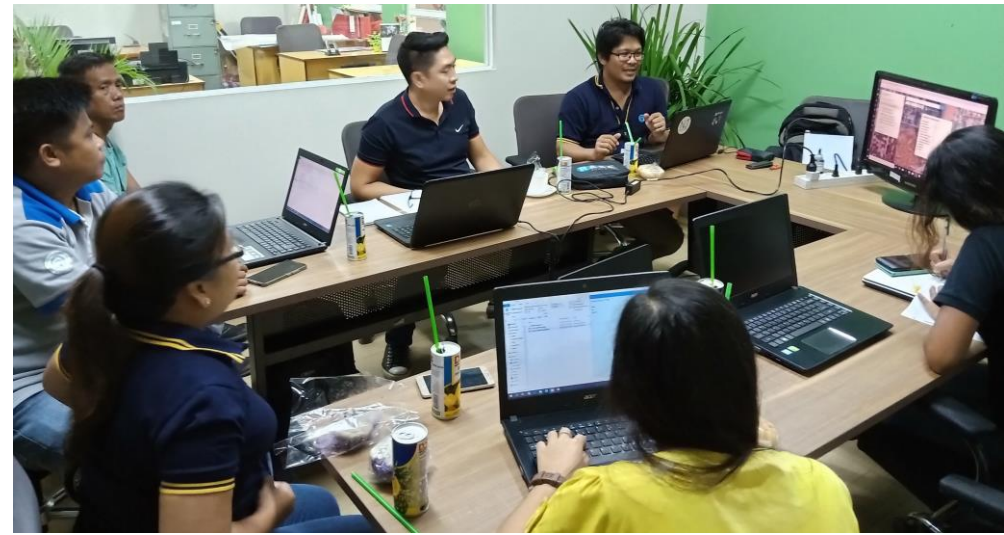
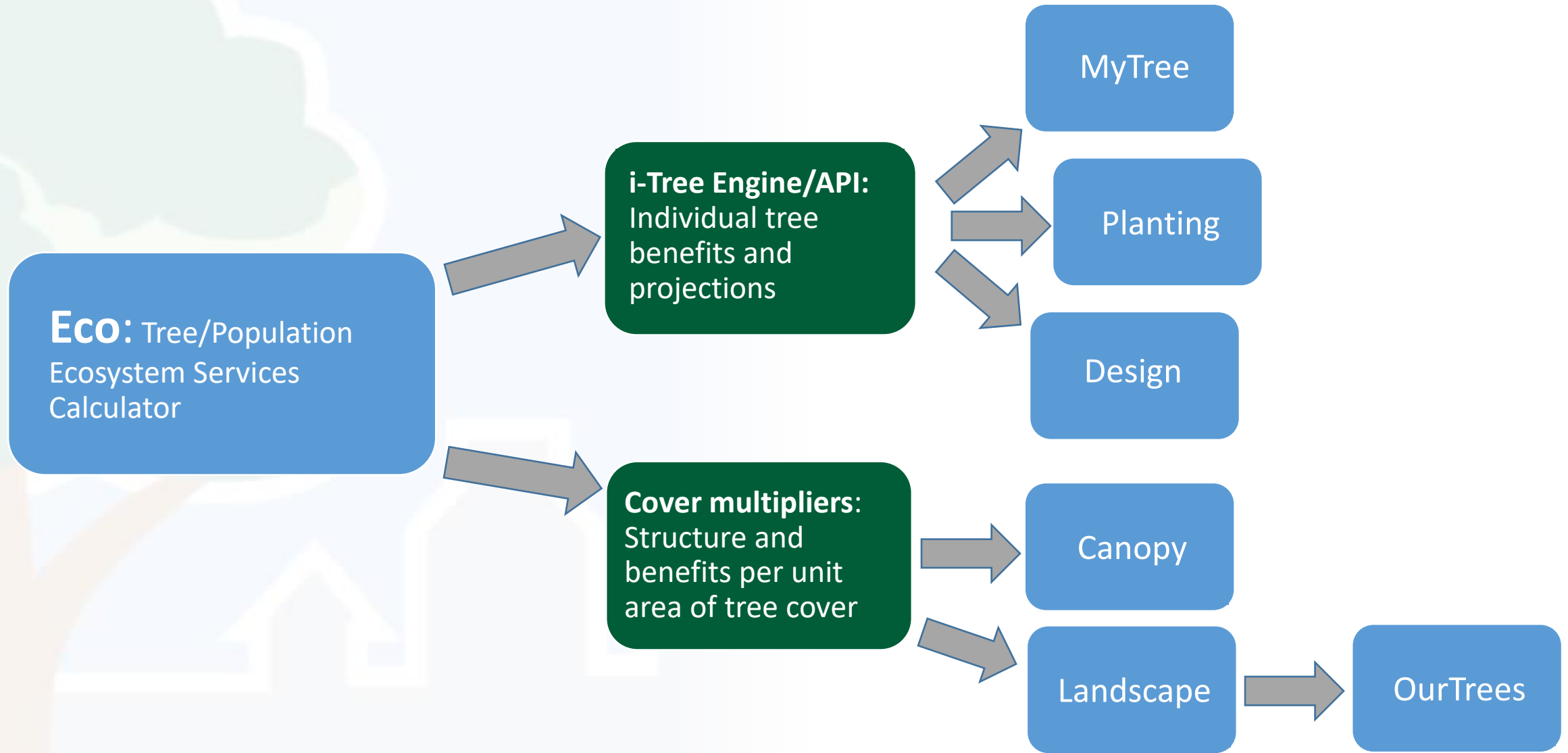


Plan for today

1. Setting up your first project
2. Key decisions
3. Putting i-Tree Eco results to work
4. Is i-Tree Eco right for you?



i-Tree Tool Relationships



i-Tree is a Cooperative Initiative among these partners



The i-Tree Eco Framework

Structure



- Summary of field measurements
- Leaf area
- Condition
- Species distribution
- Diameter distribution

Function



- Air quality improvement
- Energy effects
- Carbon storage & sequestration
- Hydrology effects
- Shade ultraviolet effects (UV)
- Foodscape characteristics
- Wildlife suitability – avian focus
- Volatile organic compounds
- Leaf nutrients, wood production, and more

Value

- Monetary value
- Equivalent values
- Health outcomes
- Cost Benefit analysis
- Summaries for management

Key Decision 1: What data will you collect?

Minimum Required Tree Data

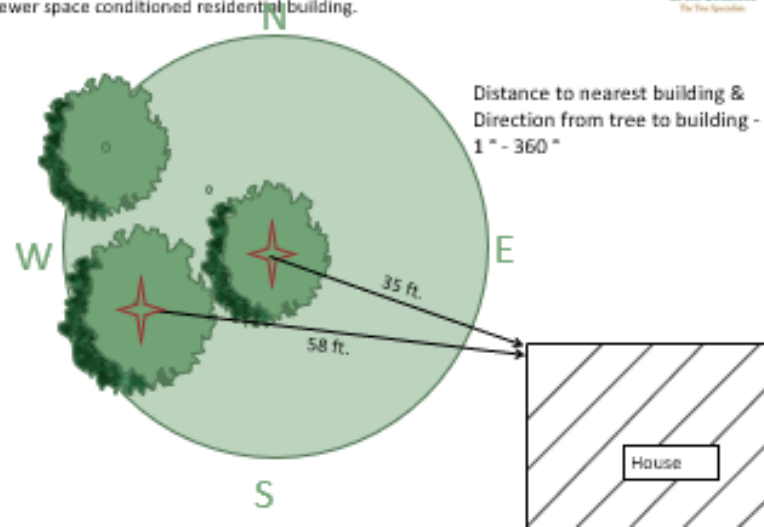
1. Tree species
2. Diameter at breast height (DBH)

Optional but Recommended Tree Data

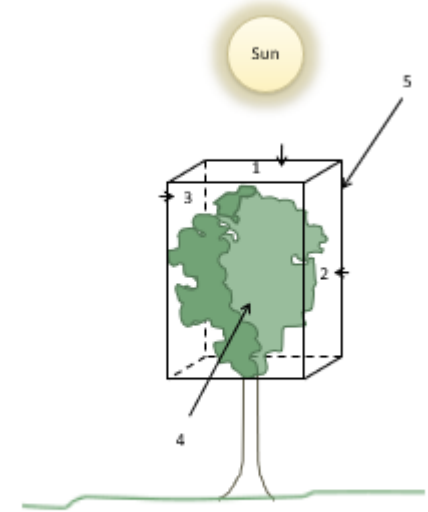
3. Total tree height
4. Height to live top
5. Height to crown base
6. Crown width (N-S)
7. Crown width (E-W)
8. % Crown missing
9. % dieback (condition)
10. Crown light exposure (CLE)
11. Land use

Energy Effect (optional)

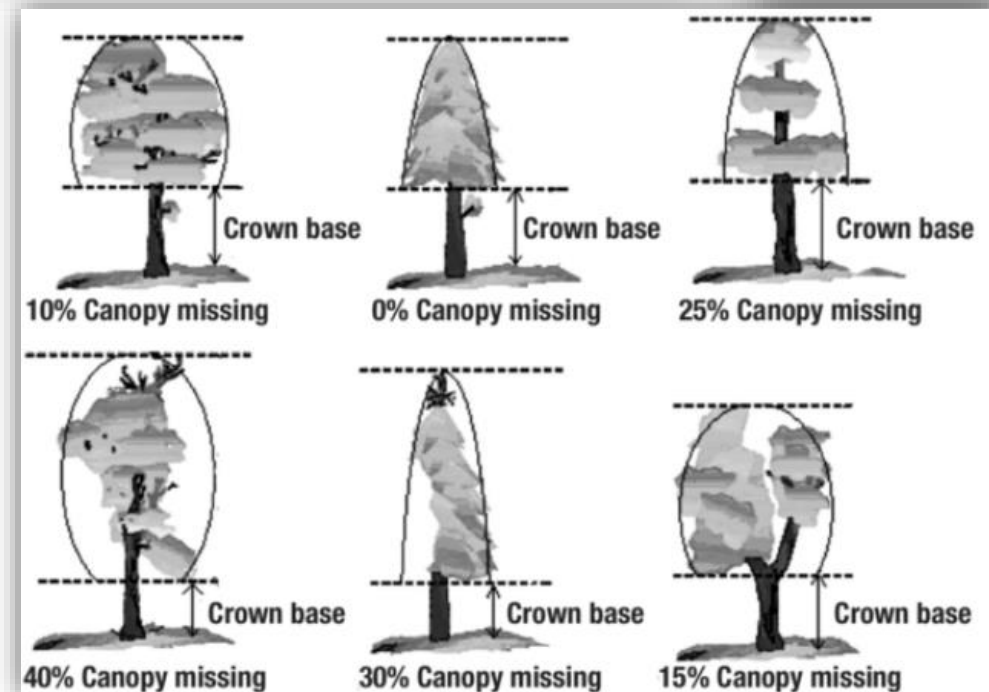
Collect for trees $\geq 20\text{ft}$ (6.1m) tall and within 60ft (18.3m) of a 3 story or fewer space conditioned residential building.



CROWN LIGHT EXPOSURE



CLE affects tree growth rates and accounts for competition with other trees for access to light.



From field data to results

Understanding i-Tree: 2021 Summary of Programs and Methods

David J. Nowak



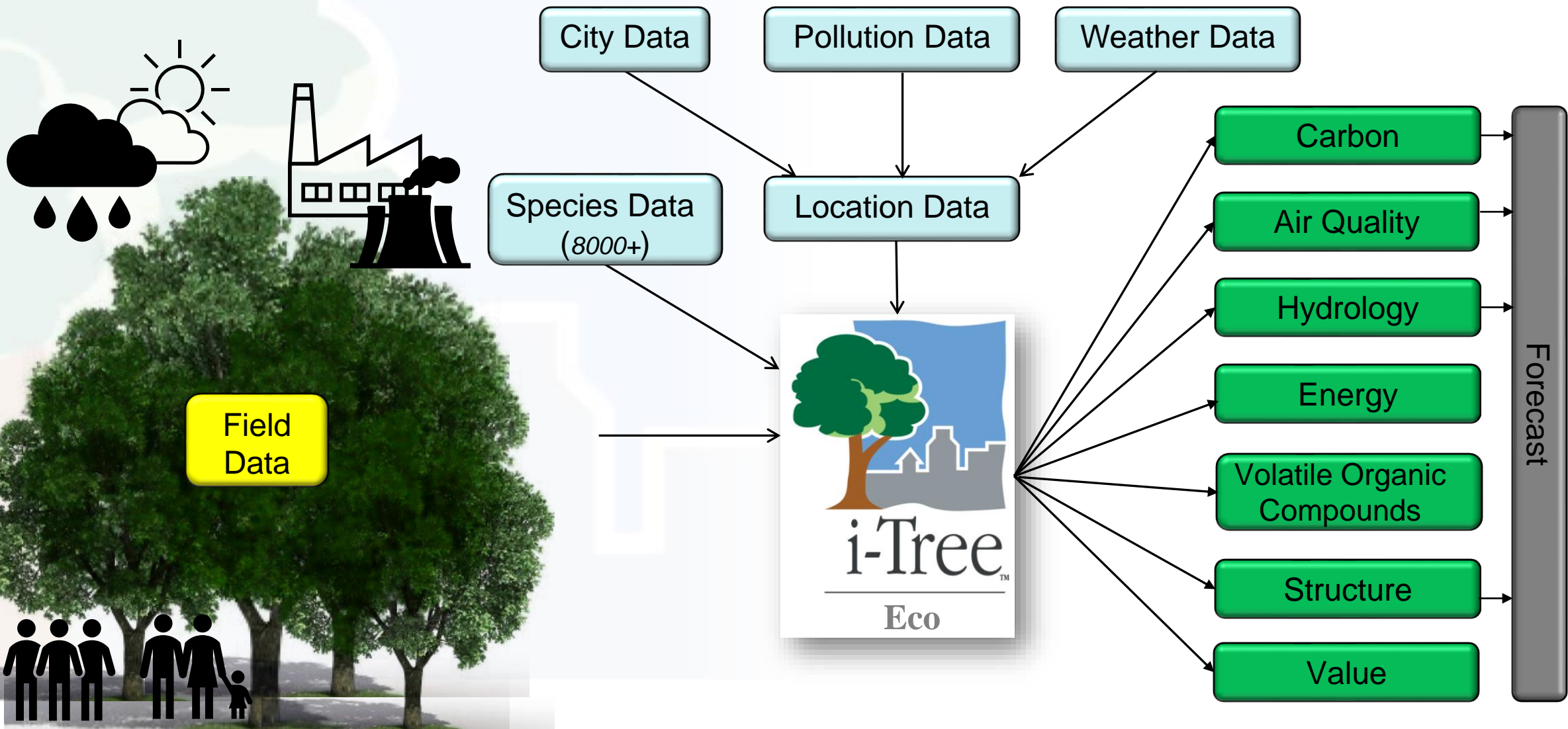
Table 2.—Summary of which directly field-measured characteristics are used to estimate derived variables and ecosystem services. D= directly used; I= indirectly used; C= conditionally used.

	DERIVED VARIABLES		ECOSYSTEM SERVICES										
	Leaf Area	Leaf Biomass	Carbon Storage	Gross Carbon Sequestration	Net Carbon Sequestration	Energy Effects	Air Pollution Removal	Avoided Runoff	Transpiration	VOC Emissions	Compensatory Value	Wildlife Suitability	UV Effects
DIRECT MEASURES													
Species	D	D	D	D	D	D	I	I	I	D	D		
Diameter at breast height (d.b.h.)			D	D	D						D	D	
Total height	D	D	C	C	C	D	I	I	I	I		D	
Crown base height	D	D	C				I	I	I	I			
Crown width	D	D	C				I	I	I	I			
Crown light exposure			C	D	D								
Percent crown missing	D	D	C	C	C	D	I	I	I	I			
Crown health (condition/dieback)				D	D						D	D	
Field land use				D							D	D	
Distance to building						D							
Direction to building						D							
Percent tree cover						D	D	D				D	D
Percent shrub cover							D					D	
Percent building cover						D							
Ground cover composition							I					D	

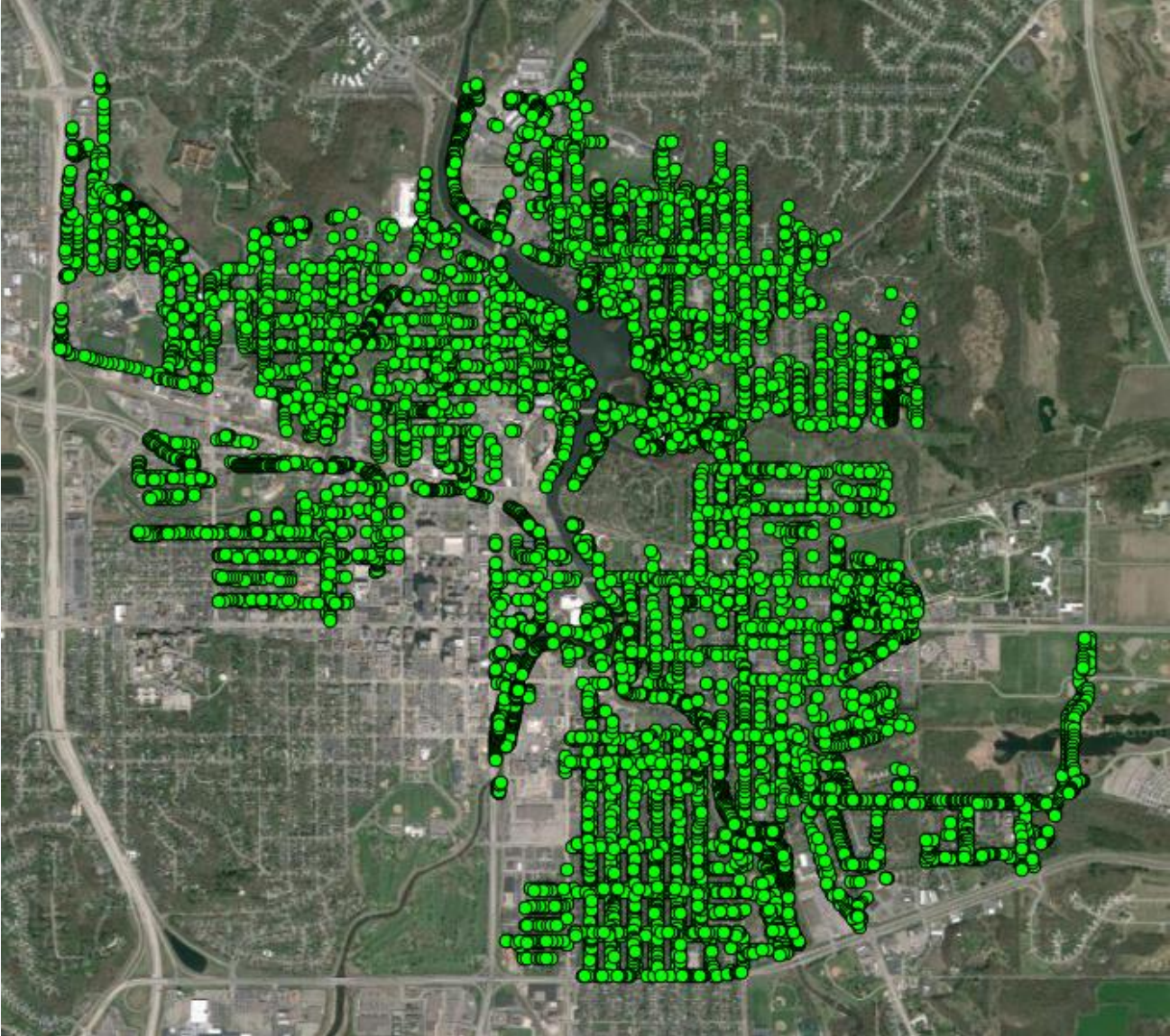
Tree Data

Plot Data

i-Tree model basics: Inventory data → tree benefits?



Let's set-up an i-Tree Eco project



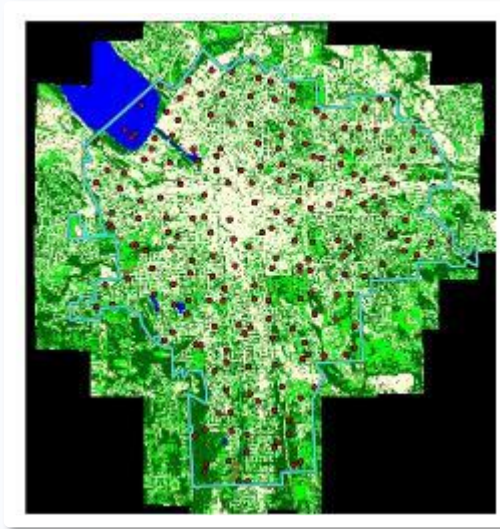
Rochester, MN
Street Tree Inventory

Key Decision 2: Sample or complete inventory?



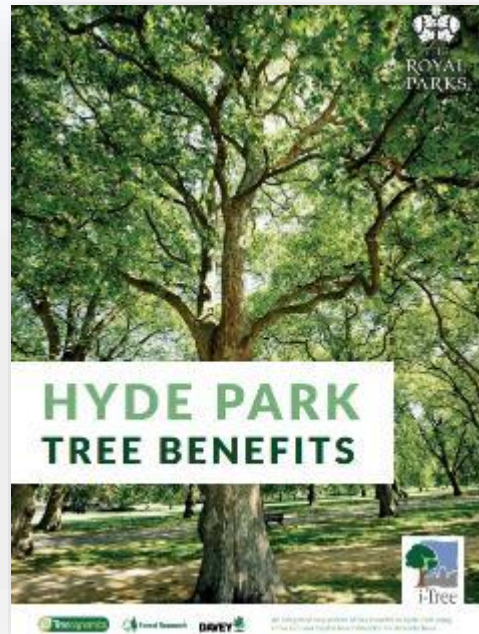
Random sample of plots

- City
- County
- Regional or watershed
- Large scale or forested areas



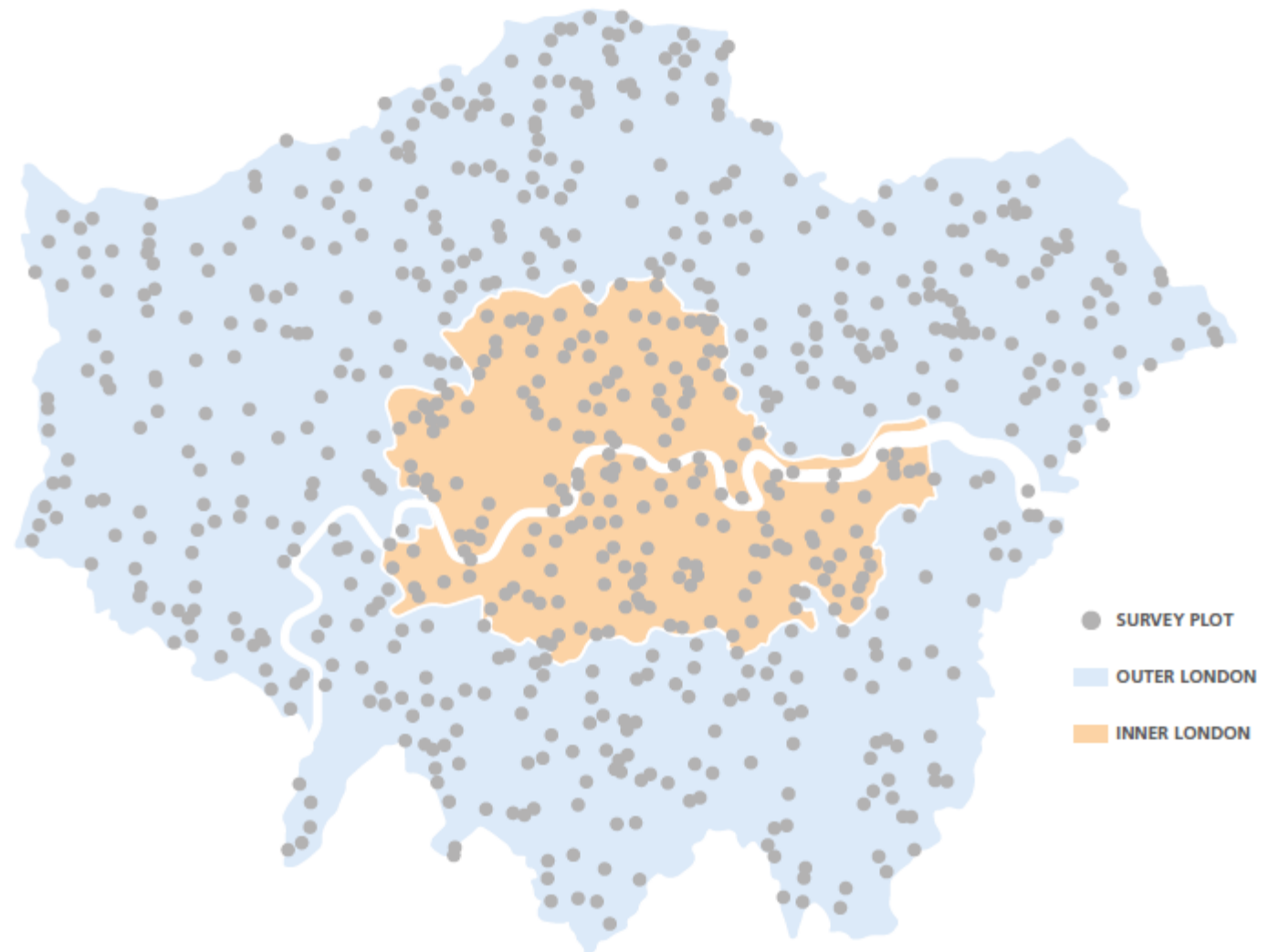
Complete inventory

- Parks
- Campuses
- Residential properties
- Specimen or single trees
- Only trees of interest



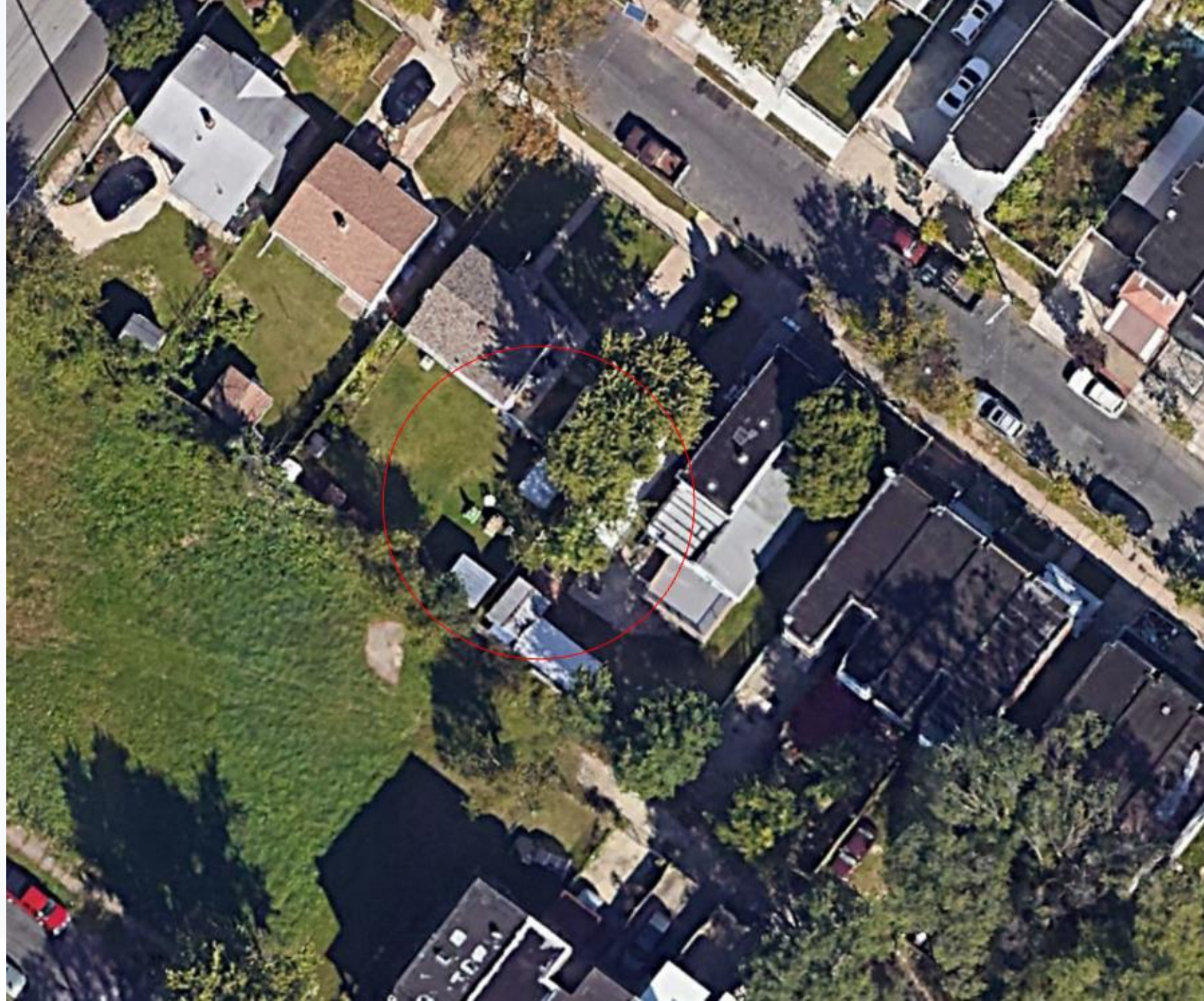
What is a sample and why would you do it?

- A small subset of the items you are interested in
- Easier than measuring the whole thing
- For statistical reasons must be random
- We can estimate how well our sample represents the whole population
- **This is how London measures 8.5 million trees**



What is a plot?

- By default 37.2 ft in radius, 1/10th acre in area.
- Plot size can be changed
- Tradeoffs between plot size and the number you can measure



Sample Plots vs. Complete Inventory

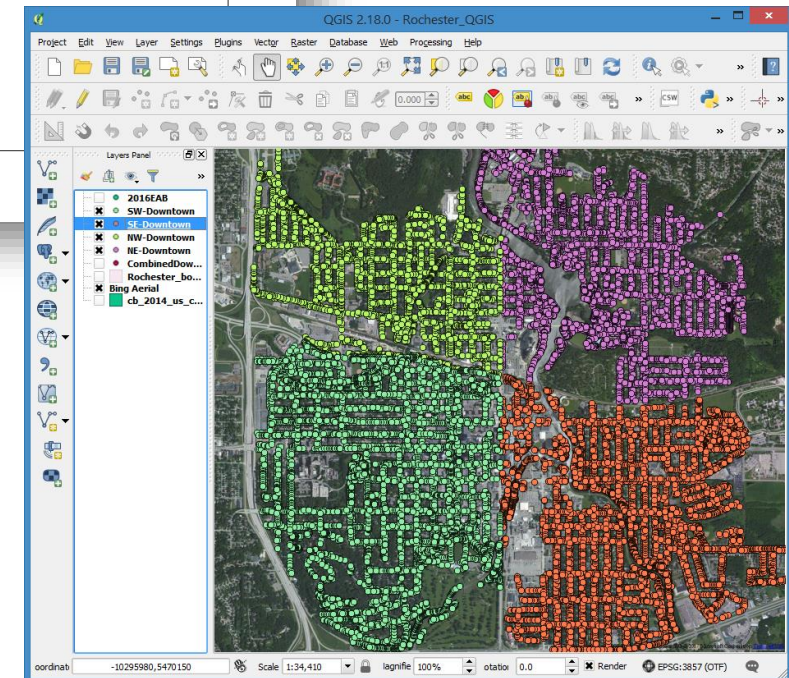
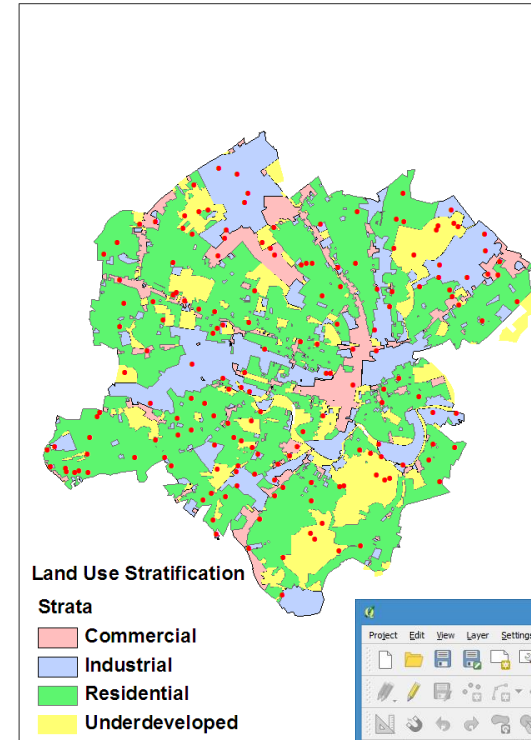


Characteristic	Sample	Complete
Recommended area	City or larger	Any
Number of plots	200 or more	not applicable
Typical number of trees	>500	Any
Access	Numerous permissions usually required	Often no permission required
Accuracy	Some loss of accuracy due to sampling error	No sampling error, all trees of interest measured
Results	Estimates expanded to whole area of interest	Estimates only for measured trees

Key Decision 3: Will you stratify?

Dividing area of interest into categories

- Can be performed by any categories of interest (land use, ownership, political, watershed, etc.)
- Summaries generated by categories of interest
- Perform pre- or post- measurement (sample must be random)
- Can improve statistical accuracy
- Plots or complete inventory





Key Decision 4: How will you enter data? manual, mobile, or import

i-Tree Eco v6 sample plot data sheet

Sheet _____ of _____ Check when plot is completed
Initials: _____

Plot Information

Plot ID:	Strata:	GPS Coordinates	Date:	Crew:	Plot Size:
		Lat.			
		Long.			

Plot Address: _____

Plot Contact Name: _____ Contact Type or Title: _____

Phone #: _____ Email: _____

Plot or Access Notes: _____

Plot Tree Cover (%)	Shrub Cover (%)	Plantable Space (%)	Percent of Plot Measured (%):

Did this Plot have any Trees? (Y/N): _____ Permanent stake used? (Y/N): _____

Photo ID(s): _____



[Project: Adrian] [Series: Adrian_2012] [Year: 2012] - i-Tree Eco v6.0.4

File Project Configuration Data View Reports Forecast Support

Paper Form Submit to Mobile Retrieve from Mobile Plots Trees Shrubs Check Data CSV KML Benefit Annual Prices Costs Editing Mode: Off

Data Collection Inventory Data Export Inventory Value

Help

Data > Inventory Data > Plots

The **Plots** function seen in the action panel to the right is where you can enter or edit the plot data that you collected in the field (see Notes below). The upper table displays your plot data. While working in this table, you may use the tools in the **Actions** group to help manually enter new data or edit data that has already been added.

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Steps to Manually Add/Edit Data:

1. Click in the box where you would like to enter data and begin typing.
2. Use the Tab key on your keyboard or the left and right arrows to move from

ID	Eude (Y)	Longitude (X)	Date	Crew	Contact Info	Size (:	Photo ID	Stake	% Tree	% Shrub	% P
1	8656011	-84.0385827151	4/24/2...	Team 2	fda fdsa fgr	0.10		<input type="checkbox"/>	10% - 15%	1% - 5%	30% -
2	38815014	-83.9977850608	4/18/2...	Team 1		0.10		<input type="checkbox"/>	1% - 5%	65% - 70%	10% -
3	15508679	-84.0575169972	4/25/2...	Team 2		0.10		<input type="checkbox"/>	1% - 5%	10% - 15%	30% -
4	4037655	-84.0336271443	4/23/2...	Team 1		0.10		<input type="checkbox"/>	1% - 5%	1% - 5%	0%
5	78022666	-84.0433420921	4/24/2...	Team 1		0.10		<input type="checkbox"/>	0%	5% - 10%	0%
6	797495	-84.0634443259	4/19/2...	Team 1		0.10		<input type="checkbox"/>	0%	0%	30% -
7	10326133	-84.0622901734	4/19/2...	Team 2		0.10		<input type="checkbox"/>	45% - 50%	1% - 5%	5% - 1
8	08126706	-84.0363356381	4/24/2...	Team 1		0.10		<input type="checkbox"/>	15% - 20%	0%	15% -
9	96562689	-84.069754892	4/19/2...	Team 2		0.10		<input type="checkbox"/>	0%	0%	100%
10	1926253	-84.0396421345	4/24/2...	Team 1		0.10		<input type="checkbox"/>	0%	0%	0%
11	72922179	-84.0192211756	4/27/2...	Team 2		0.10		<input type="checkbox"/>	95% - 99%	1% - 5%	0%

Trees

ID	Survey Date	Status	Distance (ft)	Direction	Species	Land Use
1	4/27/2012	Ingrowth	11.80	338	Shelbark hickory (Carya laciniosa)	Vacant
2	4/27/2012	Ingrowth	19.20	338	Black cherry (Prunus serotina)	Vacant
3	4/27/2012	Ingrowth	34.60	352	American elm (Ulmus americana)	Vacant
4	4/27/2012	Ingrowth	10.00	0	American elm (Ulmus americana)	Vacant
5	4/27/2012	Ingrowth	17.70	10	Black cherry (Prunus serotina)	Vacant
6	4/27/2012	Ingrowth	35.20	20	Silver maple (Acer saccharinum)	Vacant

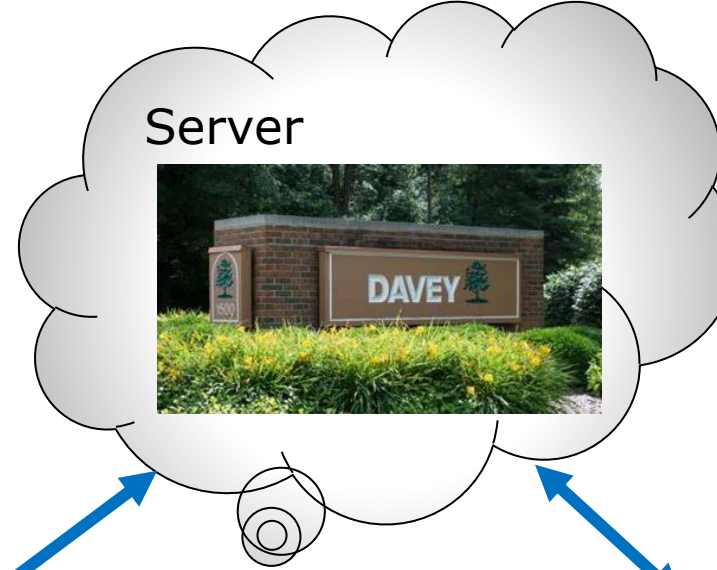
Manual data entry:
Collect on paper then directly enter in the
i-Tree Eco interface

Data entry: mobile



Web-enabled mobile device

1. Measure and enter your selected field variables
2. Regularly submit data to Davey servers
3. Retrieve data into your i-Tree Eco Project



Lake Forest ParkCity (2010) - i-Tree Eco

Project Configuration Data View Reports Forecast Support

Work with Plots Trees CSV Enable Editing

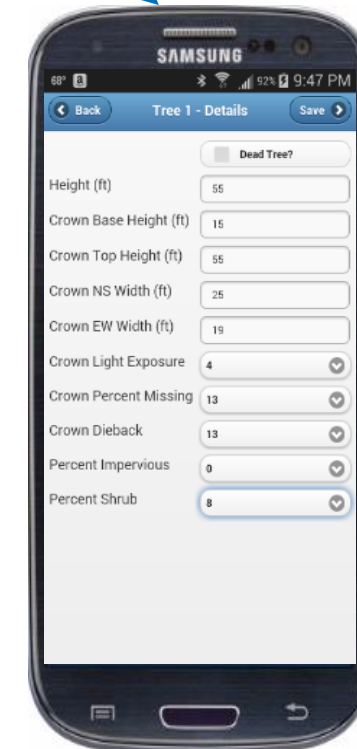
Inventory Data Export

Data > Inventory Data > Plots

ID	Strata	Address	Date	Crew	Contact Info
1	Large Residenti	beach front dr.	8/25/2010	Team 1_Mke	
2	Large Residenti	lake washington	8/25/2010	Team 1_Mke	
3	Large Residenti	lake washington	8/25/2010	Team 1_Mke	
4	Large Residenti	18418 51st pl ne	8/20/2010	Team 1_Mke	
5	Large Residenti	vacant LFP property	8/25/2010	Team 1_Mke	
6	Large Residenti	king county water district vacant lot located at 19520 47th ave. ne.	9/11/2010		
7	Large Residenti	3321 ne 203rd.	9/22/2010		
8	Large Residenti	west side of acacia cem	8/23/2010		
9	Large Residenti	Acacia Cemetery	9/18/2010		
10	Large Residenti	heavily covered invasive himalayan black berry	9/10/2010		
11	Large Residenti	northshore utility district 47th ave ne.	9/19/2010		
12	Small Residenti	15327beach drive ne.	10/14/2010		
13	Small Residenti	19017largo pl	10/1/2010		
14	Large Residenti	5105 ne 180th st	8/17/2010	Team 1_Mke	
15	Large Residenti	3047 ne 180th st.	10/6/2010		
16	Large Residenti	18404 47th pl ne	9/24/2010	Team 1_Mke	
17	Large Residenti	19820 47th ave ne.	10/4/2010		
18	Large Residenti	18211 Ballinger Way NE	9/26/2010		
19	Large Residenti	19535 35th ave ne	8/31/2010		

ID	Status	Distance (ft)	Direction	Species	Land Use	DBH 1 (in)
1	Planted	21.00	96	Western redcedar (Thuja plicata)	Vacant	4.2
2	Planted	17.00	104	Western redcedar (Thuja plicata)	Vacant	5.6
3	Planted	26.00	112	Western redcedar (Thuja plicata)	Vacant	7.3
4	Planted	14.00	139	Bigleaf maple (Acer macrophyllum)	Vacant	1.7
5	Planted	11.00	0	Western redcedar (Thuja plicata)	Vacant	6.2
6	Planted	11.00	193	Western redcedar (Thuja plicata)	Vacant	18.0
7	Planted	3.00	193	Western redcedar (Thuja plicata)	Vacant	20.7
8	Planted	20.00	208	Western redcedar (Thuja plicata)	Vacant	4.5
9	Planted	26.00	210	Western redcedar (Thuja plicata)	Vacant	1.7
10	Planted	17.00	232	English holly (Ilex aquifolium)	Vacant	1.4
11	Planted	22.00	231	Douglas fir (Pseudotsuga menziesii)	Vacant	32.3
12	Planted	8.00	235	Western hemlock (Tsuga heterophylla)	Vacant	8.5
13	Planted	18.00	241	English holly (Ilex aquifolium)	Vacant	3.3

Reference Objects Ground Covers Land Uses Trees



Data import



AutoSave Off | Roc... | Henning, Jason | [Icons]

File | Home | Insert | Draw | Page | Form | Data | Review | View | Autor | Devel | Help | Acrot | Powe | [Icons]

Clipboard | Font | Alignment | Number | Conditional Formatting | Format as Table | Cell Styles | Cells | Editing | Analyze Data | Styles | Analysis | Sens

B9 | Maackia

Zone	Species	Scientific Name	DBH	CONDITION
1 NE	Hackberry	Celtis occidentalis	22	Poor
3 NE	MapleNorway	Acer platinoides	15	Good
4 NW	Honeylocust	Gleditsia triacanthos	24	Good
5 NW	Crabapplespp	Malus	4	Good
6 SE	Redbud, Eastern	cercis canadensis	3	Poor
7 SE	Pinespp.	Pinus	15	Poor
8 SE	LindenOrnamental	Tilia cordata	18	Good
9 SE	Maackia	Amur maackii	4	Dead
10 SE	MapleNorway	Acer platinoides	6	Poor
11 SE	Redbud, Eastern	cercis canadensis	3	Poor
12 SE	Honeylocust	Gleditsia triacanthos	17	Fair
13 NW	Hawthorn spp.	crataegus	2	Good
14 SE	Crabapplespp	Malus	6	Dying
15 SE	Redbud, Eastern	cercis canadensis	3	Fair
16 NW	AshGreen	Fraxinus Pennsylvanica	19	Good
17 NE	AshGreen	Fraxinus Pennsylvanica	18	Good
18 NW	MapleSugar	Acer sachrum	28	Dying
19 NW	MapleNorway	Acer platinoides	9	Good
20 NW	MapleSilver	Acer sacharinum	35	Excellent
21 SE	Ulmus americana 'princeton'	Ulmus americana 'princeton'	7	Good
22 SE	MapleSilver	Acer sacharinum	38	Good
23 NW	Crabapplespp	Malus	7	Dying
24 NE	MapleNorway	Acer platinoides	19	Good
25 SW	Crabapplespp	Malus	8	Good
26 SE	LindenOrnamental	Tilia cordata	15	Good
27 NE	Ginkgo	Ginkgo biloba	2	Fair
28 SE	Honeylocust	Gleditsia triacanthos	5	Poor
29 SE	MapleNorway	Acer platinoides	17	Fair
30 NE	Hackberry	Celtis occidentalis	2	Fair

Rochester Street Trees



[Project: Adrian] [Series: Adrian_2012] [Year: 2012] - i-Tree Eco v6.0.4

File | Project Configuration | Data | View | Reports | Forecast | Support

Paper Form | Submit to Mobile | Retrieve from Mobile | Plots | Trees | Shrubs | Check Data | CSV | KML | Benefit Prices | Annual Costs | Editing Mode: Off

Data Collection | Inventory Data | Export | Inventory Value

Help

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2	38815014	-83.9977850608	4/18/2...	Team 1		0.10			1% - 5%	65% - 70%	10% -
3	15508679	-84.0575169972	4/25/2...	Team 2		0.10			1% - 5%	10% - 15%	30% -
4	4037655	-84.0336271443	4/23/2...	Team 1		0.10			1% - 5%	1% - 5%	0%
5	78022666	-84.0433420921	4/24/2...	Team 1		0.10			0%	5% - 10%	0%
6	797495	-84.0694443259	4/19/2...	Team 1		0.10			0%	0%	30% -
7	10326133	-84.0622901734	4/19/2...	Team 2		0.10			45% - 50%	1% - 5%	5% - 1
8	08126706	-84.0363356381	4/24/2...	Team 1		0.10			15% - 20%	0%	15% -
9	96562689	-84.069754892	4/19/2...	Team 2		0.10			0%	0%	100%
10	1926253	-84.0396421345	4/24/2...	Team 1		0.10			0%	0%	0%

Trees

ID	Survey Date	Status	Distance (ft)	Direction	Species	Land Use
1	4/27/2012	Ingrowth	11.80	338	Shellbark hickory (Carya laciniosa)	Vacant
2	4/27/2012	Ingrowth	19.20	338	Black cherry (Prunus serotina)	Vacant
3	4/27/2012	Ingrowth	34.60	352	American elm (Ulmus americana)	Vacant
4	4/27/2012	Ingrowth	10.00	0	American elm (Ulmus americana)	Vacant
5	4/27/2012	Ingrowth	17.70	10	Black cherry (Prunus serotina)	Vacant
6	4/27/2012	Ingrowth	35.20	20	Silver maple (Acer sacharinum)	Vacant

Data entry: mobile, manual, or import

Mobile

- Useful for citizen science
- Multiple people can do data entry
- Need device, safety, battery
- Tedious for plots with lots of trees

Manual

- Use paper for permanent record
- Fewer potential issues
- Single user
- Slow

Import

- Ultimate flexibility
- Add value to existing inventories
- Quick
- Now works for samples or complete inventory

Let's get some data into i-Tree Eco



Let's get some data into i-Tree Eco

Mobile data entry

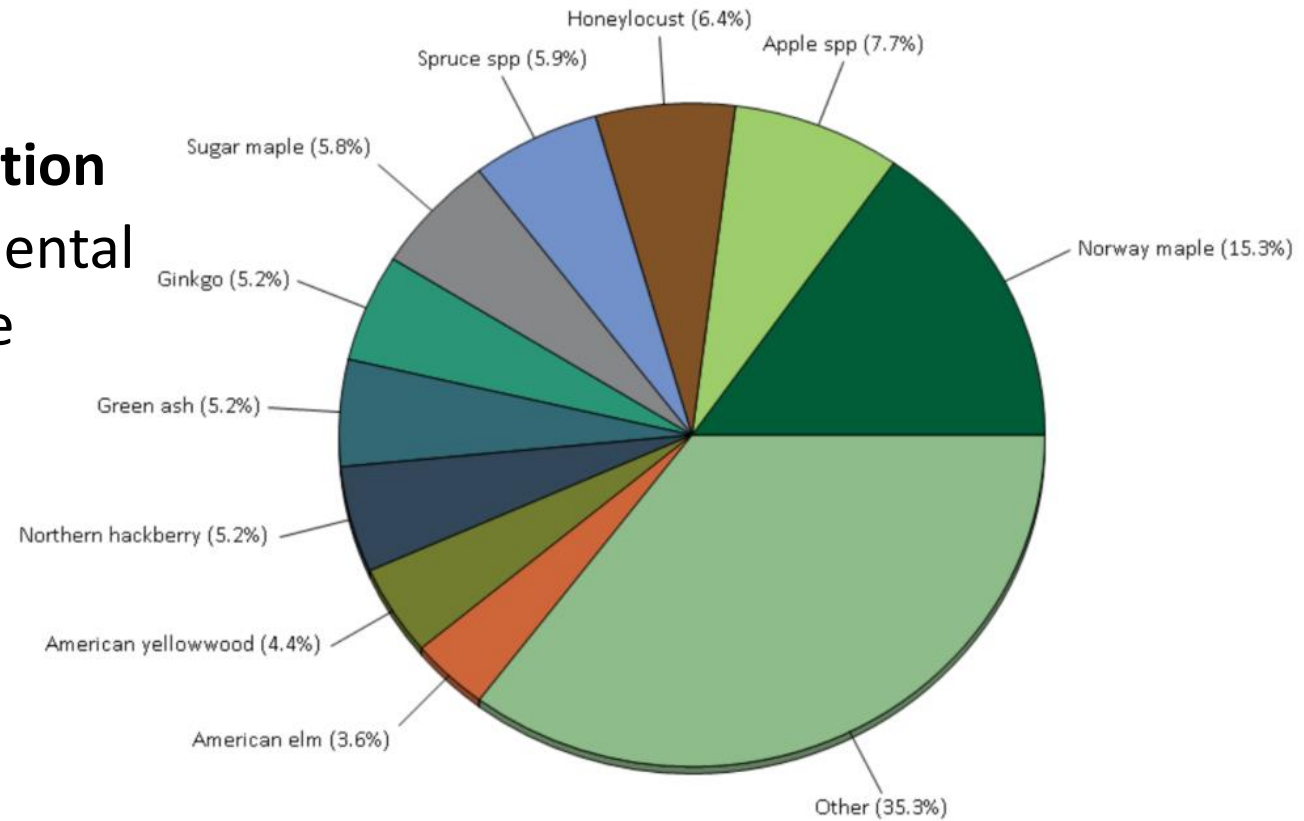
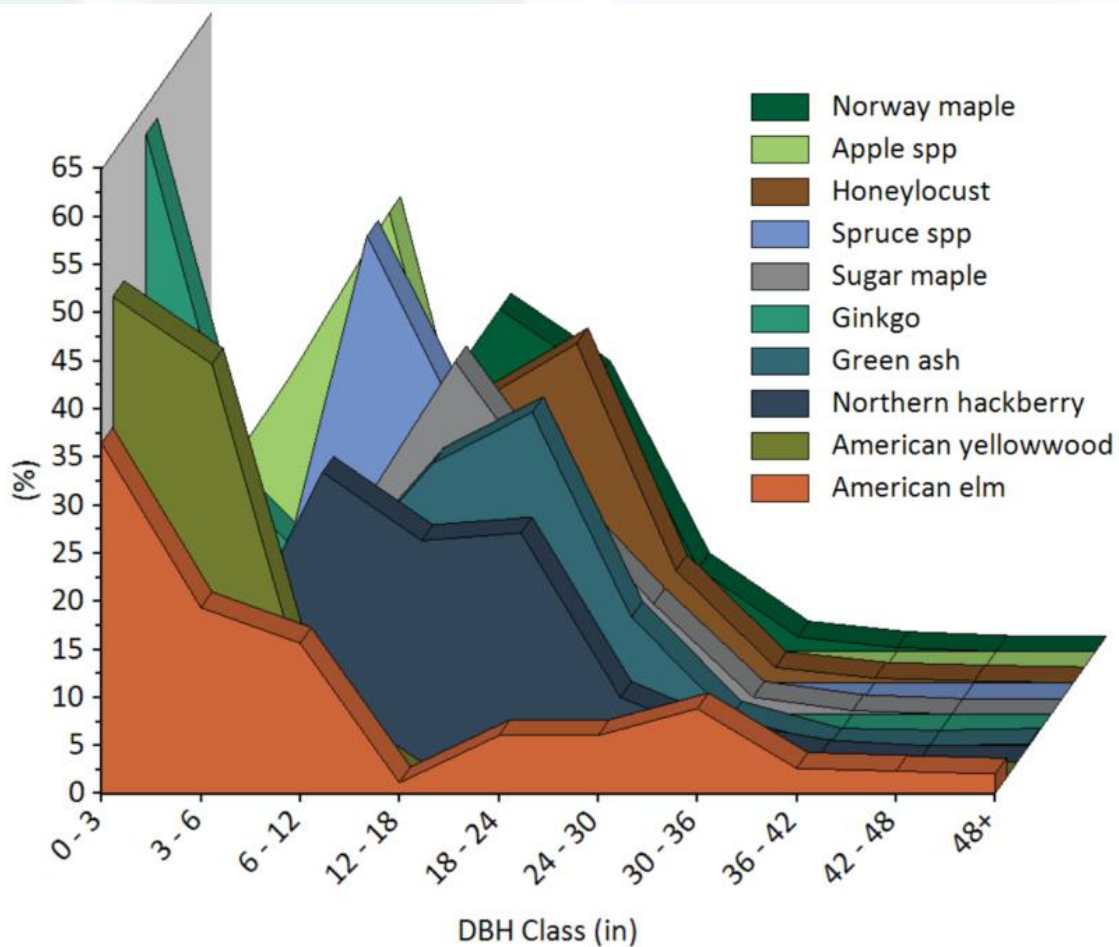


<https://bit.ly/i-TreeSummer>

i-Tree Eco structure results

Species Diversity/Composition

Diversity reduces environmental threats, increases resilience



Size/Age Class Distribution

Distribution of age informs sustainability

i-Tree Eco management focused results

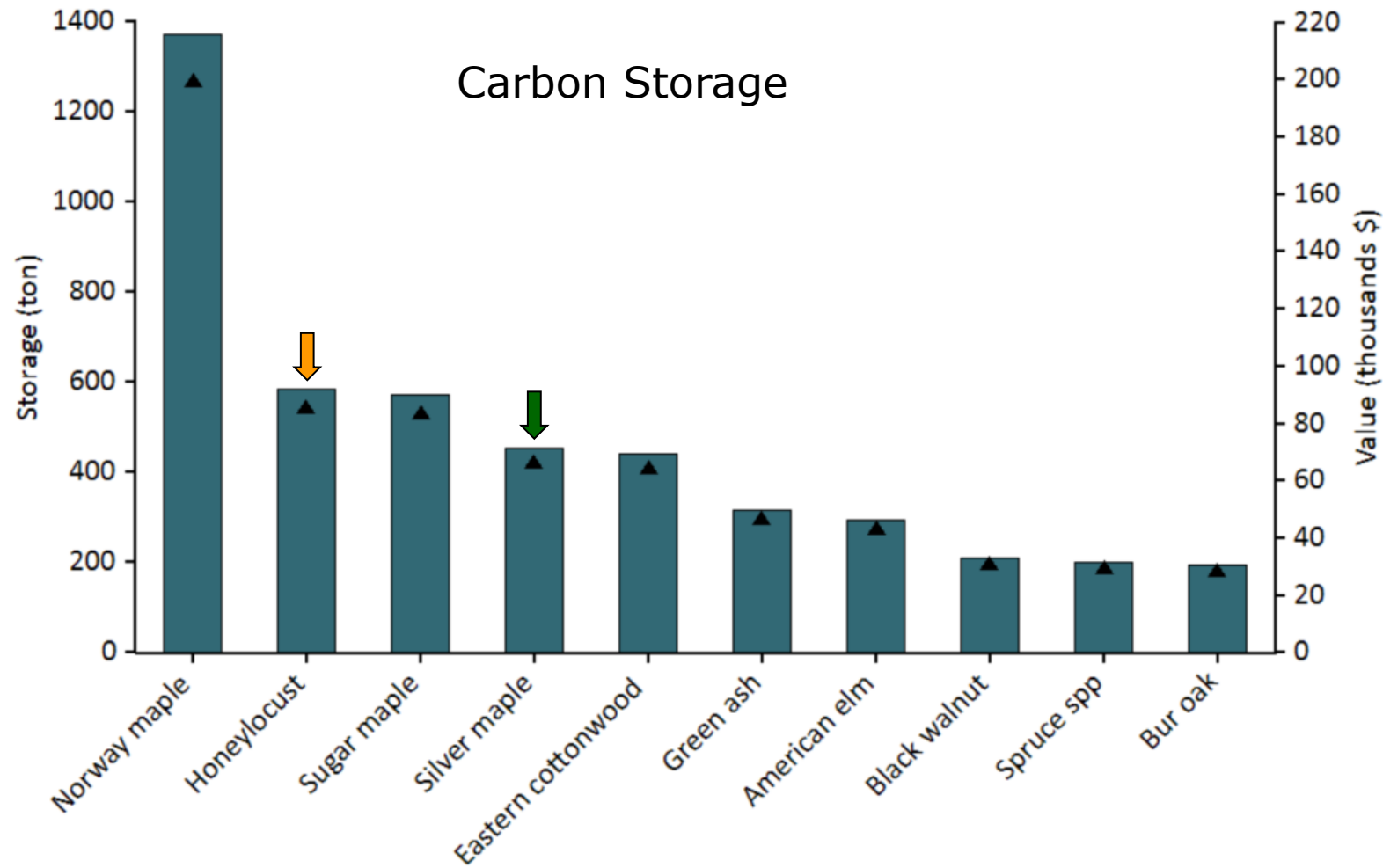


Appendix VI. Potential Risk of Pests

Fifty-three insects and diseases were analyzed to quantify their potential impact on the urban forest.

Code	Scientific Name	Common Name	Trees at Risk (#)	Value (\$ thousands)
AL	<i>Phyllocnistis populiella</i>	Aspen Leafminer	30	8.94
ALB	<i>Anoplophora glabripennis</i>	Asian Longhorned Beetle	5,080	6,037.13
ARCA	<i>Neodothiora populina</i>	Aspen Running Canker	0	0.00
ARD	<i>Armillaria</i> spp.	Armillaria Root Disease	4	2.86
BBD	<i>Neonectria faginata</i>	Beech Bark Disease	0	0.00
BC	<i>Sirococcus clavignenti</i> <i>juglandacearum</i>	Butternut Canker	145	273.64
BLD	<i>Litylenchus crenatae mccannii</i>	Beech Leaf Disease	0	0.00
BM	<i>Euproctis chrysorrhoea</i>	Browntail Moth	891	335.73
BOB	<i>Tubakia iowensis</i>	Bur Oak Blight	105	291.08
BSRD	<i>Leptographium wageneri</i>	Black Stain Root Disease	4	2.86
BWA	<i>Adelges piceae</i>	Balsam Woolly Adelgid	1	0.25
CB	<i>Cryphonectria parasitica</i>	Chestnut Blight	0	0.00
DA	<i>Discula destructiva</i>	Dogwood Anthracnose	0	0.00

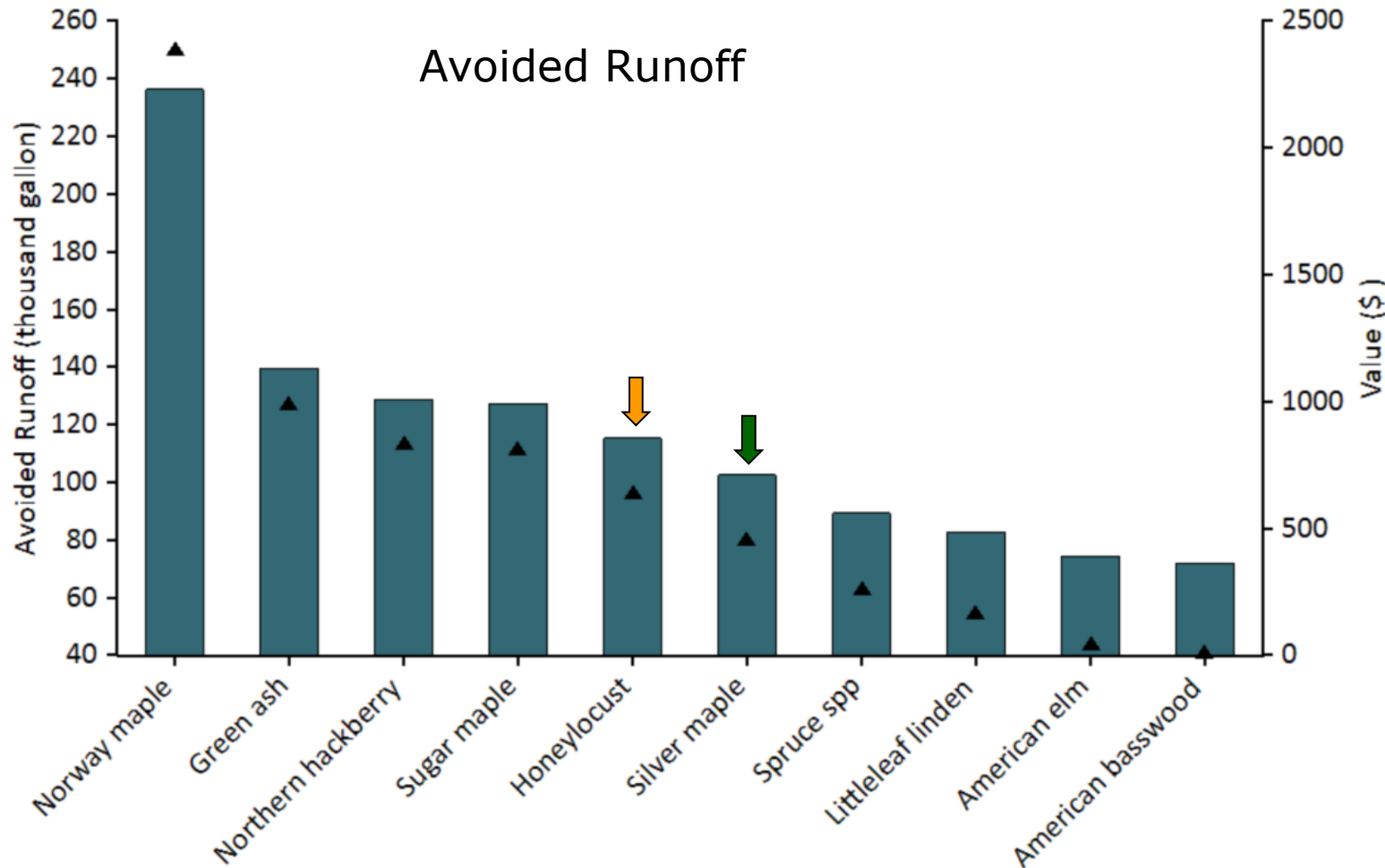
i-Tree Eco tree function



i-Tree Eco tree function



Rochester Inventory Data



Silver maples



Tree count:
247
Leaf area:
33 acres

Honeylocusts

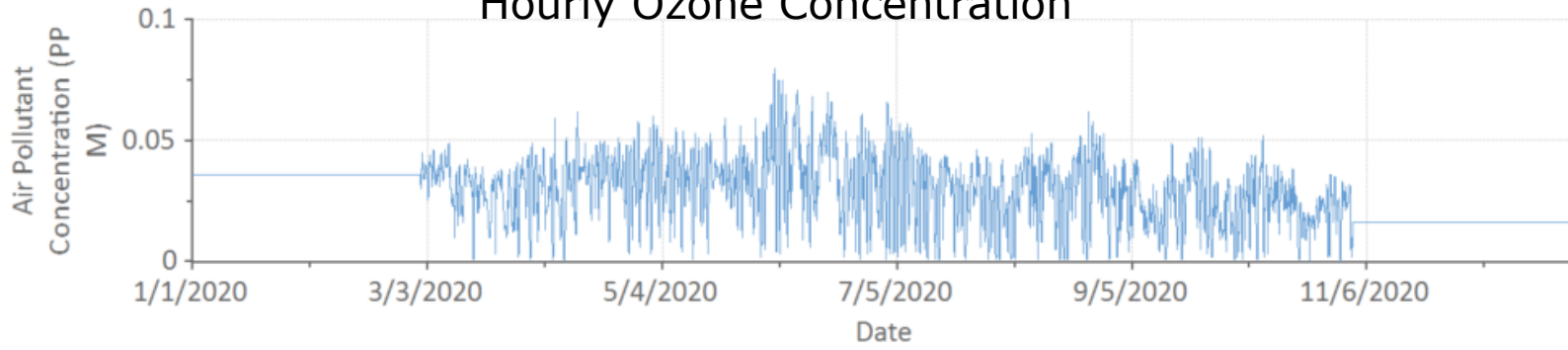


Tree count:
623
Leaf area:
40 acres

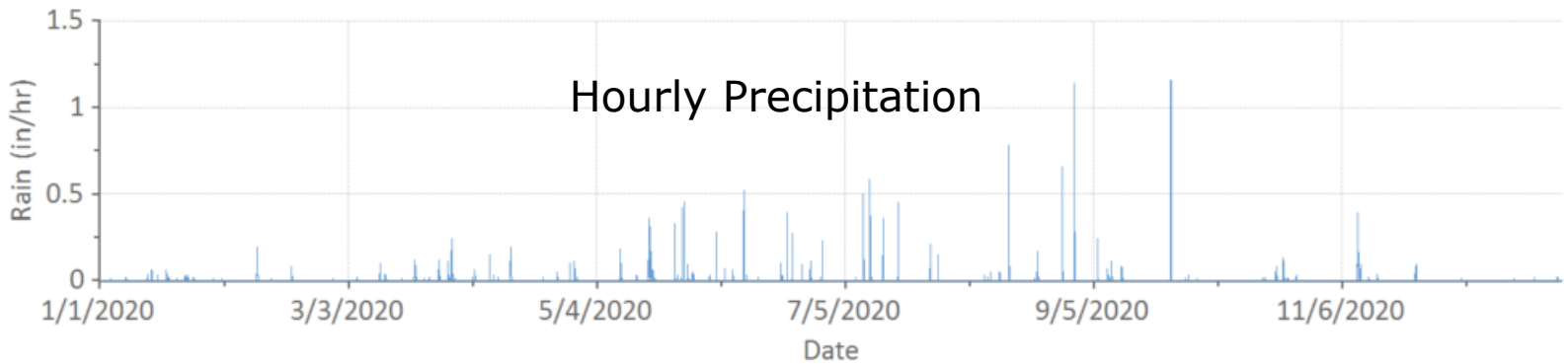
i-Tree Eco detailed results



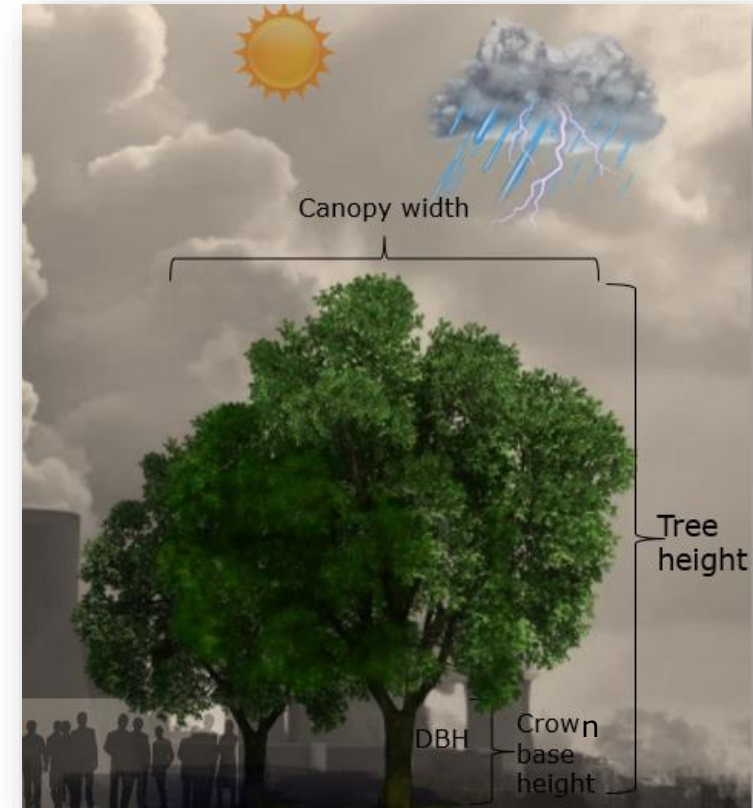
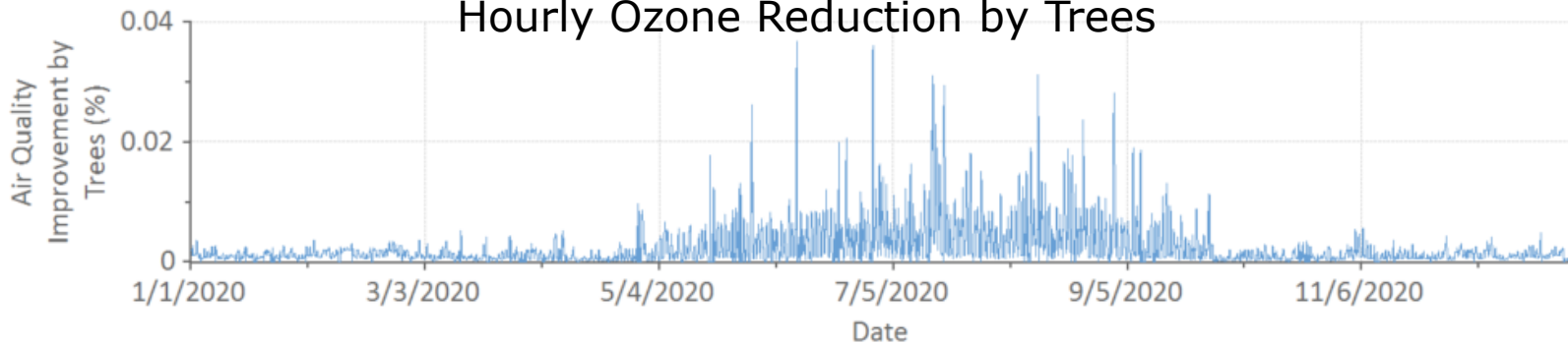
Hourly Ozone Concentration



Hourly Precipitation



Hourly Ozone Reduction by Trees





Air Quality Health Impacts and Values by Trees

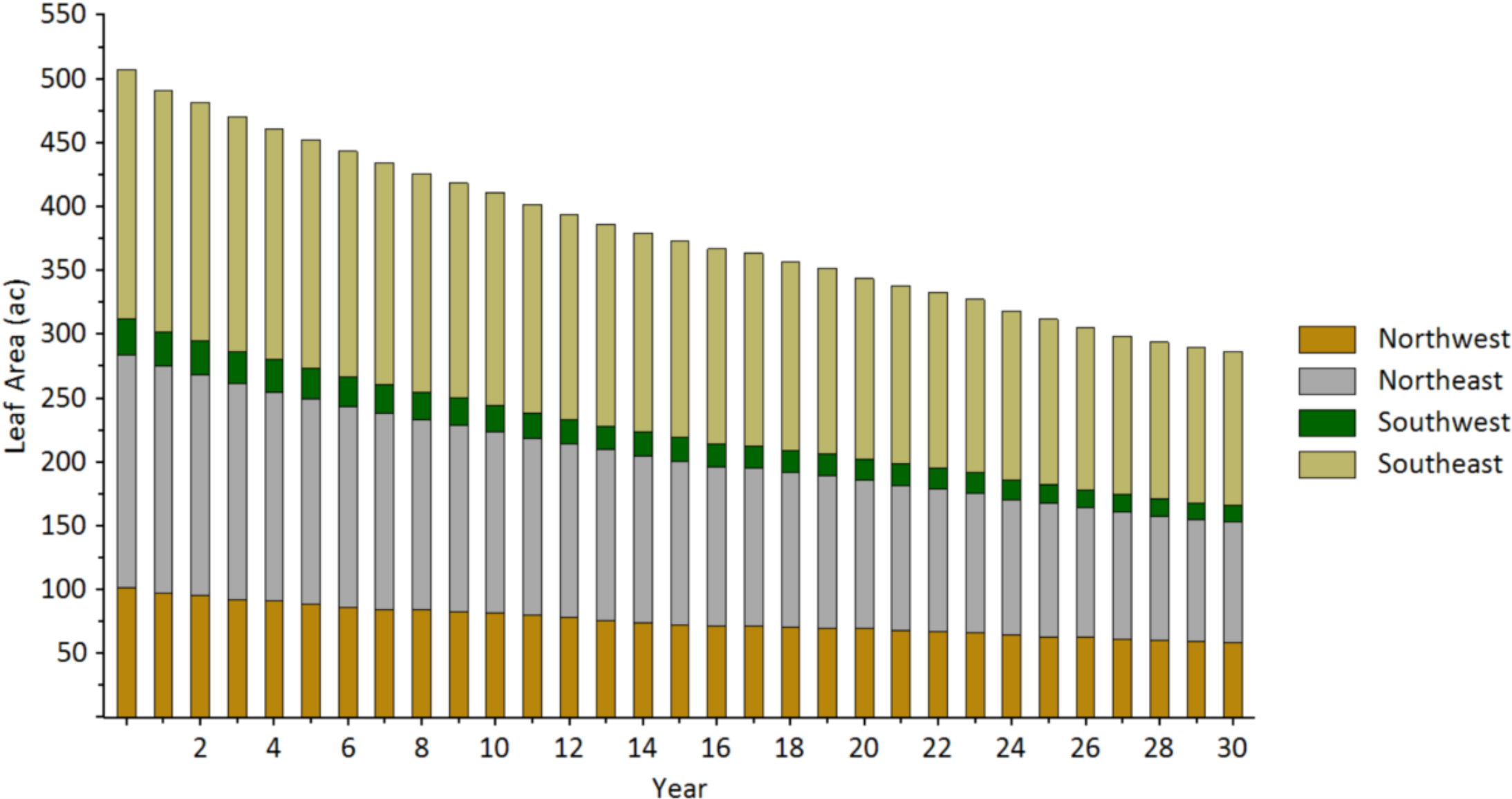
Location: Rochester, Olmsted, Minnesota, United States of America
 Project: Rochester Street Trees, Series: 1, Year: 2023
 Generated: 4/18/2023

Health Outcome	NO2 (\$/yr)	O3 (\$/yr)	PM2.5 (\$/yr)	SO2 (\$/yr)	All (\$/yr)
Acute Bronchitis			0.05		0.05
Acute Myocardial			13.31		13.31
Acute Respiratory	0.99	77.97	28.87	0.17	108
Asthma Exacerbation	39.16		19.05	3.69	61.9
Chronic Bronchitis			72.41		72.41
Emergency Room Visits	0.10	0.13	0.10	0.05	0.38
Hospital Admissions	21.86	31.31		4.49	57.66
Hospital Admissions,			3.16		3.16
Hospital Admissions,			2.24		2.24
Lower Respiratory			0.34		0.34
Mortality		3153.14	5791.25		8944.39
School Loss Days		38.07			38.07
Upper Respiratory			0.25		0.25
Work Loss Days			8.95		8.95
Total	62.10	3300.62	5939.98	8.41	9311.11

i-Tree Eco Forecast



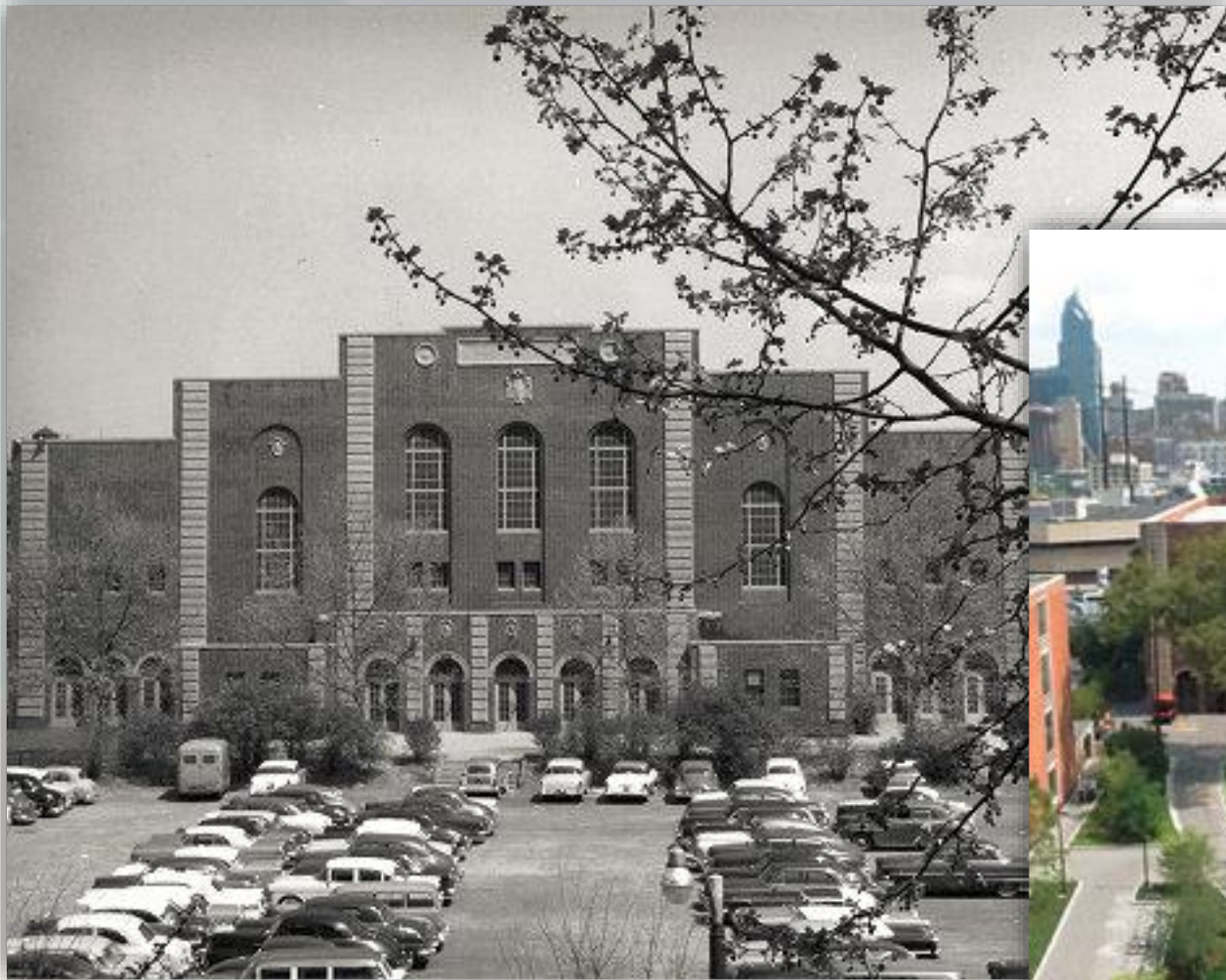
Leaf Area of Trees Over Time



Results: Telling a story with data



“These six trees store 14,291 lbs of carbon and continue to sequester 470 lbs of carbon each year. For comparison, the 1,316 small trees between 1-4 inches DBH in this study store a combined total of 16,567 lbs of carbon”



i-Tree Eco: Power of stratification



City owned parkland is **9%** of the city

Trees on city owned parkland account for **40%** of carbon storage and sequestration

Feature	Estimate
Number of trees	1,100,000
Tree Cover	64%
Carbon Storage	273,000 tons (\$19.4 million)
Pollution Removal	179 tons/yr (\$6.6 million/yr)

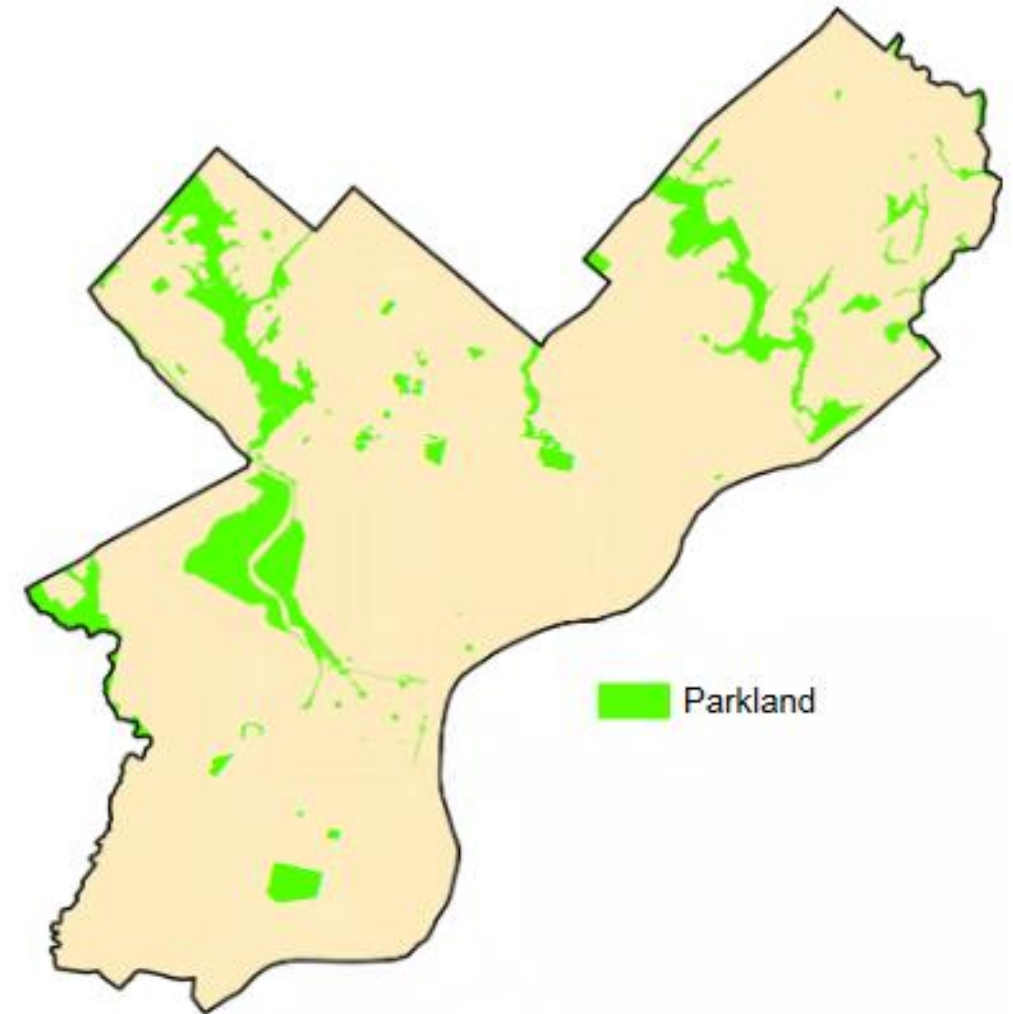
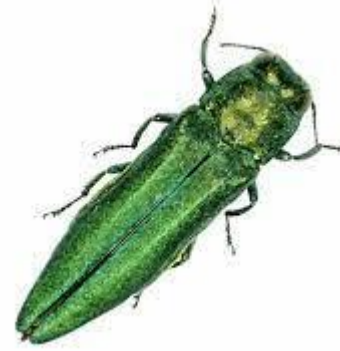


Figure 1.—Philadelphia city boundaries and designated parkland areas, 2012.

i-Tree Eco Example: Large project with targeted results



**Ash Trees:
City stands to lose
7.1% of its forest
and millions in
benefits to
emerald ash borer**



Parameter	Estimate	Units	% of Total City	Species Group Rank
Population	206,996	number	7.1	3
Density	2.3	trees/acre		3
Carbon stored	35,742	tons	5.1	7
Carbon sequestered	1,025	tons/year	3.8	11
Net carbon sequestered	935	tons/year	4.0	10
Leaf area	4,818	acres	5.2	7
Leaf biomass	1,936	tons	6.3	3
Trees, diameter 1-3 in.	111,777	number	54.0 ^a	2
Trees, diameter >18 in.	10,557	number	5.1 ^a	12

^a Percent of all ash trees

i-Tree Eco: Small project with big value



Abington Township Montgomery County, PA



Introduction

Master Tree Action Plan

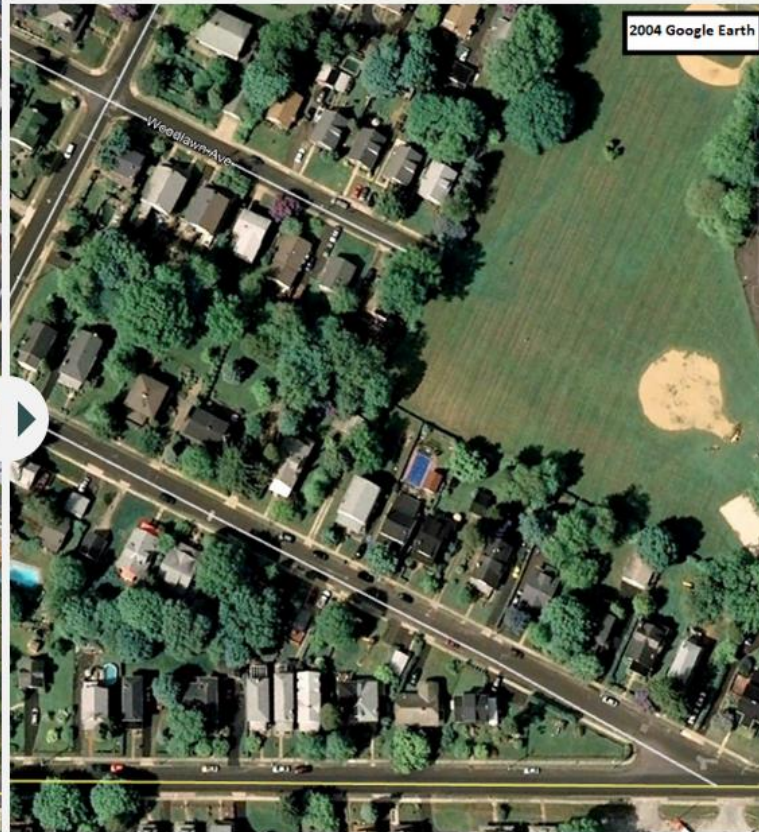
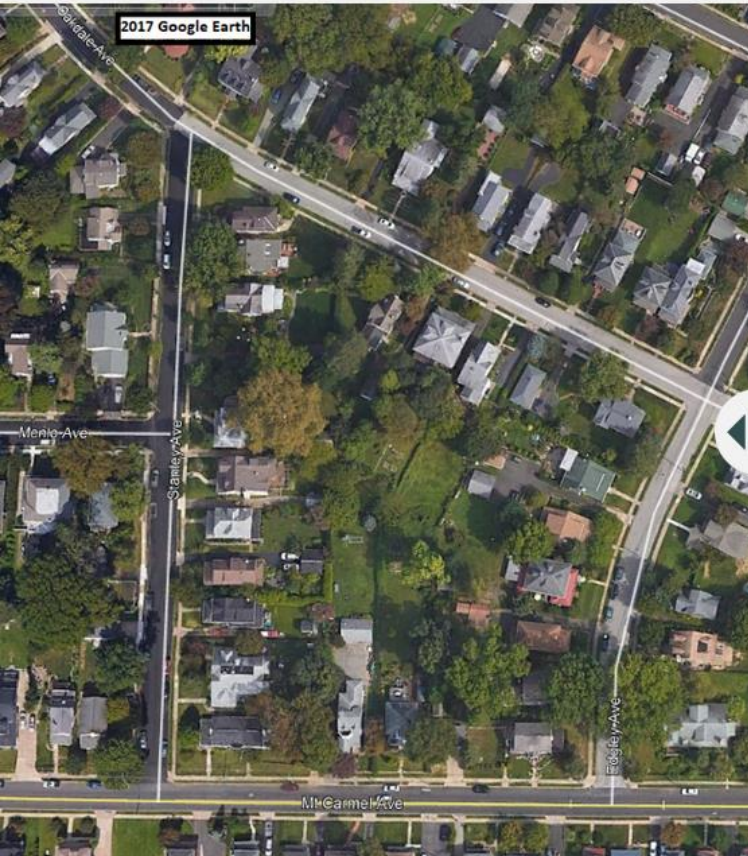
Abington's Urban Tree Canopy

A Closer Look

Tree Canopy Cover by Populatio...

Selected Land Uses

Summ



Tree size matters. The neighborhood's large, mature shade trees have the most leaf area and provide the greatest benefits. **While trees 30" or greater in diameter make up only 8% of the population - their canopies make up 27% of the neighborhood's leaf area.** A comparison of the benefits of an 11" diameter Dogwood tree and a 30" diameter Maple tree growing in the neighborhood shows that the Maple provides nearly 8 times the ecosystem benefits as the Dogwood.

To maximize the benefits Abington's tree canopy provides - we should focus our private property efforts on preserving our existing large trees and planting species that will grow to be large shade trees to replace those we have lost or will lose in the future.

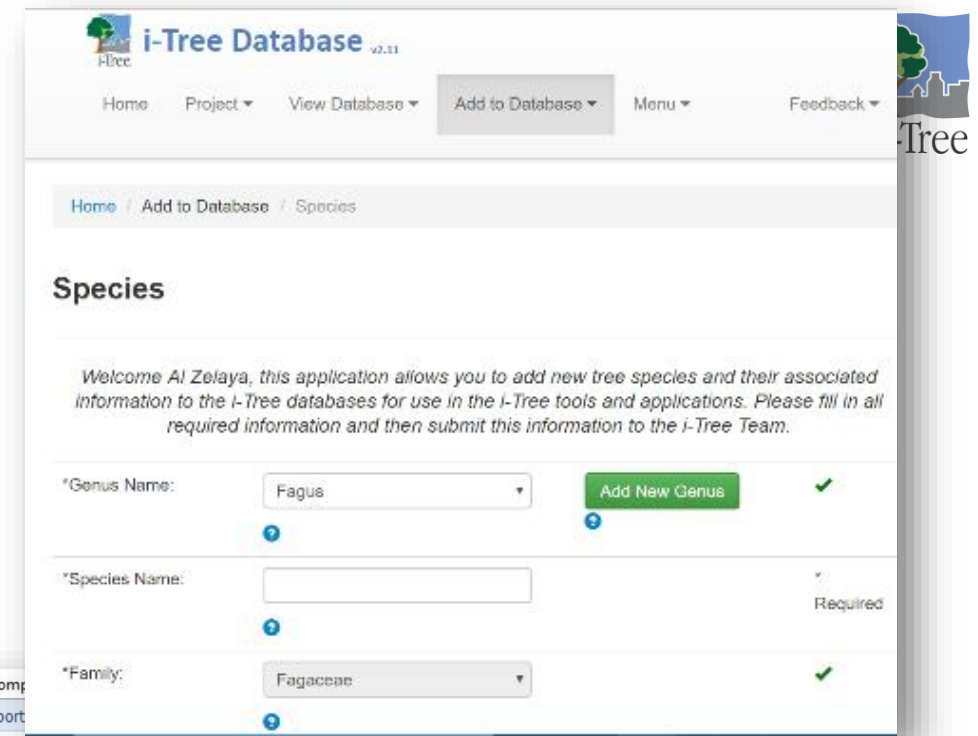
i-Tree Eco: Advantages

- **Local Modeling** – Eco uses available local hourly weather & pollution data and other local characteristics for modeling
- **Dynamic model** – constantly improved with new science, new international locations, new reports and functions
- **Flexible** data collection and project design maximize user base.
- The **Eco import** option is a great way to assess existing tree inventory data quickly

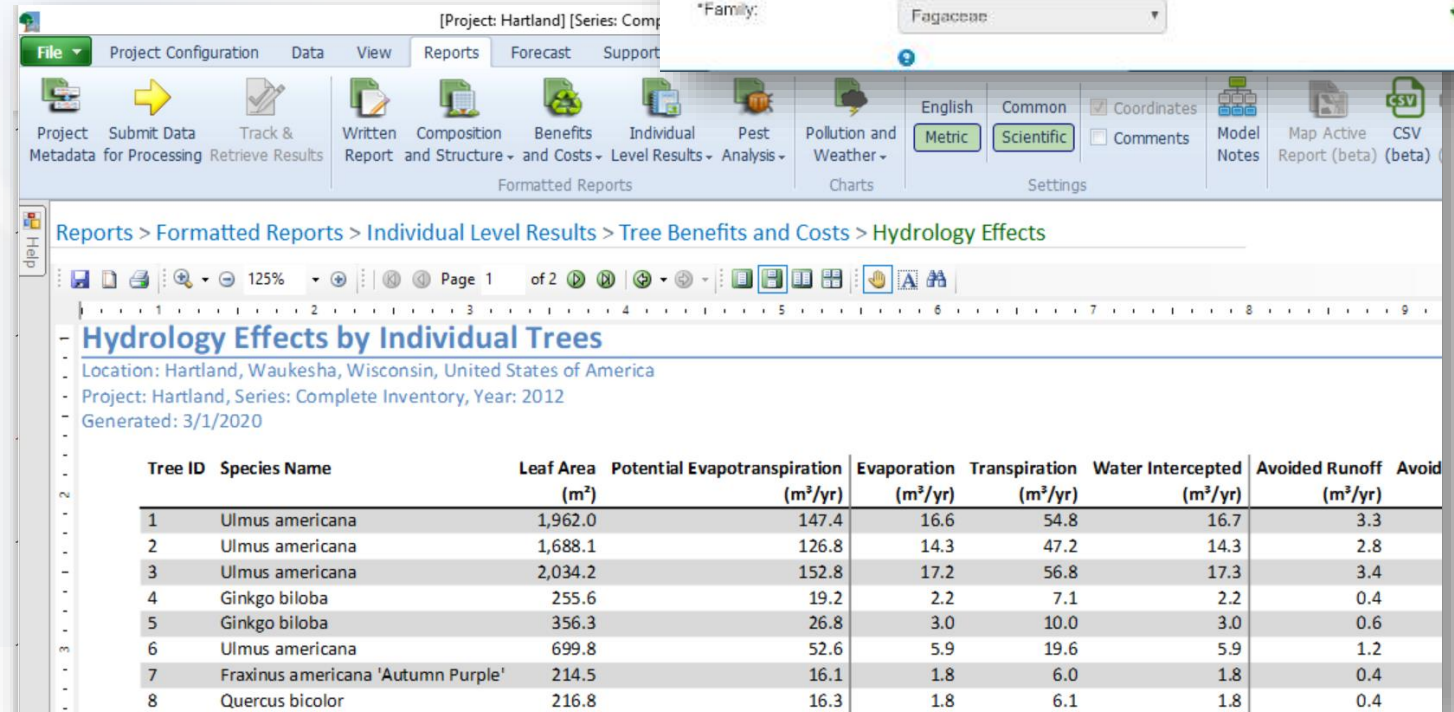
The screenshot displays the i-Tree Eco software interface. The top window is titled "[Project: Oconomowoc Parks] [Series: Park trees] [Year: 2017] - i-Tree Eco". It features a menu bar with options: File, Project Configuration, Data, View, Reports, Forecast, and Support. Below the menu is a toolbar with icons for Project Definition, Land Use Class, DBH Class, Condition, Project & Strata Area, CSV, and Editing Mode (On). The main window is titled "Project Configuration > Project Definition" and contains a form for entering project overview information. The form includes fields for Nation (United States of America), State (Wisconsin), County (Waukesha), Place (Oconomowoc), and Population (15759). It also has a checkbox for "Is the study area Urban?" which is checked. Below these fields, there are sections for specifying project years (Weather & Pollution Year: 2015) and selecting a weather station (Weather Station: 726400-14839). A "Show Map" button is located at the bottom right of the form. To the right of the form, a "Weather Station Selector" window is open, showing a map of the Oconomowoc area with several weather station markers. A yellow box highlights a text instruction: "Use the map below to select a weather station to be used with your project. Simply click a station marker to select it; click a different marker if you change your mind." Below the map, a pop-up window displays details for the selected station: "GENERAL MITCHELL INTERNATIONAL", ID: 726400-14839, Year: 2015, Elevation: 204.20 (meters), Position (lat, lon): 42.95, -87.90, Annual Hourly Precipitation: 858.01 (millimeters), Annual 6-Hour Precipitation: 851.91 (millimeters), and Collection Completeness: Fair. The data source is noted as "The data for this station is from the NCDC".

i-Tree Eco: Advantages

- **Options to improve** the model. e.g. users can submit new species, hourly rainfall data, biomass equations ([i-Tree Database](#))
- **Flexible results** – Eco reports by species, strata, and individual tree to help with strategic decision making.



The screenshot shows the 'i-Tree Database' web interface. At the top, there is a navigation bar with 'Home', 'Project', 'View Database', 'Add to Database', 'Menu', and 'Feedback'. Below this is a breadcrumb trail: 'Home / Add to Database / Species'. The main heading is 'Species'. A welcome message reads: 'Welcome Al Zelaya, this application allows you to add new tree species and their associated information to the i-Tree databases for use in the i-Tree tools and applications. Please fill in all required information and then submit this information to the i-Tree Team.' The form includes three fields: '*Genus Name:' with a dropdown menu showing 'Fagus' and a green 'Add New Genus' button; '*Species Name:' with an empty text input field and a 'Required' label; and '*Family:' with a dropdown menu showing 'Fagaceae'.



The screenshot shows the i-Tree Eco software interface. The top menu bar includes 'File', 'Project Configuration', 'Data', 'View', 'Reports', 'Forecast', and 'Support'. The 'Reports' menu is open, showing options like 'Project Metadata', 'Submit Data for Processing', 'Track & Retrieve Results', 'Written Report', 'Composition and Structure', 'Benefits and Costs', 'Individual Level Results', 'Pest Analysis', 'Pollution and Weather', 'Charts', 'Settings', 'Model Notes', and 'Map Report (beta)'. The main window displays a report titled 'Hydrology Effects by Individual Trees'. The report includes the following information: Location: Hartland, Waukesha, Wisconsin, United States of America; Project: Hartland, Series: Complete Inventory, Year: 2012; Generated: 3/1/2020. The report contains a table with 8 columns: Tree ID, Species Name, Leaf Area (m²), Potential Evapotranspiration (m³/yr), Evaporation (m³/yr), Transpiration (m³/yr), Water Intercepted (m³/yr), and Avoided Runoff (m³/yr). The table lists 8 individual trees with their respective values for each metric.

Tree ID	Species Name	Leaf Area (m ²)	Potential Evapotranspiration (m ³ /yr)	Evaporation (m ³ /yr)	Transpiration (m ³ /yr)	Water Intercepted (m ³ /yr)	Avoided Runoff (m ³ /yr)
1	Ulmus americana	1,962.0	147.4	16.6	54.8	16.7	3.3
2	Ulmus americana	1,688.1	126.8	14.3	47.2	14.3	2.8
3	Ulmus americana	2,034.2	152.8	17.2	56.8	17.3	3.4
4	Ginkgo biloba	255.6	19.2	2.2	7.1	2.2	0.4
5	Ginkgo biloba	356.3	26.8	3.0	10.0	3.0	0.6
6	Ulmus americana	699.8	52.6	5.9	19.6	5.9	1.2
7	Fraxinus americana 'Autumn Purple'	214.5	16.1	1.8	6.0	1.8	0.4
8	Quercus bicolor	216.8	16.3	1.8	6.1	1.8	0.4

Use i-Tree Eco ...

- ... when you have existing data.
- ... when you have resources for a large-scale project.
- ... if you can make good use of the wealth of results.
- ... to support management.
- ... when interested in a plot-based sample.
- ... for centralized project management.

Try another i-Tree tool ...

- ... when working with students or the public.
- ... to show that trees have benefits.
- ... when time is limited.
- ... to start conversations on trees and tree benefits.
- ... when you are interested in canopy cover.
- ... for priority planning.



i-Tree Eco is flexible

Test your decisions with a pilot project!

A pilot project is a small project designed using the set-up you are considering for a larger project.

- Test assumptions and methods
- Evaluate challenges and limitations
- Can be expanded to become your target project

Street Trees & Our Business Districts

