SDOT Urban Forestry's Preventative Response Measures to Potential Tree Pests

2019 City of Seattle Pesticide License Recertification Seminar
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10/30/2019 Department of Transportation

City of Seattle

Our vision, mission, and core values

Vision: Seattle is a thriving equitable community powered by dependable transportation

Mission: to deliver a transportation system that provides safe and affordable access to places and opportunities

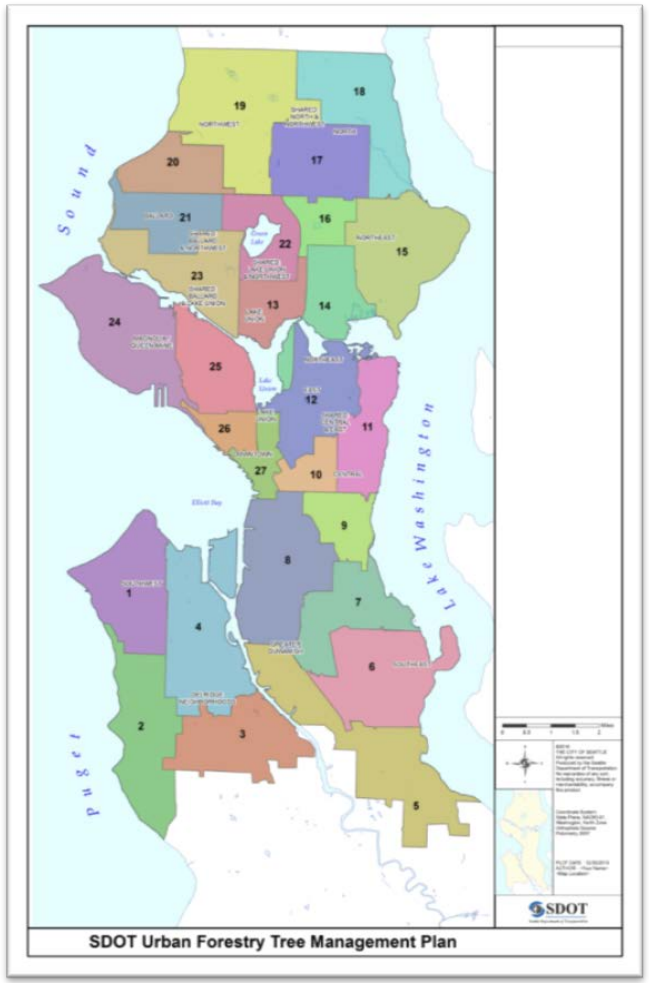
Committed to **6 core values**:

- Equity
- Safety
- Mobility
- Sustainability
- Livability
- Excellence

Presentation overview

- Overview of SDOT Management Plan
- Most common Seattle tree pests
- The importance of species diversity
- SDOT active response
- The Urban Forest Pest Readiness Playbook

SDOT Management Units-at-glance



- Inventory and Analysis
- Maintenance
- Planting

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9-year Street Tree Management Plan

- Simple to communicate and easy to understand
- Data-driven approach
- Expands the use of best management practices
- Clear performance measures

Most common Seattle tree pests
Dutch Elm Disease (DED)

Simplified…

- Spread by bark beetles, via fungal spores, from tree to tree
- Spores in the feeding site eventually grow in the xylem
- Eventual spread of spores throughout tree and full vascular disruption

Pacific Northwest Pest Management Handbook

Adult European Beetle

Photos courtesy of Nolan Rundquist

Most common Seattle tree pests
Bronze Birch Borer

Becoming more common in Seattle. Betula is main host here in Seattle but can affect Fagus.

- Larvae hatch from eggs laid on surface
- Bore into branches and trunk
- Feed on cambium (transport system)
- Disruption eventually kills the tree

Oregon State Extension “Homeowner Guide to Managing Bronze Birch Borer”

Adult bronze birch borer

Photos courtesy of Nolan Rundquist

City of Seattle

Most common Seattle tree pests
Aphids

Common on lindens and maples… lots of trees in Seattle

- Overwinter in the egg stage and hatch early in the spring.
- Later in the spring, live in colonies on the most succulent plant tissues.
- Can compromise the vigor of the host.
- Leaf and shoot distortion can occur.
- Produces honeydew, that encourages black sooty mold and becomes a sticky nuisance on decks, cars, and any underlying surface.

Pacific Northwest Pest Management Handbooks

Green peach aphid feeding on leaf. Note the mouthparts. M. R. Bush, WA State University

Most common Seattle tree pests
Powdery Mildew

Common on dogwood, serviceberry, cherry, crabapple, maple

- A fungi requiring a live host to grow and reproduce.
- We see the white dusty appearance of vegetative structures and spores.
- Underneath the leaf is penetrated where the host is intercepting nutrients
- Compromises vigor and can result in defoliation and cosmetic damage.

- Pacific Northwest Pest Management Handbooks

Powdery mildew on dogwood.
Photo by Robin Rosetta, 2006. PNW Pest Management Handbooks

Most common Seattle tree pests
Anthracnose

Common on dogwood, London Planetree, Maple

- In spring, fungus in diseased tissue produces spores, which spread by rain or wind to cause new infections.
- In spring as leaves expand, they turn brown as they emerge from buds.
- Blotches enlarge and grow together ultimately covering much of the leaf surface.
- If severe, infected leaves fall and the entire tree can be defoliated except for terminal leaves, creating the “witches broom” effect.
- The disease is more severe in wet springs

Pacific Northwest Pest Management Handbooks

Necrosis following the leaf vein.
Photo by Jay Pscheidt, PNW Pest Management Handbooks

Importance of Species Diversity as an IPM tool

- Overall lack of capacity for implementing treatments
- Create buffers
- Give us a chance at providing good cultural care
- Avoid large scale canopy loss
- Increase overall resilience through genetic diversity

A row of Ash stumps, cut to manage EAB.
Minneapolis St. Paul Star Tribune. Faiza Mahamud and James Walsh. May 9, 2017.

Data-driven approach

- Base tree planting decisions on street tree inventory
- For each management unit, we know which species to avoid
- Additionally, we can make species placement decisions at the neighborhood or street level
- Please refer to your hand out

2019

Management Unit 27

Inventory analysis before and after 2018 inventory update

(Inventory is 100% complete at time of report)

Initial number of inventoried trees (Jan 1, 2016)		2,746
Current number of inventoried trees (July 10, 2018)		3,608
Average diameter of tree in mgmt unit is 9" inches		
Trees removed during inventory update		484 (17% of initial count)
Average diameter of trees removed was 8" inches		
Trees updated – 2,262 Trees added - 1,346		
Trees added to initial inventory		862
Percent of increase		32%
Annual benefits – initial inventory		$ 527,592.00
Energy	$ 12,114	
CO2	$ 1,793	
Air Quality	$ 3,376	
Stormwater	$ 45,013	
Aesthetic	$ 465,297	
Annual benefits – final inventory		$ 754,508.00
Energy	$ 18,422	
CO2	$ 2,584	
Air Quality	$ 5,090	
Stormwater	$ 66,865	
Aesthetic	$ 661,547	
Percent of increase in annual benefits		43%
Tree Population – initial inventory		
Small trees	183	
Medium trees	1783	
Large trees	699	
Broadleaf evergreen, large	16	
Broadleaf evergreen, medium	3	
Large conifer	11	
Small/Medium conifer	4/11	
Tree Population – final inventory		
Small trees	219	(182 with no overhead wires = 83 %)
Medium trees	2,276	
Large trees	924	
Broadleaf evergreen, large	56	
Broadleaf evergreen, small/med	15	
Large conifer	34	
Small/Medium conifer	59	

Moratorium on planting

- Acer
- Fraxinus
- Prunus
- Malus
- Crataegus
- Tilia
- Platanus
- Liquidambar

How Seattle is Forming an Invasive Pest Response

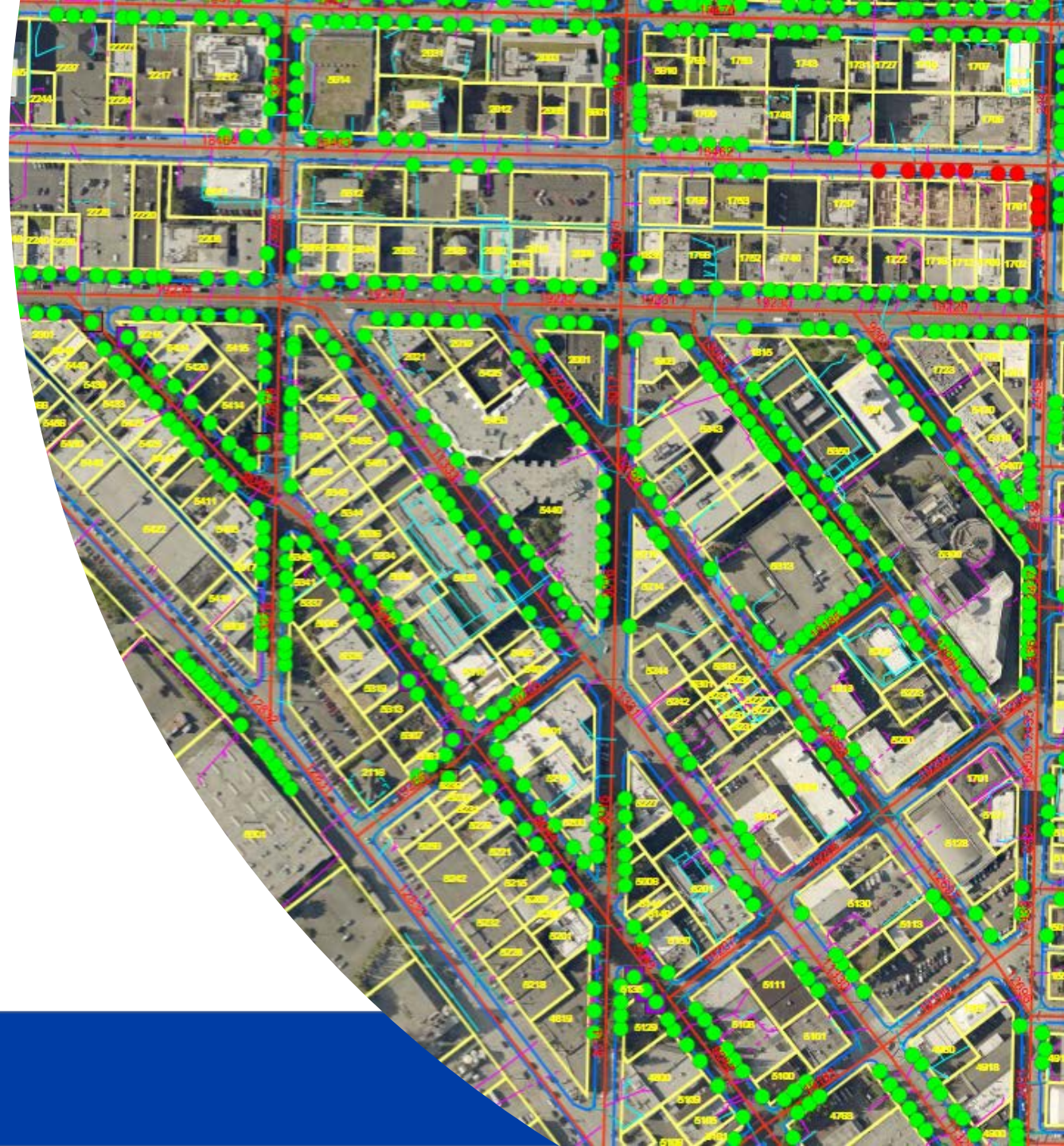
Utilizing the new State of Washington Urban Forest Pest Readiness Playbook

Urban Forest Pest Readiness Playbook

- Farm Bill funding through US Dept of Agriculture Animal and Plant Health Inspection Service (APHIS) Plant Protection and Quarantine
- Funding provided to Washington Invasive Species Council
- Administratively hosted by Washington State Recreation and Conservation Office
- RCO has interlocal agreement with DNR for their involvement
- Playbook and self assessment for Washington state communities

How do we score?

- Not as well as we would like!
- Past efforts, limited response
- Most current resiliency from inventory data, diversifying plantings
- Goal of city-wide, coordinated interdepartmental response



Our Invasive Pest Steering Committee

- SDOT, SPU, Parks, SCL, and beyond
- Current strengths and areas of improvement
- Identifying priority pests and vulnerable trees
- Risk assessments & GIS analysis
- Creating interdepartmental communication pathways
- Forming partnerships - tree services & stakeholders

Partners & Stakeholders

- We need you!
- Future trainings
- Email for future updates: Stephanie.Helms@seattle.gov
- Stay tuned!

Questions?

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