

Growing Garry Oaks – Lessons Learned Engaging Volunteers in the Propagation of a Drought-Tolerant Tree

Curtis Kukal, AWB ®
Park Ranger & Environmental Programs Coordinator

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Photo & video credit: Bellevue Parks & Community
Services staff, unless otherwise noted



Bellevue Parks &
Community Services



CITY OF BELLEVUE NATIVE LAND ACKNOWLEDGEMENT

On behalf of the City of Bellevue, we acknowledge the land we are on as the ancestral homelands of the Coast Salish people, the traditional home of all tribes and bands within the Duwamish and Snoqualmie Indian Tribe. We take this opportunity to honor and express our deepest respect to the original caretakers of this land; A people that are still here, continuing to honor their heritage.



The Natural Resources Division

- ▶ Environmental Programs
- ▶ Forest Management
- ▶ Greenways & Trails
- ▶ Irrigation & Water Conservation
- ▶ Street Trees & Arterial Landscapes



Natural Resources Div. Volunteer Program

- ▶ Stewardship Saturdays
- ▶ Mid-week projects
- ▶ Trail Stewards
- ▶ Bellevue Naturalist Program
- ▶ Eagle Scout Service Projects
- ▶ Special Events
 - MLK Jr. Day of Service
 - Earth Day
 - National Trails Day
 - Bellevue Arbor Day



Bellevue Naturalist Program

- ▶ In-depth 11-week training
- ▶ 205 volunteers trained since 2010
- ▶ Volunteers give back 100+ hours to the City of Bellevue in support of our natural resources
- ▶ Diverse array of volunteer opportunities



High Impact Resource Stewardship

- ▶ Old-growth restoration at Weowna Park
- ▶ Systematic noxious weed treatments at Lewis Creek Park
- ▶ “Adopt-A-Site” restoration at Wilburton Hill Park
- ▶ “Just-in-time” assistance with numerous forest management projects
- ▶ Garry oak propagation project (“Squirrel Team”)



Background

- ▶ Looking for a locally-relevant climate resilience education approaches
- ▶ Opportunities for volunteer engagement
- ▶ Poor availability and quality of Garry oak plant stock
- ▶ Personal/professional interest by staff

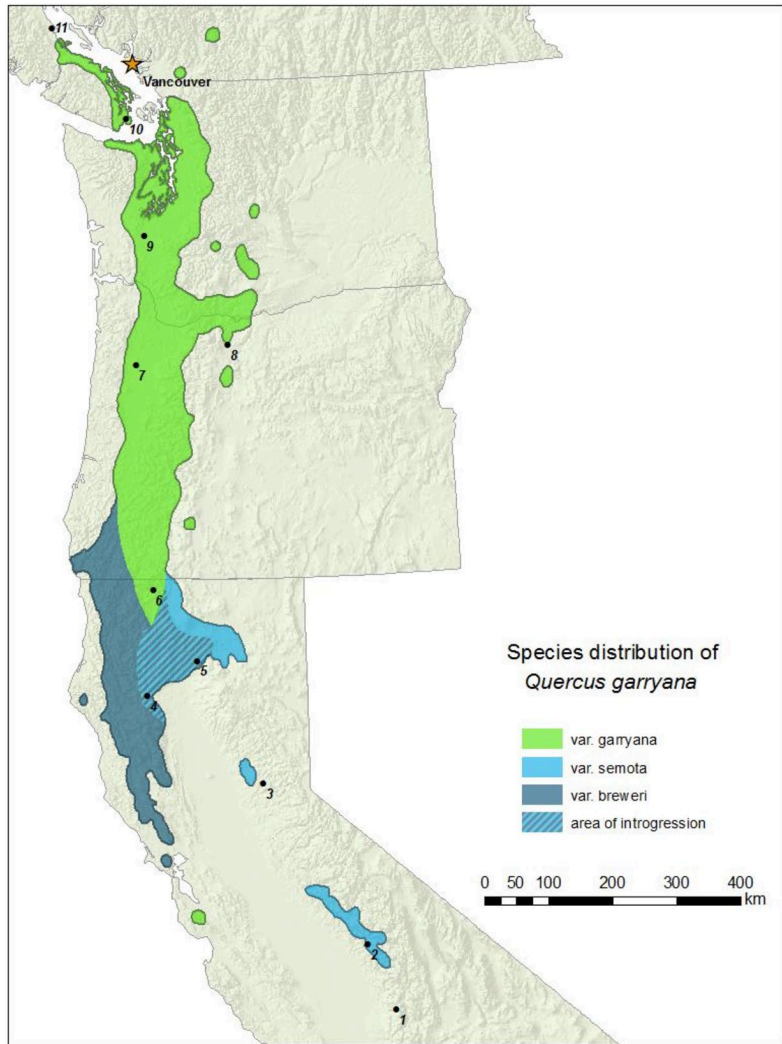


Garry Oak (a.k.a. Oregon White Oak)

- ▶ Only native oak in the Puget Sound
- ▶ Long-lived deciduous tree (hundreds of years)
- ▶ Well-drained soils
- ▶ Dry sites or sites with periodic, low-intensity fires
- ▶ Often grows as a transition between prairie and other forest types
- ▶ Acorn does not require cold/wet stratification
- ▶ Gnarled, spreading growth form in older trees and those growing singly

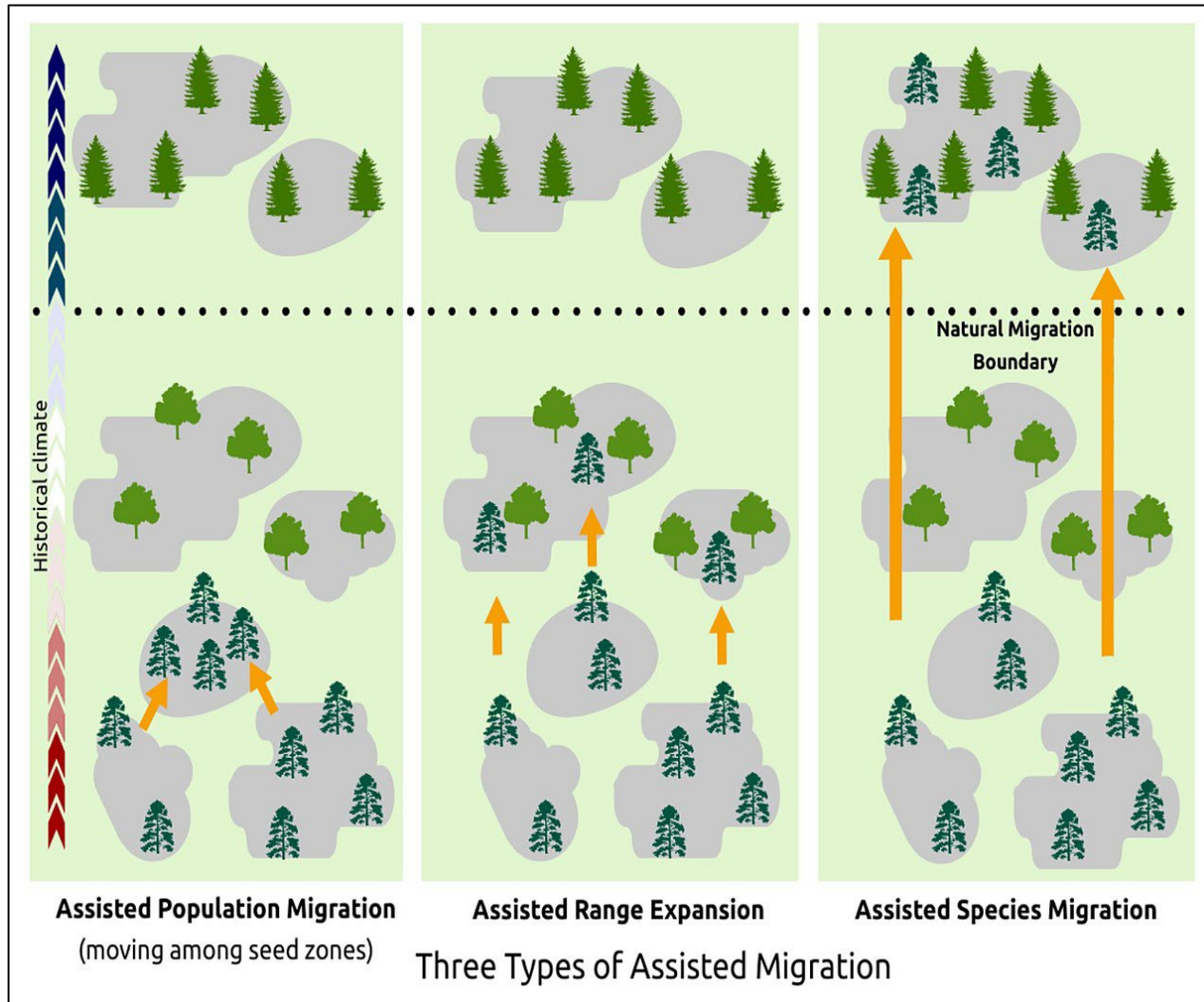


Garry Oak Subspecies



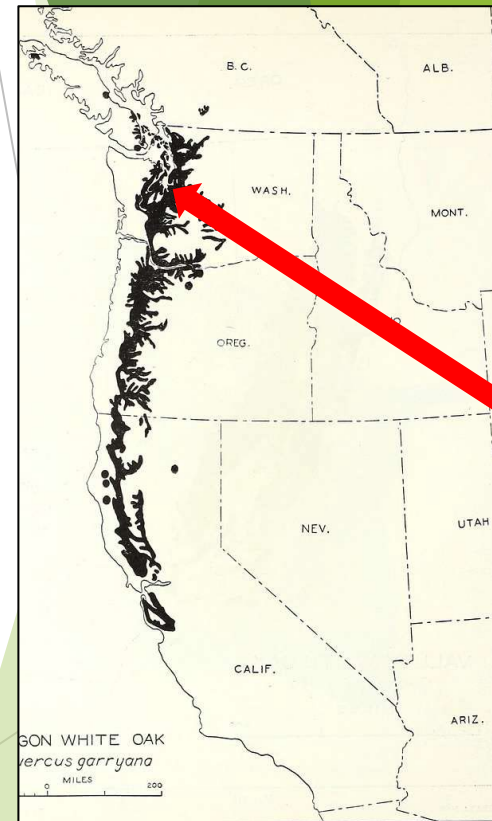
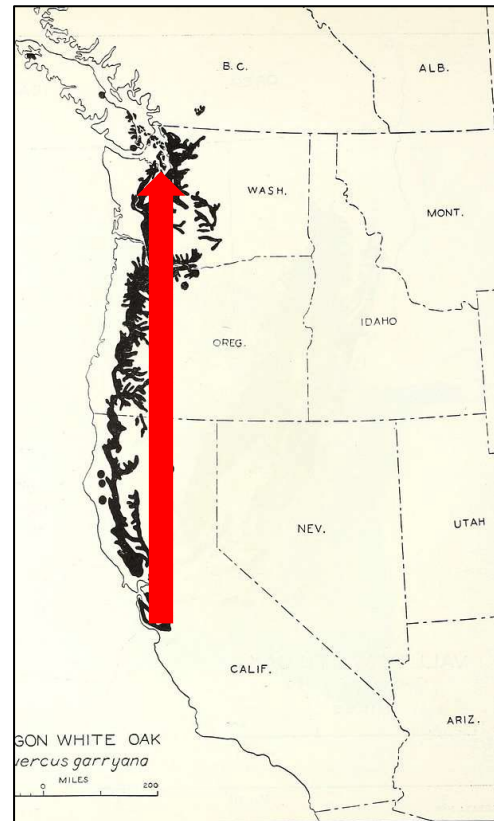
Degner, Jon C.. "Using a genotyping-by-sequencing (GBS) approach to elucidate population structure in Garry Oak (*Quercus garryana*).” (2014).

Assisted Migration Strategies



Three types of assisted migration. Source: Climate Hubs, U.S. Department of Agriculture.
<https://www.climatehubs.usda.gov/hubs/northwest/topic/northwest-reforestation-planting-suit-current-and-future-climates>

Assisted Migration Strategies



Propagation Program Goals

- ▶ Develop propagation best practices information for staff and volunteers
- ▶ Engage Bellevue volunteers and residents in plant propagation and climate resilience
- ▶ Grow high-quality containerized oak stock for Bellevue and our partners



Develop Propagation Best Practices

- ▶ Comprehensive methodology document
- ▶ Adaptive, updating as lessons are learned
- ▶ Standards for sourcing, collection, potting, outplanting
- ▶ Seed sourcing decision-making framework
- ▶ Critical for lining up support from internal and external partners
- ▶ We learned that volunteers “skim” it



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Garry Oaks: Engaging Bellevue Naturalist Volunteers to Propagate a Climate Resilient Species Within Bellevue

Purpose

To engage Bellevue Naturalist volunteers in the propagation of Garry Oak (*Quercus garryana*; a.k.a. Oregon White Oak) saplings, in support of Bellevue's tree canopy goals.

Description

Facing a warming climate, natural resource professionals are reassessing which tree species will be most successful in restoration projects, street tree landscapes, and parkland plantings. Because Puget Sound is at the northern extent of the natural range of Garry oaks, this species is one option to help make Bellevue's urban forest more resilient in a warmer future.

Once established, containerized oak saplings can be made available for:

- New or replacement plantings within Bellevue's landscaped park sites.
- Dry "meadow" areas within the Natural Resource Division-managed lands.
- Tree giveaways, including those by the Community Development and Parks & Community Services Departments.
- Planting by other City of Bellevue Departments where appropriate.

Why Garry Oaks?

- Because Puget Sound is at the northern extent of the natural range of Garry oaks, this species is one option to help make Bellevue's urban forest more resilient in a warmer future.
- Garry oaks, the only native oak tree in the Puget Sound ecoregion, are almost entirely absent from the Bellevue Park & Open Space System.
- In areas of limited competition, mature Garry oaks display an attractive spreading crown, ideal for developed park settings.
- Garry oaks are a long-lived deciduous species, regularly living for several hundred years.

Engage Bellevue Volunteers

- ▶ Propagation trainings
- ▶ Summer bagging of acorns
- ▶ Continuing education volunteer hours for regional educational programs
- ▶ Acorn collecting field trip
- ▶ Acorn collecting (independently)
- ▶ Milk jug pots
- ▶ Potting work party
- ▶ Acorn distribution to friends and family
- ▶ Garry oak ecosystem landscaping bed renovation pilot







Person 1: Wearing a tan cap, a black jacket, and a bright orange safety vest. A black fanny pack is slung across their chest. They are holding a brown paper bag with the 'Fred Meyer' logo.

Person 2: Wearing an orange cap, a blue jacket, and a tan safety vest with reflective stripes. They are wearing blue jeans and green gloves. A brown paper bag is on the ground near their feet.

Person 3: Wearing a tan cap, a blue jacket, and a bright orange safety vest. They are holding a brown paper bag.

Person 4: Wearing a tan cap, a blue jacket, and a bright orange safety vest. They are crouching on the ground in the background.





**RESTORATION
IN PROGRESS** 복원 진행 중

**RESTAURACIÓN
EN CURSO** 森林復育正在進行中

**ВОССТАНОВИ-
ТЕЛЬНЫЕ РАБОТЫ** ĐANG TRONG
QUÁ TRÌNH KHÔI
PHỤC

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Để biết thêm thông tin



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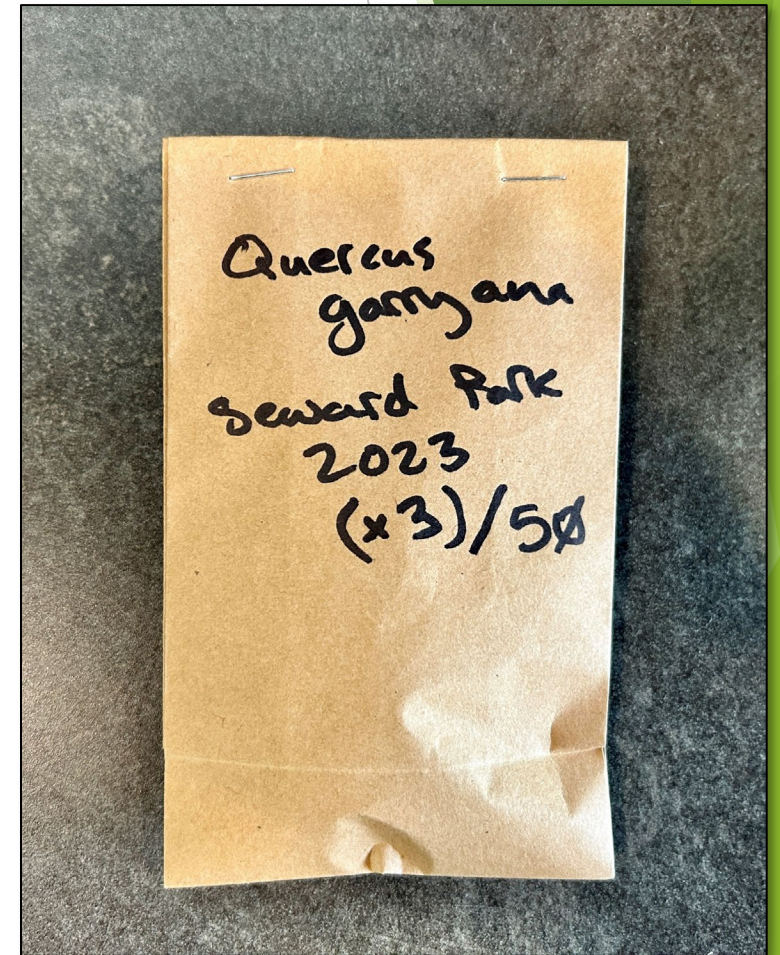
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Propagation Best Practices – Seed Collection

- ▶ Wild populations
- ▶ Permission/permits
- ▶ Species identification (volunteers)
- ▶ Collect from numerous sites
- ▶ Collect from numerous unrelated, healthy individuals
- ▶ Develop written practices to protect the collection site population
 - ▶ Disinfect tools
 - ▶ Decontaminate for weed seeds
 - ▶ Avoiding overcollection



Propagation Best Practices - Rodents



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image - Picryl description. Accessed 05/17/2024. <https://picryl.com/media/eastern-gray-squirrel-150c6b>

Propagation Best Practices - Rodents



Propagation Best Practices - Rodents










Cabela's

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Propagation Best Practices – Exclosures



Propagation Best Practices – Exclosures



Propagation Best Practices – Exclosures



Propagation Best Practices – Soil & Containers



Propagation Best Practices - Experimentation

- ▶ Pot style
- ▶ Air-pruning pots
- ▶ Exclosures
- ▶ Tree tubes
- ▶ Overwintering in unheated garage
- ▶ Grow light head starting
- ▶ Potting soil : sand ratio
- ▶ Direct-seeding*



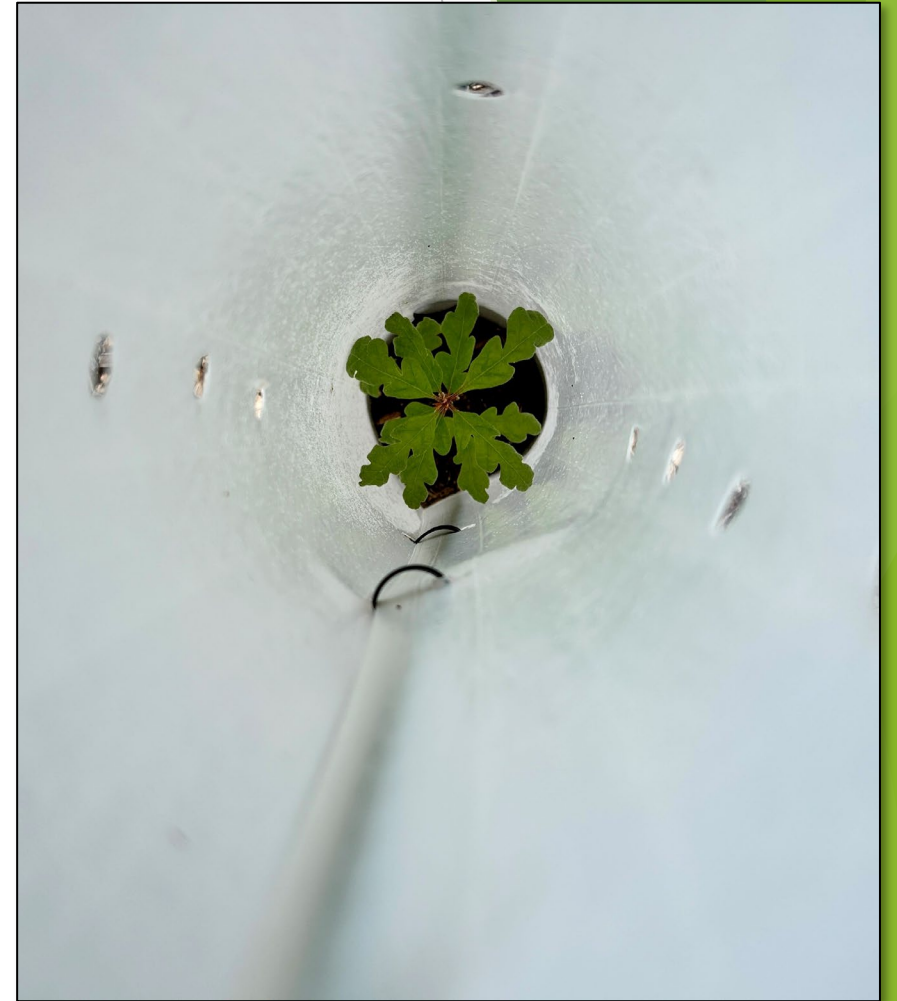
Propagation Best Practices - Land Management Partners

- ▶ Have a clear, specific “ask”
- ▶ Start the process early
- ▶ Present your seed collection methodology with clearly-defined resource protection standards
- ▶ Prioritize their conditions
- ▶ Thank them



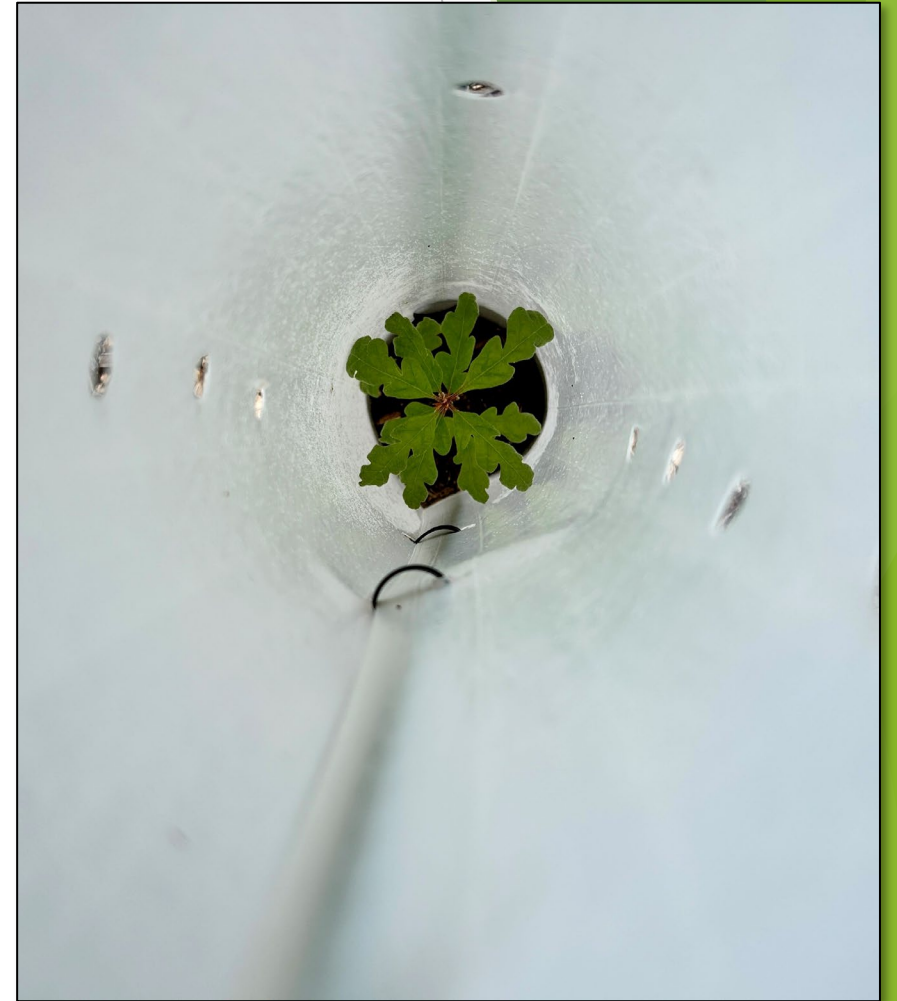
Key Lessons

- ▶ Write your adaptive propagation document as first step
- ▶ Start internally before engaging volunteers
- ▶ Multiple seed sourcing strategies for climate resilience
- ▶ Start early with seed collection permissions/permits
- ▶ Benefits are excellent public engagement, great stock quality, and sourcing control... **not** cost efficiency



Key Lessons

- ▶ Consider a highly-visible planting demonstration site
- ▶ Everything wants to kill your plants
- ▶ Celebrate successes with the volunteers, and examine your failures to learn from them
- ▶ Leverage partners for distribution and/or as a hedge to loss



Special Thanks

- ▶ Bellevue Naturalist Volunteers
- ▶ Bellevue Parks & Community Services Grounds Team
- ▶ Seattle Parks and Recreation, (especially Eric Sterner)
- ▶ Green Seattle Forest Steward David Perasso
- ▶ Washington Department of Fish and Wildlife Scatter Creek Wildlife Area staff (especially Bill Kronland)
- ▶ Oakwood Hill Funeral Chapel & Cemetery



Bellevue Parks & Community Services



Seattle
Parks & Recreation



Washington Department of
FISH & WILDLIFE



OAKWOOD HILL
FUNERAL CHAPEL & CEMETERY

Questions?

