

**Walter Horning Tree Seed Orchard  
Native Plant Materials Center  
Salem District  
Bureau of Land Management  
August 24, 2009**

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**Facilities**

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The Horning Seed Orchard is a multiple use facility established in 1964. It resides on 800 acres of land outside the Portland metropolitan area. These include 238 acres in some form of coniferous seed production, 8 acres in test or study areas, 40 acres for native plant material production, 10 acres of administrative site, and 15 acres of roads. There are 392 acres of buffer and riparian habitat, and 52 acres of fallow ground.

There are 23 buildings or assets of various types, including 3 recently updated greenhouses, a seed extractory, cone drying barn, nursery work building, equipment storage, maintenance shop, cookhouse/pollen processing building, storage building/shadehouse, and an office. There are also complete accommodations for volunteers including bunkhouse space and RV hookups.

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**Native Plant Material (NPM) Cooperative Programs**

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From 1997 to 2002 total program funds for Eugene District and Salem District BLM have exceeded half a million dollars. Funding levels vary on an annual basis. The intent of the Native Plant Materials Policy is to encourage Districts to develop supplies of native plant materials and to use these native plant materials in a wide range of projects. The long-term goal is the general use of adapted native plant materials rather than non-native materials.

The BLM is committed to providing technical assistance and support to area Watershed Councils in their restoration efforts. This includes authorizations and Agreements to use orchard facilities and assistance in locating supporting grant monies as a cost effective means of BLM participation with these groups.

The orchard is active with a range of Watershed Councils and other organizations in support of restoration efforts in critical NW Oregon watersheds. Nine of these Watershed Councils have signed formal Agreements with the BLM and other Agreements are being assembled. Eugene District, Willamette National Forest, Mt Hood National Forest, Gifford Pinchot National Forest, and Eugene Wetlands have all been involved in NPM development conducted at the orchard. This work has been funded by these organizations either directly or with grant money.

This activity is driven by the need for compliance with a wide range of federal and state laws and agency policies addressing clean water, weed control, restoration, etc. The Tillamook RA alone has over 400 miles of waterway in need of restoration with locally adapted species. This will require a long term commitment for the production of NPM.

There have been several large multiple-year contracts jointly prepared by Eugene BLM, Salem BLM, the Willamette National Forest, the Eugene Wetlands, and others that began operations in the summer of 2003 but have now concluded. These contracts included planting, weeding, cultivation, harvesting, seed cleaning and processing of over 30 additional species of NPM at the orchard. Currently the Willamette National Forest has an agreement with the BLM to develop a few native species in the native plant beds.

The small sizes of these specialized lots of plant materials continue to be unattractive to local growers.

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### **Native Plant Beds and Wetland Shadehouse**

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The native plant beds have been used for small quantity native seed increases for grasses, forbs and sedges for the Salem and Eugene BLM Districts, the West Eugene Wetlands and the Willamette National Forest since 2001. These beds have also been used as one of two field sites for the California Brome Common Garden Study (2001 – 2003). Small quantities of seed have been sown in these beds and harvests from those seed lots have come from over twenty species and total over 2200 pounds of cleaned and packaged seed between 2004 and 2007. See attached spreadsheet.

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### **Containerized Greenhouse Nursery**

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The 3 greenhouses represent half of the greenhouses operated by BLM in Western Oregon. While they are in excellent condition they are no longer being utilized to capacity for reforestation and tree improvement needs. They are currently being used at less than full capacity to meet partnered restoration project native plant materials needs. Native plant work is funded on a year-to-year basis, thus cannot be counted on to sustain the operations at its current level.

The nursery complex at Horning consists of 3 greenhouses, a shadehouse/storage building, nursery work building, cooler, a materials storage, loading dock, hazardous materials storage building, a wastewater filter/pump house, and settling and storage tanks, with a 10 acre distribution sprinkler field. The growing houses total 28,500 ft<sup>2</sup>, which can accommodate an average of 450,000 large container seedlings annually and a maximum of 1,200,000 small container seedlings. The greenhouses have supported the production of 20 conifer species, 10 hardwood species, and numerous native shrub, grass and forb starts for outplanting.

Well water for irrigation, soluble fertilizers, and pesticides are delivered to plants through overhead irrigation systems, which are regulated to specific sections of the growing houses. The heating, cooling, and watering systems are electronically run and monitored for a controlled environment. Ceiling fans and heating tubes distribute propane-generated heat in all of the greenhouses. The greenhouse cooling system uses large wall fans and outside air pulled through a bank of cooling cells. Greenhouse lighting is available to meet special species' physiological requirements.

Metal tables on wheels allow for movement of plants to different environmental areas depending on container type, plant needs, and growing season. An integrated pest management approach incorporates a wide variety of strategies using mechanical, biological, and occasionally chemical control options which are deployed at predetermined thresholds of risk to the plants and allows greater flexibility with diverse crops.

A nursery wastewater system consists of the collection of all unused water in all growing houses in an enclosed pipeline to a filter house. The filtered water is moved to a 10,000-gal storage tank for automated cover crop irrigation dispersal by an underground sprinkler system. Wells above and below the wastewater distribution area are used for regular groundwater quality monitoring. The three domestic and irrigation wells in the orchard are also used for monitoring groundwater quality.

Most annual plant production begins with stratification and sowing of seeds in February through April, thinning and transplanting during May through July, and seedling sorting, packing into boxes, and transporting to coolers for storage before planting in December and January. Greenhouse work is accomplished by a BLM contract employee, local contractors, and volunteers.

The use of pesticides for insect and disease control in the greenhouses is addressed in the 2005 *ROD* and *EIS Integrated Pest Management: Walter Horning Seed Orchard Colton (Clackamas County), OR* and supplemental NEPA categorical exclusion and environmental assessments on an as needed basis. Fertilizers are used throughout the growing season.

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### **Seed Extractory**

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The seed extractory is the largest such facility in the BLM. It is a completely self-contained operation capable of processing seed from a wide range of trees and native plants, and the equipment in it includes a drying room, tumblers, de-wingers, seed cleaning machines, a state of the art gravity cleaning system, air separators, x-ray machine, coolers, and other associated equipment, all of which are in excellent condition. The seed extractory is used for small lots of conifer and other native species seed cleaning.

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## **Equipment and Vehicles**

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The equipment and vehicle list at the orchard changes over time. Periodically the inventory is reviewed and some of it is added to government surplus lists. Equipment is added on an as-needed basis. The most recent list of inventory is available upon request.

- Tractors: 1 forklift, 2 large tractors, and 1 small tractor
- Project equipment: research plot combine, ground support vehicles (4)
- Major implements: bed shaper, flail mowers, aerator, land leveler, rotovator, fertilizer spreader, utility trailer, plows, chipper, stump grinder, tree spades (2), back hoe, front end loader, etc.

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## **Integrated Pest Management**

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A site specific risk assessment was completed in FY02 for pesticides (herbicides, insecticides, and fungicides) that are likely to be used in the future.

A Record of Decision (ROD) and Environmental Impact Statement (EIS) entitled “Integrated Pest Management: Walter H. Horning Seed Orchard, Colton (Clackamas County), OR.” were completed in 2005 and cover the long-term integrated pest management program at the orchard, including greenhouse and native plant materials development activities.

All pesticides are applied in compliance with Federal and State Laws, BLM regulations and policies, the pesticide label, and manufacturer recommendations. Appendix E of the ROD lists the pesticides that may be used at Horning.

A variety of non-chemical pest management practices have been used in the greenhouses and native plant beds to help control unwanted vegetation (manual treatments, mowing, disking, roto-tilling, weed trimming).

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## **Cultural Management Strategies**

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Mowing is completed twice annually where necessary to reduce the fire hazard and remove noxious weed seed heads. Frequency often changes due to amount of seasonal precipitation.

Road grading maintains drainage and surface integrity. Irrigation is used in the native plant beds and in the rare occasion when a newly planted orchard needs assistance during the dry season.

Chemical treatments are used as necessary in the greenhouse, to protect seed or native plant crops in the native plant beds and to control noxious weeds.

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## **Goals and Objectives of Cooperative Project**

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### Goals:

1. Provide native plant (including coniferous species) materials development project coordination and management for BLM, governmental and nongovernmental clients at the Walter Horning Tree Seed Orchard in Colton, Oregon.
2. Coordinate with other organizations and agencies involved in non-commercial native plant materials development projects in the service area to ensure the projects and services at Walter Horning Tree Seed Orchard are complimentary and not competitive to those provided in the private sector.

### Objectives:

1. Initiate new native plant materials partnerships with governmental agencies and nongovernmental organizations while continuing projects for existing partnerships (such as that with the Willamette National Forest and the Tillamook Riparian Restoration project partners).
2. Promote a wide array of restoration projects and trial studies by providing greenhouse and field space, machinery, tools and project management for development of native plant materials.
3. Engage partners and the public in native plant materials development, studies and conservation by serving as both a physical resource and a knowledge base.
4. Establish native plant materials development field plots for use in research studies and trials, such as common garden studies, seed mix trials and pollinator hedgerow trials.
5. Identify and secure new funding for projects and partnership management.
6. Cater to restoration resource gaps by providing locally-adapted plant materials that are not offered by commercial growers.
7. Serve as a conduit of information (technical, regulatory, government strategies, plans etc.) for Cooperators and the public.
8. Serve as a conduit of information between the Cooperators and the BLM.

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### **What BLM has to offer**

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BLM has agreed to make the following available for this project:

- a. Office space for up to 2 permanent contractors, employees or volunteers. The office space shall be equipped with basic office furniture (desk, chair, file cabinet) on an availability basis. Restroom facilities, drinking and wash water, general overhead lighting, heating and cooling of the office area and janitorial services are provided.
- b. Reasonable use of copy and fax machines, and telephone service. Office supplies (in reasonable quantities) provided by BLM are restricted to items normally stocked.
- c. A secure computer with internet access and printer access. Any person utilizing this computer would have to obtain BLM security clearance and take the required training to obtain access. No access would be provided to BLM's email system.
- d. Limited storage space is available on-site and may be allowed on a space-availability basis.
- e. Once security clearances are obtained the BLM shall provide the access code and key allowing the contractor unrestricted access to the Horning Seed Orchard compound and buildings. Prior to security clearances the facility would be accessible to contractors during normal weekday business hours.
- f. Native Plant Development Cooperative Project at Walter Horning Tree Seed Orchard will have the option to use up to two greenhouses and three if available. The BLM will maintain the option to utilize one greenhouse for tree seedling needs.
- g. Freezer/cooler space will be available for native plant storage as space allows.
- h. Storage/work buildings, nursery work building, shade houses, hazardous materials storage building along with the associated heating systems, watering systems, and nursery tray tables (on availability basis), and the research plot combine will be available.
- i. Use of approximately 30 acres of native plant beds and the wetland shade houses in their current location.
- j. The seed extractory and lab, tractors, agricultural implements (bed shaper, flail mowers, aerator, land leveler, rotovator, fertilizer spreader, utility trailer,

plows) and ground support vehicles would be available upon coordination with the BLM.

- k. Provide safety recommendations upon request for the use of equipment described above. Oregon Occupational Safety and Health Administration (OSHA), not Federal OSHA standards would apply.
- l. Use of fuel such as gasoline and diesel for fueling of the above equipment only. Equipment log books would be used to track hour use as a surrogate to determine proportionate amount of fuel use to be paid by those using each piece of equipment.
- m. Use of equipment storage space within the implement shed shall be coordinated with BLM.

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**Other Bits & Pieces** potential recipients should know

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CPRCD, will require the recipient, under contract with them to do the following.

- 1. Comply with Oregon Occupational Health and Safety Administration standards.
- 2. Comply with current state and BLM pesticide application policies and NEPA decision documents.
- 3. Have (or obtain within 90 days) and maintain current commercial pesticide applicators license sufficient to apply and oversee application of pesticides in the greenhouses, native plant beds, shade houses and wetlands shade houses. Some restricted use pesticides would be used.
- 4. Oversee tool and equipment maintenance and repair.
- 5. Obtain a Federal government-issued personal identification card before being allowed unsupervised access to the Walter Horning Tree Seed Orchard. Upon starting work under this agreement, a National Agency Check (NAC) will be conducted to verify the identity of the individual applying for clearance. Upon successful completion of the NAC process, an identification card will be issued and full access granted.
- 6. Report identification cards that have been lost, damaged, or stolen within 24 hours. Replacement will be at the recipient's expense.

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