Abstract. Vandalism is not a modern phenomenon; it is probably as old as man. Ignoring it, and ignorance of it, won't diminish its effect. Only by studying and working with solutions can we lessen vandalism. Seattle is confronting the problem of tree vandalism three ways: 1) Immediate physical countermeasures to lower vandalism, 2) a managerial approach to the street tree program that recognizes the reality and extent of vandalism and that seeks to develop maximum local public support for the plantings by being sensitive to neighborhood situations and by exercising a tight "lean" management stewardship of the program, and 3) taking the long view, to reinforce a sense of ownership and awareness in the citizenry, that its territorial pride in its trees will eventually be a dramatic deterrent to vandalism.

Sometimes we like to think we invented vandalism. We treat it as a condition peculiar to our time, another evil brought by fast living, another lack of respect for property, another erosion of our institutions, probably brought on by television, or permissive parents, or the atomic tests or something. And we retire into the shade with a cool drink and think about the good old days when people didn't do these things. This is nostalgic falsehood. I can remember some broken trees from my own boyhood, along with overturned outhouses. Oh, we excuse those things in retrospect; we call it "raising hell," chalk it up to boyhood exuberance, and anyway, that was US and we're talking about THEM. The ancient Greek and Egyptian philosophers complained of the vandalism of their youth. And the United States may be the only country in the world where school children hear that the father of their country vandalized a tree when he was a boy. Vandalism is All-American. Vandalism is as ancient, and as human, as aggression.

When I talk to municipal street tree people, I've found another common misconception: DON'T TALK ABOUT IT AND IT WILL GO AWAY. It's just a fact of life; we can't do anything about it. Crime doesn't go away if we don't talk about it. Neither does cancer. Granted that there are ways and ways of talking about it, and that the wrong kind of news story may incite even further vandalism. However, the right kind of discussion and study can help. In my state, the Washington Roadside Council and the University of Washington have begun an in-depth series of vandalism workshops, with tremendous response. The first session, planned for 100 people, drew over 250 students, people from all types of governmental units, sociologists, landscape architects, and concerned citizens. Confronting the problem offers a major avenue of reducing it. It isn't simply a fact of life to accept without challenge when the arborist views a newly-vandalized planting. Granted that the frustration and outrage are there: the "I can't-do-anything" conclusion is wrong. In Seattle we became concerned that too much of our street tree maintenance budget was going down a vandalism rathole, and we determined to change that. In the first two years we've reduced our vandalism rate from a 5% tree loss yearly down to less than half that. We're taking action on three fronts.

Physical changes

First, and giving immediate savings, were some physical changes. We abandoned the time-honored staking method of twin stakes flanking the tree, usually with a crossbar between, and with the trees tied to the stakes. This is the classic textbook way to stake a tree. However, it has a major disadvantage, because the crossbar, or else the point of the rigid pair of ties between two stout stakes, becomes the fulcrum point at which the tree is readily snapped by vandals. When we abandoned this traditional staking pattern, our tree breakage in some areas dropped from over 10% to less than 1%. We have moved to a single steel reinforcing bar, like that used in concrete work, tied close to the tree with three ties. The wire ties are inside of hose and are looped into a figure-8 conformation to cushion the tree from the steel. The top tie is at least five feet high. It is much harder to exert strength enough to break a tree at that height. We plant

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relatively large street trees and leave the stakes on only one season, and the stakes have given no inhibition of trunk development.

Steel bars have advantages over wood stakes. They are reusable almost indefinitely and they can't be snapped off. One tree so staked had two cars drive completely over it, three weeks apart and from different directions. The steel stake took much of the impact, acted as a reinforcing splint, and the tree actually popped back up into place each time in pretty good condition! The stake diameter is small and is easily installed in the ground after the tree is in, with minimal root damage. The ribbing on the steel reinforcing bar grips the ground well enough to hold our trees against 50-mile winds in Northwest winter rainstorms.

If we realize that a particular tree location is vandal-prone we may opt for a larger-caliber tree than standard. And we have on occasion borrowed a San Francisco tree protection method, where the young tree is surrounded by a long tube of heavy wire mesh called hardware cloth. This mesh is formed into the stovepipe-like tube that is stapled to flanking tree stakes, extending as a four-foot collar that begins about 18 inches above the ground. This has worked well at a few particularly tough locations near taverns. Drunks are lazy vandals, and the one that has to fight his way through this sort of cage usually goes away.

Managerial approaches

Our second approach is at the managerial level. We can define and predict certain vandalism patterns. In your city the patterns may not be identical, but you can discover some. We find no link in our city between vandalism and economic status or racial makeup of the neighborhood. This was a surprise and upset some of our preconceptions; some of our strongly "law and order" neighborhoods have our highest vandalism. But we have patterns. Most vandalized Seattle street trees are broken by males aged 17 to 25, mostly in connection with drunkenness or drug trips, and our major vandalism time is right after taverns close at 2:00 a.m., and for the next three hours. Trees near taverns live on the edge of danger.

Also, trees in plantings with no homes nearby, warehouse areas and the like, where witnesses probably aren't watching behind nearby windows at night. Our designers, recognizing such problem areas, may plan accordingly. Sometimes, if funds are limited, we may choose to bypass such places; other times we may choose larger sized trees, protective devices, and the like. We may even choose a different species, for instance, linden trees snap more easily than do ash trees, and we may save our linden trees for safer areas.

A critical managerial approach is to be highly sensitive to the wishes of the neighborhood. If we force a tree planting into a neighborhood that has higher priorities for other improvements, and that tells us it doesn't want trees, we may have doomed the planting. Similarly, stringing a streetful of trees across a hillside and thereby blocking residential views of our beautiful lakes and mountains for many homeowners often results later in vigilante-type reprisals against the trees, though some neighborhoods have welcomed such trees and like them. But Seattle plantings are increasingly reflections of neighborhood sentiment, and we are learning to listen to more than just the echoes of our own announcements.

Sometimes we forget, those of us who are managers, just who we are. We are not ordained by God. We get into a we/them syndrome, like in our childhood memories. We are the good guys; we make lovely plans for a beautiful world, and we plant trees. They are bad guys who go around destroying. This is fuzzy thinking; actually Pogo summed it up when he declared: "We have met the enemy and he is US." Follow a police car sometime, and see if a cigarette butt doesn't get tossed out the window after a while. See who puts their garbage in the car and dumps it somewhere illegally. Too often, it's us. And when as managers we assume the WE/THEM role in looking at vandalism, we're already in trouble, because we start thinking like pompous asses rather than real-life people.

Nor can we any longer tolerate the luxury of mediocre performance, whether it is mediocre planning and design, mediocre installation, or mediocre maintenance. How often have you
heard the term, “Well, it’s just federal money”...? Some of our grams got fat and sloppy on federal money. City budgets are leaner now, and our stewardship has to be lean and careful.

**The long term approach**

I’ve still not mentioned the major way that we can reduce vandalism, and there is not room in this discussion for much detail. Call it education or awareness (I like the terms involvement and pride of ownership). It is to make the community seize the planting from the beginning with pride as its own, not as something some Great White Planner in City Hall decreed. When the community sees its trees as its own property, it will take care of most of the vandalism problems. To bring this about takes many years, like the growing of a good tree. How can I illustrate it? A Seattle artist gave me an example. He was commissioned to do a mural in a teen-age detention center, a place they put kids in trouble. He found the place depressing; all the walls where the mural was to go were marked up by kids dragging their pencils along the surface. He got together with the kids, told them they were going to paint a mural on a wall, and he’d help them. He showed them the design, together they painted the mural. Afterwards, he said the kids still dragged pencils along those walls, but when they came to the mural, they stopped marking until they got beyond the painting. *It was their mural.*

He told me something else interesting because he had worked at a neighborhood sculpture with kids, doing a sculpture in wood. He said wood is the least vandalized of the materials he’s worked with. People respect wood; it has life. He told me concrete was the most hated material. He said people will attack concrete with rocks, clubs, with steel bars. It represents something they don’t like; something grim, unyielding, non-living. This artist’s name is Drex. Drex told me something that made a deep impression. He said, “You’re lucky trees are made of wood. If they were made of steel, people would just beat the bejeezus out of them.”

That’s one thing we can develop, people’s natural love of trees. And we can over the long run develop involvement and pride of ownership. Philadelphia has one such citizen-involvement program called *Garden Blocks.* Seattle calls another *Green Triangles.* And we have one more bit of magic working for us, people’s awe at planting and owning a share of life that will reach far beyond our own into the future. I have great confidence in that magic.

*City Arborist*

*City of Seattle*

*Seattle, Washington*

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**ABSTRACT**


Light—whether natural sunlight pouring through a reception area window, or artificial light from banks of fluorescent ceiling fixtures—triggers an important series of plant reactions. Photosynthesis is the best known, most extensively researched of the photo-responses. Three factors affect a plant’s ability to use light: the quality of the light itself, its duration, and intensity. An accurate measurement of a plant’s appropriateness in a given light level is achieved by measuring the intensity of light in footcandles and selecting plants which perform well in the range of light available. Increasingly, books and catalogs are categorizing plants according to their footcandle light requirement.