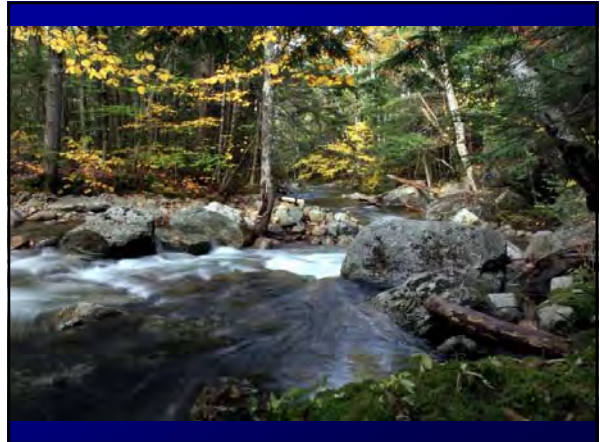


89th Annual Conference, New Jersey Shade Tree Federation
Cherry Hill, NJ 2014

Mature Trees in a Healthy Urban and Community Forest

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Messages #1
Trees are systems.
Certain tradeoffs.
Uncertain thresholds.
Move slowly.

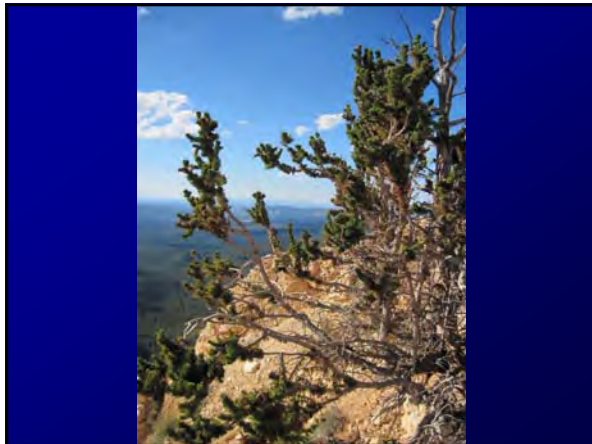
The goal of the tree:
Survive
Spread

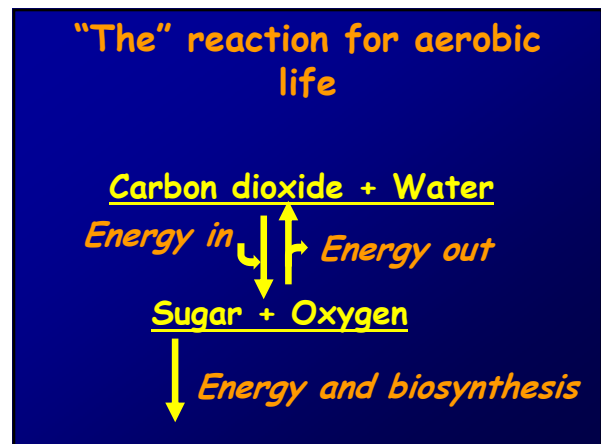
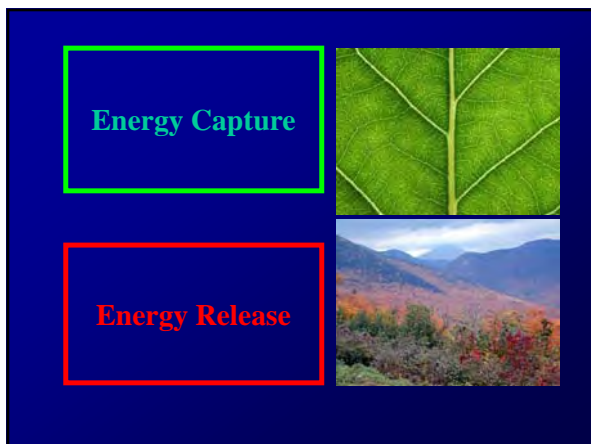
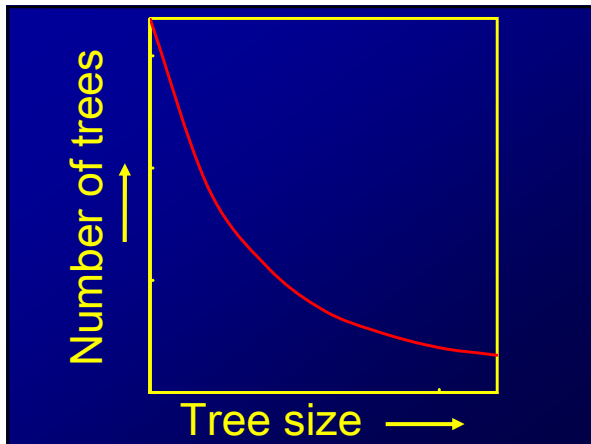


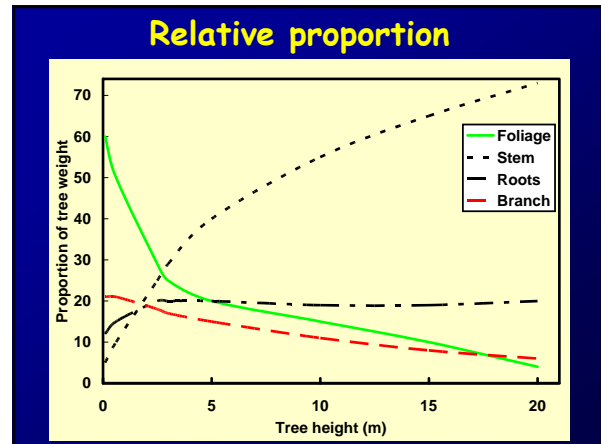
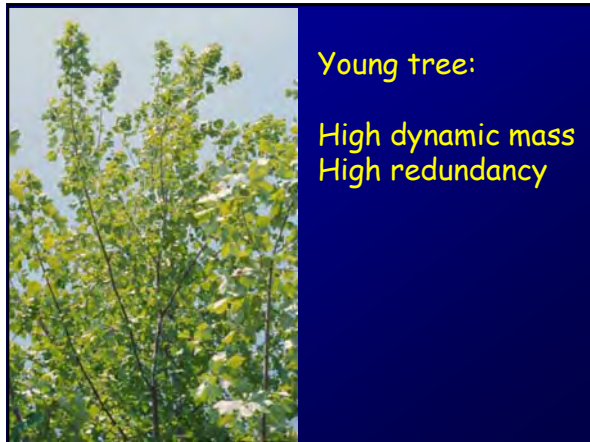
Good News / Bad News Story
Trees can be sturdy, large, and long-lived.



Trees can also be abused, mutilated and neglected



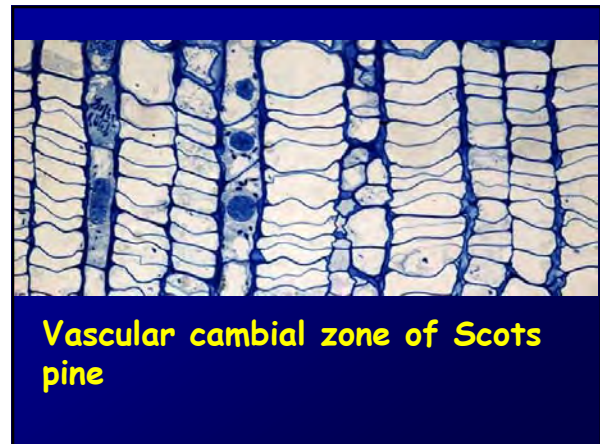
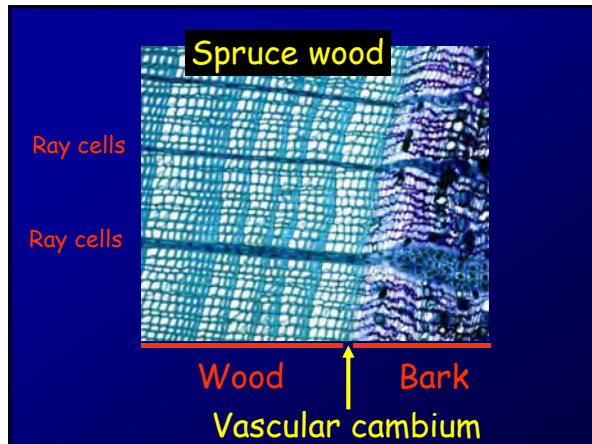




Wood is *alive* !

Sapwood contains:

- By number: 80% living and 20% dead cells
- By volume: 10% living and 90% dead cells



Tree energy budgets:

1. Maintenance
2. Growth
3. Reproduction
4. Protection/ Defense

A photograph of a tree with vibrant autumn foliage in shades of red, orange, and yellow. The tree is standing in a field, and its branches are covered in dense leaves.

Add 1 cm of diameter:

20-cm tree = $\sim 30 \text{ cm}^2$

100-cm tree = $\sim 160 \text{ cm}^2$

This diagram illustrates the relationship between tree diameter and the area of the vascular cambial zone. It shows two circles: a small circle representing a 20-cm tree and a larger circle representing a 100-cm tree. The area of the cambial zone for the 20-cm tree is approximately 30 cm², and for the 100-cm tree, it is approximately 160 cm². The text 'Add 1 cm of diameter:' is at the top, indicating the change in diameter for both trees.

Tree energy budgets:

1. Maintenance
2. Growth
3. Reproduction
4. Protection/
Defense



Compartmentalization:

A conceptual framework for understanding how trees **grow** and **defend** themselves

A.L. Shigo
Annual Review of Phytopathology 1984

Compartmentalization

Goal: Protect the vascular cambium

Two-part boundary-setting process:

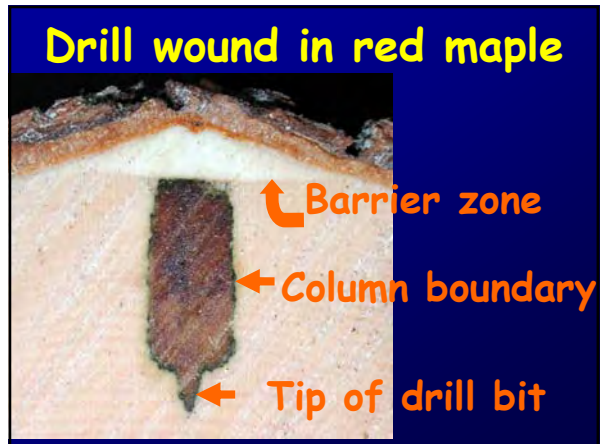
Part 1: Occurs in wood present at the time of injury

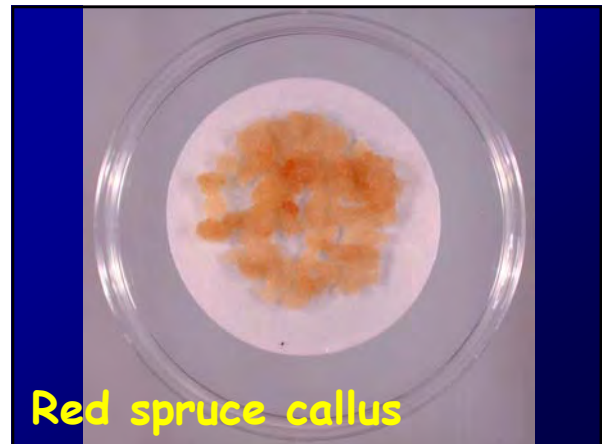
Part 2: Occurs in wood formed after injury

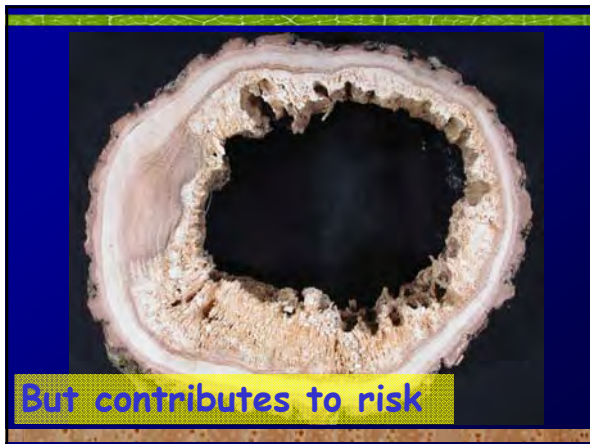


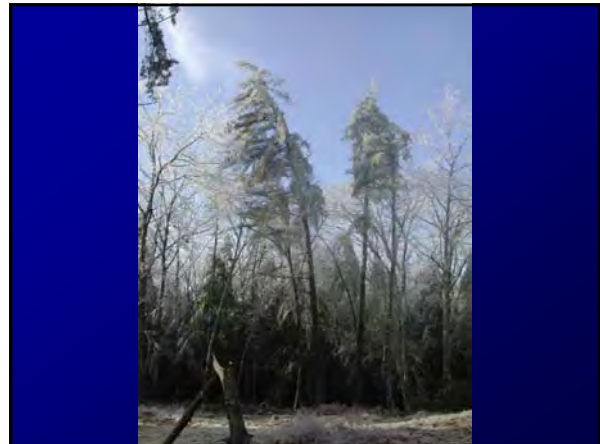
Drill hole injury in red maple

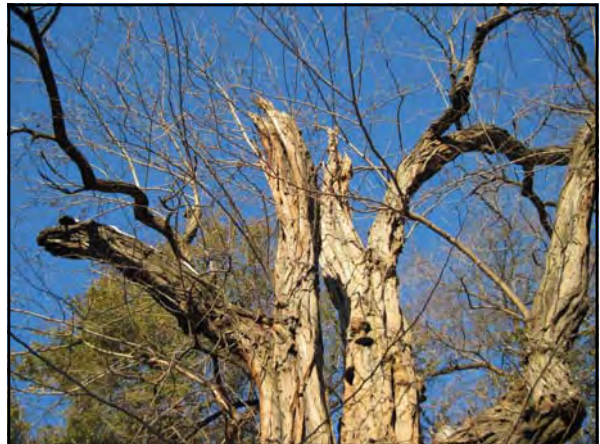
Columns of wood discoloration and decay





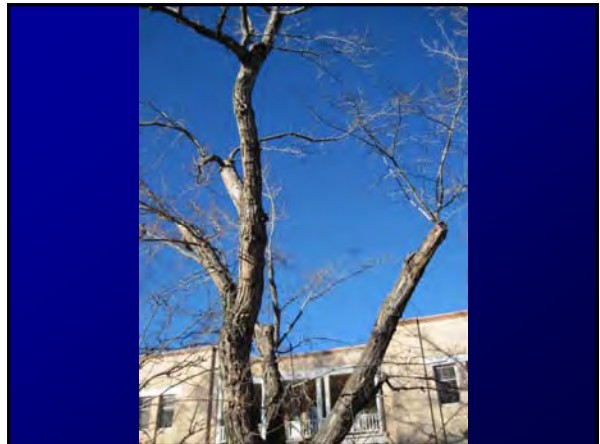
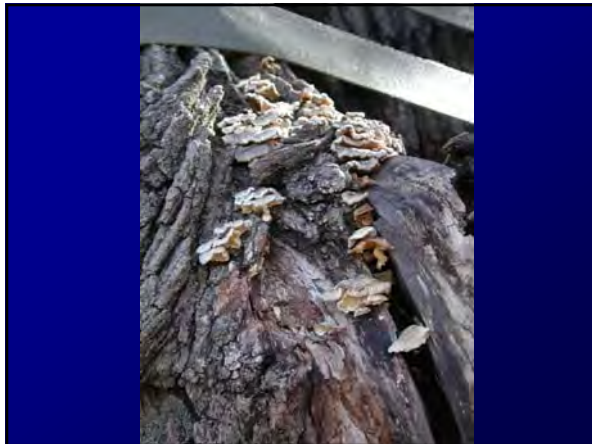




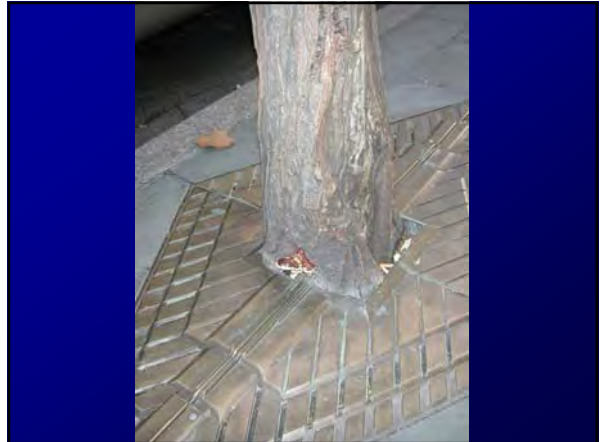












Challenges for veteran trees

Reduced income

Increased expenses

Reduced resilience

Accumulated exposure