



US Forest Service

Urban Forest Inventory and Analysis

Agenda:

12:00

- Introducing the Urban FIA program

12:10- 12:45

- MyTree app: Alexis Ellis- Biological Scientist Alexis.ellis@usda.gov
- My City's Trees app: Rebekah Zehnder- Geospatial Services Manager rzehnder@tfs.tamu.edu
- Using Urban FIA data: Sjana Schanning- Ecologist Sjana.l.schanning@usda.gov

12:45- 12:55

- Break out group for your topic of interest



“make and keep current a comprehensive inventory and analysis of the present and prospective conditions and requirements of the renewable resources of the forest and rangelands of the United States”

- 1928 McSweeney/McNary Act

90+ years of tracking health, growth, mortality and change of the forests across the Nation



US Forest Service

Urban Forest Inventory and Analysis





Traditional FIA:

Site/Stand Characteristics

- Forest Type
- Stand Size
- Stand Age
- Stand Treatments (i.e., logging)
- Stand Disturbances (i.e., insects)
- Physiography
- Ownership
- more

Tree data:

- Species
- Tree Status (Dead or Alive)
- Diameter
- Height
- Crown information
- Timber quality information
- Damages/Diseases
- more

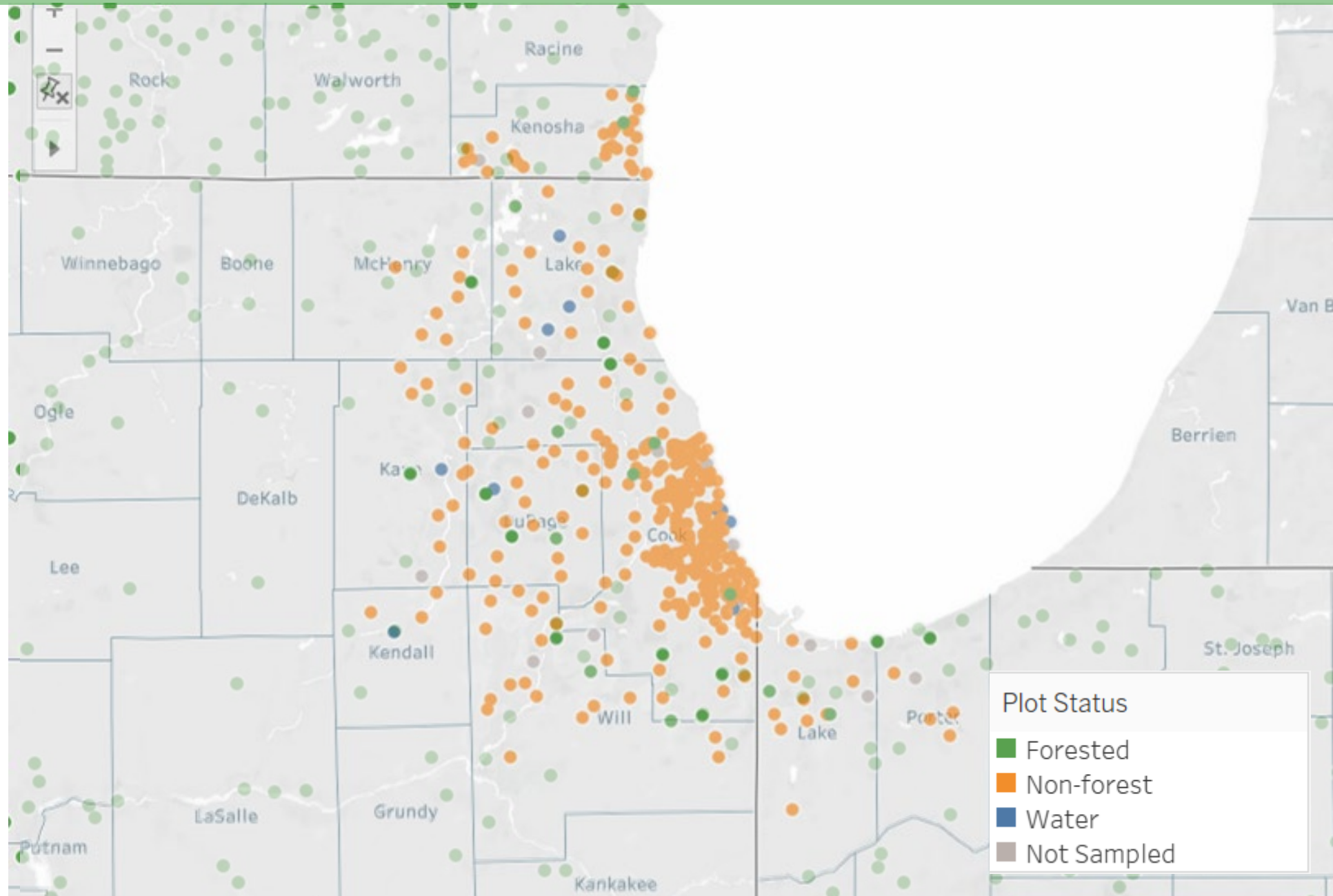
Calculations:

- Volume
- Biomass
- Carbon
- Area change
- Growth
- Removals
- Mortality



US Forest Service

Urban Forest Inventory and Analysis





US Forest Service

Urban Forest Inventory and Analysis





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Calculations:

Traditional:

- Volume
- Biomass
- Carbon
- Area change
- Growth
- Removals
- Mortality

PLUS

Urban:

- Pollution removal
- Health impacts
- Rain interception
- Replacement value
- Energy use impacts

Urban FIA:

Site/Stand Characteristics

- Traditional FIA metrics
- PLUS**
- Expanded land use information
 - Vegetation cover
 - Surface cover
 - Invasive species

Tree Data:

- Traditional FIA metrics
- PLUS**
- Planted?
 - Maintained Area?
 - Riparian?
 - Street Tree?
 - Proximity and direction to buildings
 - Urban specific damages



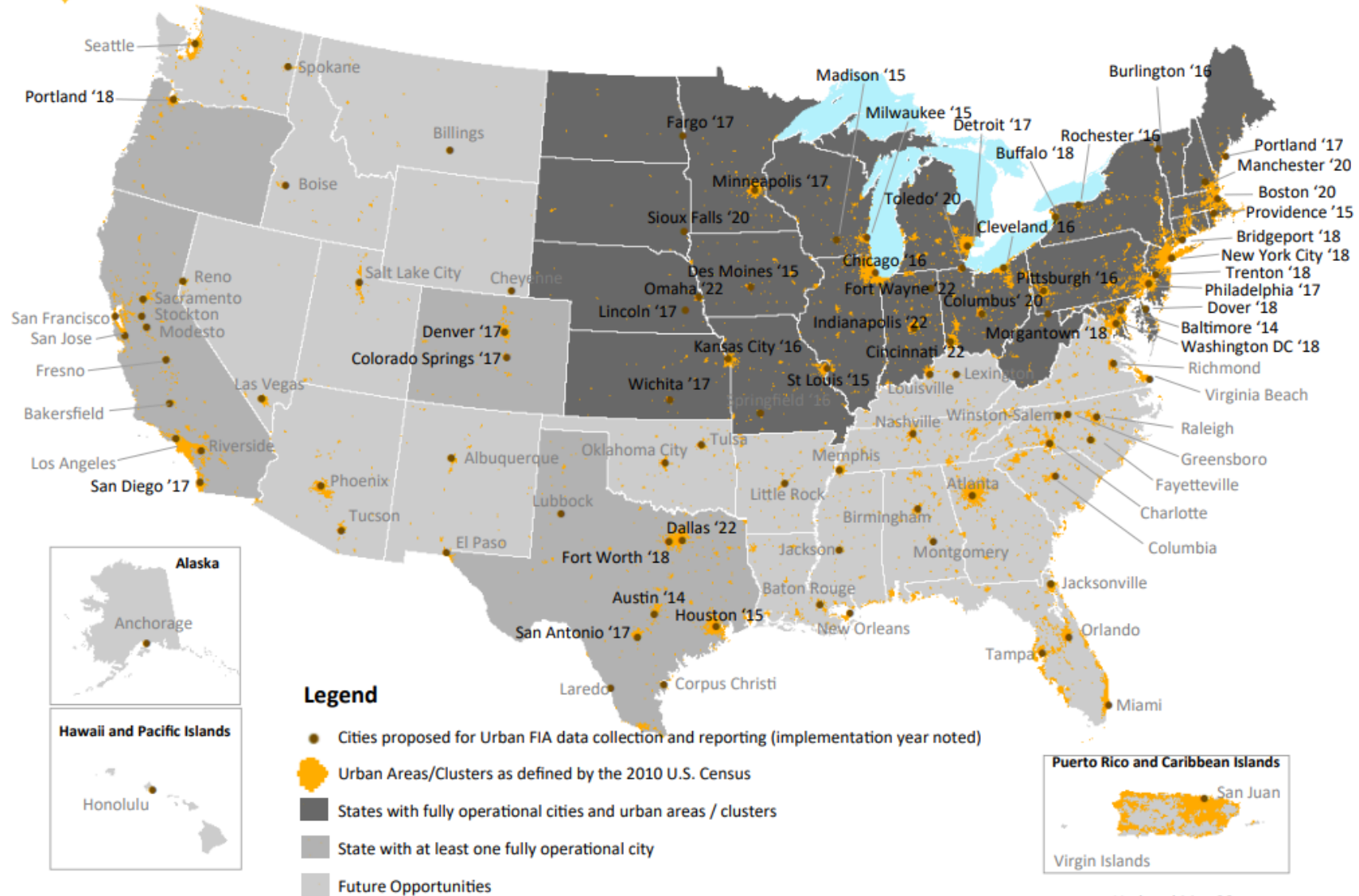
US Forest Service

Urban Forest Inventory and Analysis



U.S. Forest Service

Urban Forest Inventory & Analysis (FIA) 2022 Cities

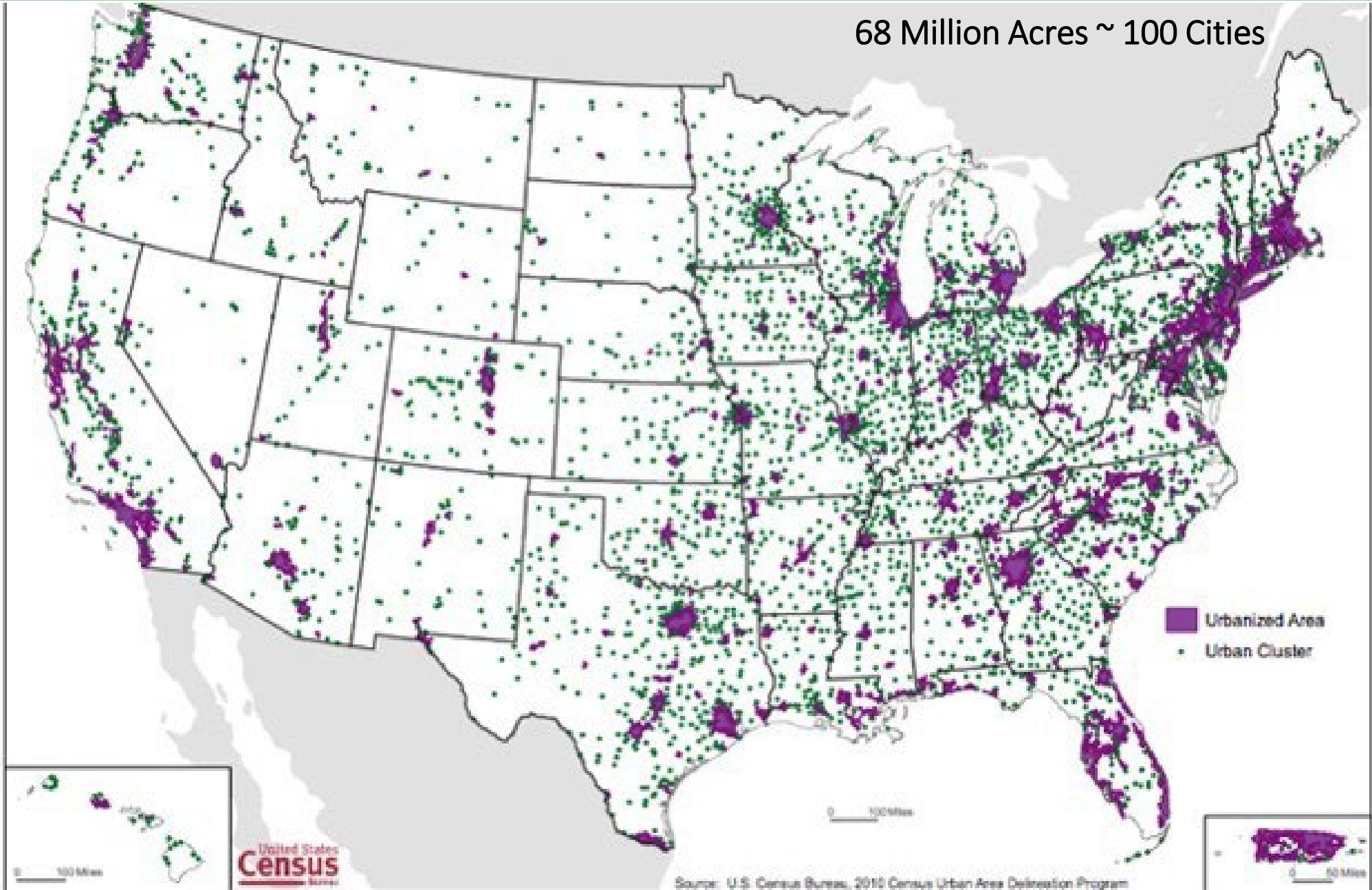




US Forest Service

Urban Forest Inventory and Analysis

68 Million Acres ~ 100 Cities



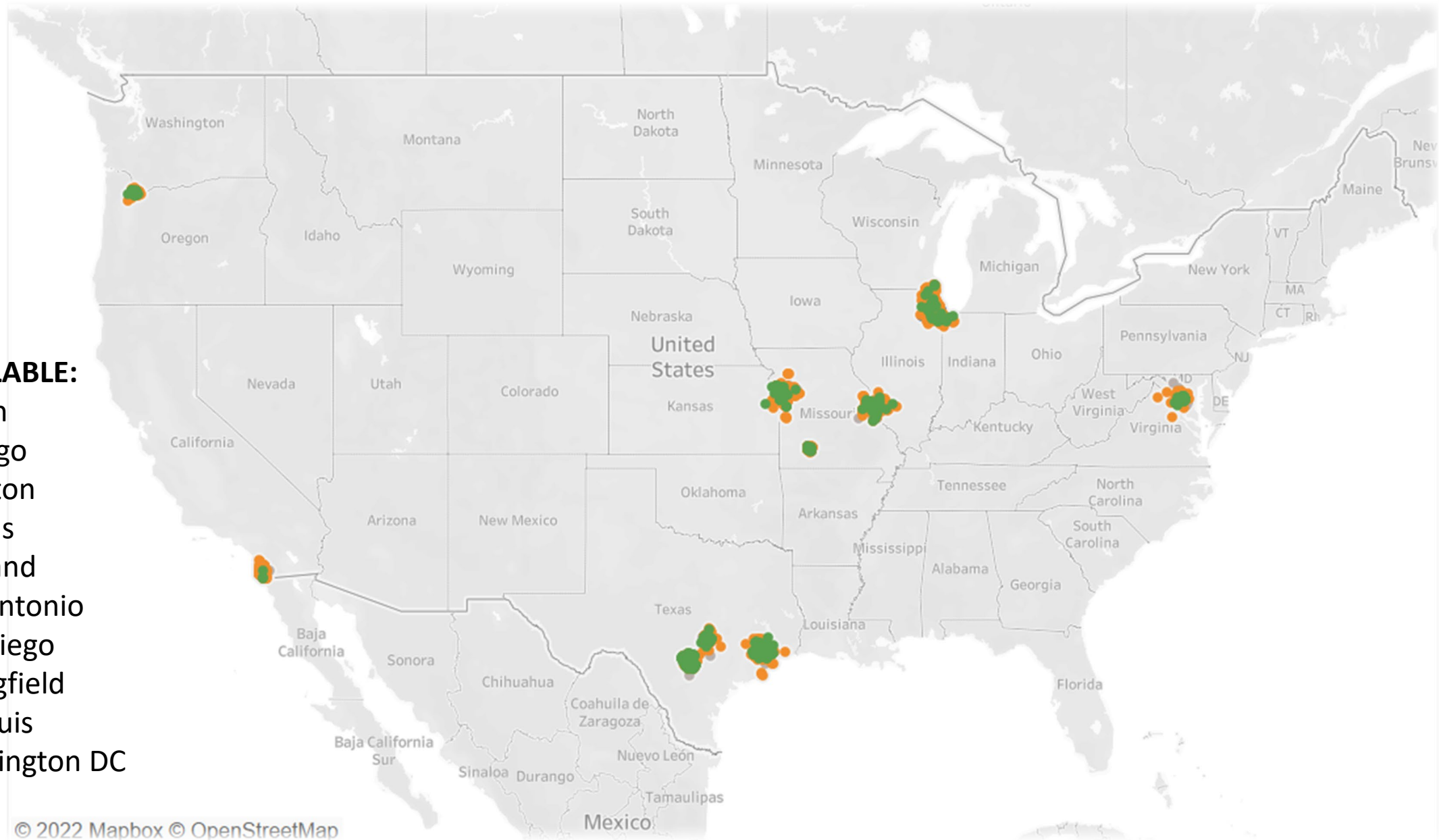


US Forest Service

Urban Forest Inventory and Analysis

AVAILABLE:

Austin
Chicago
Houston
Kansas
Portland
San Antonio
San Diego
Springfield
St. Louis
Washington DC





i-Tree MyTree: A Simple Tool for Estimating Ecosystem Services

*Alexis Ellis – USDA Forest Service
Biological Scientist*

alexis.ellis@usda.gov

i-Tree is a
Cooperative Initiative among
these partners

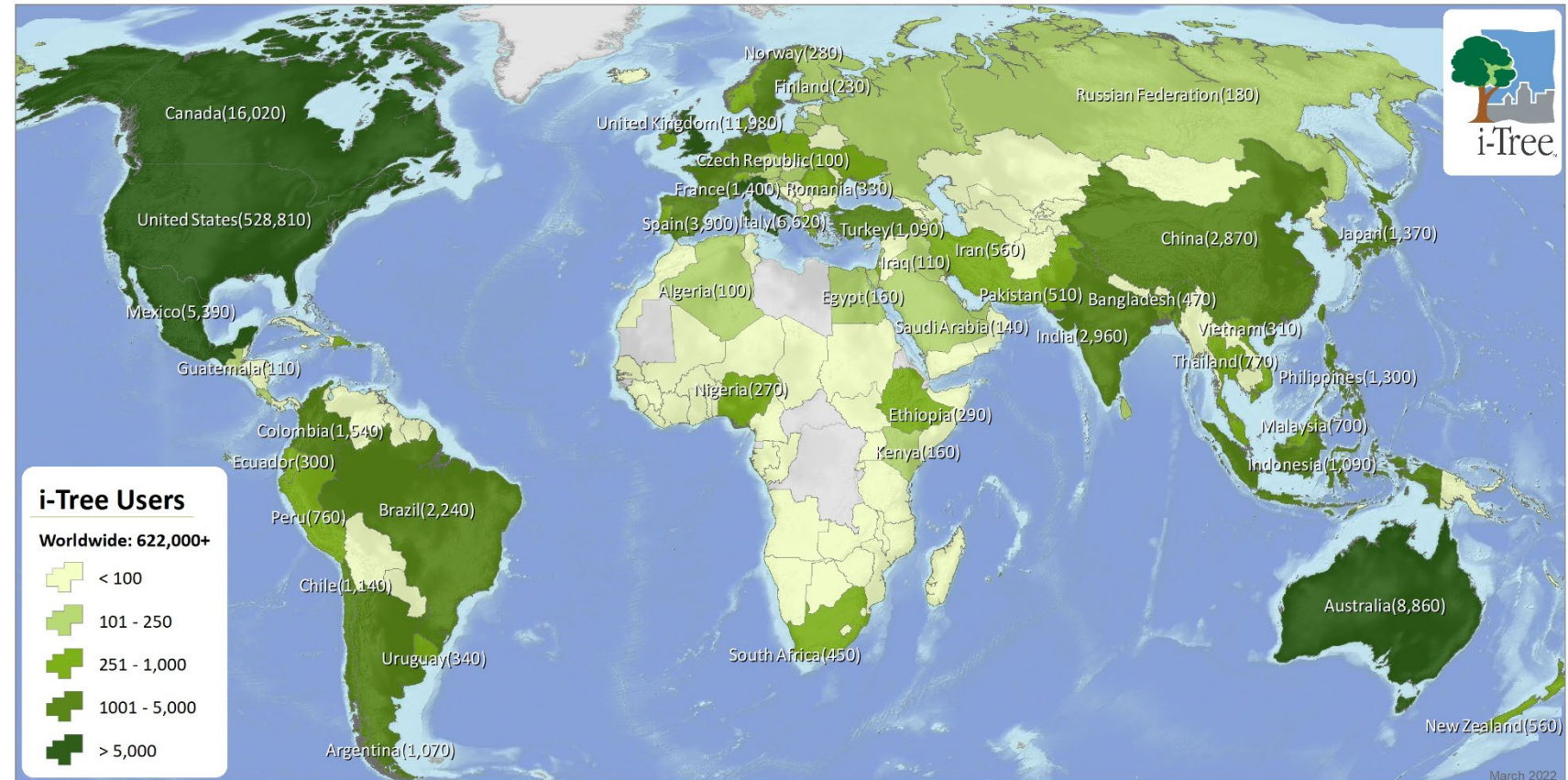


What is i-Tree?

Tools for Assessing and Managing Community Trees & Forests



- Public domain (free) software tools
- Based on peer-reviewed research
- Technical support
- Continuously improved



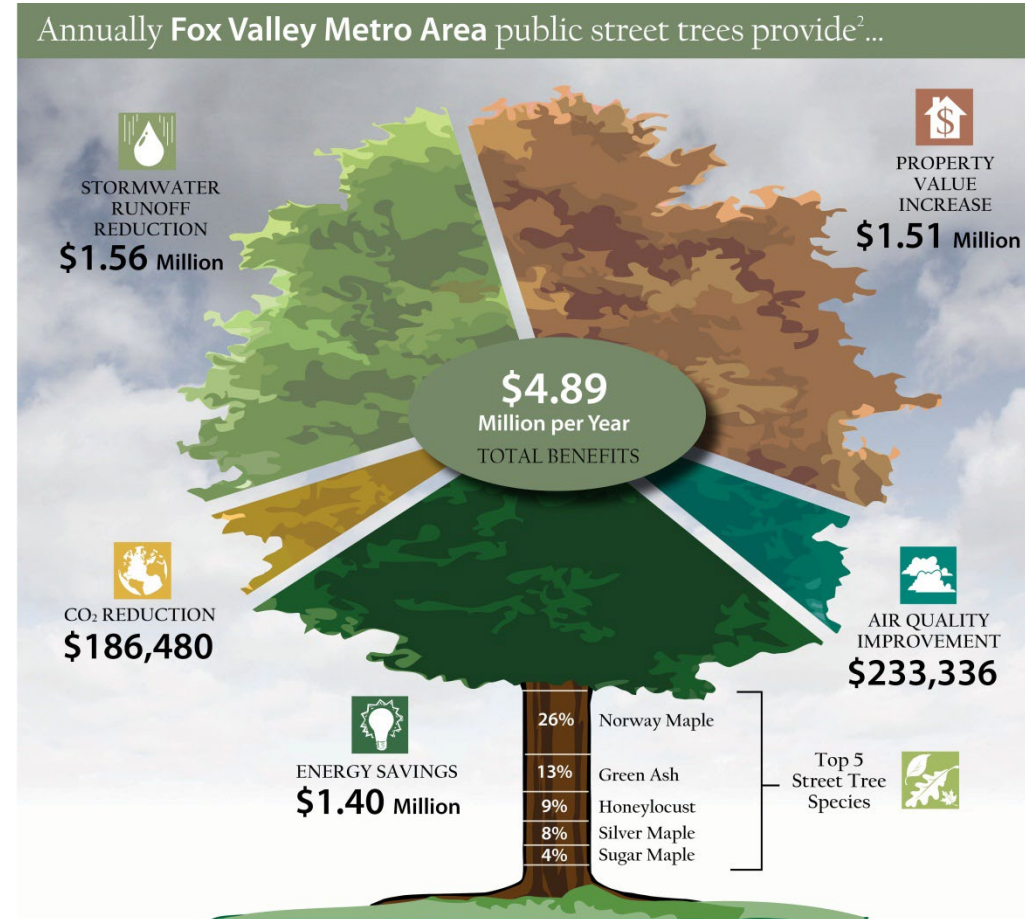
“Putting USFS Urban Forest science into the hands of users”



i-Tree is a
Cooperative
Initiative



i-Tree: Demonstrating Tree Value



Structure → Function → Value



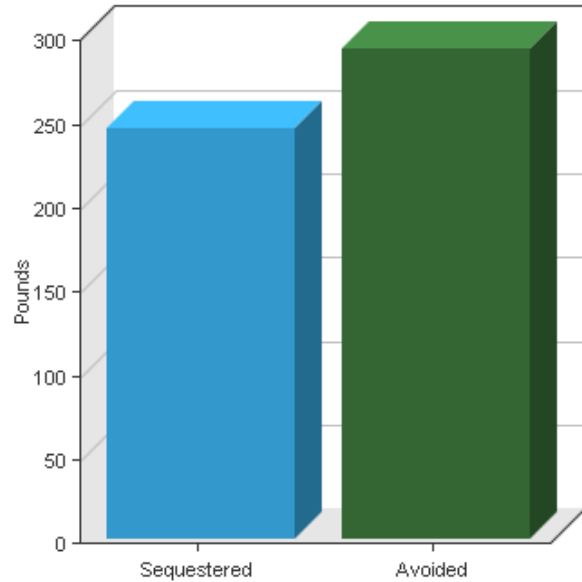
i-Tree's Key Premise...

Tree benefit-based approach

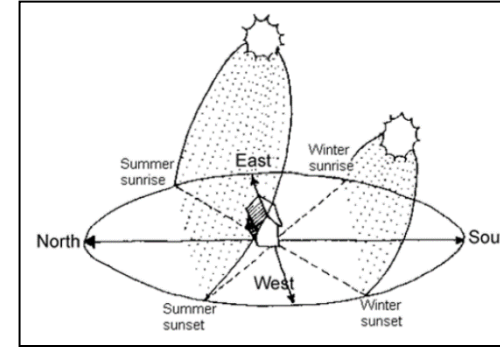
i-Tree Tools



Tree Benefits 101: What does i-Tree Estimate and Why?

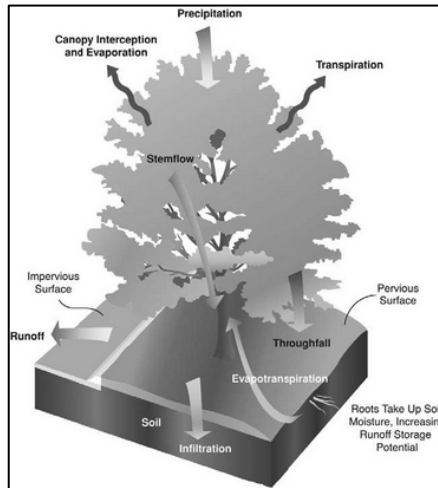


Carbon dioxide
Storage and sequestration
of a greenhouse gas

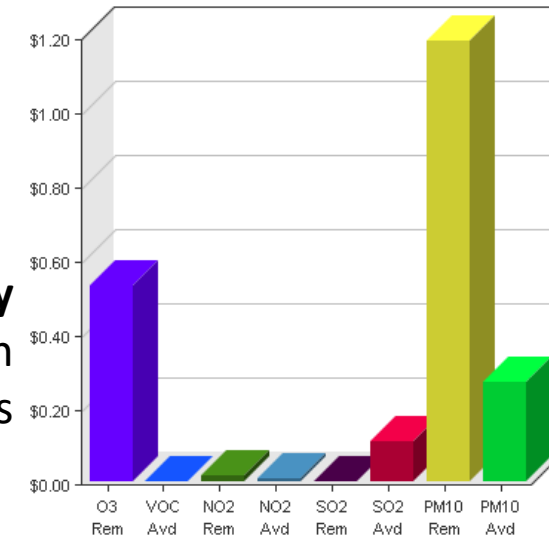


Energy
Tree impacts on
heating and cooling

Stormwater
Avoided runoff,
evaporation, transpiration

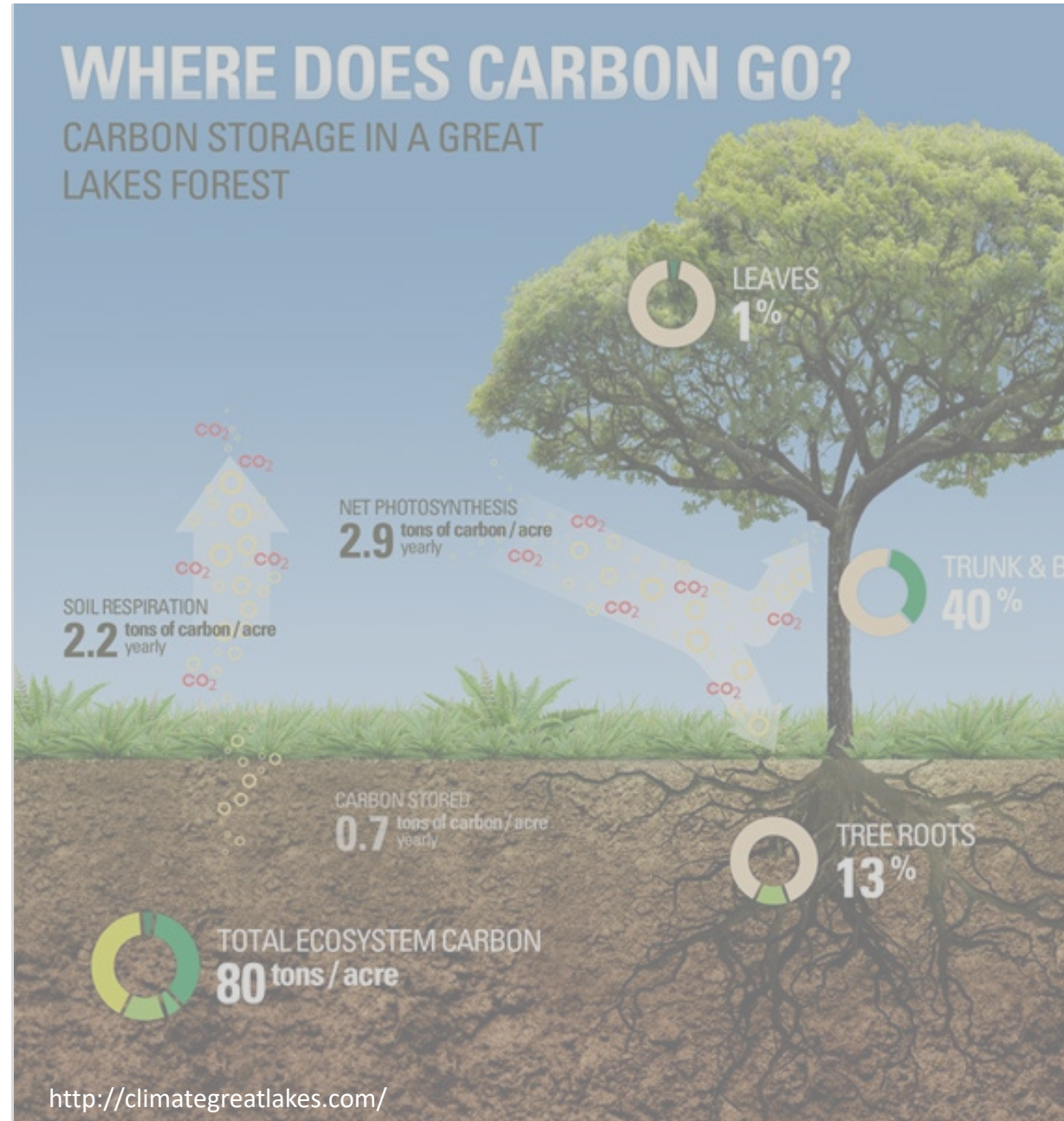


Air Quality
Interactions with
selected pollutants



Carbon Storage and Sequestration

- 🌳 Trees are largely made of carbon and remove carbon out of the air and store it into tissue.
- 🌳 Trees reduce **energy** needs and help avoid carbon release in the first place
- 🌳 Carbon is released & returned to the atmosphere through decomposition, fire & tree maintenance activity



MyTree Benefits



Silver maple, (*Acer saccharinum*)

Serving Size: 25.00 in. diameter

Condition: Good

Total benefits for this year: \$33.29

Carbon Dioxide (CO₂) Sequestered \$6.46

Annual CO₂ equivalent of carbon¹ 612.19 lbs

Storm Water Runoff Avoided \$7.49

Runoff Avoided 838.5 gal

Rainfall Intercepted 2,326.31 gal

Air Pollution Removed Each Year \$19.40

Carbon Monoxide 1.1 oz

Ozone 45.12 oz

Nitrogen Dioxide 9.6 oz

Sulfur Dioxide 2.14 oz

PM_{2.5} 3.26 oz

Energy Usage Per Year² \$0.70

Electricity Savings (A/C) 21.95 kWh

Fuel Savings (natural gas, oil) -0.27 MMBtu

Avoided Energy Emissions -\$0.76

Carbon Dioxide -14.39 lbs

Carbon Monoxide < 0.1 oz

Nitrogen Dioxide -0.16 oz

Sulfur Dioxide -2.59 oz

PM_{2.5} < 0.1 oz

CO₂ Stored To Date³ \$191.47

Lifetime CO₂ equivalent of carbon³

18,150.31 lbs

Energy effect – Summer

Transpirational cooling along with shading of below canopy built surfaces can reduce air temps by as much as 9°F.

Plant on the west & northwest to provide mid-to-late afternoon shade in most locations

Shade east & west windows, but prune lower branches to prevent blocking the view.

Plant shade trees over patios, driveways, and air conditioning units

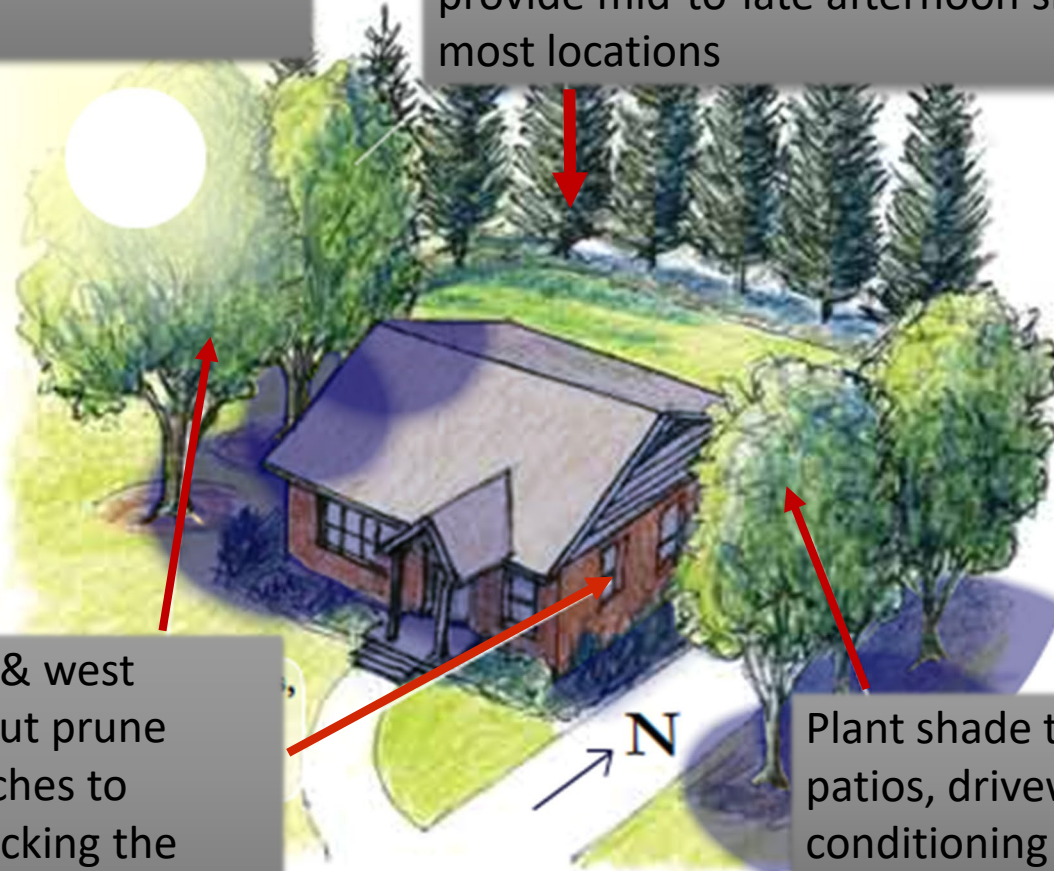


Image courtesy of Arbor Day Foundation
<https://www.arborday.org/>

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Energy effect – Winter

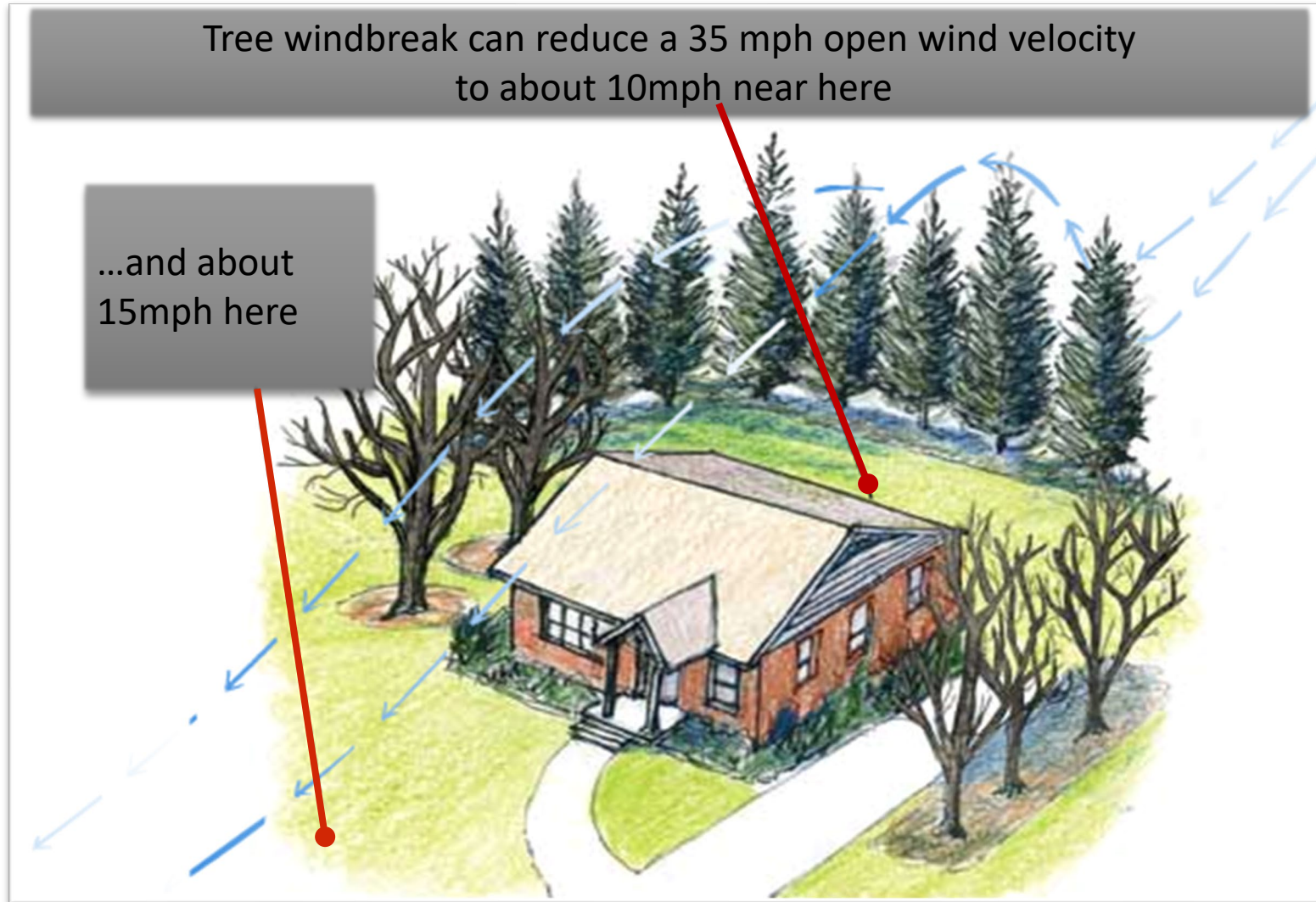


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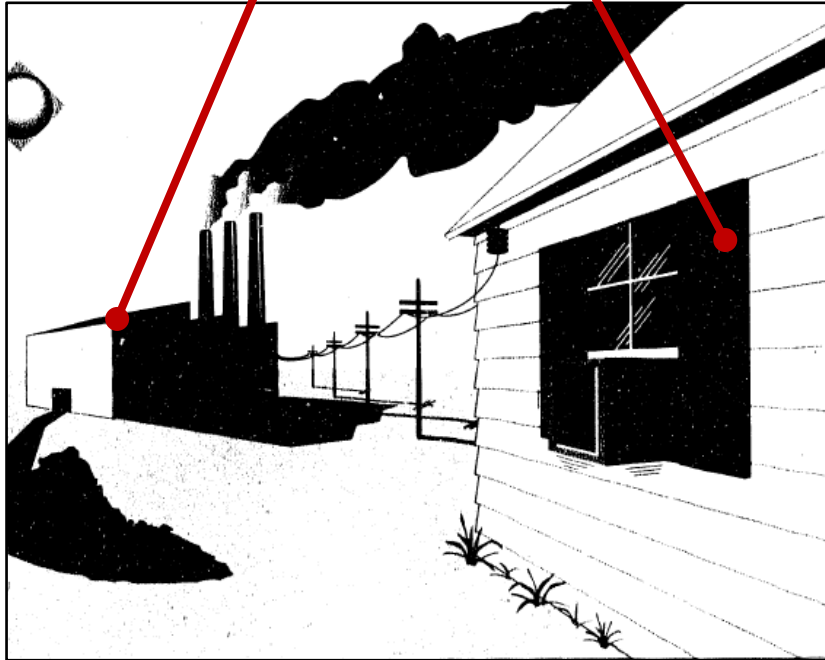
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Energy effect – Avoided Energy Emissions

Reducing energy use at home lessens energy production demand – and associated emissions at power generation source.



Source: Akbari et al., 1992. Cooling Our Communities: A Guide on Tree Planting and Light Colored Surfacing.

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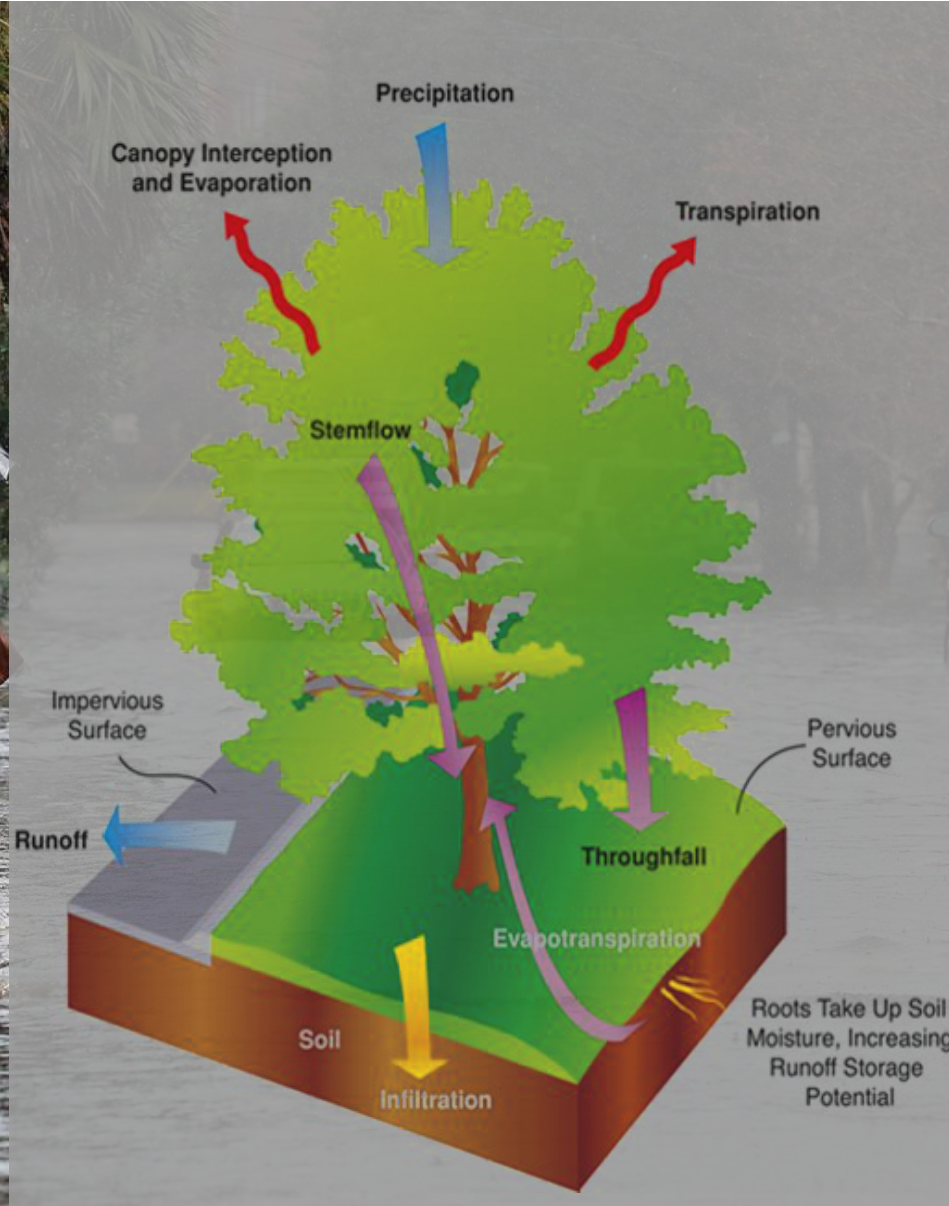
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Stormwater Effects



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Air quality effects & human health impacts

-  Absorb pollutants through leaf surfaces
 - O₃ (ozone)
 - NO₂ (nitrogen dioxide)
 - SO₂ (sulfur dioxide)
 - CO (carbon monoxide)
-  Intercept particulate matter (PM₁₀ and PM_{2.5}) - resuspension possible
-  Reduction in **energy** production reduces creation of pollutants
-  Volatile organic compound (VOCs) release negative effect
-  Multiple interactions (wind, rain, temp, etc.) involved



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Annual CO ₂ equivalent of carbon ¹	612.19 lbs
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Rainfall Intercepted	2,326.31 gal
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Energy Usage Per Year ²	\$0.70
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Avoided Energy Emissions	-\$0.76
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CO ₂ Stored To Date ³	\$191.47
---	----------

Lifetime CO ₂ equivalent of carbon ³	18,150.31 lbs
--	---------------

Air quality effects & human health impacts

Estimate health impacts and values due to tree & shrub effects on air quality via pollutant concentration reduction

Health Effects	Ozone	Nitrogen Dioxide	Sulphur Dioxide	Particulate Matter 2.5
Acute Bronchitis				✓
Acute Myocardial Infarction				✓
Acute Respiratory Symptoms	✓	✓	✓	✓
Asthma Exacerbation		✓	✓	✓
Chronic Bronchitis				✓
Emergency Room Visits	✓	✓	✓	✓
Hospital Admissions	✓	✓	✓	✓
Lower Respiratory Symptoms				✓
Mortality	✓			✓
School Loss Days	✓			
Upper Respiratory Symptoms				✓
Work Loss Days				✓

Adapted from EPA's Environmental Benefits Mapping and Analysis program (BenMAP)

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i-Tree Core Tools

Which tool
should I use?

Scale

Effort

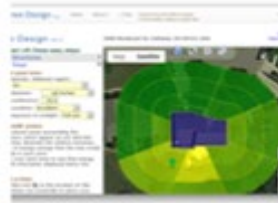
Objective

Tools for assessing individual trees



MyTree

Are you new to i-Tree? Start with our **EASIEST** tool! MyTree helps assess individual trees quickly with a minimum of fuss.



i-Tree Design

Design is a **full-featured** web tool with expanded building interactions and forecasting.



i-Tree Eco

Eco is our flagship tool that accommodates **advanced** inventory and field data evaluation.

Tree canopy area assessment tools



i-Tree Landscape

Rapidly assess human and forest population information; threats to help prioritize areas for tree planting; protection.



i-Tree Canopy

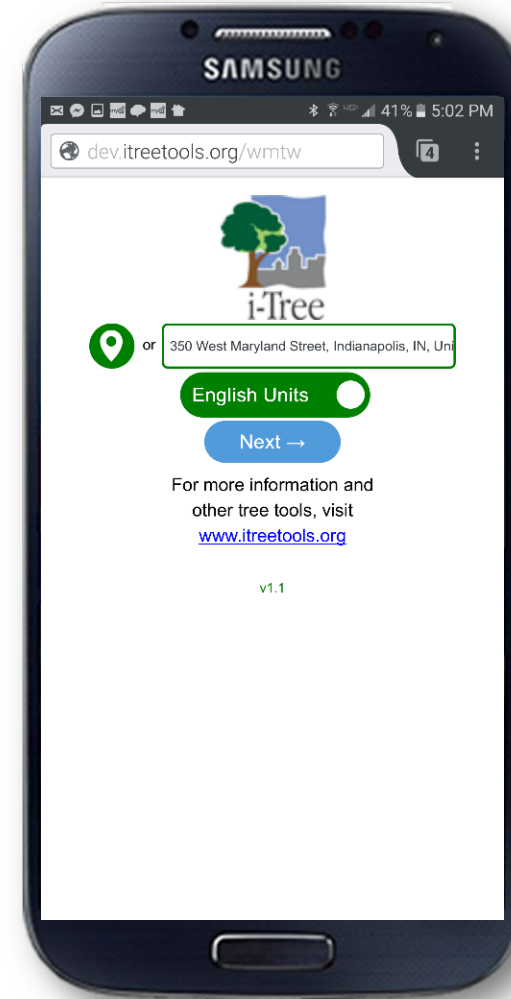
Easily estimate tree canopy and benefits using aerial photographs.



i-Tree MyTree

- 🌳 Accessible online/in pocket
- 🌳 Easy to use
- 🌳 Single or multiple trees
- 🌳 Estimates total benefits for the year and CO₂ stored to date

mytree.itreetools.org



Videos

Documentation

Online tools

Support

Examples

Downloads

Newsletters

Webinars

i-Tree

ABOUT

ALL TOOLS

SUPPORT

NEWS

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Support» Resources Overview» i-Tree Reports from the United States

i-Tree Reports from the United States

Feb. 28, 2022

For reports from outside of the United States, please see our [International Documents](#).
Para informes desde fuera de los Estados Unidos, consulte los [Documentos Internacionales](#).

Modelling the Benefits of Trees on National Parks of Washington, D.C.

Analyses and reports by Lily Oliver with the NPS Urban Ecology Research Learning Alliance

- [Hydrologic assessment of tree removal and possible revegetation in Glover-Archbold Park - February 2022](#)
- [Hydrologic assessment of tree removal and possible revegetation in Soapstone Valley Park - February 2022](#)
- [Benefits of Trees on NPS Properties in the Capitol Region](#)
- [Eco-Values of the Urban Forest - Urban Ecology Research Learning Alliance \(U.S. National Park Service\) \(nps.gov\)](#).

Evaluating Stormwater Benefits of Atlanta's Urban Forest

- [Report describing how i-Tree Eco results are being used to set green infrastructure goals.](#)

The Urban Forest of New York City

- [An analysis of the urban forest in New York, New York, reveals that this city has an estimated 7.0 million trees.](#)

i-Tree: Global Tools to Assess Tree Benefits and Risks to Improve Forest Management

- [Report on global i-Tree usage appearing in the American Society of Consulting Arborists's *Arboricultural Consultant* volume 51, issue 1.](#)

Modeling Tree cover Effects in Eight Hydrological Units of Northeast Kansas

- [Results of the hydrologic analyses by i-Tree Team of Northeast Kansas watersheds - February 2018](#)

Thank you!

Contact Information:

Alexis Ellis

alexis.ellis@usda.gov

Website and links to ALL Tools:

www.itreetools.org

Support & Science Questions:

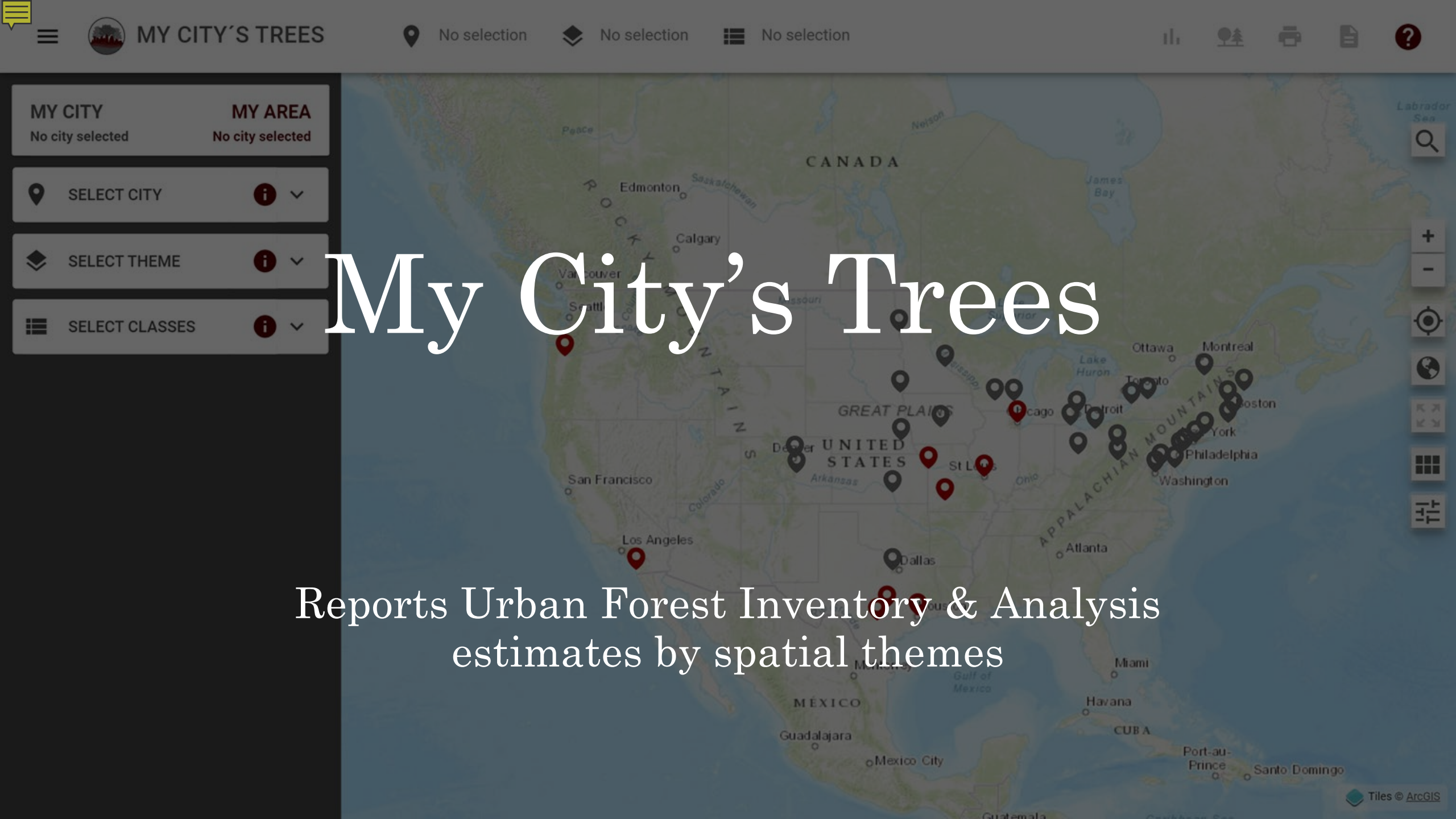
info@itreetools.org



My City's Trees

Rebekah Zehnder, 22 September 2022





MY CITY'S TREES



No selection



No selection



No selection



MY CITY

No city selected

MY AREA

No city selected



SELECT CITY



SELECT THEME



SELECT CLASSES



My City's Trees

Reports Urban Forest Inventory & Analysis
estimates by spatial themes

Labrador Sea



My City's Trees

- Access to Urban FIA data for all participating cities
- City status information

CHICAGO, ILLINOIS

100%

COMPLETE

2016

Start of data collection

2019

First complete set of data
(collected in 4 years)

2020

First year of a 7-year
remeasurement period

2026

Projected date of next complete
set of data

2019

Most recent year of data in My
City's Trees

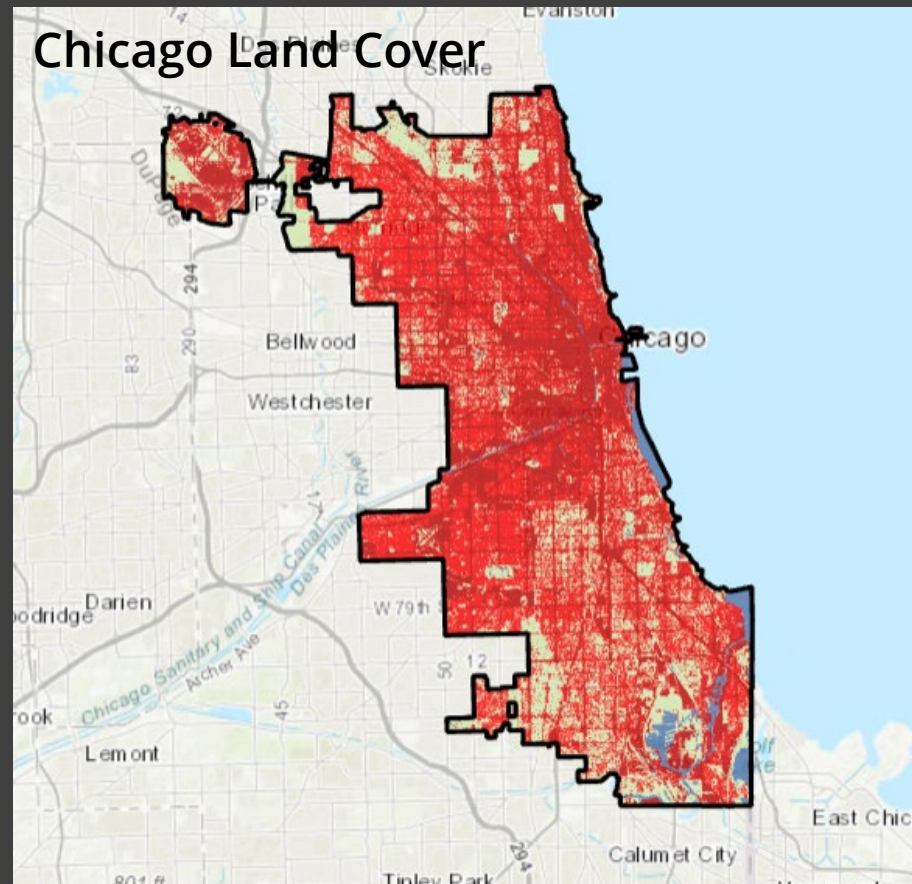
2021

Last update of data in My City's
Trees

 SELECT THIS CITY

My City's Trees

- Access to Urban FIA data for all participating cities
- City status information
- Spatial themes
 - Land cover
 - Population density
 - Watersheds
 - Social vulnerability
 - ...
- Statistics
- Reports
 - One-page summary
 - Full report





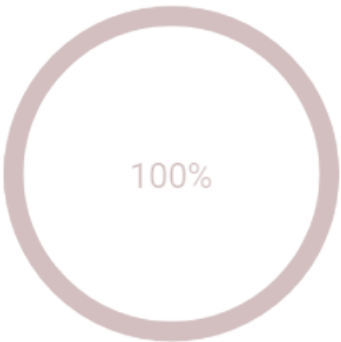
INVENTORY STATISTICS

SELECT CATEGORY ▼



 Count

Tree counts (live trees at least 1 inch in diameter)



MY CITY: 4.68 MILLION TREES
MY AREA: 4.68 MILLION TREES

Inventory statistics for selected classes

SPECIES	MILLION TREES	PERCENT	TREES PER PERSON
white mulberry	0.61	13%	0.2
Siberian elm	0.31	7%	0.1
45 more	1.82	39%	0.7
All	4.68	100%	1.7



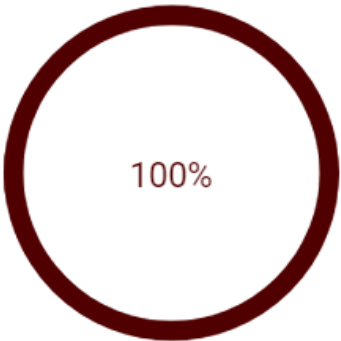
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SPECIES	MILLION TREES	PERCENT	TREES PER PERSON
common buckthorn	1.94	42%	0.7
white mulberry	0.61	13%	0.2
Siberian elm	0.31	7%	0.1
45 more	1.82	39%	0.7
All	4.68	100%	1.7

 **Count** (trees)
Tree counts (live trees at least 1 inch in diameter)

SPECIES

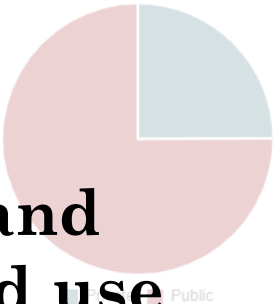
EXPORT TABLE

	COMMON NAME	SCIENTIFIC NAME	PRIVATE	PUBLIC	TOTAL
1	common buckthorn	<i>Rhamnus cathartica</i>	132,050	1,810,265	1,942,315
2	white mulberry	<i>Morus alba</i>	382,171	229,931	612,102
3	Siberian elm	<i>Ulmus pumila</i>	39,889	216,623	256,512
4	boxelder	<i>Acer negundo</i>	36,919	195,154	232,073
5	Norway maple	<i>Acer platanoides</i>	74,926	148,376	223,302
6	silver maple	<i>Acer saccharinum</i>	148,911	0	148,911
7	peach	<i>Prunus persica</i>	74,544	38,991	113,535
8	eastern cottonwood	<i>Populus deltoides</i>	4,738	97,537	102,275
9	hackberry	<i>Celtis occidentalis</i>	5,824	96,449	102,273
10	honeylocust	<i>Gleditsia triacanthos</i>			
TABLE TOTAL			1,167,205	3,512,331	4,679,535

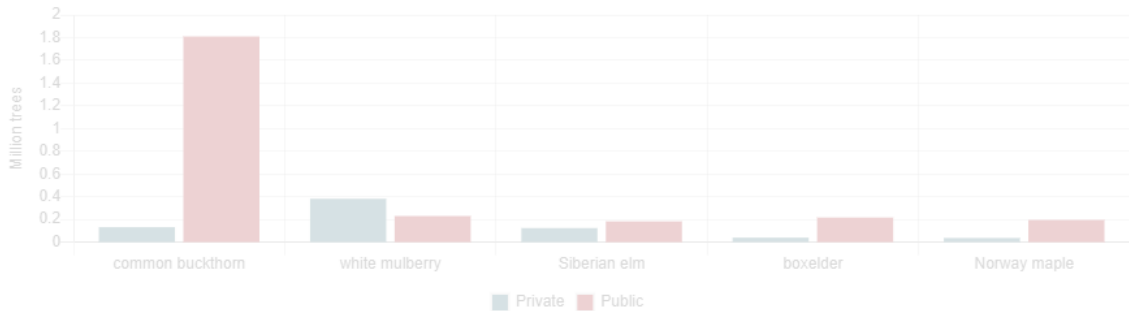
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OWNERSHIP



TOP FIVE SPECIES



 Count (trees)

Tree counts (live trees at least 1 inch in diameter)

SPECIES



EXPORT TABLE

	COMMON NAME	SCIENTIFIC NAME	PRIVATE	PUBLIC	TOTAL
1	common buckthorn	<i>Rhamnus cathartica</i>	132,050	1,810,265	1,942,315
2	white mulberry	<i>Morus alba</i>	382,171	229,931	612,102
3	Siberian elm	<i>Ulmus pumila</i>	123,991	182,767	306,758
4	boxelder	<i>Acer negundo</i>	39,889	216,623	256,512
5	Norway maple	<i>Acer platanoides</i>	36,919	195,154	232,073
6	silver maple	<i>Acer saccharinum</i>	74,926	148,376	223,302
7	peach	<i>Prunus persica</i>	148,911	0	148,911
8	eastern cottonwood	<i>Populus deltoides</i>	74,544	38,991	113,535
9	hackberry	<i>Celtis occidentalis</i>	4,738	97,537	102,275
10	honeylocust	<i>Gleditsia triacanthos</i>	5,824	96,449	102,273
TABLE TOTAL			1,167,205	3,512,331	4,679,535

Rows per page:

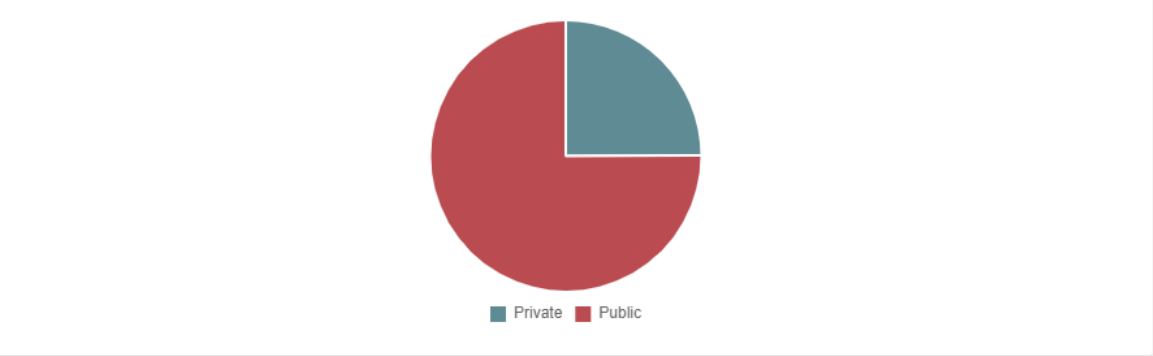
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1-10 of 48

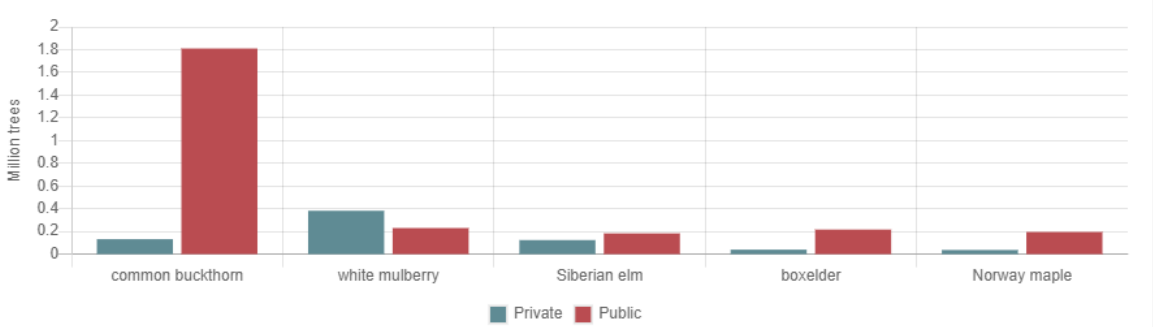
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OWNERSHIP



TOP FIVE SPECIES



Chicago Urban Forest Benefits: Tree Count

Land Cover: Developed - Low / Vegetation, Developed - Medium, Developed - High, Water



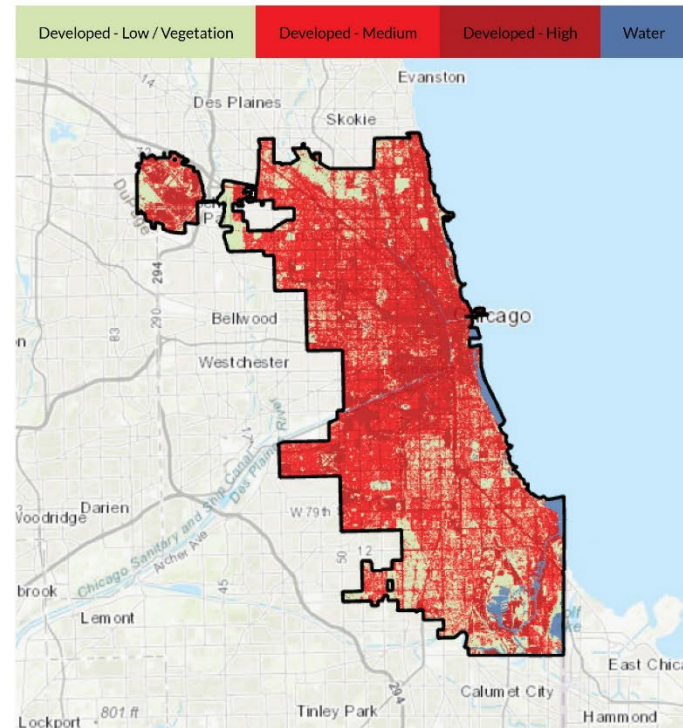
Tree counts (live trees at least 1 inch in diameter)

Species	Million Trees	Percent	Trees Per Person
common buckthorn	1.94	42%	0.7
white mulberry	0.61	13%	0.2
Siberian elm	0.31	7%	0.1
44 more	1.82	39%	0.7
Total	4.68	100%	1.7

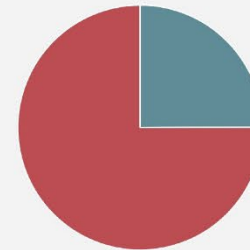


Land Cover:
4.68 MILLION
TREES

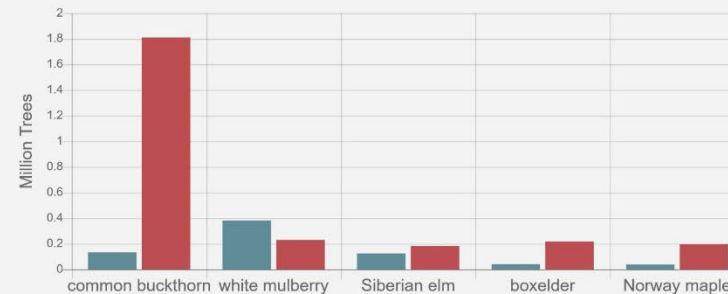
Chicago:
4.68 MILLION
TREES



Land Cover
Tree Count
Ownership



Private: 1.17 million trees
Public: 3.51 million trees



Urban forest benefits information comes from Urban Forest Inventory and Analysis (nrs.fs.fed.us/fia/urban). This summary sheet was created on My City's Trees (www.mycitystrees.com) on September 21, 2022.





MY CITY'S TREES

Bringing the Nation's Forest Census to Urban Areas



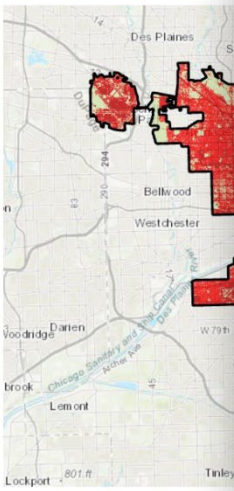
Chicago, Illinois

OVERVIEW

Chicago is comprised of 149,835 acres with a population of 2.7 million. This report contains information about the city's land cover classes.

Developed - Low / Vegetation, Developed - Medium

These classes cover 149,835 acres, which is 100 percent of the selected area, which is 100 percent of the entire city. The urban forest inventory, of which 18



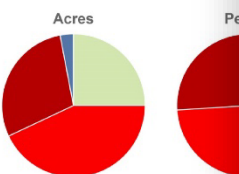
Developed - Low / Vegetation Developed - Medium

Figure 1. Map of Chicago

Table 1. Distribution of area and population by land cover class.

Class	Acres	Percent
Developed - Low / Vegetation	37,101	24.76
Developed - Medium	64,450	43.02
Developed - High	43,817	29.26
Water	4,467	2.98
All	149,835	100.00

*Note rows in this and/or following tables may not sum to 100% due to rounding.



Developed - Low / Vegetation Developed - Medium

Figure 2. Distribution of area, population

TREE COUNT

The trees in an urban area make up the urban forest. Street trees, park trees, yard trees — any tree in Chicago is part of its urban forest. The number of trees is based on living trees at least one inch in diameter.

Classes

The selected area contains 4.68 million trees, which is 100 percent of the 4.68 million trees across the entire city. There are 1.7 trees per person in the selected area.

Table 2. Count by land cover class.

Class	Million Trees	Percent	Trees Per Acre	Trees Per Person
Developed - Low / Vegetation	2.69	57	72.4	6.6
Developed - Medium	1.35	29	21.0	0.9
Developed - High	0.64	14	14.5	0.9
Water	0.00	0	0.0	0.0
All	4.68	100	31.2	1.7

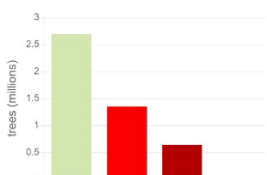


Figure 3. Total count by land cover class.

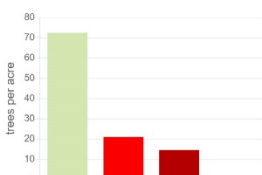


Figure 4. Trees per acre by land cover class.

mycitystrees.com



MY CITY'S TREES

Bringing the Nation's Forest Census to Urban Areas

[OPEN APPLICATION](#)

[CONTACT US](#)

[Learn More](#)





MY CITY'S T...



No
selection



No
selection



No
selection



INVENTORY STATISTICS



SPECIES STATISTICS



PRINT SUMMARY



GENERATE REPORT



HELP

MY CITY

No city selected

MY AREA

No city selected



SELECT CITY



SELECT THEME



SELECT CLASSES





MY CITY'S T...



No
selection



No
selection



No
selection



INVENTORY STATISTICS



SPECIES STATISTICS



PRINT SUMMARY



GENERATE REPORT



HELP

MY CITY

No city selected

MY AREA

No city selected



SELECT CITY



SELECT THEME



SELECT CLASSES



MY CITY
Chicago, IL

MY AREA
Chicago, IL

149,835
ACRES



AREA

149,835
ACRES

2,695,598
PEOPLE



POPULATION

2,695,598
PEOPLE

183
PLOTS



PLOTS

183
PLOTS

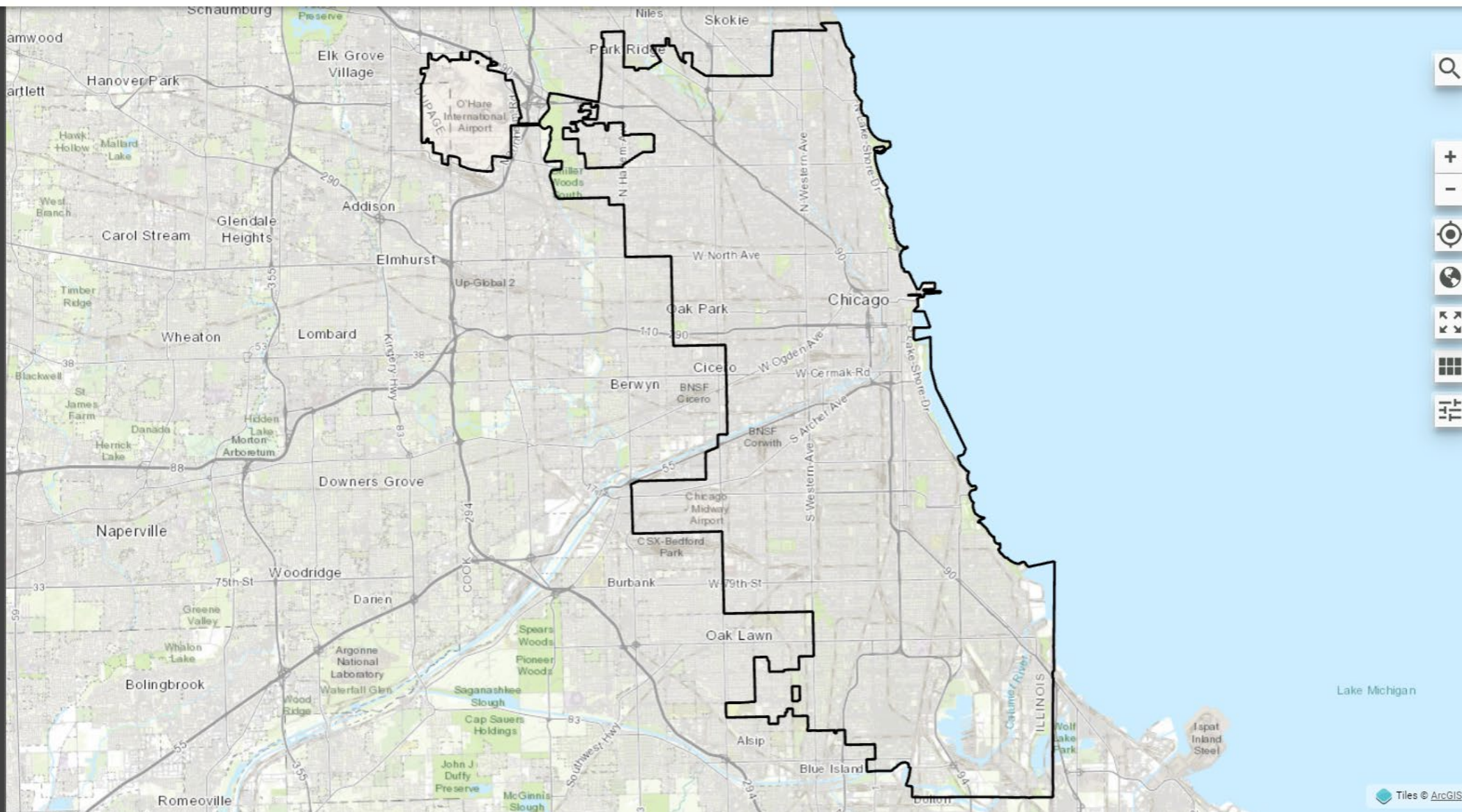
SELECT CITY



SELECT THEME



SELECT CLASSES



MY CITY
Chicago, IL

149,835
ACRES



AREA

2,695,598
PEOPLE



POPULATION

183
PLOTS



PLOTS

MY AREA
Chicago, IL

149,835
ACRES

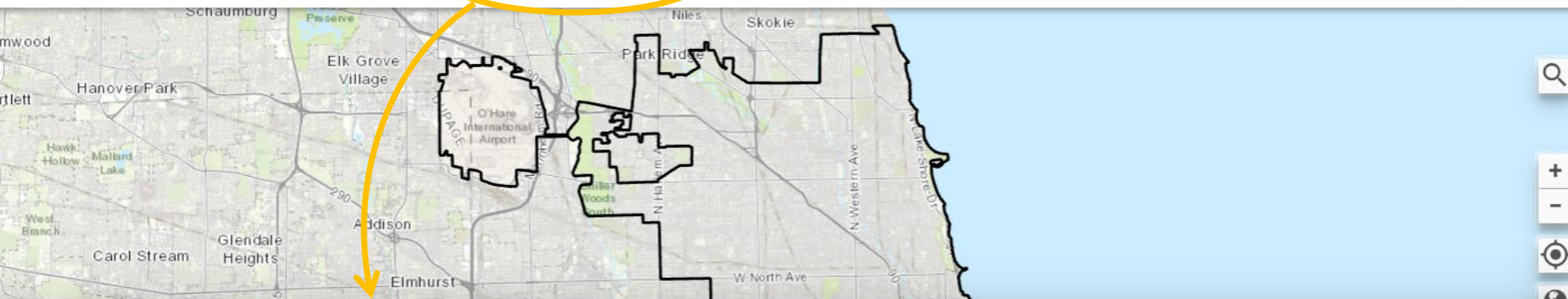
2,695,598
PEOPLE

183
PLOTS

SELECT CITY

SELECT THEME

SELECT CLASSES



INVENTORY STATISTICS

SELECT CATEGORY

Count

Tree counts (live trees at least 1 in



MY CITY: 4.68 MILLION T
MY AREA: 4.68 MILLION T

- Count
- Carbon
- Volume
- Value
- Leaves
- Energy
- Runoff
- Pollution
- Health

SPECIES	MILLION TREES	PERCENT	TREES PER PERSON
mon buckthorn	1.94	42%	0.7
e mulberry	0.61	13%	0.2
ian elm	0.31	7%	0.1
ore	1.82	39%	0.7
	4.68	100%	1.7



MY CITY'S TREES



Chicago, IL



Land Cover



4/4



INVENTORY STATISTICS



SPECIES STATISTICS



PRINT SUMMARY



GENERATE REPORT



HELP

MY CITY

Chicago, IL

149,835
ACRES



AREA

2,695,598
PEOPLE



POPULATION

183
PLOTS



PLOTS

MY AREA

Land Cover

149,835
ACRES

2,695,598
PEOPLE

183
PLOTS



SELECT CITY



SELECT THEME



Land Cover

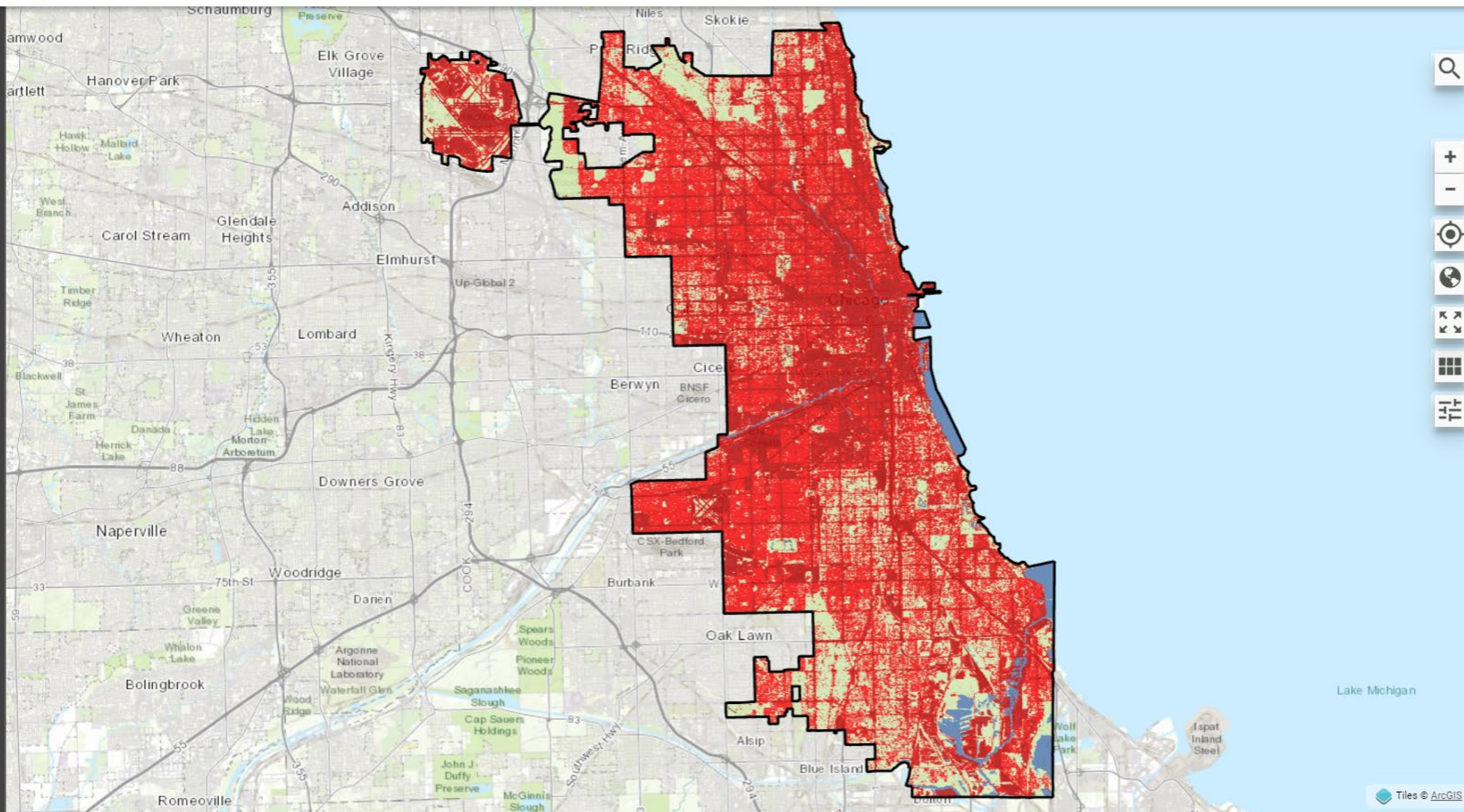
Social Vulnerability

Surface Temperature

Population Density



SELECT CLASSES





MY CITY'S TREES



Chicago, IL



Land Cover



4/4



INVENTORY STATISTICS



SPECIES STATISTICS



PRINT SUMMARY



GENERATE REPORT



HELP

MY CITY

Chicago, IL

149,835
ACRES



AREA

2,695,598
PEOPLE



POPULATION

183
PLOTS



PLOTS

MY AREA

Land Cover

149,835
ACRES

2,695,598
PEOPLE

183
PLOTS



SELECT CITY



SELECT THEME



SELECT CLASSES



Developed - Low / Vegetation



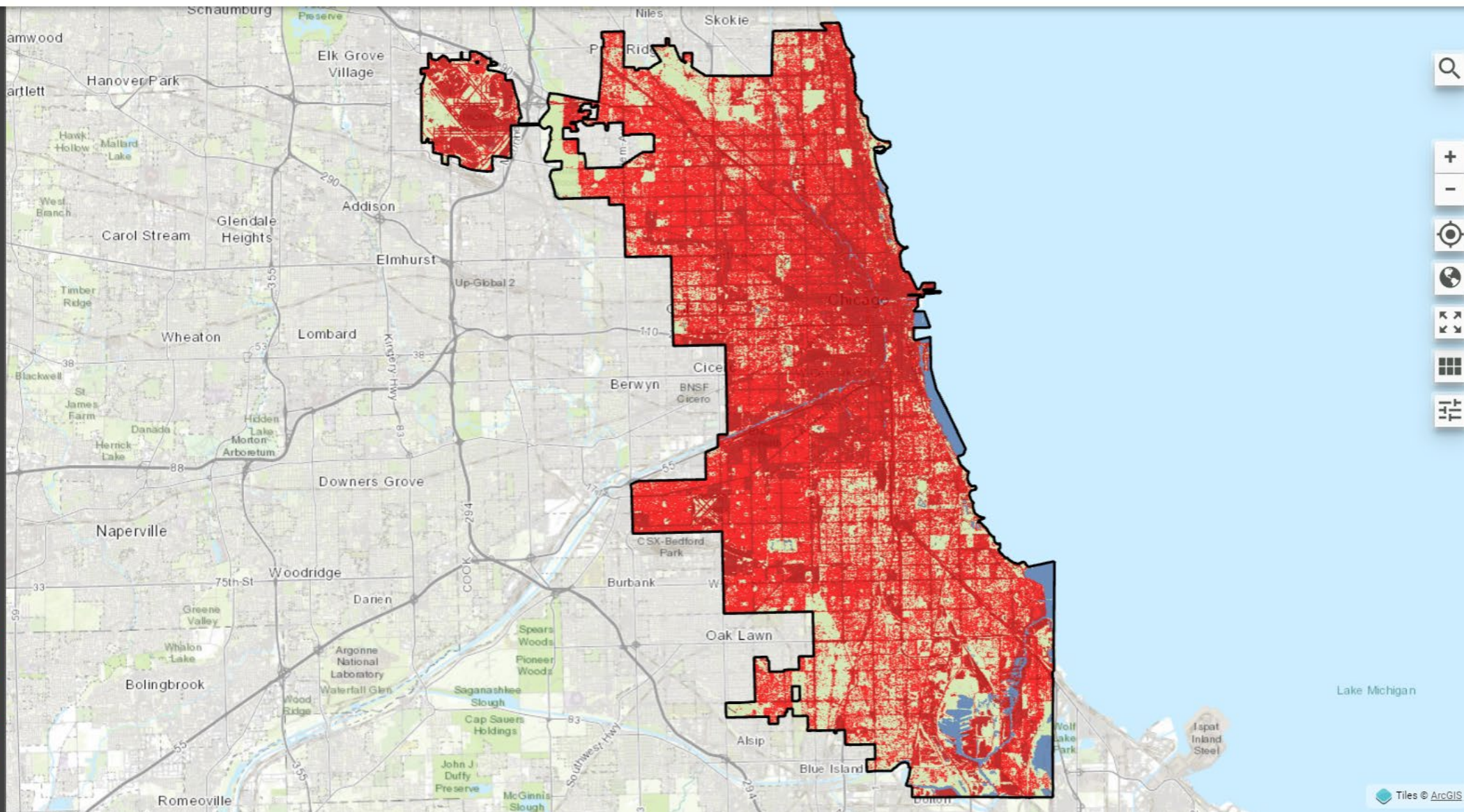
Developed - Medium



Developed - High



Water





MY CITY'S TREES



Chicago, IL



Land Cover



2/4



INVENTORY STATISTICS



SPECIES STATISTICS



PRINT SUMMARY



GENERATE REPORT



HELP

MY CITY

Chicago, IL

149,835
ACRES



AREA

2,695,598
PEOPLE



POPULATION

183
PLOTS



PLOTS

MY AREA

Land Cover

108,267
ACRES

2,289,356
PEOPLE

139
PLOTS



SELECT CITY



SELECT THEME



SELECT CLASSES



Developed - Low / Vegetation



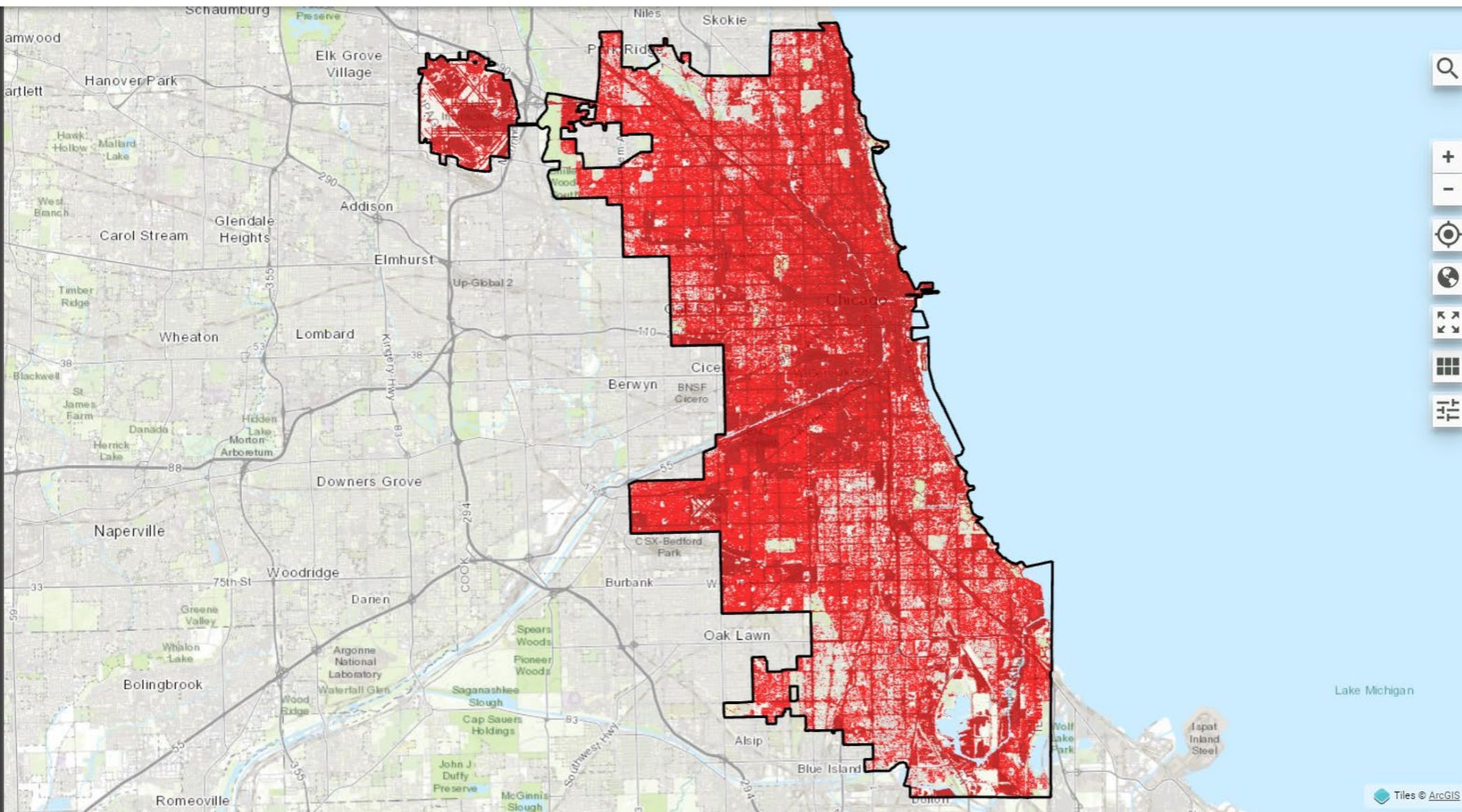
Developed - Medium



Developed - High



Water



MY CITY

Chicago, IL

149,835

ACRES



2,695,598

PEOPLE



183

PLOTS



MY AREA

Land Cover

108,267

ACRES

2,289,356

PEOPLE

139

PLOTS

SELECT CITY

SELECT THEME

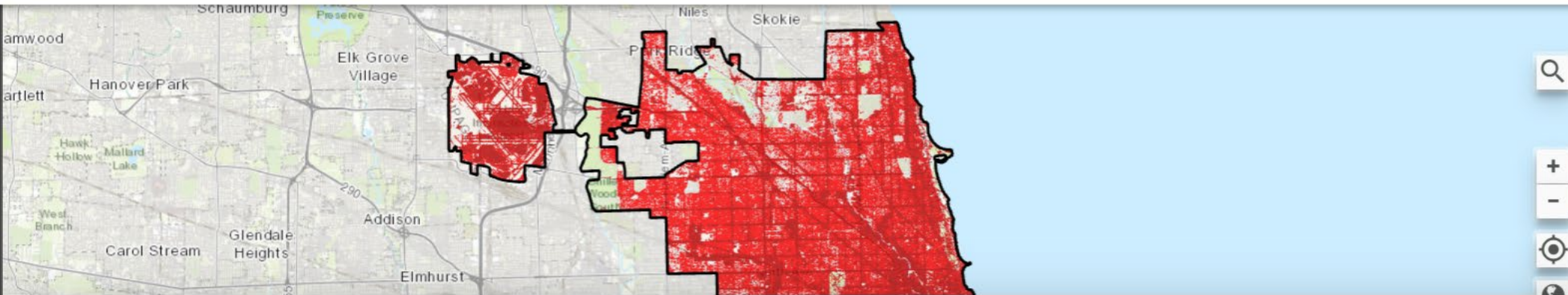
SELECT CLASSES

Developed - Low / Vegetation

Developed - Medium

Developed - High

Water

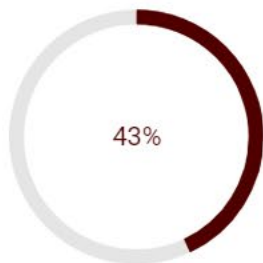


INVENTORY STATISTICS

SELECT CATEGORY

Count

Tree counts (live trees at least 1 inch in diameter)



MY CITY: 4.68 MILLION TREES

MY AREA: 1.99 MILLION TREES

SPECIES

MILLION TREES

PERCENT

TREES PER PERSON

white mulberry

0.37

19%

0.2

common buckthorn

0.26

13%

0.1

silver maple

0.20

10%

0.1

34 more

1.16

58%

0.5

All

1.99

100%

0.9



MY CITY'S TREES



Chicago, IL



Land Cover



2/4



INVENTORY STATISTICS



SPECIES STATISTICS



PRINT SUMMARY



GENERATE REPORT



HELP

MY CITY

Chicago, IL

149,835
ACRES



AREA

2,695,598
PEOPLE



POPULATION

183
PLOTS



PLOTS

MY AREA

Land Cover

108,267
ACRES

2,289,356
PEOPLE

139
PLOTS

SELECT CITY



SELECT THEME



SELECT CLASSES



Developed - Low / Vegetation



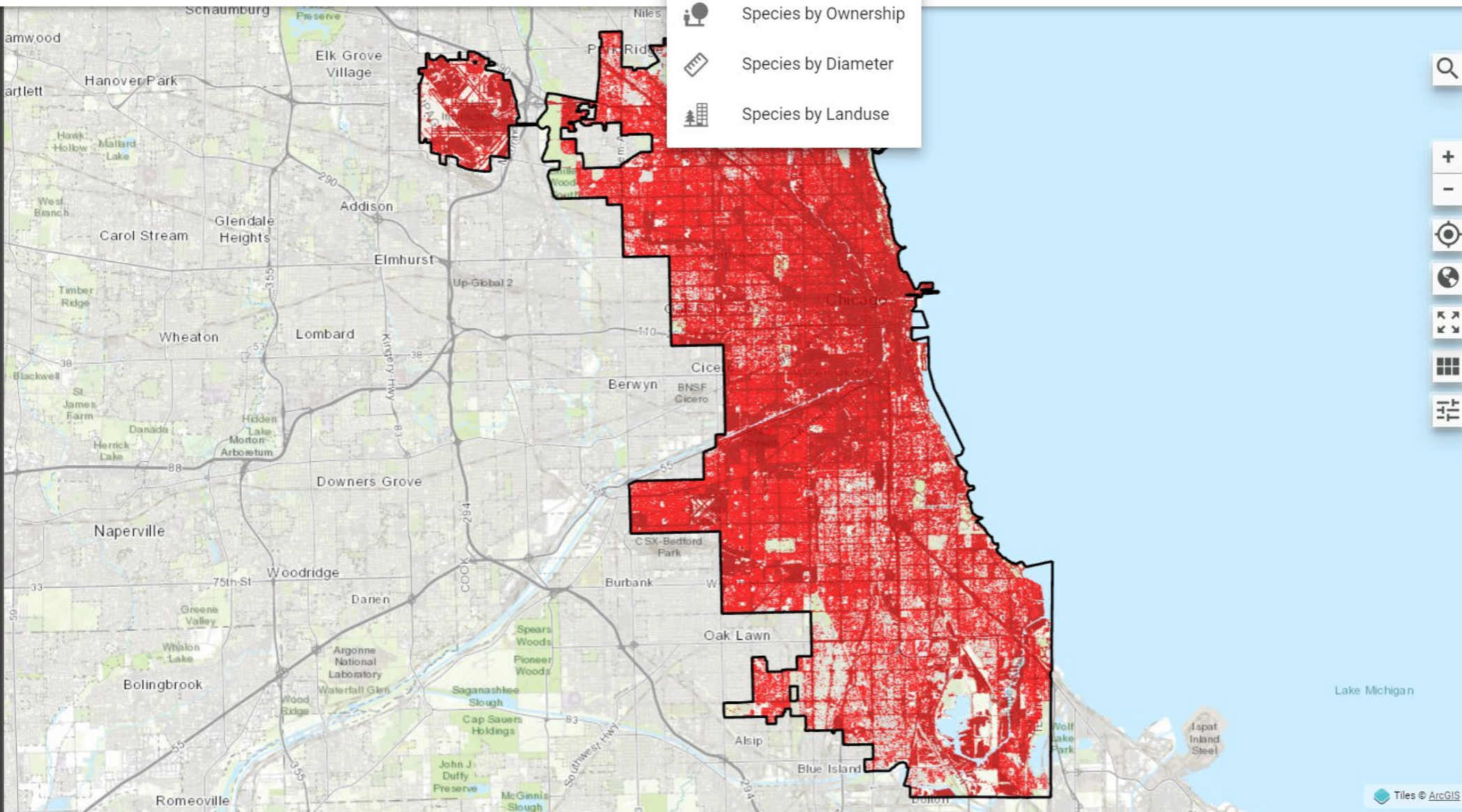
Developed - Medium



Developed - High



Water





SPECIES BY OWNERSHIP

SELECT CATEGORY ▼



Count (trees)

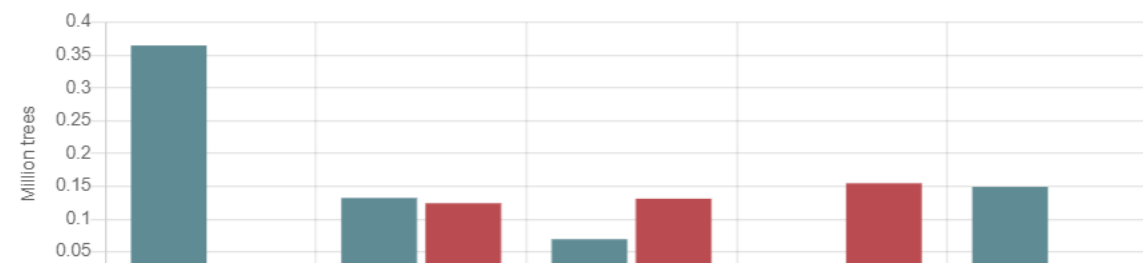
Tree counts (live trees at least 1 inch in diameter)

SPECIES		EXPORT TABLE			
	COMMON NAME	SCIENTIFIC NAME	PRIVATE	PUBLIC	TOTAL
1	white mulberry	<i>Morus alba</i>	364,701	9,476	374,177
2	common buckthorn	<i>Rhamnus cathartica</i>	132,050	123,991	256,041
3	silver maple	<i>Acer saccharinum</i>	69,103	130,906	200,009
4	Norway maple	<i>Acer platanoides</i>	19,449	154,390	173,839
5	peach	<i>Prunus persica</i>	148,911	0	148,911
6	Siberian elm	<i>Ulmus pumila</i>	123,991	4,738	128,729
7	eastern cottonwood	<i>Populus deltoides</i>	74,544	33,167	107,711
8	hackberry	<i>Celtis occidentalis</i>	4,738	80,067	84,805
9	American elm	<i>Ulmus americana</i>	5,234	64,365	69,599
10	green ash	<i>Fraxinus pennsylvanica</i>	4,738	54,103	58,841

OWNERSHIP



TOP FIVE SPECIES





MY CITY

Chicago, IL

149,835
ACRES

AREA

2,695,598
PEOPLE

POPULATION

183
PLOTS

PLOTS

MY AREA

Land Cover

149,835
ACRES2,695,598
PEOPLE183
PLOTS

SELECT CITY



SELECT THEME



SELECT CLASSES



Developed - Low / Vegetation



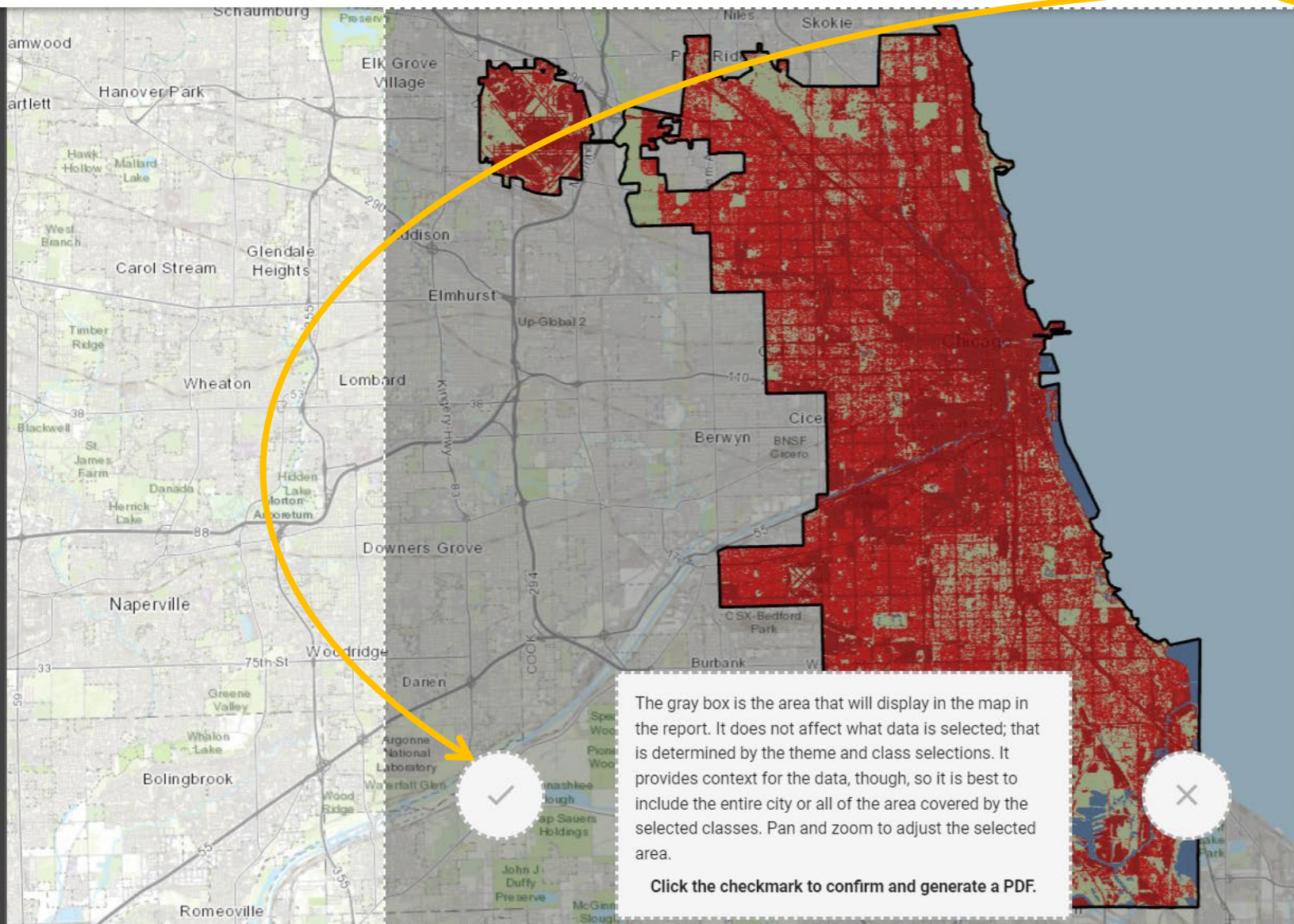
Developed - Medium



Developed - High



Water



The gray box is the area that will display in the map in the report. It does not affect what data is selected; that is determined by the theme and class selections. It provides context for the data, though, so it is best to include the entire city or all of the area covered by the selected classes. Pan and zoom to adjust the selected area.

Click the checkmark to confirm and generate a PDF.



Lake Michigan

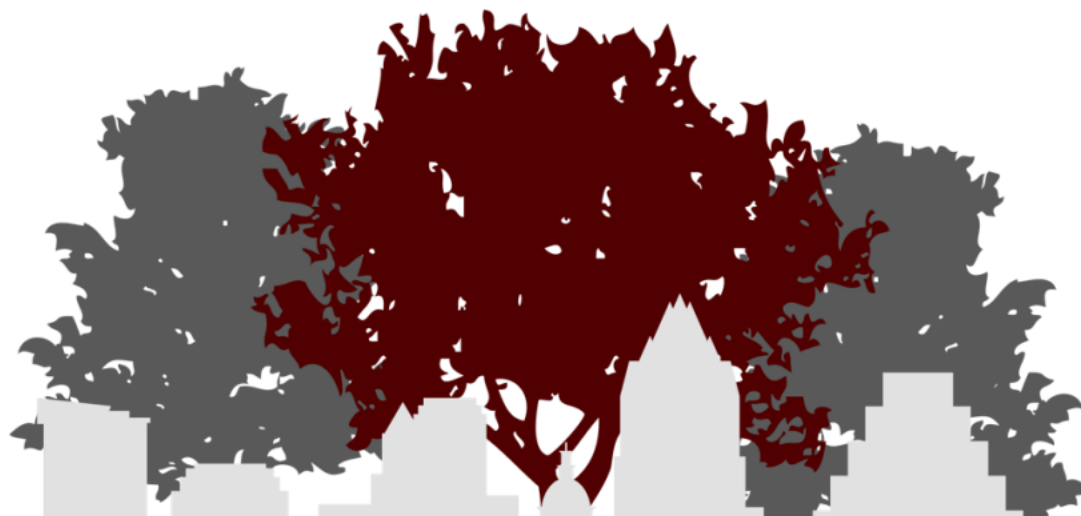


TEXAS A&M
FOREST SERVICE



MY CITY'S TREES

Bringing the Nation's Forest Census to
Urban Areas



Geography

Estimate numerator

Estimate denominator

Urban Forest Stats

Row variable

Column variable

Additional grouping variable

Coming soon to a computer near you for deep dives into Urban FIA data



Urban Forest Stats

- Provide summary data tables and other outputs of Urban FIA data
- Data will come from API developed by FS
- Design based on user feature requests and feedback
- Partnership between Texas A&M Forest Service and USFS

Rebekah Zehnder
Texas A&M Forest Service
rzehnder@tfs.tamu.edu



US Forest Service

Urban Forest Inventory and Analysis

← → ↺ <https://www.fia.fs.usda.gov/program-features/urban/>

ESRI Training USDA Forest Servic... Start your work—Ar... Citrix Receiver ArcGIS Training Site NUTS Version 1.0.0... ArcGIS Online NRS-FIA Analytical... >> Other bookmark

USDA FOREST SERVICE

Forest Service National Links

Go!

Forest Inventory and Analysis National Program

(enter query)

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- U.S. Forest Service
- Forest Inventory & Analysis
- About Us
- Program Features
- Basic Forest Inventory

Forest Health Indicators

Timber Products Output (TPO) Studies

National Woodland Owner Survey (NWOS)

FIA Contributions to National & Global Reporting

Forest Resources of the U.S.

Urban FIA

Carbon Estimation

FIA Data and Tools

FIA Library

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- Employee Search
- Information Center
- National Offices and

Program Features

Urban FIA Program



Urban trees and natural spaces are critical to human health and well-being. A neighborhood's trees moderate air and water pollution, reduce heating and cooling costs, and provide shade and shelter from the hot summer sun. Healthy trees can provide wildlife habitat and improve real estate values. Research shows that trees improve mental health, strengthen social connections, and reduce crime rates. Trees, parks, and other green spaces get people outside, helping to foster active living and neighborhood pride. We can all appreciate these benefits, and the more we know about the trees in our cities and towns the better we can nurture them and sustain their benefits. Generally speaking we seem to know quite a bit about traditional rural forests, but what do we know about forests in developed areas? What do they look like? How are they managed? How are they changing? These are many of the same questions that the USDA Forest Service's Forest Inventory & Analysis (FIA) program sets out to explore in its' rural based inventory. FIA has three components: [Forest Inventory & Analysis](#), [National Woodland Owner Survey \(NWOS\)](#), and [Timber Products Output \(TPO\)](#).

Given the importance of urban lands, Urban FIA has three parallel components:

- 1) Urban Forest Inventory & Analysis
- 2) Urban National Landowner Survey (UNLS)
- 3) Urban Wood Flows

1. Urban Forest Inventory & Analysis

The FIA program has established itself as the only comprehensive field-based and annually updated inventory of all forest ownerships for each of the 50 states in terms of measuring forest land; which is defined as forested areas that are not developed for nonforest land uses, are at least an acre in size and 120' in width, and contain a Live Plus Missing Canopy Cover of at least 10%. FIA only collects minimal data on areas that do not meet this definition. Even though many of these areas do contain trees, they don't meet the historic FIA definition of forest land and therefore many of these trees are not included in the overall inventory. In order to prevent such areas from falling through the gaps the FIA program has collaborated with i-Tree a state-of-the-art, peer-reviewed software suite from the USDA Forest Service that provides urban forestry analysis and benefits assessment tools. The i-Tree Tools help communities of all sizes to strengthen their urban forest management and advocacy efforts by quantifying the structure of community trees and the environmental services that trees provide. This collaboration has fused the infrastructure of the FIA program and the urban inventory expertise of the i-Tree program together to form the new Urban FIA protocols which will be used to produce design-based estimates of the quantity, health, composition, and benefits of urban trees and forests.



US Forest Service

Urban Forest Inventory and Analysis

← → ↻ www.fs.usda.gov/research/products/dataandtools/forestinventorydata ⌂ ☆ □ S ⋮

ESRI Training USDA Forest Servic... Start your work—Ar... Citrix Receiver ArcGIS Training Site NUTS Version 1.0.0... ArcGIS Online NRS-FIA Analytical... » Other bookmarks



FIA DataMart

Photo by Sjana Schanning, US Forest Service, Northern Research Station

The **FIA DataMart** allows visitors to download raw data files, standard tables, SQLite databases, and a desktop EVALIDator reporting tool. DataMart also provides access to the **FIA** State reports, **FIADB** most recent load history, API EVALIDator, and **FIADB** User Guides.



Urban DataMart

Photo by Sjana Schanning, US Forest Service, Northern Research Station

The **Urban DataMart** allows visitors to download raw urban data, as well as Urban **FIADB** User Guides.



My City's Trees

Bringing the Nation's Forest Census to Urban Areas

Photo: My City's Trees logo

The **My City's Trees** application enables anyone to access Urban **FIA** data and produce custom analyses and reports. Currently, My City's Trees includes information for all **targeted cities** with a complete certified dataset. At full implementation, the application will serve an estimated 100 cities with new cities coming on line as new data sets are completed and certified. Urban **FIA** is a continuous inventory with data sets being updated as remeasurement data becomes available. **New - Chicago added in October 2021!**



Batch Reports

Photo by Mary Miller, US Forest Service, Rocky Mountain Research Station

The **Batch Reports** is a workbook that allows visitors to produce multiple reports with a single click of a button.



US Forest Service

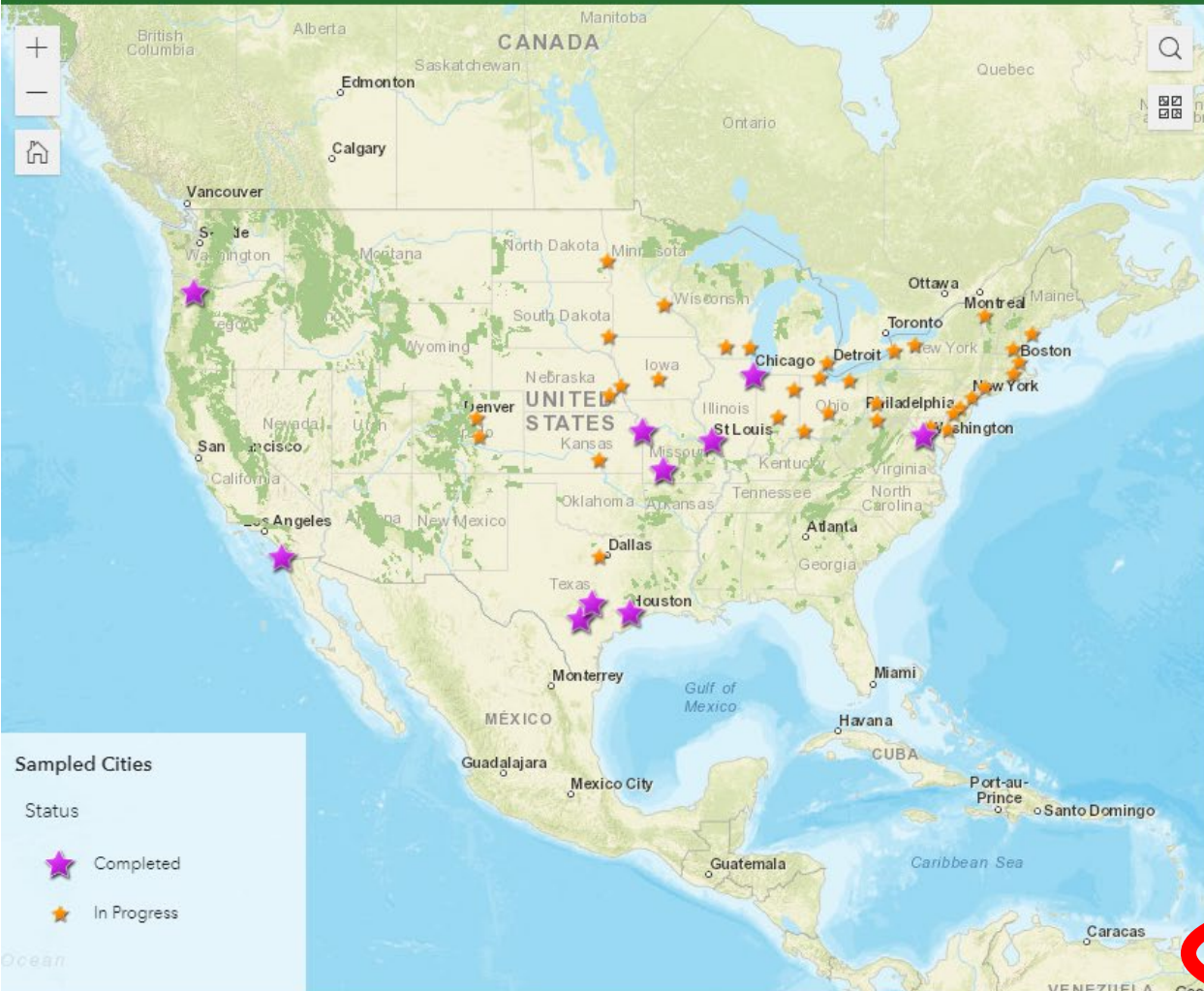
Urban Forest Inventory and Analysis

← → ↻ 🔒 <https://experience.arcgis.com/experience/3641cea45d614ab88791aef54f3a1849/page/Urban-Datamart/>

ESRI Training USDA Forest Servic... Start your work—Ar... Citrix Receiver ArcGIS Training Site NUTS Version 1.0.0... ArcGIS Online NRS-FIA Analytical... Other bookmarks



The Forest Inventory & Analysis DataMart



Sampled Cities

Status

- ★ Completed
- ★ In Progress

Urban Data



Chicago, IL

Sample area (acres): 149,811
Begin Year: 2016
Accelerated Cycle Length: 3
Cycle Length: 7
Plot Intensity: 8

< 9/10 >

Download Data

The Urban DataMart download file contains a collection of raw data tables that can be combined in a relational database to produce population-level estimates. Data include an intensified sample of plots within the city and a less intensified sample in Census Urban Areas with...

[Urban SQLite zip file](#) [Urban CSV zip file](#)

Esri, HERE, Garmin, NGA, USGS | US Forest Service Enterprise Map Services Program | Sources: Esri, U.S. Census Bureau



US Forest Service

Urban Forest Inventory and Analysis

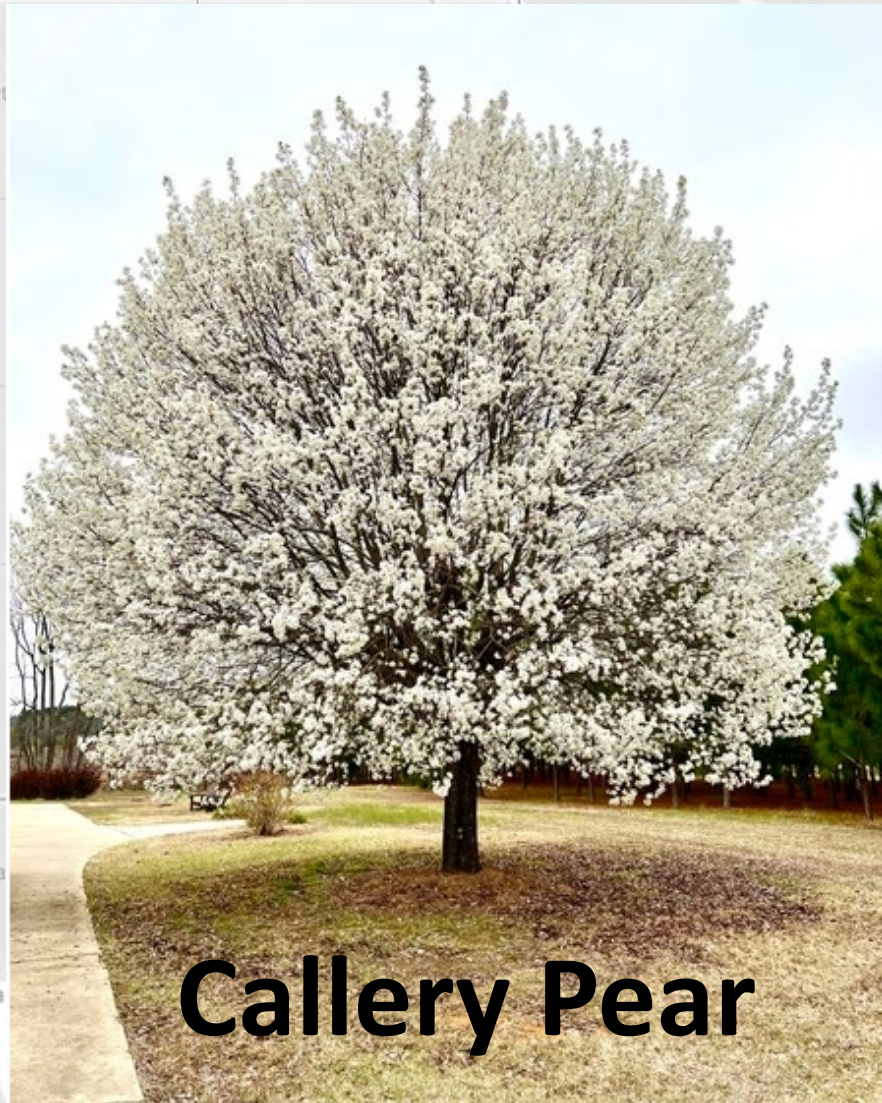
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ADMIN_PUB_DATA_STANDARD.csv	MOD_VOC_EMISSION.csv	REF_CROWN_CLASS.csv	REF_OWNER_GROUP.csv
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ID_SUBP_COND.csv	REF_CANOPY_COVER_SAMPLE_METHOD.csv	REF_ITREE_LANDUSE.csv	REF_SEEDLING_PLANTED.csv
ID_SUBPLOT.csv	REF_CAUSE_OF_DEATH.csv	REF_ITREE_LANDUSE_DETAILED.csv	REF_SITE_CLASS_CODE.csv
ID_TREE.csv	REF_CITATION.csv	REF_LAND_COVER_CLASS.csv	REF_SPECIES.csv
ID_WOODLAND_STEM.csv	REF_CONDITION_NONSAMPLE_REASON.csv	REF_LENGTH_METHOD.csv	REF_SPECIES_GROUP.csv
MOD_POLLUTION_HEALTH_FCTR.csv	REF_CONDITION_SAMPLING_STATUS.csv	REF_NO_YES.csv	REF_STAND_SIZE_CLASS.csv



US Forest Service

Urban Forest Inventory and Analysis

What single species has been planted in every one of these 10 cities???

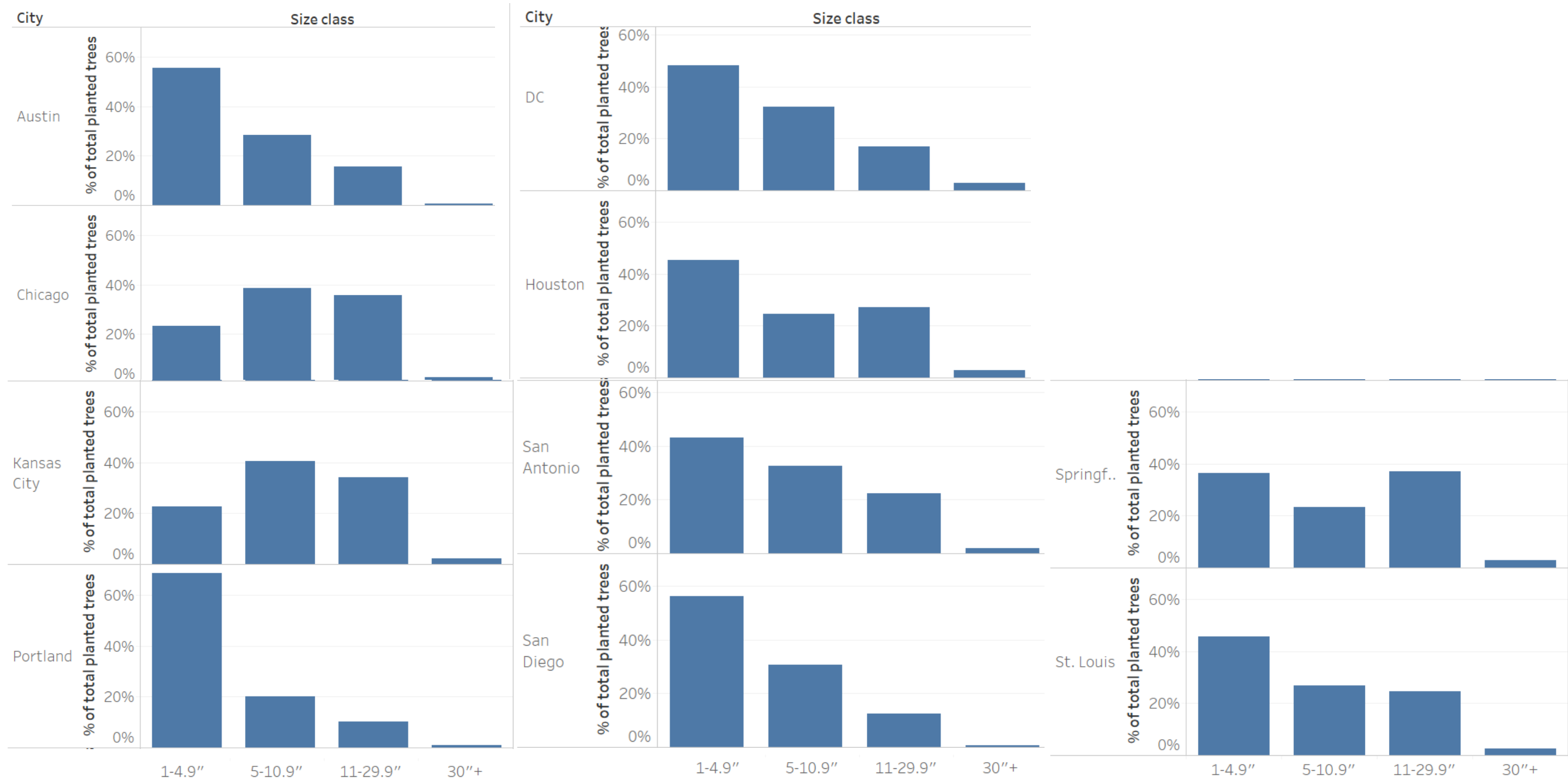


Callery Pear





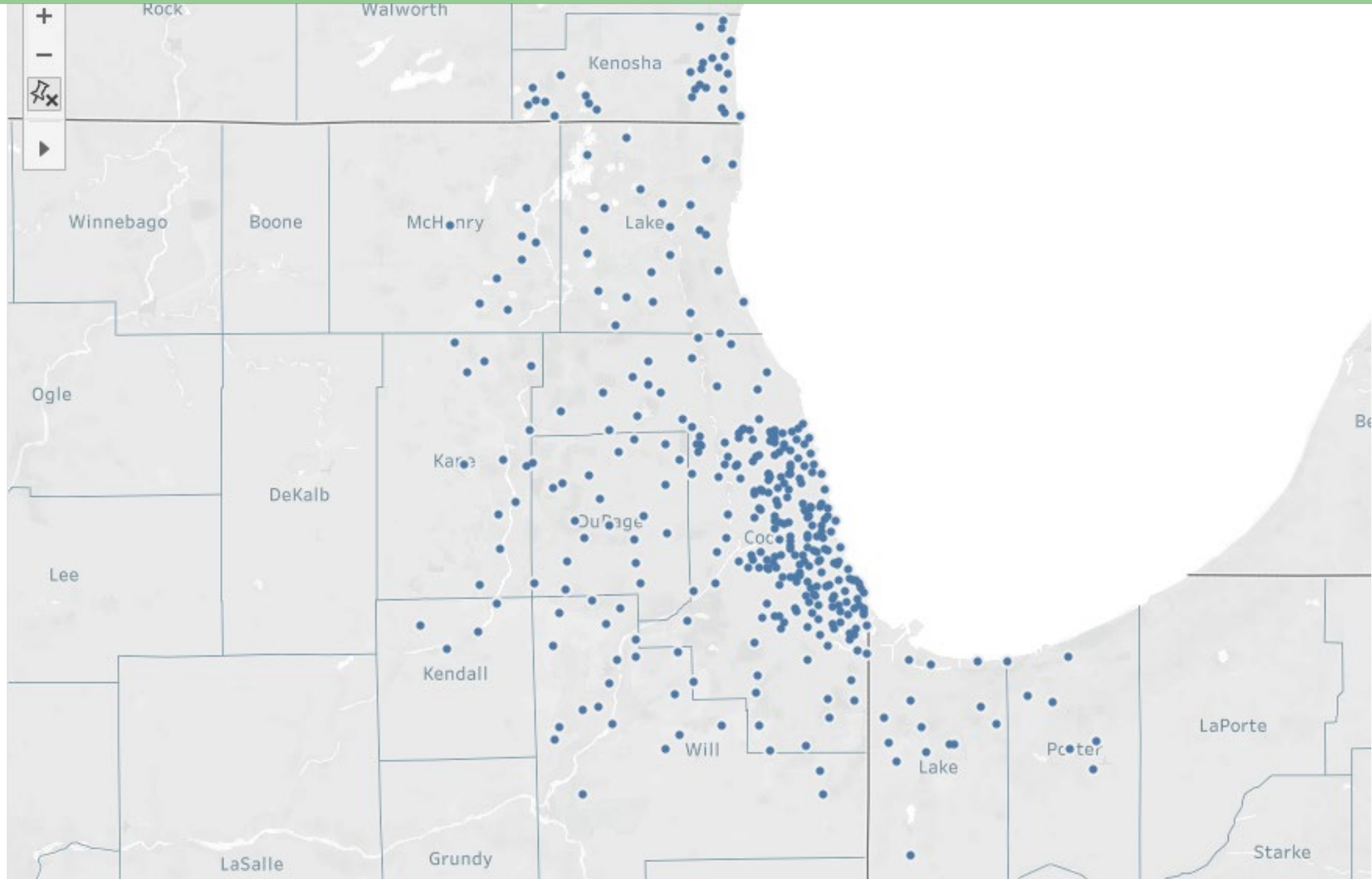
Planted trees by size class by City





US Forest Service

Urban Forest Inventory and Analysis

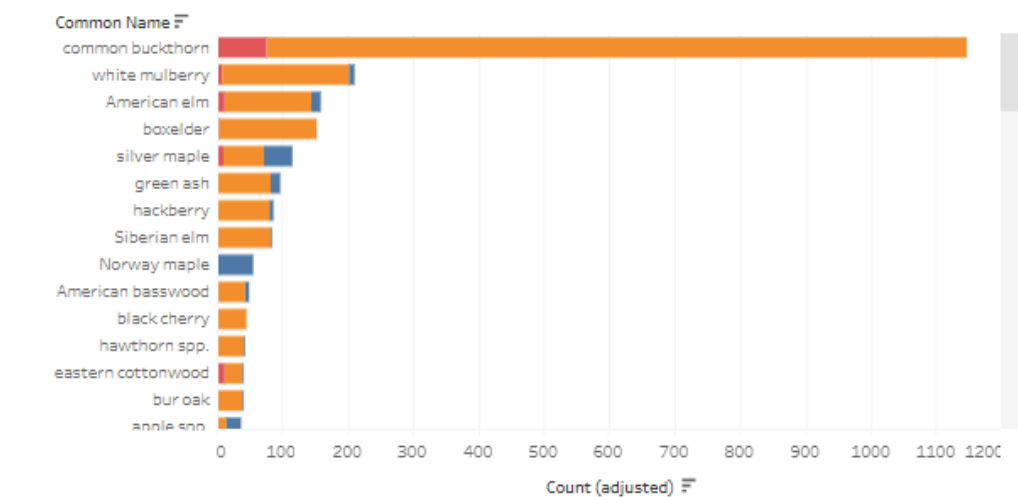




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Urban Forest Inventory and Analysis

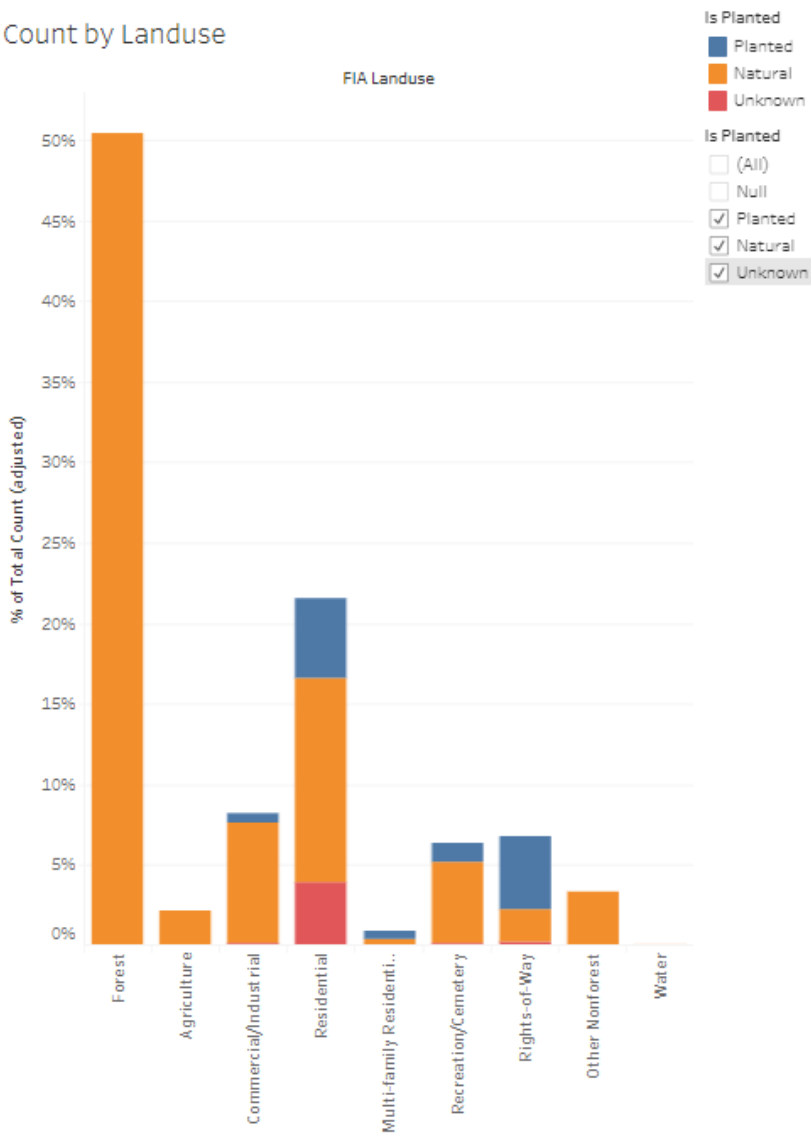
Chicago Tree Regeneration Dynamics



Diameter Class by Common Name

Common Name	Diameter class				Grand Total
	1-4.9"	5-10.9"	11-29.9"	30"+	
common buckthorn	1,121	26			1,147
white mulberry	137	47	24	2	210
American elm	125	31	4		160
boxelder	87	56	10		153
silver maple	12	43	49	12	116
green ash	75	15	8		98
hackberry	62	15	9		86
Siberian elm	62	16	6		84
Norway maple	12	13	31		56
American basswood	12	24	14		50
black cherry	12	22	11		45
hawthorn spp.	37	6			43
eastern cottonwood		13	22	7	42
bur oak	25	3	6	6	40
apple spp.	25	11	1		37
white ash	25	2	5	1	33
sassafras	25	5			30
eastern redbud	25	5			30
bitternut hickory	12	14	3		29

Count by Landuse

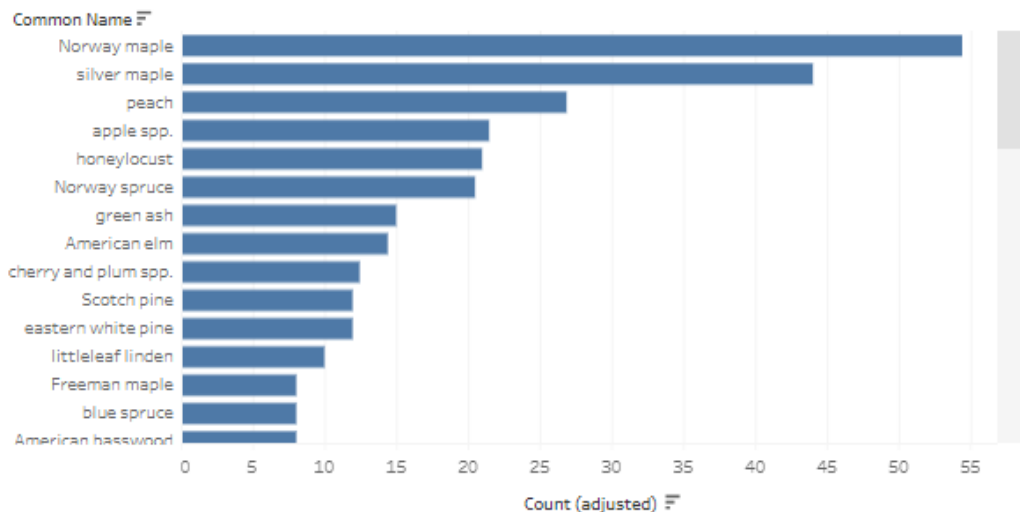




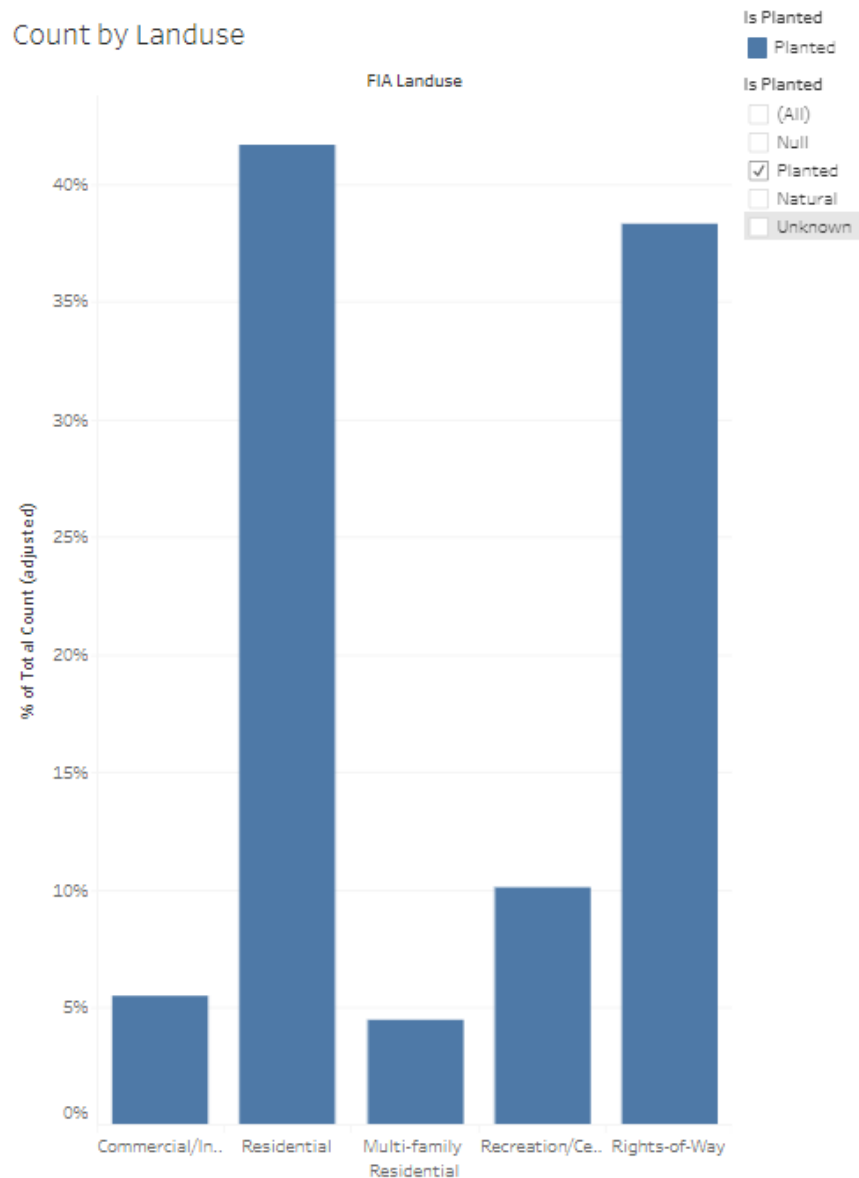
US Forest Service

Urban Forest Inventory and Analysis

Chicago Tree Regeneration Dynamics



Count by Landuse



Diameter Class by Common Name

Common Name	Diameter class				Grand Total
	1-4.9"	5-10.9"	11-29.9"	30"+	
Norway maple	12.46	11.00	31.00		54.46
silver maple		7.00	28.00	9.00	44.00
peach	24.92	2.00			26.92
apple spp.	12.46	8.00	1.00		21.46
honeylocust		6.00	15.00		21.00
Norway spruce	12.46	4.00	4.00		20.46
green ash		10.00	5.00		15.00
American elm	12.46	1.00	1.00		14.46
cherry and plum s..	12.46				12.46
Scotch pine		11.00	1.00		12.00
eastern white pine		7.00	5.00		12.00
littleleaf linden		3.00	7.00		10.00
Freeman maple		4.00	4.00		8.00
blue spruce		7.00	1.00		8.00
American basswo..		5.00	3.00		8.00
white mulberry		3.00	4.00		7.00
red pine		3.00	3.00		6.00
red maple		5.00	1.00		6.00
hackberry		1.00	5.00		6.00



Resources:

Journal article, “Strategic National Urban Forest Inventory for the United States”,
<https://academic.oup.com/jof/article/119/1/86/6013758>

Urban FIA Program website: <https://www.fia.fs.usda.gov/program-features/urban/>

My City’s Trees: <https://mct.tfs.tamu.edu/>

i-Tree website: <https://www.itreetools.org/>

FIA Data and Tools website: <https://www.fia.fs.usda.gov/tools-data/index.php>

Partners:

