### Successful Riparian Habitat Restoration 15 Years of lessons learned from Northwest Oregon





# NORTHWEST OREGON RESTORATION PARTNERSHIP (NORP)



# 45 PARTNERS in 8 Counties covering about 6,800 sq. miles

BLM – Northwest Oregon District	Lower Nehalem Community Trust	Rainier Junior/Senior High School
Camp Tillamook – Oregon Youth Authority	Lower Nehalem Watershed Council	Salmon Drift Creek Watershed Council
City of Lincoln City	Midcoast Watersheds Council	Scappoose Bay Watershed Council
City of Newberg	Natural Resources Conservation Service	Siuslaw National Forest
Clatsop Soil & Water Conservation District	Necanicum Watershed Council	Siuslaw Watershed Council
Columbia River Estuary Study Taskforce (CREST)	Nestucca, Neskowin & Sand Lake Watersheds Council	The Nature Conservancy
Columbia River Youth Corps	Nestucca Valley School District	Tillamook Bay Watershed Council
Columbia Soil and Water Conservation District	Newberg High School	Tillamook County Soil and Water Conservation District
Devils Lake Water Improvement District	North Coast Land Conservancy	Tillamook Estuaries Partnership
Eddyville Charter School	North Coast Watershed Association	Tualatin River Watershed Council
George Fox University - Plant Services	NRCS - Corvallis Resource Center	Upper Nehalem Watershed Council
Greater Yamhill Watershed Council	Oregon Department of Forestry	Vernonia School District
Lewis and Clark National Historical Park	Oregon Department of Forestry - Tillamook Forest Center	Westwind Stewardship Group
Lincoln Soil and Water Conservation District	Oregon Parks and Recreation Department	Wilson River School
Lower Columbia River Watershed Council	Portland General Electric	Yamhill Soil & Water Conservation District

2016 Project Sites Using Northwest Oregon Restoration Partnership Plant Materials and Relationship to Public Lands



The actions undertaken by NORP support the:

- ✓ Oregon Plan for Salmon and Watersheds
- ✓ Oregon Conservation Strategy,
- ✓ Recovery Plan for Oregon Coast Coho,
- ✓ Lower Columbia River Salmon and Steelhead ESA Recovery Plan,
- ✓ Upper Willamette River Salmon and Steelhead ESA Recovery Plan,
- ✓ agency land use plans, and
- ✓ watershed plans



#### The Planting Propagation Goal:

Collect and grow native plant seeds and cuttings to develop into large planting stock better able to withstand competition and depredation for management plans and restoration activities and to help control invasive species such as reed canarygrass, Scotch broom, English ivy, Himalayan blackberry, and Japanese knotweed that presently occupy project sites.



# Camp Tillamook

Oregon Youth Authority -Camp Tillamook



















# of restoration projects using NORP material	62
# of NORP material planted	68,332
average % of NORP plant material survival rate	76%
# of volunteers at nursery(ies)	371
# of volunteers at project sites	1,110
# of education outreach events	103
# of attendees at education events	1,244
# of new landowners involved	587
# of plants propagated for 2017 distribution	85,599
Non-Fed in-kind Donations/Expenditures	\$763,478
Other Fed in-kind Donations/Expenditures	\$135,110
BLM in-kind Donations/Expenditures	\$39,000

#### 2016 Northwest Oregon Restoration Partnership Accomplishments

#### **Restoration/Plantings Habitat Data**

	Planted	Fenced	Maintenance	Monitoring	Invasive Control		
Miles of Steam/Rivers	13.385	1.07	26.075	24.31	24.495		
Acres of Wetland Habitat	68.6	0.6	179.8	95.1	85.3		
Acres of Upland Habitat	40.67	0.6*	39.23	31.8	33.8		

## 15 years of ACCOMPLISHMENTS

- 75,000 native plants produced annually
- 400 miles of streamside planted
- 200 acres of wetlands planted
- 50 miles of riparian fences constructed
- 90 jobs created for young people
- 1,937 private landowners received native plants
- 290 education workshops or tours
- 7,813 individuals participated in workshops/tours
- \$799,671 BLM / NFWF Funds contributed
- \$2,800,000 partner funds contributed

#### FUNDING

- National Fish and Wildlife Foundation
- Secure Rural Schools- Title II
- Challenge Cost Share
- Other internal BLM restoration funding sources
- Oregon Watershed Enhancement Board
- Tillamook Estuary Partnership
- Other grants
- Funding from other partners (includes purchase of plant materials at \$1 to \$4 per plant, volunteer services, and grants they solicited).



### INTRO SUMMARY

Through collaboration and resource sharing, the partnership has developed a sustainable source for locally adapted native plant materials for restoration on Oregon's North Coast.



### The HOW TOs

- What plants to use
- How to get the proper genetic stock
- What plant stock type is best to compete with invasive species
- How to propagate this competitive plant stock
- When to field plant
- How to field plant to improve survival
- How to maintain field plants to thrive

### What plants we use: Species targeted for propagation

- Sitka spruce
- Western red-cedar
- Grand-fir
- Douglas fir
- Western red alder
- Western hemlock
- Oregon ash
- Bigleaf maple
- Black cottonwood
- Red elderberry
- Douglas spirea

- Red-osier dogwood
- Black twinberry
- Salal
- Snowberry
- Indian plum
- Vine maple
- Cascara
- Oregon crabapple
- Pacific ninebark
- Blue elderberry
- Willow

#### Developing native plants from seed.

#### NATIVE PLANT PROPAGATION

For Restoration Use and Habitat Enhancement January 2012 version





















Teaching the partners about seed collection through seed cleaning workshops.

## How to get the proper genetic stock

NORTHWEST OREGON NATIVE PLANT SEED COLLECTION TIMETABLE														
Common Name	Scientific Name	Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Big-leaf maple	Acer macrophyllum	АСМА												
Oregon ash	Fraxinus Iatifolia	FRLA							24 V.					
Black cottonwood	Populus trichocarpa	POTR												
Red alder	Alnus rubra	ALRU												
Cascara	Rhamus purshiana	RHPE												
Oregon crabapple	Malus fusca	MAFU												
Western red- cedar	Thuja plicata	THPL												
Grand fir	Abies grandis	ABGR												
Western hemlock	Tsuga heterophylla	TSHE												
Ninebark	Physocarpus capitatus	PHCA												
Red-osier dogwood	Cornus sericea	COSE												
Serviceberry	Amelanchier alnifolia	AMAL												
Red elderberry	Sambucus racemosa	SARA												
Blue elderberry	Sambucus cerulea	SACE												
Vine maple	Acer circinatum	ACCI												
Twinberry	Lonicera involucrata	LOIN						8 - 20						
Indian plum	Omerlaria cerasiformis	OECE												
Sitka spruce	Picea sitchensis	PISI												
Oregon white oak	Quercus garryana	QUGA												

#### Bigleaf maple (Acer macrophyllum)

Flowers are first produced at about ten years of age. Trees growing in open habitats produce seed at an earlier age and in larger quantities than trees growing in shade. Seed production is often in large quantities. Fruit ripens during September and October and is dispersed from October through January. Seed tends to decay rapidly and cannot be stored for long periods. Zasada et al. (1990) suggest collecting the seeds as late as possible in the fall but before rains begin; moisture content should be at a minimum at this time. Place the seeds in airtight containers soon after collection and store at 1 degree C until stratification begins. Cold stratify at 1-5 degrees C for 40-80 days prior to sowing. Buis (1996) suggests stratifying over winter in a refrigerator and sowing in February or early March but has also noted excellent germination by sowing directly in the fall. Fall sown seed has 60% to 80% viability while spring sown seed has 20% to 30 % viability (pers. Observ.) Sow in mulched beds and grow for two years before out-planting (Olson and Gabriel 1974, Uchytil 1989, Haeussler at al. 1990). Viability is best when seeds are fall sown and placed in the ground immediately following collection. Some bare root plants, when lifted and out-planted, die back and basal sprout the first year, whereas containerized plants maintain top growth and become established sooner (Bower 1998, pers. Comm.) No extraction process is required.



















#### Developing Native Plants from Cuttings


















D60H Deepot Cell 2.7" diameter, 14" deep, 60 cu. inches volume, 210 cells per case



D20T Tray (holds twenty D60H deepots)

Each Tray is: 12" wide, 14.8" long, 9.4" high Source: Stuewe and Sons, Inc. 31933 Rolland Drive Tangent Oregon 97389 800-533-5331 https://www.stuewe.com/





#### Developing Large Native Plants from Bareroot and Small Containerized Stock





#### Racks and Pots for Transplant Stock







## Rack Design for Tall One Treepots Materials Needed to Build Racks for TP414 Tall One Treepots (4" wide x 14" high)

- 100 feet long x 4 feet wide RedBrand Sheep and Goat Fence with 4"x4" pattern (enough for 8 racks) (150 inches long per piece)
- 2" X 10" X 12' Pressure Treated Lumber (2 boards per rack)
- 2" X 10" X 10' Pressure Treated Lumber (1 board per rack)
- 3" long T-25 Star Drive Exterior Screws (18 screws per rack being built)
- 1 1/4" Galvanized Fence Staples (~95 staples per rack being built)











TP414 Tall One Treepot 4" width, 14" tall, .8 gallon capacity

Source:

Stuewe and Sons, Inc. 31933 Rolland Drive Tangent Oregon 97389 800-533-5331 https://www.stuewe.com/

Tray 10 (holds nine TP414 Tall One Treepots) Each tray is 13"wide, 13" long, 10" high





# **Field Planting**





### Plant Delivery

















More power!



All hands on deck for the planting party, even those with a broken wing. Go CRYC!



Why are we doing this Mr. McDermott?

## Planting Site Preparation









### Before Maintenance



#### After Maintenance





Fighting reed canarygrass seems like a never ending battle. But there is hope. If your trees get big enough you will overcome.

## **Depredation Prevention**







Here is a fence that keeps elk at bay, and provides blue bird homes too.



Instead of fencing each tree, build a fence around the treatment area that precludes both ungulates and beavers.


Electric fencing to preclude ungulates and cages around each individual tree to limit beaver girdling is the most common depredation prevention method used by the partnership.



Tree tubes are useful to prevent girdling from rodents.



Don't want to fence? Perhaps the guardian tree can talk to your local critters to get their cooperation in your restoration efforts.







2004- Before treatment and planting. Unshaded stream with a riparian area dominated by invasive Himalayan blackberry and knotweed.



2011-After planting, Western red cedar and other riparian trees and shrubs dominate the bank and provide shade to lower stream temperatures to support salmonids.



2010 Tall One potted trees post field planting. Non-native reed canarygrass dominates the streamside.



2016- the Tall One potted trees have grown just fine, despite the reed canarygrass competition. They are beginning to provide stream shading..

















## **Contact Information**

Roy Price, Wildlife Biologist NW OR District, BLM rprice @BLM.gov 503-393-3734

Kurt Heckeroth, BLM retired botanist & sowing coordinator kjheckeroth@gmail.com Cell 503 812-3516 Maysa Miller, Dave Harris, and Tom McDermott Tiillamook Estuaries Partnership 503-322-2222 PO Box 493 613 Commercial, Garibaldi, OR 97118