring through early summer of 2017, it could be concluded that Oak Wilt is not in the immediate vicinity of Nestrom Road Park. However, Oak Wilt may be nearby next year, and I would not advise a flippant attitude towards this serious, lethal and costly disease.

9) April 15 to July 15 is only time we need to be concerned about Oak Wilt. *Response:* April 15 through July 15 is the period of greatest risk of overland spread of the Oak Wilt fungus by sap beetles to injured trees. Before April 15 and after July 15, the risk of overland spread of Oak Wilt is not "Zero". I have personally witnessed overland transmission (although uncommon) during other times of the year. Underground spread of Oak Wilt is not limited to the April 15-July 15 time period.

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10) No one would be able to prove an Oak Wilt-infected tree was due to disc damage. *Response:* The answer to this statement is one of evidence. If no Oak Wilt-infected oak trees exist within root graft range of the infected tree, then, infection had to have occurred from overland transmission. Assuming overland transmission, what injuries are present on the tree? If there have been injuries from pruning and disc damage or from storms and disc damage, then it would be impossible to discern whether the infection occurred from disc damage or another other type of injury . . . unless we know the timing of the particular injury. If, however, there is no damage on the diseased tree other than disc damage, then it is highly likely that the disc damage attracted sap beetles that carried the lethal Oak Wilt fungus.

As we can surmise from these FAQ and FPC, many disc golfers are so passionate about their sport that they will proffer a variety of rationale to condone their activity without concern for the trees and woodlands in which they love to partake in their recreation. One disc golfer even suggested that we'll have to kill all woodpeckers because these birds can injure oaks and promote Oak Wilt!

CONCLUSION:

In the case of the Nestrom Road Park (Photo 10), I suggested that the coexistence of a "Nature Preserve" with a Disc Golf Course seems incongruent. "DO NOT PICK ANY PLANTS OR FLOWERS…", but it's OK to trample them to death if playing disc golf(?). "PLEASE STAY ON TRAILS . . . , unless you're playing disc golf(?). I suggested that a decision be made as to whether a Nature Preserve or a DGC is the primary focus of Nestrom Road Park, which is what many other citizens around Michigan need to consider about their local woodland park, natural area or forest preserve. L

Photo 10: Nestrom Road Park possesses a beautiful terrain and a fairly diverse population of plants. Unfortunately, heavily trafficked areas from disc golf are destroying the plant life and causing erosion (by stairway).

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