i-Tree: Quantifying the Ecosystem Services of Our Forests

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What is i-Tree?

- A Suite of USDA Forest Service Urban and Community Forestry Analysis and Benefits Assessment Software

- The goal:
  - ✓ Provide the tools to help you, your business, and your community to promote cost-effective urban forest management and sound arboricultural practices.

Forest Service Research & Development

- Independent development of urban forest analysis applications

  - ✓ Ecosystem analysis tools
  - ✓ Street tree analysis tools
  - ✓ Inventory management tools
  - ✓ Storm damage assessment tools

Pulling it Together

- Public-private partnership was formed to deliver all Forest Service applications in a single software suite called i-Tree:
  - ✓ Credible, peer-reviewed tools you can trust
  - ✓ Offered free to any individual, organization, business, or municipality
  - ✓ Free technical support
  - ✓ Free regional training workshops

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What's Included?

- Two urban forest assessment tools:
  - ✓ Assessing urban ecosystems
  - ✓ Assessing street tree populations
- Multiple Utilities:
  - ✓ Increase data collection efficiency
  - ✓ Additional analysis
  - ✓ Data management
  - ✓ Reporting

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Assessing Urban Ecosystems

UFORE (Urban Forest Effects Model)

- ✓ Structure & health
- ✓ Environmental effects
  - ◆ Energy
  - ◆ Air pollution
  - ◆ Stormwater
  - ◆ Value
  - ◆ Pest impacts

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Assessing Street Tree Populations

STRATUM (Street Tree Resource Analysis Tool for Urban Forest Managers)

- ✓ Structure
- ✓ Function
  - Energy
  - Air pollution
  - Stormwater
  - Carbon
  - Property Value
- ✓ Value

	Total ($)	$/capita	$/tree
Benefit	501,064	11.31	93.64
Cost	94,000	2.12	17.57
Net Benefits	407,064	9.19	76.07
Benefit-Cost Ratio	5.33	5.33	5.33

Utilities Provide Added Functionality

- **MCTI** (Mobile Community Tree Inventory) is a basic tree inventory application that allows communities to conduct tree inventories and analyses at various levels of detail and effort.

- The **Storm Damage Assessment Protocol** provides a standardized method to assess widespread storm damage in a simple, credible, and efficient manner immediately after a severe storm.

- **Tree Inventory PDA Utilities** to aid field data collection, management, and transfer.

- **Sample Inventory Generator Utilities** to determine where to collect field data for sample inventories.

- **Report writers** to generate reports, graphs, charts and tables for summarizing data and results.

The Value of i-Tree

i-Tree in Large Cities

- Typical Existing Resources:
  - ✓ Street tree inventory
  - ✓ Tree advocacy group
  - ✓ Urban forester/arborist

- Problem:
  - ✓ Stagnant urban forest management budget

- i-Tree Usage Scenario:
  - ✓ Highlight benefits of trees to spur increased investment in urban forest management.

Large City i-Tree Process

- Existing arborist/urban forester trains at regional workshop
- Run STRATUM with existing street tree inventory
- Utilize non-profit volunteer base to conduct sample UFORE inventory
  - ✓ Trains volunteers
  - ✓ Manages data collection using PDA Utility
- Utilizes reports to highlight benefits to City Council, develop 5-year management plan, and promote residential stewardship in trees.

Large City Results

- City Council understands that trees are a valuable asset that requires proactive management; they move to increase management budget.
- 5-year plan defines role of forester/arborist with concrete goals and milestones.
- Residents understand the value of trees and invest in proper care.

i-Tree in Small Cities & Towns

- Typical Existing Resources:
  - ✓ No formal municipal tree program
  - ✓ Inactive or non-existent tree advocacy group
  - ✓ Formal Tree Board that meets monthly
- Problem:
  - ✓ No tree program or advocacy.
- i-Tree Usage Scenario:
  - ✓ Develop a advocacy campaign to increase public awareness of benefits of maintaining trees

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Small City i-Tree Process

- Intern trains at regional workshop and recruits volunteers for data collection
- A sample street tree inventory is conducted
  - ✓ STRATUM is used demonstrate the environmental services of trees
  - ✓ Storm Damage Assessment Protocol is used to lay groundwork for FEMA reporting
- Intern uses i-Tree reports to develop promotional materials

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Small City Results

- City has foundation for collecting FEMA funds in the event of large-scale storm damage.
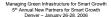- Advocacy campaign promotes awareness and residential tree stewardship.

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Benefits to the Community

- Low-cost, accessible, supported product
- Information for planning & advocacy
- Standardization of data for comparisons with other communities
- National allocation standards

- Leads to increased investment & healthier community

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When Can I get i-Tree?

- Website (http://www.itreetools.org)
- Workshops – Clemson, Golden: 2006
- Integrated, complete version in June 2006
- Yearly updates for added utility & functionality

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Increased Urbanization Means:

The assessment, understanding, and integration of ecosystem services will be critical to sustaining human health and environmental quality

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Questions?

- For more information visit:
  - ✓ www.itreetools.org
  - ✓ Sign-up on the mailing list for latest updates
  - ✓ Email: info@itreetools.org

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