Welcome to the 2018 FRPA Conference!

Maintaining the Urban Forest Learning Objectives

- Recognize how tree selection, physiology and growth affect response to injury and overall tree value.
- Identify how tree maintenance reduces storm damage and increases the economic/environmental value of the tree.
- Describe how cycle pruning, maintaining an inventory and performing tree removals relate to risk management.

What is a tree?

- Canopy – Power Plant – Energy (Food)

- Trunk and Branches – Storage and Transport

- Roots – Receiving Dept – Raw Materials

3

How does a tree grow?

- Tips of Branches
- Tips of Roots
- Cambium

4

Lesson Learned…

Trees do NOT heal, they can only rebuild!

5

Recognize how tree selection, physiology and growth affect response to injury and overall tree value.

Dominant Leader

ISA BMP Manual

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Pruning & Tree Form

Figure 2-11 A typical decurrent tree, such as ash (*Fraxinus* sp.), after one (left), three (center), and many years (right); the terminal bud usually prevents lower buds from growing during the first season, but the terminal shoot usually is outgrown in succeeding years. Not to scale.

Can't make a tulip tree out of an ash tree

Figure 2-10 A typical excurrent tree, such as sweetgum (*Liquidambar styraciflua*), after one (left), three (center), and many years (right). The terminal usually outgrows and subdues the branches below. Not to scale.

8

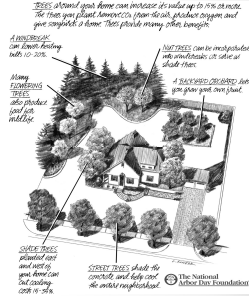Desirable | Not desirable | Desirable | Not desirable

Desirable | Not desirable | Desirable | Not desirable

A

B

2010 Edward F. Gilman and Brian Kempf www.urbantree.org

Economic Benefit

- Property Value
  - o Single large tree 1%
  - o Overall landscape 15-20%
- Energy Consumption
  - o Shade over the AC can save 10%
  - o Large trees can reduce cooling costs by 15-35%
  - o Windbreaks can reduce heating costs by 10-20%

Large vs Small Tree

Large Tree
- Total benefits/year = $55
- Total costs/year = $18
- Net benefits/year = $37
- Life expectancy = 60 years
- Lifetime benefits = $3,300
- Lifetime costs = $1,080
- Value to community = $2,220

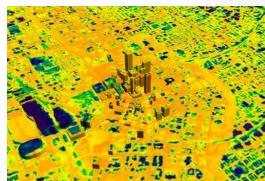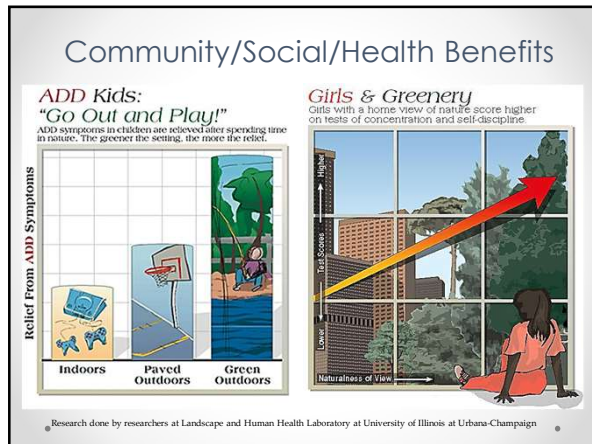**Small Tree**
- Total benefits/year = $23
- Total costs/year = $14
- Net benefits/year = $9
- Life expectancy = 30 years
- Lifetime benefits = $690
- Lifetime costs $420
- Value to community = $270

Center for Urban Forest Research, Pacific Southwest Research Station, USDA Forest Service, Davis, California and the Southern Center for Urban Forestry Research & Information, Southern Research Station, USDA Forest Service, Athens, Georgia. 2004

Environmental

- Storm water runoff
  - o 760 gallons/year
- Remove pollutants from the air
  - o 4 lbs ozone
  - o 3 lbs particulates
  - o 330 lbs CO2
- Heat island effect
  - o Atlanta EF-2 tornado 2008

Community/Social/Health Benefits

ADD Kids:
"Go Out and Play!"
ADD symptoms in children are relieved after spending time in nature. The greener the setting, the more the relief.

Girls & Greenery
Girls with a home view of nature score higher on tests of concentration and self-discipline.

Research done by researchers at Landscape and Human Health Laboratory at University of Illinois at Urbana-Champaign

Lessons Learned

- Trees don't ever heal, they rebuild
- Choose good nursery stock
  - ***
  - ***
  - ***
  - ***
- The Value of a tree is based on Economic, Environmental and Social benefits
  - ***
  - ***
  - ***
  - ***

Identify how tree maintenance reduces storm damage and increases the economic/environmental value of the tree.

Pruning Trees

Improve Structure or Health

Accommodate Human Needs

16

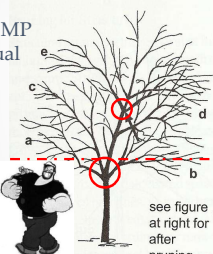## Structural Pruning of Young Trees

- Broken, Dead, Dying and Damaged
- Select and Establish a dominant leader
  - o Subordinating
  - o Codominant
- Select and Establish Lowest Permanent Branch
- Select and Establish Scaffold Branches
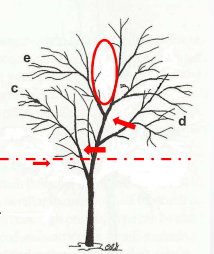- Select and Subordinate Temporary Branches

17

Lowest Permanent Branch, Scaffold Spacing and Temporary Subordination
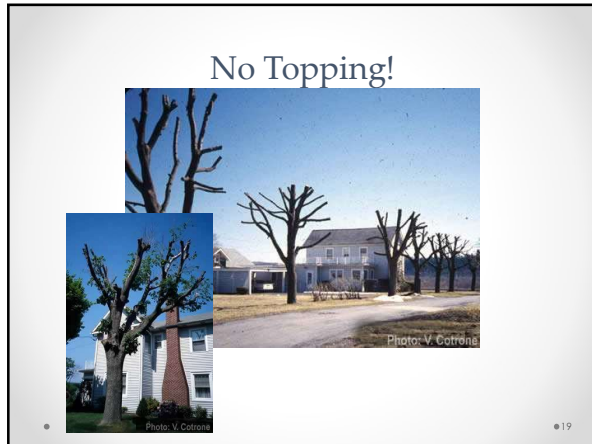
ISA BMP Manual

Before pruning

Remove indicated branches

see figure at right for after pruning

18

No Topping!

Photo: V. Cotrone

19

Results of Topping Cuts

20

Lessons Learned

- There are only 2 reasons to prune:
  - ***
  - ***
- Structural Pruning in the first 15 - 20 years has the biggest payoff
  - ***
  - ***
  - ***
  - ***
- How does Tree Maintenance influence Economic and Environmental benefits?
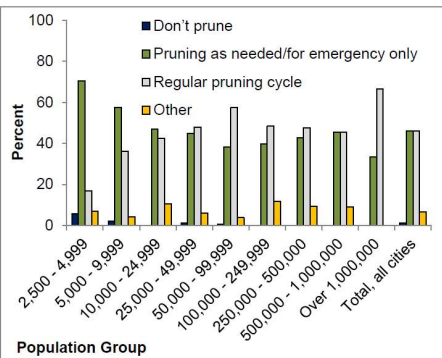 - ***
  - ***
  - ***

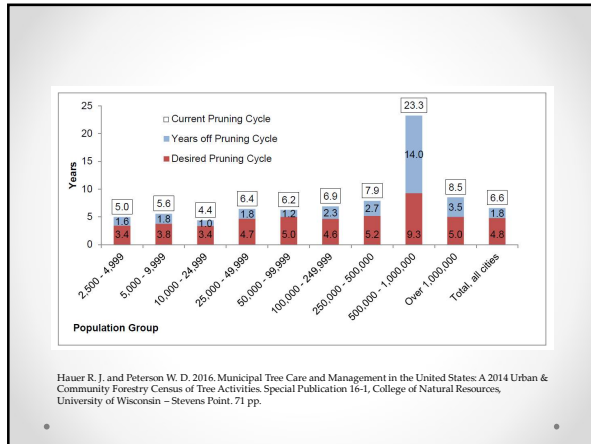Describe how cycle pruning, maintaining an inventory and performing tree removals relate to risk management.

Municipal Tree Care and Management in the United States: A 2014 Urban & Community Forestry Census of Tree Activities

Classification	Number of Places (n)	Places Sampled (n)	Returned Surveys (n)	Response Rate (%)
Geographic Region				
Midwest	2169	455	240	52.7
Northeast	1707	318	90	28.3
South	2361	512	161	31.4
West	1241	442	176	39.8

Hauer R. J. and Peterson W. D. 2016. Municipal Tree Care and Management in the United States: A 2014 Urban & Community Forestry Census of Tree Activities. Special Publication 16-1, College of Natural Resources, University of Wisconsin – Stevens Point. 71 pp.

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Why do we do inventories?

- What other kind of inventories do municipalities and tree care companies already have?
  - People
  - Vehicles
  - Equipment
  - Supplies
  - Buildings and Parks
  - Utilities (GIS systems)
- Why do we have these inventories?

Types of Tree Inventories

- Snapshot or Living
- Risk Tree
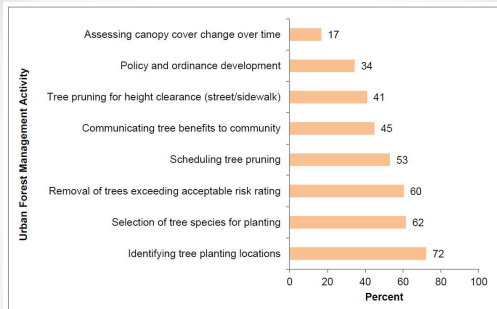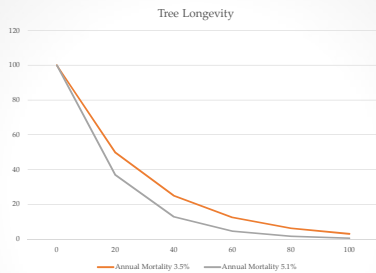- Street Tree/Park Tree/Complete
- Cover type/Canopy
- Sample

Figure 6-9. Is your tree inventory used to direct any of the following urban forest management activities?

Hauer R. J. and Peterson W. D. 2016. Municipal Tree Care and Management in the United States: A 2014 Urban & Community Forestry Census of Tree Activities. Special Publication 16-1, College of Natural Resources, University of Wisconsin – Stevens Point. 71 pp.

Lara A. Roman, Frederick N. Scatena
University of California, Berkeley, Dept. of Environmental Science, Policy and Management, McBride Lab, 140 Mulford Hall #3114, Berkeley, CA 94720-3114, USA

Six Situations to Evaluate for Removal

- Risk – Potential for Failure
- Threat – Disease or Insect
- Tree Maintenance – Cost and Capacity
- Development and Preservation
- Construction
- Benefit

Lessons Learned

- How does a pruning cycle relate to risk management?
  - ***
  - ***
- How does an inventory relate to risk management?
  - ***
  - ***
  - ***
  - ***
- What are the 6 situations to evaluate for removal?
  - ***
  - ***
  - ***
  - ***
  - ***
  - ***

Eric Muecke
City of Tampa
Urban Forestry Manager

Email: eric.muecke@tampagov.net
Office: 813-274-5137

For more information about the Florida Recreation and Park Association visit www.frpa.org.

Maintaining the Urban Forest Resources

Eric Muecke, City of Tampa Forestry Division

813-274-5137; eric.muecke@tampagov.net

FRPA 2018 Coast to Canopy

- Municipal Tree Care and Management in the United States: A 2014 Urban and Community Forestry Census of Tree Activities
  - https://www.uwsp.edu/cnr/Pages/Forestry---MTCUS.aspx
- Jim Urban Cue Cards
  - http://urbantree.org/cuecards.shtml
- ISA Best Management Practices manuals and ANSI Standards
  - https://wwv.isa-arbor.com/store/shop
- Arbor Day Foundation Benefits of Trees
  - https://www.arborday.org/media/illustrations.cfm
- The Large Tree Argument
  - https://www.fs.fed.us/psw/topics/urban_forestry/products/cufr_511_large_tree_argument.pdf
- Landscape and Human Health Laboratory at University of Illinois at Urbana-Champaign
  - http://lhhl.illinois.edu/
- City Trees Roundtable Pruning Cycles
  - https://www.urban-forestry.com/assets/documents/roundtables/roundtable%20pruning%20cycles.pdf
- Structural Pruning – A guide for the green industry. Gilman, Kempf, Matheny and Clark.
  - https://wwv.isa-arbor.com/store/shop