Tree Assessment & Risk Management
Trees are tops

10 Reasons to Be Thankful for Trees

Trees Shade and Cool
Trees Reduce Stress
Trees Improve the Soil
Trees Reduce Violence
Trees Enhance the View
Trees Bring People Together
Trees Clean the Air
Trees Increase Property Value
Trees Reduce Noise Pollution
Trees Support Wildlife

Trees never stop giving. Don't underestimate the value of trees and plants in your yard. Provide proper tree care and landscape maintenance this season and beyond, and you'll reap the benefits for several seasons to come.
Trees
Fail
Learning Objectives

• What is tree risk assessment?

• How does decay contribute to tree failure?

• How can tree risk be mitigated?

• What is my responsibility and duty as an arborist when assessing tree condition and providing management options?
Outline

• Definitions
• Risk assessment
• Tree Inspection
• Decay
• Mitigation
• The arborist’s responsibility
Definitions

• Risk... is the combination of the likelihood of an event and the severity of the potential consequences.

For trees, risk is the likelihood of a tree or tree part failing and affecting a target, and the severity of the consequences of that failure.
Definitions

• Risk Assessment... is the systematic process to identify, analyze, and evaluate tree risk.
• Risk evaluation... comparing assessed risk against given risk criteria.
Risk Assessment Basics

Tree

Site

Target
Site

Soil condition
Weather
Abrupt changes
• Construction
• Grade changes
• Trenching
• Removal of adjacent trees
• Sidewalk replacements
• Drainage
Target

- Is there a target?
- Frequency of use?
- Potential for injury to people and property?

No target – no risk.
Basswood, Cavalier North Dakota, High winds, July 2014
All trees have the potential to fail
Tree Inspection

- Identify characteristics associated with tree failure.
- Understand tree structure and physiology...which defects are minor and which lead to failure.
- Tree health ≠ structure!
- Your tree inspection process must be **systematic** and **consistent**.
Visual Tree Assessment

• Look for dieback, gaps, or discoloration in the crown.
• Take note of any lean.
• Look for branches that extend beyond the rest of the crown.
• Examine trunk taper.
• Inspect the trunk, the root collar, and the root zone.
Lean
Taper and Trunk Flare (root collar)
Trunk

- Wounds
- Cracks
- Decay
- Loose bark
- Codominant stems
  - Branches should be smaller than main trunk – ½ diameter or smaller
  - Included bark is a severe defect
Tree Decay

White rot
Decays lignin

Brown rot
Decays cellulose

Soft rot
Looks like brown rot because it starts to work on the cellulose.
A Rot by any other name...Tree decays are named for the part they affect

- Branch rot
- Trunk rot
- Basal rot
- Root rot
- Heartwood rot
- Sapwood rot
Indicators of Decay

- Fruiting bodies
Indicators of Decay

- Open cavities
- Visible decayed wound
Potential Indicators of Decay

- Cracks, seams, bulges
- Wounds from old pruning cuts, especially topping
Insect indicators of decay

- Carpenter ants
- Honeybees
Further investigation

Root collar excavation

Sounding

Resistograph
Risk Assessment

• Identify risk levels and recommend action.
• Goal is to balance risk levels against other factors – time and money.
• Process:
  • Inspect trees
  • Identify what can be done to reduce risk
  • Take action to do so
Visual Tree Assessment

- This is the minimum standard
  - 360 degree inspection on the ground
    - Tree
    - Site
    - Typical weather conditions
- May recommend further inspection
  - Decay testing, root collar excavation, aerial inspection
- Systematic!
- Documented!
Mitigation

• The process of reducing failure potential
  • Prune
  • Support systems
  • Remove target
  • No cavity filling
  • Moisture, aeration, mulch
  • Removal
Mitigation

• Remove the risk by removing the tree.
• Reduce the risk by treating the tree.
• Reduce the risk by treating the site.

Arborist does risk assessment.
Owner is responsible for treatment.
This 12-inch DBH bur oak provides shade for a little kid playground that did not get captured in the image.

What indicators of decay do you see?
I made an immediate mitigation recommendation to the Park Board.

What mitigation do you recommend?

Interestingly, the Park Board President, an attorney, said that until I identified the risk associated with this tree, they had no liability.
https://www.youtube.com/watch?v=EGMcso_2fK8
Liability & Negligence

• Arborists are experts in the care of trees, and are held to a higher standard for inspecting and recognizing hazards and assessing risk in trees.

• Document any potential hazards and risk levels that are discovered, and inform your client.

• Arborists have a **duty of care** to clients and employees and must exercise due diligence in inspecting and caring for trees under their care.
Liability and Negligence

- Liability is legal responsibility.
- Negligence is the failure to exercise due care.

- Negligence occurs when the arborist has the obligation or responsibility with regard to the tree (duty), fails to act reasonably in providing the service (breach of duty), and injury or damage occurs (harm) because of the arborist’s action(s) or lack of action (causality).
Liability & Negligence

• Breach of duty is the failure to act reasonably under the circumstances.

• The **Standard of Care** is defined as the degree of care that a reasonably prudent person should exercise in the same or similar circumstances.

• To act reasonably, the arborist should understand and employ current knowledge about tree structural stability and risk assessment, be thorough when evaluating trees, communicate findings and recommendations to clients, and record observations and recommendations.
American elm

Concerns?

Mitigation?