



# Welcome to the Ramsey Tree Survey Training!

...

# Agenda

## Day 1, Indoor Session

- Introductions/Icebreaker
- Conducting a Survey: Guidelines, Policies, and Practices
- Tree Identification
- Break
- Intro to Age-class and Condition Rating
- Data Collection How-To

## Day 2, Outdoor Session

- Age-Class
- Tree Condition Rating
- Lunch
- Practice
- Practice
- Practice



# Volunteer Tree Survey Training



Day 1

# Why Survey Trees?

**By participating in this survey you are helping your community better manage and care for your urban forest!**



# Conducting a Survey: Guidelines, Policies, and Procedures



# Volunteer Tree Survey Training

- What kind of training is given?
- Who can Volunteer?
- What does volunteering look like?

# Public Vs. Private

- **Public Trees**
  - Located up to 16' from the street/curb
- **Private Trees**
  - Trees on a privately owned property
- **Street/Boulevard Tree**
  - A tree planted in the public right of way



# Safety

- Stay with your group
- Stay aware of your surroundings
- Check the weather
- Wear proper attire
- Carry important contact info
- Dealing with unfriendlies



# Tools

A person wearing a grey long-sleeved shirt, a backpack, and sunglasses is looking through binoculars in a forest. The background is filled with dense, thin tree branches and green foliage. The image has a dark, semi-transparent overlay.

- DBH tape
- 50' cloth measuring tape
- Data collection sheets
- Block sheets
- Clipboard
- Pens/Pencils
- Inventory Manual/Materials
- Volunteer identification
- Informational handouts
- City contact information
- Water
- Cell phone
- Comfortable shoes and weather appropriate clothing



# Tree Survey Breakdown

1. **Stratification**
2. **Pre-sample**
  - a. Accomplished beforehand by U of M students
3. **Sample**
  - a. Taken by the wonderful volunteers!
4. **Data analysis**

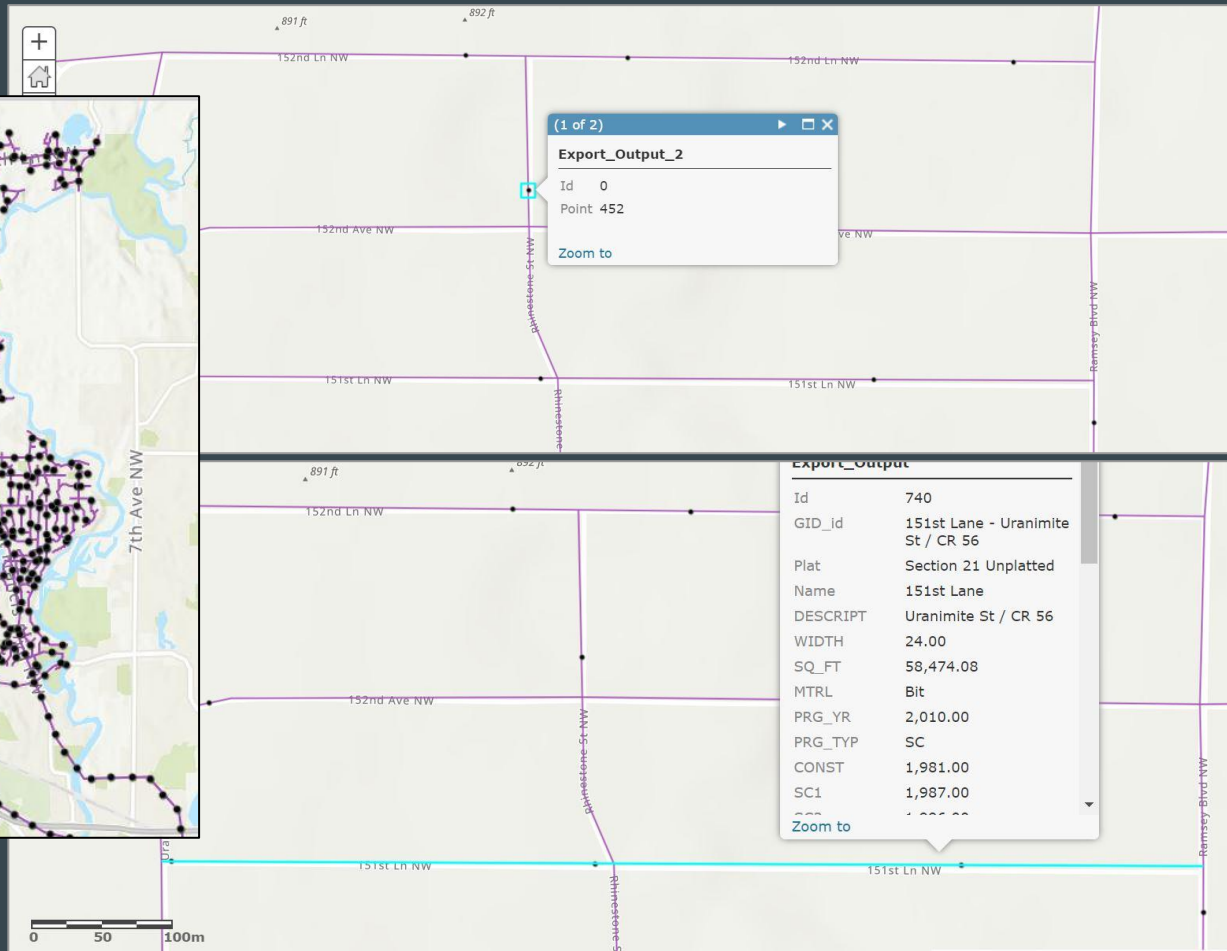
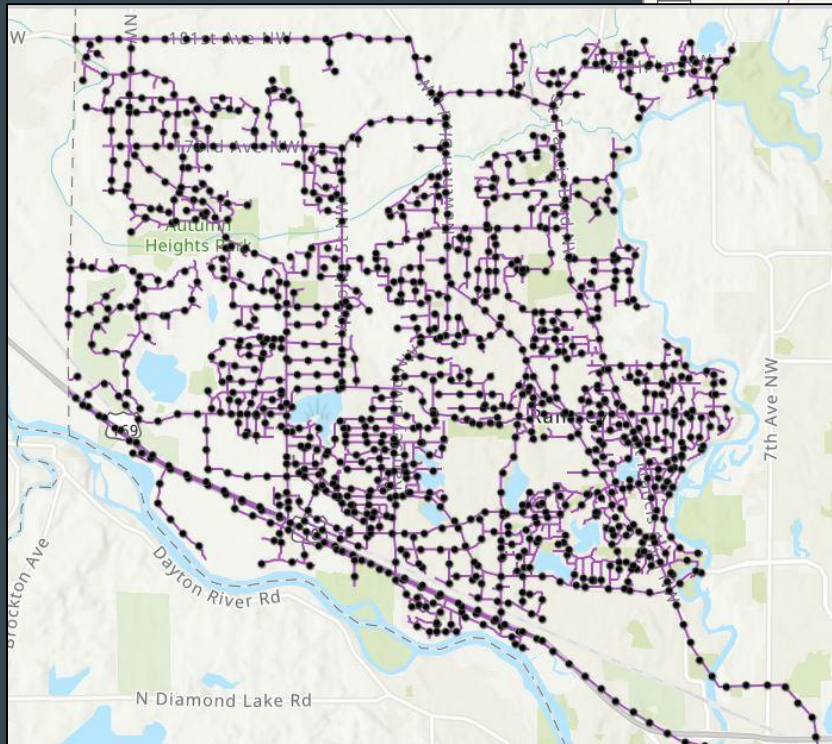


# What information will you collect?

1. **Tree genus (some species)**
2. **Tree size/Age-class**
  - a. Diameter of trunk
  - b. Canopy spread
3. **Tree condition**
  - a. Assess multiple variables to determine canopy and stem conditions
  - b. Measuring DBH

# Conducting the Survey

- Surveying Segments
  - Start in the most south-western corner of the segment
  - Put an X on the segment map at your first tree and write the associated number (1) under the Trees # column
  - Work in a counterclockwise direction, giving each tree an associated number (e.g 1, 2, 3, etc.)
  - Be sure to indicate the placement of the tree on the segment map with a dot and the name label (P1, P2, etc.).
  - Continuing surveying the trees in the segment, recording the information on your survey form
- Numbers in a segment do not repeat.
- Contact Chris Anderson with any questions!



(1 of 2)

**Export\_Output\_2**

Id 0

Point 452

Zoom to

**Export\_Output**

Id	740
GID_id	151st Lane - Uranimite St / CR 56
Plat	Section 21 Unplatted
Name	151st Lane
DESCRIPT	Uranimite St / CR 56
WIDTH	24.00
SQ_FT	58,474.08
MTRL	Bit
PRG_YR	2,010.00
PRG_TYP	SC
CONST	1,981.00
SC1	1,987.00
Zoom to	...



# Tree Identification



# Types of Trees

## Conifer



- Needles
- Cones
- “It’s a pine tree!”

Image: [www.mycutegraphics.com/graphics/tree/pine-tree.html](http://www.mycutegraphics.com/graphics/tree/pine-tree.html)

## Deciduous



- Broadleaf
- Flowers/fruit
- “It’s a maple!”

Image: [www.clker.com/clipart-green-tree-21.html](http://www.clker.com/clipart-green-tree-21.html)

# Deciduous Leaf Characteristics

P. 20 MN Trees packet

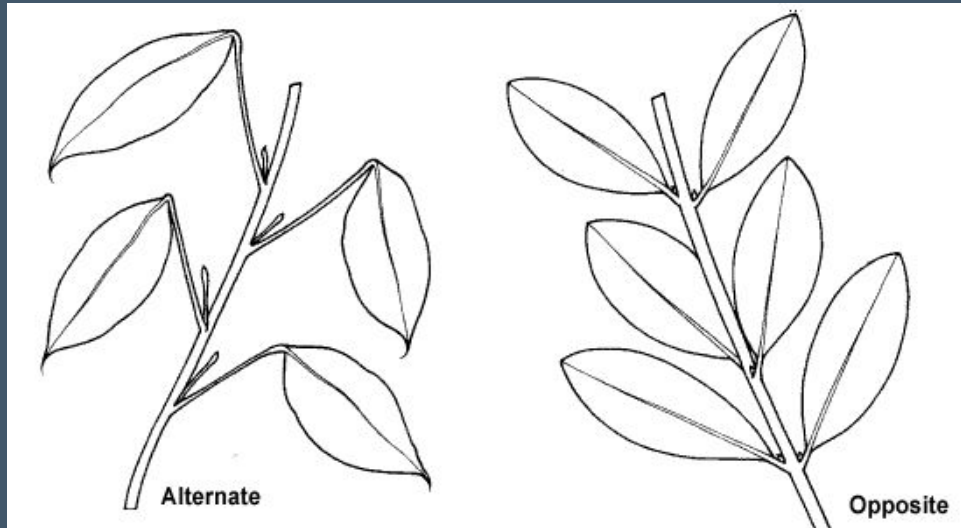


Image: [www.biologycorner.com/worksheets/tree\\_id.html](http://www.biologycorner.com/worksheets/tree_id.html)

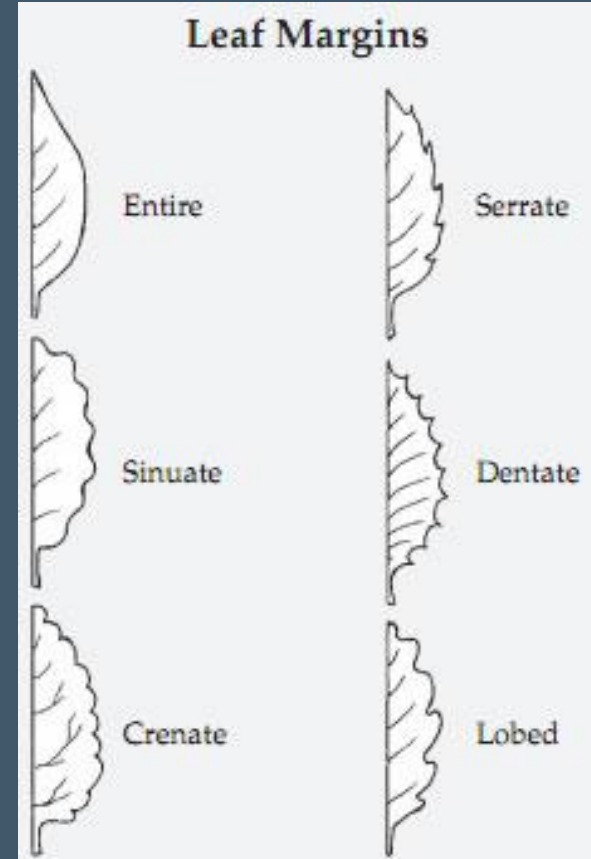
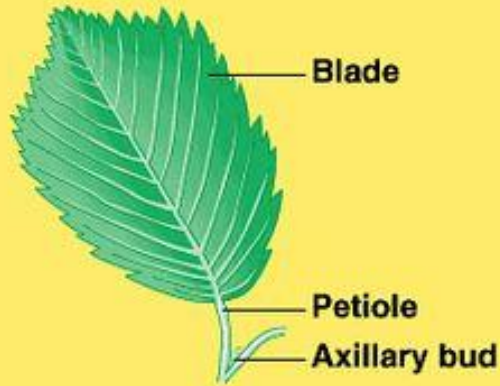
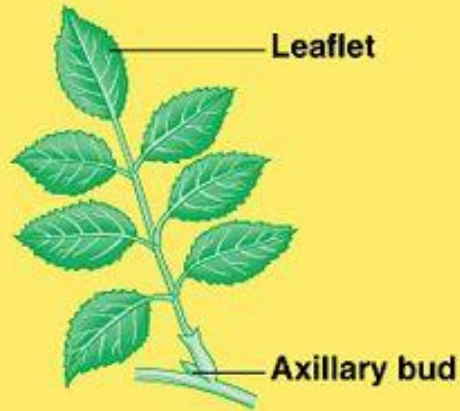


Image: [lifeofplant.blogspot.com/2011/03/leaf-margins-tips-and-bases.html](http://lifeofplant.blogspot.com/2011/03/leaf-margins-tips-and-bases.html)

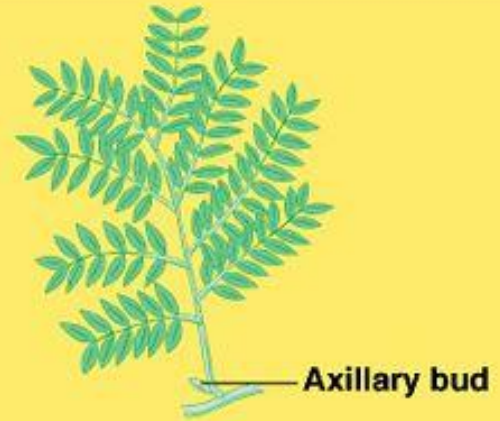
# Deciduous Leaf Characteristics



**Simple leaf**



**Compound leaf**



**Doubly compound leaf**

# Deciduous Twig Characteristics

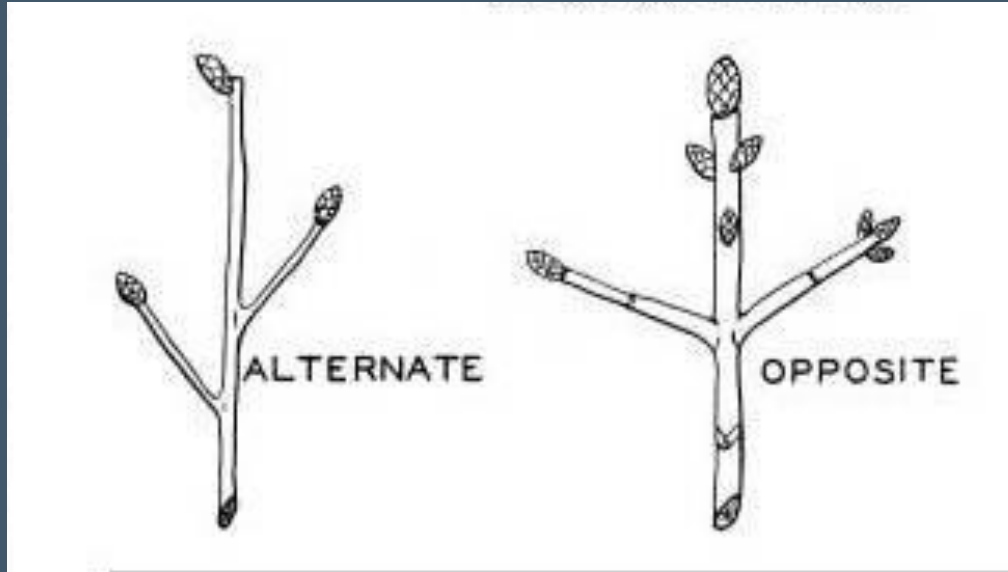


Image: [hort.bh.cornell.edu/tree/plate2.jpg](http://hort.bh.cornell.edu/tree/plate2.jpg)

## Opposite:

M.A.D.  
Cap.  
Hippo.

## Alternate:

Everything else!

## DNR Top Ten Tree Genera in Ramsey, MN

# Genera to Know

*Acer* (maple)

*Betula* (birch)

*Fraxinus* (ash)

*Malus* (apple)

*Picea* (spruce)

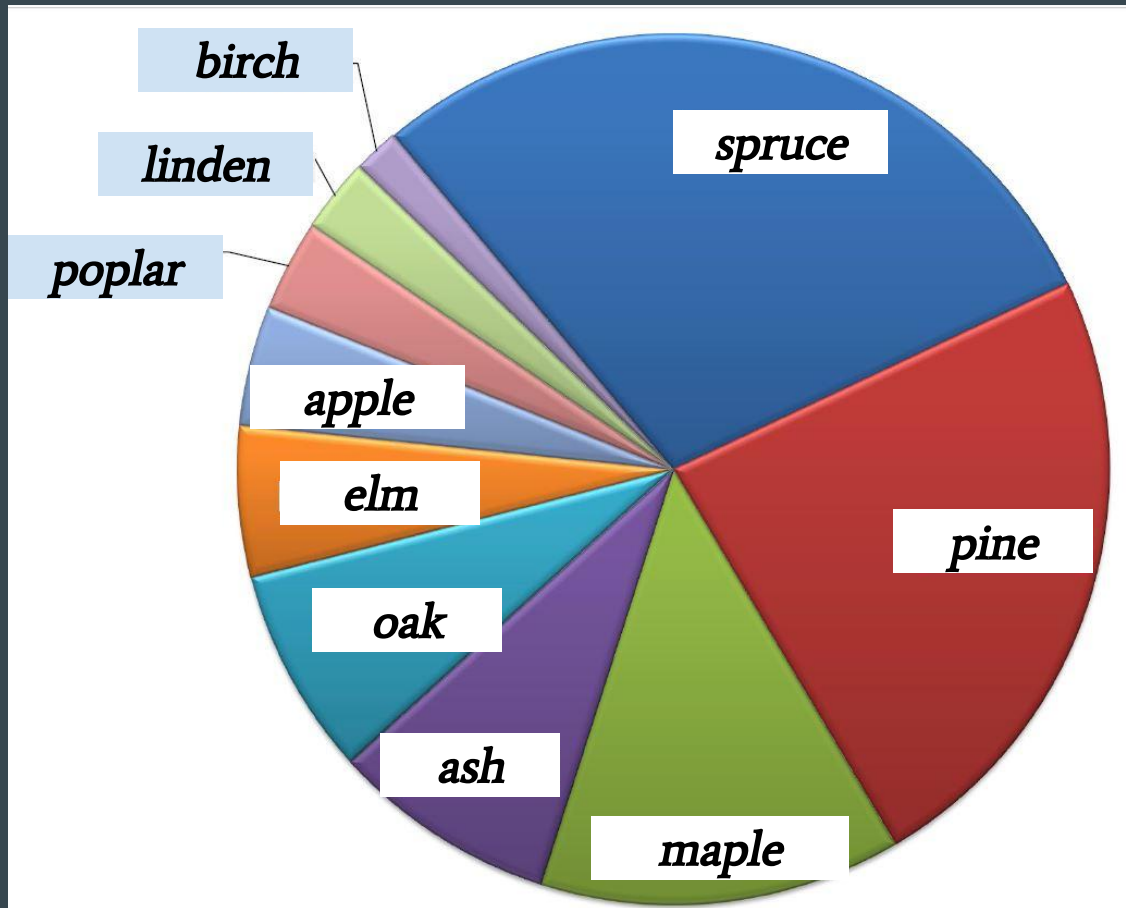
*Pinus* (pine)

*Populus* (poplar)

*Quercus* (oak)

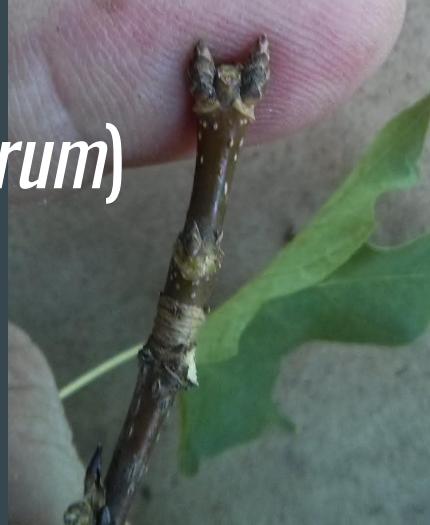
*Tilia* (linden)

*Ulmus* (elm)



**Maple (*Acer*)**

# Sugar Maple (*Acer saccharum*)



# Silver Maple (*Acer saccharinum*)



# Norway Maple (*Acer platanoides*)

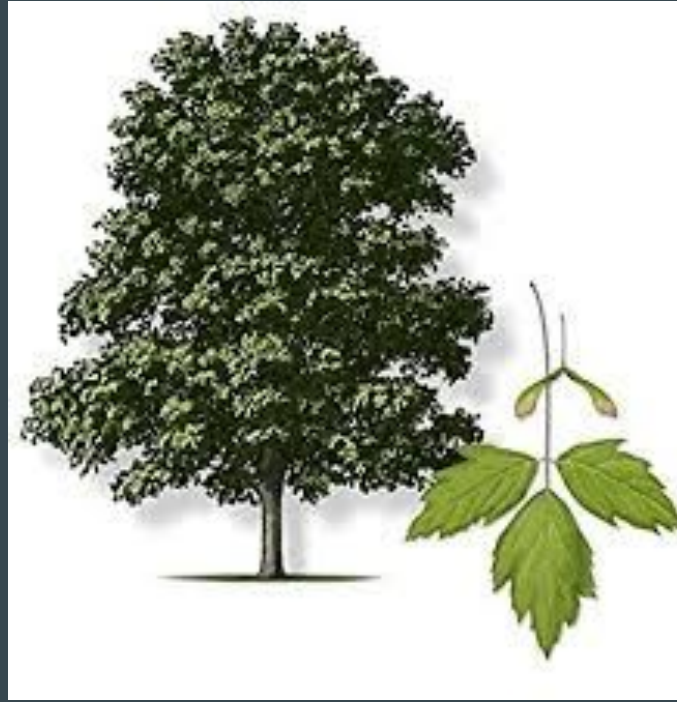


# Red Maple (*Acer rubrum*)



# Maple (*Acer negundo*)

boxelder (note compound leaves, ash look-alike)



Ash (*Fraxinus*)

# Green Ash (*Fraxinus pennsylvanica*)

Page 1 - Tree ID Cards



# White Ash (*Fraxinus americana*)

Page 1 - Tree ID Cards



Oak (*Quercus*)

# Red Oak Group



# White Oak Group



# Elms (*Ulmus*)



# Common Conifers

- Pine
- Fir
- Spruce

# Needle ID



# Spruce (*Picea*)



©2006 Jeffrey Phippen

# Pine (*Pinus*)



# Fir (*Abies*)



# Condition Rating



# Condition Ratings

- A tool to assess the physical condition of a tree
  - Difference between health and condition
- Two separate ratings for crown and stem (not averaged or added)
  - Numerical value of 1-4
  - Tree begins with 4 total points per rating
  - Incremental points are subtracted for defects

# Condition Ratings

- To measure:
  - First, each team member should assess condition separately
  - Compare with others once each person has a rating
  - Discuss differences to agree on the best number for each possible defect



# Crown Condition

# Stag Heading

- A branch is dead from the tip all the way back to the main stem
  - Looks like antler
- Deduction: up to 1 point
  - Larger vs. smaller branches





Gary Johnson



Gary Johnson

# Tip Dieback

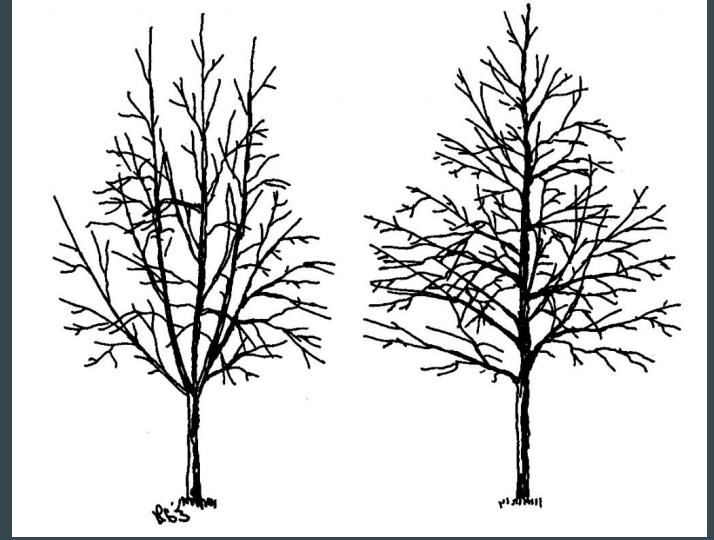
- Death at branch tips
- Deduction: up to ½ point
  - Depends on extent
  - Full deduction when trees exhibit dieback throughout crown



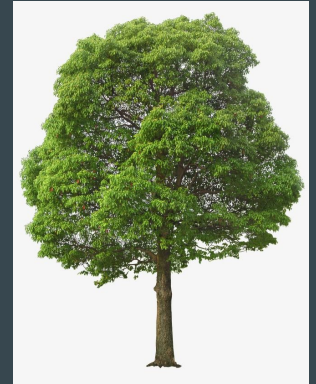


# Symmetry

- Compare to a perfectly symmetrical crown
- Deduction: up to 1 point
  - Portion or portions of crown missing
  - Look for a central leader and full crown



<http://drawingfit.com/small-tree-drawing/small-tree-drawing-small-tree-drawing-drawing-art-gallery/>



[https://png.pngtree.com/element\\_pic/17/03/24/709ea3c5fac5bce0875ba840c1e63b4f.jpg](https://png.pngtree.com/element_pic/17/03/24/709ea3c5fac5bce0875ba840c1e63b4f.jpg)

[https://png.pngtree.com/element\\_pic/00/00/56a0cb0e03980.jpg](https://png.pngtree.com/element_pic/00/00/56a0cb0e03980.jpg)

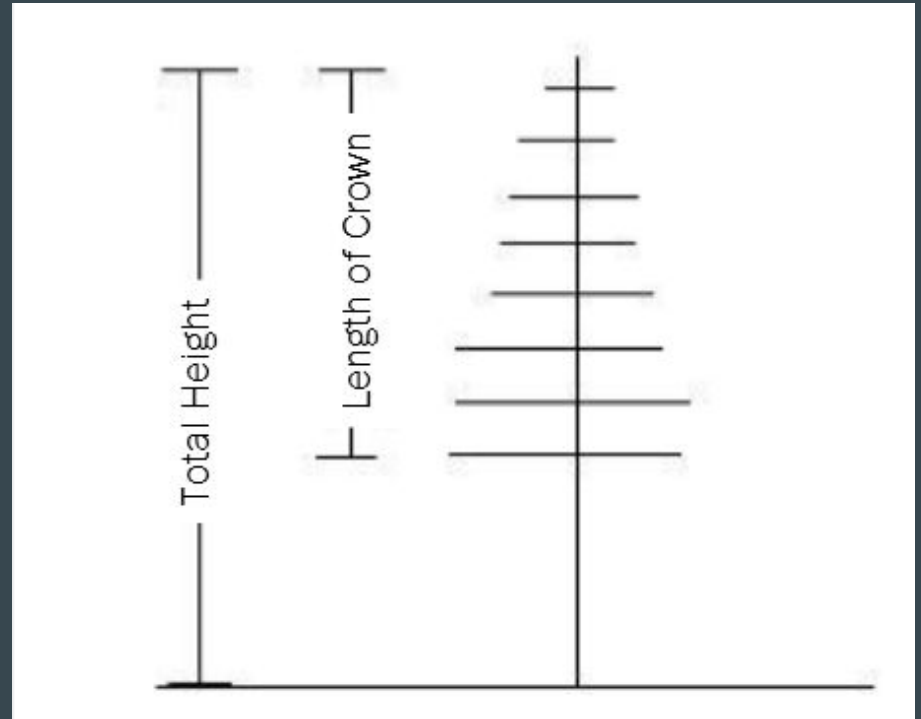


© 2013 John M Phillips



# Live Crown Ratio (LCR)

- Ratio of crown height to total tree height
- Crown begins at first main branch
- Standard deciduous LCR = 60%
- Standard coniferous LCR = 75%



# Live Crown Ratio (LCR)

- Deduction (deciduous trees):
  - 25% or less LCR- 2 points
  - 33% or less LCR- 1 point
  - 50% or less LCR- ½ point
- \*Make sure to stand far enough back to see the tree's full form\*



Gary Johnson

Poor LCR

vs.



<http://www.dubarry.net/images/arb-re-uni.png>

Good LCR (>60%)



Gary Johnson



Gary Johnson



# Stem Condition

# Cambium Loss

- Loss of outer bark / phloem
- Circumferential stem girdling (*not* vertical loss)
  - Pruning wounds
  - Accidental damage
  - Vandalism
  - Winter injury



<https://www.twincities.com/2017/03/22/vandals-damage-trees-at-lebanon-hills-in-eagan/>

# Cambium Loss

- Add the circumferential percent loss of cambium
- Deduction: up to 3 points
  - 50% girdling - 3 points (use this to calculate lower rates of girdling)
  - 25% girdling - 1½ points



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<https://ask.extension.org/questions/248317>



[https://dallasnews.imgix.net/1499099950-6\\_22\\_17\\_Good\\_pruning\\_cut\\_from\\_3\\_angles.jpg?auto=format%2Cenhance&crop=faces%2Centropy&fit=crop&q=40&or=0&w=1024&h=543](https://dallasnews.imgix.net/1499099950-6_22_17_Good_pruning_cut_from_3_angles.jpg?auto=format%2Cenhance&crop=faces%2Centropy&fit=crop&q=40&or=0&w=1024&h=543)

# Exposed or Decayed Wood

- Significance, location, and amount
- Deductions
  - Minimum  $\frac{1}{4}$  point
  - More for obvious signs of decay



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UGA1408033

<https://www.forestryimages.org/browse/detail.cfm?imgnum=1408033>



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<https://maxpull-tlu7l6lqiu.stackpathdns.com/wp-content/uploads/2010/09/tree-with-hole-400x533.png>



<https://1.bp.blogspot.com/-MqXLLw95hk/TupPLZ-GA6I/AAAAAAAAAMV/kXiOLoZMBMXo/s1600/6.JPG>

# Sprouts and Suckers

- Undesirable vegetative shoots, growing straight out of trunk or roots
- Deductions:
  - ¼ point- presence of any sprouts
  - ½ point- excessive sprouting



<https://www.hgtv.com/outdoors/gardens/planting-and-maintenance/tree-pruning-removing-water-shoots-and-suckers>



<https://www.lowes.com/creative-ideas/gardening-and-outdoor/tree-pruning-basics/article>



<http://extension.uga.edu/publications/detail.html?number=B1031&title=Shade%20and%20Street%20Tree%20Care>



[https://extension.umd.edu/sites/default/files/\\_images/programs/hgic/Trees\\_Shrubs/EnvironmentalProblems/Water\\_sprouts\\_MG\\_Handbook.jpg](https://extension.umd.edu/sites/default/files/_images/programs/hgic/Trees_Shrubs/EnvironmentalProblems/Water_sprouts_MG_Handbook.jpg)



<http://www.abc.net.au/news/image/286524-3x2-940x627.jpg>

How much would you deduct?



<http://www.maine.gov/dacf/php/caps/EAB/images/epicormic.jpg>

How much would you deduct?



<http://www.maine.gov/dacf/php/caps/EAB/images/EpicormicSprout.jpg>

# Stem Cracks

- Deductions: up to 2 points
  - Severity increases if there are multiple cracks, cracks with sap oozing out, and/or if there are indications of decay



UGA5044003



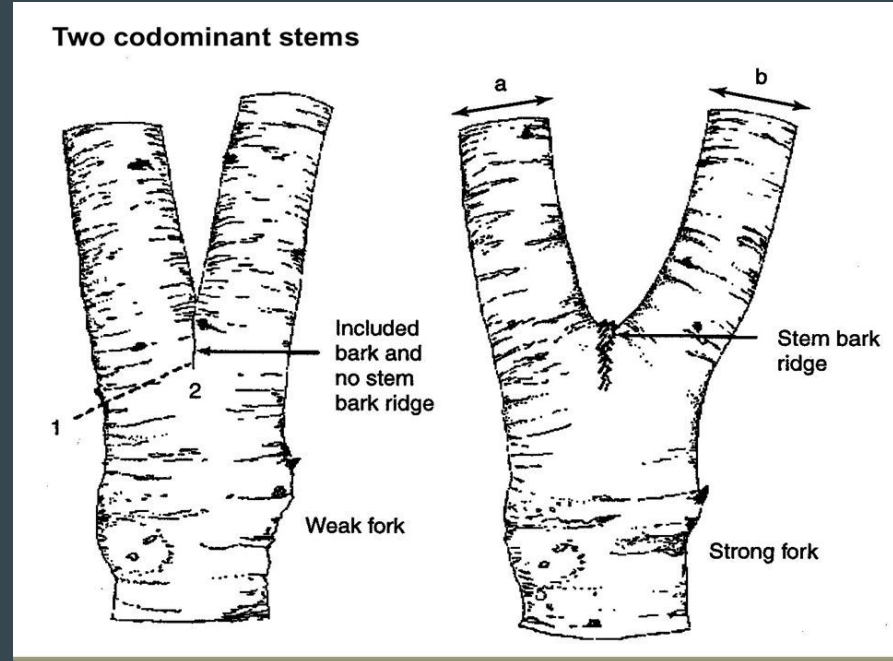
<https://www.forestryimages.org/browse/detail.cfm?imgnum=5035053>



[http://www.mggkc.org/wp-content/uploads/2012/11/frost\\_crack\\_initiation\\_point.jpg](http://www.mggkc.org/wp-content/uploads/2012/11/frost_crack_initiation_point.jpg)

# Included Branch Unions

- Caused by bark growing into branch union, instead of in a ridge around the union
- Can compromise main stem during loading events
- Deductions: up to 1½ points
  - Based on number and severity of inclusions





[http://statebystategardening.com/images/uploads/article\\_uploads/2015\\_Feb\\_news\\_3-G2\(1\).jpg](http://statebystategardening.com/images/uploads/article_uploads/2015_Feb_news_3-G2(1).jpg)

**Branch bark ridge (good)**

vs.



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**Inclusion (bad)**



# Age Class



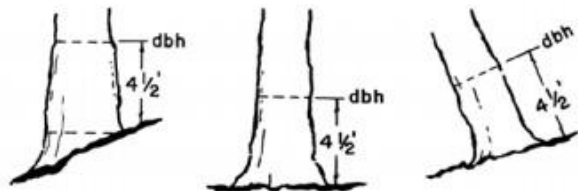
Diameter at breast height (DBH) & Crown width

# Diameter at breast height (DBH)

- **Breast height:** Standardized point on the trunk, 4.5 feet from its base.
- To measure DBH, a diameter tape (D-Tape) can be used. Otherwise the measurement can be taken with a standard measuring tape and converted to diameter by dividing by pi (3.14).
- To measure a tree, wrap the D-tape completely and tightly around the tree at your breast height and record the number where the zero meets the tape again.
- Take care to record the distance on the D-Tape that displays the diameter distance and to record in proper units (inches).



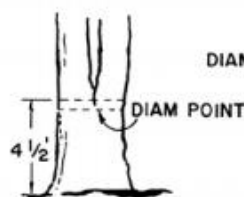
# Adverse conditions requiring adjustments to DBH



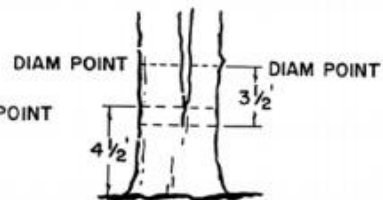
1. TREE ON SLOPE

2. TREE ON LEVEL  
GROUND

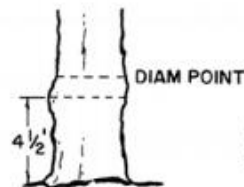
3. LEANING TREE



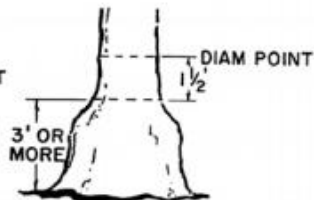
4. TREE FORKING AT OR  
ABOVE 4 1/2 FEET



5. TREE FORKING BELOW  
4 1/2 FEET



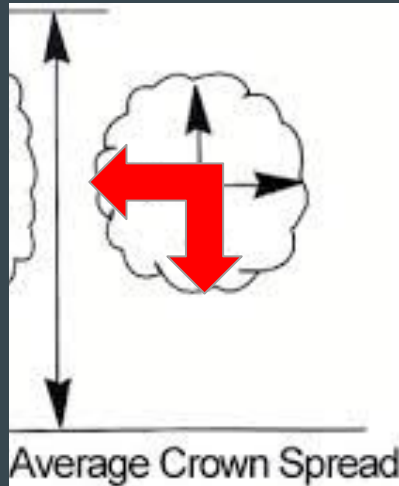
6. TREE DEFORMED  
AT 4 1/2 FEET



7. BOTTLENECK TREE

# Crown Width

- One group member will stand at the edge of the canopy holding one end of the tape measure.
- A second member walks the tape to the trunk, takes a 90° turn and continues on that path to the end of the trees drip line. Record this distance to the nearest foot, this is the Average crown spread.
- The 90° turn will account for any irregularities in crown form.





# Data Collection: Filling out the data forms





Find a Team!

