

USDA Forest Service

URBAN FOREST CONNECTIONS

webinar series

Second Wednesdays | 1:00 – 2:15 pm ET

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URBAN FIA: BRINGING THE NATION'S FOREST CENSUS TO URBAN AREAS



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Overview

- Where we were
- Shifting our viewpoint
- Where we are going
 - Developing the Framework
 - The 3 “legs”

Traditional focus – public trees



Traditional Inventory: Individual trees

- Street Trees
- Park Trees

Traditional Management:
The care of a population of
individual public trees

- Planting
- Maintenance
- Removal

Traditional State UF Programs

Assist communities to develop public tree management programs

Traditional State UF Inventories:

Assessment of community programs

- Staff
- Budget
- Ordinance
- Advocacy
- Inventory & Management Plan
- Operations

Result:

State urban foresters
became program managers
not forest managers.



But WDNR Forestry's purpose is to:
Sustainably manage Wisconsin's
forests to provide the full array of
benefits...

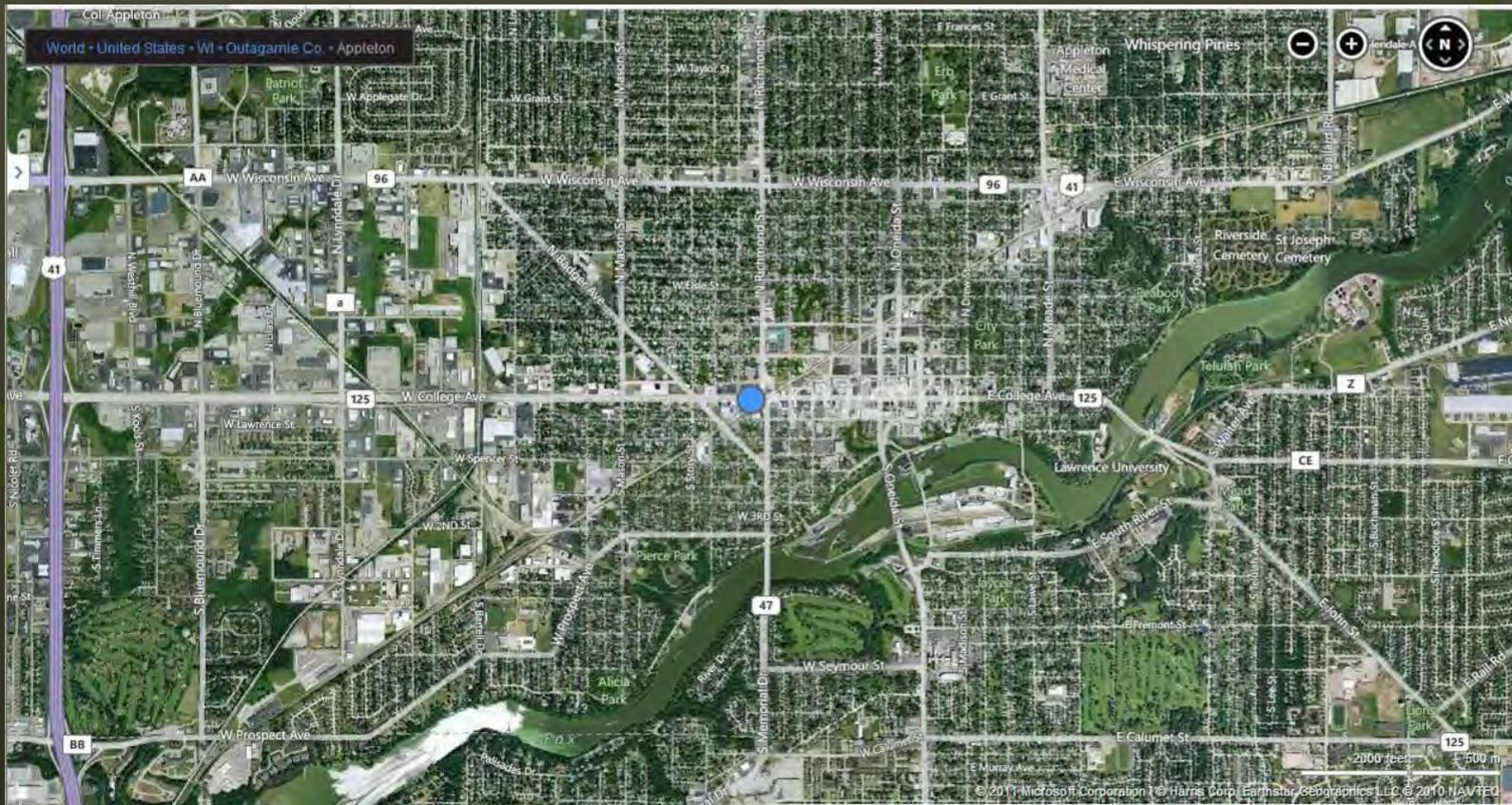
Shifting our Perspective

Urban Forest:

All the trees and other vegetation in and around a city, village or town development.



Shifting view from street to air:
The urban forest is a canopy of green.



Shifting purpose from just How to How and Why



Environmental benefits

- Erosion control
- Storm water management
- Air purification
- Energy/CO₂ reduction



Economic benefits

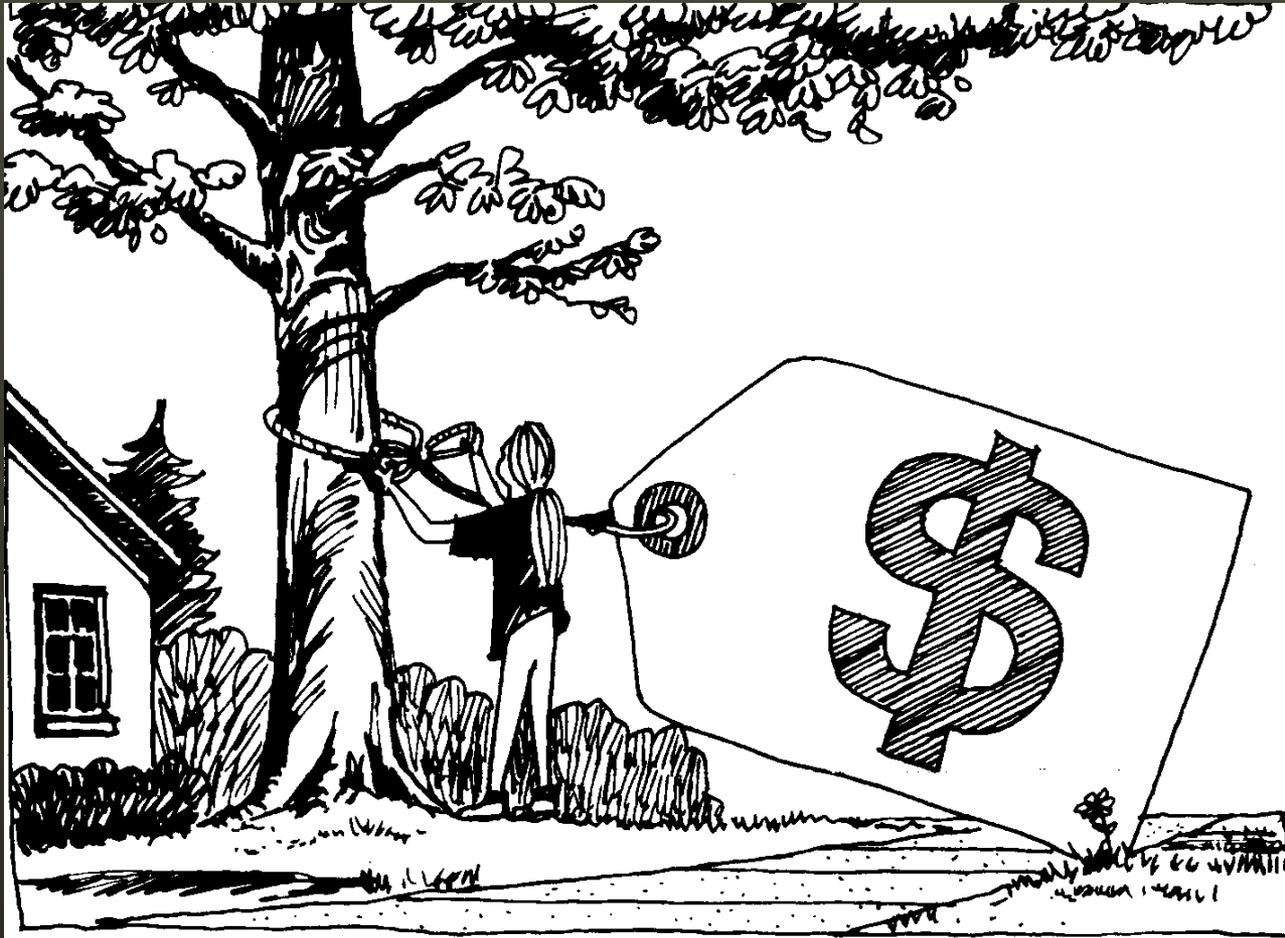
- Higher property values
- More money spent
- Environmental savings
- Jobs



Social benefits

- Human health
- Sense of Place
- Lower crime
- Beauty

How do we quantify all this?



A Serendipitous Opportunity

National Forest Health Monitoring Program

Urban Forests of Wisconsin: Pilot Monitoring Project 2002



An Urban Forest Inventory

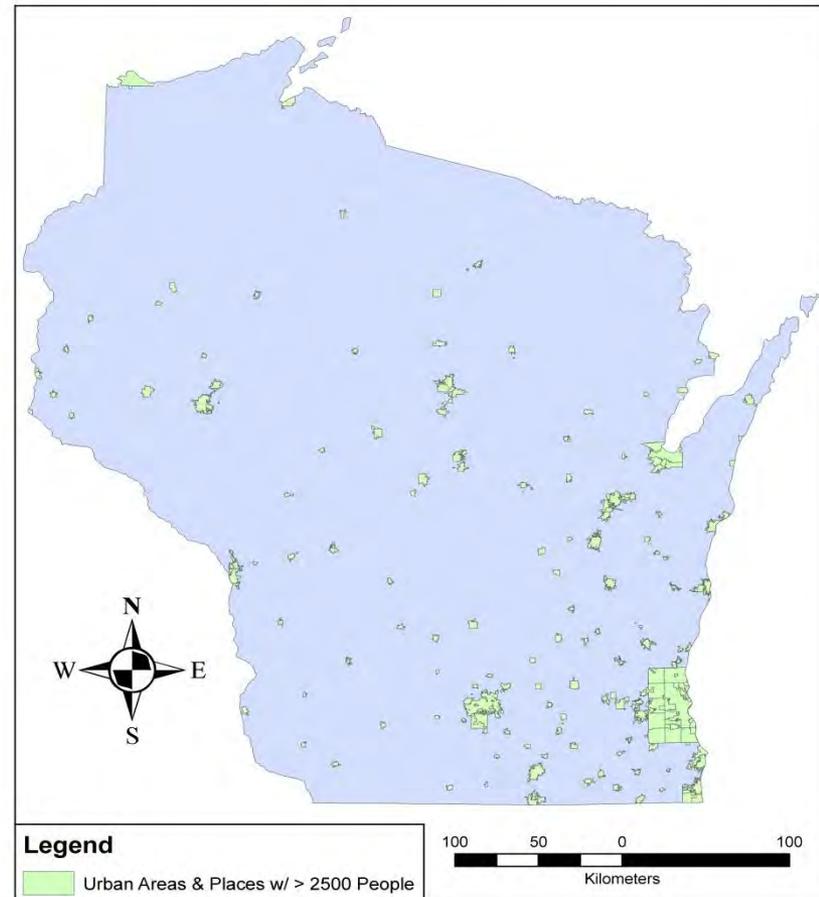
Urban Areas Sampled

- 1000 people / sq. mi.
- “Places” over 2500 pop

**111 plots crossing all
ownerships**

Forest character

UFORE value analysis



Value to Communities of all Public and Private Trees

27 Million Trees:

Replacement cost: \$10.9 billion

Carbon Storage: \$41 million

Carbon Sequestration per year: \$2.9 million

Pollution Removal per year: \$36.3 million

Additional Benefits Provided by Private Trees

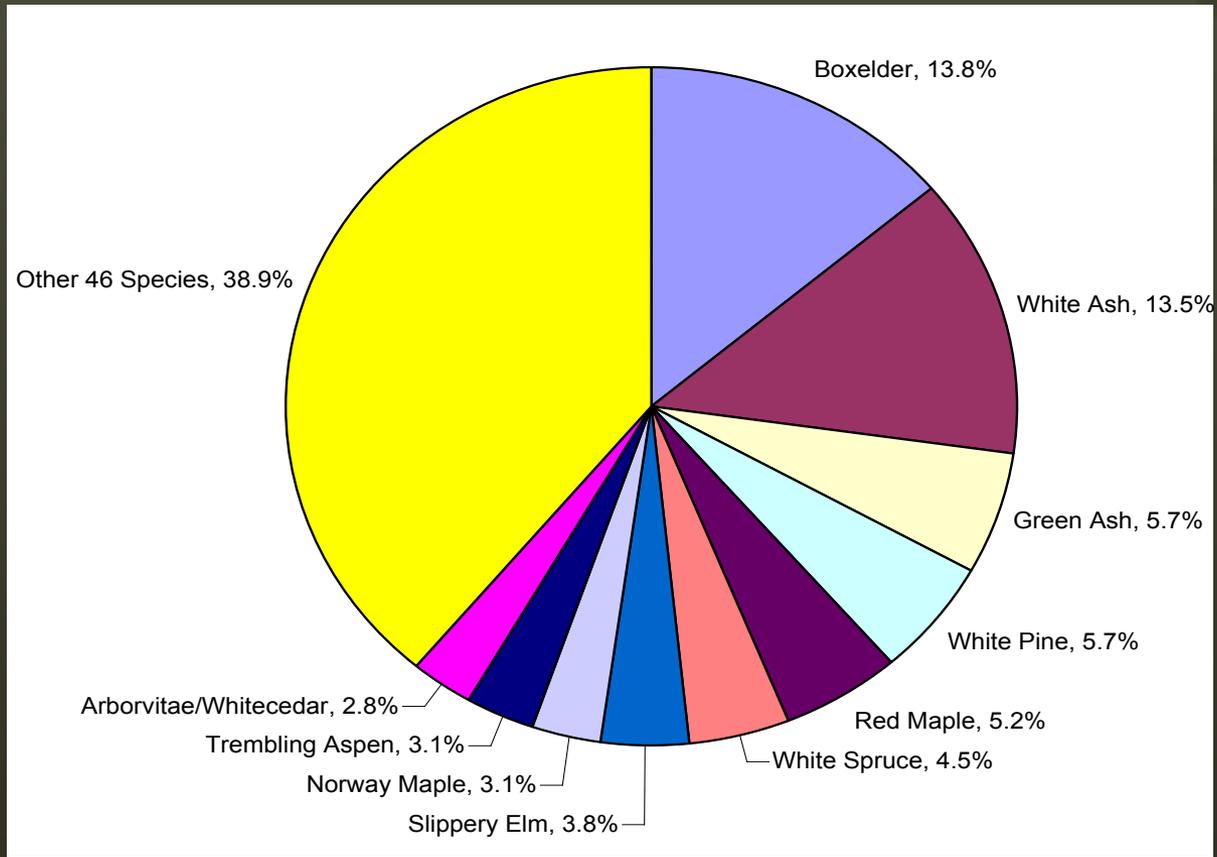
Shading of buildings:

Reduced Heating Costs per year: \$13 million

Reduced Cooling Costs per year: \$11 million

Carbon Emissions Avoided per year: \$1 million

Risk: Species Diversity



56 Different Species

Maple – 23%; Ash – 20%

So What? Emerald Ash Borer!

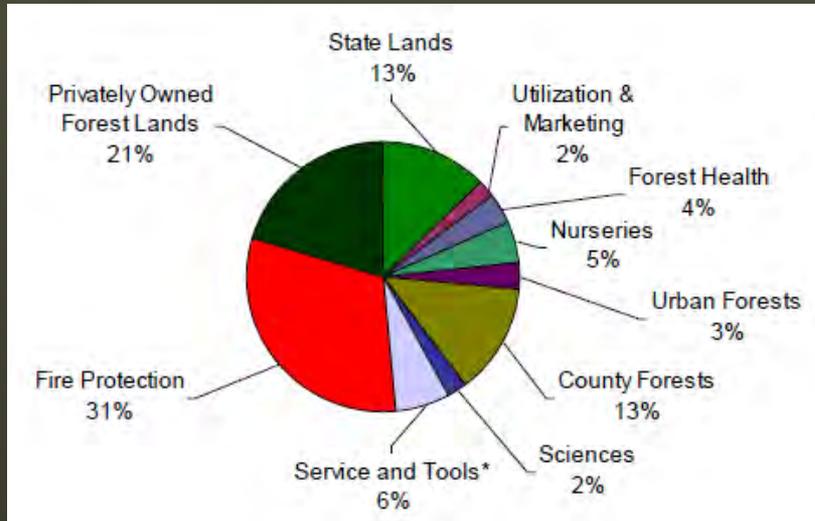


- 5.2 million ash
- Value of the ash: \$1.5 billion
- Removal & disposal: 2-3X
- Lost Canopy = Lost Benefits

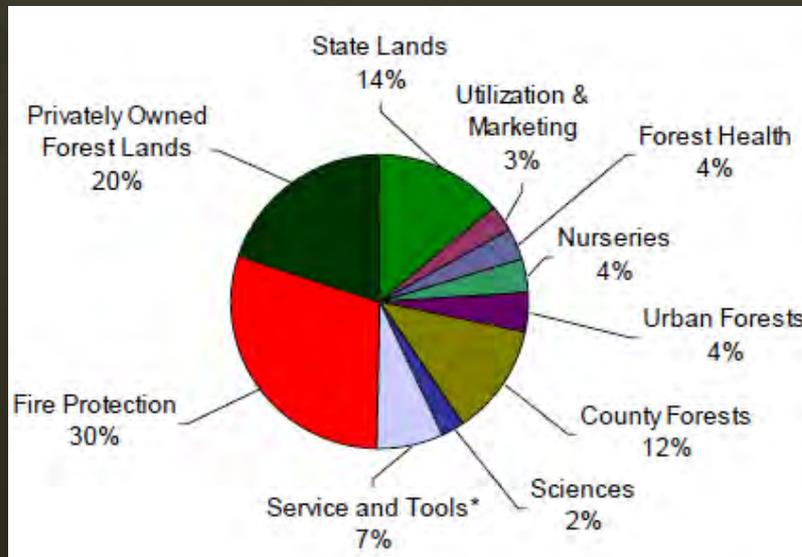
Conclusion:

- EAB is a major economic environmental and social risk

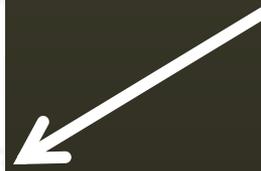
Data Captured Forestry Leaders:



Before - 3%



After - 4%



Value and Threat captured the Legislature:



WI Urban Forestry Grant Program

Before testimony: \$0 (-100%)

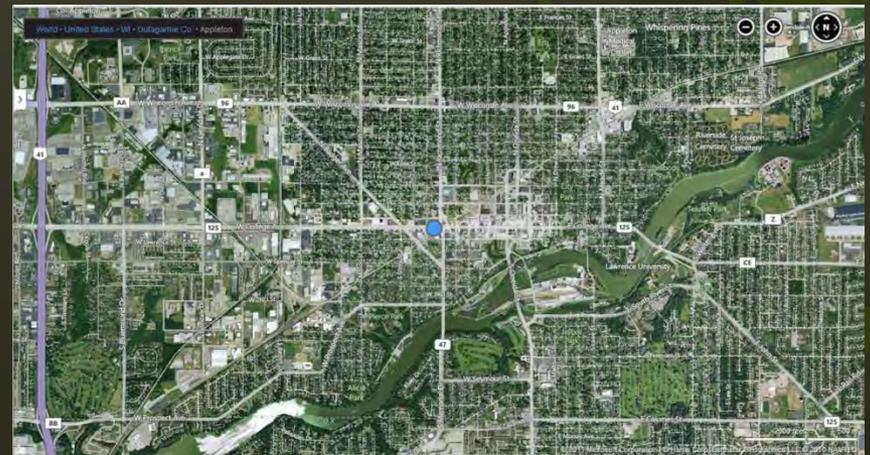
After testimony: \$524,400 (+99%)

These results changed our strategy



From: only helping
community
governments
manage their public
trees

To: helping entire
communities maximize
benefits and services
from their urban
forest canopy

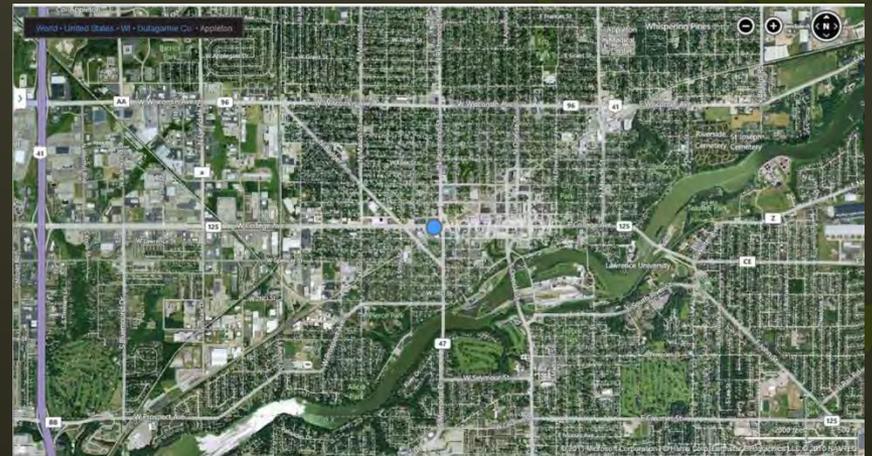


These results changed our policies



From: Funding tree management, e.g. planning, planting, maintenance, removal

To: Funding forest resilience, e.g. no grants for planting over-represented genera: maple & ash



Where are we going?

Developing a Wisconsin Continuous Urban Forest Assessment System



Goals

- Manage a healthy statewide urban canopy in a sustainable manner to provide a full array of benefits for the people of Wisconsin.
- Our niche is to collect, collate and analyze data, prioritize statewide management goals and to provide this information to our partners to guide their management decisions.

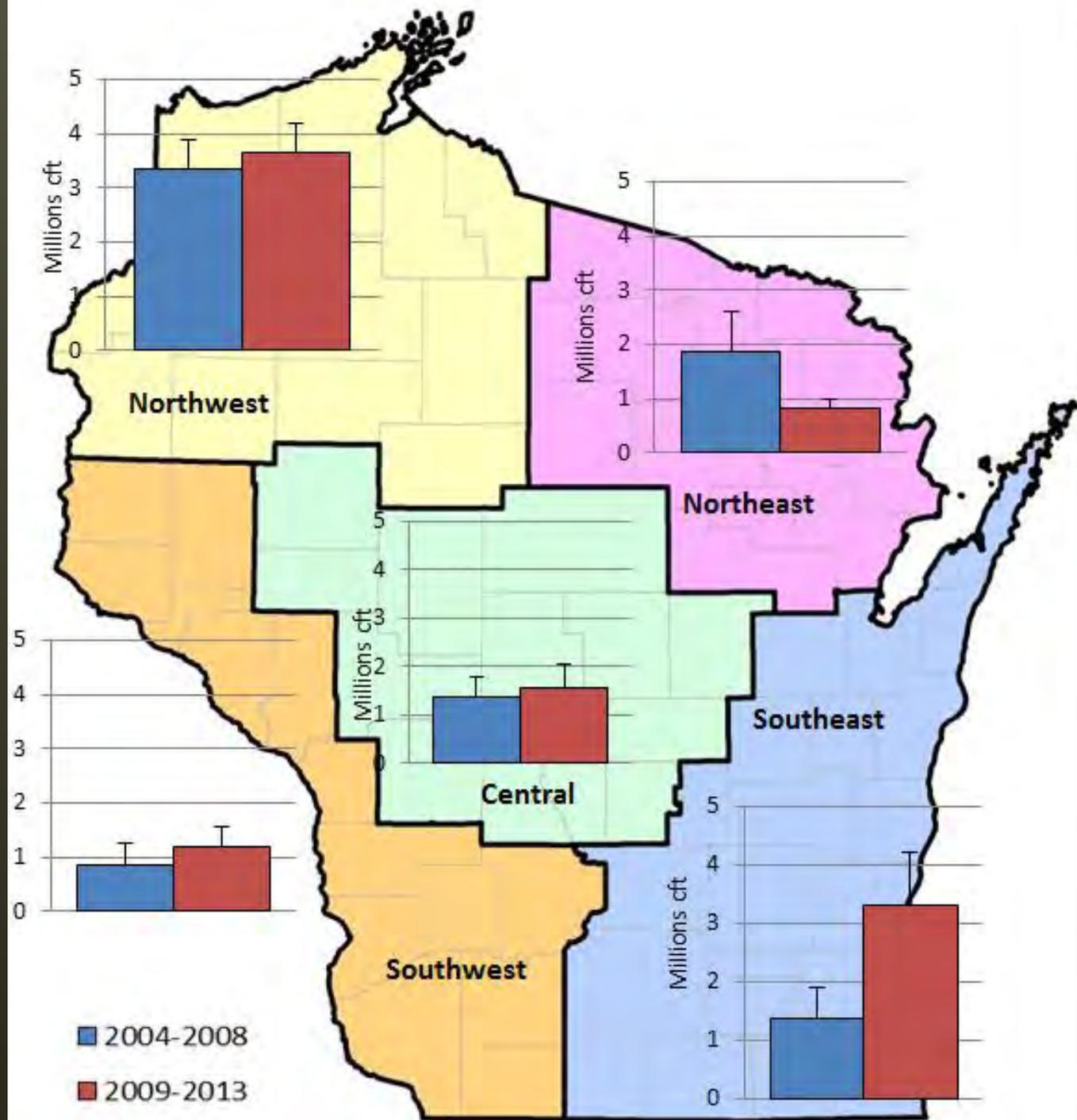
Attaining Our Goals

- In order to do that, we need to:
 - Better understand and quantify those the benefits of a healthy urban forest
 - Monitor urban forest characteristics to help assess those benefits as well as forest health, resilience and sustainability etc.
 - Monitor and assess changes through time
 - Adapt as new technologies or data becomes available.

What do we really want to know, anyway?

- Some questions we already know:
 - Quantitatively, what is the urban forest canopy cover, and how does it change over time?
 - What is the canopy composition, and how does it change over time?
 - What are the reasons for canopy and composition change?
 - What is the value (and values) of the urban forest of this state?
 - Is our urban forestry program effective?

Mortality rates in ash species by FIA survey unit.



What do we really want to know, anyway?

- Some questions we don't already know:
 - What do our traditional clientele want to know?
 - Traditional timber volume and value estimation?
 - Applications in WUI?
 - Early pest and disease detection?
 - We are soliciting input from our partners

How are we going to get there?

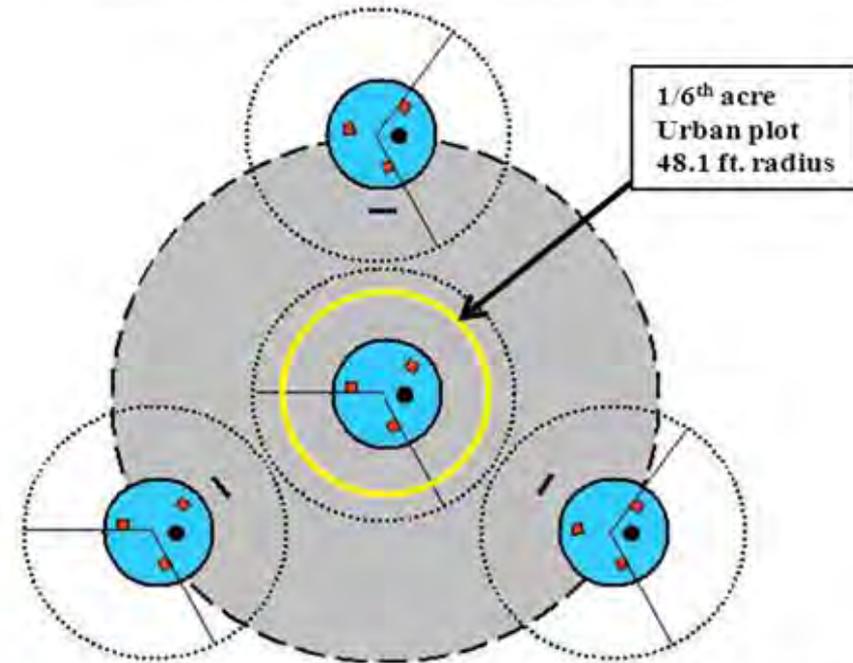
The “three legged stool”



“The first leg”

- Plot-based, continuous inventory and analysis on all ownerships to characterize the urban forest and its benefits
- First measurements done in Madison and Milwaukee
- Spring 2016 measurements will continue in all urban areas

Phase 2/Phase 3 Plot Design



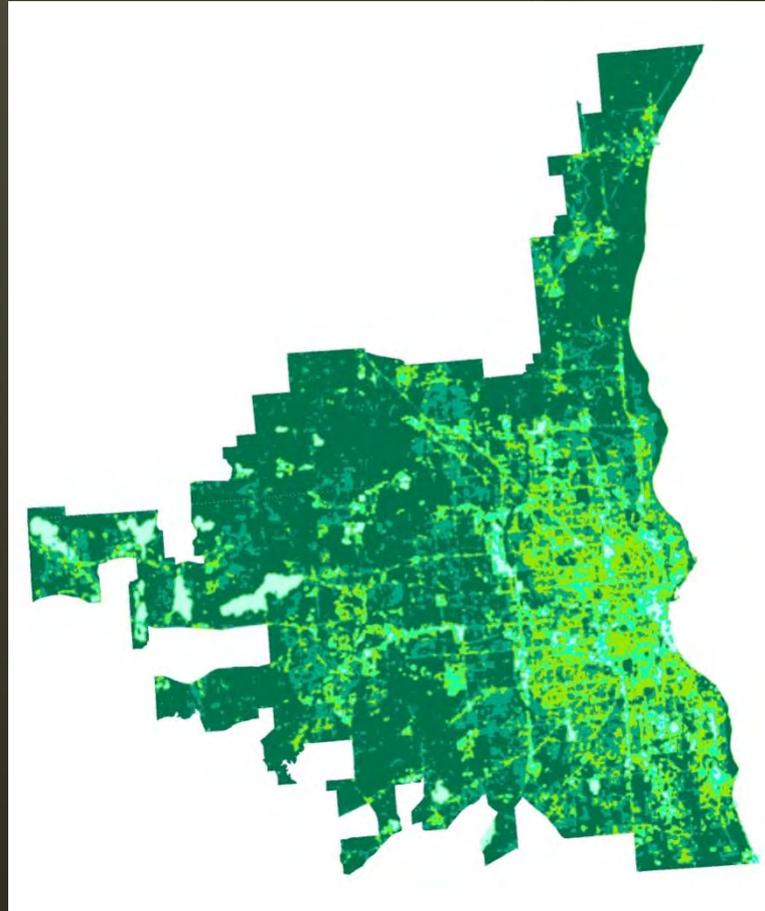
● Subplot	24.0 ft (7.32 m) radius
● Microplot	6.8 ft (2.07 m) radius
○ Annular plot	58.9 ft (17.95 m) radius
○ Lichens plot	120.0 ft (36.60 m) radius
■ Vegetation plot	1.0 m ² area
— Soil Sampling	(point sample)
— Down Woody Debris	58.9 ft (17.95 m) transects

“The second leg”

- Aggregation of existing municipal tree inventories to get a more complete picture of public trees
- These datasets are very useful in certain ways, but also have drawbacks
- Other data sources may also become available

“The third leg”

- Remotely sensed data to measure canopy change and spatially prioritize service
- The methodology is nearing completion; product should be available in 2016



“The fourth leg?”

