



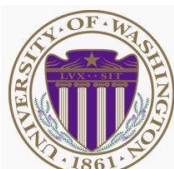
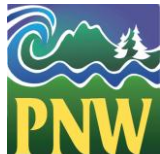
GREEN  
CITIES  
RESEARCH  
ALLIANCE

# URBAN FOREST ECOSYSTEM VALUES

Lisa Ciecko

Forest Assessment Project Manager

**FORT&RRA**



**EarthCorps**  
LOCAL RESTORATION · GLOBAL LEADERSHIP



**International Forestry**  
CONSULTANTS, INC.

## URBAN NATURAL RESOURCE STEWARDSHIP

Civic Stewardship  
Engagement

Stewardship Mapping

## COMMUNITY SUSTAINABILITY

Urban Foraging

Residential Choice

Green Cities: Good Health



## LANDSCAPE ASSESSMENT AND MANAGEMENT

Forest Landscape  
Assessment Tool

Remote Sensing and  
Geospatial Analysis

## ECOSYSTEM SERVICES

Forest Ecosystem  
Values

# FEV Project Components

## FIELD DATA COLLECTION

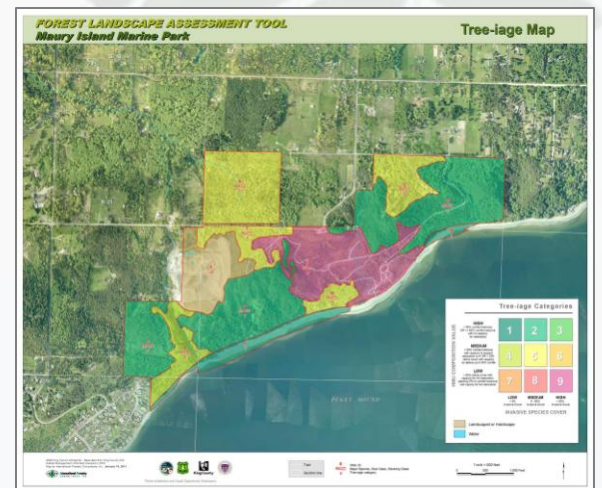
- City of Seattle
- King County Parks
- Green-Duwamish River Corridor

## IMPROVING TOOLS

- How does i-Tree work in the PNW?
- How functional are the field protocols?
- Is it feasible to do this work on private property?

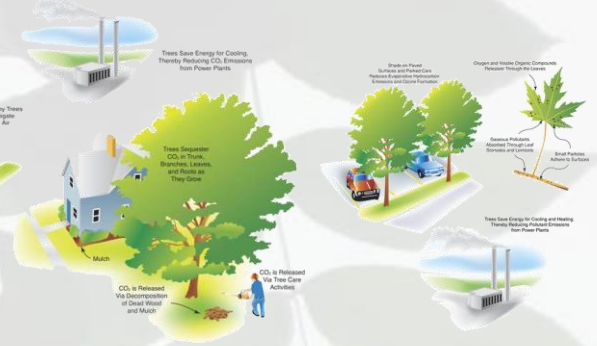
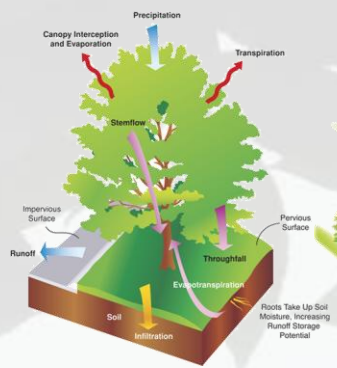
## CONNECTING ANALYSIS

- Forest Landscape Assessment Tool
- Stewardship Engagement
- Other assessments





# STRUCTURE FUNCTION



- Eco (UFORE)
- Streets (STRATUM)
- Hydro
- Vue
- Design
- Canopy

# VALUE



# MANAGEMENT

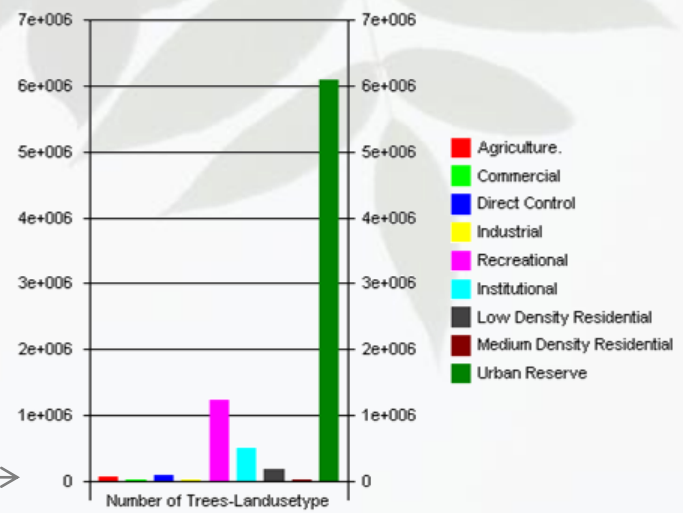
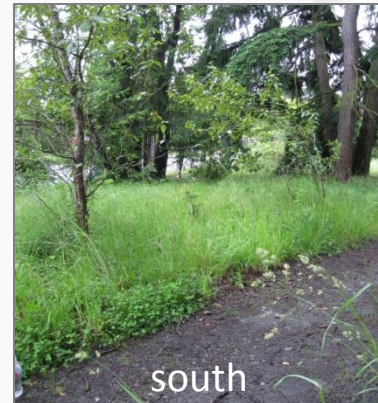
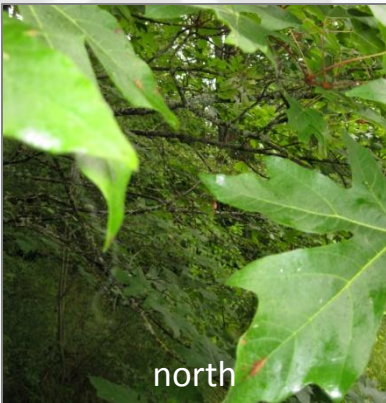


photo credits: Seattle i-Tree Training by AI Zelaya

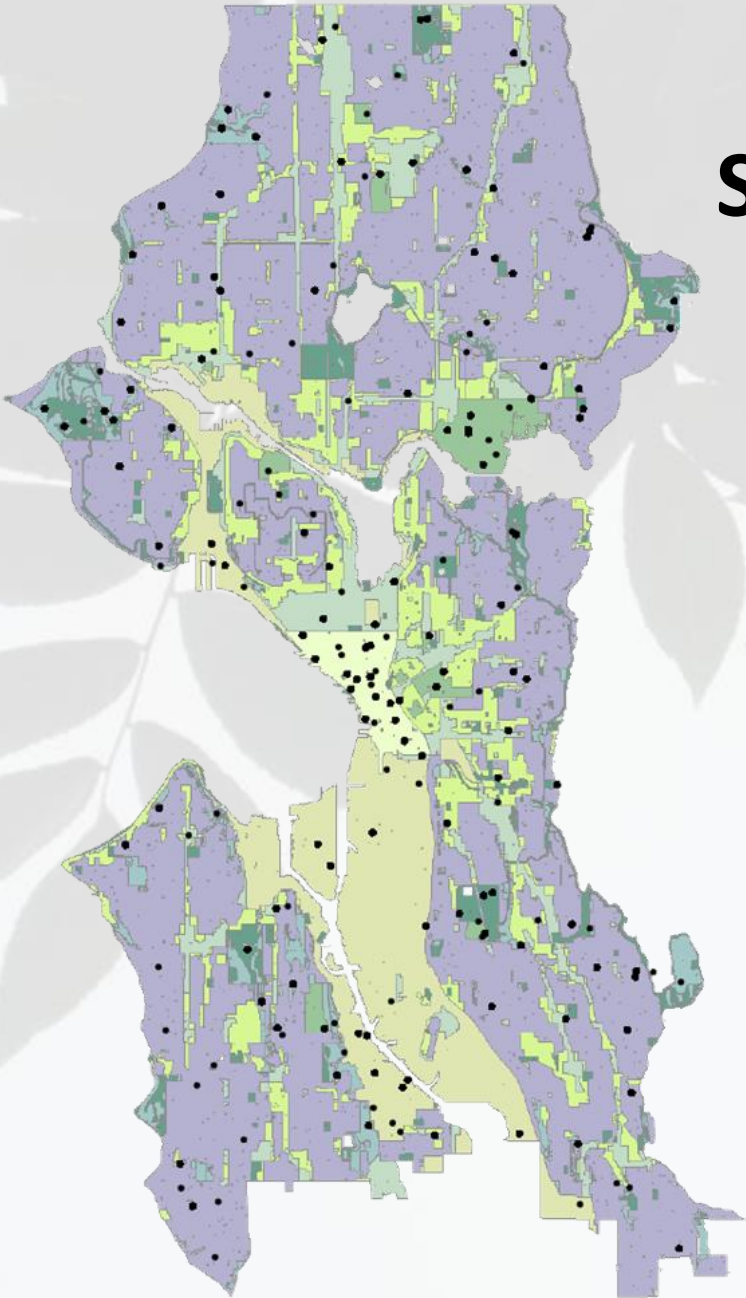
# i-Tree Eco Field Data Collection












- tree cover
- land use
- ground cover
- tree species
- each tree: DBH, height, crown width, % dieback, % missing, light exposure
- tree orientation and setback from residential buildings
- plot reference data



# Seattle Research Plots



	Commercial/Mixed Use	23
	Developed Park or Boulevard	20
	Downtown	20
	Major Institutions	21
	Manufacturing/Industrial	21
	Multi-family Residential	25
	Natural Area Parks	20
	Single-family Residential	73
	Completed Plots	223

# Analysis and Reporting

May 2010 – Oct 2011

Nov 2011

Feb 2012

Spring 2012

field data collection

data clean up  
statistical analysis

written report  
media publicity  
public presentations

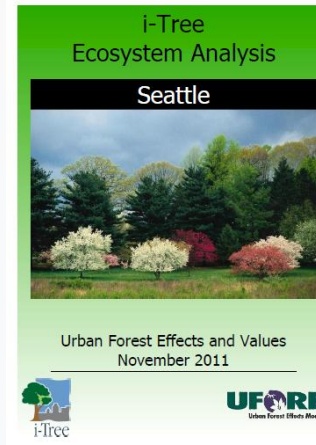
technical reports  
publications  
spatial analysis  
management



PlotID	PlotAddress	XCoordinate	YCoordinate	MapLandUseType	Date
1	30 West Duwamish Greenbelt	0	0	Natural_Parks	6/29/2010
2	3P West Duwamish Greenbelt	0	0	Natural_Parks	7/15/2010
3	4P Golden Gardens Greenbelt	0	0	Natural_Parks	6/14/2010
4	10DEV Lawton Park	0	0	Developed_Parks	6/14/2010
5	3DEV Judkins Park	0	0	Developed_Parks	6/17/2010
6	1P Calkeek Park	0	0	Natural_Parks	6/15/2010
7	8P Magnus Park	0	0	Natural_Parks	6/15/2010
8	10DEV Albreton	0	0	Developed_Parks	6/17/2010
9	5DEV Albreton	0	0	Developed_Parks	6/18/2010
10	11P Ravenna Park	0	0	Natural_Parks	6/18/2010

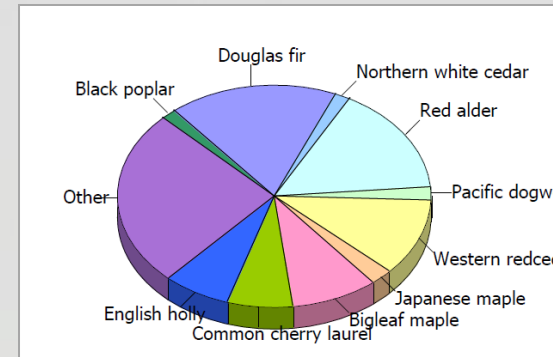
  

General Plot Info				Shrub Info						
Tree ID	STAT	DR	DS	Species (Species Code)	Land Use	HT	DBH	DBH1	DBH2	DBH3
1	U	21	2	ACMA	Park	1.37	17.5	4		
2	U	23	9	FR(Genus)	Park	1.37	5.5			
3	U	59	11	ACMA	Park	1.37	34	22.4		
4	U	90	4	ILAQ	Park	1.37	8.8	4.8	17.7	
5	U	84	5	ILAQ	Park	1.37	3.4	5.7	13.8	
6	U	92	6	ILAQ	Park	1.37	6.1	7	16.7	
7	U	102	5	ILAQ	Park	1.37	3.9			
8	U	81	11	ILAQ	Park	1.37	5.5			
9	U	106	10	ACMA	Park	1.37	44.5	48.4	12.7	
10	U	104	11	ACMA	Park	1.37	14.9			
11	U	124	2	ACMA	Park	1.37	28.9	3.2	4.8	
12	U	126	9	OECE	Park	1.37	4.3			

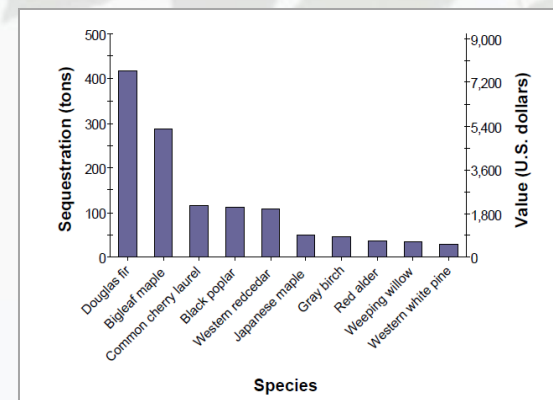


# Results

- Estimated number of trees
- Tree cover
- Species
- Tree size classifications
- Pollution removal
- Carbon storage
- Carbon sequestration
- Residential building energy savings
- Avoided carbon emissions
- Structural value
- Potential pest impacts
- Ground cover characteristics



Pollutants	CO	NO2	O3	PM10
Month				
1	0.43	5.28	5.12	24.40
2	0.44	7.61	6.65	33.36
3	6.97	28.84	45.45	61.14
4	7.27	35.17	74.45	75.57
5	5.97	32.47	98.11	60.18
6	6.23	40.85	76.81	60.22
7	6.11	28.63	72.92	76.82
8	6.53	33.12	60.86	82.59
9	7.15	33.33	43.63	72.16
10	4.86	21.57	18.71	82.62
11	0.61	8.29	4.17	40.42
12	0.45	6.83	2.81	31.89
Total	53.02	282.01	509.69	671.69





# Questions?

Lisa Ciecko

Forest Assessment Project Manager, Forterra

206.905.6924

[lciecko@forterra.org](mailto:lciecko@forterra.org)

