i-Tree: Maintaining Healthy Cities

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Urban Trees: “The hardest working trees in America”
80% of the U.S. population lives in 3% of the land base
Urban Attributes
About 60% of the U.S. population lives in areas that do not meet clean air standards for ozone.
- 50% of assessed US rivers and streams are classified as impaired
- 66% of assessed US lakes, reservoirs and ponds are classified as impaired
- About 70% of US population lives within 10 miles of impaired waters
In 1920, the urban and rural population were about equal.

Today, our nation’s population is > 80% urban.
Percent Urban Land (2010)
City Tree Cover Change

The U.S. Landscape is Changing
Urban Forests treated like Junk in Grandma’s Attic
What is i-Tree?

A suite of free tools to assess vegetation and their ecosystem services and values.
<table>
<thead>
<tr>
<th>Urban Vegetation Benefits</th>
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<tbody>
<tr>
<td>Air quality improvement</td>
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<td>Water quality improvement</td>
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<tr>
<td>Greenhouse gas reduction</td>
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<td>Building energy use conservation</td>
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<td>Increased property values</td>
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<tr>
<td>Health benefits</td>
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<td>Cooler air temperatures</td>
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<tr>
<td>UV radiation reduction</td>
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<tr>
<td>Wildlife habitat</td>
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<tr>
<td>Products: timber, food, fiber, ethanol</td>
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<tr>
<td>Social / Aesthetics</td>
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<tr>
<td>Noise reduction</td>
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<td>Economic: jobs</td>
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Goals

Simple and free tools and methods to aid in landscape planning and management

Complete process – start to finish
Public-Private Partnership

- USDA Forest Service
- Davey Tree Expert Co.
- National Arbor Day Foundation
- Society of Municipal Arborists
- International Society of Arboriculture
- Casey Trees
Current Features (version 4.0)

- Collect data on individual trees or tree populations
- Assess ecosystem services and values
- Select best species
- Assess storm damage costs
- Simulate effects on stream flow and quality
- Monitor canopy cover using Google Maps
- Basic mapping functions
i-Tree Use

Program distribution increasing about 25% per year

Distributed to over 90 countries
Web traffic on the rise
Known Impacts

- emerald ash borer protection
- build financial support for urban forestry programs
- link local tree data with the U.S. Conference of Mayors Climate Protection Agreement
- public outreach campaigns on tree benefits
- develop urban forest management plans
- secure financing for tree planting and management
i-Tree 2nd Generation (3 Flagship Programs)

- On-line Mapping tools
- Growth / Mortality / Influx rates
- Land / Tree Cover Maps
- Projected Development
- Google Maps
- Digital Cover Maps

Local Scale
Regional Scale
Upcoming Features

- Projections of tree pop. and canopy cover
- Enhanced differentiation by species
- Invasive plant composition / risk
- New insect and disease pest ratings
- Climate change projections
- Web server and mobile apps
- Projected development patterns
- Priority planting and protection maps
  - Temperature, pollution, eco. services, etc.
Conclusion

i-Tree:
- Provides simple means to assess and value vegetation services
- Improves landscape stewardship decisions
- More to come
Questions?

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