



How to Evaluate a Tree

Authored by: Megan Tierney, Agricultural and Natural Resources/Horticulture Extension Agent, York/Poquoson, Virginia Cooperative Extension; Meghan Mulroy-Goldman, Community Forestry Specialist, Blackwater Work Area, Virginia Department of Forestry; Andrea Davis, Agricultural and Natural Resources/Horticulture Extension Agent, Virginia Beach, Virginia Cooperative Extension

Tools you may need: gloves, hand shears, clipboard, soil probe, trowel, shovel, camera or phone with a camera

Client Name, Address, Phone Number and Email: _____

Evaluator Name and Date: _____

Description of the Problem: _____

In the urban landscape, most tree deaths are caused by physical, or abiotic, factors, meaning they are not caused by a biological issue, such as a living insect or disease organism, but rather soil, root, nutrient, or chemical issues. Homeowner tree care is an important factor in many cases. Abiotic factors include human activities such as incorrect pruning, cutting the tree roots, nailing items to the tree, wrapping things around the tree trunk (girdling), misuse of pesticides, and over-application of fertilizers. Over half of tree deaths attributed to abiotic factors are caused by problems in the tree root zone.

This publication is designed to help tree owners and Virginia Cooperative Extension Master Gardener volunteers evaluate tree health. Collecting information and identifying potential tree health issues will lead to more informed tree care decisions. Evaluation information can be used in many ways, including helping the tree owner guide their direct actions, supporting discussions with landscape contractors, identifying situations where a Certified Arborist is needed, or supporting municipal arborists, foresters, or Master Gardener volunteers in making tree care recommendations.

Steps to Begin Identifying/Evaluating Tree Issues

Record your notes regarding each item below.

1. Tree Identification:

Genus/Species _____

Age/Diameter 4 feet above ground _____

Common Diseases _____

2. Observations: Walk around the tree completely. Examine each part of the tree for abnormalities. Check the boxes that apply to your evaluation.

- Tree Canopy (Leaves):

- Yellowing leaves out of season – circle below:

- Veinal (yellow veins)
- Interveinal (yellow between veins)
- Marginal (edges of the leaf yellow)
- Entire leaf

- Leaves stunted or wilted

- Leaf necrosis (death) in the margins of the leaves

- Leaf necrosis just in the veins

- Leaf necrosis spots

- Necrosis of entire leaf

- Insects or disease on leaves

- Black sticky substance on leaves

- Gray/white fuzzy substance on top or bottom of leaves

- Tree Canopy (Branches):

- Percentage of dead limbs: _____

- Dead branches in the top or on the sides of the tree (if only in one area, circle which):
Left Right Top

- Little to no active growth at the ends of the branches, especially the top half

- Small holes in branches (circle below)

- individual
- horizontal line

- Cavities (large holes) in branches
 - Cracks in branches
 - Swollen areas in branches
 - Cankers (discolored, sunken dead areas) in branches
 - Stubs (dead branch pieces sticking out)
 - Unhealed pruning cuts or flush cuts into the healing collar
 - Insects on branches
 - Galls (deformed growths, think tumor-like) on branches
 - Water sprouts (small branches that form close to the trunk and go straight up)
 - Tree has been topped
- Tree Canopy (Flowers):
 - Flowers brown or black
 - Flowers absent
 - Flowers stunted or deformed
- Tree Canopy (Fruits or Nuts):
 - Fruit or nuts absent
 - Fruit or nuts deformed
 - Fruit or nuts rotten
 - Fruit or nuts have holes or spots
 - Other _____
- Trunk:
 - Multiple/Many Trunks (how many?) _____
 - Cavities (large holes)
 - Small holes – circle below:
 - individual
 - horizontal line
 - Defoliating, stripped or peeling bark
 - Discolored areas
 - Dusty, spore-type stuff on discolored areas
 - Mushrooms on or at the base of the tree
 - Conks or fungal growths on the trunk
 - Ooze or foam

- Does it smell? Yes / No
 - Pitch tubes (soft toothpick-shaped material exuding from the trunk)
 - Frass (insect feces, looks like sawdust) at the base of the tree
 - Vertical cracks or scars – circle below:
 - One
 - Multiple
 - Is there any damage in the crown, trunk, or root zone which seems to line up with the crack or scar? Yes / No
 - The tree trunk has a natural flare at the soil level
 - The tree trunk looks more like a telephone pole (straight up and down into the soil)
 - Mechanical injury: girdling or wounds to the trunk at the base, like string trimmer damage
 - Mulch is piled too high on the trunk of the tree (like a volcano)
 - Carving or graffiti
 - Suckers (sprouts growing at or near the base of the trunk)
 - Graft union incompatibility
 - Items nailed or tied to the tree
 - Girdling wrap, trunk protection devices, staking materials, or sales tags
 - Other _____
- Root zone (extends from the trunk outward 2-3 times as far as the height of the tree):
 - Roots visibly wrapping around the base of the trunk
 - Roots running/exposed on top of the ground
 - What covers the root zone: turf, mulch, bare soil, impervious surface (concrete, asphalt, pavers) _____
 - Construction in the root zone (from trunk to the canopy edge/dripline)
 - Compacted soil (hard to stick a soil probe or screwdriver in the ground)
 - If so, what caused it? _____
 - Wet soil or standing water
 - High clay content in soil
 - High sand content in soil
 - Plastic weed barrier
 - Root ball twine, burlap or wire basket left on
 - Other _____

3. Surrounding Environment:

- Do nearby plants look healthy and vigorous? _____
- Is the tree planted in full sun, part sun or shade? _____
- Is the tree planted too close to a building or other structure like a road or sidewalk? _____
- Has there been a particularly wet season or drought the current year or year prior? _____
- Other _____

4. Chemicals:

Have chemicals been used by the homeowner, a company, or a neighbor on the tree, on the ground, or in the root zone?

- Chemical type (fertilizer, weedkiller, insecticide, fungicide):

- Active ingredient(s):

- Concentration used:

- Application Date/Rate:

- When was the tree damage first noticed in relation to the chemical application:

5. Taking pictures and samples:

Take clear, in-focus JPG photos and email them to the VCE office with this completed form. Take pictures of:

- Overview of the entire tree showing the tree and the tree in relation to its surroundings
- Close-up pictures of any signs, symptoms, factors, issues, or conditions observed
- Samples of insects, diseases, weeds, leaves, soil, etc. that would be useful in diagnosing the problem

Additionally, a physical sample can be taken of a leaf disease or an insect (no bark pieces).

Use the collected information to help diagnose the problem. Start with tree identification. Research what a normal tree of that species looks like. What are the common insect and disease pests for the species, and what do their signs and symptoms look like? Even if you don't identify the problem, you've eliminated many things and narrowed down the possibilities. This information can also be taken to your local Cooperative Extension office. It is always an option to contact an arborist certified by the International Society of Arboriculture for an expert opinion. VCE publication ANR-131NP, "Hiring an Arborist to Care for Your Landscape Trees," has guidelines.

Note for Virginia Cooperative Extension Master Gardeners

- As part of diagnosing abiotic or nonliving disorders (a nutrient or soil issue, for example), take the information in questions 2-4 above and compare to the charts on pages 30-39 of “Abiotic Disorders of Landscape Plants: A Diagnostic Guide” to help identify disorders by symptoms. Match observed symptoms (i.e., deformed growth, chlorosis/yellowing of leaves, wilting, etc.) to the chart and follow the instructions.
 - As Extension Master Gardeners, we are not only looking for signs and symptoms of abiotic issues, insects, and disease to pinpoint tree care decisions, we are also sharing tips for minor pruning and tree care with residents. Major pruning, risk assessment, tree health intervention and removal recommendations need to go to an ISA Certified Arborist (Browder 2021).
 - Our mission is education and to help the homeowner with resources to make informed decisions on their own. It is not our place to make final decisions on whether a tree is a risk; that is ultimately the homeowner’s decision. Our goal is to examine their trees and teach them some basics of tree biology and structure, which will help them understand the implications of the concerns we point out to them. By communicating scientific observations and providing unbiased, research-based explanations, we are helping them to become an informed consumer and a more knowledgeable tree owner (Browder 2021).
 - In summary, our role as VCE-Master Gardeners in tree risk assessment is to observe, educate, and provide a frame of reference as to whether the tree may or may not be a concern that warrants immediate professional evaluation by an ISA Certified Arborist (Browder 2021).
-

References

Browder, R. “Tree Steward Manual”. Unpublished manuscript, last modified 2021. Virginia Cooperative Extension. Microsoft Word file.

Resources

- Askew, S., S.B. Wycoff, J.C. Bergh, E. Bush, E. Day, T. Dellinger, J. Derr, et al. 2021. “Pest Management Guide: Home Grounds and Animals,” ENTO-397P. Virginia Cooperative Extension. <https://resources.ext.vt.edu/contentdetail?contentid=2377&contentname=2021%20Pest%20Management%20Guide%20-%20Home%20Grounds%20and%20Animals>
- Costello, L., E. Perry, N. Matheny, J.M. Henry, and P. Geisel. 2014. “Abiotic Disorders of Landscape Plants: A Diagnostic Guide,” Publication 3420. University of California Agriculture and Natural Resources, Richmond, CA.
- Koci, J. and E. Wiseman. 2020. “Hiring an Arborist to Care for Your Landscape Trees,” ANR-131NP. Virginia Cooperative Extension. <https://resources.ext.vt.edu/contentdetail?contentid=975&contentname=Hiring%20an%20Arborist%20to%20Care%20for%20Your%20Landscape%20Trees,%20ANR-131NP>
- Sheffield, M.C., E. Bauske, W. Hutcheson, and B. Pennisi. 2016. “Is My Tree Dying?” University of Georgia Circular 1100. <https://extension.uga.edu/publications/detail.html?number=C1100>.
- Virginia Department of Forestry, Virginia Cooperative Extension, and the Mid-Atlantic Chapter of the International Society of Arboriculture. 2019. “How to Kill a Tree.” https://www.dof.virginia.gov/infopubs/How-to-Kill-a-Tree-poster-2019_pub.jpg
- Virginia Tech Disease Lab. 2020. “Guidance for Submitting a Good Digital Submission.” https://spes.vt.edu/content/dam/spes_vt_edu/documents/plant-disease-clinic/submitting-samples/Guidance%20for%20Submitting%20a%20Good%20Digital%20Submission%20to%20the%20Plant%20Disease%20Clinic_woutPCLINIC-07-21-20.pdf

Whiting, D., R. Cox, and C. O'Meara. 2007. "Diagnosing Tree Disorders," GardenNotes #112. Colorado State University Cooperative Extension. <https://static.colostate.edu/client-files/csfs/pdfs/112.pdf>.

The authors would like to express their appreciation for the reviews and comments provided by the following individuals: Virginia Cooperative Extension Agents Gaylynn Callahan, Hampton County Office; Cyndi Wyskiewicz, City of Portsmouth Office; Mike Andruczyk, City of Chesapeake Office; Chris Epes, City of Norfolk Office; and also Laurie Fox, Extension Specialist, Virginia Tech Hampton Roads Agricultural Research and Extension Center; Carol King, Virginia Cooperative Extension Master Gardener Tree Steward, Hampton County Office; Joel Koci, Extension Specialist, Natural Resources Management, Virginia State University; Lara Johnston, Urban and Community Forestry Program Manager, Virginia Department of Forestry; Tony Sousa, Virginia Cooperative Extension Master Gardener Tree Steward, York County/City of Poquoson Office; Laura Marlow, Virginia Cooperative Extension Master Gardener Tree Steward, York County/City of Poquoson; Dave Close, Consumer Horticulture and Master Gardener Specialist, Virginia Tech.

Visit our website: www.ext.vt.edu

Produced by Virginia Cooperative Extension, Virginia Tech, 2021

Virginia Cooperative Extension programs and employment are open to all, regardless of age, color, disability, gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, genetic information, veteran status, or any other basis protected by law. An equal opportunity/affirmative action employer. Issued in furtherance of Cooperative Extension work, Virginia Polytechnic Institute and State University, Virginia State University, and the U.S. Department of Agriculture cooperating. Edwin J. Jones, Director, Virginia Cooperative Extension, Virginia Tech, Blacksburg; M. Ray McKinnie, Administrator, 1890 Extension Program, Virginia State University, Petersburg.

VT/0521/SPES-313P