



United States
Department of
Agriculture

Forest Service

Pacific Northwest
Region



FY-16

Program Accomplishments



Calochortus umpquaensis, Umpqua mariposa lily, is found only in the Umpqua River watershed of southwestern OR. A big "anthophorid" bee is tucked into the flower.

Botany

Invasive Plants

Native Plants

Genetics

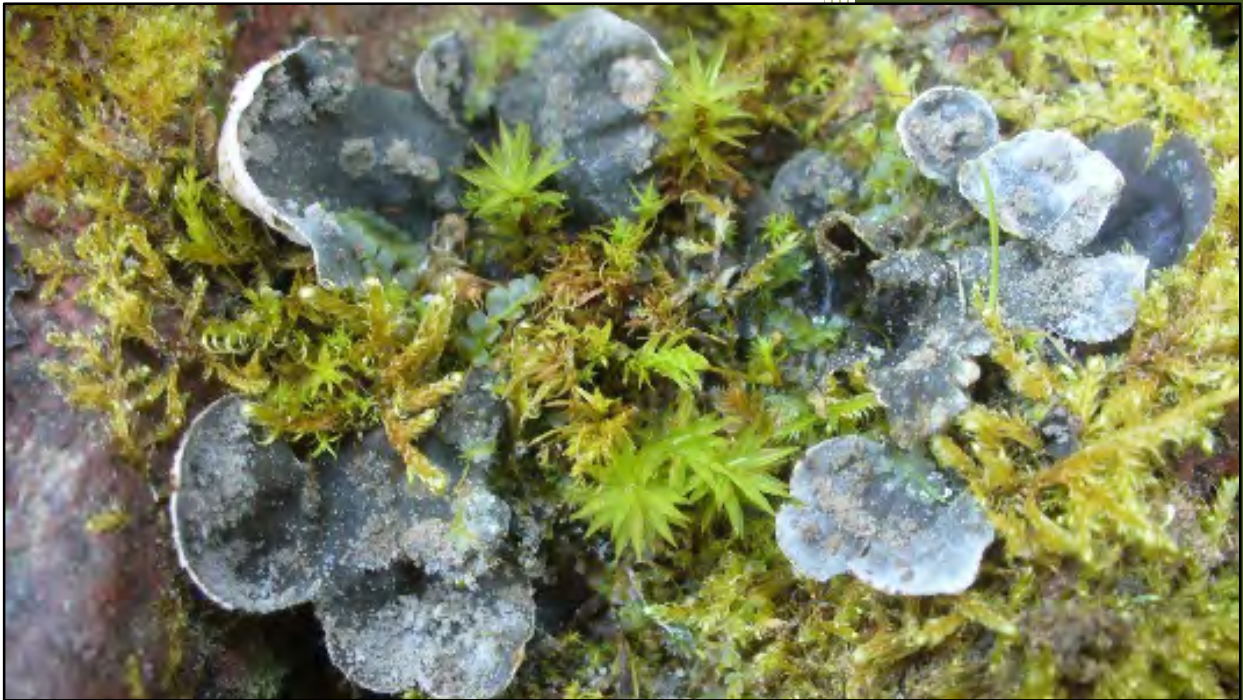
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Program Accomplishments



Peltigera didactyla is perhaps the most eye-catching of Oregon's Peltigeras. It is often parasitized by the fungus *Illosporium* which is seen as tiny pink dots on the lichen surface.



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US Forest Service Pacific Northwest Region

2016 Botany Program Accomplishments

Accomplishment Summary

Botany Program staff manage our national forest native plant heritage including federally listed and sensitive plant species and unique plant habitats, especially those identified as special interest areas. Botanists support recreation, range, engineering, wildlife, aquatics, minerals, energy development, invasives, and vegetation, forest products, and fuels management projects with a wide range of activities. These include habitat restoration, endangered species recovery, rare plant surveys and monitoring (Figure 1), IDT participation, BAs, BEs, CEs, EISs, invasive plant risk assessment and integrated pest management, revegetation plan and plant material development, NRIS-TESP database management, conservation education, and forest plan revision. The Botany Program is doing the public's work.

The overall theme is to better understand and manage our botanical heritage on national forest lands while supporting other essential forest programs. Our current knowledge is far from perfect. Inventories find new populations of rare species or new examples of special habitats, and as our understanding of these resources changes our management priorities can change, too. Species once thought to be rare or declining can be shown to be secure, while other species that are rare or narrowly distributed can be managed as the treasures they are. New species are discovered annually and their existence elevates our own. As we learn more, planning at the forest and project level becomes more integrated and multiple use management becomes reality. The Botany Program informs sound decision making and is crucial to balanced resource management in the National Forest System.

Specific accomplishments in fiscal year 2016 include:

- Through our educational and conservation outreach we reached almost 15,000 people with the key message that nature matters and NFS lands are critical to maintain it.
- We helped develop new forest plans for four Forests.
- Prepared hundreds of EISs, BEs, and CEs to support Forest projects.
- Completed 65,000 acres of sensitive plant and federally listed plant inventory, clearing hundreds of thousands of project acres.
- Found over 140 new sensitive plant sites including species new to many forests.
- Monitored health of 69 species and 186 populations of federally listed or sensitive species.
- Restored or enhanced 5,641 acres of sensitive plant habitat.



Figure 1. Only known Oregon occurrence of Blue Mountain onion (*Allium dictyon*), which was threatened but survived the 2015 Grizzly Bear Fire on the Umatilla NF.

- Regional NRIS TESP data remain the best in the nation, helping our project, forest, and conservation planning.
- Whitebark pine (ESA candidate) habitat restoration projects improve prospects for this federal listing candidate species.
- Whitebark pine restoration strategy for 2017-2021 should be completed this year to support regional conservation efforts and USFWS listing decision.
- Continued development and maintenance of national Celebrating Wildflower website reaching 152 countries worldwide (www.fs.fed.us/wildflowers).

Partnerships:

Leveraged funding, skills, and expertise through the development of hundreds of partnership projects, increasing regional botanical capacity immeasurably.

Key Projects in Progress / What to expect:

- Pollinator and invertebrate conservation coordinated with wildlife and TES staff to support national priorities. The regional Challenge Cost Share effort is shifting toward out-planting of pollinator-friendly plants and habitat enhancement for the small creatures that make ecosystems work.
- Botany in the FS continues to mature as a discipline, with botanists take a larger and more active role in guiding integrated restoration, leading or participating in collaborative planning ventures, or moving to Line.

Regional Contact: Mark Skinner, 503-808-2150



**USDA Forest Service
Pacific Northwest Region**

P.O. Box 3623
Portland, OR 97208-3623

Columbia Gorge National Scenic Area

2016 Botany / Native plant Restoration Accomplishments

The Botany program is fully integrated with the wildlife, fisheries, and soil and water programs. All projects are jointly funded and supported by our natural resource team.

The botany side of this collaboration worked on several projects this year, with a wide range of needs including sensitive species surveys, botanical assessments, and restoration. Support spanned across many programs such as recreation, aquatics, wildlife, and lands.

Projects include:

- Monitoring the rare plant population of *Artemisia campestris* var. *wormskioldii* at Miller Island continued with some interesting genetic analysis completed to help USFWS decide on possible Federal Listing (Figure 1). The genetic work questioned the integrity of this species and led to its not being listing. More genetic work may be required.
- Oak woodland thinning of encroaching Douglas fir continued in Klickitat County where 90 % of the oak woodlands of Washington State are located. Native grass seeding after the thinning has been very successful and the understory has responded very favorably. We have completed over 600 ac.
- Completed over 7 development reviews for the NSA (National Scenic Area), both federal and private, to ensure protection of native flora and their habitats. Working closely with Hood River and Skamania counties, we provide technical assistance with all natural resources, including general botany and sensitive plant protection.
- Three on-going projects specifically aimed at restoring native herbaceous flora at Balfour, Sandy River Delta (SDR), and a new site near Mosier are establishing pollinator habitats. The herbaceous flora mixed with key flowering shrubs is designed to create a diverse habitat of flowering plants and nesting locations for all groups of pollinators. At SRD a pollinator hedge has been planted along a refugia closure fence as part of a future prairie restoration (Figure 2).



Figure 1. *Artemisia campestris* var. *wormskioldii* was being examined for Federal listing. This *Artemisia* flowers in the spring unlike most others. Only 2 native populations are known; several out-plantings have been established. The native populations continues to decrease. This plant grows in cobble/sand areas along the Columbia River.



Figure 2. This closure fence is being constructed by YESS crews to provide refugia for all wildlife. To the left of the fence a pollinator hedge is being planted with flowering shrubs (such as elderberry, spiraea, nootka rose, and flowering forbs) to help prevent access. The prairie to the left of the fence will be restored to native prairie in future years.

2016 Accomplishments

<u>Acres</u>	<u>Funding</u>	<u>Activity</u>
30 ac	FS (VW,WF,HF) (\$40,000), Partners \$10,000.	Reseeding after a thinning and prescribed burn with native grasses and forbs
80+ ac	FS (\$3,000) and partners (\$80,000+ (LCEP, ACFM)	Wetland enhancement
300+ ac	FS (\$6,000) partners (\$100,000+) (ACFM,SRBWC, CHC)	Vegetation improved
3 ac	FS \$1000), partner (\$10,00) WA DNR, USFWS, Humble Roots Nursery	TES plant monitoring
413+	TOTAL	

Partners/Cooperators

AshCreek Forest Management (ACFM), WDFW, ODFW, Center for Ecodynamic Restoration (CEDR), Milestone nursery, LCEP, OHA, NWTF, Sandy River Basin Watershed Council (SRBWC), Wash. State Dept. of Natural Resources (WA DNR), and Cape Horn Conservancy (CHC), .

Contact: Robin Dobson 541-308-1717; Diane Hopster, 541 -308-1744; Brett Carre, 541-308-1718



Columbia River Gorge National Scenic Area National Forest
902 Wasco Ave., Suite 200
Hood River, OR 97031

Colville National Forest

2016 Botany Program Accomplishments

The Botany Program supported 1 EIS, 6 EAs, and 3 BEs; 50 CEs; 1 Forest Plan Revision and 3 contracted projects.

Highlighted Activities:

- Documented 16 new sensitive plant locations of 5 species.
- Monitored 30 element occurrences for 13 species.
- Hosted a weekend for 20 RareCare volunteers who revisited 20 sites for 9 sensitive species and found 3 new sites (Figure 1).
- Completed 5 projects funded by the ISSSP:
 - Inventoried rare and uncommon plants in fen and fen-like ecosystems.
 - Fungi surveys added 62 taxa to the macrofungi list of over 900 for NE WA.
 - Curated specimens and deposited vouchers at UW Herbarium (1400 misc. vascular plants and 480 *Botrychium* spp.).
 - Relocated 8 sensitive or rare plant taxa at 10 sites (Figure 2).
 - Completed surveys for calicoids (pin lichens and fungi).
- Documented 2016 field data in NRM.
- Participated in the R6 Fungi Working Group.
- Conducted or coordinated conservation education activities for 4,045 youth and 370 adults, participated as a board member in the Upper Columbia Children's Forest and led Forest chartered Conservation Education Team, which improved the lives of 11,140 youth and 9,400 adults.

Contacts Kathy Ahlenslager, 509-684-7178
Amy Cabral, 509-684-7175



Colville National Forest
765 S. Main
Colville, WA 99114



Figure 1. RareCare volunteers at Goodrich Fen.

Acres	Funding	Activity
7013	NFTM	TES plant inventory
50	NFIM	TES plant monitoring
7063	Total	

Partners/Cooperators

Andrew Parker, Dr. Jim Groth, Erica Heinlen, Dr. Rick Dewey, Daphne Stone, Jack Nisbet, RareCare, Stevens County Conservation District, Conservation Canines, and 20 school districts.

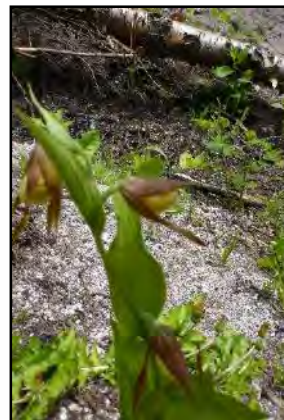


Figure 2. *Cypripedium parviflorum* at Long Lake one year after the 2015 North Star Fire.

Deschutes National Forest

2016 Botany Program Accomplishments

TES/Survey and Manage Plants

- Surveyed 775 acres for Survey and Manage fungi and lichens.
- Surveyed 200 acres for *Castilleja chlorotica*
- Inventoried five *Cypripedium montanum* sites (Figure 1)
- Enhanced 3 acres of *Botrychium pumicola* habitat by thinning lodgepole trees.
- Conducted census monitoring of *B. pumicola* populations on Broken Top, Newberry Caldera Rim, and Bonneville power line (Figure 2).
- Installed 2250 ft. of fencing to protect *B. pumicola* populations.
- Revisited long-term *Penstemon peckii* monitoring plots in the Indian Ford Grazing Allotment.
- Mapped replanting sites for one thousand new *Penstemon peckii* plants in the Whychus Flood Plain Restoration Area.

Pollinators/Native Plant Restoration

- 28 acres seeded with 316 lb. of native seed on several high-profile projects.
- Seed from 25 native species collected as part of the Pollinator Cost-Share project.
- Pollinator demonstration garden and native plant xeriscape.
- Installed; 42 species of native plants utilized (Figure 3).

Conservation Education

- 220 elementary students reached during LaPine Outdoor Adventure Day.
- 200 students reached during Fin, Fire, Feather event.
- 165 people reached through partnership with Monarch Advocates of Central Oregon.
- Educated 3 Northwest Youth Corps crews, 1 Youth Conservation Corps crew, 3 Heart of Oregon crews, and 2 Caldera interns.



Figure 1. A new site of *Cypripedium montanum* was discovered during botanical surveys on the Sisters Ranger District.



Figure 2. Census monitoring of *Botrychium pumicola* on the flank of Broken Top mountain in the Three Sisters Wilderness.



Figure 3. Pollinator-friendly, native plant xeriscapes were installed at the Crescent Ranger District this summer.

Funding = Main expenditures: \$29,965 (NFWF), \$22,054 (NFVW), \$7,710 (NFTM). Other expenditures: \$33,742 with the following: NFRW, WFHF, FMCP, NFXN NFXF, IDP5, and URMJ.

Partners: Bend, Sisters, La Pine, & Gilchrist Schools, Discover Your Forest, Friends of the Metolius, Deschutes Forest Collaborative, Oregon Wild, Deschutes Land Trust, Caldera, Trout Unlimited, National Forest Foundation, Oregon State University, and ODOT.

Contacts: Rick Dewey, rdewey@fs.fed.us, Deschutes SO
Marlo Fisher, mrfisher@fs.fed.us, Bend Fort Rock RD
Charmane Powers, cpowers@fs.fed.us, Bend Fort Rock RD
Christina Veverka, cveverka@fs.fed.us, Crescent RD



Deschutes National Forest
63095 Deschutes Market Rd.
Bend, OR 97701

Fremont-Winema National Forest

2016 Botany Program Accomplishments

TES Plant Surveys

- *Eleocharis bolanderi*: discovered 15 new sites totaling 2.8 acres that constitutes 2nd geographic location on the forest.
- *Juncus tiehmi*: 1st documentation of the species on the forest (4 sites, 0.4 acres)
- *Pilularia americana*: 1st documentation of the species on the forest (3 sites, 1.2 acres).
- Tri-color monkey flower (*Mimulus tricolor*): Revisited known sites (37 acres) and discovered 2 new sites (0.2 ac).
- Continued annual monitoring for *Astragalus lemmonii* and *A. peckii* with Sarah Malaby, retired FRE-WIN Botanist.
- Revisit of *Botrychium pumicola* sites on the Silver lake RD, partial relocation success but also found 2 new sites. Completed monitoring of 6 permanent plots to determine the effects of removing lodgepole within treatment sites.
- Hosted regional whitebark pine (*Pinus albicaulis*) meeting/field trip to discuss potential restoration projects. Received ISSSP funding and initiated monitoring and survey evaluations of current stand conditions.
- Assisted OSU Graduate Student with data collection for *Rorippa columbiae* and development of a Conservation Strategy for this species.
- Revisited 2013 OSU planting site of *Pleuropogon oregonus* (Oregon Threatened). Plants are increasing in number.
- Completed monitoring of 8 high priority fens on the Chemult RD, including annual soil disturbance and 5-year composition monitoring.
- Received ISSSP funding for *Botrychium pumicola* and *Pinus albicaulis* monitoring.

Outreach/Presentations

- Presented on mushroom collecting in the Klamath Basin to approximately 75 individuals.
- Presented general botany curriculum to twenty-two 4th and 5th grade students during the Forest Foundation Camp - Every Kid in the Park during July 26-27, 2016 (Figure 1).
- Presented botany curriculum to approximately 200 students during the Resources and People (RAP) Camp.
- Established pollinator garden at the Chiloquin RD.

Contacts:

Joe Washington, Forest Botanist, 541-947-6253
Erin Rentz, Westside Botanist, 541-885-3444
Jeannette Wilson, Eastside Botanist, 541-576-7593



Figure 1. Student participants during Every Kid in the Park two day field camp.

Management Contributions

Timber

- Completed field work/surveys for SilverFox CE.
- Completed analysis and reports for Lobert EA.
- Continued work on East Hills EA.
- Evaluation and precise mapping of WBP.

Range

- Monitoring and assessments for ongoing Antelope Grazing Allotment EIS & litigation.
- Evaluation of property proposed for sale to NFS.
- Initiated monitoring of juniper reduction treatments

Recreation

- Reviewed EA for re-construction of Camp Low-Echo and ensured effects to Survey and Manage Category B fungi were covered/mitigated.

2016 Accomplishments

Acres	Fund Code	Activity
37	NFWF	Monitored <i>Rorippa columbiae</i> for the 3 rd consecutive year
17	NFWF	<i>Botrychium pumicola</i> monitoring/restoration
37	NFWF	<i>Mimulus tricolor</i> – resurvey historic population sites
50	NFWF	<i>Astragalus lemmonii</i> and <i>A. peckii</i> monitoring
700	NFWF/ NFTM	Evaluation and mapping of <i>Pinus albicaulis</i> populations
4,400	NFWF/ NFTM	Survey for planning/NEPA and discovery of 11 new TES population sites, including two species previously undocumented on the forest

Partners/Cooperators

ODA Rare Plant Program, Klamath Basin Chapter of the Native Plant Society, Integral Youth Services, Klamath County Community Corrections, Warner Valley Corrections Crew, Klamath Lake Land Trust, Klamath County Public Works, USFWS, BLM, individual contractors and volunteers.

The Forest is grateful for the volunteer assistance and knowledge of Sarah Malaby in continuing to work on several projects.



Fremont-Winema National Forest
1301 S. G Street
Lakeview, OR 97630

Gifford Pinchot National Forest

2016 Botany Program Accomplishments

Technical support

- Botanical surveys and design recommendations for projects.
- Awarded botanical survey contract for Iron Crystal timber management project (3500 acres).
- Completed draft analysis for Upper White timber management project (6139 acres), and completed ~1600 acres of in-house surveys and inspections
- Completed 5 Biological Evaluations and one draft

Rare Plants and Habitat Management

- 5 rare plant occurrences monitored by University of Washington Rare Care Program.
- 5 rare plant occurrences monitored in-house
- Chelatchie Prairie
 - Monitored camas growth from seeding at Chelatchie Prairie in FY2015 (none evident as yet)
 - Invasive plant control – 2 acres
- Continued *Sisyrinchium sarmentosum* Conservation Agreement implementation including:
 - Invasive plant control across 65 acres
 - Common garden study data collection completed at the University of Washington.
 - Plant-out of 123 *Sisyrinchium sarmentosum* plants at Little Mosquito population (Figure 1).
- Decision notice for golden chinquapin restoration project signed.
- Responded to Rainbow Family Gathering (~1000 people) at South Prairie; prevented damage to *Sisyrinchium sarmentosum*.
- Collected seed for habitat enhancement with pollinator-friendly plants (Figure 2).

Environmental Education

- Two field trips with Cascade Mountain School; lichen walk for Great Old Broads volunteer group; native pollinators booth at annual Trout Lake Fair; Stevenson High School Botany class visit; Project Budburst, Cowlitz Valley Ranger District.

Research Natural Areas and Supporting Research

- Smith Butte RNA established at last!
- Tissue samples of *Synthyris schizantha* and forest soil samples collected for research.

Volunteers

- Great Old Broads – GPS'd and flagged golden chinquapin and GPS'd woods tracks locations for future rehabilitation (156 hours).
- Stevenson High School Students helped out-plant 123 *Sisyrinchium sarmentosum* plants at Little Mosquito Meadow (64 hours).

Presentations

- Presentation to Natural Resources Staff Officer, Program Manager and Planning Zone Leads regarding Botany Staffing needs
- R6 Botany Meeting presentation: NRIS-TESP query issues/needs.



Figure 1. Out-planting of *Sisyrinchium sarmentosum* at Little Mosquito Meadow. Here Tom Brumbelow and Brad Kriekhaus work with Susan Saul from Great Old Broads and a Stevenson High School student to plant plugs grown out at the University of Washington.



Figure 2. Keeping Pollinators in the Picture: Collecting Native Plant Seeds to Enhance Pollinator Habitat.

2016 Accomplishments
Funding – NFWF– 82,000
Special projects – NFIM- 4000.00

Acres Funding Activity

67 NFWF TES habitat restoration
~ 10 NFWF TES plant monitoring
~ 5100 NFTM TES plant inventory

Partners/Cooperators

Rare Care and Center for Urban Horticulture (University of Washington)
Washington Natural Heritage Program
Cowlitz, Lewis, Klickitat, and Skamania Counties

Contacts: Carol Chandler, 360-891-5106 (HQ)
Brad Kriekhaus, 360-497-1164 (NZ)
Andrea Montgomery 509-395-3414 (SZ)
Tom Brumbelow, 509-365-3413 (SZ)



Gifford Pinchot National Forest
501 E 5th Street #404
Vancouver, WA 98661

Malheur National Forest

2016 Botany Program Accomplishments

The Malheur has many ongoing accelerated restoration projects which keep our botanists busy providing project support. Programs we supported include vegetation and range management, recreation, wildlife, aquatics, engineering, special uses, and hazardous fuels projects. Support was provided by conducting sensitive species surveys, habitat assessments, species identifications, wetland delineations, stand exams, and vegetation monitoring.

2016 work:

- Prepared 9 biological evaluations for 2 EAs, 12 CEs, and 1 fire salvage report EA. Completed over 86 sensitive plant surveys covering approximately 40,000 acres.
- Located 16 new element occurrences that cover 7,300 acres and include *Eleocharis bolanderi*, *Luina serpentine*, *Botrychium minganense*, *Phacelia minutissima*, and *Pyrola dentata*.
- Made further updates to the Malheur Rare Plant Guide.
- Surveyed mapped and documented condition of Whitebark pine populations at 18 sites covering 7,200 acres. Applied the protective beetle pheromone verbenone at 178 sites.
- Surveyed for high elevation lichens and bryophytes in Strawberry Mountain Wilderness with an assistance grant from ISSSSP.
- Completed 4th year of long-term monitoring program for *Astragalus tegetarioides*, a globally rare sensitive species that may benefit from vegetation treatments and restoration activities (Figures 1 and 2).
- Created monitoring program for *Eleocharis bolanderi* to assess grazing pressure over several years (inside and outside exclosures).



Figure 1. *Astragalus tegetarioides* monitoring on the Emigrant Creek RD



Figure 2. *Astragalus tegetarioides* known only from the Blue Mountains in Oregon, is extremely vulnerable to climate change. *Peltigera didactyla* (bottom) is perhaps the most eye-catching of Oregon's Peltigeras. It is often parasitized by the fungus *Illosporium* which is seen as tiny pink dots on the lichen surface.

Botany Program Expenditures:

\$ 10,000	NFWF
\$ 35,000	NFWW
\$ 15,000	NFIM
\$ 6,700	SPFH

Partners/Contractors:

Blue Mountain Forest Partners
Harney County Restoration
Collaborative
Oregon Biodiversity Information Center
Oregon Department of Agriculture
Blue Mountains Area Ecology Program

Contact:

Amanda Hardman, Forest Botanist
(acting), 541-575-3303
Joseph Rausch, 541-575-3141



Malheur National Forest
431 Patterson Bridge Road
P.O. Box 909
John Day, OR 97845

Mt. Baker-Snoqualmie National Forest

2016 Botany Program Accomplishments

Rare Plant Monitoring

16 occurrences of TES plants (Figures 1 and 2) were monitored by MBS Botanists and Rare Care including: stalked moonwort (*Botrychium pedunculosum*), goblin gold (*Schistostega pennata*), large round-leaved orchid (*Platanthera orbiculata*), fewflowered sedge (*Carex pauciflora*), tetraphis moss (*Tetraphis geniculata*), treelike clubmoss (*Lycopodium dendroideum*) and western touch-me-not (*Impatiens noli-tangere*).



Figure 1. Goblin gold, near Mallardy Creek

Classified vegetation assemblages across 20 acres of high quality wetlands at seven sites on Baker Lake (Figure 3). Thirty-nine plant associations were described.



Figure 3. Sphagnum shrub fen, Baker Lake

Rare Plant Inventory and New Finds

Over 1900 acres and 137 miles of roads were inventoried for rare plants.

24 new occurrences of TES & Survey and Manage plants were documented: duplicate tube lichen (*Hypogymnia duplicata*), goblin gold (*Schistostega pennata*), large round-leaved orchid (*Platanthera orbiculata*), fewflowered sedge (*Carex pauciflora*), Pacific felt lichen (*Peltigera pacifica*) and ragged lichen (*Platismatia lacunose*).

Environmental Education

Over 50 students, faculty and parents from Lummi Nation and Northwest Indian College assisted MBS personnel with a CCS funded Phenology Monitoring project.



Figure 2. Fewflowered sedge, near Deer Creek

2016 Botany Program Expenditures

Rare Plant Monitoring	NFVW = \$10,000
Botany Program Base	NFWF = \$5,000
Fen Inventory (ISSSSP)	NFIM = \$5,400
Fungi Surveys	NFIM, NFTM, NFVW, NFWF, WFHF = \$29,000

Partners & Cooperators:

Lummi Nation, Northwest Indian College, Washington Native Plant Society, Washington Natural Heritage Program, University of Washington Rare Care Program, University of Washington Burke Herbarium, Western Washington University Herbarium, North Cascades National Park, Puget Sound Energy and Snohomish County.

Contacts:

Kevin James, Program Manager, 425-783-6043
Shauna Hee, North Zone Botanist, 360-854-2635



Mt. Baker-Snoqualmie National Forest
2930 Wetmore Ave, Suite 3a
Everett, WA 98201

Mt. Hood National Forest

2016 Botany Program Accomplishments

The Mt. Hood National Forest botany program supported numerous projects in 2016, including the collection of native plant materials, restoration work, rare species surveys, NEPA work, and invasive plant management—spanning all FS programs (native plant materials, ISSSSP, timber, recreation, wildlife, fisheries, lands, and roads).

Pre-Disturbance Surveys & NEPA

- **East Side:** 14,000 acres surveyed (Figure 1) for 5 Botany BEs and 3 Special use CEs, including USGS Seismic Monitoring in Mt. Hood Wilderness and Middle Fork Irrigation Ditch.
- **West Side:** +2,000 acres surveyed for Hunter Integrated Resource Project, Government Camp-Cooper Spur Land Exchange, Mirror Lake Trail Relocation Project, North Clack Integrated Resource Project, and Bull Run Land Exchange. Botany BEs written for the first three projects and for numerous small projects.

Native Plant Program - Materials, Rehabilitation, & Restoration

East Side

- Collected seed for pollinator habitat enhancement (RO-sponsored Pollinator CCS project).
- Supplied locally collected seed for recreation project at the Elliot Creek Trail Reroute.
- Taught Washington School for the Blind students about pollinators during the evening portion of their cross-country ski day.

West Side

- Native seed collected for westside restoration projects as well as for the regional pollinator program.
- Coordinated with Portland General Electric (Timothy Lake), RLK & Co. (Timberline Lodge), and Skibowl on revegetation efforts.
- Delivered PowerPoint presentation on native plant materials and pollinators to BARK, a member group of Clackamas Stewardship Partners (CRRD).
- Coordinated seed-collection efforts by BARK for future seed increase contracts and westside restoration projects.

Rare Species – Surveys, Inventory, & Monitoring

- Assisted botanist Rick Dewey (Deschutes NF) with fen surveys supported through ISSSSP funding, identifying species and areas of concern.
- Conducted Survey and Manage (S&M) fungi surveys (one-year protocol) for the Crystal Clear Restoration project. Found several new sites for S&M fungi (*Sparassis crispa*, *Polyozellus multiplex*, *Spathularia flavida* and *Clavariadelphus ligula*). Other species to be determined.
- Inventoried 7 sites (7 acres) and found 3 new occurrences of *Bombus occidentalis* in cooperation with forest wildlife biologists.
- Revisited and surveyed 3 acres for lesser bladderwort (*Utricularia minor*).
- Revisited and surveyed 10 acres for mountain lady slipper (*Cypripedium montanum*).
- Two new sites found for the S&M moss *Rhizomnium nudum* in the proposed route for the Mirror Lake Trail Relocation Project.
- First-time sighting on the Mt. Hood National Forest of the locally uncommon coccora mushroom (*Amanita calyptroderma*).
- Revisited and monitored pale blue-eyed grass (*Sisyrinchium sarmentosum*) and cold water corydalis (*Corydalis aquae-gelidae*) sites.
- Conducted mushroom forays for interested public groups (Figure 2).



Figure 1. Botany and Silviculture field crew during fungal surveys. (Photo by C. Mead)



Figure 2. Fall mushroom class and forage. (Photo by C. Lebo)

2016 Accomplishments

Acres	Funding	Activity
50+	NFWF	Native plant collection and restoration
800 ±	NFIM/NFWF	TES plant surveys, inventory, and/or monitoring (non-timber)
16,000 ±	NFTM	TES plant surveys and inventory (timber)
TOTAL = +16,850 ac		

Partners/Cooperators:

Bend Seed Extractory; Dorena Genetic Resource Center; Portland General Electric; Oregon Department of Agriculture; Sandy River Basin Watershed Council; Clackamas, East Multnomah, and Hood River County Soil and Water Conservation Districts; Hood River and Wasco Counties; The Nature Conservancy; Oregon Department of Transportation; Federal Highway Administration; Clackamas Stewardship Partners.

Contact: Chad Atwood, Terrestrial Program Manager, catwood@fs.fed.us, 503-668-1668



Mt. Hood National Forest
16400 Champion Way
Sandy, OR 97055

Ochoco National Forest and Crooked River National Grassland

2016 Botany Program Accomplishments

Threatened, Endangered and Sensitive Plants

- Revisited 29 Peck's mariposa lily (*Calochortus longebarbatus* var. *peckii*) populations with assistance from our Generation Green intern, for Forest Plan monitoring and the Black Mountain Landscape Restoration project. Information gathered is used to improve habitat mapping and assess population status (Figure 1).
- Revisited four sites of moonwort (*Botrychium crenulatum*; *B. montanum*, *B. ascendens*); plants were observed at two of the sites.
- Discovered a population of northern adderstongue (*Ophioglossum pusillum*), a R6 sensitive plant not previously documented in the Ochoco NF (Figure 2).
- NW Lichenologists Annual Spring Meeting featured a field trip visit to a *Texosporium sancti-jacobi* occurrence on the Crooked River National Grassland.

Unique Plants and Habitats

- Provided botanical expertise in monitoring ongoing Groundwater Dependent Ecosystems and BMP monitoring as part of an integrated resource team.
- Provided botany support for Multiple Indicator Monitoring, and Proper Functioning Condition assessment on forest grazing allotments.

Habitat Restoration

- Coordinated Youth Conservation Corps project to maintain fence protecting Peck's mariposa lily habitat from recreation and grazing impacts.
- Planted 14,853 native riparian and upland plants on restoration projects.
- 3,125 acres of weed treatments benefitted terrestrial and riparian habitats.
- Participated in interdisciplinary team field trips to assess vegetation treatments in riparian habitat conservation areas and proposed stream restoration projects.

Conservation Education

- Ochoco Botanists worked with Crook County Homeschool Co-Op to provide ecology/botany classroom program and plant identification field trip.
- Led the Crook County Outdoor School in completing transects to monitor native perennial bunchgrass resilience and annual invasive grass competition (Figure 3).
- Assisted in organizing annual Fin, Fire, Feather conservation education, and taught lichen session reaching approximately 800 local primary school students.
- Hosted a Native Plant Society of Oregon, High Desert Chapter field trip featuring scablands of the Ochoco NF (Figure 4).
- Participated in an interdisciplinary, place-based educational program for all Culver High School students at Willow Creek project area on the Crooked River National Grassland. Program partners were Middle Deschutes Watershed Council and OWEB.



Figure 1. Botanist Jenny Carson monitors Peck's mariposa lily.



Figure 2. Northern adderstongue was documented for the first time in the Ochoco Mountains.



Figure 3. Culver High School students lay out a transect in the Willow Creek project area.



Figure 4. Paulina Ranger District hosted the Native Plant Society of Oregon for a spring scabland field trip.

2016 Accomplishments

Total NFWF Funding = \$24,265

Other funding: NFIM, NFTM, NFWV, WFHF

Partners: Culver Schools, Crook County School Districts, Crook County Homeschool Co-Op, Powell Butte & Madras Schools, NPSO High Desert Chapter, Middle Deschutes Watershed Council, OWEB, Central Oregon Intergovernmental Council, Discover Your Forest, Youth Conservation Corps.

Contacts:

Jill Welborn, jillewelborn@fs.fed.us
Jennifer Carson, jlcarson@fs.fed.us



Ochoco National Forest
3160 NE 3rd Street
Prineville, OR 97754

Okanogon-Wenatchee National Forest

2016 Botany Program Accomplishments

The Okanogon-Wenatchee National Forest is rich in botanical diversity and complexity. In addition to carrying out base Botany Program Management activities, the Botany Program lends support to a varied range of projects and disciplines, including restoration, vegetation, fuels management, engineering, recreation (Figure 1), fisheries, wildlife, range, and minerals. Botanists conduct rare plant species surveys; manage NRM NRIS TESP database entry; and engage our communities in environmental education. Botanists not only participate on Interdisciplinary Teams as resource specialists for ESA and NEPA environmental impact analysis documents (EIS, EA, CE, BA, BE, SUP) but are frequently assigned as IDT team leads; a challenging and time-consuming leadership position. Again, in 2016 Botanists played an important role as Resource Advisors (READ) during a very challenging and active fire season.

TES Projects

- Surveyed 4,329 acres for TES and S & M species.
- Documented 11 new sensitive plant sites representing 9 taxa.
- Documented 5 new S&M lichen sites and 9 new S&M fungi sites.
- Completed 27 BEs and environmental analysis documents.

Site and Species Monitoring

- Monitored two endangered plant species, *Hackelia venusta* and *Sidalcea oregana* var. *calva*. Implemented an out-planting of *Hackelia venusta*.
- Monitored 22 sensitive plant sites of: *Carex vallicola*, *Coeloglossum viride*, *Sanicula marilandica*, *Botrychium crenulatum*, *Pinus albicaulis*, *Gentiana glauca*, *Hackelia cinerea*, *Delphinium viridescence*, *Carex pauciflora*, *Gentiana douglasiana*, *Trifolium thompsonii*, *Illiamna longisepala*, *Lobaria linita*, *Heterotheca oregana* v. *oregana*, and *Shistostegia pennata*.

Environmental Education

- District botanists participated in 14 environmental events; reaching over 4000 people from elementary schools, universities, tribes, WDFW, the Native Plant Society and others.

NRIS NRM TES Data Management

- Data management of legacy and current sensitive plant data with 100 hours of NRIS NRM data entry.

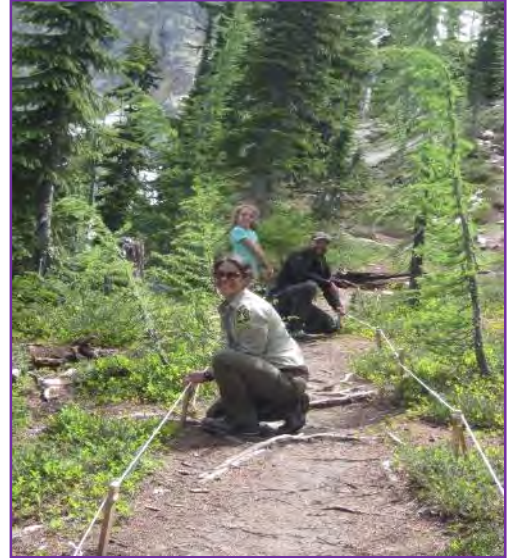


Figure 1. Protecting heather on Maple Loop Trail on the Methow Valley RD, in partnership with North Cascades Institute.

FY16 Expenditures: \$135,000 (NFVW, NFXN, NFWF, NFLM, NFRW, NFTM, NFRG, SSSS, WFHF, NFIM, MJ, UR, CM)

Partners: University of Washington Rare Care; Washington Natural Heritage Program; Central Washington University; North Cascades Institute; National Park Service; Yakama Nation; WSDOT; Chelan County PUD; Xerces Society; Whitman College; Washington Conservation Corps; Cle Elum, Mattawa, Kittitas and Roslyn School Districts; BPA; BOR; Access Fund; Methow Trails.

Contact: : Lauri Malmquist (Acting),
Wenatchee River Ranger District,
509-548-2575.



**Okanogon-Wenatchee
National Forest**
215 Melody Lane
Wenatchee, WA, 98801

Olympic National Forest

2016 Botany Program Accomplishments

In FY 2016, the Botany program supported a total of 18 projects with a wide-range of activities including sensitive species surveys, botanical assessments, and NEPA projects. Support spanned many programs including wildlife, recreation, roads, silviculture, aquatics, wildlife, lands and special uses. Other accomplishment highlights include:



The Dennie Ahl pollinator habitat enhancement project was awarded funding through Challenge Cost Share and was initiated this year. This project will enhance approximately 1 acre of habitat at the Dennie Ahl seed orchard in the Skokomish watershed. This will be accomplished by planting over 3,000 containerized forbs and shrubs of 16 different species, direct sowing seed of another 5 species, creating habitat elements such as brush piles, rock piles and snags, and by installing bee houses near the enhancement site. Preparing the site for planting, and building and installing the bee houses was accomplished by Olympic National Forest employees at our annual All-employee work day, which was held this year at the orchard during pollinator week.

The Botany program worked with the Center for Natural Lands Management, Washington Department of Fish and Wildlife, and the Wildlife and Natives programs to enhance Taylor's checkerspot butterfly habitat in the Dungeness River watershed. A total of 22 lbs. of *Plectritis congesta* and *Collinsia parviflora* seed were sown, and 2400 *Castilleja hispida* plugs were planted. This suite of species provide host, larval food, and nectar plants for this endangered butterfly.

ONF continued its partnership with Rare Care, which monitored populations of *Arabis olympica*, *Claytonia multiscapa* ssp. *pacifica*, *Parnassia palustris* var. *tenuis*, *Pellaea breweri*, and *Saxifraga tischii*.

We continued to monitor and treat invasive plants at Cranberry Bog Botanical Area restoration site. This site includes habitat for *Carex pauciflora*, a rare sedge, and the sensitive Makah Copper butterfly.



Left: The Botany, Natives, and Wildlife programs worked together to enhance pollinator habitat on the Olympic National Forest, and to raise awareness about the importance of pollinators and the plants they depend on.

Above: *Eriophyllum lanatum* (Oregon sunshine), *Cirsium edule* (edible thistle) and *Castilleja hispida* (harsh paintbrush), are three of many species of flowering plants that are being used to enhance pollinator habitat on the Olympic National Forest.

2016 Accomplishments

<u>Fund Code</u>	<u>Acres</u>	<u>Activity</u>
NFWF NFTM	250	TES plant monitoring and surveys
Total	250 acres	

Partners/Cooperators

Rare Care, Washington Conservation Corps; Clallam County Noxious Weed Control Board, Center for Natural Lands Management, Olympic NF employees

Contacts:

Susan Piper – Wildlife, Botany, and Invasive Plants Program Manager, 360-956-2435

Cheryl Bartlett – Forest Botanist and Native Plant Program Coordinator, 360-956-2283



Olympic National Forest

1835 Black Lake Blvd. SW Suite A
Olympia, WA 98512-5623

Rogue River-Siskiyou National Forest

2016 Botany Program Accomplishments

The Rogue River-Siskiyou NF botanical program went through significant changes in FY2016 as two long time botanists (Wayne Rolle and Barbara Mumblo) retired in early January. A new forest botanist position was filled but we were still down two positions for the year.

Mineral Withdrawal Project: ~60k acres of some of the best rare plant habitat in N. America were conserved for at least 20 years through a mining withdrawal proposal encompassing the N. Fork Smith River, Rough and Ready Creek and Baldface Creek watersheds. This general area has more rare plant species and sites than any other in the national forest system (Figure 1).

ISSSSP Projects: We received funding for three new projects, 1. Rare fire dependent plant habitat modeling (~20 species), 2. Population assessment of Siskiyou bells (*Prosartes parvifolia*) and 3. Population assessment of straggly gooseberry (*Ribes divaricatum* var. *pubiflorum*). We continued work on two ISSSSP projects from previous years 1. Fungi hotspot habitat modeling and 2. Assessment of the rare liverwort *Cryptomitrium tenerum*.

Integrated Restoration: We have made significant strides in recent years by integrating ecological principles in vegetation management with conservation of rare plants and unique habitats. We have found that with our very limited NFWF funding we can better leverage conservation objectives for the 400+ rare plant/fungi species on our forest by taking leadership roles on ID teams. Examples are the Shasta Agness, Applegate Adaptive Management Area and Upper Briggs projects which incorporate rare plant restoration into their purpose and need statements. In total there is an estimated 5,000 acres of thinning and burning being planned that will enhance oak and pine woodland/savanna habitats for one endangered and nearly a dozen sensitive listed plants.

TES Plant Monitoring: A diesel spill on top of Mt. Ashland was monitored to determine its impact on two of the rarest plants in the Pacific Northwest (Mt. Ashland lupine, *Lupinus aridus* ssp. *ashlandensis* and Henderson's horkelia, *Horkelia hendersonii*). Endangered *Fritillaria gentneri* monitoring was conducted at 5 populations on Forest Service land.

FY16 New Discoveries: *Lilium kelloggii* was rediscovered on the California portion of our forest, where not seen since the 1940's (Figure 2).



Rogue River-Siskiyou NF
3040 Biddle Rd.
Medford, OR 97504

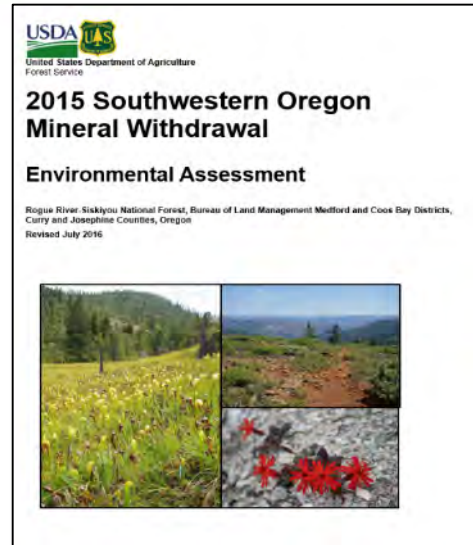


Figure 1. The completion of this NEPA document sets the stage to protect ~60k acres of some of the most diverse rare plant habitat in North America. Protecting botanical biodiversity was one of the main drivers for withdrawal.

2016 Accomplishment Metrics

- 60,000 ac. of serpentine rare plant habitat conserved
- 500 ac. habitat modeling validation/inventory for fungi
- 20 straggly gooseberry and Siskiyou bell pops. assessed
- 200 ac. of straggly gooseberry and Siskiyou bells surveys
- 1 population of Mt. Ashland lupine and 1 population of Henderson's horkelia monitored
- 5 populations of endangered *F. gentneri* monitored
- 800 ac. surveyed for ongoing proposed projects

Expenditures (FY16 Allocations): NFWF \$54k; NFIM \$45k.

Contacts: Clint Emerson, Forest Botanist, 541-618-2056
Stu Osbrack, Wild Rivers RD Botanist, 541-592-4052
Kailey Clarno, Gold Beach/Powers RD Botanist, 541-247-3656

Figure 2. *Lilium kelloggii*, a fire dependent rare plant rediscovered on the RRSNF in California. It has not been seen in Oregon since the 1940's.



Siuslaw National Forest

2016 Botany Program Accomplishments

The Botany Program supported 26 projects including forest landscape restoration, sand dune restoration, meadow restoration, riparian habitat improvement, special use permit authorization, and recreation projects.

- Completed 3 BEs and provided botanical input for 18 Categorical Exclusions.
- Surveyed about 1,500 acres for sensitive and survey and manage species.
- Conducted inventory for white beakrush (*Rhynchospora alba*) and campylopus moss (*Campylopus schmidii*).
- Continued pink sand verbena (*Abronia umbellata* ssp. *brevifolia*) re-establishment project at four sites totaling 100 acres.
- Monitored sites for northern bog club-moss (*Lycopodiella inundata*), bristly-stem checker-mallow (*Sidalcea hirtipes*), and elegant fawn lily (*Erythronium elegans*) (Figure 1).
- After an absence of 10+ years, sensitive big-head sedge (*Carex macrocephala*) made a reappearance on the Forest following habitat restoration that included the removal of invasive plants from its dune habitat (Figure 2).
- Documented new sites for two vascular plants, short-stemmed sedge (*Carex brevicaulis*) and big-head sedge.
- Conducted environmental education programs for 320 middle school students at the Tsalilla Festival with a focus on the importance of native plants.



Figure 1. Elegant fawn-lily (*Erythronium elegans*), a narrow endemic from 6 peaks in the northern Oregon Coast Range.



Figure 2. Big-head sedge has re-occupied dune habitat following removal of invasive plants.

Contact: Marty Stein, Forest Botanist, 541-563-8417



Siuslaw National Forest
3200 SW Jefferson Way
Corvallis, OR 97339

2016 Accomplishments

Acres	Funding	Activity
1,300	NFTM	TES inventory
100	NFWF	TES inventory
100	NFIM	TES inventory
85	NFVW, SRS2	TES Habitat Restoration
150	NFWF	TES Monitoring

Partners/Cooperators

Institute for Applied Ecology, Bureau of Land Management, Stone Ecosurveys, Northwest Youth Corps.

Umatilla National Forest

2016 Botany Program Accomplishments

The Botany program on the Umatilla National Forest provides support to all other departments. These include integrated vegetation management, range, aquatics, recreation, and engineering. In addition, the program assists districts with their native plant and invasive plant programs. All work is accomplished with a staff of two.

Botany input for NEPA projects included two EISs (Ten Cent Community Wildfire Protection, and Granite Mining), and two EAs (Tamarack grazing and Thomas Creek restoration). Input was provided for an additional 15 CEs.

Significant work was done to facilitate three CEs in the Grizzly Bear fire area. Salvage areas were surveyed and known populations of sensitive plants were revisited, flagged for avoidance from activities, and re-documented (Figure 1). One new sensitive plant and one strategic plant population were found. These were also protected from activities.

Monitoring for the federally-threatened species Spalding's catchfly (*Silene spaldingii*) was continued.

Worked with Wallowa-Whitman staff on an ISSSSP project to survey for and document the sensitive plant Shepherd's biscuit-root (*Lomatium pastorale*). Surveyed 355 acres and documented many hundred newly discovered plants in 65 acres on the Umatilla NF portion of the project.

In cooperation with the heritage program, initiated a project to monitor the impacts of logging on big huckleberry.

Received Forest Health Protection and ISSSSP funding to inventory whitebark pine and to apply bark beetle repellent to trees in the Vinegar Hill area (Figure 2). Was project lead for the required NEPA. Botany department and North Fork John Day RD staff applied repellent to 441 trees over 140 acres.



Figure 2. Kate Popescu applying beetle repellent to whitebark pine in the Vinegar Hill area



Figure 1. Blue Mountain onion (*Allium dictyon*)
Photo from only known site in Oregon, in Grizzly Bear fire.

2016 Accomplishment Highlights

Surveyed approximately 1,500 acres of potential rare plant habitat. Provided input to 19 projects overall.

Documented two new species of rare mushrooms (*Albetrellus avellaneus* and *Pseudorhizina californica*). Neither was previously suspected for the forest.

Discovered two populations of the strategic species midget quillwort (*Isoetes minima*). This species also was not previously suspected on the Umatilla NF.

Nine new populations of sensitive species were found, and two new populations of strategic species were found.

Eight populations of previously documented sensitive species were revisited and data were updated.

Rare Care volunteers revisited populations of the green-banded mariposa lily (*Calochortus macrocarpus* var. *maculosus*) and Douglas' clover (*Trifolium douglasii*) to confirm that the Grizzly Bear fire did not negatively impact the populations.

Partners/Cooperators:

Confederated Tribes of the Umatilla Indian Reservation (CTUIR); ISSSP program, Washington Rare Care.

Contacts:

Paula Brooks, Forest Botanist, 541-278-3931
Mark Darrarch, Assistant Botanist, 541-398-3706



Umatilla National Forest
72510 Coyote Road
Pendleton, OR 97801

Umpqua National Forest

2016 Botany Program Accomplishments

- Monitored population trends of Umpqua mariposa lily (*Calochortus umpquaensis*) on 59 ac., Kincaid's lupine (*Lupinus oregonus*) on 0.1 ac and on 2 ac (Figures 1 and 2). Two new monitoring transects were established to monitor the recovery of Umpqua mariposa lily in a repaired dozer line from last year's Stouts Fire. Completed a field visit with Roseburg District BLM and US Fish & Wildlife of all the Kincaid's lupine populations that were impacted by the Stouts Fire. Either because of the fire or the wet spring weather, it was an excellent year for both the lupine and the mariposa lily.
- Monitored a population of clustered ladyslipper (*Cypripedium fasciculatum*) in the Apple Creek Campground following hazard tree falling.
- Completed biological evaluations for four projects.
- Assisted with surveys for the western bumblebee at numerous meadows across the forest. At least one new location of the western bumblebee was confirmed.



Figure 1. One of the long-term Umpqua mariposa lily monitoring plots one year after the Stouts Fire.

Contact: Richard Helliwell, 541-957-3337



Figure 2. Monitoring the Federally listed Kincaid's lupine one year after the Stouts Fire.

- In partnership with the Phoenix School, inventoried meadows within the Rogue-Umpqua Divide Wilderness Area for the rare Crater Lake Collomia (*Collomia mazama*).
- Repaired dozer line through Umpqua mariposa lily habitat damaged during the 2015 Stouts Fire.
- Collected and identified plants for the annual Glide Wildflower Show and gave a presentation on use of native plants for gardening. Led a wildflower hike for Umpqua Watersheds and a Bikes to Blooms event.

2016 Accomplishments

Acres	Funding	Activity
2000	NFTM	TES plant inventory
250	NFWF, NFIM	TES plant inventory
38	H6JO	TES habitat restoration

Partners/Cooperators: Oregon Department of Agriculture Plant Conservation Biology Program; Phoenix School, Glide Wildflower Show Committee



Umpqua National Forest
2900 NW Stewart Parkway
Roseburg, OR 97471

Wallowa Whitman National Forest

2016 Botany Program Accomplishments

In 2016, the Botany Program accomplished several projects:

- Inventoried 250 acres for the threatened *Mirabilis macfarlanei*. Monitored population and plant community trend at 3 populations and checked status of 9 additional populations (Figure 1).
- Restored, by treating invasive plants in and around rare plant populations, over 197 acres of rare plant habitat, including sites inhabited by the threatened Spalding's catchfly (*Silene spaldingii*).
- Inventoried 715 acres for shepherd's desert parsley, *Lomatium pastorale*. Discovered 3 new populations.
- Recorded the first occurrence of a sensitive fungus on the Wallowa-Whitman National Forest, *Gyromitra californica* (syn. *Pseudorhizina californica*) (Figure 2).
- Documented 5 new sensitive plant species in 7 new occurrences: *Eleocharis bolanderi*, *Lomatium pastorale*, *Pellaea bridgesii*, *Pseudorhizina californica*, and *Pyrola dentata*.



Figure 1. Monitoring the plant community composition at a MacFarlane's Four O'clock (*Mirabilis macfarlanei*) population in the Hells Canyon National Recreation Area.



Figure 2. *Gyromitra californica*, the California false morel. Note the widely spaced ribs and pale pink blush toward the base of the stipe.

2014 Accomplishments

Acres	Funding	Activity
2663	NFWF, NFIM	TES plant inventory
37	NFWF, NFIM	TES plant monitoring
197	NFWF	TES habitat restoration

2897 Total

Partners/Cooperators

U.S. Fish and Wildlife Service
The Nature Conservancy

Contact: Gene Yates, 541-523-1290



Wallowa-Whitman National Forest
P.O. Box 907
Baker City, OR, 97814

Willamette National Forest

2016 Botany Program Accomplishments

Surveys and Monitoring

Documented more than 15 new sensitive and Survey and Manage sites during inventory of 600 acres of habitat. Wrote 10 BEs for projects and contributed to 3 EISs. Spent 13 days monitoring 7 sensitive species. Replaced 2 long term monitoring plots for whitebark pine at Jefferson Park on Detroit Ranger District

Participated in regionally funded projects:

- Surveyed for *Rhynchospora alba* and other rare species in bogs across the forest (w/ UMP, SIU).
- Learned about gray blue butterflies and helped survey for sensitive wetland species with similar habitats on Middle Fork Ranger District (Figure 1).

Habitat Enhancement

- Hand removed young seedlings and weeds at Tombstone Prairie and Lost Prairie. Used NWYC crews to remove young conifers in meadows on Crescent and Echo Mountains and Browder Ridge (RF CCS).
- Worked with Portland State University to monitor and plant *Arabis hastatula* seedlings at Iron Mountain lookout where the population had been extirpated.
- Removed young trees and burned Johnson Meadows on Middle Fork District (RF CCS).



Figure 2. Campamentos Exploradores, in its 9th year, teaches kids of migrant workers about the Forest Service.



Figure 1. Learning how to identify gray blue butterflies on the Calapooia Divide was a highlight for Botany crews this summer. This species lives in wetlands that are potential habitat for sensitive plants, so we can combine survey efforts.

Environmental Education

Conducted 16 environmental education activities such as a series of botanical-themed hikes on Sweet Home RD, camps and Outdoor schools on Middle Fork RD, presentations and displays for Mt. Pisgah Arboretum Wildflower and Mushroom Shows, reaching approximately 836 people (Figure 2).

2016 Accomplishments

Acres	Funding	Activity
308	NFWF, NFWW	Terrestrial habitat enhancement

Partners/Cooperators: Northwest Youth Corps; Portland State University, Springfield, Eugene and Oakridge School Districts, Mt. Pisgah Arboretum

Contact: Jennifer Lippert, 541-225-6440



Willamette National Forest
3106 Pierce Parkway, Suite D
Springfield, OR 97477

US Forest Service Pacific Northwest Region

2016 Botany Program Accomplishments: Acronyms

ARRA	American Recovery and Reinvestment Act
BA	Biological Assessment
BE	Biological Evaluation
BLI	Budget Line Item
BPA	Bonneville Power Authority
CCS	Challenge Cost Share
CE	Categorical Exclusion
CERCLA	Comprehensive Environmental Response and Compensation and Liability Act (SuperFund)
CGEI	Columbia Gorge Ecology Institute
CMLG	Legacy Capital Improvement and Maintenance (BLI)
CMRD	Roads Capital Improvement and Maintenance (BLI)
CMTL	Trails Capital Improvement and Maintenance (BLI)
COE	Corps of Engineers
CRWE	Watershed Restoration and Ecosystem Enhancement (BLI)
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
CWFS	Cooperative Work – Other (BLI)
DU	Ducks Unlimited
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Element Occurrence
ERBA	Fed Hwys Emergency Budget Authority
ERFO	Emergency Relief for Federally Owned Roads
ESD	Education Service District
EWEB	Eugene Water & Electric Board
GDE	Groundwater Dependent Ecosystem
FACTS	Forest Activity System
IDT	Inter-Disciplinary Team
ISSSSP	Interagency Special Status/Sensitive Species Program
NFIM	National Forest Inventory and Monitoring (BLI)
NFLM	National Forest Land Ownership Management (BLI)
NFMG	National Forest Minerals and Geology Management (BLI)
NFRW	National Forest Recreation/Heritage/Wilderness (BLI)
NFTM	National Forest Timber Management (BLI)
NFVW	National Forest Vegetation and Watershed Management (BLI)
NFWF	National Forest Wildlife and Fisheries Habitat Management (BLI)
NFXF	NFS Federal External Reimbursement Program (BLI)
NFXN	NFS Non-Federal External Reimbursement Program (BLI)
NMFS	National Marine Fisheries Service
NRIS TESP	Natural Resources Information System Threatened and Endangered Species Plants
NZ	North Zone
ODA	Oregon Department of Agriculture
ODOT	Oregon Department of Transportation
OHV	Off Highway Vehicle
ORBIC	Oregon Biodiversity Information Center
RAC	Resource Advisory Committee
RAP	Resources and People
RD	Ranger District
RIWC	Restoration of Forest Lands and Improvements (BLI)
RNA	Research Natural Area
RTRT	Reforestation Trust Fund (BLI)
S2SR	NFF Payments To States-title II
SPFH	State and Private Federal lands Forest Health (BLI)
SZ	South Zone
TES	Threatened and Endangered Species
TPBP	Botanical Products (BLI)

URMJ	Cost Recovery Lands Major Proj (BLI)
WADNR	WA Department of Natural Resources
WCC	Washington Conservation Corps
WFHF	Hazardous Fuels Program (BLI)
WFRP	Wildlife Fisheries and Rare Plants Database
WFSU	Wildland Fire Suppression (BLI)
WNHP	Washington Natural Heritage Program
WRFH	Forest Health Protection Federal Lands (BLI)
YESS	Employability and Support Services, Mt. Hood Community College
YCC	Youth Conservation Corps



Gyromitra californica, the California false morel. A newly discovered population is the first sensitive fungus found on the Wallowa-Whitman National Forest.

Regional Contact: Mark Skinner, 503-808-2150



USDA Forest Service
Pacific Northwest Region
P.O. Box 3623
Portland, OR 97204-2825



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United States
Department of
Agriculture

Forest Service

Pacific Northwest
Region



Invasive Plants

Program Accomplishments



Washington Conservation Corps crews spot spraying common crupina on the Chelan Ranger District, Okanogan-Wenatchee NF.

Fiscal Year 2016



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Pacific Northwest Region

2016 State & Private Invasive Plant Accomplishments

We have an excellent and productive relationship with our State and Private partners for invasive plant management. Severe budget cuts across all programs (federal, State, and private) have seriously hampered some containment efforts of high-priority invasive plants, but we continue to accomplish important work. Highlights of 2016 accomplishments include:

Oregon Department of Agriculture

- Updated and improved an important education and outreach tool – the *Invasive Species Education Station* – and used it at 10 education events across the State.
- Biocontrols released at 113 sites and 100 previous release sites were monitored.
- The Governor declared the week of May 15-21, 2016 to be Oregon Invasive Weed Awareness Week
- Conducted 63 Early Detection/Rapid Response projects for 21 “A” and “T” listed noxious weeds.
- Conducted treatments of priority infestations of common bugloss, Dyer’s woad, matgrass, garlic mustard, hawkweed species, Paterson’s curse, et. al protecting Blue Mountains, Cascades, and Coast Range forests, endangered plants, and Wilderness Areas.
- Conducted aerial survey for yellowtuft allysum, finding 3 new sites. Eradication campaign has achieved 96% reduction in treatments needed to remove all flowering plants.



Figure 1. Oregon Invasive Species Education Station



Figure 2. Dalmatian toadflax invades after the Tunk Block Fire in Okanogan County, WA. Biocontrol monitoring plots were established to evaluate effectiveness of post-fire releases.

Washington Department of Agriculture

- The Integrated Weed Control Project (IWCP) conducted 15 presentations to 5 states directly contacting over 1200 individuals.
- Long-term biocontrol monitoring plots were established in burned areas in Okanogan Co.
- IWCP released over 193,330 insect and mite biocontrol agents at 558 sites, treating 2,790 acres.
- Provided leadership for the international Flowering Rush Consortium researching potential biocontrol for this extremely destructive invasive plant.
- Partnered with the Kalispel, Colville, Spokane, Makah, Yakama, Swinomish, and Muckleshoot Tribes to implement biocontrol projects.
- Continued research on impacts of seed-feeding beetles for Scotch broom with Oregon Dept. of Forestry.

Contact: **Shawna L. Bautista**, Regional Invasive Plant Program Manager, 503-808-2697



Pacific Northwest Region
State & Private Forestry
PO Box 3623
Portland, OR 97204

Pacific Northwest Region

2016 NFS Invasive Plant Accomplishments

The Pacific Northwest Region invasive plant program utilizes every available option to leverage work and dollars, work with internal and external partners, and contribute to large-scale landscape restoration to maximize effectiveness of invasive plant management. This year, the Region accomplished 54,278 acres of invasive plant treatment, exceeding our Regional target.

Regional highlights include:

- Completed the forest-wide Invasive Plant EIS for the 4 million-acre Okanogan-Wenatchee NF.
- Completed the Supplemental EIS and Record of Decision for Invasive Plant Treatments on the 2.3 million-acre Wallowa-Whitman NF.
- Implemented the first year of the Invasive Plant Treatment EIS on the Malheur NF, allowing use of herbicides for the first time in 15 years. This allowed critical treatments of invasive plants invading areas burned in 2015 and 2016 wildfires.
- Contributed \$40,000 to Regional Challenge Cost Share projects, allowing well-integrated projects to manage invasive plants and achieve successful restoration.
- Helped protect habitat of threatened Columbia yellowcress (*Rorippa columbiae*) by treating invading false indigo on Ives Island in the Columbia River.



Figure 1. Partnership treatments in remote backcountry of Hells Canyon controlling whitetop and sweet briar rose.



Figure 2. The Youth Conservation Corps team on the McKenzie Ranger District worked hard pulling Scotch broom in meadows and recreation areas this summer!

- Partnered with Tulalip and Snoqualmie Indian Tribes to improve 30 acres of elk forage.
- Demonstrated successful invasive plant management to the Northwest Youth Corps by having them conduct the 3rd year of monitoring of spotted knapweed treatment effectiveness in the Whychus River floodplain.
- Added aminopyralid to available herbicides on the Olympic and Rogue River-Siskiyou NFs.
- Accomplished treatments using 20 different fund codes, indicating a well-integrated program.
- Partnership with PNW-Invasive Plant Council resulted in 10 free invasive plant ID training sessions reaching 322 people and resulting in 1,684 acres surveyed and 390 new invasive plant records on 5 National Forests.

Contact:

Shawna L. Bautista, Regional Invasive Plant Program Manager, 503-808-2697



Pacific Northwest Region
State & Private Forestry
PO Box 3623
Portland, OR 97204

Columbia Gorge National Scenic Area

2016 Invasive Plant Accomplishments

Once again in 2016 the infestations of new weed populations seems never ending. Treatments had to be prioritized with emphasis on EDRR, key sites of interest, and on-going restoration. Working with key partners was key to success. Our program is fully integrated with Ecology, wildlife/fisheries and hydrology.

Below is a summary:

- Skamania County helped identify and treat infestations of butterfly bush in the Woodard Creek watershed. This EDRR effort was critical in 2016 to help prevent the expansion of this infestation. About 20+ ac were involved.
- Skamania County weed Dept. also treated Ives Island in the Columbia River for false indigo which had invaded the rocky shoreline (Fig. 1). This is critical habitat for the listed *Rorippa columbiana* (Columbia Yellow cress)
- Weed treatments continued on key restoration projects including Sandy River Delta (SRD) and Horsetail wetlands. Combined these projects include over 400 ac of wetland/riparian forest restoration including removal of blackberries, and reed canary grass before native plantings with trees and shrubs. Over 300 volunteers helped in this effort.
- The 10 acres adjacent to the pollinator garden near Mosier were sprayed and prepared for seeding in early 2017. The garden was planted with *Asclepias* and the adjacent areas will be restored to native prairie.
- A local non-profit, Center for Ecodynamic Restoration (CEDR), obtained a grant from NFF in collaboration with Skamania Lodge to begin restoration work at St Cloud Recreation Site and Collins Slide (Fig. 2). The initial work involved primarily weed control by mowing and/or spraying. Native planting will occur in 2017.



Figure 1. Skamania County personnel spraying false indigo plants along the Columbia River. This invasive plant has, in places, completely overwhelmed native riparian vegetation. The loss of critical riparian habitats has been of much concern for many years. The adjoining picture illustrates the result of this treatment



Figure 2. Initial weed (primarily , Scotch broom and Canada thistle) removal at Collins Slide. Restoration of native prairie and flowering forbs will follow in 2017. The pond in the foreground is critical habitats for western pond turtle, a threatened species in WA. Dog Mt. is in the background.

2016 Accomplishments

Invasive Plants Treated = 912 acres

Inventories 125 ac.

Monitoring 880 ac.

Funding

Base Invasive Plant Program = \$ 115,000

Partnership funding = over \$ 300,000

Partners/Cooperators

County weed Dept. for Skamania, Klickitat, Wasco, and Multnomah Soil and water Conservation District, Sandy River Basin Watershed Council, Ash Creek Forest Management, Center for Ecodynamic Restoration (CEDR), Friends of trees, Lower Col. Estuary Partnership, Clark College Native Plant Propagation Center.

Contacts:

Robin Dobson, Botanist/Ecologist, 541-308-1717

Brett Carre, wildlife/Fisheries, 541-308-1716

Diane Hopster, Hydrologist, 541-308-1744



Columbia River Gorge National Scenic Area

902 Wasco Ave., Suite 200,
Hood River, OR 97031

Colville National Forest

2016 Invasive Plant Accomplishments

Colville report not submitted

Deschutes National Forest

2016 Invasive Plant Accomplishments

Invasive Plant Treatments and Monitoring

- Implemented 6,621 acres of invasive plant treatments across the forest using a variety of methods.
- Monitored 5,361 acres to ensure effectiveness of invasive plant treatments.
- Implemented 100 acres of targeted, spot spray herbicide treatments along the Metolius River to control invasive ribbongrass and yellow flag iris.
- Invasive plant treatment monitoring on Whychus floodplain riparian restoration project utilized Northwest Youth Corps crews to set up and read monitoring plots. No knapweed was detected in the monitoring plot, reduced from 38 and 72 plants in 2015 and 2014, respectively.

Survey and Prevention

- Surveyed 460 acres for invasive plant populations.
- An additional 1,275 acres were surveyed for invasive reed canarygrass utilizing innovative drone technology.
- Ensured over 50 Special Use Permits included appropriate invasive plant prevention measures.
- Inspected over 20 mineral material sites to ensure aggregate and other materials used on NSF lands are weed free.
- 6 acres and 3 miles of roadside habitat on the Bend-Fort Rock District were revegetated using genetically local native plant species to prevent establishment of invasive plant populations.

Conservation Education and Outreach Programs

- Three invasive plant sites were adopted in a new Adopt-A-Site program on the Bend-Fort Rock Ranger District. Volunteers control invasive plants and monitor their results, following a weed site over the long term.
- The Invasive Invader game at LaPine Outdoor Adventure Day reached 435 local elementary students.



Figure 1. Biological Technicians Nicole Amato and Amanda Duvall treat knapweed on the Bend-Fort Rock District.



Figure 2. Youth with Northwest Youth Corps monitor knapweed populations in the Whychus Creek floodplain restoration project.

2016 Accomplishments

Expenditures: NFWW \$232,894
NFTM \$31,000
Title II \$14,250

Partners/Cooperators: 17

Oregon Department of Agriculture, Deschutes County Vegetation Management, Deschutes County Weed Board, Klamath County Weed Control, Heart of Oregon Corps (YCC), Bend-La Pine School District, Klamath County School District, Northwest Youth Corps, Deschutes County Sheriff's Office, Klamath County Weed Control, Central Oregon Intergovernmental Council (COIC), Friends of the Metolius, Caldera, Camp Sherman Weed Warriors, Central Oregon Children's Forest, Oregon Department of Transportation, Siskiyou Biosurveys, Paye's to Spray.

Contacts:

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Christina Veverka, Crescent RD, 541-433-3234;

Marlo Fisher/Charmane Powers, Bend/Ft. Rock RD, 541.383.4743



Deschutes National Forest

63095 Deschutes Market Rd
Bend, OR 97701

Fremont-Winema National Forest

2016 Invasive Plant Accomplishments

- Integrated Invasive Weed Accomplishment of 2,890 acres (6% greater than 2,600 acre target).
- NFW = 1,955 acres, CFLR & other BLIs = 935 acres
Manual Treatments = 989 acres.
Summer field crews and assistance from the YCC, Warner Creek Correction Crew, and a volunteer.



Figure 1. Paisley and Lakeview YCC crew pulling musk thistle.

- Chemical Treatments = 667 acres
 - Agreements with Lake County Cooperative Weed Management Area (CWMA) = 389 acres, including 166 acres of annual grass treatments.
 - Interagency Agreement w/LKV BLM Crew = 65 acres.
 - Ruby Pipeline = 47 acres. Company conducted 2nd year of treatment and more effective than 1st.
- Initiated assessments of juniper control treatments with respect to annual grass response.
- Established monitoring plots in treated medusahead site.
- Submitted proposals for 2017 Title II SCS funding for invasive weed treatments.

Lakeview and Klamath Falls Resource Areas (\$100K). Initiated/Collaborated with CWMA for proposals on Collins Sawmill (\$4K), Lakeview Redi-Mix (\$2.5K) and other non-federal land in Lake County (\$24K).

Figure 2. Forest Service Crew Member conducting manual treatments for Mediterranean sage.



OTHER FUN FACTS

- Manual treatments on 678 sites involved pulling over 58,000 plants.
- 529 sites totaling 115 acres were classified as inactive.
- 34 sites totaling 3.7 acres classified as eradicated.
- 3,500 additional acres surveyed.
- 232 new sites documented.

2016 Accomplishments

Invasive Plants Treated = 2890 acres

Inventories 4,500 acres

Monitoring 563 sites = 115 acres

Funding

Base Invasive Plant Program = \$ 257,488

Additional Invasive Plant NEPA = \$5,000

Additional NFTM (2015) = \$10,000

CFLR = \$150,000

Partnership Funding and Cooperators

\$20,000 Integral Youth Services (IYS)

\$41,237 Klamath County Public Works Department

\$105,000 Lake County CWMA.

Contacts:

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Meagan Chapman, Biological Technician 541-947-3334
Erin Rentz, Westside Botanist, 541-885-3444
Joe Washington, Forest Botanist, 541-947-6253



Fremont-Winema National Forest

1301 South G Street
Lakeview, OR 97630

Gifford Pinchot National Forest

2016 Invasive Plant Accomplishments

The Gifford Pinchot National Forest has been implementing the site specific EIS since 2009. The forest focuses on high priority sites. The quantity of invasives has been reduced over time. There are continued threats from new invasives from many vectors; roads, trails, logging activities, wind dispersal, railroad, and adjacent private lands. The Cowlitz, Lewis, Klickitat and Skamania county weed boards have been invaluable partner in treating invasives on the national forest.

- The forest has ongoing treatments in high value meadow systems. Treatments are supported by Rocky Mountain Elk Foundation (RMEF), stewardship, and Title II funds. The districts have treated quarries to provide for local weed free products for rock sources.
- Monitoring of treated meadows has identified new invasives which will require additional treatment to maintain the meadow vegetation.
- PNW Invasive Plant Council Science provided high quality plant identification courses for volunteers and Forest Service and county employees to increase the acres inventoried. Volunteers were invited to hike their favorite trails and report on any invasives found.
- The invasive prevention message was shared at a variety of venues including three fishing derbies, Sturgeon Festival, Earth Day celebration, White Pass educational day and county fairs and reached approximately 7,000 individuals.
- Successfully funded invasive treatment projects through Title II, Retained Receipts, RMEF, TE&S funding and Challenge Cost Share projects including Coldwater Lake Eurasian milfoil treatment, meadow treatments, Mount St. Helens National Volcanic Monument-mouse ear hawkweed, knapweed and scotch broom treatments, and quarries.



Figure 1. Mouse-eared hawkweed treatment, Toutle River, MSHNVM.

2016 Accomplishments

Invasive Plants Treated = 2422 acres

Inventories 400 Acres

Monitoring 2213 acres

F2016 Invasive Budget

Base – NFVW	\$ 174,000
RO Add- NFVW	\$ 40,000
Title 11 funds	\$ 53,285
Challenge Cost Share	\$15,500
Oregon Spotted Frog invasive site strategy/treatment	\$ 8,000
KV	\$ 53,183
Retained Receipts	\$ 54,625
RMEF	\$ 19,000
Total	\$417,593

Partners/Cooperators

Rocky Mountain Elk Foundation, Cowlitz, Lewis, Klickitat and Skamania County Weed Boards, Mt St Helens Institute, Cascade Forest Conservancy, Pacific North West Citizen Science.

Contacts:

Carol Chandler, Invasive Program Mgr., 360-891-5106

Brad Kriekhaus, NZ Botanist, 360-497-1164

Andrea Montgomery, SZ Botanist, 509-395-3414



Gifford Pinchot National Forest
501 E 5th St, #400
Vancouver, WA 98661

Malheur National Forest

2016 Invasive Plant Accomplishments

Malheur National Forest's 2016 Invasive Plant Program continued the daunting task of managing invasive plant populations on the Forest with the help of various collaborative partners and staff. Our accomplishments include:

Treatments:

- 996 acres forest-wide treated through manual and mechanical techniques (e.g. mowing, pulling, grubbing, cultural treatments) and herbicide application along county roads, Forest Service roads, and gravel pits.
 - 516 miles of roads treated with herbicide.
 - 24 acres of gravel pits treated (Figure 1).
 - Partnered with AmeriCorps volunteers to treat infestations in the Collaborative Forest Landscape Restoration Project (CFLRP) area.

Surveys and Monitoring:

- 53 gravel pits (245 acres) surveyed for invasive species.
- 346 miles of roads surveyed for invasive species.
- Continued invasive plant monitoring at the Canyon Creek Complex fire (Figure 2).
- Analyzed invasive species management needs to support B.A.E.R work at the 2016 Rail Fire for 2017 and 2018 and provided recommendations for specific treatment strategies.



Figure 1. Many gravel pits throughout the forest provide material resources for road projects. Noxious species such as Whitetop (*Cardaria draba*) often invade these disturbed areas. Treatment before use is vital for controlling further spread of weeds.



Figure 2. Roads impacted by the Canyon Creek Complex fire were surveyed. A plethora of invasive non-native species utilized the flush of nutrients in the soil and lack of competition from other plants.

2016 Accomplishments

Invasive Plant Treatments = 996 acres

Funding

Expenditures:	\$ 297,600	Total
	\$ 240,000	NFVW
	\$ 17,000	CFLN
	\$ 40,600	H6JK8

Partners/Cooperators

North Fork John Day Youth Crew, AmeriCorps, Grant Soil & Water Conservation District, Blue Mountains Forest Partners, Harney County Restoration Collaborative, Blue Mountains Biodiversity Project, Rocky Mountain Elk Foundation, Confederated Tribes of Warm Springs, Harney County, Grant County, The Nature Conservancy, Oregon Department of Agriculture, Oregon Department of Transportation, Upper South Fork John Day Watershed Council, private landowners and ranchers.

Contacts:

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Joseph Rausch, Forest Botanist, 541-575-3141



Malheur National Forest

PO Box 909 / 431 Patterson Bridge Rd.
John Day, OR 97845

Mt. Baker-Snoqualmie National Forest

2016 Invasive Plant Accomplishments

Approximately 1476 acres of invasive plants were treated in 2016 (113% of our target). 55% of FY2015 treated acres were monitored for efficacy.

Significant accomplishments

- 612 acres of Japanese and Bohemian knotweed were treated by Skagit Fisheries Enhancement Group (SFEG) and Washington Conservation Corps (WCC).
- 208 acres of knotweed was treated on the N. Fk. Nooksack River.
- 300 acres of knotweed was treated on the Skykomish and Tye Rivers by King Co.
- MBSNF and the Tulalip and Snoqualmie Indian Tribes collaborated to treat 30 acres of land to improve Elk Forage Habitat in the Hwy 410 corridor.
- Mountains to Sound Greenway Trust (MTSGT) and Washington Department of Transportation (WSDOT) treated approx. 240 acres of invasive species along the I-90 corridor.
- MTSGT, Earth Corps, and King Co. treated spotted knapweed and tansy ragwort on the S. Fk. Snoqualmie River.
- 40 kids from the Ryther Group pulled St. John's Wort at Gold Creek.
- 10 students from Seattle Public Schools planted over 440 trees at the Ovenell Parcel on the Skagit River to outcompete the invading reed canarygrass.
- Students from Darrington HS treated Scotch broom on the Sauk River.
- Due to effective knotweed control on the Sauk River by SFEG the amount of herbicide used fell from 14.6 gallons in 2013 to 2.4 gallons in 2016.
- The first known detection of bachelor's button (*Centaurea montana*) was discovered on the Mt. Baker district.



Figure 1. Bachelor's button, Mt. Baker District.

Volunteers

- 2 Weed Watchers trainings were co-hosted by the MBS and the Pacific Northwest Invasive Plant Council (PNW-IPC) resulting in 225 acres of trails surveyed and 431 hours of donated time.



Figure 2. Kids from the Ryther Group removing St. John's Wort.

2016 Accomplishments

Invasive Plants Treated = 1476 acres
Inventories = 147 new infestations mapped
Monitoring = 823 acres

Funding

Base Invasive Plant Program = \$96,554
Additional Invasive Plant Program = \$20,000
Cooperative Work (KV) = \$30,800

Partners/Cooperators

SFEG, Skagit River System Cooperative, Upper Sauk-Suiattle Tribe, Tulalip Tribe, Snoqualmie Tribe, MTSGT, King, Pierce, Kittitas, Snohomish, Skagit, and Whatcom Co NWCBS, WSDOT, Federal Highways, WA State University Integrated Weed Control Program, Mt. Adam's Institute, Discover Your Northwest, WCC, Whatcom Co. Corrections Crew, Puget Sound Energy, PNW-IPC.

Contacts:

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Shauna Hee, North Zone Botanist, 360-854-2635
Kevin James, Botany Program Manager, 425-783-6043



Mt. Baker-Snoqualmie National Forest

2930 Wetmore Ave, Suite 3a
Everett, WA 98201

Mt. Hood National Forest

2016 Invasive Plant Accomplishments

In 2016, the Mt. Hood National Forest successfully implemented its ninth year of noxious weed treatment and prevention since signing the *Site-Specific Invasive Plant Treatments* FEIS in March 2008.

Accomplishment highlights include:

- Coordinated treatment of priority noxious weeds by state-certified herbicide applicators in cooperation with partners.
- Held a multi-agency partner meeting to plan for the treatment of orange and meadow hawkweed (*Hieracium aurantiacum*, *H. caespitosum*) within the Lolo Pass powerline corridor and surrounding areas.
- Partnership with Hood River SWCD, Master Gardeners, landowners and ODA to contain garlic mustard (*Alliaria petiolata*) within one mile of the Forest Boundary (Figure 1). Conducted surveys along a wild and scenic river corridor, and near forest boundaries. Hand treated certain populations.
- Formed an agreement with the Oregon Department of Transportation to treat an old gravel quarry for weeds prior to and during utilization by ODOT.
- Staffed an invasive plant display at the Wasco County Master Gardener Spring Fair with the Columbia Gorge Cooperative Weed Management Area (Figure 2).
- Received assistance from Clackamas SWCD to treat orange and meadow hawkweed in powerline R-O-W.
- Surveyed for invasive species within a 14,000 acre project area and active range allotment. Updated infestation records for houndstongue (*Cynoglossum officinale*) and tansy ragwort (*Senecio jacobea*). Hand treated isolated populations, and created a treatment plan for management of sites.

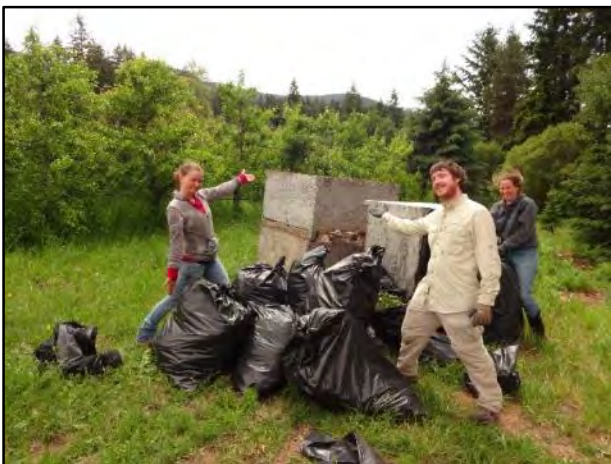


Figure 1. Forest Service seasonal employees Amber Martin and Micah Cothren with Kris Schaedel (Hood River SWCD) hand pulling garlic mustard. (photo by C. Mead)



Figure 2. Invasive species awareness table at the Wasco County Master Gardener Spring Fair. (photo by C. Mead)

2016 Accomplishments

<u>Acres</u>	<u>Fund Code</u>	<u>Activity</u>
1053	SSCC	Retained receipts
150	NFWF	Challenge cost share
7	CWKV	Invasive plant treatment
850	NFVW	Invasive plant treatment
2,060	TOTAL	Acres treated

Partners/Cooperators:

Oregon Department of Agriculture; Oregon Department of Transportation; Wasco, Hood River, Clackamas, and Multnomah Counties; Clackamas, Hood River and Wasco SWCD; Bonneville Power Administration; Portland Water Bureau; Columbia Gorge Cooperative Weed Management Area; 4-County Cooperative Weed Management Area.

Contact:

Chad Atwood, 503-668-1668



Mt. Hood National Forest
16400 Champion Way
Sandy, OR 97055

Ochoco National Forest & Crooked River National Grassland

2016 Invasive Plant Accomplishments

Invasive Plant Treatments and Monitoring

- Implemented 3,634 acres of invasive plant treatments across the forest using a variety of methods.
- Monitored 2,999 acres to ensure effectiveness of invasive plant treatments.
- Partnered with Northwest Youth Corps to accomplish 65 acres of manual invasive plant treatments within Bridge Creek Wilderness Area, supported with funding from a Wilderness Stewardship Performance Grant.
- Teamed up with other districts to accomplish invasive plant treatments across Central Oregon NFS lands.

Survey and Prevention

- Surveyed 1,200 acres for invasive plant populations.
- Medusahead surveys utilized an “all-hands” approach, with participation from Youth Conservation Corps crews and FS recreation personnel.
- Ensured over 20 Special Use Permits and project analyses included appropriate invasive plant prevention measures.
- Inspected 55 mineral material sites to ensure aggregate and other materials used on NSF lands are weed free.
- 100 acres of ground disturbed by timber sale activity were seeded using genetically local native plant species to prevent establishment of invasive plant populations.

Conservation Education and Outreach Programs

- Presented “Weed Identification & Management” at the 2016 Deschutes County Master Gardener Spring Seminar.
- Provided internal education on invasive plant identification across nearly all program areas, including fire/fuels, timber, wildlife, aquatics, engineering, and recreation.



Figure 1. Jill Welborn and Debbie Wood of Crooked River Weed Management Area staff the mobile Invasive Species Education Station at the Crook County Fair.



Figure 2. Group spray days utilized partners and personnel from across Central Oregon to tackle treatment of key infestations on the Ochoco NF.

2016 Accomplishments

Expenditures: NFWW \$257,986

CWKV \$12,728

Partners/Cooperators: 11

Northwest Youth Corps, Heart of Oregon Corps, Jefferson County Weed Control, Wheeler Soil & Water Conservation District, Jefferson County Soil & Water Conservation District, Crook County Weed Control, Crooked River Weed Management Area, Central Oregon Intergovernmental Council, Middle Deschutes Watershed Council, Friends & Neighbors of Deschutes Canyon Area (FANS), Agricultural Research Service, Burns, Oregon

Contacts:

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Ochoco National Forest

3160 NE 3rd Street
Prineville, OR 97754

Okanogan-Wenatchee National Forest

2016 Invasive Plant Accomplishments

The Final Environmental Impact Statement was released for the Forest-wide Site-specific Invasive Plant Management Project. The Final ROD is to be signed in winter 2017.

- A total of 7,328 infested acres were treated by spot spraying herbicide, handpulling, and biocontrol releases. Of those, 1,018 acres treated with partnership and BAER funds.
- BAER funds from 2015 wildfires were used for survey and EDRR of invasive plants.
- Chelan County Public Utility District partnered with the Entiat and Chelan Ranger Districts to release biocontrols and treat common crupina, Dalmatian toadflax, and spotted and diffuse knapweed infestations on USFS land along Lake Chelan and the Columbia River.
- Education/Outreach – News releases, a newsletter, and a public meeting were used to reach out to the public about the threats of invasive plants and our FEIS.
- The Washington Conservation Corps continued its long-term partnership with the Chelan Ranger District to treat the Class A Noxious Weed common crupina. 54 corps members participated.
- Invasive plant prevention was included in landscape restoration projects across the forest.



Figure 1. The Forest-wide FEIS will allow the use of the herbicide most effective on aggressive perennial weeds like whitetop as seen in a meadow on the Methow Valley Ranger District.



Figure 2. Washington Conservation Corps crews spot spraying common crupina on the Chelan Ranger District.

2016 Accomplishments

Invasive Plants Treated = 7,328 acres

Inventories – BAER-funded surveys 2,850 acres.

Monitoring – over 4,500 acres monitored

Funding

Base Invasive Plant Program = \$ 368,741

BAER funds for Survey, EDRR = \$ 136,609

Title II funds = \$89,798

Partnership funding = \$8,252

Partners/Cooperators

Washington Conservation Corps, Chelan County PUD, Chelan County Weed Board, Washington State Weed Board, Washington State Department of Agriculture, WADOT, Okanogan County Noxious Weed Board, private landowners, Kittitas and Yakima County Weed Boards.

Contacts:

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Okanogan-Wenatchee National Forest
215 Melody Lane
Wenatchee, WA 98801

Olympic National Forest

2016 Invasive Plant Accomplishments

In 2016, the Olympic National Forest successfully treated 615 acres of weeds on the Forest. Acres completed were split almost evenly between three County Weed Boards and a three person FS crew. Title II funds paid for 40% of these treatments, 30% were funded by Timber, 15% from Roads and Trails, with the remainder coming from the Invasive Plant and other programs.

Significant accomplishments / highlights

- Completed NEPA to add aminopyralid to our list of herbicides approved for use on the Olympic NF which allowed treatments using this herbicide to begin this year.
- Inspected and treated 27 on-Forest rock sources for weeds, and worked with Engineering and Roads to plan future rock source development, with an emphasis on invasive plant prevention.
- Worked with the Quinault Indian Nation to treat knotweed and other invasive plants and the Lake Quinault inlet, Boulder Creek drainage, and the Colonel Bob trailhead in the Quinault area.
- Worked with the 10,000 Years Institute to treat an herb Robert infestation in the H to Z timber sale planning area. H to Z is a collaborative effort between private timber, local environmental groups and the Olympic NF.
- Worked with the Clallam County Chain Gang to complete 10 acres of preliminary manual treatments of a severe Scotch broom infestation adjacent to a timber sale planning area. Follow up treatments using herbicide will begin next year, with a long term plan to re-vegetate the site with pollinator friendly native species.
- Gave presentation to about 75 members of the Olympic Knotweed Working Group about incorporating the use of native plant materials into invasive plant management activities.
- Gave a presentation to 40 Olympic NF employees about Integrated Pest Management and how to safely and responsibly use pesticides at home.
- Gave presentations to the Olympic NF FLT and to Engineering and Timber employees about National and Regional policies and guidelines regarding invasive plants, including the prevention measures and standards outlined in the Regional Invasive Plant EIS.



Figure 1. Scotch broom was a major target for control this year in the North Fork Calawah timber sale planning area. The importance of prevention and Regional standards were emphasized during a presentation given to the FLT and the Timber and Engineering programs.

2016 Accomplishments

Invasive Plants Treated = 615 acres
Treatment Areas Monitored = 1175 acres

Funding

NFVW = \$133,300
NFTM (Coop Weeds) = \$40,000
NFTM = \$5,000
Title II = \$20,000 (Jefferson), \$9,725 (Clallam), \$20,000 (Mason), \$7,000 (Grays Harbor)
CMLG/CMRD = \$5,400

Partners/Cooperators

Clallam, Jefferson and Mason County Noxious Weed Control Boards, Quinault Indian Nation, Washington Conservation Corps, 10,000 Year Institute, Quinault Recreation Residence HOA, Clallam County Chain Gang.

Contacts:

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Cheryl Bartlett Forest Botanist and Invasive Plant Program Coordinator, 360-956-2283



Olympic National Forest
1835 Black Lake Blvd. SW
Olympia, WA 98512

Rogue River-Siskiyou National Forest

2016 Invasive Plant Accomplishments

We experienced significant changes this year with two key members (Wayne Rolle and Barbara Mumblo) of our invasive plant team retiring after contributing nearly 60 combined years to managing weeds in SW Oregon.

- Completed an interagency (BLM) inventory for yellowtuft alyssum in the Wild and Scenic section of the Illinois River which runs through the Kalmiopsis Wilderness. No yellowtuft was found, but we treated 10 ac. of Scotch broom and documented thousands of acres of false brome (*Brachypodium sylvaticum*) along the river.
- Treated 990 acres with herbicides and 1,685 acres using hand pulling, cutting and weed wrench methods.
- Continued a long standing partnership with Oregon Dept. of Agriculture, Medford BLM and private citizens in the Illinois Valley in the fight to stop yellowtuft alyssum from establishing in diverse serpentine habitats on the forest. Inventoried 2,000 acres utilizing helicopters and ground surveys and pulled 154 acres.
- Participated in three educational events reaching an estimated 400 people by staffing tables at the Ashland Earth Day celebration, Rogue Valley Gardeners association event and a Let's Pull Together event at Ti' Lomkah Falls Park near Gold Hill, Oregon.
- We continued our longstanding partnership with Northwest Youth Corp employing 54 youth with 2,285 hours worth of work over the course of the season. During the four weeks crews worked they completed 172 acres of treatments in remote difficult to access locations across the forest.



Figure 1. We began a partnership with ODA to test the efficacy of treatment's on biddy biddy (*Acaena nova-zealandica*) in Gold Beach



Figure 2. Barbed goatgrass collaborative weed pull day 2016: ODA, State Parks and Rec, BLM, and USFS.

2016 Accomplishments

Invasive Plants Treated = 2,675 acres

Inventories = 5,000 acres

Monitoring = 1,900 acres of previously treated sites

Funding

NFWW Base Invasive Plant Program = \$134,757

NFWW Yellowtuft Alyssum = \$50,000

NFWW Forest Integrated NEPA = \$70,343

NFWW ODA Partnership = \$15,000

NFXF Medford BLM Partnership = \$35,000

CWKV Forestwide = \$120,000

BAER Funds = \$3,000

Total = **\$357,757**

Partners/Cooperators

Oregon Department of Agriculture, Jackson and Josephine Cooperative Weed Management Areas, Medford BLM, Curry Soil and Water Conservation District.

Contacts:

Clint Emerson, Forest Botanist, 541-618-2056

Stu Osbrack, Wild Rivers RD Botanist, 541-592-4052

Kailey Clarno, Gold Beach/Powers RD Botanist, 541-247-3656



Rogue River-Siskiyou National Forest

3040 Biddle Road

Medford, OR 97504

Siuslaw National Forest

2016 Invasive Plant Accomplishments

- In 2016, invasive plant management focused on sand dune and meadow restoration, forest landscape restoration, non-native species with limited occurrence, and rock pits identified for future development.
- Treatment methods included both manual and chemical. Manual methods were used on 313 acres and herbicide was applied on 790 acres. For the year, a total of 1,103 acres of treatment was completed.
- Invasive plant inventory data was collected on about 1,500 acres for the planning phase of landscape management, recreation, riparian restoration, and road projects, as well as to assess current condition post-project in areas scheduled for treatment in 2016. Inventory data suggests that the trend for invasive plant spread and density is increasing.
- Effectiveness monitoring was conducted post-treatment for more than 50 percent of herbicide treatment areas.
- Partnerships are integral in accomplishing invasive plant treatment, with at least 10 percent of total acres having one or more partners.
- Education/Outreach on the importance of invasive plant removal reached 110 elementary school children and young adults during work projects.



Figure 1. Northwest Youth Corps manually removed invasive plants from high value sand dune habitat.



Figure 2. Volunteers with Alliance for Recreation and Natural Areas (AFRANA) gather up before clearing invasive plants from a popular road to the summit of Marys Peak.

2016 Accomplishments

Invasive Plants Treated = 1,103 acres

Inventories = 1,500 acres

Monitoring = 750 acres

Funding

Base Invasive Plant Program = \$ 150,000

Trust fund and Stewardship = \$ 140,000

Partnership funding = \$ 21,000

Collaborative and volunteer in-kind funding = \$ 11,000

Partners/Cooperators

Northwest Youth Corps, Lincoln Soil and Water Conservation District, Siuslaw Watershed Council, Lincoln County Highway Department, Benton Soil and Water Conservation District, Power of Florence, Mid-Coast Cooperative Weed Management Area, Oregon Department of Transportation, Coos Bay District BLM, Joshua Lane Weed Volunteers, Alliance for Recreation and Natural Areas (AFRANA).

Contact:

Marty Stein, Forest Botanist, 541-563-8417



Siuslaw National Forest
3200 SW Jefferson Way
Corvallis, OR 97333

Umatilla National Forest

2016 Invasive Plant Accomplishments

Inventory and Treatments were focused on priority species and locations across the Forest.

- A total of 6,561 acres were treated. This included 21 new sites (475 acres) treated under EDRR.
- Heppner District worked with YCC crew to inventory and pull hound's tongue. Also surveyed 100 acres with ODA and Morrow County to try to relocate a historically reported site of Orange hawkweed. None was found.
- Two Whitman college interns assisted Walla Walla and Pomeroy with inventory, monitoring and treatments (five weeks of work).
- Used BAER funds to conduct inventory and treatments in the Grizzly Bear fire area.
- Rare plant botanist taught Pomeroy applicators how to identify rare plants that are growing with invasives.
- **Targeted species** include rush skeletonweed, common bugloss, spotted and diffuse knapweeds, Dalmatian toadflax, leafy spurge, scotch thistle, hound's-tongue, and meadow hawkweed.

Integrated or partnership projects

- Worked with multiple cooperators to treat the Wild and Scenic Grande Ronde River corridor (mostly by boat).
- Worked with the Confederated Tribes of the Umatilla Indian Reservation to procure funds for planning and treatment on the reservation.
- Used retained timber receipts (stewardship) to work with cooperators to treat over 15 acres of newly discovered common crupina using pack stock.
- Walla Walla District arranged for a county cooperator tour of a railroad right-of-way. This area has high potential for new invaders from out of the area.
- **Education/Outreach** – Participated in watershed field days for Umatilla County. Gave a field presentation on invasive plants and biocontrols to 700 5th grade kids.
- In cooperation with BLM, initiated a program for public engagement/education along the Grande Ronde River.



Figure 1. Umatilla staff spraying in Grizzly Bear fire area.

- Inventoried 22 new populations and 255 miles of roads on the north zone.
- Monitored yellow starthistle biocontrols with Forest Health Protection staff and County cooperators
- Conducted NEPA to add Aminopyralid as an approved herbicide for the forest.

2016 Accomplishments

Invasive Plants Treated = 6,561 acres

Funding

Base Invasive Plant Program (NFWW) = \$ 269,000
Additional NEPA (NFTM) = \$ 5,000 (aminopyralid)
BAER treatments = \$58,000
Partnership matching funding = \$10,000
Stewardship (SC061413) = \$10,000

Partners/Cooperators

Oregon Department of Agriculture, Wallowa Resources, Tri-County (Baker, Union, Wallowa) CWMA, Umatilla and Wallowa Cos., Confederated Tribes of the Umatilla Indian Reservation, City of Ukiah.

Contact:

Paula Brooks , Forest botanist and Invasive Plant Program Manager, 541-278-3931



Umatilla National Forest
72510 Coyote Rd.
Pendleton, OR 97801

Umpqua National Forest

2016 Invasive Plant Accomplishments

- Managed 91.5 acres of false brome , spotted and diffuse knapweed by herbicide (glyphosate and Tordon) application.
- Managed 3215 additional acres of priority weeds including blackberry, Canada thistle, English ivy, Italian thistle, Japanese knotweed, Malta thistle, meadow knapweed, rush skeletonweed, Scotch broom, St. Johnswort, vinca, yellow archangel and yellow starthistle.
- Completed the second year of treatment on an Oregon Class A aquatic weed, yellow floating heart using an aquatic formulation of Imazapyr in cooperation with the Oregon Dept. of Agriculture. There was an approximately 95% reduction observed subsequent to the first year of treatment.
- Managed numerous weed infestations using the Al Kennedy and ML King Alternative High Schools, the Phoenix Alternative High School and the Lane County Sheriff's Work Crew.
- Completed BAER related invasive weed monitoring within the Stouts Fire perimeter.



Figure 1. Yellow floating heart in 2015.

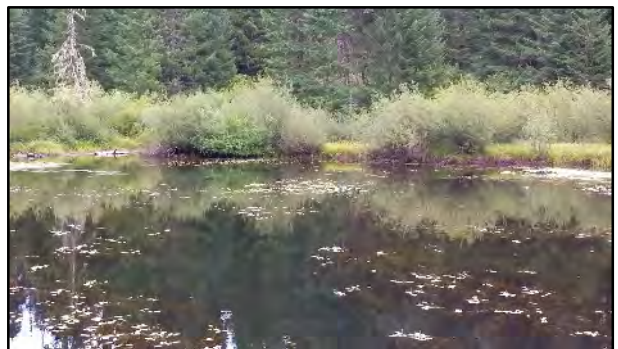


Figure 2. Yellow floating heart in 2016 after one year of herbicide application.

BLI	Treatment Acres
NFVW	2714.9
CWKV	327.9
CWFS	264.3

Partners/Cooperators:

Oregon Department of Agriculture
PacifiCorp
Douglas County Soil and Water Conservation District
Douglas County Weed Board
Upper Willamette Weed Management Area
Douglas County Weed Management Area
Al Kennedy Alternative High School
Martin Luther King Alternative High School
Phoenix Alternative High School
Lane County Sheriff's Work Crew

Contact: Richard Helliwell, 541-957-3337



Umpqua National Forest
2900 NW Stewart Parkway
Roseburg, OR 97471

Wallowa-Whitman National Forest

2016 Invasive Plant Accomplishments

The Wallowa-Whitman NF Invasive Plant Program had a very successful year. Prevention, control, surveying, and working with partners remain the focus.

We're proud to report completion of the Supplemental EIS and Record of Decision supporting integrated treatment of invasive plants across the forest resulting in 3,620 acres treated at 81 % average control, resulting in 2,932 net acres improved.

- EDRR cut-stump treatments of tree of heaven in HCNRA: 128 trees in Oregon and 43 trees in Idaho.
- 48 new weed sites documented: 40 new sites in HCNRA; 2 new sites in ECRD; 6 new sites in WAVRD.
- Partnered with Oregon Departments of Transportation and Agriculture for the coordinated treatment of 9 miles of I-84 ROW over the Blue Mountains.
- Education/Outreach – Helped fund Northeast Oregon's Noxious Weeds Field Guide in cooperation with 19 other partners.
- Restoration/Prevention: Partnered with Oregon Youth Authority to seed grapple piles following thinning project.
- Participated in multi-ownership project to treat rush skeletonweed near Hooker Flat and meadow hawkweed on Mount Harris.
- Established whitetop monitoring plots in Hells Canyon.



Figure 1. Site of biological control release on spotted knapweed by our partner, the Oregon Dept. of Agriculture adjacent I-84 cooperative treatment area.



Figure 2. Partnership project: HCNRA backcountry whitetop and sweet briar rose treatments.

2016 Accomplishments

Invasive Plants Treated = 3620 acres

- Partnerships responsible for over 635 acres

Inventories

- 226 miles roadside inventory
- 116 miles foot/stock inventory

Funding (examples)

Base Invasive Plant Program = \$ 264,000

Partnership funding = \$ 10,000

Partners/Cooperators

Tri-County Coordinated Weed Management Area, Upper Burnt River CWMA, Baker County weed program, Wallowa Resources, Oregon Department of Agriculture, Permittees, Volunteers, Hells Canyon Preservation Council, and Private landowners, and contractors.

Contacts:

Scott Schaefer, 541-962-8550

Beckijo Smergut-Wall, 541-426-5535

Gene Yates, Forest Botanist, 541-523-1290



Wallowa-Whitman National Forest

1550 Dewey Avenue, Suite A
Baker City, OR 97814

Willamette National Forest

2016 Invasive Plant Accomplishments

Significant accomplishments / highlights for 2016:

- **Treatment:** 2163 acres treated with herbicides and 3059 acres treated with manual or mechanical methods.
- **Survey:** ODA completed an inventory of the road systems to be used in McKenzie River's next planning area; surveyed 40 public and 2 private rock source pits to ensure rock is weed free.
- **Integrated Projects:** CCS-South Fork McKenzie River Restoration- 300 ac weed treatment; Title 2 Weed Treatment in Lane and Linn Counties-300 ac; Northwest Youth Corps- 50 ac; YCC crews- 250 ac.
- **Education/Outreach:** District trainings for new employee orientation, Weed Pulls at Iron Mountain and Moose Lake; outdoor schools in Oakridge and Sweet Home.
- **NEPA:** Completed an EA for including Aminopyralid to the Forest toolbox and a Supplemental Information Report documenting the consistency with analysis from Forest Weed NEPA.
- **Cooperative Partnerships:** Botanists participate in Western Invasives Network, Upper Willamette and Mid-Willamette Cooperative Weed Management Areas.



Figure 2. The Youth Conservation Corps team on the McKenzie Ranger District really worked hard pulling Scotch broom in meadows and recreation areas this summer!

2016 Accomplishments

Invasive Plants Treated = 5222 acres

Inventories- 40 miles of road, 42 rock sources

Funding

Base Invasive Plant Program

VW \$ 272,000 (2573 ac)

KV \$ 189,000 (2037 ac)

Additional Invasive Plant NEPA \$ 5000

Additional for Tools \$4300 and 2017 NWYC-\$24,000

Partners/Cooperators

Oregon Department of Agriculture, Linn County Juvenile Crew, Northwest Youth Corps, Youth Conservation Corps crews at McKenzie River and Middle Fork Ranger Districts, Lane County Sheriff Crew, Army Corps of Engineers, Northwest Oregon BLM

Contact:

Jennifer Lippert, Forest Botanist, 541 225-6440



Willamette National Forest
3106 Pierce Parkway, Suite D
Springfield, OR 97477



Figure 1. Typical roadside Scotch broom treatment area.



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United States
Department of
Agriculture

Forest Service

Pacific Northwest
Region



Native Plants & Genetics

Program Accomplishments




Direct combine harvest of California fescue at J. Herbert Stone Nursery (RRS NF).



Volunteers planting native shrubs in the Columbia River Gorge Scenic Area. Over 150 volunteers participated in this event.

Seed production fields for use in restoring habitat for the endangered Taylor's Checkerspot butterfly (Olympic NF).

Fiscal Year 2016



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Pacific Northwest Region, US Forest Service Native Plant Restoration Program



2016 Accomplishments

Program Overview:

Working in conjunction with other land owners and partners, the purpose of the PNW Native Plant Program is to ensure the availability and effective use of native seed and plant materials in terrestrial and aquatic restoration. The plant materials (grass, forb, and shrub seed and seedlings) are used in a wide range of vegetation treatments to reduce erosion, accelerate post-fire recovery, control invasive plants, improve wildlife habitat and pollinator health, and enhance aesthetic qualities and recreational experiences on national forests. This work is foundational to achieving agency goals relating to watershed restoration, ecological biodiversity and resiliency, climate change adaptation, and delivery of ecosystem services and benefits to the public.

Several Forest Service nursery facilities help support the Native Plant Program, including the Bend Seed Extractory (Bend, OR), J. Herbert Stone Nursery (Medford, OR), Clarno Propagation Center (Clarno, OR), and Dorena Genetic Resource Center (Cottage Grove, OR). Private sector nurseries and native seed producers in Oregon and Washington are also vital partners in this work. In addition, an ad hoc 'R6 Restoration Services Team' (RST) comprised of regional and forest botanists, geneticists, horticulturists, and other specialists, provide revegetation consultations and trainings for R6 personnel, as well as assistance on complex projects. RST also provides revegetation services to an increasing array of federal, state, and county partners throughout the PNW.

Specific FY16 Accomplishments include:

Plant Material Development

- JH Stone Nursery produced nearly 3800 pounds of cleaned native grass and forb seed for 3 USFS regions and multiple other state and federal agencies.
- Bend Seed Extractory processed the above nursery grown seed, along with another 985 cleaned pounds of wildland seed collected from throughout the western U.S. Thousands of acres of vegetation treatments will be accomplished with this material.
- JH Stone Nursery and Dorena together produced nearly 100,000 containerized and bareroot seedlings for a diverse array of USFS and other agency clients.

- The Clarno Hardwood Production Facility (OCH NF) provided 40,000 locally sourced willow and cottonwood cuttings to 16 federal lands partners for riparian restoration plantings. Five bushels of native milkweed seed were harvested from production fields to provide seed for monarch butterfly habitat enhancement in central and eastern OR.
- Work continued on a major R6 CCS initiative to collect and increase seed supplies for native plants beneficial to pollinator species. 2016 was a milestone year, with seed collections or production now underway from over 90 different native species and seed sources.

Consultation Services/Training/Tech. Transfer

- Dorena staff provided seed and vegetation collection assistance to 3 National Forests and 4 RST projects with Federal Highways.
- Dorena horticulturists developed 25 new propagation protocols for publication, of which 16 involve pollinator species. Dorena also developed a technique to produce swordferns (an important restoration species) from spores, and is now only one of two nurseries in the country able to accomplish this.
- RST continues to provide revegetation services on a number of major projects in the PNW, including the historic Columbia Gorge Hwy, Hwy. 26, I-90, MF Snoqualmie River, Siuattle River, and others.

Regional Contact:

Vicky Erickson, 541-278-3715
verickson@fs.fed.us

Program Website:

<http://fsweb.r6.fs.fed.us/natural-resources/native-plants/>



**Pacific Northwest Region
US Forest Service**
Natural Resources Staff
P.O. Box 3623
Portland, OR 97208

Region 6 Bend Seed Extractory

Native Plant Restoration Program

2016 Accomplishments



The Region 6 Bend Seed Extractory purchased new equipment, upgraded existing equipment and developed & documented new technologies for processing the ever-increasing native species seed needs of the Federal seed program. Reporting numbers reflect extractory accomplishments for the seed year which runs August 1, 2015 through May 31, 2016.

Number of diverse native species and pounds processed:

- 8,971 pounds of nursery harvested material from R6 JH Stone Nursery was processed, resulting in 3,754 pounds of clean seed.
- 1,494 separate collections (4,816 pounds) of wild seed were processed, tested, and packaged this season. This resulted in 985.55 pounds of clean seed.
- 1,476 bushels of conifer collections were processed. This resulted in 425.8 pounds of conifer seed from six different species.
- 239 individual collections were made across the western US for gene conservation by USFS geneticists. The seed came from nine different species and this resulted in 20.4 pounds of conifer seed.

Bend Seed Extractory News:

- With the help of MTDC we were able to modify one of our small brush machines so that it could tilt, allowing gravity to help the seed flow through the machine. The modification resulted in higher seed yields and a better quality product.
- Seed Extractory tours were given to more than 15 different groups including FS International Programs, the "On the Road Again Gang" from the Culver Christian Church, four 3rd grade classes from Ponderosa Elementary School, the Society of American Foresters Central Oregon Chapter, and the local Bend news station KTVZ.
- Some recent processing highlights include: 1,050 pounds of *Artemisia* for the BLM Vale Field Office for restoration use and 205 pounds of *Sphaeralcea* for the BLM St. George Field Office where the seed will be used to understand more about direct seeding and containerized planting after wildfire.



Figure 1. Extraction of *Sphaeralcea ambigua* (desert globmallow, SPAM2) seed for the BLM St. George Field Office.

FY16 Income/Expenditures:

NFWW \$29,000

Staff: 2 PFT employee
2 PSE employees
8 temporary seasonal
1 student volunteer

Type of Projects: Processing, packaging, imaging, documenting and improving native species field seed collections for storage, seed increase and future use.

Partners/Clients: USFS, BLM, NPS, BIA, ODF&W, ODF, ARS-Plant Materials Centers, North Carolina State, Boulder County Parks & Open Space, City of Boulder, & various other government organizations.

Contact: Kayla Herriman, Extractory Manager, 541-383-5481.

Extractory Website:

<http://fsweb-ochdes.r6.fs.fed.us/seed-extractory/>



Region 6 Bend Seed Extractory
Deschutes National Forest
63095 Deschutes Market Road
Bend, OR 97701

Rogue River-Siskiyou National Forest

J Herbert Stone Nursery

Seed Increase Operations

2016 Seed Increase Production:

- **Current species including 'Threatened & Endangered':** Cook's desert parsley (*Lomatium cookii*, T&E), Woolly meadowfoam (*Limnanthes pumila grandiflora* T&E), Showy milkweed (*Asclepias speciosa*), Giant blue-eyed Mary (*Collinsia grandiflora*), Sulfur buckwheat (*Eriogonum umbellatum*), Winecup clarkia (*Clarkia purpurea*), Yarrow (*Achillea millefolium*), Canada goldenrod (*Solidago canadensis*), Pearly-everlasting, (*Anaphalis margaritacea*), California, Idaho, & Roemer's fescue (*F. californica*, *F. idahoensis*, & *F. roemerii*), Blue wildrye (*Elymus glaucus*), Lemmon's needlegrass (*Acnatherum lemmonii*), Slender hairgrass (*Deschampsia elongata*), Junegrass (*Koeleria macrantha*), California brome (*Bromus carinatus*), Harford's oniongrass (*Melica harfordii*).

2016 Clients:

- USFS Forests located in 3 Regions: Klamath, Mt. Baker-Snoqualmie, Olympic, Pike & San Isabel, Rogue River-Siskiyou, Shasta-Trinity, Six Rivers, Umpqua, Willamette.
- Other Agencies: Oregon BLM, Oregon Department of Transportation-Highways.

Background/Statistics:

Since 1992, JHSN has grown over 650+ unique seed increase plantings comprised of more than 100 species.

- Current Production Acreage: 29.63.
- Average Clean Seed Yield: 3883 pounds
 - Produced 72 pounds T&E *Limnanthes* seed from single pound of source material on 1/10 ac. Plot.
 - Produced 47 pounds T&E *Lomatium* seed from less than one pound source material on 1/10 ac.

Operational Timeline:

- September-October – Direct Sow Seed
- March-May – Select Fertilization/Pest Monitoring
- May-August – Harvest Mature Crops

Future Outlook: Expand acres planted after weed control options are expanded. Increase production of critical pollinator species.

Contact: 541-858-6100



Rogue River-Siskiyou National Forest
 J Herbert Stone Nursery
 2606 Old Stage Road
 Central Point, OR 97502



Direct Combine Harvest of California fescue



Cook's desert parsley



Woolly meadowfoam



Giant blue eyed Mary



Narrowleaf Milk Weed

Rogue River-Siskiyou National Forest

J Herbert Stone Nursery

Bareroot & Container Operations

2016 Native Plants Production:

- **Containerized Species grown:** California fescue (*Festuca californica*), Roemer's fescue (*Festuca roemerii*), Fowl mannagrass (*Glyceria striata*), Bulrush (*Scirpus sp.*), Big leaf maple (*Acer macrophyllum*), Saskatoon serviceberry (*Amelanchier alnifolia*), Mule-ears (*Wyethia amplexicaulis*), Trailing snowberry (*Symphoricarpos hesperius*), Red-osier dogwood (*Cornus sericea*), Wood's rose (*Rosa woodsii*), Red flowering currant (*Ribes sanguineum*), Oregon white oak (*Quercus garryana*), Willow species (*Salix spp.*), Black cottonwood (*Populus balsamifera* L. subsp. *trichocarpa*), Wyoming big sagebrush (*Artemisia tridentata* Nutt. subsp. *wyomingensis*)
- **Bareroot Species grown:** Red flowering currant (*Ribes sanguineum*), Big leaf maple (*Acer macrophyllum*), Gray alder (*Alnus incana*), Bitterbrush (*Purshia tridentata*), Curl-leaf mountain mahogany (*Cercocarpus ledifolius*), Red-osier dogwood (*Cornus sericea*), Golden current (*Ribes aureum*), Stinking currant (*Ribes hudsonianum*), Black gooseberry (*Ribes lacustre*), Sticky currant (*Ribes viscosissimum*), Wood's rose (*Rosa woodsii*).
- **Types of production:** seed, cuttings, transplants.

FY16 Native Plants Shipped:

- Bareroot seedlings: 5,000
- Container seedlings: 23,040

Nursery Stats:

- Bareroot Native Plant Production Area:
 - Total seedling production area: 213 acres.
 - Seedling capacity: 24,560,000.
- Container Production Area:
 - Currently operational: 5 greenhouses, 2 shadehouses (Total operational growing space = 37,358 sq. ft.).
 - Capacity of over 1 million plugs annually.

New Projects: Gentner's fritillary (*Fritillaria gentneri*) bulb increase; Wyoming big sagebrush (*Artemisia tridentata* Nutt. subsp. *wyomingensis*).



Figure 1: 120'x120' Cravo shadehouse with retractable roof filled with container stock.

FS Districts currently working with: Sister RD, Mt Adams RD; Blue Mountain RD; Prairie City RD; Barlow RD; Lookout Mountain RD, Wild Rivers RD, Gold Beach RD, Cottage Grove, RD, Diamond Lake RD, Whitman RD, Entiat RD, Sweet Home RD, Detroit RD, Republic RD, Three Rivers RD.



Figure 2. Native grass in field production.



Rogue River-Siskiyou National Forest
J Herbert Stone Nursery
2606 Old Stage Road
Central Point, OR 97502

CONTACT US:
Office: 541-858-6100
Fax: 541-858-6110

Dorena Genetic Resource Center

2016 Native Species Program Highlights

Restoration Project Implementation

Provided native plant materials and staff for developing and implementing R6 Restoration Services Team projects in the PNW:

- Implemented seeding and outplanting on 5 harsh site restoration projects in Oregon and Idaho, including wetland restoration, rockfall mitigation, and pipeline/road construction rehabilitation;
- Provided genetically appropriate, locally adapted native trees, shrubs, and forbs for 9 restoration projects in Washington, Oregon, and Idaho, including the Historic Columbia River Highway State Trail and various upland and wetland rehabilitation projects;
- Completed initial planning and revegetation plans for 3 new projects (with 3 new partners) in Oregon.



Native Species Plant Materials

Produced native tree, shrub, forb and graminoid species to assist J Herbert Stone Nursery; for Region 6 Restoration Services Team (RST) projects, and for pollinator habitat development:

- Propagated a total of 71,000 plants from collected seeds and vegetation, including 57 species for 5 National Forests and 5 outside agencies;
- Developed 25 new protocols for growing shrubs, forbs, and ferns, including 16 pollinator habitat species;
- Provided seed and vegetation collection assistance to 3 National Forests and 4 RST projects.

New Partnership Development

- Willamette National Forest
- Bureau of Land Management – Medford District
- Bureau of Land Management – Salem District
- Bonneville Power Administration



Contact: Lee Riley
Dorena Genetic Resource Center
34963 Shoreview Drive
Cottage Grove, OR 97424

Clarno Hardwood Propagation Center

2016 Program Highlights

New in the nursery 2016:

Native milkweed (*Asclepias spp*) gardens

- Collected 5 bushels of showy milkweed follicles in 2016 of *speciosa* and *fascicularis* to supply needed seed for central Oregon region.
- Recorded 44 adult Monarch nectaring and breeding occurrences in new garden
- Expanded the garden to include NE Oregon sources of milkweed.



Wetland sod (*Carex spp*) production beds:

- Pilot project for restoring and re-vegetating river banks
- Locally sourced sedge and rush species
- Harvested and deployed 125 square ft.



Native Hardwoods:

- Harvested 40,000 cuttings involving 16 federal lands partners
- Increased 9075 individual new plants from 363 accessions (.25 acres)
- Hosted 2 International Forestry Program tours, and an Eagle Scout project.
- Welcomed Monarch Advocates of Central Oregon (MACO) as new citizen scientist partners.

Year Awarded: 2016
Base Funding: \$20,000 Total NFN3
Contact: Chris Jensen
(541-383-4779).

Managed by Ochoco and Deschutes National Forest

3160 NE 3rd Street
Prineville, Oregon 97754



Facility along John Day River, Clarno, Or.

The Clarno Hardwood Propagation facility is a collaborative FS and BLM project nursery supporting Regional (R6) and National native plant restoration program goals to produce and increase needed native plant materials. Annually, large quantities of native willow and cottonwood cuttings are harvested for restoration projects on public lands.

Colville National Forest

2016 Native Plant Materials Accomplishments

The Colville National Forest Native Plant Restoration Program focuses on developing stocks of native grasses, forbs, and shrubs for restoration projects.

New foundation seed collections were made across the Forest of 59 gallons of uncleaned seed from 3 forb species to benefit pollinators and 14 gallons of uncleaned seed from 4 grass species. All collections were sent to Coeur d'Alene Nursery for cleaning and storage. For use in the Mill Ponds Dam removal project, Seattle City Lights contractors collected 16 lbs. of cleaned seed from 8 grass, 3 sedge, 2 rush, 5 forb, and 11 shrub species.

Restoration efforts included 1500 plantings of 7 shrub species at the entrances and on berms of obliterated roads and OHV trails, in a riparian livestock enclosure and an outlet dam site. A half-acre pollinator garden was maintained and reseeded at the Sullivan Lake Ranger Station. Seattle City Lights used 1000 shrub cuttings to stabilize a landslide.

Funds were used to locate and map 12 additional native plant collection sites; pay for seed cleaning, testing and storage; collect hardwood cuttings; provide revegetation consultation; develop and track budgets; and administer agreements. We also assigned seed zones to all lots of native plant seed stored at Coeur d'Alene Nursery for to be bulked for increase and use.

Contact Kathy Ahlenslager, 509-684-7178
Amy Cabral, 509-684-7175



Colville National Forest
765 S. Main
Colville, WA 99114



Figure 1. A fruitful season.

Expenditures	\$35,000 Total
	\$29,000 (NFWW)
	\$ 9,750 (NFWF)

Partners/Contractors Coeur d'Alene and J. Herbert Stone Nurseries, Seattle City Lights.



Figure 2. Native seed collections ready for cleaning.

Columbia Gorge National Scenic Area

2016 Native Plant Material Accomplishments

The Columbia Gorge National Scenic Area has for years been restoring native plant communities. We have historically obtained our native plants from local nurseries and seeds from both local and larger seed companies. The local nurseries have collected wild seeds from our local areas. This program is a fully-integrated and collaborative effort : Botany/Ecology, Wildlife, and Hydrology.

Restoration Projects:

Sandy River Delta: This restoration effort has been on-going since 1993 and over 600 acres have been fully restored from non-native weeds to native hardwood riparian forests. All Native plants have been obtained from local Willamette nurseries. In 2016 the restoration has focused on 100 acres being reforested on Thousand Acres and the planting of a native pollinator hedge along a fence closure. Several volunteer plantings have been organized by our partners, including Friends of Trees (FOT) and Sandy River Basin Watershed Council (SRBWC), as illustrated.

Balfour Rec. Site: This is a smaller restoration in a very cultural sensitive area where native forbs are being restored. This effort has been difficult due to strong weed pressures, but we are finally making progress with new techniques.

Pollinator Garden at Rowena: This is also a smaller project restoring native prairie (grasslands) including a wetland. A milkweed garden was planted in 2015-16 and the plants did very well with most blooming this last summer. Native grasses and forbs will be seeded this fall (2016).

Contact: Robin Dobson, 541-308-1717
Brett Carre, 541-308-1718
Diane Hopster, 541-308-1744



Columbia Gorge National Scenic Area
308 Wasco Ave, Suite 200
Hood River, OR 97031

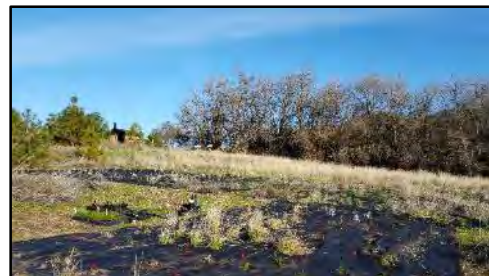


Figure 1. Volunteers planting native shrubs at SRD, 2016. There were over 150 volunteers for this event.

Expenditures : \$112,000+ Total

\$8,000 (NFVW)
\$ 4,000 (NFWF)
\$ 100,000+ (partners)

Partners/Contractors Sandy River Basin Watershed Council, Friends of trees, Ash Creek Forest Management, Confluence, Scholl's Valley Nursery, Clark College Native Plant propagation Center, Center for Ecodynamic Restoration, Milestone Nursery.



Figures 2a and 2b. Top photo shows the native plantings with fabric which is labor intensive but necessary due to sensitive archaeology and dry conditions. The lower photo shows what we hope to create after 2-5 years.



Deschutes National Forest

2016 Native Plant Material Accomplishments

The Deschutes National Forest Native Plant Restoration Program continues to focus on developing/planting stock of native grasses, forbs, and shrubs for restoration projects. Funding is also used to test/clean/store seeds, develop contracts, plan revegetation projects, develop/track budgets, develop partnerships, further education about the benefits of using native plants, and training to further our knowledge of native plant restoration.

Seed and Propagule Propagation:

- Received 80 lbs. of *Koeleria macrantha* from Benson Farms.
- Initiated task orders with Benson Farms for 4 projects.
- Ordered 475 plants for the Hwy 58 Viewpoint project.

Restoration Projects:

- Seeded 20 acres with 240 lbs. for the Skyliner Road project.
- Seeded 5 acres with 76 lbs. for the new Welcome Center for the Deschutes Forest
- 350 native forb and grass plugs installed at the Hwy 58 Viewpoint site.
- Segments of Soda Creek and Upper Deschutes River seeded as part of stream restoration work
- 4 acres planted at Whychus Overlook Trail, Indian Ford, and Allingham Guard Station.

Pollinator Conservation:

- Participated in USFS Region 6 Challenge Cost Share Project; seed from 25 species collected.
- Pollinator Demonstration Garden installed at the new Crescent District Office.
- Two pollinator interpretative panels created specifically for the East Cascades ecoregion.
- New xeriscape installed with pollinator-friendly species at the Crescent Peterson Room.
- New native plant garden installed by employees at the Deschutes Supervisors Office.



Figure 1. Native plants from WinterCreek Native Nursery installed in a new xeriscape in front of the Peterson meeting room.



Figure 2. Pollinator Demonstration Garden with custom interpretative signs installed in front of the new District office in Crescent.

Year Awarded: 2016

Expenditures: \$ Total Funding

NFWV \$13,230; NFXN \$24,500; NFXB \$10,000; IDP5 \$450; CWFS \$3607; WFHF \$5,000; FNRD \$1,220

Partners: Deschutes Basin Native Seedbank, Benson Farms, Clearwater Native Nursery, Dorena Genetic Resource Center, Clarno Hardwood Production Facility, Bend/LaPine and Gilchrist Schools, City of Bend, and WinterCreek Native Nursery

Contacts: Christina Veverka (cveverka@fs.fed.us)
Charmane Powers (cpowers@fs.fed.us)
Marlo Fisher (mrfisher@fs.fed.us)



Deschutes National Forest
63095 Deschutes Market Rd.
Bend, Oregon 97701

Fremont-Winema National Forest

2016 Native Plant Material Accomplishments

- East and west side seasonal crews collected 13 native grass and forb species for revegetation efforts, with an emphasis on species to benefit pollinators. Forb species included *Balsamorhiza sagittata*, *Grindelia nana*, and *Monardella odoratissima*. Crews also collected the native grass, Sandberg bluegrass (*Poa sandbergii*), and YCC crews collected bottlebrush squirreltail (*Elymus elymoides*).
- A contractor was hired to collect seed of *Agastache urticifolia* (24 lbs) and *Eriophyllum lanatum* (12 lbs from 2 seed zones).
- Resurveyed a native plant project completed in 2000 to reestablish Mountain Mahogany (*Cercocarpus betuloides*) after the 1987 Cowboy fire. Plants have successfully established and are currently about 5 feet in height.



Figure 1. Mountain mahogany site 16 years after planting operations.

- Collaborated with OSU to re-survey a 2013 planting site of Oregon Semaphore Grass (*Pleuropogon oregonus*), a Threatened species. Plants are increasing in number.
- Revegetated a five acre site treated for the invasive grass medusahead (*Taeniatherum caput-medusa*)
- Conducted revegetation trials on approximately 2 acres of landings/skid trails in recent timber harvest site with *Ceanothus velutinus*, *Agastache urticifolia*, and *Bromus carinatus*.
- Provided 50 pounds of seed for the 28 Road reconstruction project. Also provided small amounts of seed to other small riparian restoration projects across the forest.
- Coordinated a second phase of reseeding efforts along 2.2 miles of the Ruby Pipeline that remained insufficiently vegetated after initial efforts in 2011/2012.

Contacts:

Joe Washington, Botany Program Manager, 541-947-6253
 Jeannette Wilson, Eastside Forest Botanist, 541-576-7593
 Erin Rentz, Westside Forest Botanist, 541-885-3444



Fremont-Winema National Forest
 1301 South G Street
 Lakeview, OR 97630



Figure 2. YCC crew members collecting bottlebrush squirreltail.

- Established pollinator garden at the Chiloquin Ranger District Office.
- CCS and NFWF funds to collect seed of eleven forb species (45 lbs gross weight) for eventual growout and revegetation efforts that will also provide habitat to pollinators.
- Contracted for fall growout at JHSN
 - Agastache urticifolia* 0.5 acres
 - Eriophyllum lanatum* 0.5 acres
 - Deschampsia cespitosa* 0.4 acres
 - Festuca idahoensis* 0.3 acres
 - Poa sandbergii* 0.3 acres
- Contracted for fall growout at Benson Farms, WA
 - Elymus elymoides* 500 lbs
 - Elymus glaucus* 500 lbs
 - Achillea millefolium*

Expenditures: \$ 56,507		
CCS	5,000	seed collection of 9 forb species
NVW0216	4,000	seed collection of 2 forb species
NFW0116	9,000	
NFW0216	5,342	growout at JHSN for 2 acres NFTM0216
	4,718	
NFTM0216	20,000	contract growout at Benson Farms –
		2 grasses at 500 lb each
NFW0216	2,665	seed invoices at BSE and JHSN
NFTM0216	3,282	seed invoices at BSE and JHSN
NFW0216	2,500	deposited at JHSN for future costs

Partners/Contractors/Cooperators:
 Lake County Cooperative Weed Management Area
 Jody Schaub (LCCWMA contractor), Benson Farms,
 J Herbert Stone Nursery, Bend Seed Extractory
 Benson Farms Nursery, Clearwater Native Plant Nursery
 ODA Rare Plant Program
 Klamath Basin Chapter of the Native Plant Society

Gifford Pinchot National Forest

2016 Native Plant Material Accomplishments

Facilities:

- In March 2016 our seed cooler suffered a thermostat malfunction.
- Coordinated thermostat repair, electrical repair and upgrades to seed cooler by installing a dehumidifier to improve storage conditions.

Seed Acquisition

- Procured 1,150 lbs. of *Bromus carinatus* and 250 lbs. of *Elymus glaucus* from BFI Native Seeds to replace stock that was destroyed during seed cooler equipment malfunction.

Seed Production Contracts:

- Awarded contract for production of 1,200 lbs. of *Elymus glaucus* seed from existing stock at BFI Native Seed, with delivery scheduled for Fall 2017.

Seed Collection:

- Approximately 16 pounds of *Festuca idahoensis* seed was collected for growout in FY17.
- As part of a regional Pollinator Challenge Cost Share, a total of 63.9 oz (3.99 lbs.) of native forb seed was collected across both East and West Cascade zones, as well as High and Low elevation. Species collected include: *Anaphalis margaritacea*, *Aquilegia formosa*, *Eriophyllum lanatum*, *Ipomopsis aggregata*, *Lupinus latifolius*, *Lupinus rivularis*, *Penstemon subserratus*, *Phacelia hastata*, and *Spiraea douglasii*, as well as *Penstemon* sp. and *Aster* sp. mixes.

Seed use:

- Approximately 131 pounds of *Elymus glaucus*, *Bromus carinatus*, and *Deschampsia elongata* were used for skid trail erosion control, road closure, and prairie rehabilitation.

Skill Development:

- Botany Technician Tom Brumbelow attended the Society for Ecological Restoration – Northwest Chapter conference in Portland, OR in April 2016.



Figure 1. *Eriophyllum lanatum* in bloom along FR 23, August 1, 2016

Year Awarded/Completed: 2016

Expenditures:

NFTM	- \$46022
NFVW	- \$12120
CWF2	- \$ 9929
CWKV	- \$ 4003
SSCC	- \$ 5373
Total	\$77, 447

Partners/Contractors/Coop:

Benson Farms Inc., Bend Seed Extractory, Willamette National Forest, Mt. Hood National Forest Oregon Equipment Company, Hire Electric, Inc

Contacts:

HQ: Carol Chandler (360) 891-5106
S. Zone: Andrea Montgomery (509) 395-3414
Tom Brumbelow (509) 395-3413
N. Zone: Brad Kriekhaus (360)-497-1164



Gifford Pinchot National Forest
501 E. 5th St, #400
Vancouver, WA 98661

Malheur National Forest

2016 Native Plant Materials Accomplishments

Revegetation Projects – The Malheur NF had over 12 largescale projects requiring support from the restoration botany program and needing native plant materials for restoration, revegetation, and habitat improvement projects in 2016.

Riparian Habitat:

- Collected 4,000 hardwood cuttings from Clarno nursery to plant along 3 miles of stream.
- Collected 5 pounds of wet sedge seeds (*Carex luzulina*, *C. nebrascensis*, *C. amplifolia*, *C. cusickii*, *C. urticulata*, *Scirpus microcarpus*) and broadcast them along 1.3 miles of stream.
- Planted ~ 2,500 willow (rooted stock and cuttings), and about 200 Aspen seedlings with Oregon Youth Conservation Corps and Crane High School

Logging, engineering and Fuels Reduction:

- over 3,600 lbs. of upland native seed mix was applied to disturbed ground as a result of skid trails, landings, and large burned-out slash piles.
- Continued seeding activities within the Canyon Creek Complex. Approximately 400 pounds of grass and forbs spread. Hardwood planting completed in riparian areas.

Pollinator Projects –

- Collected 1 bushel of *Ipomopsis aggregata* for use in pollinator projects (Figure 1).

Native Plant Materials Production Partnerships –

- Contracts were awarded to Benson Farms to produce *Elymus glaucus* (Blue wildrye), *Elymus elymoides* (Squirreltail), *Agastache urticifolia* (nettle leaf horse-mint), and *Ipomopsis aggregata* (scarlet gilia) plants for Malheur revegetation and pollinator improvement projects.
- Burns High school FFA produced 2,800 rooted *Salix* cuttings that we planted along ~4 miles of stream reach.
- Established partnership with Burns Paiute Tribe to pursue cultural plant restoration throughout the MNF including the production of Choke cherry.

Seed Collection and Source Mapping – Continued to collect and map source populations of native grass and forb species.

Monitoring- completed 2-year monitoring at about 200 large pile burn areas for seeding success, native plant species recruitment, and invasives.



Figure 1. We collected a bushel of Scarlet Gilia (*Ipomopsis aggregata*) seeds this year to store for future pollinator improvement projects. Collections made in 2015 are currently being grown out by Benson Farms. Photo credit provided.

Expenditures: \$ 46,000	Total
\$ 11,000	CFHF
\$ 20,000	NFTM
\$ 10,000	NFVW
\$ 4,000	WFHF
\$ 1,000	CMLG

Partners/Contractors: Benson Farms, Eastern Oregon Stewardship, North Fork John Day Watershed Council, South Fork John Day Watershed Council, Oregon Department of Transportation, Carter Ranch, Southworth Ranch, Confederated Tribes of Warm Springs, The Nature Conservancy, Deschutes Basin Native Seed Bank, Oregon Natural Desert Association, Burns High School FFA, Darrel Holliday Ranch Inc..



Malheur National Forest
431 Patterson Bridge Road
P.O. Box 909
John Day, OR 97845

Contacts:

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(Acting) 541-575-3303
Jerry Galland, Revegetation Specialist,
541-575-3066

Mt. Baker-Snoqualmie National Forest

2016 Native Plant Material Accomplishments

Native Plant Material

Development of native seed mixes and selection of shrubs and forbs for elk forage continued in partnership with the Muckleshoot and Tulalip Tribes. Three units were treated and prepared for seeding.

- Collected blue wildrye (*Elymus glaucus*) for grow out in upcoming years.
- Collected pearly everlasting (*Anaphalis margaritacea*) and broadleaf lupine (*Lupinus latifolius*) seed as part of the Pollinator Challenge Cost Share (CCS) project.

Restoration

Enhanced 51.3 acres of habitat for big-leaf huckleberry (Iron Mountain & Tupso Ridge). The Swinomish and Sauk-Suiattle Tribes are completing the work via a Participating Agreement. This was a Challenge Cost Share project. Seventy percent of conifers were non-commercially thinned.

Monitored (post-treatment) 15 acres of big-leaf huckleberry habitat enhancement (Government Meadows).



Figure 1. Iron Mountain thinning unit. The brownish-red shrubs are big-leaf huckleberry.



Figure 2. Planting the Kaaland parcel.
photo by Tim Gohrke

Revegetation

Revegetated 17 acres within the Riparian Reserve of the Skagit River at two sites: Kaaland parcel and Suiattle Seed Orchard. The Skagit WSR Revegetation Project was co-funded by American Forests and the WO via a Reforestation Partnership grant.

Revegetated 5 acres within the Riparian Reserve of the Skagit River at the Wild and Scenic River Ovenell parcel. This project was funded by Seattle City Light. Site preparation was completed by the Whatcom County Corrections Crew through a grant funded by Secure Rural Schools. Planting work was completed by youth in the Outdoor Opportunities Program of Seattle Parks and Recreation.

Native Plant Program Expenditures

Native Plant Program support	NFWV = \$10,000
Native Plant Program support	NFTM = \$10,000
Pollinator Project (CCS)	NFWF = \$3,300
Huckleberry Enhancement (CCS)	NFWV = \$21,000
Huckleberry Enhancement (CCS)	NFWF = \$5,000

Partners & Cooperators: Bend Seed Extractory, J. Herbert Stone Nursery, Muckleshoot Tribe, Tulalip Tribes, Washington Native Plant Society, University of Washington Rare Care Program, Skagit River System Cooperative, Skagit Fisheries Enhancement Group, Puget Sound Energy, Whatcom County Corrections Crew, Seattle Parks and Recreation, Sauk-Suiattle Tribe, Swinomish Tribe, and Seattle City Light

Contacts:

Kevin James, Program Manager, 425-783-6043
Shauna Hee, North Zone Botanist, 360-854-2635



Mt. Baker-Snoqualmie National Forest
2930 Wetmore Ave, Suite 3a
Everett, WA 98201

Ochoco National Forest and Crooked River National Grassland

2016 Native Plant Material Accomplishments

Seed and Propagule Production/Purchase

- Title II and FS funds used to propagate 1,200 milkweed plants at Dorena Genetic Resource Center.
- Purchased 19 lbs. of Blue Mountain prairie clover (*Dalea ornata*) seed for restoration projects on Crooked River National Grassland.
- Purchased 155 lbs. of genetically local bluebunch wheatgrass (*Pseudoroegneria spicata*) for future restoration projects on Ochoco NF.
- Pollinator CCS funds supported the production of rock buckwheat (*Eriogonum sphaerocephalum*), a summer-flowering pollinator species.

Seed Collection

- Collections of aspen fleabane (*Erigeron speciosus*) and showy milkweed (*Asclepias speciosa*) seed for future propagation to support pollinator habitat restoration.
- Collected sufficient quantities of tufted hairgrass (*Deschampsia cespitosa*) and Nebraska sedge (*Carex nebrascensis*) seed for future propagation to support riparian restoration projects.

Restoration Implementation

- Milkweed planting projects spearheaded by Monarch Advocates of Central Oregon engaged several volunteer groups including Crook County School District in monarch butterfly conservation and hands-on native plant restoration.
- Over 2,000 lbs. of genetically local grass seed mix was seeded on timber sale areas across the forest to revegetate approximately 100 acres.
- Completed 28 acres of riparian planting in Bailey Butte fire area along Heflin Cr. and O'Kelly Cr. and 7 acres along Trout Cr. including: *Populus tremuloides*, *Populus balsamifera*, *Salix* sp., *Cornus sericea*, *Sambucus cerulea*, *Philadelphus lewisii*, *Rosa gymnocarpa*, *Ribes lacustre*, and *Ribes cereum*.

Restoration Planning and Monitoring

- Created a native plant materials geodatabase to help plan and track native seed and propagule collections.
- Mapped and documented 40 seed collection locations across a range of seed zones to facilitate future collections.
- Board member on the Deschutes Basin Native Plant Seedbank.
- Monitored success of hardwood plantings at Toggle Meadow, McKay Creek, and Deep Creek riparian restoration projects.



Figure 1. Pre-collection scouting of aspen fleabane populations.



Figure 2. Native plant program biological technician Jennifer Abernathy displays seed lots collected in FY 2016.



Figure 3. Milkweed planting with Ochoco NF staff, Monarch Advocates of Central Oregon, and Great Old Broads for Wilderness.



Figure 4. Planted willows flourish at Toggle Meadow riparian restoration area.

2016 Accomplishments

Expenditures	NFTM \$20,000
	NFWF \$13,975
	Title II \$6,175
	Pollinator CCS \$9,000
Total program	\$49,150

Partners: Monarch Advocates of Central Oregon, Bend Seed Extractory, Dorena Genetic Resource Center, Central Oregon Intergovernmental Council, BFI Native Seeds, Clarno Hardwood Production Facility, Eastern Oregon Stewardship Service, Discover Your Forest, Crook County School District, and Great Old Broads for Wilderness.

Contacts: Jill Welborn (jilwelborn@fs.fed.us); Jennifer Carson (jlcarson@fs.fed.us)



Ochoco National Forest
3160 NE 3rd Street
Prineville, OR 97754

Okanogan-Wenatchee National Forest

2016 Native Plant Material Accomplishments

One of the agency's goals is to promote the use of native plant materials for the revegetation, restoration, and rehabilitation of native plant communities to provide for the conservation of ecosystem diversity and maintain healthy ecosystem functions. Land management prescriptions will include the selection and use of native plant species that are genetically appropriate and adapted to on-the-ground ecological conditions.

Using FY16 Native Plant Materials Program funds in NFWW, NFWF, CMRD, CMLG, CMTL, CWFS, NFRG, and other funding, we accomplished the following:

Managed native plant programs with the objective of providing native plant materials, principally, native grass, forb, and shrub seed, cuttings, or plants to restore biodiversity, resilience, and ecosystem function to disturbed or degraded sites on National Forest system lands. Funds were used to manage local programs, including: 1. planning appropriate species collections, 2. surveying and mapping collection sites, 3. collecting native plant materials, 4. process materials at R6 Bend Seed Extractory, 5. increase native seed using R6 Restoration Services Contract, 6. sow native seed or plant native stock in appropriate project sites for restoration, rehabilitation, revegetation or pollination purposes, and 7. monitor project sites for planting/sowing response and performance.

Accomplishments for FY16 include:

- Collected 164 pounds of seed and increased 4320 pounds of seed.
- Awarded contracts for seed increase to meet future restoration seeding needs.
- Propagated and propagated 3000 plants and planted 31,229 containerized native plant seedlings for restoration purposes on sites including federal highway rights-of-way, lake or pond habitat, subalpine parklands, and pollinator gardens.



Figure 1. Revegetation site with native forbs and grasses.

- Revegetation projects used numerous grass and forb species (including *Carex nigricans*, *Carex spectabilis*, *Festuca viridula*, *Phyllodoce empetrififormis*, *Sorbus sitchensis*, *Vaccinium deliciosum*, *Bromus carinatus*, *Elymus glaucus*, and *Poa cusickii*).
- Maintain controlled environment seed storage on the Wenatchee River RD, and cold storage on the Cle Elum RD.

FY15 Expenditures: \$652,810 (NFWW, NFWF, CMRD, CMLG, CMTL, CWFS, NFRG)

Partners/Contractors/Cooperators: Benson Farms Inc., Derby Canyon Natives, North Cascades National Park, North Cascades Institute, National Forest Foundation, Yakama Tribe, Snoqualmie Tribe, Moccasin Lake Foundation, Horizon Foundation, R6 Restoration Services, REI, Conservation Northwest, WA Dept. of Transportation.

Contacts:

SO – Lauri Malmquist (Acting)
Chelan & Entiat RDs - Brigitte Ranne, 509-682-4941
Cle Elum RD – Kelly Evans, 509-852-1036
Methow Valley RD - Kelly Baraibar, 509-996-4019
Naches RD - Jodi Leingang, 509-653-1450
Tonasket RD - Larry Loftis, 509-486-5160
Wenatchee River RD - Lauri Malmquist, 509-548-2575



Okanogan-Wenatchee National Forest
215 Melody Lane
Wenatchee, WA 98801

Olympic National Forest

2016 Native Plant Material Accomplishments

The Olympic National Forest Native Plant Program is focused on developing and providing locally sourced native grasses, forbs, and shrubs for habitat restoration and enhancement projects. Specific accomplishments include:

Initiated a contract with Sound Native Plants to grow over 3,000 pollinator-friendly containerized plants to be planted at the Dennie Ahl Seed Orchard as part of a pollinator habitat enhancement project. Species being grown include:

<i>Achillea millefolium</i>	<i>Fritillaria affinis</i>	<i>Physocarpus capitatus</i>
<i>Allium acuminatum</i>	<i>Holodiscus discolor</i>	<i>Potentilla glandulosa</i>
<i>Aquilegia Formosa</i>	<i>Lupinus albicaulis</i>	<i>Rosa gymnocarpa</i>
<i>Ceanothus velutinus</i>	<i>Oemleria cerasiformis</i>	<i>Solidago canadensis</i>
<i>Eriophyllum lanatum</i>	<i>Penstemon ovatus</i>	<i>Triteleia hyacinthina</i>
<i>Fragaria virginiana</i>	<i>Philadelphus lewisii</i>	

Additional seed was collected for direct sowing at the Dennie Ahl project, including *Clarkia amoena*, *Lilium columbianum*, *Plectritis congesta*, *Prunella vulgaris* ssp. *lanceolata*, and *Rhinanthus minor*. This seed was collected by ONF employees, and volunteers from the Great Old Broads for Wilderness.

Initiated a contract with Forth Corner Nurseries to establish production fields of *Arunucus dioicus*, *Geum macrophyllum*, *Tellima grandiflora* and *Tolmiea menziesii* from seed collected over the past two years. This seed will be used to enhance pollinator habitat while providing erosion control and weed exclusion in more mesic sites across the Forest. This contract was funded in part by the Regional CCS Project "The Birds and the Bees: Pollinators if you please".

J.H. Stone Nursery successfully harvested seed of *Achillea millefolium*, *Anaphalis margaritacea*, and *Solidago canadensis* from fields established last year. This seed will be used to enhance pollinator habitat while providing erosion control and weed exclusion in more xeric sites across the Forest.

Clarno Hardwood Propagation Center established hardwood beds for *Populus balsamifera* ssp. *trichocarpa*, *Salix lucida* ssp. *lasiandra*, *S. scouleriana* and *S. sitchensis* using material originating Skokomish and Hamma Hamma watersheds.



Figure 1. CNLM production fields of *Castilleja hispida* and *Eriophyllum lanatum*. Seed produced under this contract will enhance habitat for the endangered Taylor's Checkerspot butterfly.

Center for Natural Lands Management

(CNLM) harvested 10 lbs. of *Plectritis congesta* and 12 lbs. of *Collinsia parviflora* seed from production fields established last year. In addition to this seed, 2400 "excess" *Castilleja hispida* plugs were purchased. All of this material was then sown and planted this Fall in the Dungeness watershed to enhance habitat for the Taylor's Checkerspot butterfly. Production fields of *Castilleja hispida*, *Eriophyllum lanatum* and *Lomatium utriculatum* will be harvested next year. This suite of species provide host, larval food, and nectar plants for this endangered butterfly and their use will contribute to recovery efforts currently underway in Western Washington.



Figure 2. Pollinators continue to be a primary factor on the Olympic NF when developing native plant materials. There is tremendous interest among the Olympic peninsula restoration community in developing and using locally sourced, pollinator friendly native plant materials, and opportunities for collaboration and leadership are abundant.

Expenditures: \$48,000 Total

\$20,000 NFTM

\$8,000 CMRD

\$13,000 NFWW

\$7,000 NFWF

Partners/Contractors/Cooperators:

Clallam, Jefferson, and Mason County Noxious Weed Control Boards, Center for Natural Lands Management, Clarno Hardwood Propagation Center, Forth Corner Nursery, Great Old Broads for Wilderness, J.H. Stone Nursery, Sound Native Plants, Washington Conservation Corp

Contact: Cheryl Bartlett
Forest Botanist, Invasive Plant Program Coordinator and Native Plant Materials Program Manager,
360-956-2283



Olympic National Forest
1835 Black Lake Blvd. SW
Olympia, WA 98512

Rogue River-Siskiyou National Forest

2016 Native Plant Material Accomplishments

Seed Increase Production

J. Herbert Stone FS Nursery (JHSN):

Deschampsia elongata – 0.55 acres – 91.8 lbs. harvested

Elymus glaucus – 1.08 acres – 508 lbs. harvested

Festuca californica – 1.01 acres – 169 lbs. harvested

Festuca roemerii – 0.96 acres – 18.4 lbs. harvested

Koeleria cristata – 0.14 acres – 8 lbs. harvested

Stipa nelsonii – 0.07 acres – 14.6 lbs. harvested

BFI Native Seeds (CCS project w/WIL and UMP):

Eriophyllum lanatum – 0.5 acres – new 2016 crop

Agastache urticifolia – 0.5 acres – new 2016 crop

Total = 4.81 ac./792.8 lbs. harvested/8 species

Containerized Plant Production

J. Herbert Stone FS Nursery (JHSN):

Festuca californica grass plugs – 5,660

Festuca roemerii grass plugs – 2,090

Dorena Genetic Resource Center

Asclepias cordifolia – 489 (D27 size)

Asclepias fascicularis – 74 (D27)

Aquilegia Formosa – 36 (D16)

Boykinia occidentalis – 20 (D16)

Campanula scouleri – 42 (D16)

Cammassia quamash – 2,350 (D16)

Castilleja pruinosa – 850 (D16)

Chaemacyparis lawsoniana – 1,000 (RL10)

Dichelostemma congestum – 165 (D16)

Erigeron foliosus var. confinis – 262 (D16)

Frangula californica – 740 (D27)

Lotus crassifolius – 71 (D16)

Lupinus tracyi (Sensitive plant) – 160 (D16)

Sidalcea oregana spp. spicata – 50 (D16)

Sambucus nigra – 280 (D27)

Thermopsis macrohylla – 614 (D27)

Xerophyllum tenax – 540 (D27)

Total = 15,493 plants/19 species

Outplanting and Seeding

Collier Butte Wildfire: Dozer Line Rehabilitation

20 acres revegetated- 3000 grass plugs, 3000 plants and 200 lbs. of grass seed

Buckskin Wildfire: Dozer Line and Safety Zone Rehabilitation

10 acres revegetated- reestablished a population of *Lupinus tracyi* (150 plants established). Also 4000 grass plugs and 300 lbs. of grass seed sown

Hogue Meadow Restoration and Monarch Habitat Enhancement

10 acres revegetated- 600 milkweed containers, 200 forbs (*Mondardella odoratissima*, *Aquilegia Formosa*), 300 lbs. of grass seed sown

CWKV Sale Area Revegetation (landings, skid trails, road decom.)

40 acres revegetated- spread 500 lbs. of grass seed from 5 different species (*Bromus carinatus*, *Elymus glaucus*, *Festuca californica*, *Festuca roemerii* and *Deschampsia elongata*)

Total = 80 acres revegetated/10,800 containers/1,300 lbs. of grass seed sown

Native Seed Collection

Asclepias cordifolia – 3 oz.

Asclepias fascicularis – 3 lbs.

Asclepias speciose – 4 lbs.

Carex leptopoda – 1 oz.

Chamerion angustifolium – 1 oz.

Cirsium brevistylum – 1 oz.

Elymus glaucus – 15 lbs.

Epilobium canum – 1 oz.

Eriogonum compositum – 2 lbs.

Eriophyllum lanatum – 2 lbs.

Lotus crassifolius – 4 oz.

Monardella odoratissima – 2 lbs.

Penstemon anguineus – 1 oz.

Solidago canadensis – 3 oz.

Triteleia hyacinthine – 0.3 oz.

Whipplea modesta – 1 oz.

Total = 27 lbs./16 species



Figure 1. *Castilleja pruinosa* being grown at Dorena for a pollinator enhancement project.



Figure 2: Restoration of OHV damage at Hogue meadow includes planting of milkweed and diverse forbs to enhance monarch use.

Accomplishment Metrics

792.8 lbs. of grass seed harvested from **8 species**

15,408 containerized plants grown from **19 species**

27 lbs. of wild collected native seed from **16 species**

80 ac. revegetated w/**10,800 plants** and **1,300 lbs. of seed**

Expenditures: \$46,988 (NFVW Native Seed), \$40,000 (CWKV), \$6,000 (Fire P codes) , \$5,000 NFXF (Monarch Grant Funds), \$10,000 Regional Challenge Cost Share **Total = \$106,988**

Partners/Contractors: SW Oregon Pollinator Collaborative:

USFWS, Lomakatsi Restoration, USDA-NRCS, S. Oregon Monarch Advocates (SOMA), Selberg Institute, BLM and ODOT. Contracts: BFI Native Seeds & Siskiyou Biosurvey

Rogue River-Siskiyou Native Plant Program Contacts:

Clint Emerson, Forest Botanist 541-618-2056

Stu Osbrack, Wild Rivers RD Botanist 541-592-4052

Kailey Clarno, Gold Beach/Powers RD Botanist 541-247-3656



Rogue River-Siskiyou NF

3040 Biddle Road
Medford, OR 97520

Siuslaw National Forest

2016 Native Plant Material Accomplishments

The Native Plant Program provided seed and plant materials for restoration projects benefiting threatened Oregon silverspot butterfly, coastal coho salmon, and native pollinators.

Seed Produced:

clarkia (*Clarkia amoena*)
early blue violet (*Viola adunca*)
goldenrod (*Solidago canadensis*)
gray beach pea (*Lathyrus littoralis*)
lupine (*Lupinus rivularis*)
pearly everlasting (*Anaphalis margaritacea*)
Pacific aster (*Symphotrichum chilense*)
rattlesnake weed (*Daucus pusillus*)
yarrow (*Achillea millefolium*).

Seed Collected for Production:

blue wildrye (*Elymus glaucus*)

Plants Produced: 28,200 Total

big-leaf maple (*Acer macrophyllum*)
black twinberry (*Lonicera involucrata*)
camas (*Camassia quamash*)
casara (*Frangula purshiana*)
currant (*Ribes sanguineum*, *R. bracteosum*)
Douglas spiraea (*Spiraea douglasii*)
Douglas-fir (*Pseudotsuga menziesii*)
early blue violet (*Viola adunca*)
hazelnut (*Corylus cornuta*)
Oregon iris (*Iris tenax*)
Oregon-grape (*Mahonia aquifolium*)
Pacific ninebark (*Physocarpus capitatus*)
red alder (*Alnus rubra*)
sedges (*Carex unilateralis*, *C. stipata*, *C. rossii*,
C. obnupta)
small fruited bulrush (*Scirpus microcarpos*)
swamp crabapple (*Pyrus fusca*)
vine maple (*Acer circinatum*)
water foxtail (*Alopecurus geniculatus*)
willow (*Salix lucida*, *S. sitchensis*, *S. hookeriana*,
S. scouleriana)

Restoration Projects Supported:

- Five Mile-Bell Creek Restoration Project.
- Noble Meadow Restoration Project.
- Oregon silverspot butterfly habitat restoration.



Siuslaw National Forest
3200 SW Jefferson Way
Corvallis, OR 97339



Figure 1. Noble Meadow Restoration. Meadow habitat that had been reduced to small remnants is reconnected with the removal of encroaching trees. Revegetation with native species began in 2016.



Figure 2. Red admiral butterfly (*Vanessa atalanta*) nectaring on planted goldenrod (*Solidago canadensis*).

Year :	FY 2016
	\$93,000 (OWEB grant)
	\$20,000 (NFWW)
	\$11,000 (NFWF)
	\$1,500 (SSCC)

Expenditures: \$125,500 Total

Partners: NRCS Corvallis Plant Materials Center, Siuslaw Watershed Council, Tillamook Estuaries Partnership, Elkton Community Education Center, Institute for Applied Ecology, Coffee Creek Correctional Facility, Oregon Watershed Enhancement Board.

Contacts: Marty Stein, Forest Botanist, 541-563-8417
Paul Burns, Fisheries Biologist, 541-271-6019

Umatilla National Forest

2016 Native Plant Material Accomplishments

The Umatilla National Forest native plant materials program continues to be a leader in the collection, propagation, and planting of genetically appropriate native species for projects that require seeding or planting of cuttings. Staff at the supervisor's office work closely with district personnel.

Coordinated with Umatilla tribe and other cooperators to hire Chris Hoag (wetland restoration specialist) to conduct an interagency three day riparian restoration workshop.

Native Seed produced purchased in existing increase fields:

- Purchased approximately 2,000 lbs. pounds of native grass seed produced by Benson farms.
- Purchased caging supplies and weed-free straw for the Heppner and North Fork John Day RDs.

Native Seed Inventory, Collection, and cuttings:

- Whitman college interns surveyed and documented potential collection sites for Wyeth's buckwheat along 30 miles of road on the Walla Walla RD.
- Collected seed of arrow-leaf balsamroot, Wyeth's buckwheat, Blue Mountain buckwheat, skyrocket gilia, columbine, and bee balm, Sent to USFS Bend extractory for cleaning and storage. Will be increased and used for pollinator habitat enhancement and erosion control.
- Collected seed of several wetland grasses, sedges, rushes, and forb species. These will be grown locally and used for riparian meadow restoration on the North Fork John Day RD.

Planting/Restoration Project Implementation:

- Planted native grasses and forb seed in timber sale areas, decommissioned roads, fish passage projects, and other disturbed sites.



Figure 1. Buckwheat seed was collected in 2016



Figure 2. Robin Harris And Eric Pfeifer of Walla Walla RD mixing seed.

Funding:

Legacy roads and trails (CMLG): \$ 10,000
Vegetation/Watershed (NFVW): \$23,000
Stewardship contracting (SSCC): \$2,003
Hazardous Fuels reduction (WFHF):\$5,000

Supervisor's Office Expenditures: \$ 40,003 Total

Integration: Other BLIs and grants including Title II funds contributed to accomplishments as a result of program integration esp. the Watershed and Aquatic Restoration Program.

Partners/Contractors: Benson Farms, Dorena Genetic Resource Center, Confederated Tribes of the Umatilla Indian Reservation (CTUIR),

Forest Contacts:

Paula Brooks, 541-278-3931 (Supervisor's office)
Eric Pfeifer, 509-522-6022 (Walla Walla and Pomeroy)
Kate Popescu, 541-427-5313 (North Fork John Day and Heppner Districts)



Umatilla National Forest
72510 Coyote Road
Pendleton, OR 97801

Umpqua National Forest

2016 Native Plant Material Accomplishments

Seed Collection and Propagation

Feld production continues for multiple fields of blue wildrye and California fescue at the J. Herbert Stone Nursery.
Umpqua Botany personnel continued to partner with the Roseburg Phoenix High School and the Veterans Administration to develop native plant nurseries and gardens.

Restoration Project Implementation

Transplanted plugs and seeded the following grasses, shrubs and forbs for wildlife, recreation, engineering, and mitigation based projects:

Rush (plugs)	2000	
Small-fruited bulrush (plugs)	1000	
Mannagrass (plugs)	1000	
Strawberry (plugs)	3000	
Serviceberry (plugs)	1000	
Mule's ears (plugs)	1000	
California tea (plugs)	4000	
Oregon white oak (plugs)	200	
Willow (cuttings)	800	
Blue wildrye	1400 lbs	
California brome	150 lbs	
Roemers fescue	485 lbs	
Prairie June grass	130 lbs	
California fescue	100 lbs	
Pearly everlasting , big deervetch, California tea, lupine, thick-leaved lotus, columbine and willow-herb	20 lbs	

Seeded the following species at several KV-funded projects:

Blue wildrye	1350 lbs
California brome	150 lbs
Roemers fescue	470 lbs
Prairie Junegrass	130 lbs
California fescue	300 lbs

Pollinator Gardens

Established ten pollinator gardens in schools, nature parks, and along the Row River Trail.

Delivered a pollination ecology curriculum to over 350 students in the South Lane School District.

Contact : Richard Helliwell, 541-957-3337



Umpqua National Forest
2900 NW Stewart Parkway
Roseburg, OR 97471-1274



Figure 1. Pollinator planting by middle school students.

Fire Suppression Repair and BAER Seeding

Seeded the following on the Stouts Fire:

Blue wildrye	883 lbs
California brome	95 lbs
Roemers fescue	6 lbs
Lemmon's needlegrass	22 lbs
California oatgrass	11 lbs

Partners

Coast Fork Watershed Council, US Army Corp of Engineers, Kennedy School, South Lane School District, Cottage Grove Public Library and PacifiCorp



Figure 2. Newly established pollinator garden with interpretive sign.

Wallowa-Whitman National Forest

2016 Native Plant Material Accomplishments

The Wallowa - Whitman National Forest Native Plant Program provides native grasses, forbs, shrubs, trees and mulch to support restoration projects across the forest.

Seed was collected from the following 5 forb species for cleaning, testing and propagation: *Agastache urticifolia*, *Geranium viscosissimum*, *Monardella odoratissima*, *Sidalcea oregana* and *Solidago missouriensis*.

18 Pollinator friendly forb species were collected and direct seeded on dozer lines for post fire restoration.

Purchased 25 lbs. *Pseudoroegneria spicata*, 60 lbs. *Achnatherum occidentale* and 15 lbs. *Penstemon venustus*.

Issued task order for propagation of *Pseudoroegneria spicata*, *Agastache urticifolia*, *Anaphalis margaritacea*, *Eriophyllum lanatum*, and *Penstemon venustus*.



Restoration project implementation

Provided approximately **4,000** pounds native grass and forb seed for revegetation on a variety of projects across the forest, including:

2,630 lbs. - Fire / BAER Rehabilitation of dozer line on 5 large fires.

370 lbs. - Skid trails, decks and landings for 5 timber / fuel reduction projects.

50 lbs. - Range Improvement / Ponds.

300 lbs. - Revegetation after utility/right-of-way/road work.

350 lbs. - Noxious weed prevention / rehabilitation of burn piles.

300 lbs. - Aquatic Restoration (**10 ½ acres**)

4,000 lbs. Total native grass and forb seed planted

In addition, approximately **7,500** deciduous trees and shrubs and **5,500** hardwood cuttings were planted on 3 Aquatic Restoration Projects.

Partners / Cooperators / Contractors:

The PlantWorks, LLC.,
Bend Seed Extractory, Clarno Hardwood
Production Beds,
Oregon Youth Authority

Contacts: Susan Geer, Penny Hall, Jerry
Hustafa, Gene Yates



Wallowa-Whitman National Forest
P.O. Box 907
1550 Dewey Avenue
Baker, OR 97814

Willamette National Forest

2016 Native Plant Material Accomplishments

Seed Growout Contracts:

We used the Regional Grass Seed Increase contract to procure the following:

- 4016 # blue wild rye seed
- 1625 # California brome seed

We sent grass for seed increase to JH Stone in 2015; the Columbia brome failed to thrive but the California fescue should produce seed next summer (year 2).

More than 20 acres were seeded across the forest for erosion control, weed competition and forage. Also 300 native plants were used in campground and parking lots on Detroit RD.

Seed Collection:

The Willamette participated in the Regional Pollinator challenge cost share for a second year. Middle Fork District is part of the Southern Cascades ecoregion where we collected and contracted to increase giant hyssop (*Agastache urticifolia*) and Oregon sunshine (*Eriophyllum lanatum*) with Rogue/Siskiyou and Umpqua NFs. The other 3 Districts are part of the Central Cascades ecoregion where we collected 13 different species and contributed to seed increase fields of goldenrod (*Solidago canadensis*) and Pearly everlasting (*Anaphalis margaritacea*) with Mt. Hood and Gifford Pinchot NFs.

Cooperative Projects:

This is the fourth year we got a crop from our seed increase plots for **Corvallis Plant Material Center**: *Iris tenax* (6 lbs), *Penstemon cardwellii* (5 lbs) and *Lotus crassifolius* (328 g).

A total of **22 Tons of weed free straw** was obtained for Middle Fork engineering department.

A cooperative CCS project was developed with the wildlife program to **monitor pollinators** in our pollinator gardens on the Middle Fork and Sweet Home Ranger Districts. Over 20 different pollinator species visited 40 pollen and nectar producing plants.



Figure 1. Oregon sunshine, one of the pollinator species the Willamette is growing at Benson Farms

Year Awarded/Completed: 2016

Expenditures:	\$ 67,250 Total
	\$ 30,000 (NFWW)
	\$ 5,000 (NFWF)
	\$ 9,000 (CMLG)
	\$ 7,000 (CMRD)
	\$ 3,500 (FSRM)
	\$ 13,250 (CWKV)

Partners/Contractors/Coop: Benson Farms Inc., Corvallis NRCS Plant Material Center, JH Stone Nursery,

Contact: Jenny Lippert 541-225-6440



Figure 2. Jerry Benson, our contractor, standing in our Field of McKenzie watershed California brome.



Willamette National Forest

3106 Pierce Parkway, Suite D
Springfield, OR 97477



Genetic Resource Management

Program Accomplishments



Trials at Dorena Genetic Resources Center (Umpqua National Forest, OR) to identify whitebark pine seed sources that are resistant to blister rust.

Inset photo: Note the large differences in seedling survival among seed sources (10-tree row plots) with differing levels of disease resistance.




Okanagon NF collects the first crop of disease resistant whitepine seed from the McCullough Seed Orchard in W. WA.



Dorena Genetic Resources Center (UMP NF) celebrates 50 years of promoting healthy forests. Over 100 guests and speakers attended.

Fiscal Year 2016



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Pacific Northwest Region, US Forest Service Genetic Resource Management Program

2016 Accomplishments

Program Overview:

Region 6 Genetic Resources Program activities focus on the production and use of genetically diverse and adapted seed for reforestation and accelerated restoration. Key program elements include:

- Disease resistance screening (blister rust in 5-needle pines and *Phytophthora lateralis* root rot in Port-Orford-cedar) and seed production/seed banking work at Dorena Genetic Resources Center (DGRC, Umpqua NF). DGRC is also the designated national center for tree climbing instructor training and certification.
- Partnering with other agencies and stakeholders to conserve at-risk species such as whitebark pine, and maintain ecosystem resilience and health in disturbed and changing environments.
- Region 6 geneticists provide genetic expertise/consultation/training and oversight over the region's forest tree seed orchards (>1900 acres, 50 locations, 12 species) and genetic test sites. They work closely with a wide array of specialists and research partners to develop decision support tools and technology transfer for guiding seed source selection and consideration of future climates in reforestation and restoration management decisions.

Specific FY16 Accomplishments include:

Cone collection – 1476 bushels of cones were collected from 6 tree species on national forests throughout the PNW. This was the largest cone collection effort in Region 6 in over 2 decades. The resulting 426 pounds of seed was processed at the R6 Bend Extractory, and will be used to augment and replenish forest seedbanks for reforesting areas affected by wildfires, insect and disease outbreaks, and other disturbances. WA DNR and several private companies also took advantage of the 2016 bumper crop through permits to collect cones on national forest lands and seed orchards in WA state.

Gene Conservation of High Elevation Conifers – 239 individual collections were made across the western US for gene conservation by USFS geneticists in collaboration with the Royal Botanic Gardens Kew. The seed, processed at R6 Bend Seed Extractory, came from nine different at-risk forest tree species and resulted in 20 pounds of cleaned seed. Seed samples will be archived at the R6 Dorena Genetic Resources Center (Umpqua National Forest, OR), the USDA National Center for Gene Conservation (Ft. Collins, CO) and the Millenium Seed Bank in the UK.

Disease resistance testing at Dorena Genetic Resources Center – initiated testing on 128 families (8000 seedlings) of whitebark pine, the first conifer species warranted for listing under the Endangered Species Act. Seed was collected and seedlings grown at Dorena from 9 National Forests, Crater Lake NP, and the Colville Indian Reservation in 2015 and 2016. Seedlings were infected with whitepine blister rust to test for natural resistance, results of which will be used for future seed sources in restoration plantings. Several new projects and partnerships were established to test seed for resistance in other five-needled pines including limber pine and bristlecone pine with Canada and the Rocky Mountain Research Station. Limber pine and whitebark pine are also now listed species in Canada.

Port-Orford-Cedar disease resistance – testing on 91 families (over 3600 seedlings) were added to the program to bolster resistance in the containerized seed orchards located at Dorena Genetic Resource Center. Resistant seedlings were produced and planted at Redwood National Park as part of a partnership with the NPS to restore dying legacy trees on the landscape in a popular hiking area. Seedlings were also produced for the California State Parks and Oregon Caves National Monument that will be planted this winter.

Regional Contact:

Vicky Erickson, 541-278-3715, verickson@fs.fed.us



US Forest Service
Pacific Northwest Region
Natural Resources Staff
P.O. Box 3623
Portland, OR 97208

Dorena Genetic Resource Center

2016 Program Highlights

50th Anniversary Celebration

- Dorena celebrated 50 years of promoting healthy forests.
- Celebration included over 100 participants and speakers.
- Previous employees, Washington and Regional Office program managers, and partners from National Park Service, BLM, USDOT Federal Highways, research stations, universities, Whitebark Pine Ecosystem Foundation, and other Regions were in attendance.
- Tours of rust resistance testing, Port-Orford cedar orchards, native species, seed, and tree climbing programs were well attended.



Five-Needle Pine Resistance Breeding (to *Cronartium ribicola*)

- Rust resistance testing program has expanded to include inoculation and testing of 8 five-needle pine species from the US, Canada, and Mexico.
- Partners in the 2016 resistance testing program included 13 National Forests in Regions 1, 5, and 6; 2 National Parks; 2 tribes; BLM; PSW, PNW, and Rocky Mountain Research Stations; British Columbia and Alberta Ministries of Forests; and several universities.
- Established 4 new validation outplantings and assessed 13 field plantings.
- Produced 34,700 seedlings for testing, outplanting, and orchard stock.
- Maintained, inventoried, and collected pollen and/or cones from 8 USFS and BLM pine orchards.
- Welcomed Antonio Castilla-Alvarez as a post-doc working on the southwestern white pine project.

Port-Orford-Cedar Resistance Breeding (to *Phytophthora lateralis*)

- Produced 2500 seedlings for new testing at OSU.
- Produced 4900 seedlings and cuttings for outplanting and orchard establishment, including restoration plantings in Redwood National Park, Oregon Caves National Monument, and Rogue-Siskiyou National Forest.
- Completed seed collection and extraction from 8 breeding zones for testing and 3 breeding zones to supply seed to Oregon Department of Forestry.
- Continued work with South Slough National Estuarine Research Reserve (SSNERR) monitoring planted resistant seedlings and began consulting on a Watershed Management Plan for the Wassen Management Area (part of SSNERR) to promote the use of resistant material across the landscape.
- Completed construction of 3 new greenhouses for expansion of growing space and improvement of orchard growing and culturing conditions.



National Tree Climbing Program

- Provided annual instructor training with 64 attendees from USFS (most regions), USFWS, APHIS, BLM, PNW, Army Corps of Engineers, tribes, National Parks, and many other universities and agencies.
- Provided Advanced Rigging Training recertification for chainsaw use in trees to 12 students.
- Helped several forests with climbing needs including red tree vole assessment, and whitebark pine cone caging and WBP and sugar pine cone collection.
- Facilitated the annual Technical Advisory Group Meeting supported by all 7 regions.



Contact: Lisa Winn
Dorena Genetic Resource Center
34963 Shoreview Drive
Cottage Grove, OR 97424

Eastern Oregon Area Genetics Program

Serving the OCH, DES, WIN-FRE, CRNG, MAL, WAL-WHI, UMA, ...and beyond

2016 Program Highlights

In 2016 the Eastern Oregon Area Genetics Program collaborated with, and provided support to a diverse collection of internal and external cooperators. Below is a brief list of highlights. *Not all program activities are listed.*

EDUCATION AND OUTREACH

- International Programs Forest Landscape Restoration Seminar and field trip to Clarno Hardwoods Facility.
- International Programs nursery infrastructure assessment and revegetation training for the Palestinian Ministry of Agriculture.
- Co-organizer of National Gene Conservation Workshop.
- Lead of FS content development team for the Federal Highways revegetation guide.

ON-GOING ADMIN STUDIES IN SUPPORT OF OPERATIONS

Results in press

- Basalt Milkvetch and Western Prairie Clover seeding trials (with ARS-Provo).

Data analysis phase

- Bottlebrush Squirreltail Common Garden Trial (with USFS PNW RS, ARS-Pullman, and UNR).
- Prairie Junegrass Common Garden Trial (with USFS PNW and RMRS RS's).

Data collection phase

- Phenology Monitoring on the Pringle Falls Experimental Forest (DESNF).
- Phenology monitoring study at Kelsey Butte Seed Orchard (DESNF).



Figure 2. USFS Geneticist Matt Horning discusses nursery practices with Palestinian Ministry of Agriculture staff at the Wadi Al Quf nursery in the West Bank Palestinian territory (Wadi Al Quf is the oldest nursery in the MidEast).

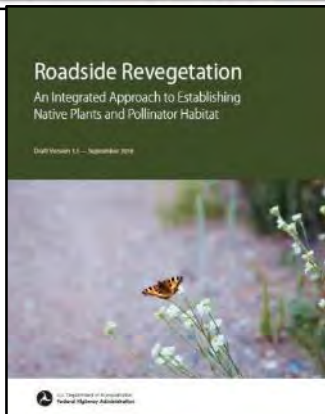


Figure 1 Draft version of updated roadside revegetation guide released September 2016.

2016 Partners/Cooperators

ARS-Pullman Western Regional Plant Introduction Center (RC Johnson, Mike Cashman)

ARS-Sydney Northern Plains Agricultural Research Laboratory (Erin Espeland)

ARS-Provo Forest and Range Research Laboratory (Doug Johnson, Shaun Bushman)

USFS PNW Research Station (Brad St. Clair, Rich Cronn)

USFS RM Research Station (Francis Kilkenny, Kas Dumroese) **University of Nevada – Reno** (Beth Leger)

Pringle Falls Experimental Forest (Paul Anderson)

Native Plant Nursery Consulting (Tom Landis)

The Xerces Society (Candace Fallon)

OSU Cascades (Matt Orr, Kathryn Alexander, Matt Shinderman)

OSU Corvallis (Anthony Davis)

Federal Highways Administration (Deirdre Remley, Amit Armstrong)

Contact: Matt Horning, 541-408-1711



Deschutes National Forest
63095 Deschutes Market Rd.
Bend, OR 97701

Recent Publications:

Espeland EK, Johnson RC, **Horning ME**. Native perennial grass populations exhibit plasticity tradeoffs: implications for seed provenancing. Submitted to Restoration Ecology.

Western Washington Area Genetics Program

Olympic, Gifford Pinchot, & Mt. Hood NF's

2016 Program Highlights

SEED & SEED ORCHARDS

Gene Conservation of High Elevation Conifers – working with Royal Botanic Gardens Kew, seed collections were made from several high elevation conifer species for gene conservation with samples to be archived in the ARS NCGP in Ft. Collins, and the Millenium Seed Bank in the UK.

Seed orchard collections – abundant cone crops in several seed orchards were taken advantage with the Mt. Hood NF making the first collection ever of western larch seed from the Dee Flat seed orchard. Noble fir was also collected under permit from the French Butte, McCullough, and Podunk seed orchards by WA DNR and several private companies.

Seed orchard monumentation - inventories were completed for the French Butte, White Salmon, and Planting Creek orchards on the Gifford Pinchot NF. These inventories were used to print new metal tags that were installed at French Butte. The other orchards will be retagged in the future.

Phenology monitoring – in cooperation with the PNW Research Station a 6th year of data was collected on phenology of Pacific silver fir and western white pine and this year some western hemlock was added to the project. This data is building a baseline to monitor impacts of climate warming. Time lapse cameras were used to monitor bud flush and pollen shed remotely.

PROJECTS

Population Genetics of *Artemisia campestris* var *wormskioldii* - working with NFGEL, USFWS, and WADNR population structure and genetic diversity was assessed of *Artemisa campestri* var. *wormskioldii*, which is limited to only 2 populations, both located on federal lands. This was in advance of the USFWS 12-month finding report on listing this species under ESA.

Genetic differentiation of Oregon white oak -

Partnering with University of Alabama and NFGEL, lab results are available in a study of population structure of Oregon white oak on the east vs. west side of the Cascade mountain. Data analysis is under way.



Figure 1. Cone collection group including visitors from the UK, and tree climbers from the Olympic, Deschutes, and Ochocho National Forests, and the Redmond Smokejumper base.



Figure 2. Luke Rowland from University of Oxford Harcourt Arboretum collects cones from a Pacific silver fir for genetic conservation.

PARTNERS/COOPERATORS

Royal Botanic Gardens Kew (Michael Way)
US Fish and Wildlife Service (Ted Thomas)
UK Forestry Commision (Daniel Luscombe)
USFS NFGEL Laboratory (Valerie Hipkins)
USFS PNW Research Station (Brad St. Clair, Connie Harrington)
WA DNR (Jeff DeBell, Jeff DeGraan)
University of Alabama (Travis Marsico)
Regenetics Forest Genetics Consulting (Dan Cress)
Quinalt Indian Nation (Jim Hargrove)



Contact: Andy Bower
Olympic National Forest
1835 Black Lake Blvd. SW
Olympia, WA 98512

Western & Eastern Washington Area Genetics Program

Colville, Okanogan – Wenatchee and Mt Baker – Snoqualmie NF's -

This is only a sampling of the many projects completed

2016 Program Highlights



Western Larch & Douglas-fir Cone Collections -- 98 bushels of WL were collected across the Colville NF. 34 bushels of DF from the Cedar Creek seed orchard on the Sullivan Lake RD & 19 bushels of DF from across the Colville NF were collected. This was the first DF cone collection in the Cedar Creek seed orchard.

Blister Rust Resistant Western White Pine Cone Collections Hard Knox Block of McCullough Seed Orchard -- 41 bushels of cones from rust resistant WWP were collected by the Okanogan – Wenatchee NF using a man lift. This is the first cone collection in this orchard.

Blister Rust Resistant Western White Pine – Rust resistant western white pine were planted in the TeePee seed orchard on the Sullivan Lake RD. This orchard is almost filled with 1700 planted, rust resistant, western white pine. 11 bushels of cones were collected from rust resistant WWP. This is the second cone collection in this orchard.

Seed Orchard Aluminum Tags – Aluminum tags were placed on 1,989 rust resistant western white pine in the TeePee orchard; 3,940 western larch, 1,003 lodgepole pine, 3,705 Douglas-fir & 2,427 PP in the Cedar Creek, Pal Moore, Flowery Trail & Brown Mt seed orchards. The tags were attached to the tree bole with 6 inch deck screws to allow the tag to move along the screw with yearly tree diameter growth.

Seed Orchard Roguing Contracts -- A contract was awarded for thinning WL, PP, DF, ES, & LP seed orchard locations in: Flower Trail 39 locations, Pal Moore 287 locations, TeePee 125 locations, Cedar Creek 267 locations. A contract was completed for thinning 351 locations in the Brown Mountain WL, PP & DF seed orchards. Trees at these orchard locations were reduced to the very best leave trees for each species per planted location.

DF Needle Midge Insect Surveys – A Forest Entomologist & Pathologist surveyed the DF in the Pal Moore & Flowery Trail seed orchards to identify the amount of needle damage. Midge traps were constructed & placed in the orchards to determine timing of midge emergence. Midge damage to the DF needles was greatly reduced from previous years.

Brown Mountain Western Spruce Budworm Bt-k Spaying Success -- Treatment with Bt-k insecticide in 2015 reduced the western spruce budworm population such that no treatment was necessary in 2016.

Camas Seed Orchard -- A fuel break & pollen dilution zone were created around the seed orchard. Beetle killed PP were removed. All material was chipped or hauled away.

Fire Damaged Pole Pick Seed Orchard – The fire damaged fence was removed, a new gate was installed, all brush & natural trees were removed, the PP was pruned & new tags installed.

Burge Seed Orchard -- All brush & natural trees were removed, the PP was pruned & new tags installed.

McCullough Seed Orchard – Portions of the fence were rebuilt. A timber sale removing trees in a 100 foot wide strip, outside the orchard fence, is almost completed.

Whitebark pine -- A Colville NF wide programmatic NEPA document was signed by the Forest Supervisor allowing treatment of whitebark pine stands, outside of wilderness areas, across the forest. Work was begun in a mixed species stand on the Kettle Crest in partnership with The Kettle Range Conservation Coalition.

WA State DNR DF cone collection – Using the R6 MOU & with a permit from the Colville NF, WA DNR collected 50+ bushels of DF from the Cedar Creek seed orchard.

Noble Fir Cone Induction McCullough Seed Orchard – Dan Cress, Regenetics Forest Genetics Consulting, treated Noble fir in the orchard to help induce cone production for collection. Cones were collected from the treated trees using man lifts.

2015 Partners/Cooperators

USFS Region 1, Genetic Resources (Mary Frances Mahalovich, Marie McLaughlin)

USFS Wenatchee Forest Insect & Disease Service Center (Connie Mehmel, Darci Dickinson, Roy Magelssen, Betsey Goodyear, Holly Kearns, Brennan Ferguson)


Dorena Genetic Resources Center (Angelia Kegley, Richard Snieszko)

Washington State DNR (Jeff deGraan, Jeff DeBell)

Dan Cress, Regenetics Forest Genetics Consulting



Contact: Tom DeSpain, 509-684-7225
Colville National Forest
765 South Main Street
Colville, WA 99114



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