# Welcome to the 2017 FRPA Conference!

# If Trees Could Talk,

# What Would They Tell Us

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FLORIDA URBAN FORESTRY COUNCIL

st. petersburg parks & recreation

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FRPA
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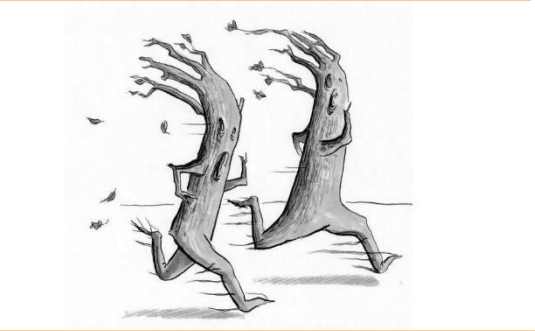
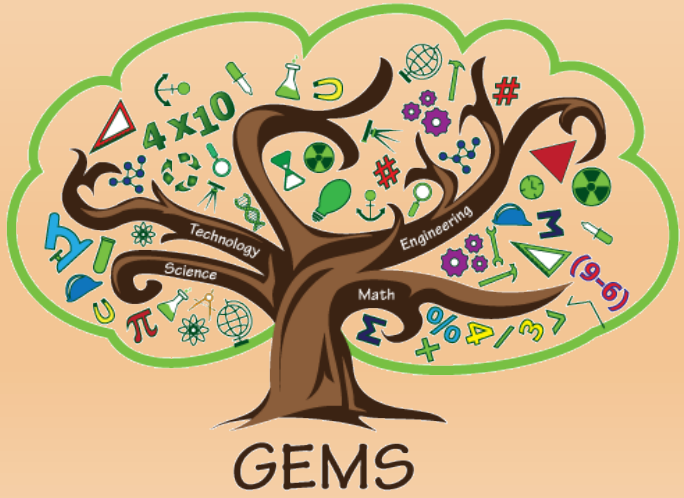
# If Trees Could Talk, What Would They Tell Us

- Parent
- Teacher
- Scientist
- Musician
- Philosopher
- Athlete
- Artist





# Learning Objectives

- **“Did You Know”**- Understand the importance of trees and how they play a role in parks and recreation.
- **"Ouch"** - Recognize ways trees are wounded including mechanical wounding and how it affects the health of trees.
- **"Help Me Help You"** - Ways maintenance staff can protect trees and why it matters.
- **"Let's Play!"** - Provide activities and ways to educate the community on the importance of trees.

**Objective #1 “Did You Know”** - Understand the importance of trees and how they play a role in parks and recreation.

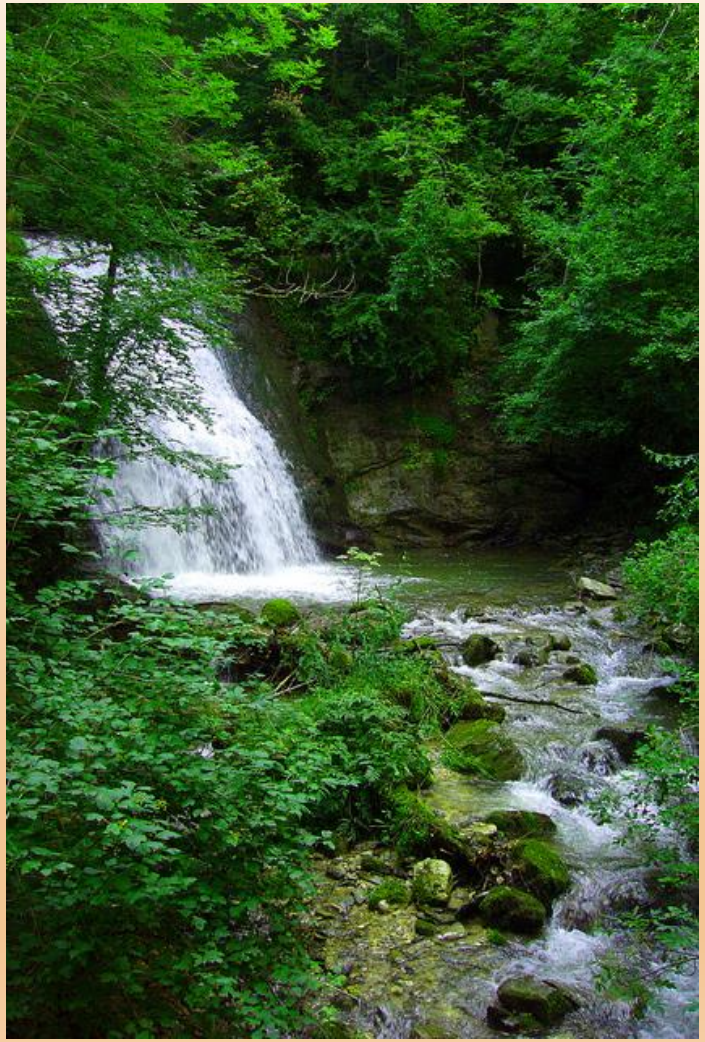
# “Did You Know” - The Value of Trees

**Water Quality**

- Healthy trees in our communities improve our environment. In addition to the visual impact of trees, tree canopies and root systems provide a natural filter to our water supply and reduce storm water runoff , flooding, and erosion.
- 1 million trees = $3.5 million in annual storm water runoff costs

**Air Quality**

- Trees are natural air filters, too. Their foliage reduces particle matter from the air, including dust, micro- sized metals, and pollutants such as ozone, nitrogen oxides, ammonia and sulfur dioxides. Trees take in carbon dioxide and produce oxygen. Combined with the cooling effect of trees, these processes can have a significant impact on reducing smog and overall air pollution. Every 40 trees removes 80 lbs. of air pollutants annually.
- 1 million trees = $5 million in annual air pollution clean-up



# "Did You Know" - The Value of Trees

**Real Estate**

- Shaded neighborhoods and well-landscaped yards have a positive economic influence on real estate values, timeliness of house sales and neighborhood desirability. Studies report that landscaping speeds the sale of a home by four to six weeks. In Sacramento, a homeowner's mature valley oak may be appraised at $20,000 or greater.
- 1 front yard tree = 1% increase in home sale price

# “Did You Know” - The Value of Trees

**Business**

- Trees are good for business. Research shows that consumers respond positively to shopping environments with healthy urban forests.
- Shaded business district = 11% increase in business

# “Did You Know” - The Value of Trees

**Energy**

- Trees cool the air naturally from the effects of water evaporating from leaves and from direct shade. Moisture combined with shade results in cooler air. Homes shaded by trees need less energy for cooling. This in turn means lower monthly utility bills in the summer and a reduced need for utilities to increase power generation to meet peak load demand. Four trees planted around each home could save up to 30% on summer cooling costs.
- 1 million trees = $10 million in annual energy savings

# “Did You Know” - The Value of Trees

**i-Tree** was developed by USDA Forest Service Research. It is a state-of-the-art, peer-reviewed FREE computer software suite containing urban forest inventory and analysis tools. i-Tree tools help communities assess and care for their neighborhood trees and forests that improve our health, well-being, and the environment. Reports and information generated by i-Tree will help raise awareness about the benefits of trees and forests, not just as amenities, but as an integral and essential part of the neighborhoods we call home.

**i-Tree Design** allows anyone to make a simple estimation of the benefits provided by individual trees.

- https://design.itreetools.org/
- Enter address, draw structure, pick tree, plant tree, number years to review.
- Reports show overall benefits from storm water, energy, air quality and carbon dioxide.
- Adjust reports to current year and future years.

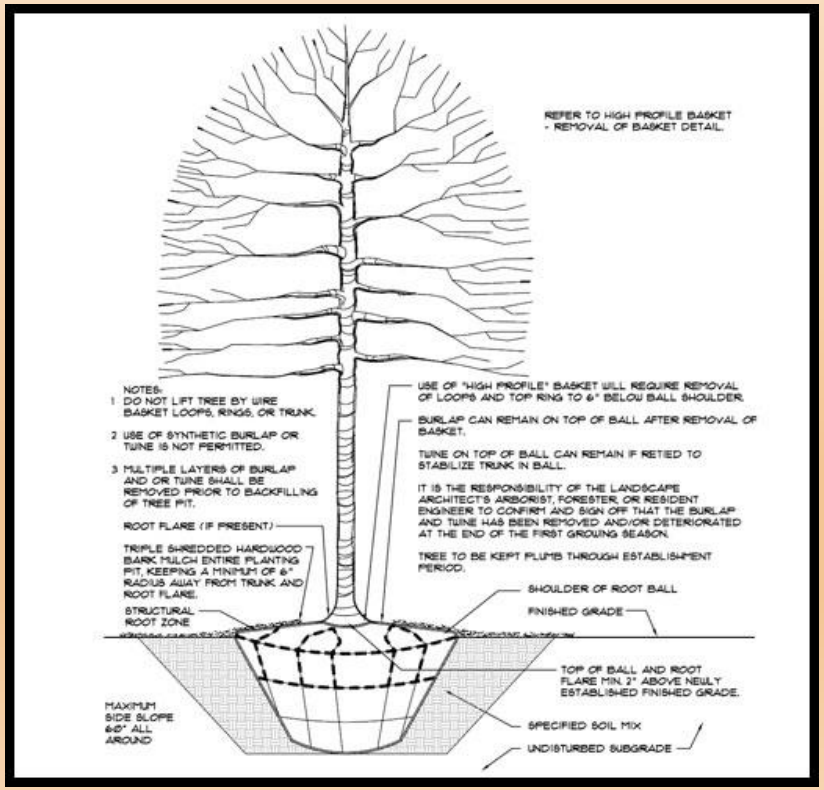
# "Did You Know"- What do trees have to do with Parks and Recreation?

## EVERYTHING!

**Objective #2 "Ouch"** - Recognize ways trees are wounded including mechanical wounding and how it affects the health of trees.

# **"Ouch"** – Wounding Trees

- Improper Planting

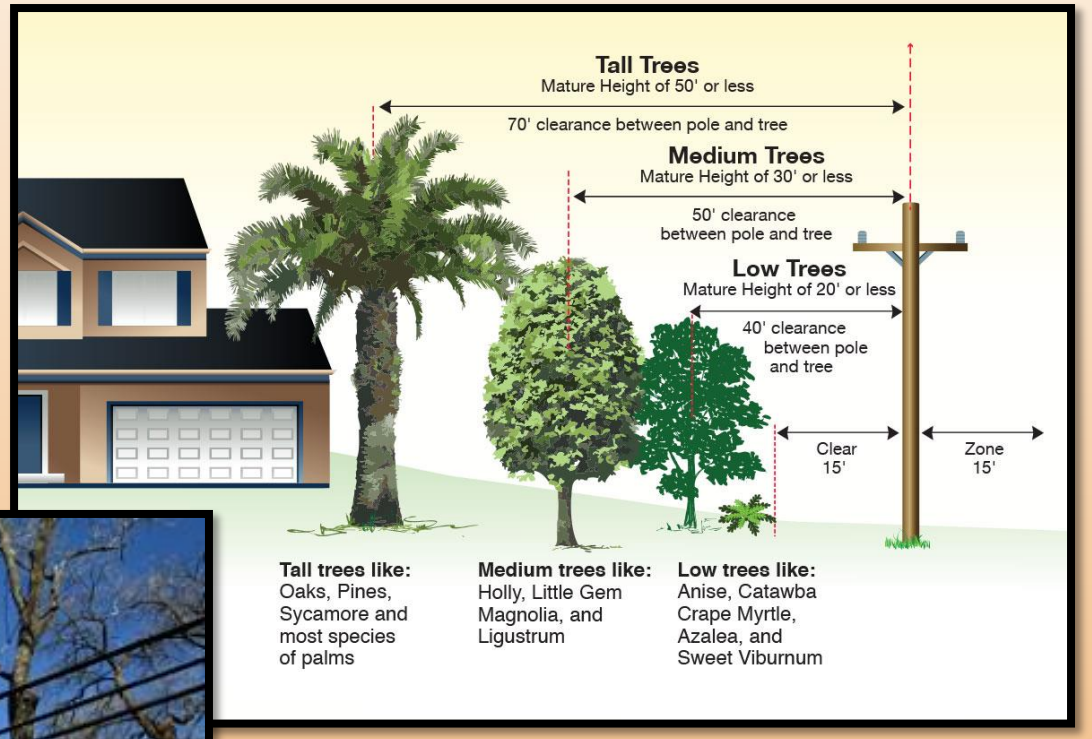


# "Ouch" –Wounding Trees

- Girdling Roots (roots circling in pots)

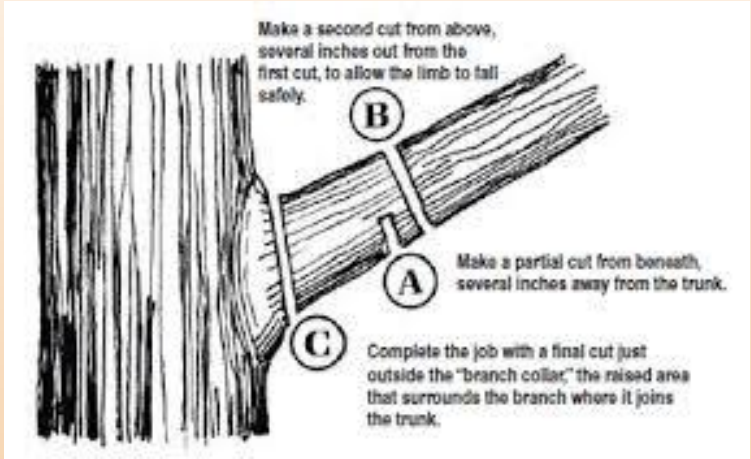
# "Ouch" –Wounding Trees

- Improper Planting – Right Tree Right Place



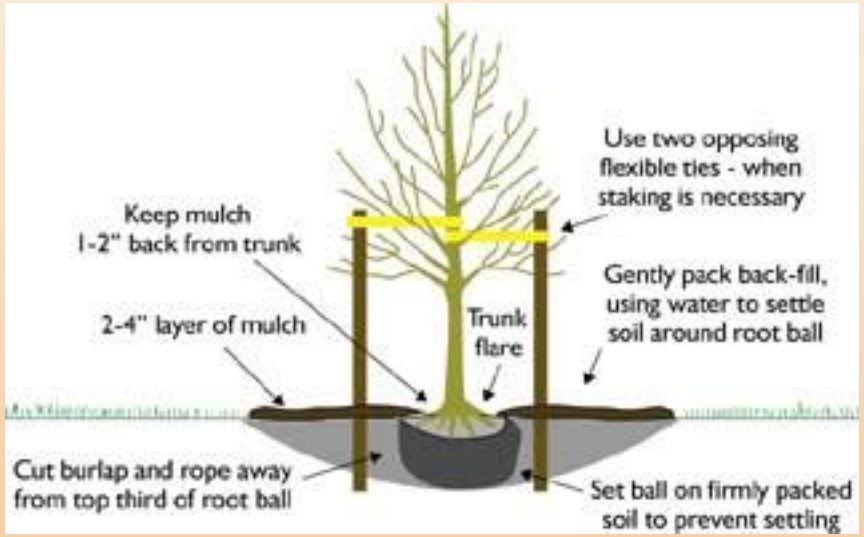
# "Ouch" - Wounding Trees

- Improper Pruning
- Topping of Trees



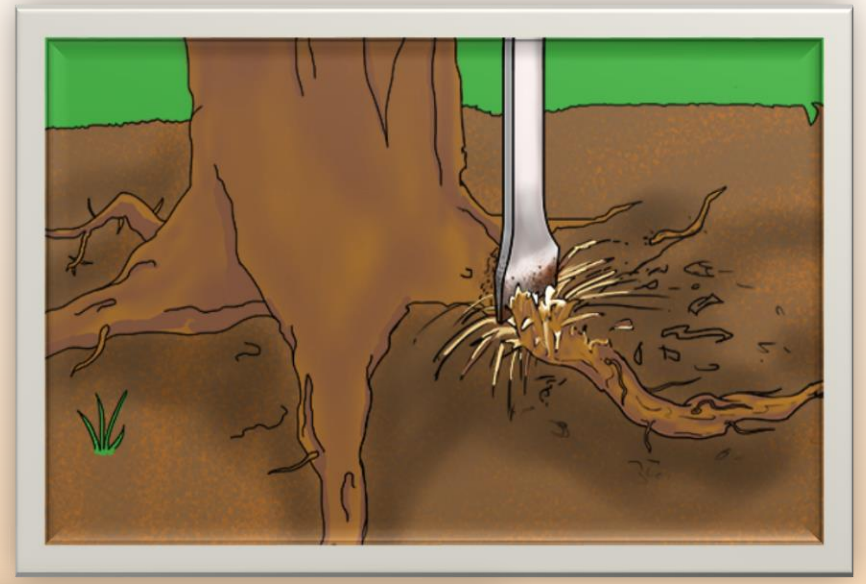
# "Ouch" –Wounding Trees

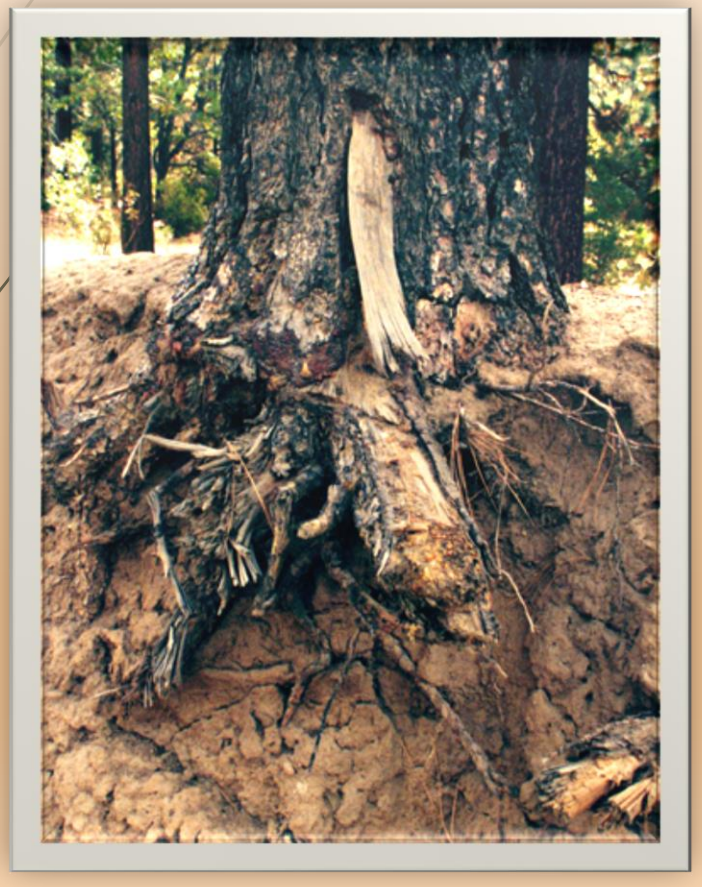
- Improper staking/not removing staking



# "Ouch" –Wounding Trees

- Severed roots
- Soil compaction





# **"Ouch"** - Mechanical Wounding – Lawn Maintenance

"Lawn Mower Blight"

Popular opinion suggests a genuine problem, but virtually no previous research exists.

# **"Ouch"** - Mechanical Wounding – Lawn Maintenance

Study done by *Dr. Justin Morgenroth*

- **Objective**: Determine the incidence and severity of mechanical wounding caused by lawn maintenance activities
- **Measurements:** Species, DBH, # of wounds, wound status, presence of surface roots, mulch?, spray ring?, grass cutout?, mowing frequency
- **Sample:** 996 trees across 303 randomly stratified plots in 16 parks, preserves, cemeteries, public universities, and grass verges (private) in Christchurch, NZ

- Assumed that wounds were caused by lawn mowers or line trimmers

UC UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

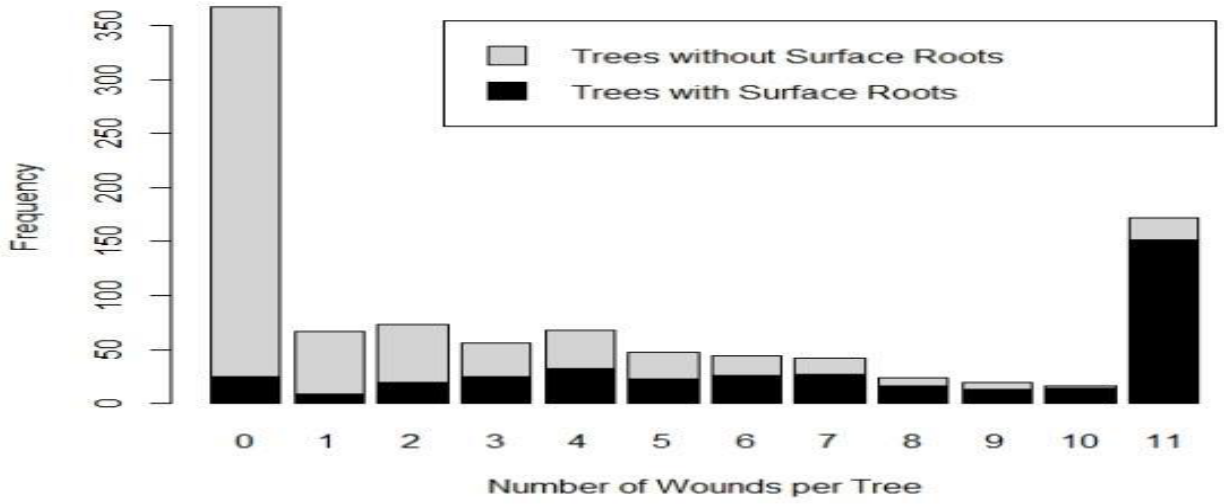
# "Ouch" - Mechanical Wounding – Lawn Maintenance

## Results

- 62% of 996 trees had at least one wound
- No public/private affect
- Surface roots are a predisposing factor
- 93% of 381 trees with surface roots were wounded
- 43% of 615 trees with no surface roots were wounded

## Frequency of Wounding

- 374 trees (38%) had no wounds
- 172 trees (17%) had more than 10 wounds
- 88% of trees with 10 or more wounds had surface roots



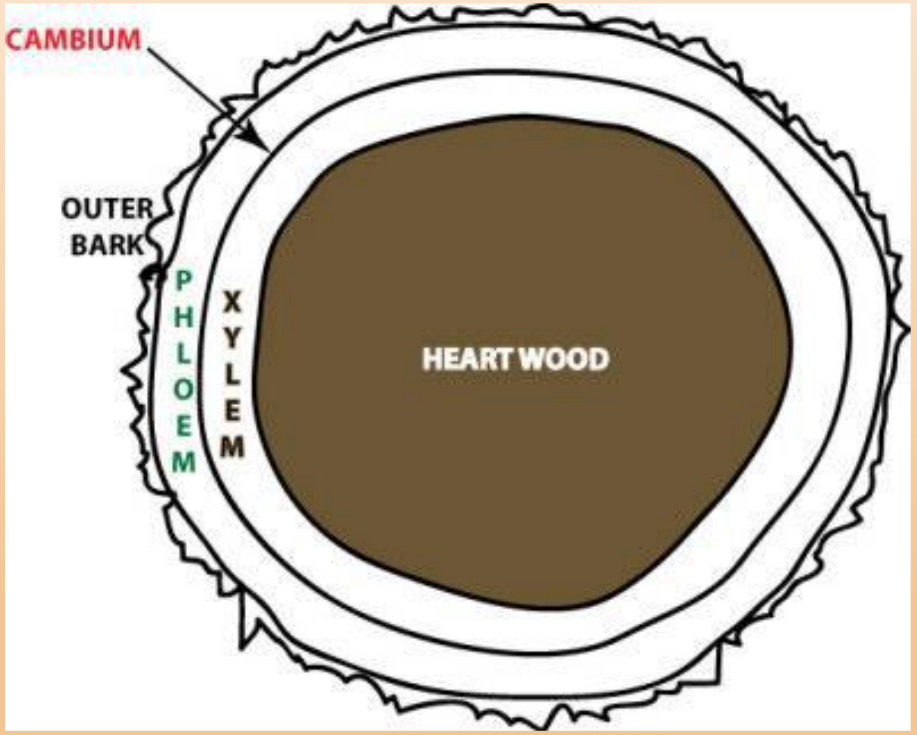
# **Objective #3 "Help Me Help You" – Why It Matters -** How maintenance staff can protect trees and why it matters.

# **"Help Me Help You"** - Why It Matters

## Trees are too tough for their own good

Implications – Growth and Survival

- Damaged xylem and phloem impact water and nutrient transport
- Wounded trees focus on compartmentalization
- Growth is compromised
- Repeated wounding can lead to premature mortality



# **"Help Me Help You"** - Why It Matters

## Trees are too tough for their own good

Study by *Dr. Justin Morgenroth*

Case Study

2007
*Liquidambar styraciflua*
Planted in 1985

2008
Mulch applied, but too late

2009 RIP

# **"Help Me Help You"** - Why It Matters

History of Mechanical Wounding

- 1st wound in 1986
- 2nd wound in 1987
- 3rd wound in 1988
- 4th, 5th, and 6th wounds in 1991
- Again in 2002 & 2004 and 4 more times until tree died in 2009

***Slide content provided by Brad Cadwallader***

# "Help Me Help You" - Why It Matters

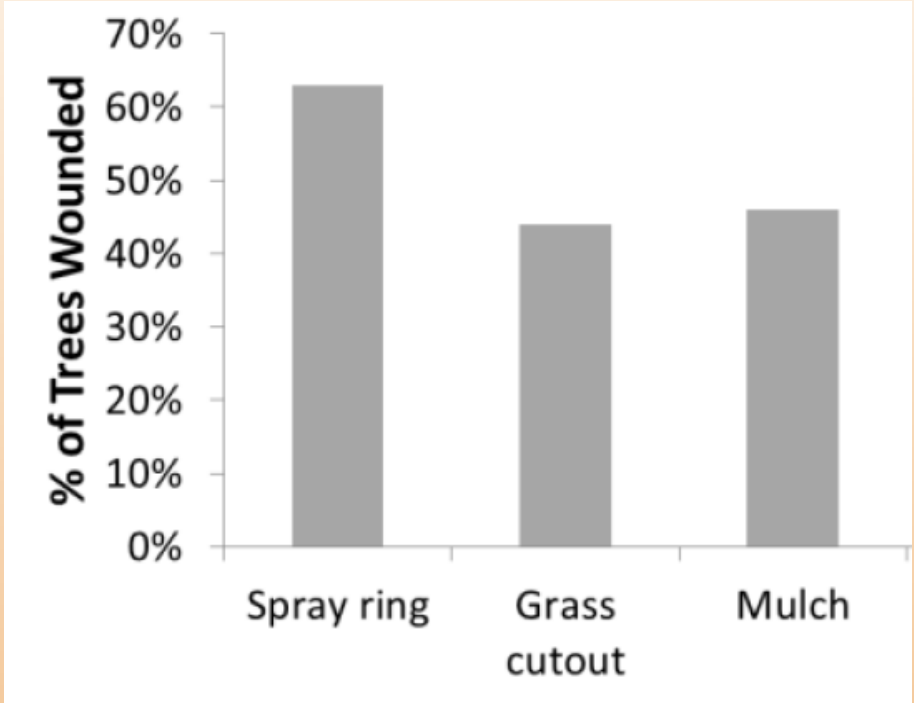
Maintenance Options

- Grass next to stem

  70% had mechanical wounding

- No grass next to stem

  58% had mechanical wounding



***Slide content provided by Brad Cadwallader***

# **"Help Me Help You"** - Why It Matters

## Conclusion

- Lawn mower blight is an epidemic
- Surface roots are a major predisposing factor
- Get rid of grass around the stem
- Mechanical wounding causes a reduction in growth resulting in a reduction in benefits

# **"Help Me Help You"** – Why It Matters
# Ways Maintenance Staff Can Protect Trees

- Follow "Right Tree, Right Place"
- Train staff to plant, stake and prune correctly
- Keep grass away from tree
- Place tree guards around young trees
- Do not use line trimmers around trees
- Plant more trees

**Objective 4 - "Let's Play!"** - Provide activities and ways to educate the community on the importance of trees.

# **"Let's Play!"** - Ways to educate the community

- Volunteer
- Learn more about trees
- Know your city ordinance on trees
- Celebrate Arbor Day
- Plant more trees

# **Let's Play!"** - Activities

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Acknowledgements

- Funded by the University of Canterbury Summer Scholarship scheme with co-funding generously provided by New Zealand Arboriculture Association, NZ Recreation Association Member Councils Wellington City Council, Hutt CC, Invercargill CC, Marlborough District Council, Tasman DC, Gore DC, Timaru DC, South Waikato DC
- Christchurch City Council staff Dieter Steinegg, Shane Moohan, Christchurch Botanic Gardens Curator John Clemens
- Florida Urban Forestry Council Executive Board

# Thank You

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