

NEW TOOLS FOR URBAN FORESTRY

University of
Massachusetts
Amherst BE REVOLUTIONARY™



DAVID BLONIARZ, US FOREST SERVICE

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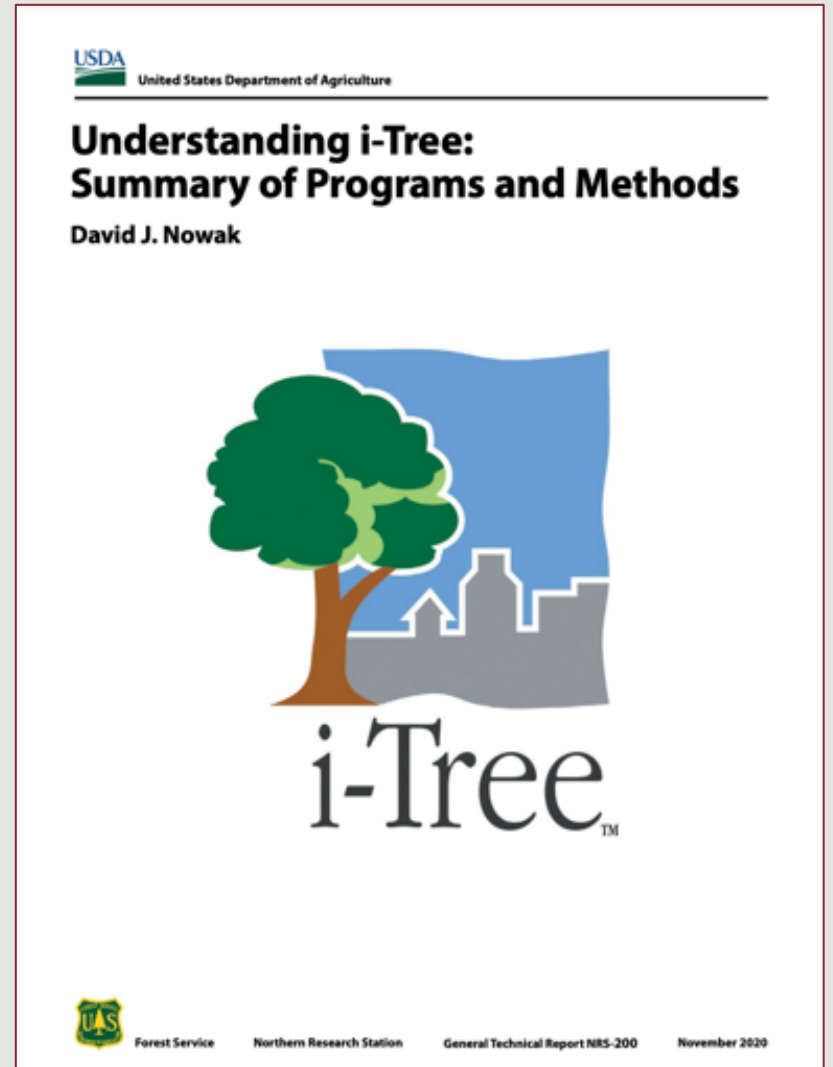


OVERVIEW

- **Understanding i-Tree: Summary of Programs and Methods**
- **i-Tree Pocket Guide**
- **MyTree 2.0**
- **EpiCollect Data Collection Tool**
- **Urban Tree Monitoring: A Field Guide**
- **Urban Tree Monitoring: A Resource Guide**
- **Urban Wood Marketplace**
- **STEW-MAP (Stewardship Mapping & Assessment Project)**
- **NASA's Globe Observer Citizen Science Program**
- **i-Tree Greenhouse Gas Calculator (Planting)**
- **Google Tree Canopy Lab**
- **American Forests Tree Equity Score Analyzer (TESA)**
- **Vibrant Cities Lab Urban Forestry Toolkit**

I-TREE PROGRAM & METHODS USER'S MANUAL

- Comprehensive User's Guide.
- Complete Scientific Overview of Each Application.
- Choosing the Most Appropriate tool(s).



CONTENTS

Executive Summary	1
Introduction	2
What is i-Tree?	2
Vision	2
Goals	2
Tools	3
Core Programs	4
Utilities	6
Partner Tools Powered by i-Tree	7
Research Programs	7
Legacy Programs	7
Partnerships	8
History	9
i-Tree Timeline	9
i-Tree 2019	11
i-Tree and Urban FIA	13
Future Goals	15
Methods, Advantages, and Limitations	18
Assessing Forest Structure in i-Tree Eco	19
Tree Measurements	20
Leaf Area and Leaf Area Index	21
Leaf Biomass	23
Tree Biomass	24
Uncertainty in Tree and Leaf Estimates	24
Plot Measurements	27
Sample Totals and Errors	27
Assessing Structural Metrics and Risks in i-Tree Eco	28
Tree Species Diversity and Range	28
Potential Insect and Disease Effects	30
Invasive Species	32
Structural Valuation	33
Assessing Ecosystem Services and Values in i-Tree Eco	35
Air Pollution Removal	35
Building Energy Use and Emissions	40
Carbon Storage and Sequestration	43
Food Provisioning Services	47
Oxygen Production	47
Stream Flow and Water Quality	48

Volatile Organic Compound Emissions	50
Ultraviolet Radiation	52
Wildlife Habitat	53
Summary of Uncertainty and Economic Valuation	54
Other i-Tree Tools	57
i-Tree Canopy	57
i-Tree Cool River	58
i-Tree County	58
i-Tree Design	59
i-Tree Forecast	59
i-Tree Harvest	62
i-Tree Hydro	62
i-Tree Landscape	64
MyTree	75
i-Tree Planting	75
i-Tree Projects	75
i-Tree Species	75
i-Tree Streets	76
i-Tree Wood Marketplace	77
Acknowledgments	77
Literature Cited	78

Appendix 1: i-Tree Staff and Collaborators	https://doi.org/10.2737/NRS-GTR-200-Appendix1
Appendix 2: i-Tree Links	https://doi.org/10.2737/NRS-GTR-200-Appendix2
Appendix 3: Shading Coefficients	https://doi.org/10.2737/NRS-GTR-200-Appendix3
Appendix 4: Conversion Factors for Leaf Area to Biomass	https://doi.org/10.2737/NRS-GTR-200-Appendix4
Appendix 5: Conversion Factors for Shrub Volume to Biomass	https://doi.org/10.2737/NRS-GTR-200-Appendix5
Appendix 6: Invasive Plant Species	https://doi.org/10.2737/NRS-GTR-200-Appendix6
Appendix 7: Compensatory Value of Trees	https://doi.org/10.2737/NRS-GTR-200-Appendix7
Appendix 8: Average Energy Costs	https://doi.org/10.2737/NRS-GTR-200-Appendix8
Appendix 9: Energy Conservation Estimates for Buildings in non-U.S. Countries	https://doi.org/10.2737/NRS-GTR-200-Appendix9
Appendix 10: New Biomass Equations	https://doi.org/10.2737/NRS-GTR-200-Appendix10
Appendix 11: Wood Density Values	https://doi.org/10.2737/NRS-GTR-200-Appendix11
Appendix 12: Volatile Organic Compounds (VOC) Emission Rates	https://doi.org/10.2737/NRS-GTR-200-Appendix12
Appendix 13: Equations for Tree Height, Crown Height, and Crown Width	https://doi.org/10.2737/NRS-GTR-200-Appendix13
Appendix 14: Partial List of Publications Referencing i-Tree Tools	https://doi.org/10.2737/NRS-GTR-200-Appendix14

LITERATURE CITED

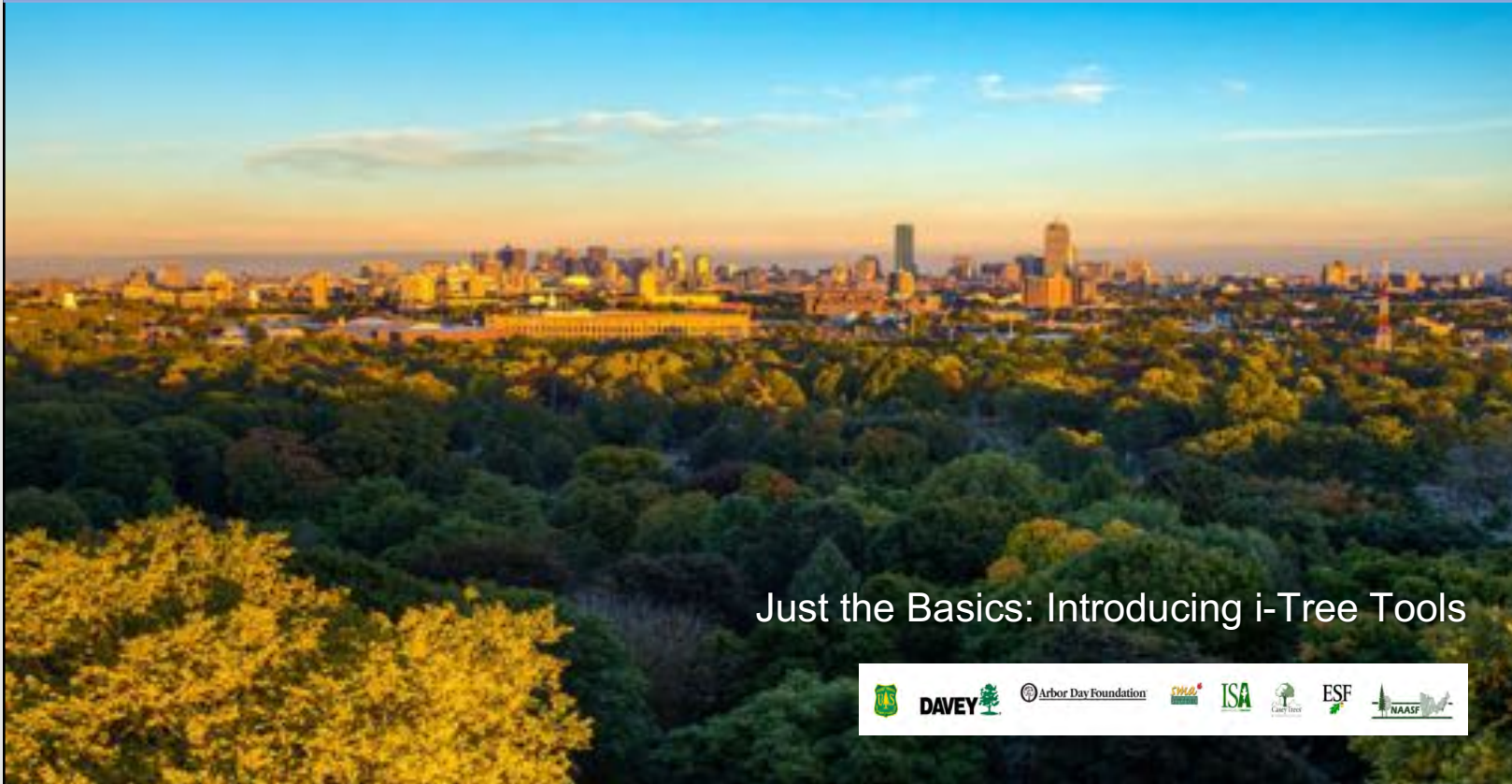
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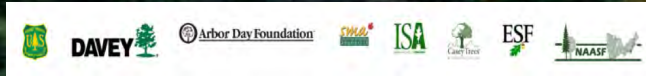
www.itreetools.org

i-Tree Quick Guide

ver. 09012020



Just the Basics: Introducing i-Tree Tools



i-TREE 2020

ABOUT I-TREE

The i-Tree suite of software tools was developed by the USDA Forest Service and their cooperators to help users assess and manage the structure, function, and value of trees and forests regardless of community size or technical capacity. i-Tree supports effective natural resource management by providing information for advocacy, planning, informed decision-making, and standardization for monitoring. It promotes a better understanding of the ecosystem services provided by trees and forests, and helps justify investment in stewardship, operations, and maintenance.

WHAT DOES I-TREE DO?

i-Tree provides the tools to help you promote strategic, cost-effective forest management and by helping you:

- Determine and understand tree and forest benefits, values and management costs.
- Plan and manage to optimize tree and forest environmental services to benefit people.
- Integrate trees and forests in green infrastructure strategies and resilience planning.
- Identify potential pests, diseases and threats.

i-Tree online tools can be accessed and used directly on the i-Tree website. Desktop applications require installing software and offer instruction manuals and learning resources to plan and complete a project.

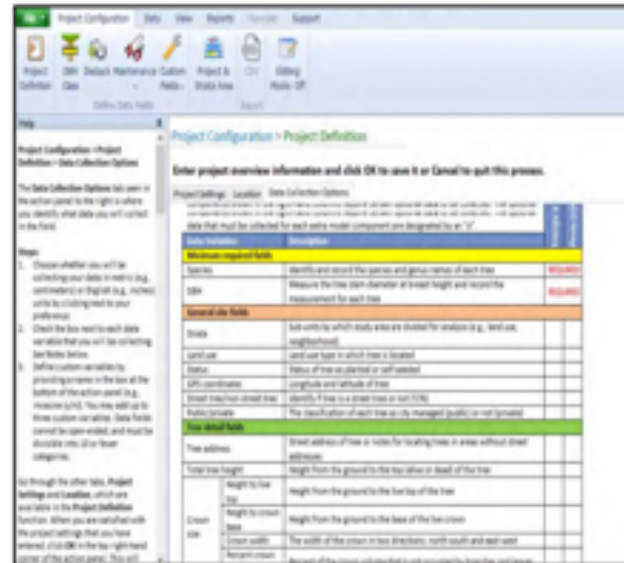
I-TREE 2020 DESKTOP APPLICATIONS

- **Eco v6** uses field data from complete inventories or sampled plots with local hourly air pollution and meteorological data to quantify forest structure, environmental effects, and values. ***Int'l**
- **Hydro** simulates the effects of changes in tree and impervious cover on hourly stream flow and water quality. Hydro has a user-friendly interface, pre-calculated topographic indexes that eliminate the need for GIS expertise, and applicability for non-watershed areas.
- **Streets** estimates structure and ecosystem services for street trees using a sample or complete inventory option.

I-TREE 2020 ONLINE APPLICATIONS

- **Landscape** allows you to explore geospatial data for an area of interest.
- **Design** assesses how tree species, size, and affect benefits including energy use in nearby structures.
- **Canopy** produces a statistical estimate of tree and other land cover types using Google Maps. ***Int'l**
- **MyTree** calculates individual tree benefits on a smartphone or tablet.
- **Species** aids in tree species selection based on desired environmental services and geographic area.
- **Planting** estimates the long-term environmental benefits of tree planting projects.
- **Database** is an online system for international users to submit new location, pollution, precipitation data, and new species for integration into the Eco model. ***Int'l**

i-TREE ECO



WHAT: i-Tree Eco is a flexible software application designed to use data collected in the field from single trees, complete inventories, or randomly located plots throughout a study area along with local hourly air pollution and meteorological data to quantify forest structure, environmental effects, and value to communities.

HOW: i-Tree Eco provides extensive forest and individual tree analyses including the following:

- Pollution removal and human health impacts
- Carbon sequestration and storage
- Hydrology effects (avoided run-off, interception, transpiration)
- Building energy effects
- Tree bio-emissions
- Wildlife suitability (plot-based projects; limited to 9 bird species)
- Ultraviolet radiation (UV) tree effects
- Species condition and distribution
- Leaf area and biomass
- Species importance values
- Diversity indices and relative performance
- Tree planting inputs
- Pest risk analysis
- User defined optional fields
- Cost benefit analysis

MYTREE 2.0




- MyTree is intended to be simple and accessible. As such, this tool should be considered a starting point for understanding trees' value in the community, rather than a scientific accounting of precise values.
- With inputs of location, species and tree size, users will get an understanding of the environmental and economic value trees provide on an annual basis.

MYTREE 2.0

- One of most popular tools for public engagement.
- Citizen-science tool for all ages.
- Quantifies and calculates function and value of tree(s).

MyTree Benefits

Serving size: 1 tree




TOTAL BENEFITS FOR THIS YEAR	\$
<hr/>	
Carbon Dioxide (CO₂) Sequestered	\$
CO ₂ absorbed each year	lbs
Storm Water	\$
Rainfall intercepted each year	gal
Air Pollution removed each year	\$
Ozone	oz
Nitrogen dioxide	oz
Sulfur dioxide	oz
Large particulate matter**	oz
Energy Usage each year*	\$
Electricity savings (kWh)	kWh
Fuel savings (MG/Gal)	MG/Gal
Avoided Emissions	
Carbon dioxide	lbs
Nitrogen dioxide	oz
Sulfur dioxide	oz
Large particulate matter**	oz

Benefits are estimated based on USDA Forest Service research and are meant for guidance only www.treetools.org

*Positive energy values indicate savings or reduced emissions. Negative energy values indicate increased usage or emissions.

**Is not greater than 10 microns.

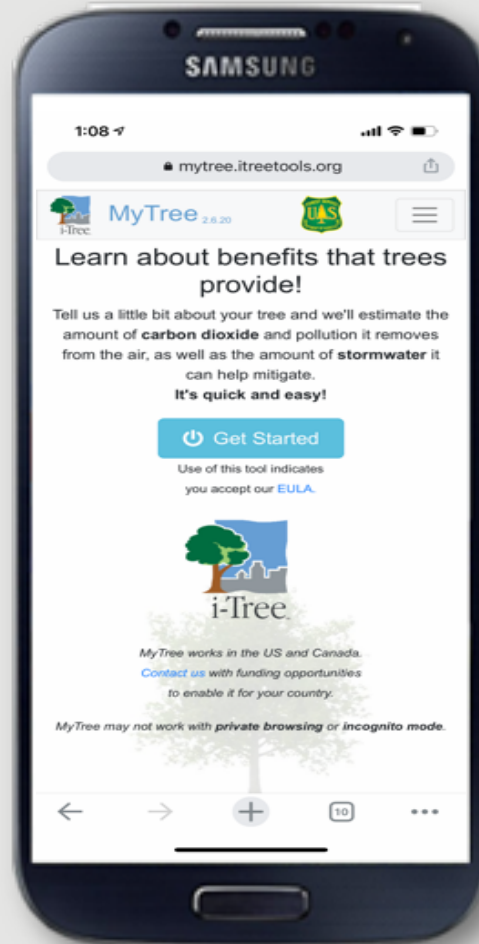


www.treetools.org

MYTREE 2.0

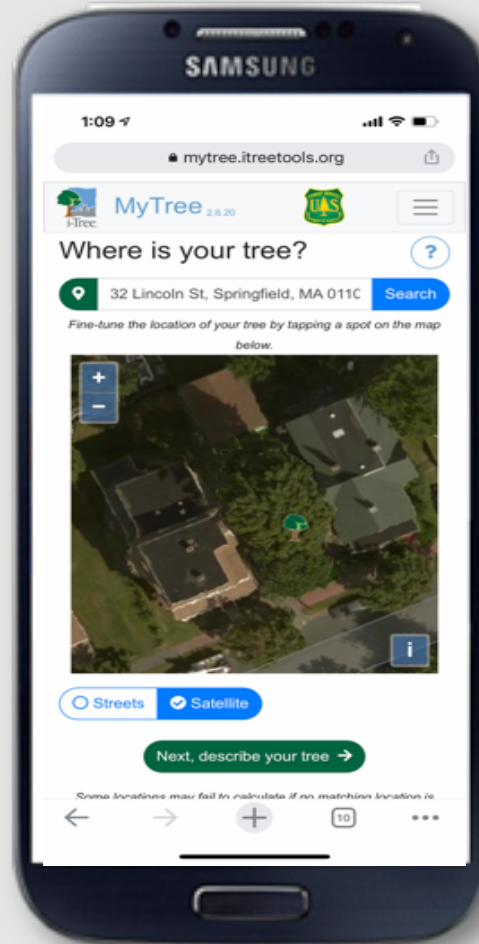


MYTREE 2.0



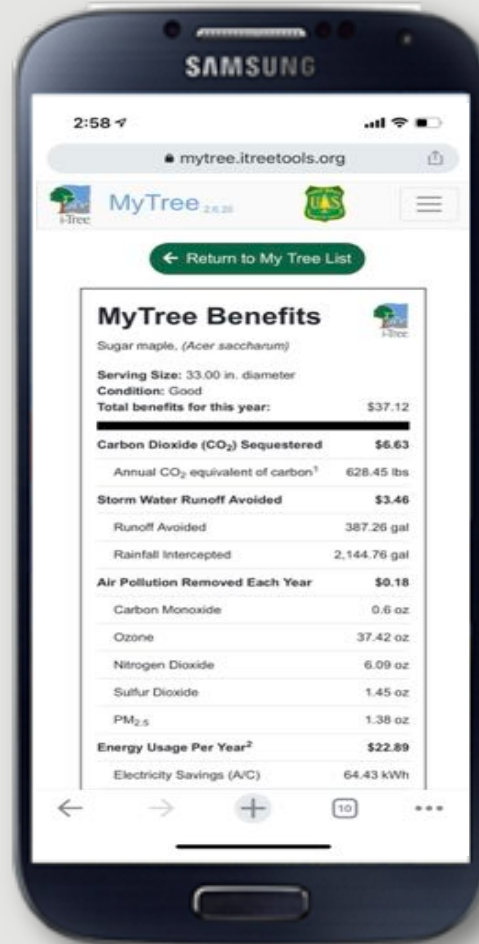
- MyTree is generally used in the field to deliver quick results on the ecosystem services provided by one or more trees, and as such, is most practically used on a laptop, tablet or smartphone.
- Tree data is input via the computer or mobile device and the program will provide an easy to understand 'tree nutrition' label which can be saved or printed.

MYTREE 2.0



- Includes new Google Map component.
- Adds versatility and usefulness.
- Enables cooperative data input and analysis by 'pinning' trees to the world-wide map and database.

MYTREE 2.0



- Provides easy to read and understand graphic report.
- Results can be viewed, downloaded or printed.
- Utilizes databases from i-Tree Eco and Design to produce accurate, peer-reviewed and consistent data reporting.

i-Tree Projects: MyTree Home Projects Menu i-Tree Status Feedback

1400 Independence Ave. SW, Washington, DC 20250

Google

Map data ©2021 Google, NOAA Terms of Use

[Search Tools](#) [Current Tree Benefits](#) [Future Tree Benefits](#)

During development and beta, only the trees shown in the table below are visible on the map. If looking for specific trees, use the Search Tools to refine the trees in the table.

Benefits shown are annual rates except for CO₂ stored to-date.

[Refresh](#)

i-Tree Projects: MyTree Home Projects Menu i-Tree Status Feedback

1400 Independence Ave. SW, Washington, DC 20250

United States

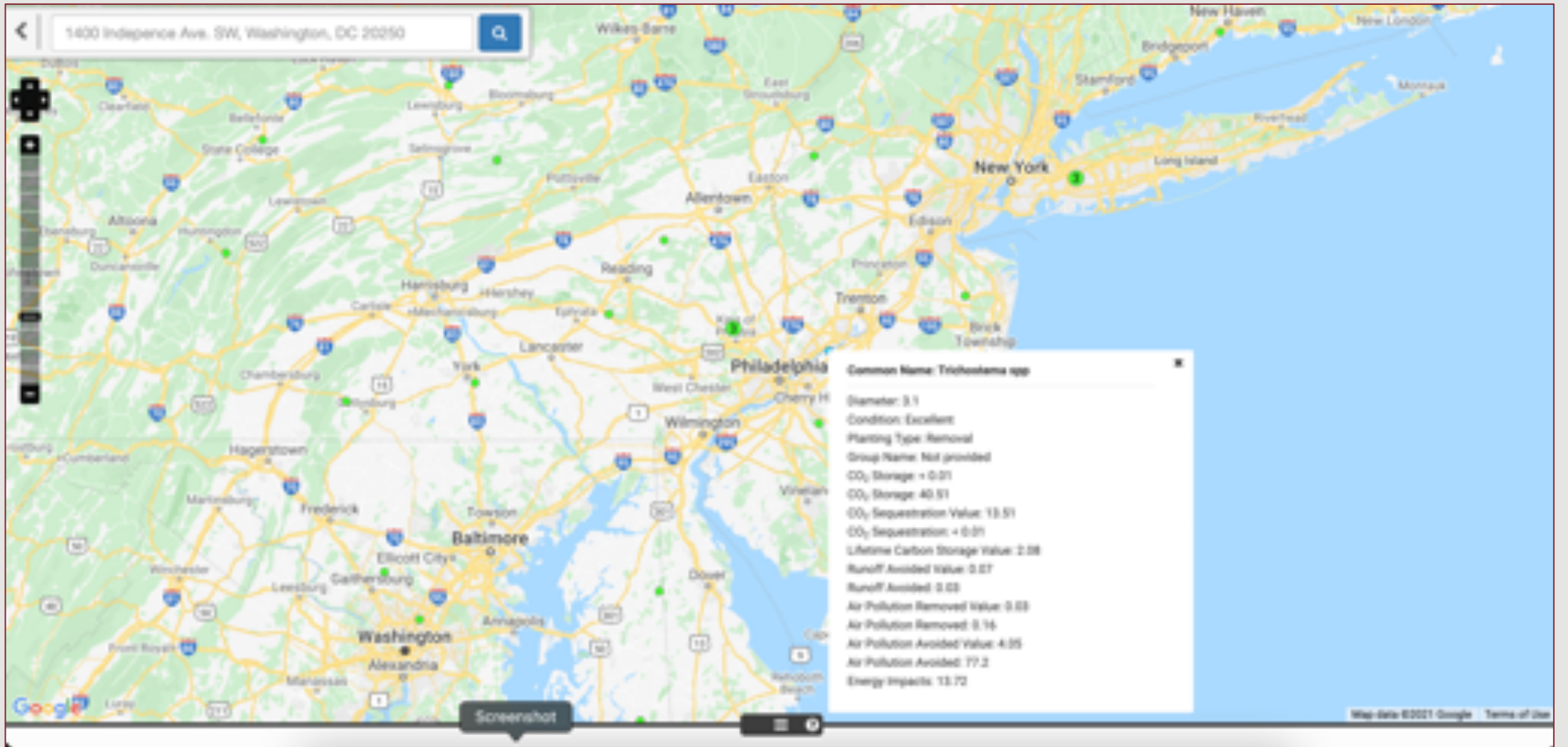
Map data ©2021 Google, INEGI Terms of Use

Search Tools Current Tree Benefits Future Tree Benefits

During development and beta, only the trees shown in the table below are visible on the map. If looking for specific trees, use the Search Tools to refine the trees in the table.

Benefits shown are annual rates except for CO₂ stored to-date.

Show 250 entries Refresh





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Search Tools

Current Tree Benefits

Future Tree Benefits

During development and beta, only the trees shown in the table below are visible on the map. If looking for specific trees, use the Search Tools to refine the trees in the table.

Benefits shown are annual rates except for CO₂ stored to date.

Refresh

Show 250 entries

Date	Species	DBH (in.)	Condition	Planting Type	Group	CO ₂ Stored To Date ^{1,2}		CO ₂ Sequestered ²		Storm Water Runoff Avoided		Air Pollution Removed ³		Avoided Energy Emissions ⁴	
						\$	lbs	\$	lbs	\$	Gal	\$	Oz	\$	Oz
2/25/2021	Sugar maple	36	Excellent	Existing	test	609.5	11887.43	167.24	167.24	1.02	2.42	0.46	2.7	83.46	4.46
2/25/2021	Sugar maple	36	Excellent	Existing	test	609.5	11887.43	167.24	167.24	1.02	2.42	0.46	2.7	83.46	4.46
2/19/2021	Eastern white pine	30	Excellent	Not provided	Not provided	206.35	4024.61	60.92	60.92	1.82	4.29	< 0.01	< 0.01	340.43	17.65
2/19/2021	Eastern white pine	30	Excellent	Not provided	Not provided	165.08	3219.68	110.76	110.76	1.82	4.29	1	11.12	340.43	17.65
2/19/2021	Eastern white pine	30	Excellent	Not provided	Not provided	206.35	4024.61	60.92	60.92	1.82	4.29	< 0.01	< 0.01	340.43	17.65
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2/19/2021	Eastern white pine	30	Excellent	Not provided	Not provided	165.08	3219.68	110.76	110.76	1.82	4.29	1	11.12	340.43	17.65

1/15/2021	Leucodium spp	6.3	Excellent	Existing	Not provided	9.24	180.24	20.94	20.94	0.12	0.29	0.14	0.01	62.94	3.27
1/15/2021	Toxocarpus spp	3.1	Excellent	Existing	Not provided	1.72	33.55	5.52	5.52	0.08	0.19	0.06	0.02	51.99	2.72
1/15/2021	Phymatomenia spp	7.5	Excellent	Existing	Not provided	15.14	295.29	43.45	43.45	0.05	0.12	0.17	0.08	16.09	0.85
1/15/2021	Anthopterus spp	3.5	Excellent	Existing	C - Example Group	2.18	42.58	20.14	20.14	0.14	0.34	0.1	< 0.01	26.59	1.43
1/15/2021	Sprengelia spp	3.9	Excellent	Existing	C - Example Group	2.82	54.95	16.57	16.57	0.01	0.03	0.09	0.04	22.2	1.14
1/15/2021	Parashorea spp	3.5	Excellent	Existing	Not provided	2.27	44.32	9.72	9.72	< 0.01	0.02	0.05	0.04	58.7	3
1/15/2021	Vaccanga spp	7.9	Excellent	Existing	Not provided	13.08	255.17	34.01	34.01	< 0.01	0.01	0.28	0.1	158.85	8.12
1/15/2021	Ricinodendron spp	2.4	Excellent	Existing	A - Example Group	0.67	13.11	5.5	5.5	0.05	0.11	0.05	0.01	64.41	3.34
1/15/2021	Apacheria spp	3.9	Excellent	Existing	Not provided	2.03	39.54	8.48	8.48	< 0.01	< 0.01	0.14	0.01	24.49	1.26
1/15/2021	Westringia spp	5.5	Excellent	Existing	Not provided	6.92	134.98	25.16	25.16	0.1	0.25	0.12	0.03	60.36	3.13
1/15/2021	Cameraria spp	7.5	Excellent	Existing	C - Example Group	11.67	227.54	43.93	43.93	0.31	0.74	0.27	0.03	116.93	6.08
1/15/2021	Ricinodendron spp	3.9	Excellent	Existing	C - Example Group	2.71	52.9	18.32	18.32	< 0.01	< 0.01	0.15	0.03	73.1	3.74
1/15/2021	Philippia spp	5.5	Excellent	Existing	B - Example Group	6.36	124.08	42.82	42.82	0.33	0.79	0.15	0.97	60.3	3.3
1/15/2021	Perebea spp	2.4	Excellent	Existing	Not provided	0.9	17.46	15.7	15.7	0.28	0.66	0.08	0.58	17.01	0.94
1/15/2021	Heterocentron spp	4.3	Excellent	Existing	Not provided	3.52	68.62	14.92	14.92	0.06	0.14	0.05	0.68	97.81	5.18
1/15/2021	Microchites spp	2.4	Excellent	Existing	Not provided	0.92	17.9	5.78	5.78	< 0.01	< 0.01	0.07	0.02	44.98	2.3
1/15/2021	Sarcostemma spp	5.5	Excellent	Existing	Not provided	5.91	115.28	15.57	15.57	< 0.01	0.01	0.13	0.03	56.63	2.89
2/16/2021	Slidy walnut	10	Excellent	-1	Not provided	29.25	570.52	105.29	105.29	0.64	1.51	0.47	3.89	16.7	0.93

Showing 1 to 250 of 2,021 entries



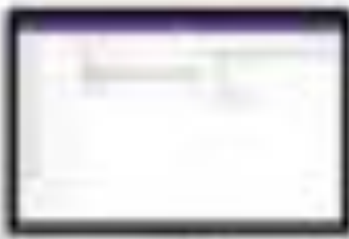
EPI COLLECT

- Free, simple to use data collector suite
- Easy, convenient and accurate
- Desktop configuration and data management
- Mobile app for field data collection
- Sync data via the cloud





epicollect5



Create your project and items
on the website



Download project on device and
collect data online or offline



View, analyze and export
your data (json, csv)

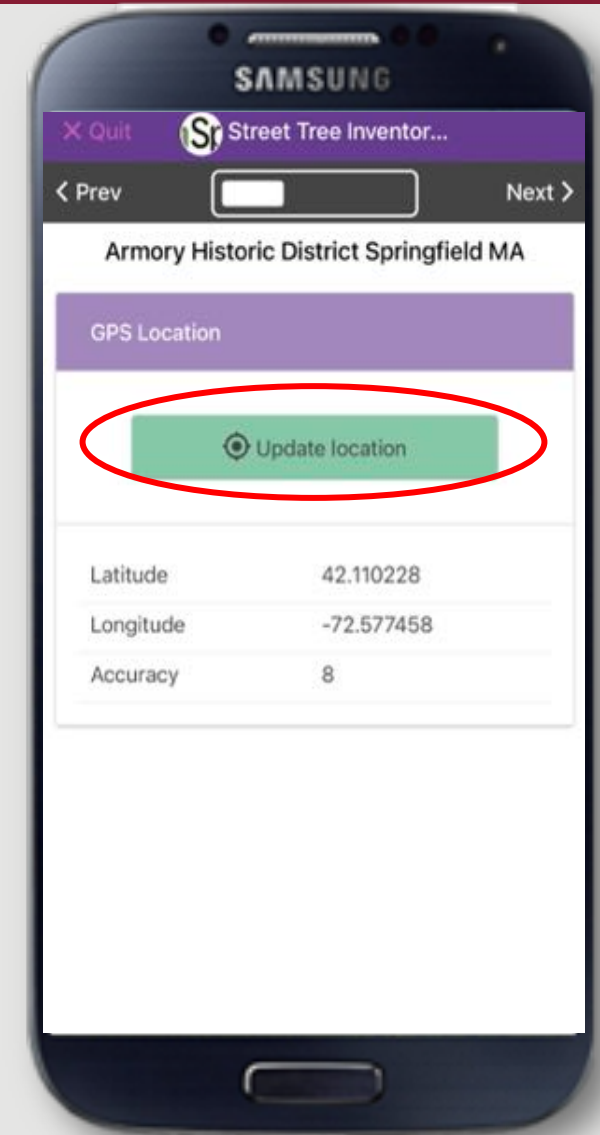
EPI COLLECT

- Ideal for tree inventories, inspection and sales applications
- Multiple forms for specialized data collection needs
- Location, photos and video can be collected

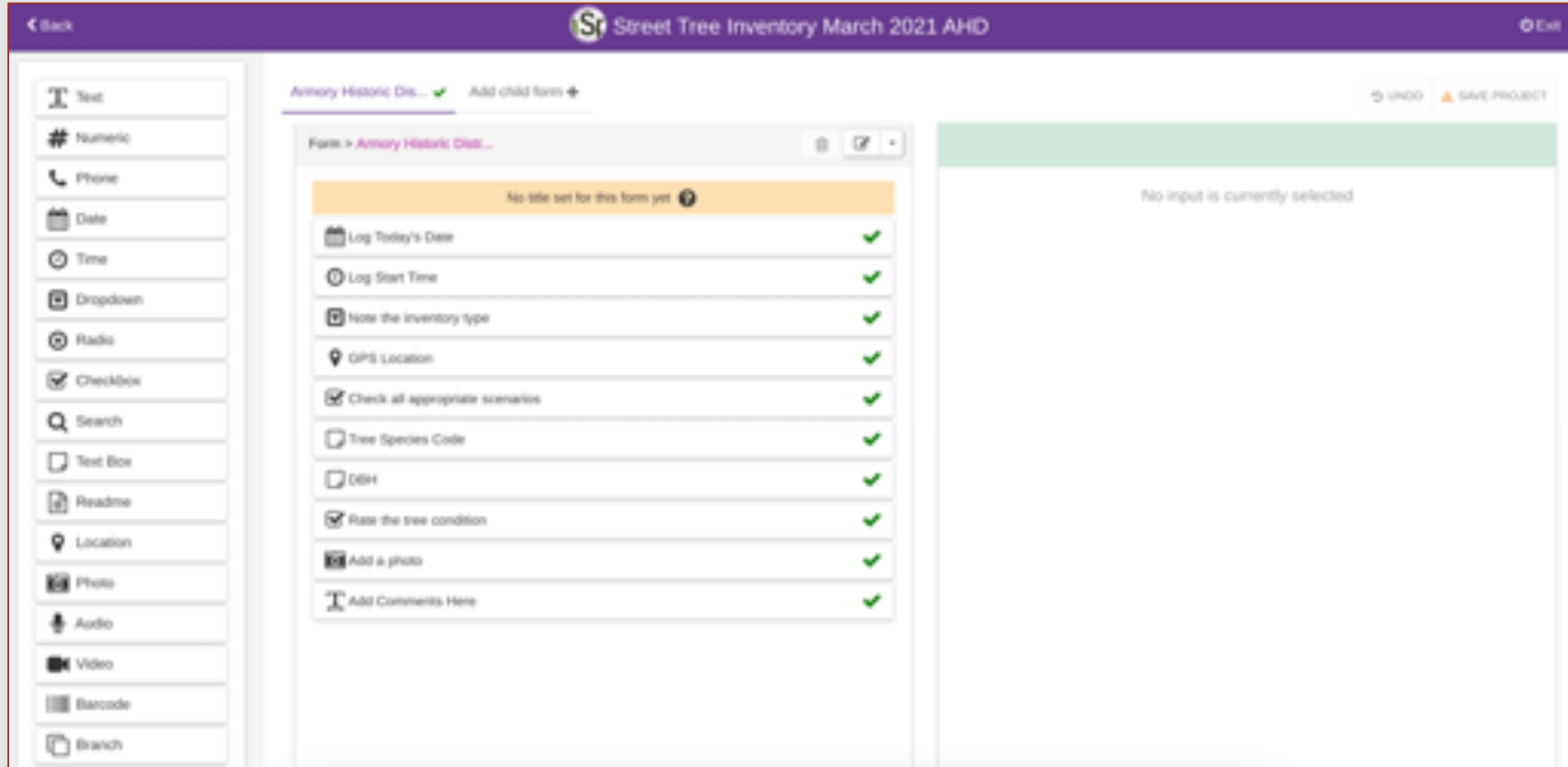


EPI COLLECT – DATA COLLECTION

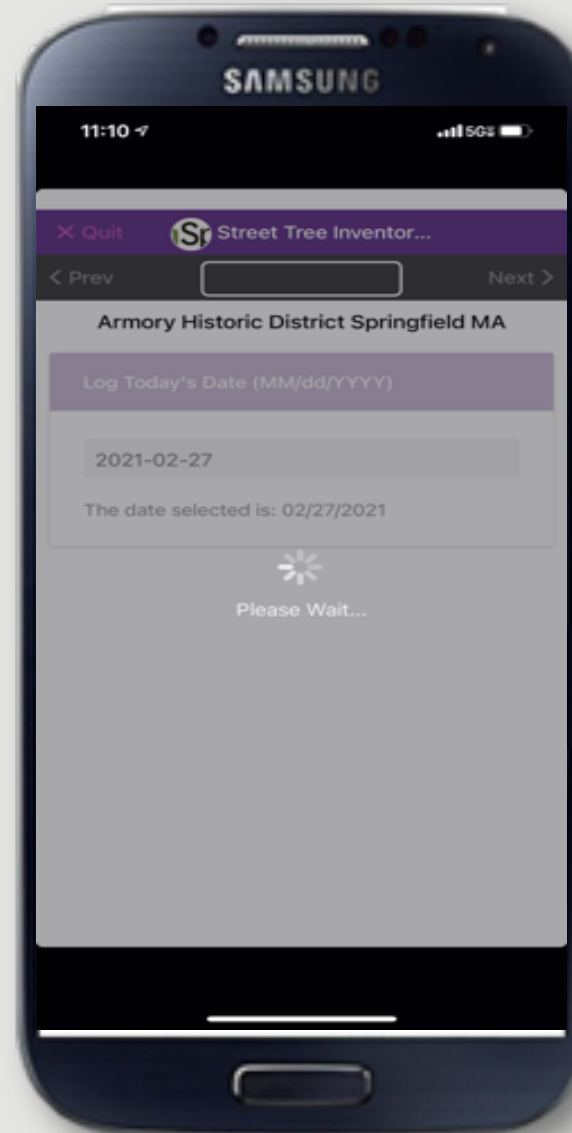
- Simple user interface for smartphones and tablets.
- Customizable data collection.
- Easy to modify via the configuration interface.



EPI COLLECT – DESKTOP CONFIGURATION



EPI COLLECT WALK-THRU



EPI COLLECT DESKTOP DATA MANAGEMENT

Street Tree Inven... Amory Historic District Springfield MA

Download Table Map Exit

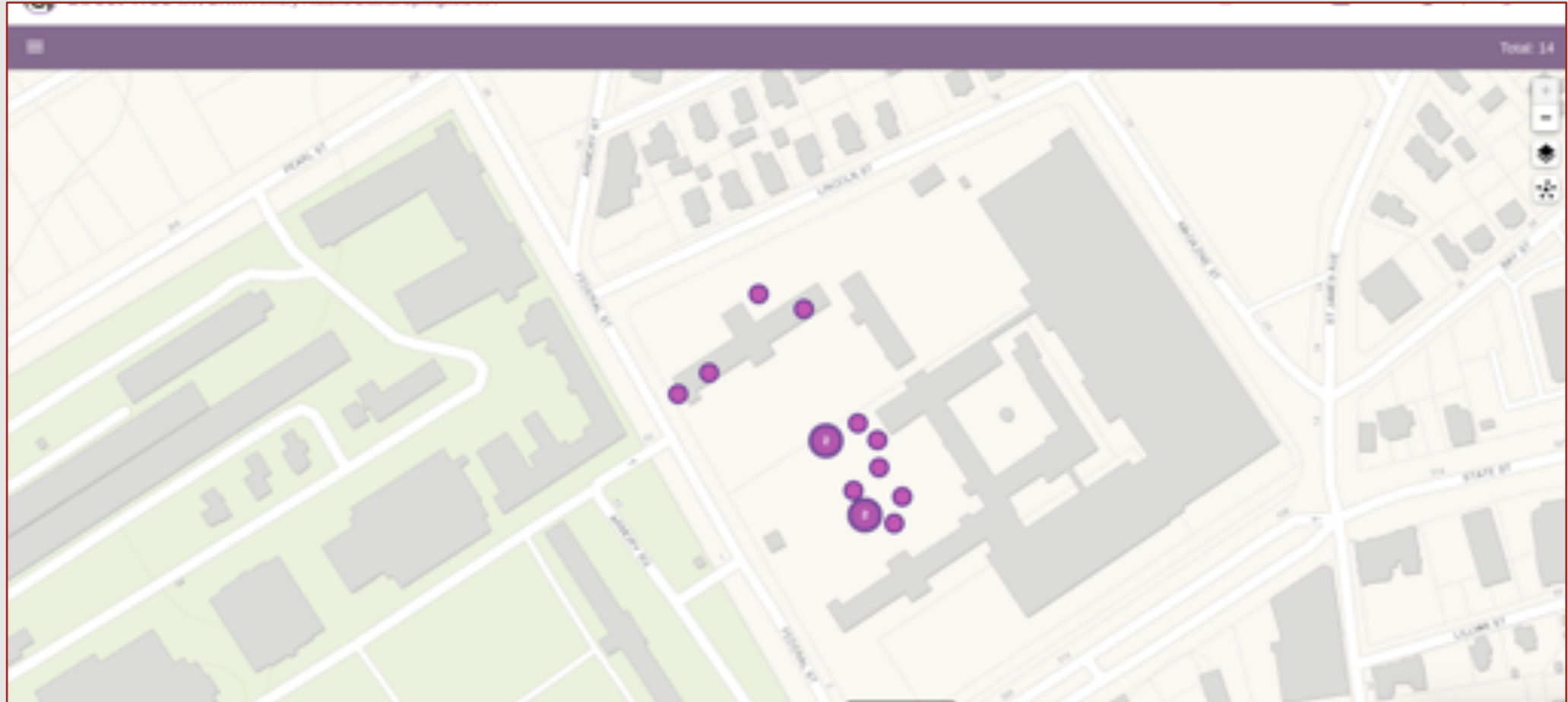
Add Amory Historic D... Total: 15, 1/1

Filter by title

FROM: 26 FEB, 21 TO: 27 FEB, 21 NEWEST

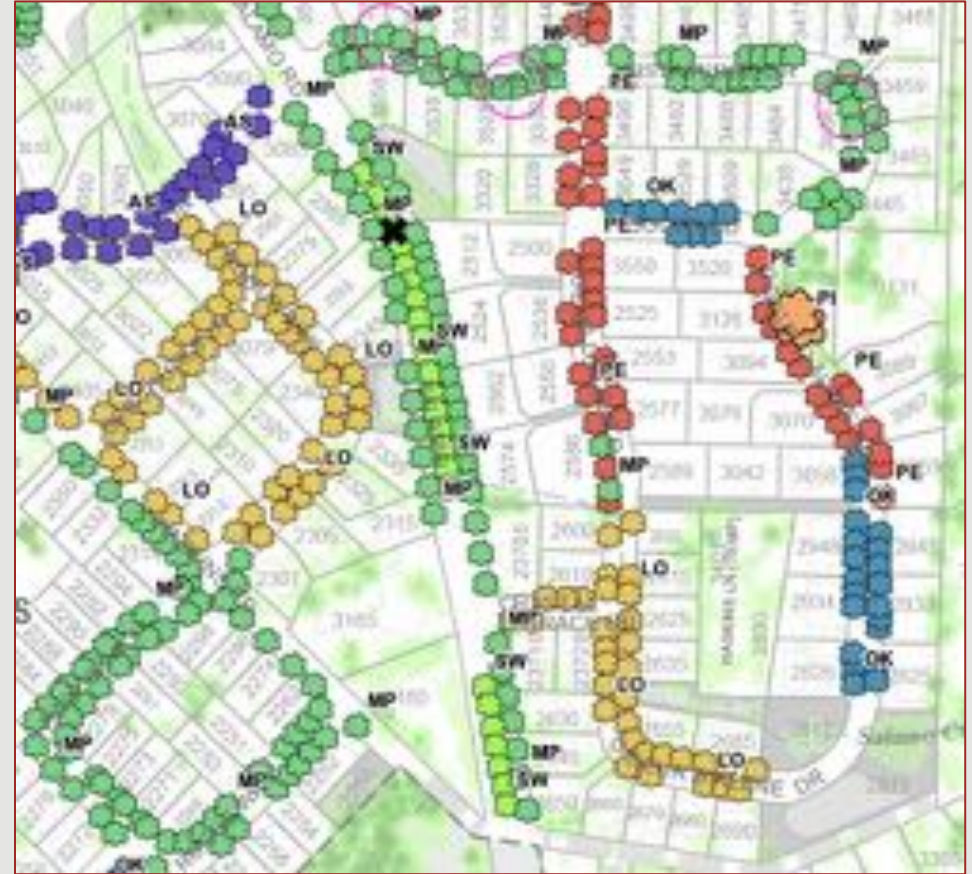
View	Delete	Edit	Title	Created At	Log Today's Date	Log Start Time	Note the Inventory type	GPS Location	Check all appropriate scenarios	Tree Species Code	DBH
			0eaf6d7e-8ba4-4e14-...	27th Feb, 2021	02/27/2021	11:10:25	Park Trees	42.109888, -72.578200	On street, in open lawn area	AP	22
			7e50123-2233-46c4-...	27th Feb, 2021	02/27/2021	11:07:44	Park Trees	42.109884, -72.578014	On street	AP	12
			40c0ba3-902f-440a-6...	27th Feb, 2021	02/27/2021	10:54:18	Park Trees	42.109436, -72.578888	In open lawn area	AP	18
			4d5e178f-4c4b-4a05-...	27th Feb, 2021	02/27/2021	10:53:09	Park Trees	42.109306, -72.578888	In open lawn area	GT	26
			1e5d7d06-3803-66b9-...	27th Feb, 2021	02/27/2021	10:52:00	Park Trees	42.109326, -72.577017	In open lawn area	GT	21
			516b996-40b-4534-8...	27th Feb, 2021	02/27/2021	10:51:16	Park Trees	42.109356, -72.577118	In open lawn area	GT	22
			304e6e0-4c4d-6ac3-...	27th Feb, 2021	02/27/2021	10:50:07	Park Trees	42.109456, -72.577120	In open lawn area	GT	20
			460c33f3-519e-4114-...	27th Feb, 2021	02/27/2021	10:48:57	Park Trees	42.109057, -72.578884	In open lawn area	GT	25
			88082111-8261-4908-...	27th Feb, 2021	02/27/2021	10:47:41	Park Trees	42.109681, -72.578993	In open lawn area	AP	10
			015349c-4630-4a02-...	27th Feb, 2021	02/27/2021	10:46:08	Park Trees	42.108756, -72.577119	In open lawn area	AP	18
			738f1a3-ae0f-4200-a...	27th Feb, 2021	02/27/2021	10:46:00	Park Trees	42.108722, -72.577285	In open lawn area	GT	24
			3d9c3c17-0571-4f5a-8...	27th Feb, 2021	02/27/2021	10:43:59	Park Trees	42.109641, -72.577319	In open lawn area	GT	24

EPI COLLECT DESKTOP DATA MANAGEMENT



EPI COLLECT

- Export data to Google Maps, i-Tree or ArcGIS.
- Archive Database in the Cloud or Desktop.
- User Community of Shared Forms



Urban Tree Monitoring: A Field Guide



1. Introduction	1
2. Minimum Data Set	3
2.1. Field Crew	5
2.2. Date of Observation	6
2.3. Tree Record Identifier	6
2.4. Location Go to page 12	8
2.5. Tree Photo	15
2.6. Site Type	17
2.7. Land Use	19
2.8. Species	22
2.9. Mortality Status	24
2.10. Basal Sprouts	28
2.11. Crown Vigor	28
2.12. Trunk Diameter	31
2.13. Notes for Supervisory Review	40
Acknowledgments	42
Literature Cited	43
Appendix 1: Field Data Collection Cheat Sheet	45
Appendix 2: Field Data Collection Sheet	46
Appendix 3: Field Equipment	48

Urban Tree Monitoring: A Resource Guide



Forest
Service

Pacific Southwest
Research Station

General Technical
Report PSW-266

August 2020

Part I: General Strategies for Urban Tree Monitoring	1
1. Introduction	2
1.1. Why Monitor Urban Trees?	2
1.2. Monitoring Project Types	7
1.3. Connecting Monitoring Goals to Field Methods	8
1.4. Background	10
2. Getting Started	19
2.1. Planning Ahead for Data Collection, Management, and Analysis	19
2.2. What Is a Tree?	28
2.3. Choosing the Appropriate Location Method	30
2.4. Site Type and Land Use	41
2.5. Longitudinal Database Considerations	44
3. Managing Fieldwork	55
3.1. Tips for Training Field Crews	55
3.2. Tips for Managing and Supporting Field Crews	59
3.3. Field Equipment Suggestions	64
4. Conclusion	67
Part II: Data Sets for Urban Tree Monitoring	69
5. Data Sets Framework	70
6. Minimum Data Set	72
6.1. Basic Record Information	73
6.2. Location and Site	74
6.3. Tree Data	74
6.4. Background on Mortality Status	75
6.5. Background on Crown Vigor	77
6.6. Background on Trunk Diameter	78



United States Department of Agriculture

Urban Tree Monitoring: A Resource Guide



Forest Service

Pacific Southwest Research Station

General Technical Report PSW-266

August 2020

8. Site Data Set	88
8.1. Roads	88
8.2. Buildings	90
8.3. Hardscapes	90
8.4. Overhead Conflicts	90
8.5. Soil	91
9. Young Tree Management Data Set	92
9.1. Program Information	93
9.2. Tree Steward Information	93
9.3. Stewardship Actions	94
10. Community Data Set	95
10.1. High-Priority National Data	96
10.2. Local Data	96
10.3. Community Surveys and Interviews	97
11. Acknowledgments	98
Part III: Supporting Documentation	99
Literature Cited	100
Appendix 1: Site Type and Land Use Examples	116
Appendix 2: Species Identification Resources	119
Web Sites and Apps	119
Books	120
Appendix 3: Other Protocols	122
Appendix 4: Field Crew Training Agendas and Activities	124
Agenda No. 1: Full-Day (7 Hours) Field Crew	
Training Agenda for Interns or Citizen Scientists	124
Agenda No. 2: Short (2.5 hours) Training Agenda	
for Interns or Citizen Scientists	125

URBAN WOOD MARKETPLACE

- Providing a unified and simple tool to connect urban wood harvests to the users of those removed trees, and thereby reduce waste.
- Commercial and municipal applicability.
- Web-based.



URBAN WOOD MARKETPLACE

- The site is comprised of the **Marketplace** and the **Data Collection Tool**. Data are organized by Job, which consists of one or more trees a organization has felled.
- Trees are subdivided into logs, which are located at a storage yard of the harvesting organization.





URBAN WOOD MARKETPLACE

How the log information is organized and collected: **Jobs > Trees > Logs**

An organization joins the Marketplace with a designated Marketplace **Data Manager** who can:

- add **Jobs**, **Trees**, and **Logs**.
- invite **Data Collectors** to assist with adding **Jobs**, **Trees**, and **Logs**

The assumption is that one or more **Logs** come from one or more **Trees** at each **Job** site.

Example: a work crew from Anytown is removing a white oak and a red maple at Mrs. Smith's home. Three logs are derived from the oak and one from the maple.

One or more crew members from Anytown have been added as a **Data Collector** by the **Data Manager** for the Anytown (organization). One of these **Data Collectors** uses a smartphone to log the **Job**, enter the white oak and the 2 viable **Logs** from it, and also enter the red maple for the same **Job**, with the single **Log** from it.

When ready, the **Data Manager** from Anytown displays these logs in the Marketplace for **End Users** to see.

URBAN WOOD MARKETPLACE

Accessing the Marketplace:

- **End Users:** computer, tablet, or phone
- **Data Managers:** computer or tablet (ideally), phone as needed
- **Data Collectors:** phone or tablet (ideally), laptop



The Urban Wood Marketplace provides a simple, unified tool connecting urban wood harvests to the users of removed trees, helping reduce waste. [Learn more here!](#)

- Anyone can browse logs in the Marketplace and contact log owners about availability.
- Organizations can register with the Marketplace and use the built-in tools for data collection and management to post their own logs and connect with users.



- Common Name: Norway Spruce
- Length: 9.3 feet
- Diameter: 20.5 inches
- Condition: Mill
- Storage Location: North Forestry
- Contact: jkuo@milwaukee.gov

[View Details](#)



- Common Name: Honey Locust
- Length: 15.4 feet
- Diameter: 18.6 inches
- Condition: Mill
- Storage Location: North Forestry
- Contact: jkuo@milwaukee.gov

[View Details](#)

There are currently 243 logs available in the Marketplace.

[Map](#) [List](#) [Grid](#)

Looking for something in particular? Filter what's available with the options below.

[Filters](#)



This is Log a from Tree 1 of Job 45



[Parent Tree](#)

[Dashboard](#)

Identifier: 06/17/2019 45-1-a

Length: 12.0 feet

Diameter: 30.0 inches

Common name: Red Maple

Condition: Artisanal

Storage: Bay Street Wood Recycling Facility

Bin: Artisanal: 001

Description:

Nice clear log

Contact: To learn more about this log and where it is located, use the following contact information:

- Organization: [RegreenSpringfield](#)
- Email: dbloniarz@gmail.com
- Phone: No phone number provided.

Welcome, Dave Bloniarz (*Data Manager*)

Organization: RegreenSpringfield

You currently have 34 collectors, and 66 jobs with 131 logs in the system.

- Storage Locations can be added, edited, and deleted in the Storage Locations tab.
- Data Collectors can be added, edited, and deactivated in the Data Collectors tab.
- Form field requirements can be toggled in the Required Fields tab.
- You can add, edit, and delete Jobs, Trees, and Logs in the Manage Jobs, Manage Trees, and Manage Logs tabs.

Storage Locations	Data Collectors	Required Fields	Manage Jobs	Manage Trees	Manage Logs		
Log Identifier	Length	Diameter	Condition	Storage Location	Bin	Details	Edit
10/18/2018 10-1-a	14.0 ft	24.0 in	Artisanal	Forest Park Wood Storage Facility	Artisanal: 001	Q Detail	Edit
10/18/2018 10-1-b	12.0 ft	18.0 in	Artisanal	Forest Park Wood Storage Facility	Artisanal: 001	Q Detail	Edit
10/18/2018 10-1-c	10.0 ft	12.0 in	Custom	Forest Park Wood Storage Facility	Grade B: 003	Q Detail	Edit
10/18/2018 11-1-a	22.0 ft	30.0 in	Artisanal	Bay Street Wood Recycling Facility	Artisanal: 001	Q Detail	Edit
10/21/2018 12-1-a	20.0 ft	18.0 in	Artisanal	Forest Park Wood Storage Facility	Artisanal: 001	Q Detail	Edit

URBAN WOOD MARKETPLACE

<https://wood.treetools.org>

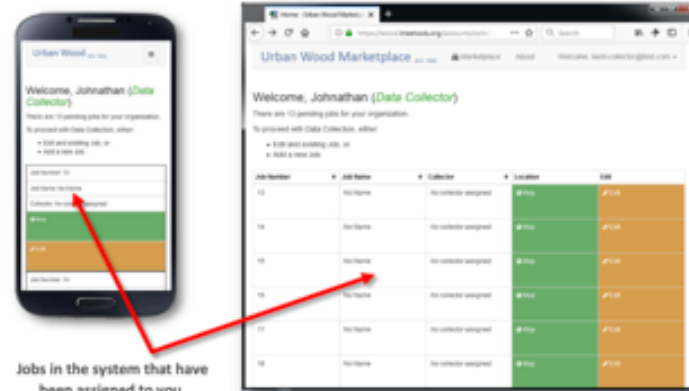
Urban Wood Marketplace Tutorial: Data Collectors

Your role as a Data Collector for the Marketplace is to act as one of your organization's field surveyors who captures the log information that End Users will ultimately review.




- Recording correct information is extremely important and ultimately dictates how well the Marketplace works.
- You may have Jobs assigned to you by your organization's Data Manager.
- You can also add new Jobs in the field.
- With each log you enter, remember to mark it with the unique Identifier that the Marketplace assigns to it in the Job form.

Your Data Collection Job List:

- A data connection is needed with your smartphone, tablet, or laptop.
- Smaller screens have a compact view, while larger screens will be more spread out.



Working with Jobs:

-  Map: If adequate location data was entered, click this to see the Job's location on Google Maps.
-  Edit: open up the Job form so that you can fill it out.
-  New Job: create a brand new Job form (opens right to the new form).

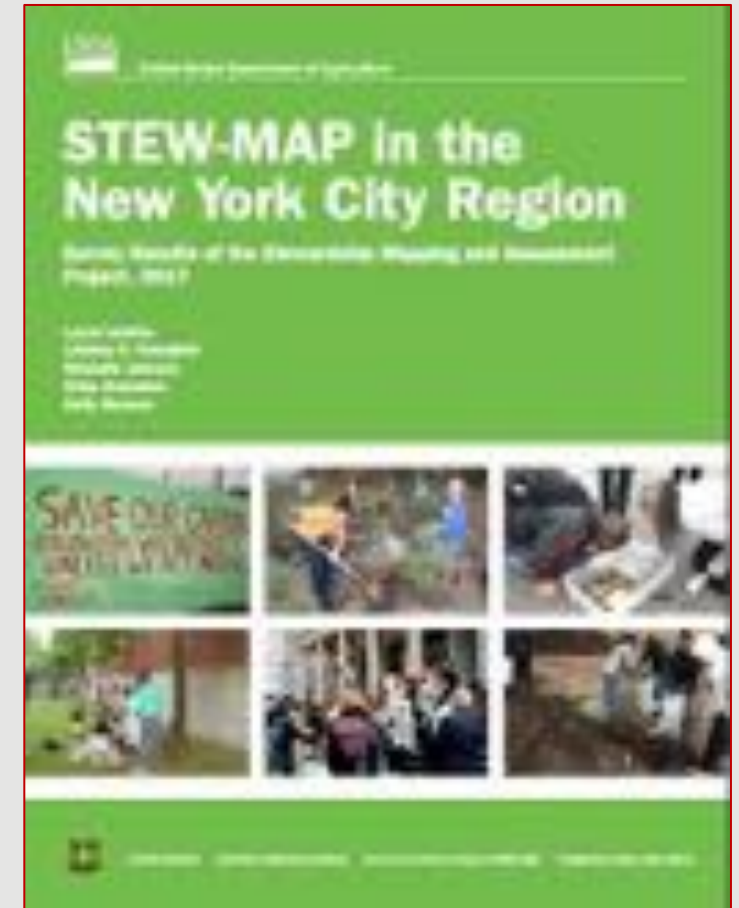
Review the Collecting Data cheat sheet for more information about filling out the Job form.



STEW-MAP

STEWARDSHIP MAPPING & ASSESSMENT PROJECT

- The Stewardship Mapping and Assessment Project (STEW-MAP) is a research methodology, community organizing approach, and partnership mapping tool developed by scientists at the USDA Forest Service Northern Research station
- Identify the gaps and overlaps in stewardship to build community capacity and strengthen the system.



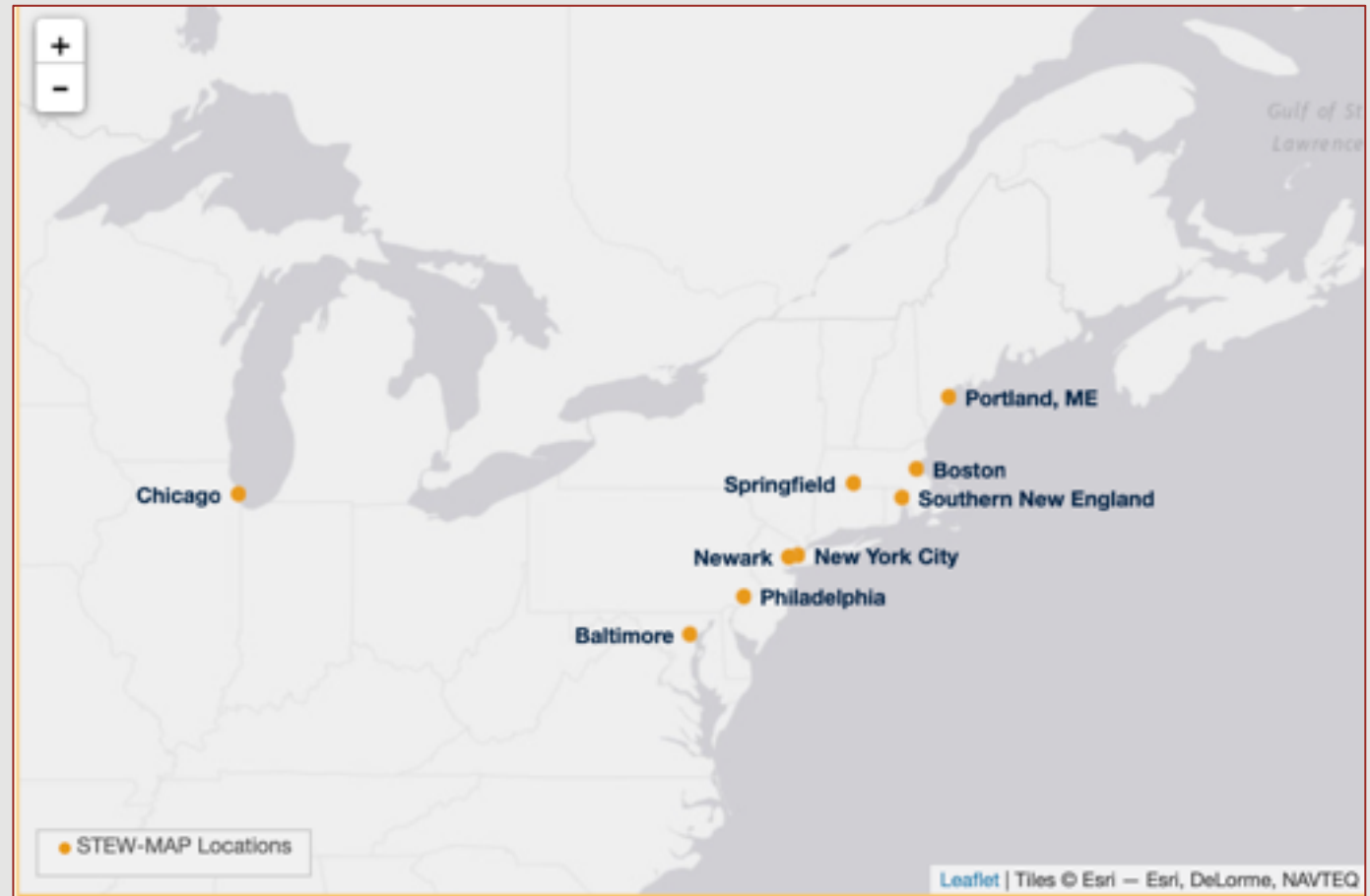
STEW-MAP

STEWARDSHIP MAPPING & ASSESSMENT PROJECT

- Who Takes Care of the Environment?
- Understanding the structure and function of stewardship groups across a landscape is a powerful step in leveraging stewardship capacity



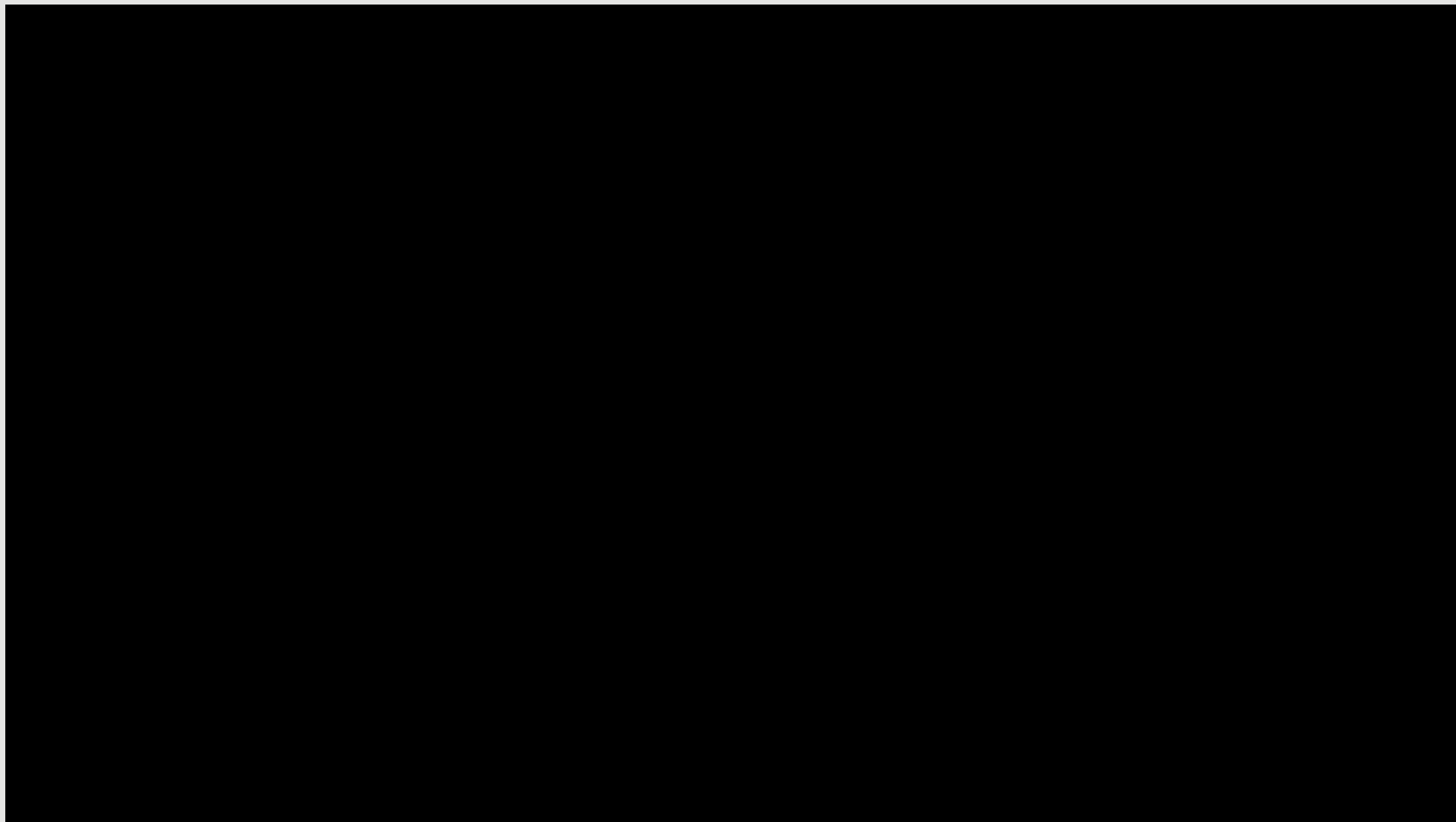
STEW-MAP





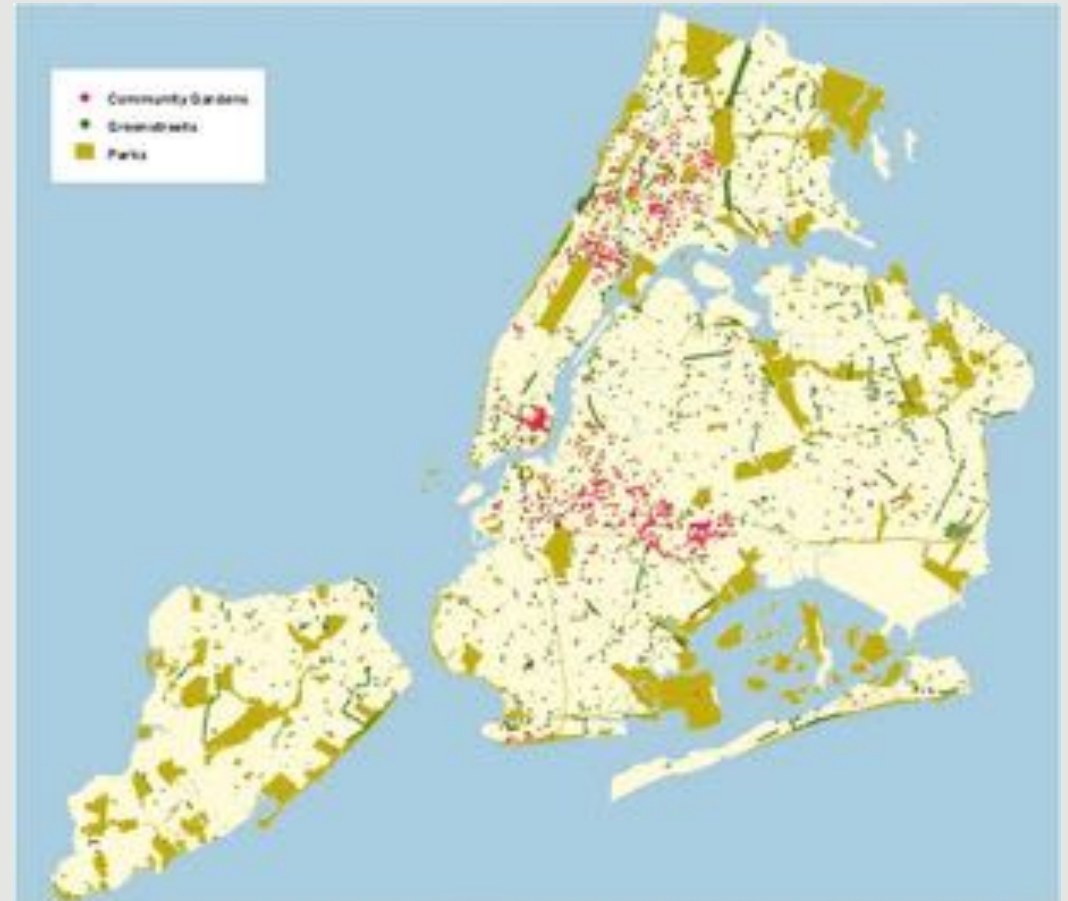
STEW-MAP Springfield

Get on the Map Today!



STEW-MAP

STEWARDSHIP MAPPING & ASSESSMENT PROJECT



STEW-MAP

STEWARDSHIP MAPPING & ASSESSMENT PROJECT

825
Total Number of Groups

← Stewardship Groups →

Welcome to STEW-MAP!

See an overview of the Stewardship Mapping and Assessment Project. For an in-depth exploration, see the full interactive STEW-MAP.

Map:
Click on the map to learn about groups.

From any info popup box, use pan or zoom to locate a group's area.

Use the Home button after zooming on the map (or searching for places) if you need to reload map data (or go to the interactive map).

New York City Region STEW-MAP 2017

Expand Window For Full View →

Collaborations

Collaboration Networks Primary Activity Primary Focus Stewardied Areas Organization Type Group Funding

Stewardship Groups (in alphabetical order)

Contact Email and Website where available

100 Block Association of West 119th Street
152 West 119th St., Garden Level
New York, NY 10026

Primary Focus: MANAGE
0 Members
5 Volunteers
Contact: west119@googlegroups.com
Website: http://west119street.org/

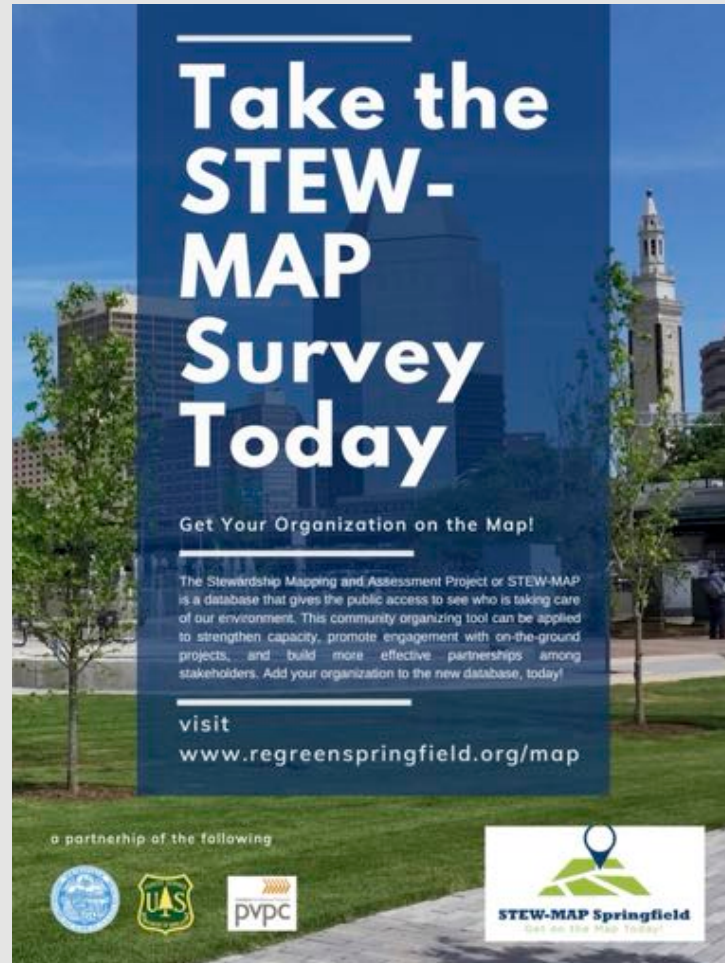
100 Quincy Community Garden
79A Quincy Street
Brooklyn, NY 11238

Primary Focus: MANAGE
35 Members
10 Volunteers
Contact: 100quincy@googlegroups.com
Website:

150-155 Edgecombe Ave. Block Association
-

Primary Focus: CONSERVE
0 Members
0 Volunteers
Contact: edgecombe1505@gmail.com
Website:

STEW-MAP SPRINGFIELD




Take the STEW-MAP Survey Today

Get Your Organization on the Map!

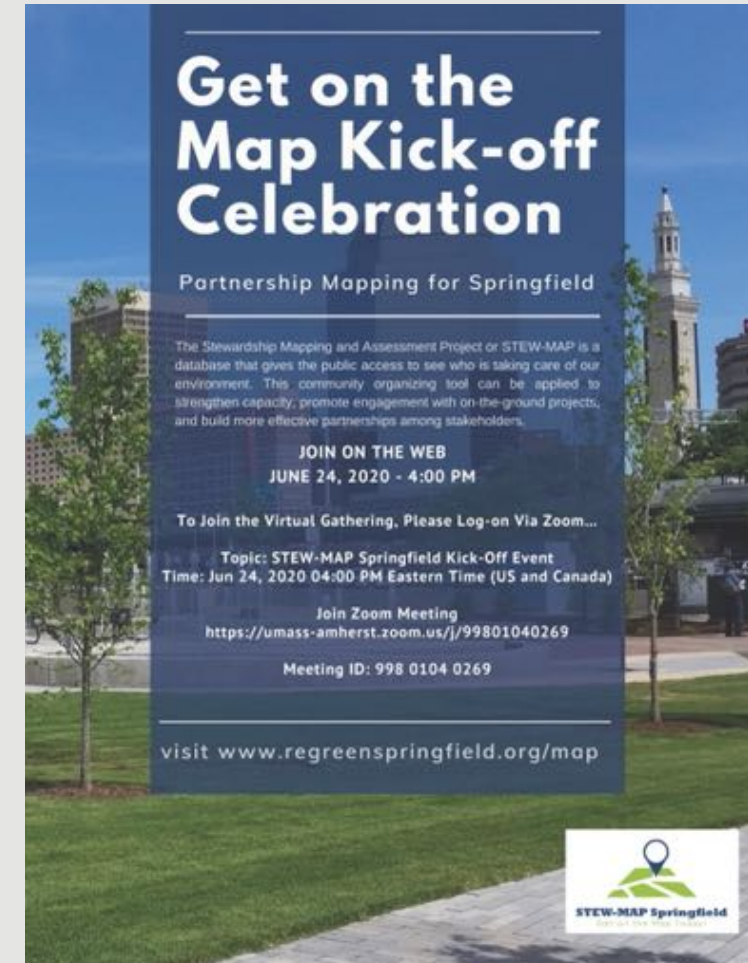
The Stewardship Mapping and Assessment Project or STEW-MAP is a database that gives the public access to see who is taking care of our environment. This community organizing tool can be applied to strengthen capacity, promote engagement with on-the-ground projects, and build more effective partnerships among stakeholders. Add your organization to the new database, today!

visit www.regreenspringfield.org/map

a partnership of the following



UAS pvpc STEW-MAP Springfield
Get on the Map Today!



Get on the Map Kick-off Celebration

Partnership Mapping for Springfield

The Stewardship Mapping and Assessment Project or STEW-MAP is a database that gives the public access to see who is taking care of our environment. This community organizing tool can be applied to strengthen capacity, promote engagement with on-the-ground projects, and build more effective partnerships among stakeholders.


JOIN ON THE WEB
JUNE 24, 2020 - 4:00 PM

To Join the Virtual Gathering, Please Log-on Via Zoom...

Topic: STEW-MAP Springfield Kick-Off Event
Time: Jun 24, 2020 04:00 PM Eastern Time (US and Canada)

Join Zoom Meeting
<https://umass-amherst.zoom.us/j/99801040269>
Meeting ID: 998 0104 0269

visit www.regreenspringfield.org/map



STEW-MAP Springfield
Get on the Map Today!

STEW-MAP SPRINGFIELD

- Online Survey
- Greenspace users, stewards and supporters
- Interest areas, activities, membership and social media connections

STEW-MAP Survey: Springfield, MA 2020

Welcome to the Springfield STEW-MAP survey!



STEW-MAP or the Stewardship Mapping and Assessment Project, is collecting information about civic groups and organizations that engage in environmental stewardship work in the Springfield area. Even if your organization does not primarily focus on environmental issues, you may still care for the environment in some fashion, and we invite you to complete this survey.

Your participation in STEW-MAP is completely voluntary. Your personal contact information will not be made public in any way; it will only be used to contact you if we have questions about information you provide on the survey. The survey is estimated to take 15-30 minutes. To read our OMB Burden Statement, visit: <https://www.nrs.fs.fed.us/myc/survey/omb/>

If you have any questions about this survey, please contact Dave Bloniarz at sm.fs.spfldstewmap@usda.gov.

Next Page 1 of 10

NASA'S GLOBE OBSERVER CITIZEN-SCIENCE

- Healthy forests are important to Earth's ecosystem
- NASA satellites and airborne missions study forests to see how carbon moves
- Citizen scientists can help by using their phone to measure components of their local landscapes.



NASA'S GLOBE OBSERVER

- Simple, easy to use interface.
- Well suited to classroom, community engagement and science-based studies.
- Examine trees, clouds, land-use and other ecosystem components.



GLOBE OBSERVER TREES

- A citizen science app allowing volunteers to take observations
- GLOBE Trees a feature of the app
- The tree-height project is the latest in a suite of tools that people can use to study their surroundings
- Tree height measurements help with NASA missions like the Ice

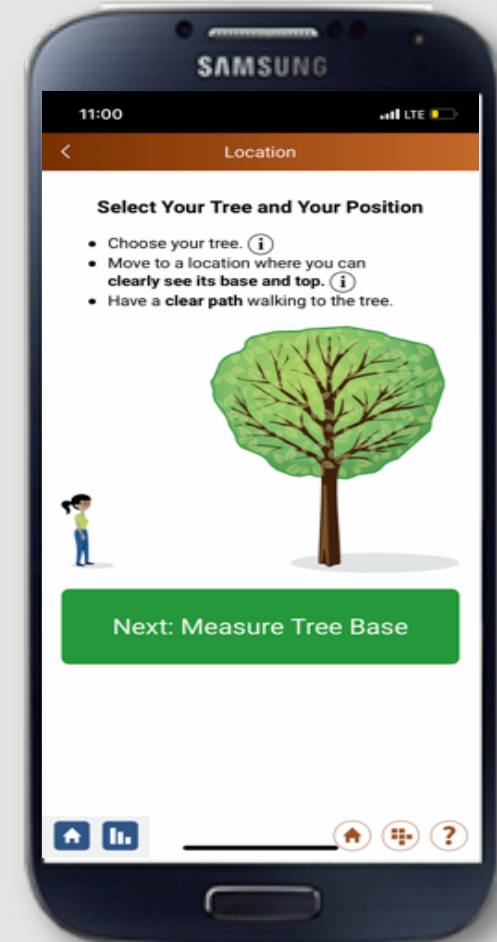
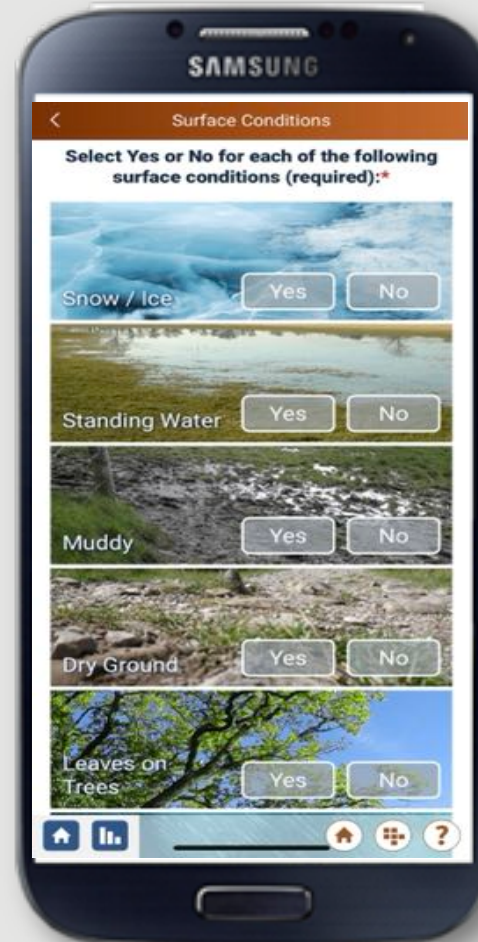
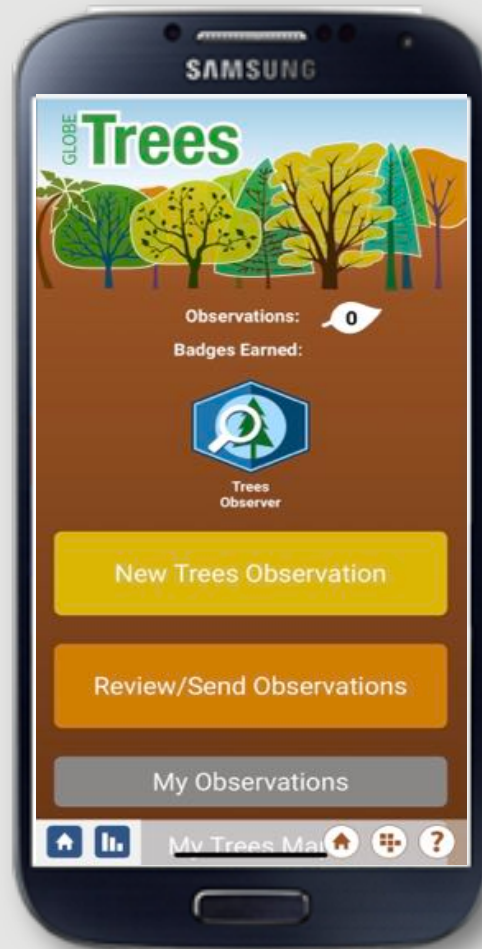


GLOBE OBSERVER TREES

- The Trees tool in the GLOBE Observer app allows Citizen Scientist observers to use their mobile devices to take tree height and tree circumference measurements all over the globe.

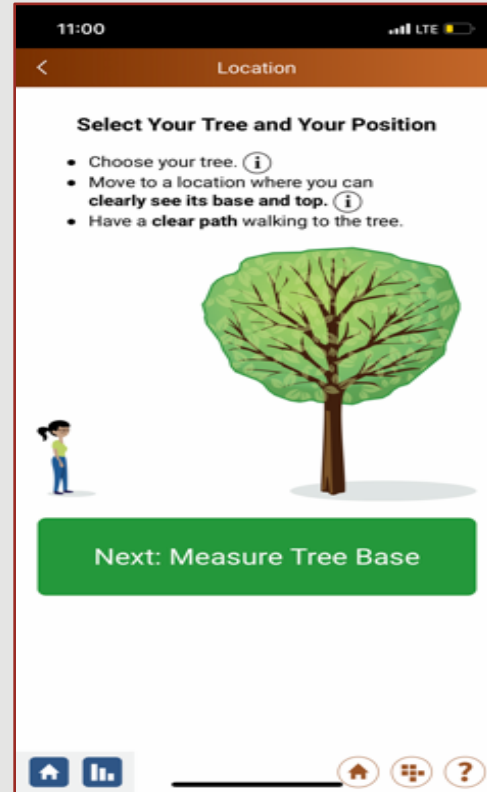


EXAMPLE: TREE COVER



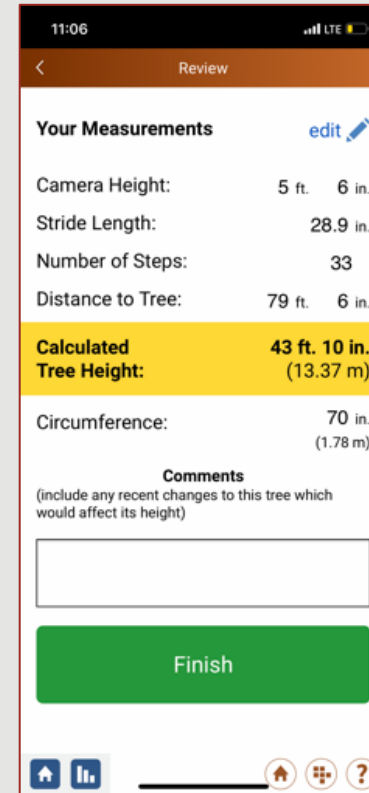
EXAMPLE: TREE COVER

- Stand where you can see top and bottom of tree
- Have your phone eye level and follow the on-screen instructions about measuring the tree
 - Includes aligning pictures of base and top of tree
- Finish by taking a picture of the entire tree



EXAMPLE: TREE COVER

- Walk to the base of the tree while counting your steps using your natural stride (decimals allowed)
- Optional to measure circumference
- See your recorded data and send to the GLOBE!



GLOBE OBSERVER LAND COVER

- The land cover tool allows to record the vegetation and terrain around them
- Report on current surface conditions, then take photographs in all four cardinal directions along with up and down
- Classify the land cover in your photographs, telling us if it is grassland, a forest or an urban area



EXAMPLE: LAND COVER

Surface Conditions

Select Yes or No for each of the following surface conditions (required):*

Snow / Ice Yes No

Standing Water Yes No

Muddy Yes No

Dry Ground Yes No

Leaves on Trees Yes No

Navigation icons: Home, List, Home, Grid, Help

- Find an open space of about 100 yards by 100 yards
- Select your environment's appropriate conditions

EXAMPLE: LAND COVER



- Align phone with up and down directions
- Align with cardinal directions shown on screen
- Rotate your phone horizontally to take a picture

EXAMPLE: LAND COVER



- After pictures are take a general layout of the land is constructed
- See your recorded data and send to the GLOBE!

I-TREE GHG PLANTING CALCULATOR



- The i-Tree Planting Calculator is designed to help you estimate the long-term environmental benefits from a tree planting project.
- The focus is on greenhouse gases, but many co-benefits are included.
- Useful for planners, landscape designers, sustainability managers and arborists.

INFORMATION IS CALCULATED FOR THE PROJECT LIFE TIME: (IN UNITS AND ASSOCIATED DOLLAR VALUES)

- Greenhouse Gas (GHG) sequestered and avoided (owing to reductions in energy use)
- Energy conserved
- Air pollutants captured and avoided
- Stormwater filtered
- Tree total biomass
- Tree benefits can also be estimated



USERS ENTER THE FOLLOWING INFORMATION:



- Tree species
- Size of trees at planting
- Information on the distance and direction to the nearest building (optional)
- Information about the tree's growing conditions
- Estimated mortality (optional)
- The number of trees with each configuration
- Project lifetime (number of years)
- Specific greenhouse gas values (optional)



Location

Parameters

Trees

Report

Location

Select a location at, or near, the project site.

State/Province

Massachusetts ▾

County/Division


Hampden ▾

City

Springfield ▾

WARNING: *If you already have tree groups entered, they will be retained, but changing the location may cause them to lose the assigned species and it will change the reported results.*

Next →

 **i-Tree Planting** v2.1.2 [Home](#) [Project](#) [Menu](#) [i-Tree](#) [Status](#) [Feedback](#)

[Location](#) [Parameters](#) [Trees](#) [Report](#)

Project Parameters

Configure the local parameters for the project.

Electricity Emissions Factor

This field is required.

Units

pounds CO₂ equivalent/MWh kilograms CO₂ equivalent/MWh

Fuel Emissions Factor

This field is required.


Units

pounds CO₂ equivalent/MMBtu kilograms CO₂ equivalent/MMBtu

Years for the Project (1 thru 99)

Tree Mortality over Project Lifetime, as an estimated percentage (Optional, 0 thru 100)

[Next](#) →

 **i-Tree Planting** v2.1.2 [Home](#) [Project](#) [Menu](#) [I-Tree](#) [Status](#) [Feedback](#)

[Location](#) [Parameters](#) [Trees](#) [Report](#)

Tree Planting Configurations

ATTENTION: Please, limit projects to batches of 100 or less tree groups.

Enter the tree groups for the project.

Units
 English (feet & inches) Metric (meters & cm)

Nomenclature
 Common Name Scientific Name

Tree Group Information			Building Information				Tree Details		
Group Number	Species	DBH in inches	Distance to Nearest in feet	Tree is _____ of Building	Vintage	Climate Controls	Condition	Exposure to Sunlight	Number of Trees
1	Beech, American	3	20-39	Northeast (45°)	Built after 1980	Heat & A/C	Excellent	Full Sun	4
2	Birch, Paper	2.5	40-59	South (180°)	Built after 1980	Heat & A/C	Excellent	Full Sun	6
3	Linden, Littleleaf	2.5	20-39	Northeast (45°)	Built after 1980	Heat & A/C	Excellent	Full Sun	6
4	Oak, White	3	20-39	South (180°)	Built after 1980	Heat & A/C	Excellent	Full Sun	4

[Next](#) →

Project Report - i-Tree Planting Calculator_{v2.1.2}

Location: Springfield, Massachusetts 01109
 Electricity Emissions Factor: 505.21 kilograms CO2 equivalent/MWh
 Fuel Emissions Factor: 68.71 kilograms CO2 equivalent/MMBtu
 Lifetime: 40 years
 Tree Mortality: 10%



All amounts in the tables are for the full lifetime of the project.

Units

English (pounds & tons; kWh & MMBtu; gallons) Metric (kilograms & metric tons; kWh & MMBtu; cubic meters)

Copy Export **CO₂** Energy Eco Air Pollution

Search:

Location		CO ₂ Benefits			
Group Identifier	Tree Group Characteristics	CO ₂ Avoided (pounds)	CO ₂ Avoided (\$)	CO ₂ Sequestered (pounds)	CO ₂ Sequestered (\$)
1	<ul style="list-style-type: none"> (4.0) Beech, American (<i>Fagus grandifolia</i>) at 3.0 inches DBH. Planted 20-39 feet and northeast (45°) of buildings that were built post-1980 with heat and A/C. Trees are in excellent condition and planted in full sun. 	36,860.5	\$857.26	7,227.0	\$168.08
2	<ul style="list-style-type: none"> (6.0) Birch, Paper (<i>Betula papyrifera</i>) at 2.5 inches DBH. Planted 40-59 feet and south (180°) of buildings that were built post-1980 with heat and A/C. Trees are in excellent condition and planted in full sun. 	26,603.5	\$618.71	33,463.9	\$778.27
3	<ul style="list-style-type: none"> (6.0) Linden, Littleleaf (<i>Tilia cordata</i>) at 2.5 inches DBH. Planted 20-39 feet and northeast (45°) of buildings that were built post-1980 with heat and A/C. Trees are in excellent condition and planted in full sun. 	19,917.5	\$463.22	10,300.2	\$239.55
4	<ul style="list-style-type: none"> (4.0) Oak, White (<i>Quercus alba</i>) at 3.0 inches DBH. Planted 20-39 feet and south (180°) of buildings that were built post-1980 with heat and A/C. Trees are in excellent condition and planted in full sun. 	-561.0	\$-13.05	6,125.1	\$142.45

Project Report - i-Tree Planting Calculator_{v2.1.2}



Location: Springfield, Massachusetts 01109
 Electricity Emissions Factor: 505.21 kilograms CO2 equivalent/MWh
 Fuel Emissions Factor: 68.71 kilograms CO2 equivalent/MMBtu
 Lifetime: 40 years
 Tree Mortality: 10%

All amounts in the tables are for the full lifetime of the project.

Units

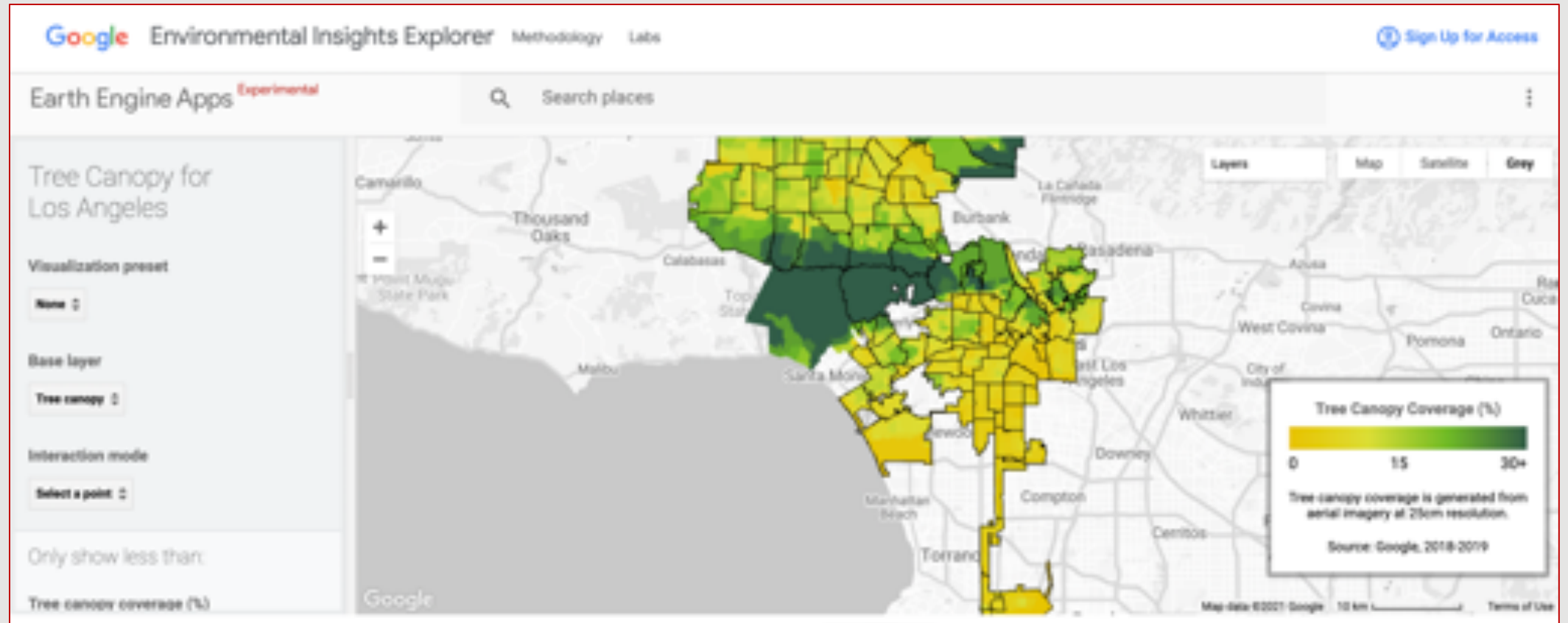
English (pounds & tons; kWh & MMBtu; gallons) Metric (kilograms & metric tons; kWh & MMBtu; cubic meters)

Copy Export CO₂ Energy **Eco** Air Pollution

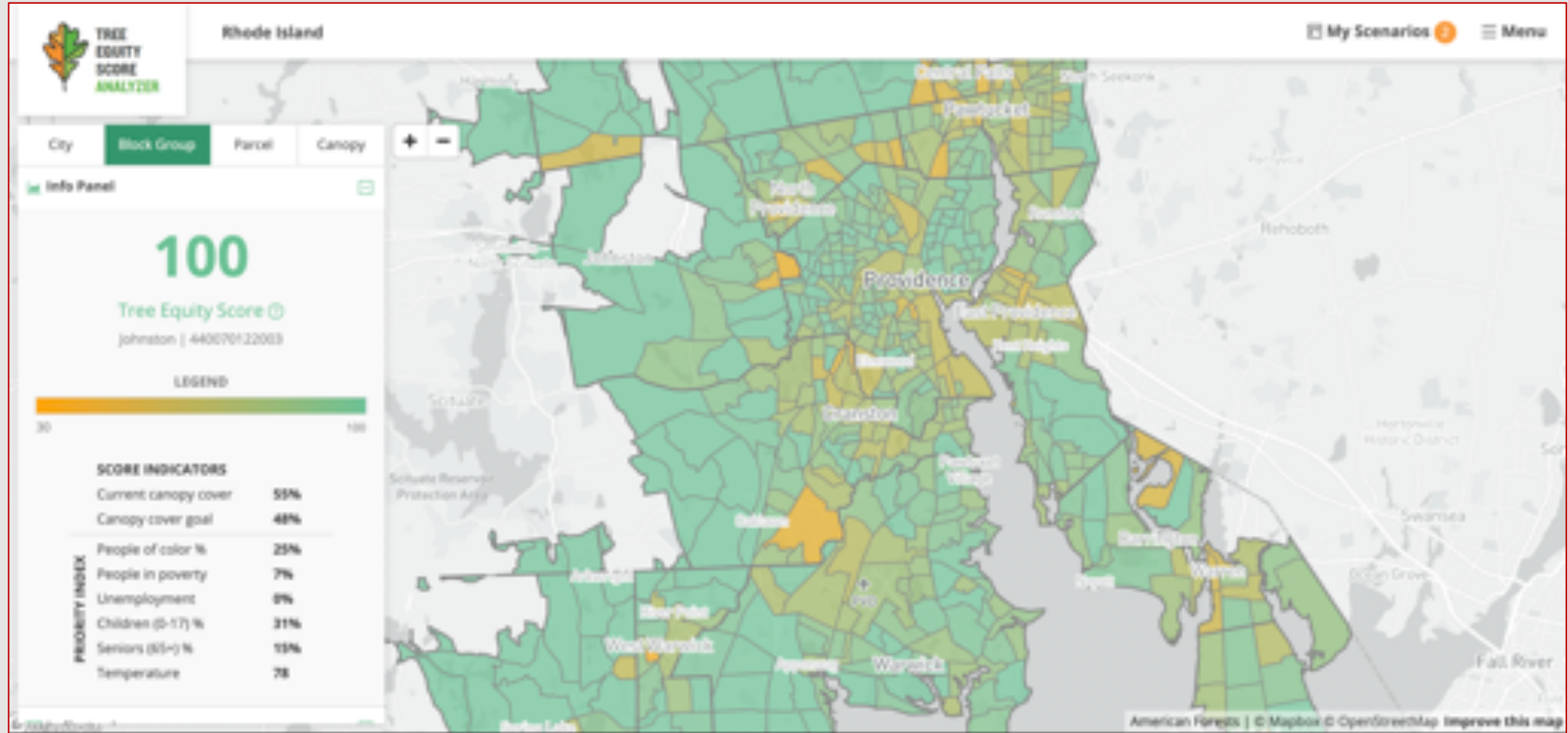
Search:

Location		Air Benefits							
Group Identifier	Tree Group Characteristics	O ₃ Removed (pounds)	NO ₂ Avoided (pounds)	NO ₂ Removed (pounds)	SO ₂ Avoided (pounds)	SO ₂ Removed (pounds)	VOC Avoided (pounds)	PM _{2.5} Avoided (pounds)	PM _{2.5} Removed (pounds)
1	<ul style="list-style-type: none"> (4.0) Beech, American (<i>Fagus grandifolia</i>) at 3.0 inches DBH. Planted 20-39 feet and northeast (45°) of buildings that were built post-1980 with heat and A/C. Trees are in excellent condition and planted in full sun. 	69.0	5.3	11.8	68.2	2.6	1.2	2.9	3.4
2	<ul style="list-style-type: none"> (6.0) Birch, Paper (<i>Betula papyrifera</i>) at 2.5 inches DBH. Planted 40-59 feet and south (180°) of buildings that were built post-1980 with heat and A/C. Trees are in excellent condition and planted in full sun. 	82.6	3.8	13.3	49.2	3.2	0.8	3.0	2.9
3	<ul style="list-style-type: none"> (6.0) Linden, Littleleaf (<i>Tilia cordata</i>) at 2.5 inches DBH. Planted 20-39 feet and northeast (45°) of buildings that were built post-1980 with heat 	59.4	2.9	9.7	36.8	2.3	0.6	1.6	2.3

GOOGLES LABS: TREE CANOPY



AMERICAN FORESTS/US FOREST SERVICE TREE EQUITY SCORE ANALYZER (TESA)



VIBRANT CITIES LAB URBAN FORESTRY TOOLKIT



The screenshot shows the top portion of a website with an orange background. In the top left corner is the logo for VIBRANT CITIES LAB, which consists of a stylized leaf icon and the text "VIBRANT CITIES LAB". To the right of the logo is a navigation menu with the following items: "RESEARCH, CASE STUDIES, GUIDES", "URBAN FORESTRY TOOLKIT", "RESOURCES", and "LOGIN". A hamburger menu icon is located to the right of the "LOGIN" link. Below the navigation is a large white heading "Urban Forestry Toolkit". Underneath the heading is a subtitle: "The U.S. Forest Service Step-by-Step Guide to Implementing Urban Forestry in Your Community". At the bottom of the header section is a horizontal row of seven icons, each with a label below it: "Assess" (magnifying glass over a tree), "Prioritize" (map with a location pin), "Organize" (group of people), "Plan" (clipboard with a checklist), "Build" (shovel), "Protect" (two trees), and "Sustain" (three trees of increasing size).

Thanks for Your Attention!

DAVID BLONIARZ, US FOREST SERVICE

WWW.UNRI.ORG/RESEARCH-DOCUMENTS

DAVID.BLONIARZ@USDA.GOV

University of
Massachusetts
Amherst

BE REVOLUTIONARY™

