
Specific Urban Tree Inventories
Urban Forestry Institute
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What is a tree inventory?

- A tree inventory is the collection and *dissemination* of accurate information on the health and diversity of the urban/community forest

Why do we need to inventory our trees?-Definition-Dr. C.

- What do we have?
- What do we want?
- What are we going to do?

Specific Reasons for conducting tree inventories

- Determine the need for a tree management program
- Knowledge of the value of the urban forest resource
- Identify priorities
- *Increase efficiency of tree management/**Time is $$$**
- Public information and education

Information that can be generally collected

- Species: Scientific names preferable
- Size: Dia, ht, crown spread (one or all)
- Condition: Health of the tree. Is the tree a hazard? Pruning? Insect, disease problems? Mechanical injury (for example: weedeaterites)
- Mang/maint: Record things like fertilizer recommendations, irrigation, etc.
- Planting spaces: What is available?
- Historic trees

Special types of inventory “Packages” Available Compare and Contrast

- Inventory software applications
  - ArborVue
  - Arbor Pro
  - Tree Keeper
- Environmental services tools (i-Tree)

***** The system used needs to support not control management objectives***

Reasons for selecting a particular software application

Know your resource

- Do your homework!
- Don't let the technology control you. You control the technology
- $$-Is it worth it?
- Do we have the expertise?
- Are you really going to use the data. **Remember and inventory is out of date as soon as it is collected!

Forest violence

ArborPro

- Developed by ArborPro Mang Software
- Mang trees, landscape and *physical assets.
- Services provided include:
  - Tree Inventories
  - Maintenance History
  - GIS Mapping
  - Tree Hazard Assessments
  - Crew Management Program
  - Budgeting
- Cost approx $5K

ArborVue

- Developed by Laurus Group
- Tree inventory management software
- Provides the following services:
  - Inventories
  - Maintenance history
  - GIS mapping
  - Budgeting
  - Tree damage evaluations
  - Unlimited data storage
- **Cost approx $3K, then additional technical support provided ($)

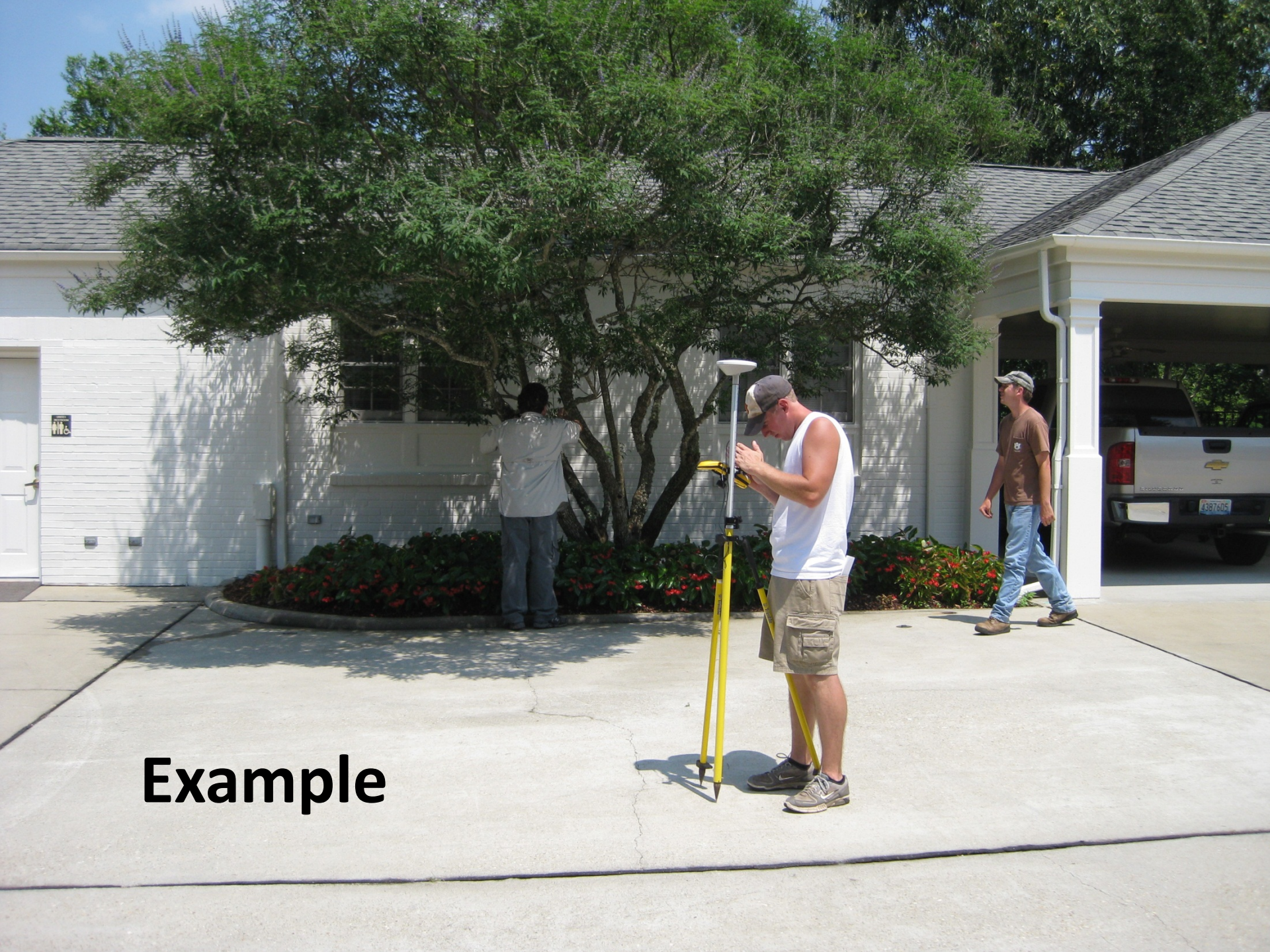
TreeKeeper

- Davey Resource Group
- Internet-driven***
- Services include:
  - Tree Inventories
  - Tracks Maintenance History
  - Tracks Service Calls
  - GIS Mapping
  - Tree Hazard Assessments and Valuations
- Cost varies by city. Can be standalone or on a network. Davey will provide tech support $

i-Tree

- Developed by USDA FS, Davey Tree Epert Co., Arbor Day Found., SMA, and ISA.
- Free and in public domain
- Can provide most of the other services but allows managers to analyze and assess ecosystem services

***Can take time to complete


Example

Inventory Application Example: Auburn University

- Used program developed by the USDA Forest Service (i-Tree Eco, formerly UFORE) to determine ecosystem services on campus
- Also used data to help develop management plan on campus & Tree Campus USA program
- Completed a 100% inventory

I-Tree Eco pilot project

- Project Overview:
  - Project was initiated in May 2009
  - Inventory managed areas of the AU campus
- Project Objectives:
  - Conduct a 100% inventory an i-Tree Eco compatible form and complete GIS database layer from the data (i.e. tree locations will be captured).
  - Analyze model components relative to southern species & models, and make i-Tree Eco plot sampling comparisons with the 100% inventory.
  - Develop class & field training material and conduct a regionally advertised training class for i-Tree Eco including QA/QC components.

➢ Specific Objectives:

1) Conduct a 100% tree inventory of all managed areas of the AU campus
2) Compare ecosystem services between an urban protected and urban managed forest
3) Develop predictive open-grown crown width equations for 3 southern urban tree species
4) Evaluate i-Tree Eco plot sampling protocol

http://www.itreetools.org/resources/manuals/i-Tree%20Eco%20Users%20Manual.pdf

http://www.itreetools.org/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100% Inventory

- Conduct 100% inventory in i-Tree Eco compatible form and complete GIS database layer from the data
  - 1, 2, or 3 person crew
  - GPS collection unit, ‘Loggers tape’, laser hypsometer
  - 16 attributes
  - Inventory completed in Spring 2010
  - Inventory covered approximately 600 ac:
    - AU main campus = 587 ac
    - Davis Arboretum = 13.5 ac

Inventory-Location

Inventory-Height

Inventory-Diameter

Tree Inventory-Crown Width

Inventory-Tree Health

100% inventory results as of June 2010

- Total of 8,236 trees
- 3,980,914 lbs of stored Carbon
- Sequesters 173,424 lbs of Carbon/year
- Auburn main campus:
  - Top species:
    - Crapemyrtle (*Lagerstroemia* spp.) 20.2%
    - Willow oak (*Quercus phellos*) 7.3%
    - Loblolly pine (*Pinus taeda*) 7.1%

	AU Campus	Davis Arboretum
Total Area (ac)	587	13.5
Number of Trees	7,345	891
Number of Tree Species	139	160
Average dbh (in)	6.5	9.6
Average height (feet)	28	42
Estimated Canopy Cover	16	62
Carbon Storage (lbs)	3,472,400	508,514
Gross Carbon Sequestration (lbs/year)	152,123	21,301
Air Pollution Removal Value ($)	15,880	3,013

Ecosystem services comparison

- Evaluation of Ecosystem Services
  - Compared AU main campus (urban) vs. the Davis Arboretum (protected)
    - Specifically: Carbon sequestration
  - Determined that Davis Arboretum sequesters 6x the amount of the AU main campus on a per acre basis
    - AU campus = 259 lbs/ac/year
    - Davis Arboretum = 1,578 lbs/ac/year
  - Protected Areas

Things to think about regarding inventories

- **The minute you finish an inventory is out-of-date**
- How much money are you willing to pay influences the type of inventory?
- How much time do you want to spend?
- Do you have the expertise locally, or do you need to hire a consultant?


Toomers' Corner@2008
Questions?