



i-Tree Open Academy

Session 4

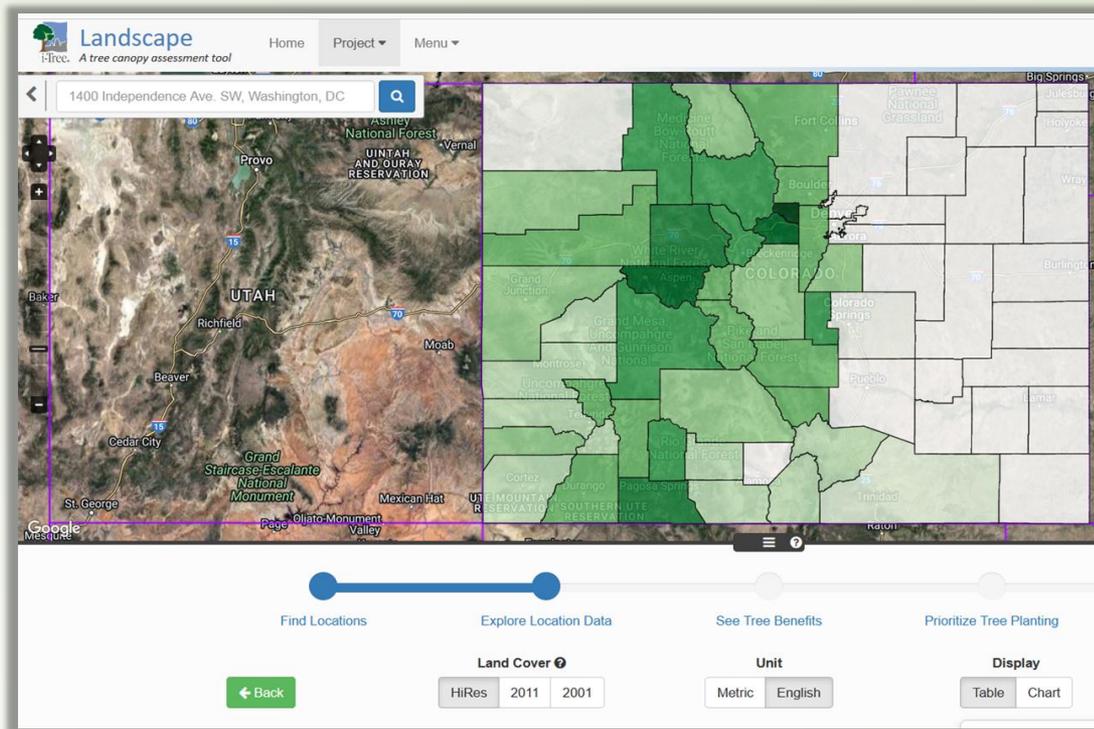
Seeing The Forest For The Trees

The Landscape of Canopy:
Map-based Tools For Benefits Assessments



Looking Through Landscape to See Canopy in Action

- **Visualizing the environment** helps us see it in context
 - Trees + people + habitats + infrastructure: *connections*
- Landscape brings **USFS tree benefits science** to a nationwide map tool and offers a rich set of complimentary data
- Spatial distribution of resources and risks: visualizing **canopy impacts at neighborhood scale**
- Includes census demographic data and levels of environmental risk that can be used to **prioritize equity** across project locations



landscape.itreetools.org

Canopy, Climate, and Census Data on a National Scale

Land Surface Temperature Difference

- $\Delta -20^{\circ}\text{C}:(-36.0^{\circ}\text{F})$
- $\Delta -16^{\circ}\text{C}:(-28.8^{\circ}\text{F})$
- $\Delta -8^{\circ}\text{C}:(-14.4^{\circ}\text{F})$
- $\Delta -4^{\circ}\text{C}:(-7.2^{\circ}\text{F})$
- $\Delta -2^{\circ}\text{C}:(-3.6^{\circ}\text{F})$
- $\Delta <0^{\circ}\text{C}:(<0.0^{\circ}\text{F})$
- $\Delta 0^{\circ}\text{C}:(0.0^{\circ}\text{F})$
- $\Delta >0^{\circ}\text{C}:(>0.0^{\circ}\text{F})$
- $\Delta 2^{\circ}\text{C}:(3.6^{\circ}\text{F})$
- $\Delta 4^{\circ}\text{C}:(7.2^{\circ}\text{F})$
- $\Delta 8^{\circ}\text{C}:(14.4^{\circ}\text{F})$
- $\Delta 16^{\circ}\text{C}:(28.8^{\circ}\text{F})$
- $\Delta 20^{\circ}\text{C}:(36.0^{\circ}\text{F})$

Land Surface Temperature Difference data derived from Landsat-8 Thermal Infrared Sensor Data. Temperature values are the difference from the median surface temperature for each Landsat scene - landsat.usgs.gov.

Close

Find Locations Explore Location Data See Tree Benefits Prioritize Tree Planting Generate Results

Temperature and Urban Heat Impacts

Find Locations Explore Location Data See Tree Benefits Prioritize Tree Planting Generate Results

- Douglas-Fir Beetle (Dendroctonus...)
- Emerald Ash Borer (Agrilus plani...)
- Fir Engraver (Scolytus ventralis)
- Forest Tent Caterpillar (Malacosoma...)
- Goldspotted Oak Borer (Agrilus a...)
- Gypsy Moth (Lymantria dispar)
- Hemlock Woolly Adelgid (Adelges...)



See canopy benefits in action

i-Tree Landscape

CHESTNUT HILL:
80°

HUNTING PARK:
102°

SAME DAY

**PLANT STREET TREES.
FUND TREE CARE.**

Explore Location Data See Tree Benefits Prioritize Tree Planting Generate Results



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View Strengths and Priorities Across Geographies

Priority Index 100

Map details are located in the references.

Choose a boundary area to analyze:
US Census Block Group

Use these tools to work with the map:
+ Navigate Identify
Select Box-Select
Geo-Swap Clear
Process 26 Start Over

Planting Prioritization +
Map details are located in the references.

Find Locations Explore Location Data See Tree Benefits Prioritize Tree Planting Generate Results

Land Cover
HiRes 2011 2001

Common Scenarios
Population Minorities Poverty

How To Prioritize Tree Planting
To map optimal areas to plant trees, create a "Priority Planting Index" scenario from user-specified, weighted criteria (under Custom Scenarios) or use one of the Common Scenarios (above). Scenarios are based upon the **Land Cover** dataset selected (above) - HiRes, 2011, 2001.

The three **Common Scenarios** are:

- **Population:** (default) an index weighted towards areas of relatively high population density, low tree cover per capita, and high available planting space.
- **Minorities:** an index weighted towards areas of relatively high minority population

Custom Scenario
I want to prioritize for areas that have a...
High Low Avoided Runoff
Importance (weight) 50 %



Putting i-Tree to Work

Power of Partnership

- Puget Sound, The Nature Conservancy, and DRG
- High resolution land cover data across urban growth corridors
- Assessment of plantable areas

Puget Sound, Washington
Urban Canopy Project

Introduction

This project was conducted to assess land cover and priority planting locations for 77 communities in the Puget Sound Urban Growth Area and 7 other unincorporated areas across three counties: King, Pierce, and Snohomish. Data sources were sought across the board to analyze a variety of factors that can contribute to accessing tree canopy needs. Analysis included data sets from some cities in the Puget Sound area, US Department of Agriculture, and US Census Bureau. The resulting analysis found plantable areas in both public and private properties across the city.

Purpose

To help the communities in the Puget Sound area

Puget Sound, Washington
Urban Canopy Project

soil (7%) such as athletic fields, and open water (1%)

Snohomish County UTC

The urban tree canopy (UTC) analysis found that 27% of Snohomish County is covered by tree canopy, while 35% of the city is covered by impervious surfaces (roads, buildings) that repel stormwater and contribute to heat island effects. The remaining land in the city is pervious areas of low vegetation such as understory (23%), bare soil (7%) such as athletic fields, and open water (8%).

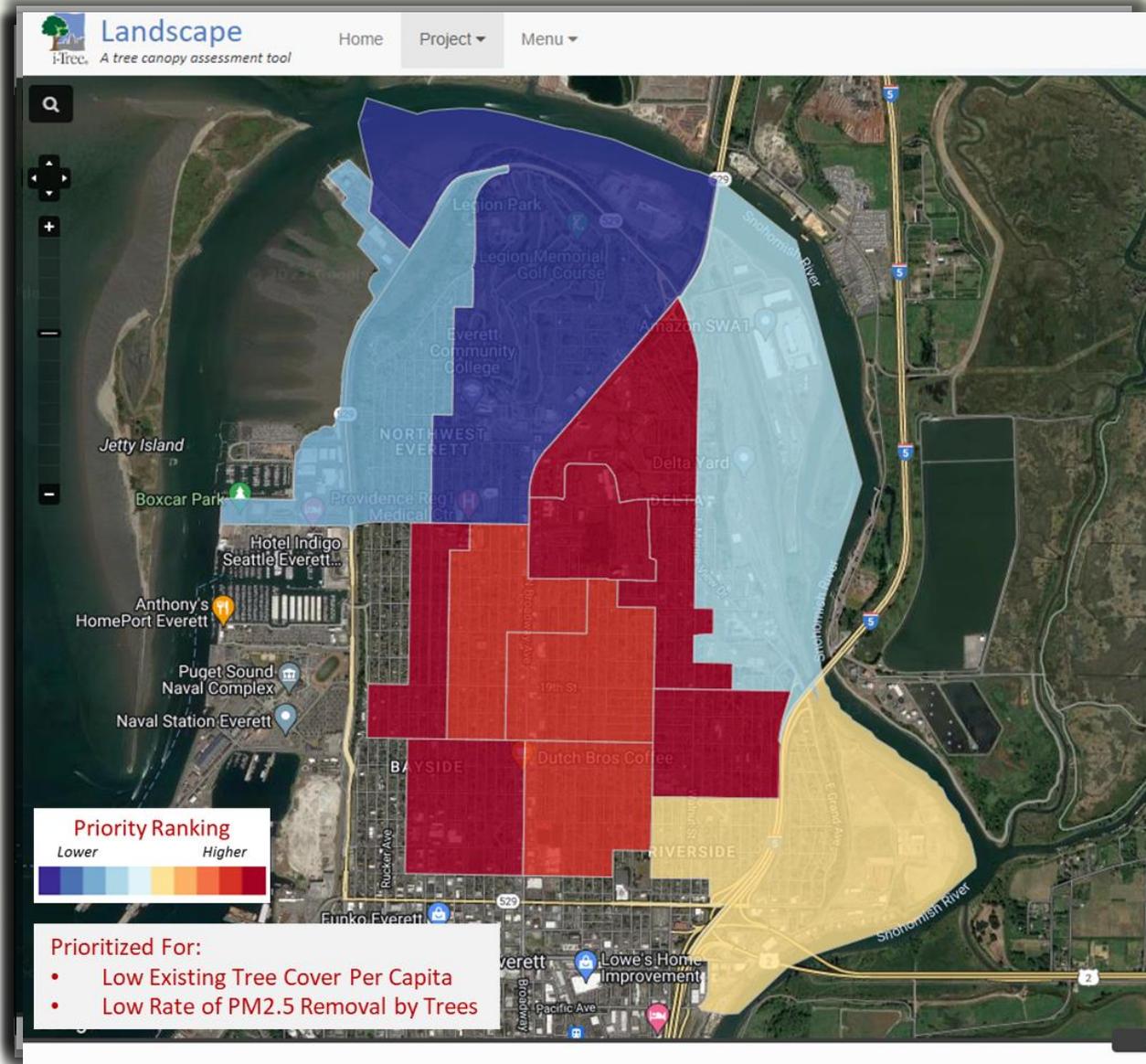
Planting Potential

Inform Community Decisions and Prioritize Strategies

Everett, WA

Delta

Neighborhood



i-Tree for the Long Game

WASHINGTON NATURE

HOME ABOUT US OUR WORK OUR STORIES VISIT TAKE ACTION DONATE

Tree Link News

URBAN AND COMMUNITY FORESTS WASHINGTON STATE

HOME DNR URBAN FORESTRY USFS URBAN

Snohomish Conservation District

Growing Urban Forest in Snohomish County:

The Snohomish Conservation District will collaborate with the cities of Everett, Marysville, and the Tulalip Tribes to develop urban forest management, monitoring, and maintenance plans. The district will add trees and provide long-term maintenance of urban tree canopy in its communities.

Grant Funding Categories: Tree Planting & Maintenance, Planning & Community Development, Extreme Heat

Funding Amount: \$2,480,761

of groups that work to enhance tree equity, tree cover, and access to nature in urban spaces. Funds are delivered directly from USFS to those awarded. Those

54°F

Monday, January 29, 2024

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Millions of dollars for 'tree equity' head to Snohomish County

Trees will go to areas with little canopy cover in Everett, Marysville and elsewhere. "We're doing 100% underrepresented communities."

By [Jordan Hansen](#)
Saturday, September 30, 2023 5:30am | LOCAL NEWS ENVIRONMENT

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EVERETT — Thousands of trees are coming to urban areas in western Snohomish County.

Federal grants are giving the Snohomish Conservation District and the city of Lynnwood a total of \$3.7 million for separate urban forestry projects. That means more trees in Everett, Marysville, south Lynnwood and the Tulalip Reservation.

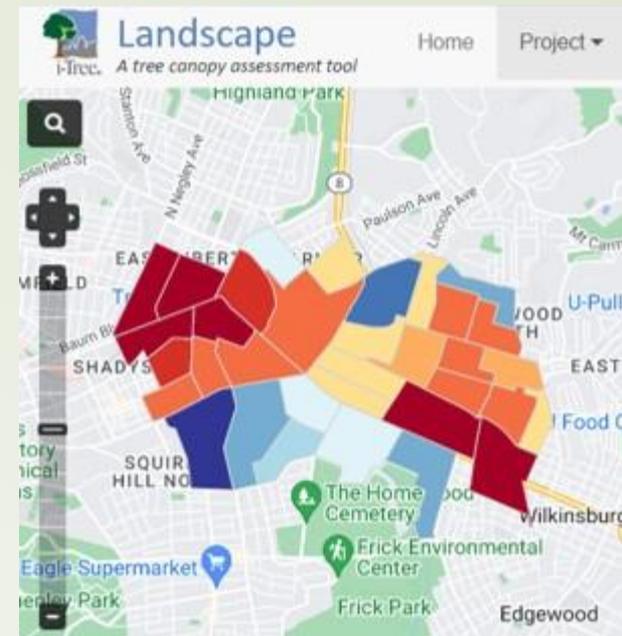
Research suggests urban trees can counteract the "urban heat island" effect, improve mental health and generally [improve the environment](#). They can also divert stormwater and help with erosion as their roots hold soil together and take in water.

The new trees are going to areas with little canopy cover.

- **Collaboration → Tree Science → Tool Kit → Local Engagement → Funding for Canopy Growth**

The Lens of i-Tree Landscape

- See impacts on geographic scales that can highlight benefits in action
 - Distribution of canopy and other resources: where does your landscape fit?
- Estimate future impacts of climate change
- Spatial breakdown of benefits: visualize data at neighborhood scales
- See impacts alongside demographic info that can inform decisions for social equity and city priorities
- Prioritization and Limitations
 - Focus on neighborhoods where you want to increase canopy benefits
 - Data layers are publicly available, and not directly downloadable from Landscape itself
 - For use in the US, working with layers available on a nationwide level



landscape.itreetools.org/

Reveal Your Landscape

- Letting It All Sink In
 - *Knowledge is power –*
 - *Use your power for good!*

- info@itreetools.org

