i-Tree User Group Meeting

2011 Partners in Community Forestry Conference

Agenda

- State of i-Tree (30 mins)
  - Where is i-Tree today?
  - Where is i-Tree going?
- Discussion (30 mins)
  - User question & answer period

What is i-Tree?

www.itreetools.org

A series of FREE tools to quantify ecosystem services and values from trees (Free support also)

What is i-Tree?

www.itreetools.org

Quantify effects for individual trees or tree populations (core programs)

All or any trees

Street trees

Google Maps

i-Tree is a Cooperative Initiative

DAVEY

Arbor Day Foundation

ISA

i-Tree: Quantifies Tree and Forest Resources

www.itreetools.org

Structure

- Number of Trees, species distribution, canopy cover, etc.

Functions / Ecosystem Services

- Energy use
- Air pollution
- Carbon
- Biogenic VOC emissions

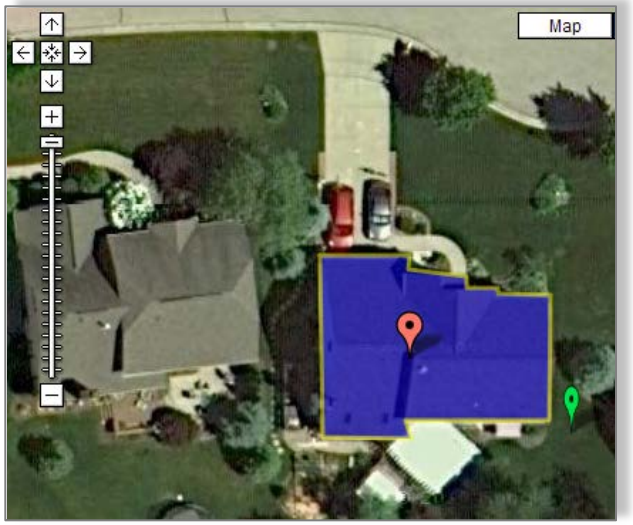
Management needs

- Pest risk
- Tree health
- Exotic/invasive spp.

$ Value

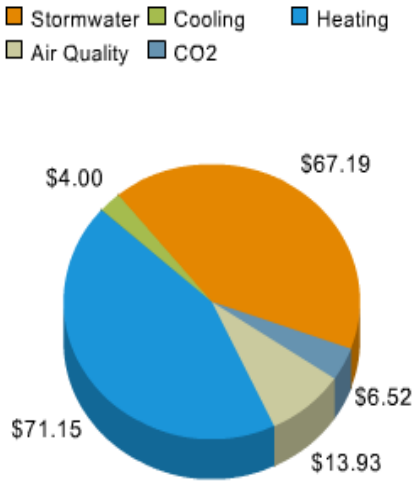
www.itreetools.org

i-Tree Design



Northern pin oak
Quercus ellipsoidalis

Easily estimates ecosystem services of trees in your yard using Google Maps and i-Tree



Breakdown of your tree's benefits

This 21 inch Northern pin oak provides overall benefits of: $163 every year.

While some functional benefits of trees are well documented, others are difficult to quantify (e.g., human social and communal health). Trees' specific geography, climate, and interactions with humans and infrastructure is highly variable and makes precise calculations that much more difficult. Given these complexities, the results presented here should be considered initial approximations-a general accounting of the benefits produced by urban street-side plantings.

Benefits of trees do not account for the costs associated with trees' long-term care and maintenance.

If this tree is cared for and grows to 26 inches, it will provide $195 in annual benefits.

What is i-Tree?

www.itreetools.org

Quantify map or cover data or effects

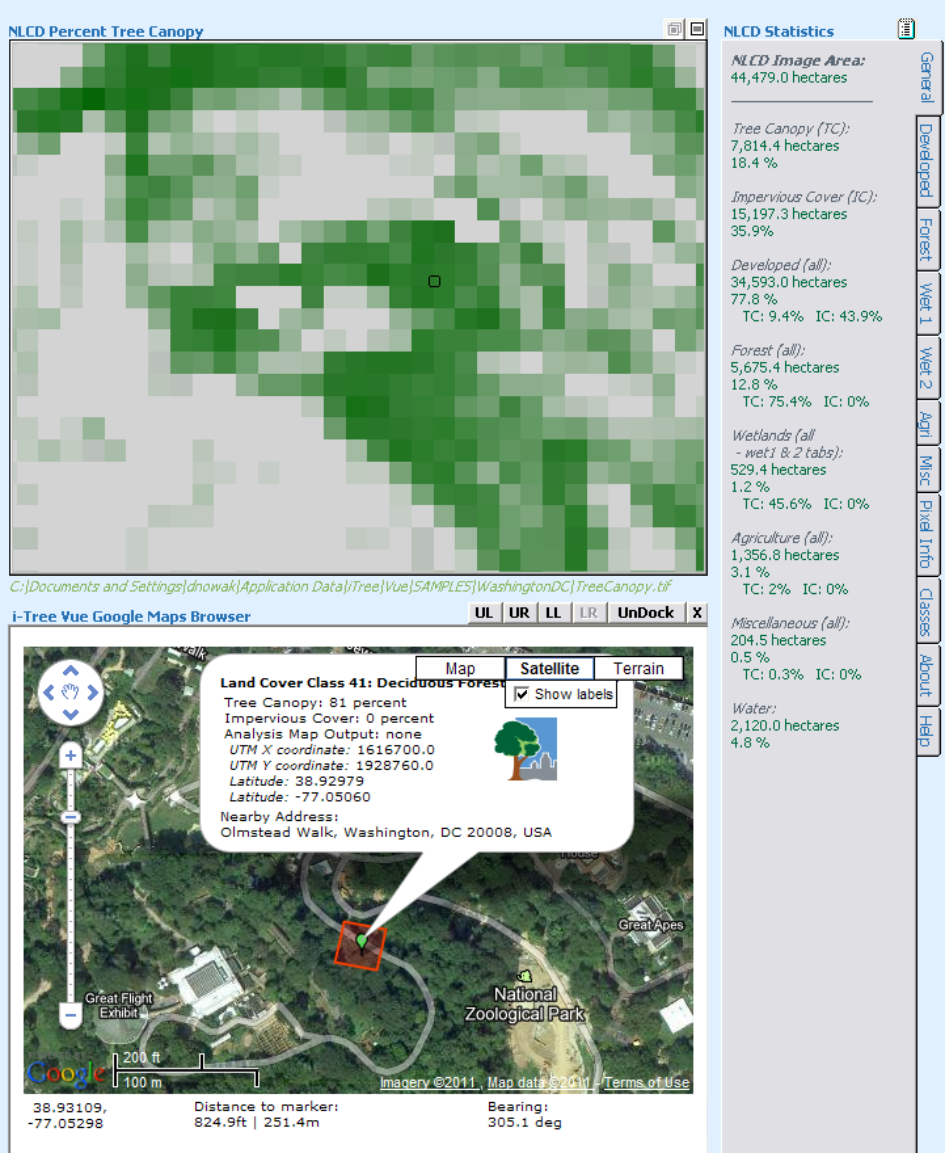
Google Maps

NLCD data

Photo-interpretation

www.itreetools.org

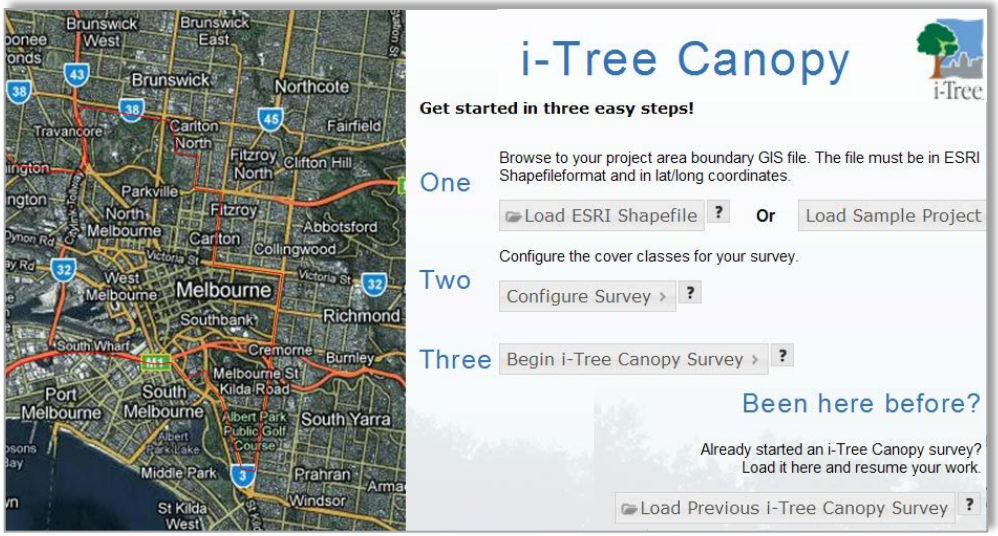
i-Tree Vue

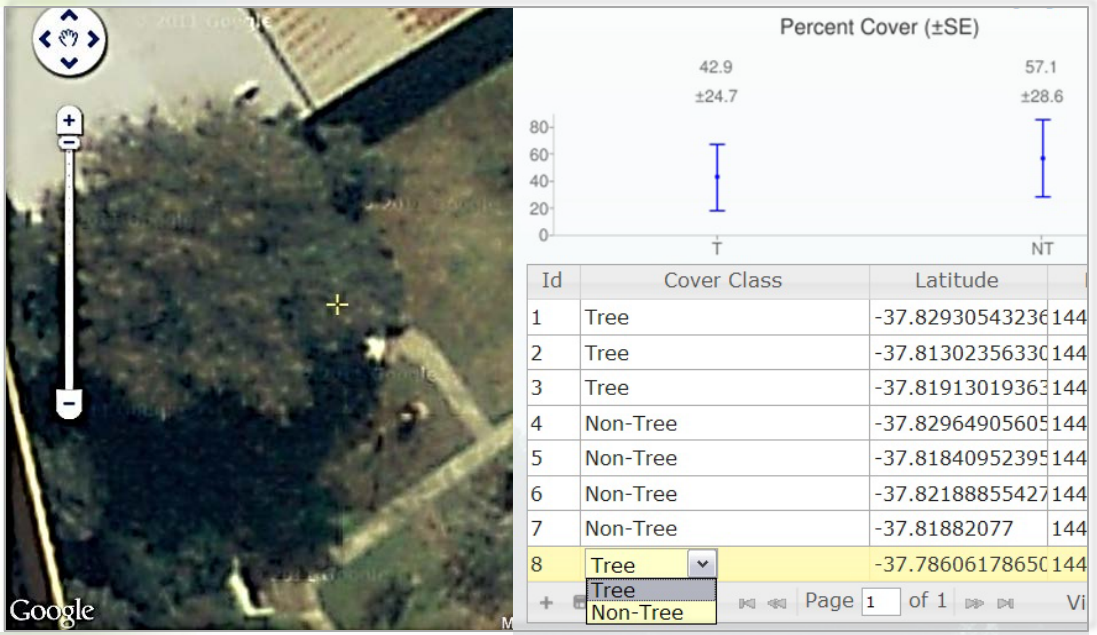


Uses national cover maps to estimate and project future benefits

www.itreetools.org

i-Tree Canopy





Determines % tree cover

- Easy & Fast
- World-wide
- Web-based

What is i-Tree?

www.itreetools.org

Specialized programs

Species selection

Stream flow and quality

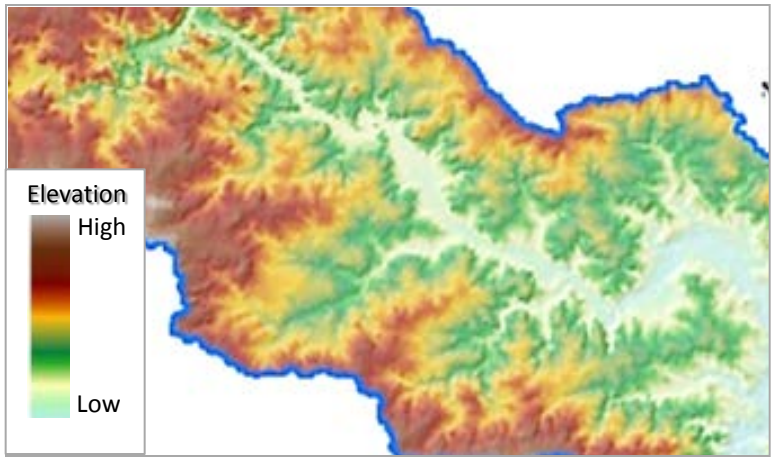
www.itreetools.org

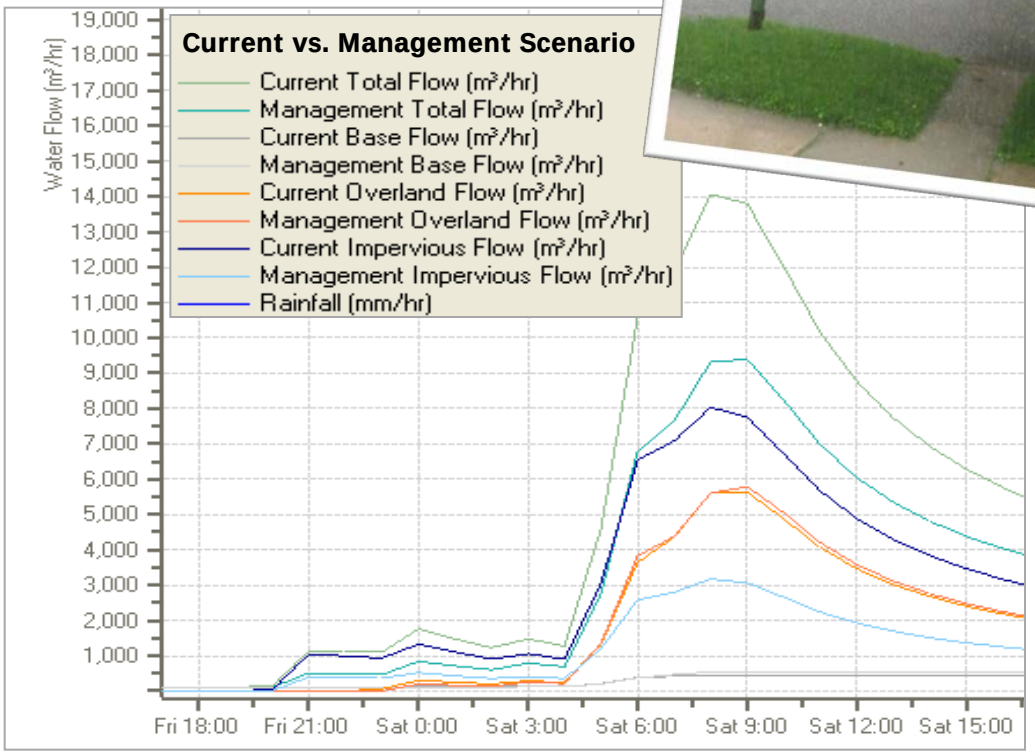
i-Tree Species

Easily determine best species for desired tree benefits

www.itreetools.org

i-Tree Hydro





Quantifies effects of:

- Tree cover
- Impervious cover

on:

- Stream flow
- Water quality

Version 5.0: Spring 2012

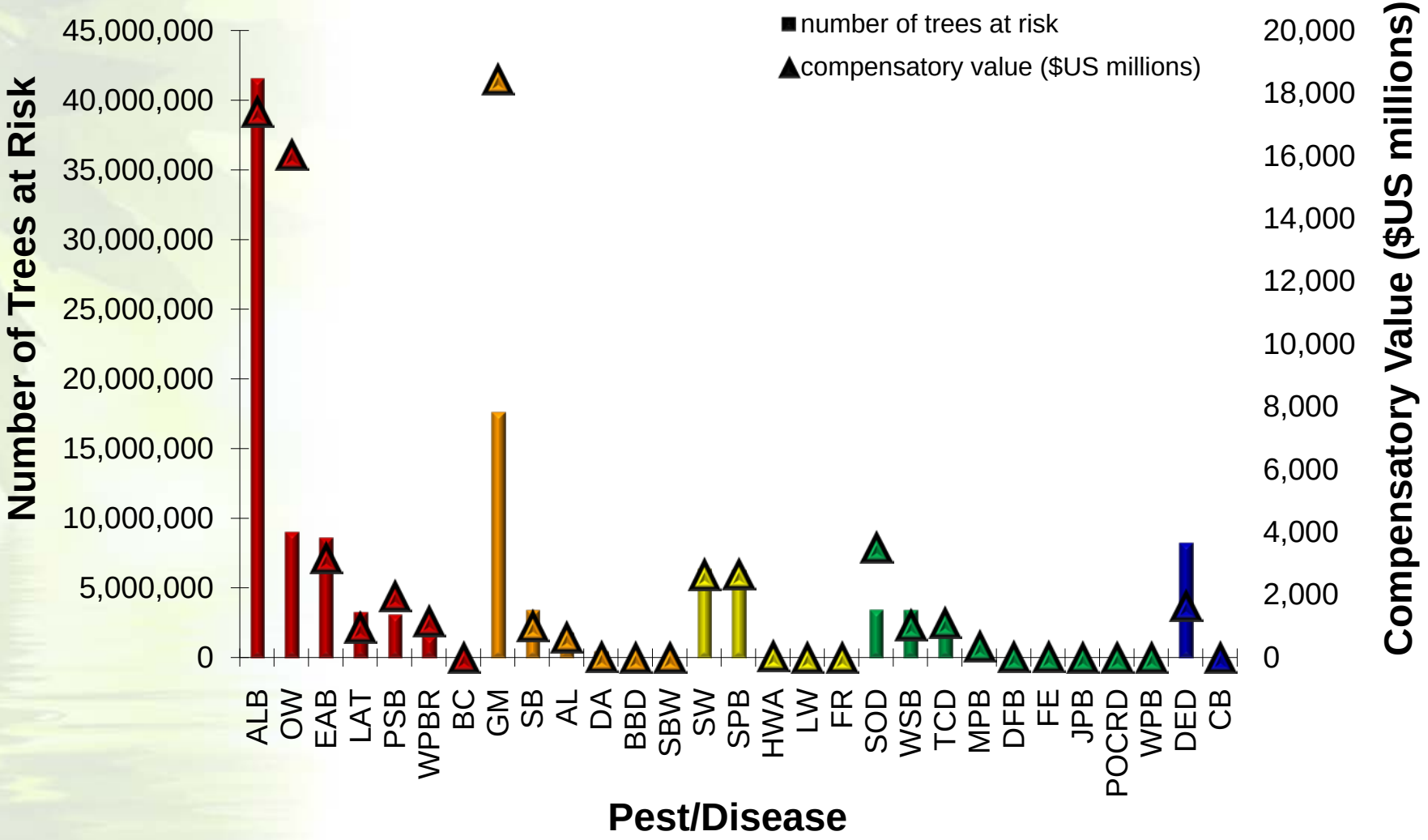
- Many new features
  - Invasive plant listing

Species listed as invasive or potentially invasive on Illinois or national invasive species lists

Scientific Name	Common Name[a]	% of Pop[b]	% of Leaf Area
Rhamnus cathartica	European buckthorn	28.2	6.55
Lonicera maackii	Amur honeysuckle	2.1	0.48
Robinia pseudoacacia	Black locust	1.9	1.93
Ulmus pumila	Siberian elm	1.4	3.24
Acer platanoides	Norway maple	1.2	3.57
Ailanthus altissima	Tree of heaven	1.2	0.70
Morus alba	White mulberry	1.0	0.84
Acer ginnala	Amur maple	0.5	0.16
Frangula alnus	Glossy buckthorn	0.3	0.09
Picea abies	Norway spruce*	0.2	0.61
Pyrus communis	Common pear*	0.2	0.24
Alnus glutinosa	European alder*	0.2	0.19
Pyrus calleryana	Callery pear	0.2	0.14
Populus alba	White poplar	0.1	0.62
Pseudotsuga menziesii	Douglas fir*	0.1	0.11
Maclura pomifera	Osage orange	0.1	0.11
Elaeagnus umbellata	Autumn olive	0.1	0.09
Prunus cerasifera	Cherry plum*	0.1	0.07
Syringa vulgaris	Common lilac*	0.1	0.01
Euonymus alatus	Winged burningbush	0.1	0.01
Catalpa speciosa	Northern catalpa*	<0.1	0.07
Ulmus parvifolia	Chinese elm*	<0.1	0.03
Phellodendron amurense	Amur corktree*	<0.1	0.02
Elaeagnus angustifolia	Russian olive	<0.1	0.02
Pinus sylvestris	Scotch pine*	<0.1	0.01
Acer palmatum	Japanese maple*	<0.1	0.01
Aesculus hippocastanum	Horsechestnut*	<0.1	0.01
Hibiscus syriacus	Rose-of-sharon*	<0.1	<0.01
Malus pumila	Paradise apple*	<0.1	<0.01
Corylus avellana	European filbert	<0.1	<0.01
Ligustrum vulgare	Common privet	<0.1	<0.01

[a] Species is only listed on national invasive species list (*)
[b] Percent of total population

New Pest Risk Ratings



Red indicates pest/disease is within Cook County
Orange indicates pest/disease is within 250 miles of Cook County
Yellow indicates pest/disease is within 750 miles of Cook County
Green indicates pest/disease is outside of these ranges
Blue indicates no data on pest range

i-Tree Eco Random Plot Generator

Load or Draw your project area boundary:

The file must be in ESRI Shapefile format and in lat/long coordinates.

Do you wish to conduct a survey that is:

- [x] Un-stratified
- [ ] Stratified

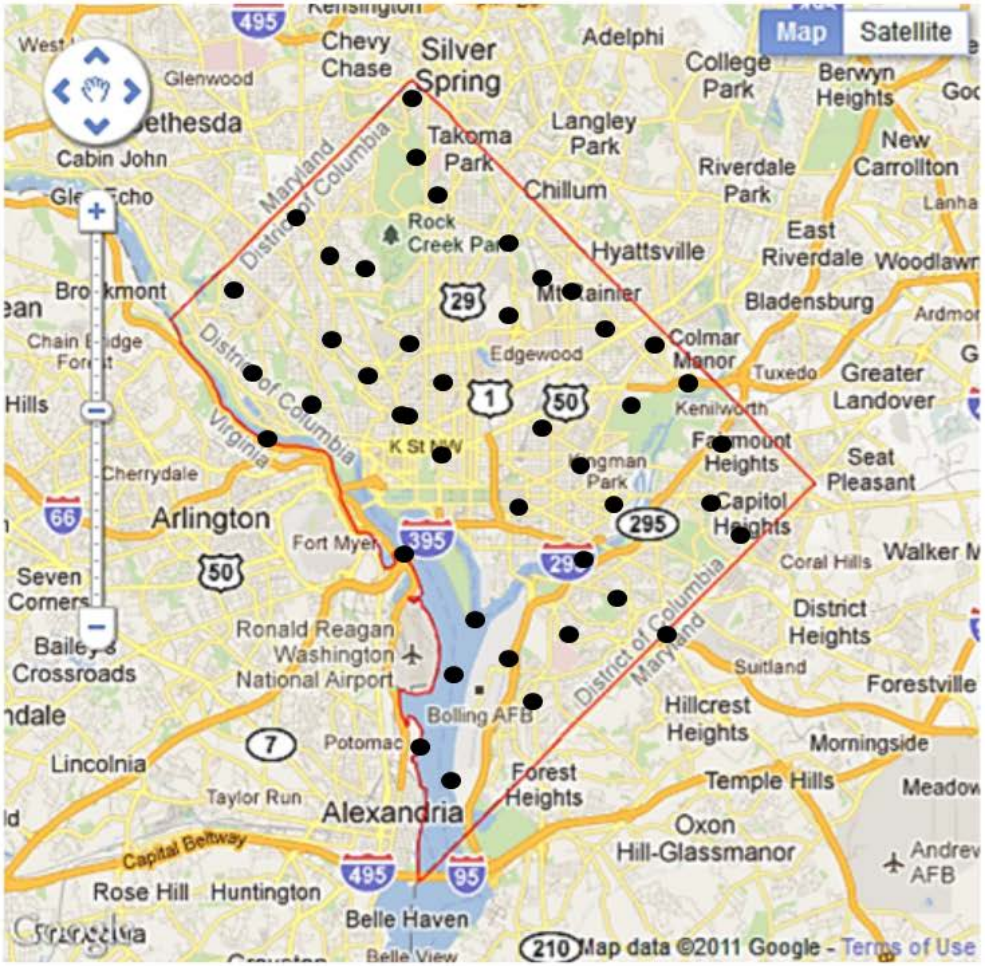
un-stratified = random plots throughout a single boundary area, such as a city or park.

stratified = random plots throughout multiple boundary areas, such as land use across a city

Enter the number of plots: 100

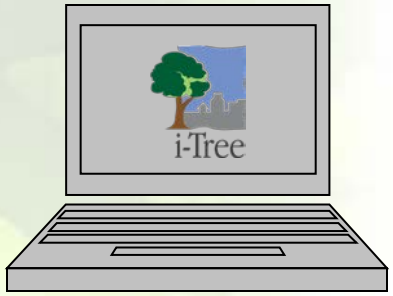
Select the plot size:

- ○ 1/5 acre
- ○ 1/5 hectare
- ● 1/10 acre
- ○ 1/10 hectare
- ○ 1/20 acre
- ○ 1/20 hectare
- ○ 1/100 acre
- ○ 1/100 hectare



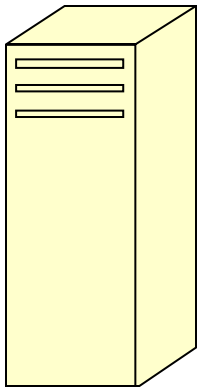
Help | Cancel | Generate Plots

i-Tree Mobile Data Collection

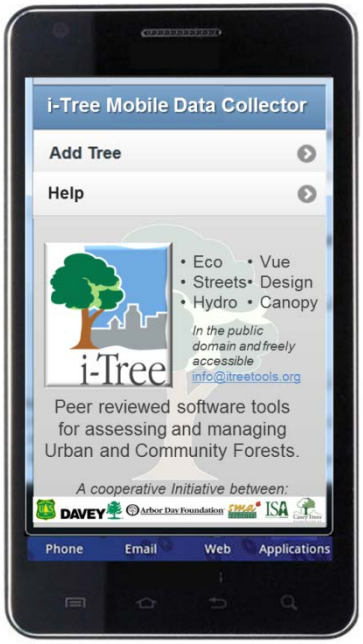


Send configuration

Data retrieval



Web Server



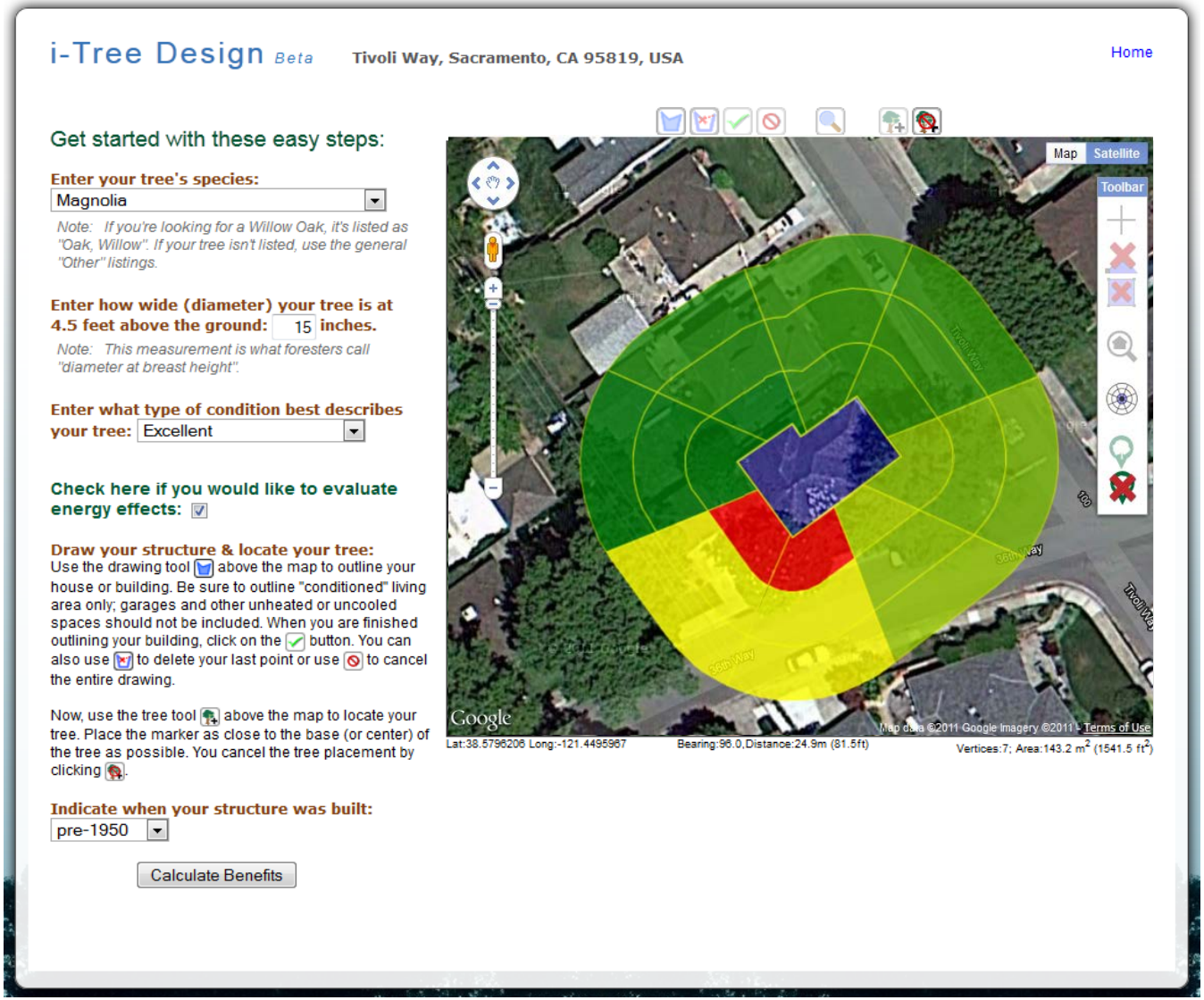
Retrieve configuration

Send data

- Wireless retrieval & upload
- Offline data collection
- Works on any mobile browser utilizing HTML5

i-Tree Design

- Ideal planting location
- Transpiration
- Grow-out
- Multiple trees



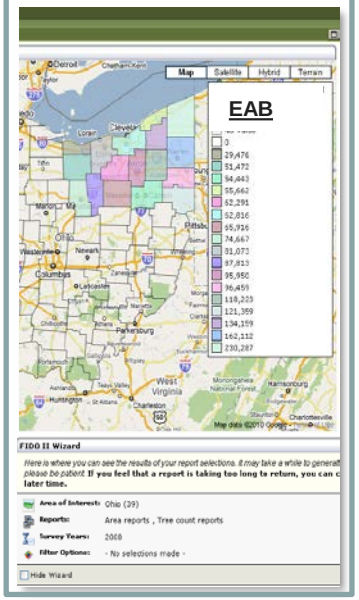
UFORHIC/Pest Detection

Distributed Tree Inventory & Pest Detection Data

i-Tree

Local Use

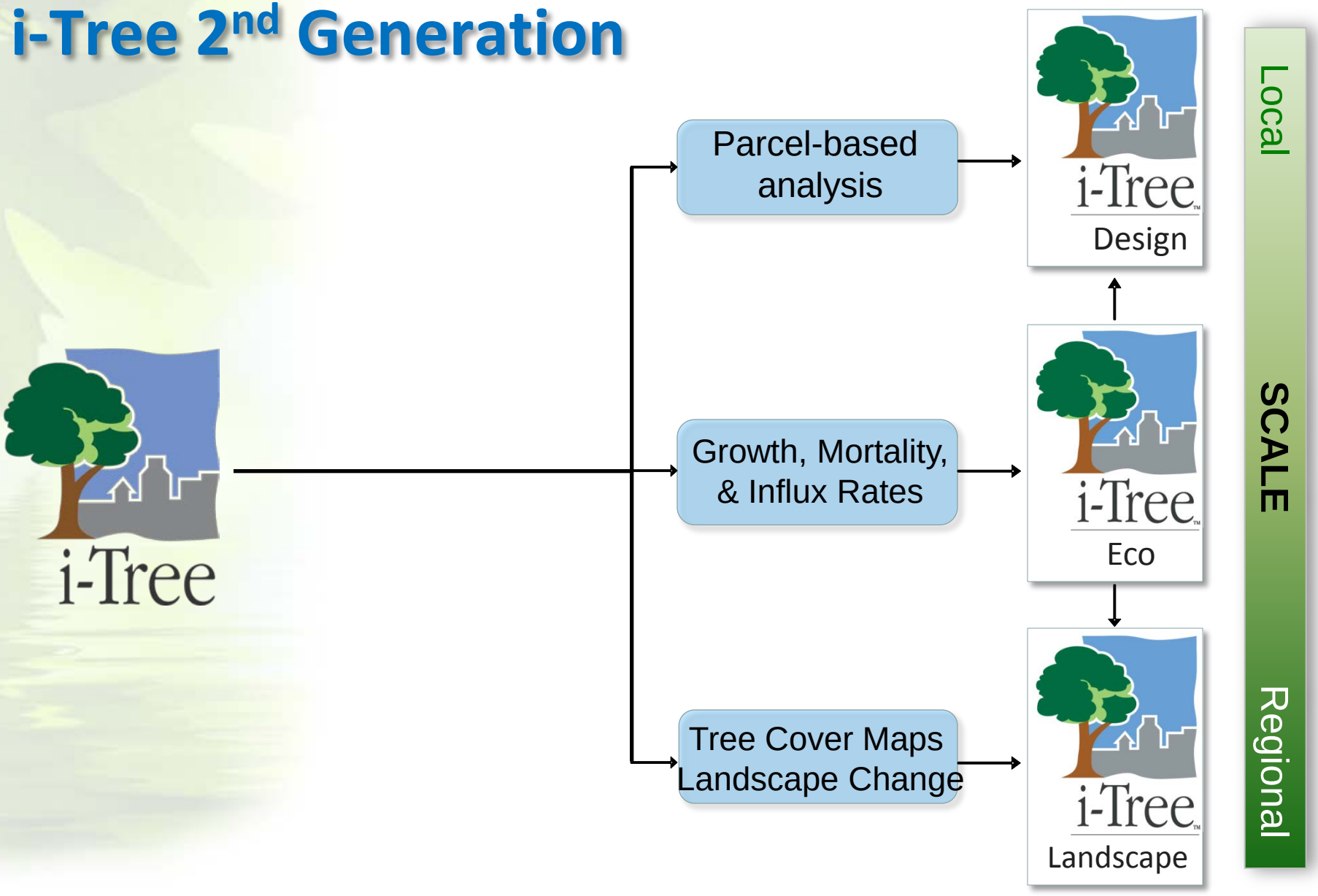
Regional Monitoring



Other Improvements

- Snowmelt routine in *Hydro*
- Radar-based precipitation data in *Hydro*
- Updated pollution values (BENMAP)
- Tree interception and transpiration in *Eco/Design*
- PM2.5 removal in *Eco/Design*
- VOC emissions in *Eco/Design*
- Numerous other improvements to all programs

i-Tree 2nd Generation



Version 6.0+: 2013+

- Integration of Streets into Eco
- Projections of tree pop. and canopy cover
- Enhanced species information
- Plot re-measurement analyses
- Climate change projections
- Projected development patterns
- Priority planting and protection maps (Landscape)
  - Temperature, pollution, eco. services, etc

What would you like i-Tree to do?

i-Tree: Your portal for urban forest assessment

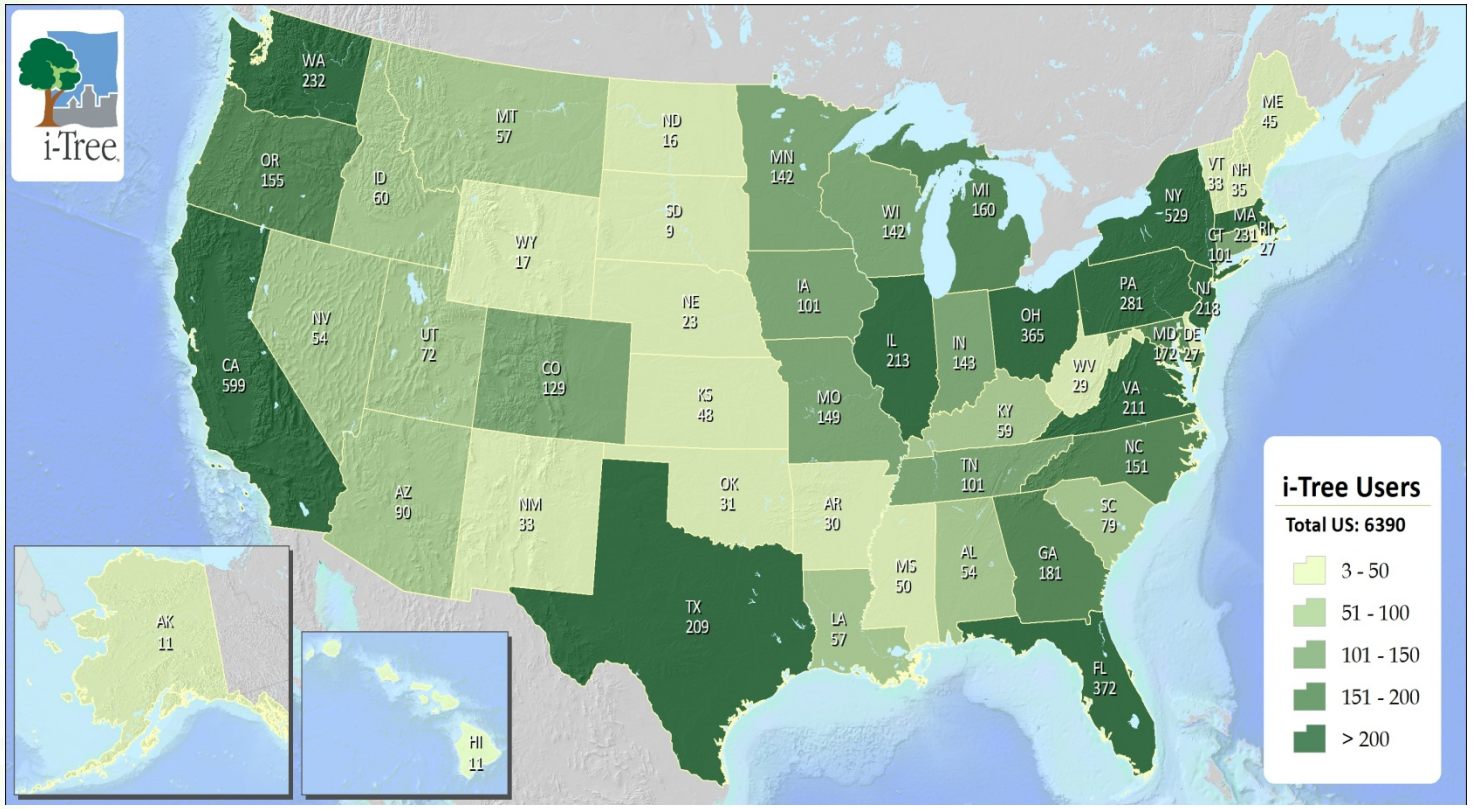
- ✓Visit *www.itreetools.org*
- ✓Email: info@itreetools.org
  - Dave Nowak: dnowak@fs.fed.us
  - Scott Maco: scott.maco@davey.com
- ✓User's forum: http://forums.itreetools.org/

Thank You!


Discussion

i-Tree user base continues to grow…

- City foresters
- Consultants
- Non-profits
- Universities
- Homeowners
- Planners



"U.S. benefit analysis snared $220m for trees"

— Horticulture Week (10/1/2009)