Cultivating Resiliency in Landscape Trees

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carhartt

Overview

- Why do we care?
- What's different about landscape trees?
- The case for tree life-span planning
- Successful tree establishment
- Mature tree care
- A few current challenges


Why do we care?

Benefits of Urban Trees

Research has linked the presence of urban trees to...

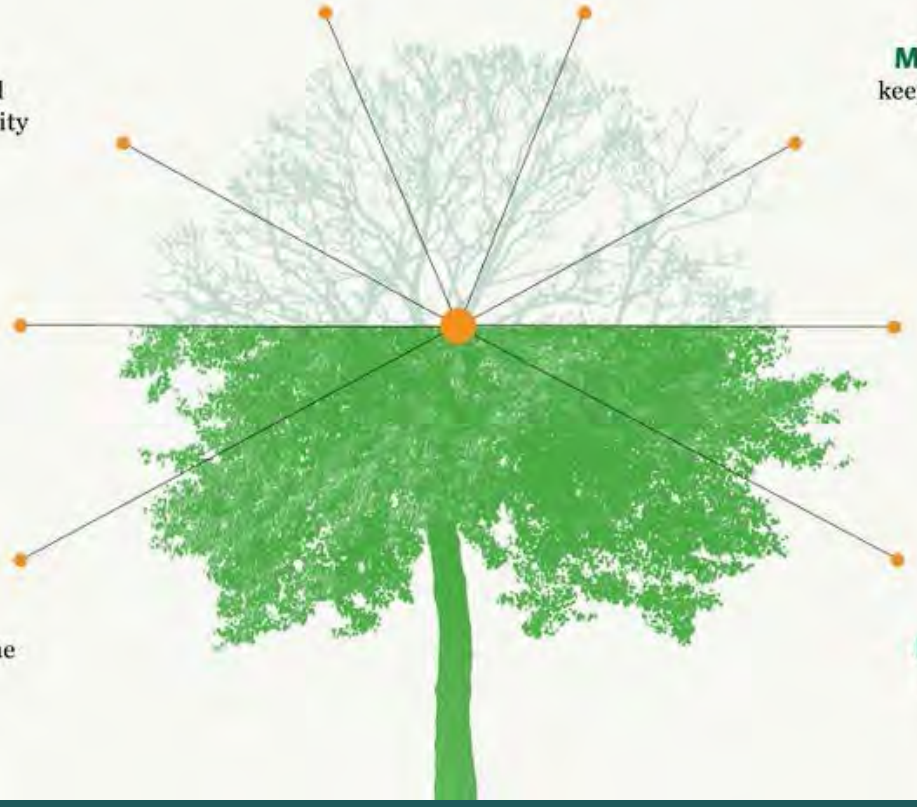
The Nature Conservancy

PROTECTING BIODIVERSITY
including habitat for migrating birds and pollinators

REDUCING OBESITY LEVELS
by increasing physical activity including walking and cycling

REDUCING RATES
of cardiac disease, strokes, and asthma due to improved air quality

MANAGING STORMWATER,
keeping pollutants out of waterways, and reducing urban flooding



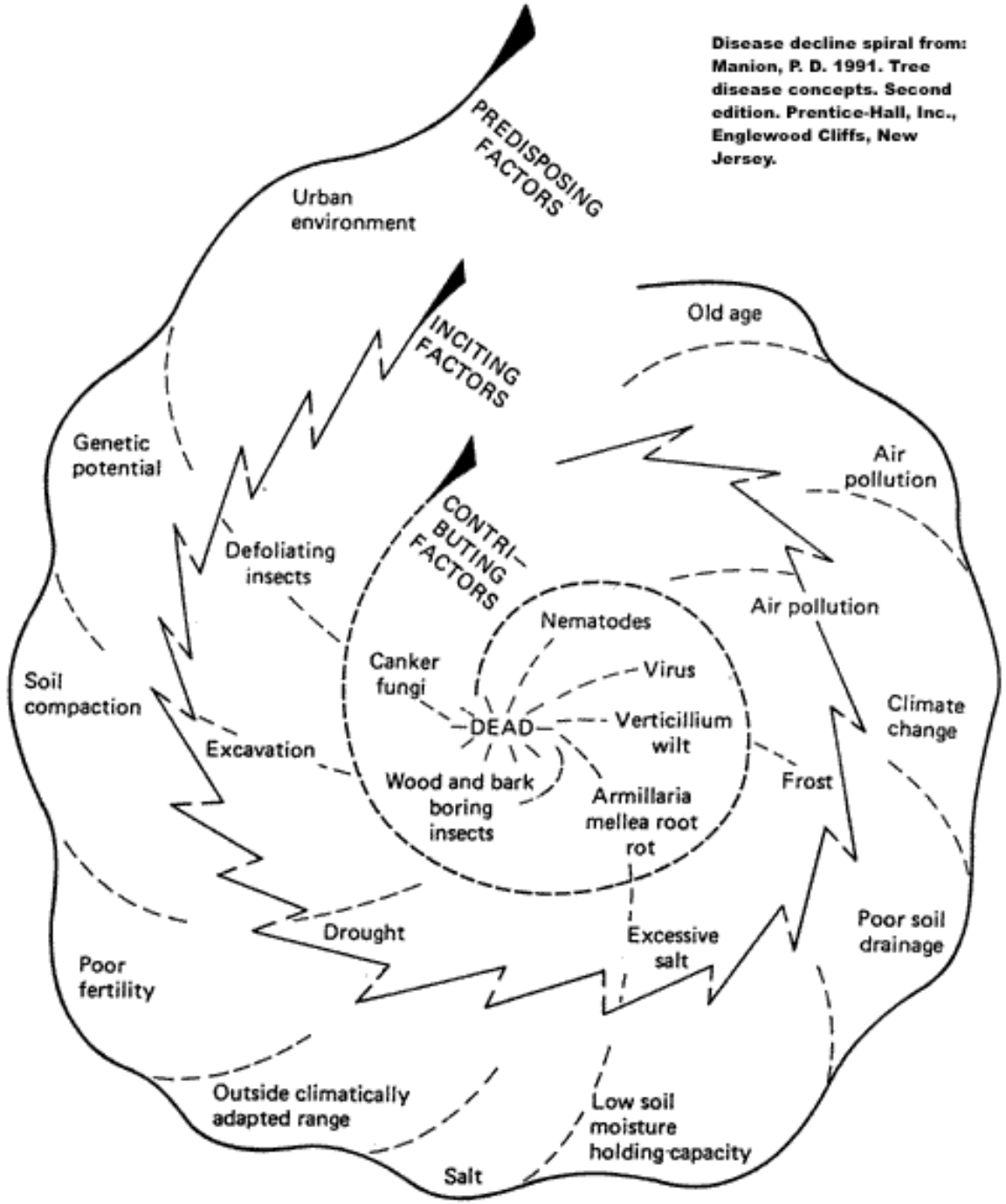
COOLING city streets by 2-4° F, reducing deaths from heat and cutting energy use

INCREASING
neighborhood property values

FILTERING up to a third of fine particle pollutants within 300 yards of a tree

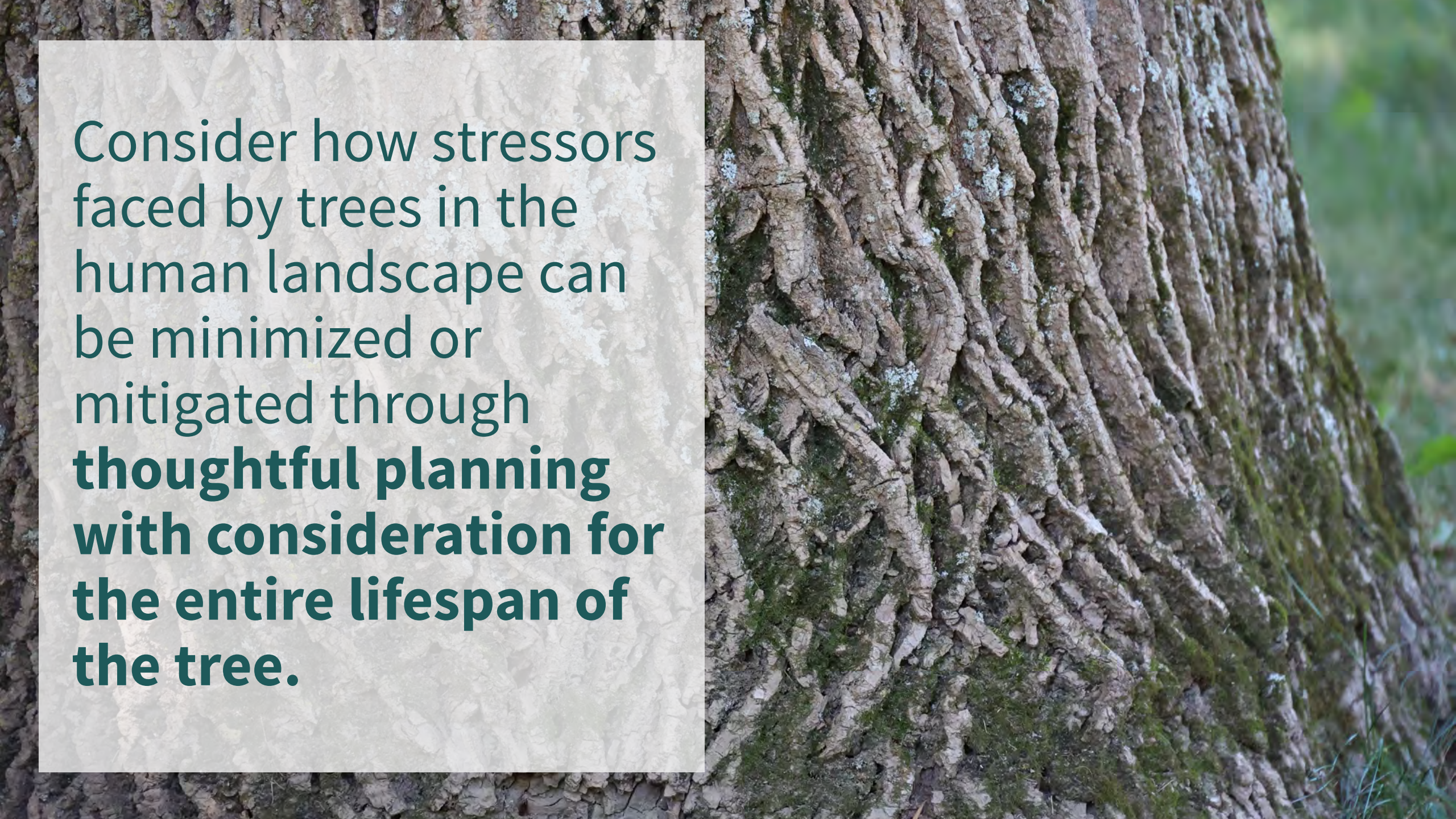
REDUCING STRESS by helping interrupt thought patterns that lead to anxiety and depression

What’s different about landscape trees?



Disease decline spiral from: Manion, P. D. 1991. Tree disease concepts. Second edition. Prentice-Hall, Inc., Englewood Cliffs, New Jersey.


Tree life-span planning



Consider how stressors faced by trees in the human landscape can be minimized or mitigated through **thoughtful planning with consideration for the entire lifespan of the tree.**

Remember the 5(+)P's… Proper Planning Prevents Poor Performance

- Proper planting procedures?
- Perfect pruning practices?
- Poignant and pithy puns?


Successful tree establishment

Beyond planting

- Rethink the idea of tree **planting** as a singular event!
- Successful tree **establishment** is a process with many considerations!

Why are you planting a tree?

- Shade
- Fruit
- Seasonal color
- Wildlife benefits
- Windbreak
- Screening
- Water management
- Erosion prevention

Site Considerations

Space	Overhead or underground utilities	Clearance needs
Hardiness zone	Light exposure	Wind exposure
Soils	Potential pollutants	Future conditions?!

Maintenance Needs

- Initial and long-term water requirements
- Long-term natural form of the tree – pruning needs?
- Susceptibility to common diseases and pests?
- Adaptability to a changing climate?

Right tree, right place

Consider and prioritize your criteria to select the most appropriate tree(s) for the site

There is no one perfect tree!


Native vs. non-native?
What about cultivars and hybrids?

Opinion Cityscape

St. Paul marks bittersweet accomplishment in cutting down last of the ash trees

The city is embracing tree species diversity after having to say goodbye to 26,000 trees susceptible to the invasive emerald ash borer.

by **Bill Lindeke**
1 day ago

Like every Upper Midwestern city, St. Paul was forced into a “scorched earth” solution: cut ’em all down. Credit: MinnPost photo by Bill Lindeke

Diversity is key to resilience!

Case Study

Three trees in my Dad’s Front Yard – Hummelstown, PA


Merlot Redbud
(Cercis x ‘Merlot’)
Planted Spring 2022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The root of the problem

- Bare root vs. balled and burlapped (B&B) vs. containerized
- Some (or maybe a lot) of the conventional wisdom might be wrong


Dogwood
Planted in 2008

Mulch

Pruning young trees

Set an objective

Consider each cut carefully!

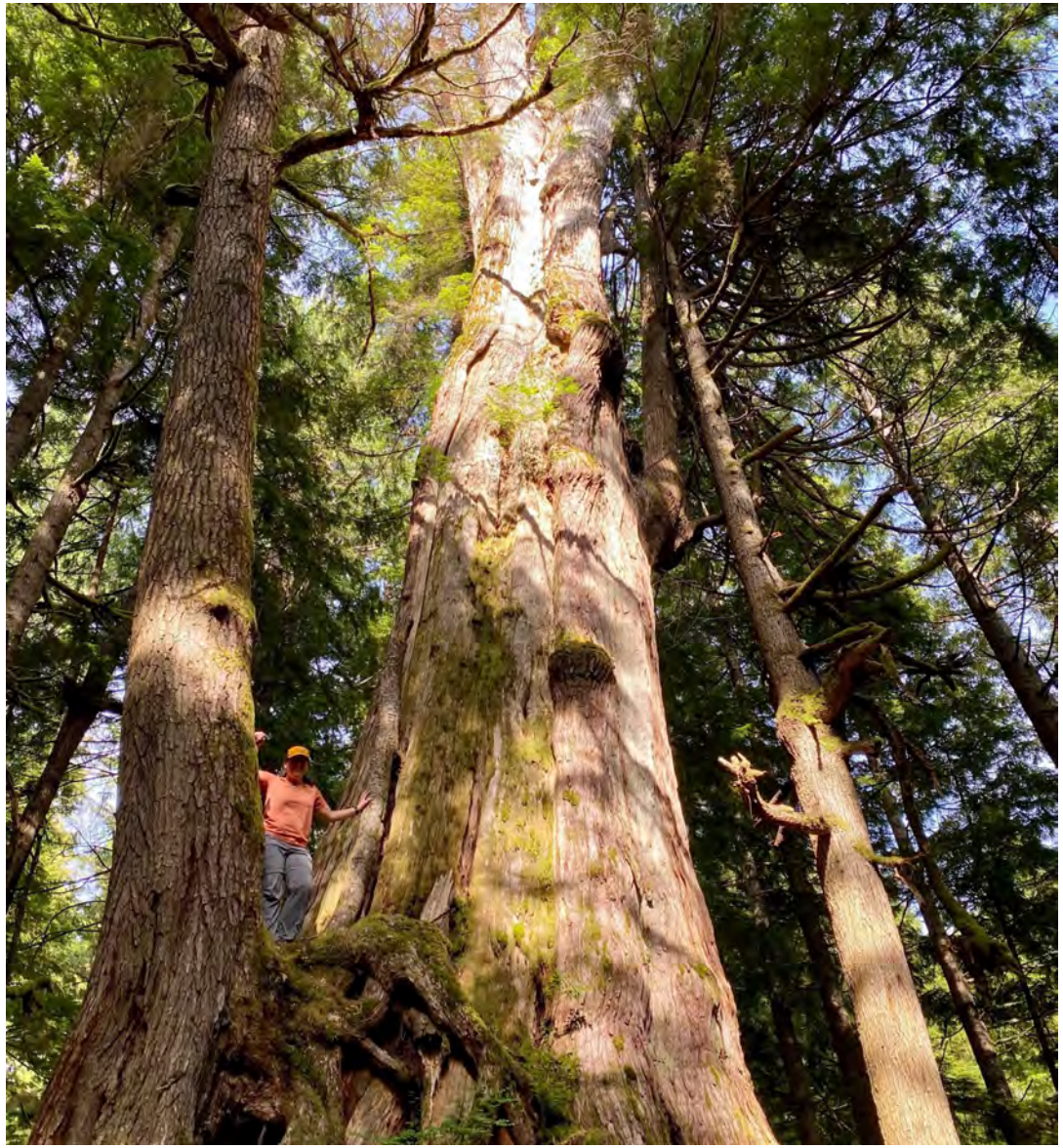
Poor pruning can cause life-long damage to the tree…

BUT! Proper pruning can develop a strong structure that requires less corrective pruning later

Red Maple
Planted in 2008

Planting Depth

- 93% of professionally-planted trees are too deep, usually by 2+ inches (Smiley and Booth 2000)
- 75% of nursery trees have buried root collars, 3-12” (Maynard 1995)



Structural support

Other concerns

- Watering
- Fertilization
- Other soil amendments
- Critter damage
- Mechanical damage
- Sun scald
- Winter injury
- Etc.

Mature Tree Care

Pruning

- Objectives: WHY are you pruning?
- Pruning is mostly for our benefit, not for the tree’s

Pruning Objectives

- Manage risk
- Manage health
- Develop structure
- Provide clearance
- Manage size or shape
- Improve aesthetics
- Manage production of fruit, flowers, or other products
- Manage wildlife habitat

Pruning Systems

- Natural
- Pollarding
- Topiary
- Espalier
- Pleaching

Risk Assessment

- Objective: assess the risk associated with the **failure of a tree or tree part**, its **potential for impacting a target**, and the **likely consequences**

Risk Assessment

- Level 1: Limited Visual Tree Risk Assessment
- Level 2: Basic Tree Risk Assessment
- Level 3: Advanced Tree Risk Assessment

Risk Assessment

- Not all defects are detectable
- Not all failures are predictable
- Not all risk can be eliminated

Managing risk vs. removing trees

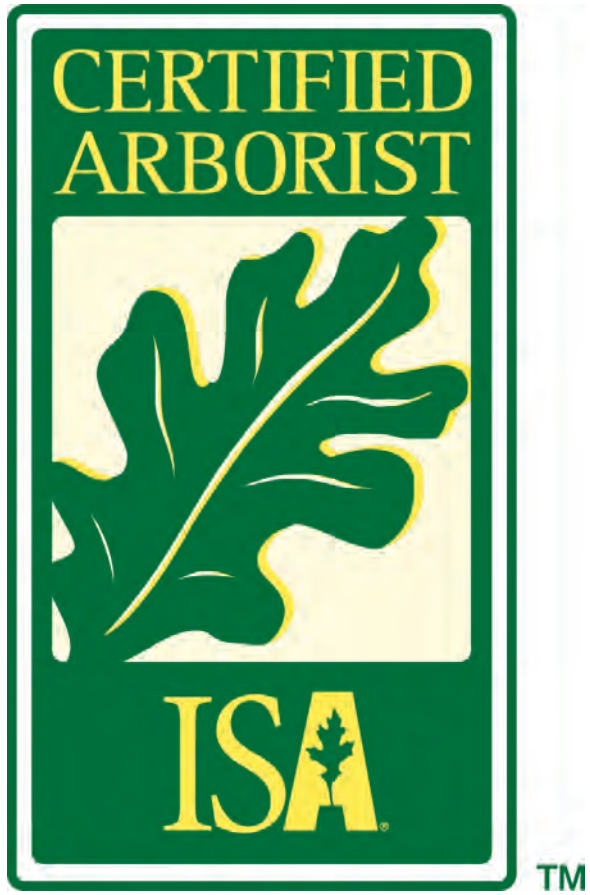
- Big, old trees are extremely valuable! (Habitat, carbon, etc.)
- Pruning
- Supplemental support systems
- Move other activities/let the tree have priority
- Wildlife snags, “monoliths”


Professional Tree Care

International Society of Arboriculture

- Certified Arborist (CA)
  - Certified Arborist Utility Specialist
  - Certified Arborist Municipal Specialist
- Board Certified Master Arborist (BCMA)
- Certified Tree Climber
- Certified Tree Worker Aerial Lift Specialist

- Tree Risk Assessment Qualification(TRAQ)



Other certifications and affiliations

- American Society of Consulting Arborists (ASCA) Registered Consulting Arborist (RCA)
- Society of American Foresters Certified Urban and Community Forester (CaUFC), Certified Forester (CF)
- State certification or licensure
  - New Hampshire Arborists Association
- Tree Care Industry Association (TCIA)
  - Membership vs. accreditation
  - Certified Tree Care Safety Professional (CTSP)

Standards

- ANSI A300 Tree Care Standards (2023)
- ANSI Z133 Safety Requirements for Arboriculture Operations (2017)
- ANSI Z60.1 American Standard for Nursery Stock (2014)

Best Management Practices

A few current challenges

Beech Leaf Disease

- Foliar nematode *Litylenchus crenatae* ssp. *Mcannii*

Spruce Needle Casts

- Rhizosphaera
- Stigmina

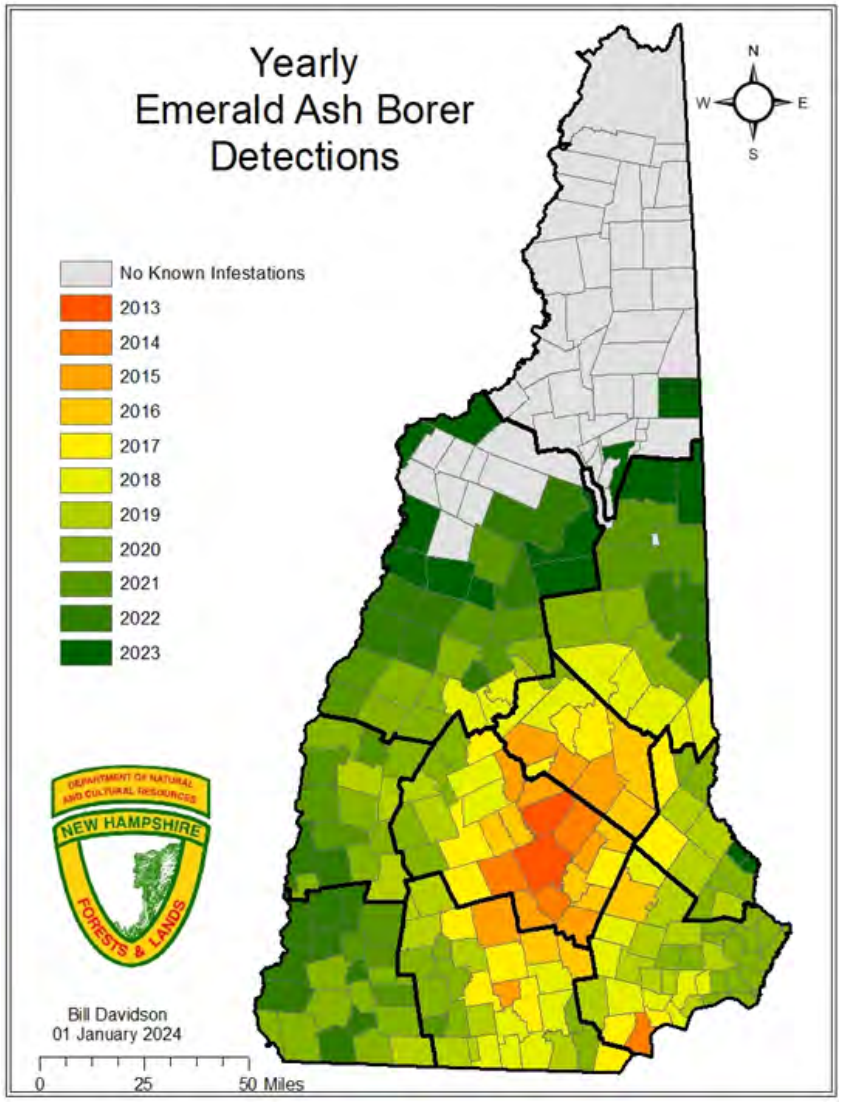
White Pine Needle Damage

- Complex of several fungal pathogens, affecting trees independently or together
  - *Lecanosticta acicola* (formerly *Mycosphaerella dearnesii*)
  - *Septorioides strobi*
  - *Bifusella linearis*
  - *Lophophacidium dooksii* (formerly *Canavirgella banfieldii*)

Hemlock Pests

- Hemlock woolly adelgid
- Elongate hemlock scale

Emerald Ash Borer



NHBUGS.org for more...

Asian Longhorned Beetle	Balsam Woolly Adelgid	Browntail Moth	Jumping Worms
Red Pine Scale	Sirex Woodwasp	Southern Pine Beetle	Spongy Moth
Spotted Lanternfly	Spruce Budworm	Winter Moth	Oak Wilt
White Pine Blister Rust	Caliciopsis Pine Canker	Forest Tent Caterpillar	???

Questions?

Thank you!

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