

# 2007 Aberdeen Plant Materials Center Progress Report of Activities

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Aberdeen Plant Materials Center office and greenhouse

## Who We Are

The mission of the USDA NRCS Plant Materials Program is to develop and transfer effective state-of-the-art plant science technology to meet customer and resource needs. The Aberdeen Plant Materials Center (PMC) was established in 1939 to evaluate and select plant materials and techniques for establishment and management of plants for use in resource conservation activities in the Western United States.

There are 27 PMCs nationwide, each serving a specific geographic and ecological area. The Aberdeen PMC serves portions of the Intermountain West including southern Idaho, western Utah, northern Nevada, western Wyoming and eastern Oregon.

## Program Emphasis

The activities of the Aberdeen PMC are guided by a long-range plan. The priority work areas are:

- Plant releases, seed and plant production
- Range and forest lands in poor ecological condition
- Riparian and wetland degradation
- Windbreak and shelterbelt demonstration
- Technology transfer and education

This report highlights the major activities at the PMC during 2007. For more detailed information, contact the PMC or the Plant Materials Specialist in Boise.

## New Grass Display Nursery

In 2007, the PMC planted a new grass display nursery at the PMC Home Farm in cooperation with the South Bingham Soil Conservation District. The new nursery includes 65 accessions showcasing releases and test materials of 31 species suited for reclamation, restoration or irrigated pasture plantings in the PMC Service area. The display nursery is divided into three sections according to natural precipitation or irrigation needs; 12 inches or less; 12 to 16 inches, and 16 inches or greater. This display provides a wonderful tool for land owners, land managers and field office personnel to observe stands of the species that they may be considering for planting projects.



Planting grass display nursery

The PMC is also cooperating with the University of Idaho who will be doing mowing studies on a portion of the new grass display nursery. Evaluations will be conducted on the ability of each accession to handle various treatments of mowing height, intensity and mowing frequency. This study will provide information to home owners who are interested in planting non-traditional, more drought tolerant grass species in their yards.

## Native Plant Testing

The PMC is wrapping up evaluations of six native species for potential use in restoration of land in northern Idaho and Montana with the USDA Forest Service, Region 1. Over 50 accessions of bluebunch wheatgrass, Idaho fescue, blue wildrye, tufted hairgrass, Sandberg bluegrass and western yarrow were studied in replicated field trials. These native collections were established at the PMC in 2004 to evaluate and compare them with known industry releases. A few promising collections were identified during this study.



Initial Evaluation plots of slender wheatgrass

The PMC is continuing a similar evaluation in cooperation with Caribou-Targhee and Bridger-Teton National Forests to evaluate accessions of mountain brome and slender wheatgrass for potential release and use in eastern Idaho and western Wyoming.

The PMC began a cooperative effort with Grand Teton National Park in the spring of 2006 to increase seed of source collections from the Park to be used for restoration projects. Seed production fields of blue wildrye, Sandberg bluegrass, mountain brome and slender wheatgrass were harvested in 2007. New seed fields of Idaho fescue and bluebunch wheatgrass will be planted in 2008.

In cooperation with the Great Basin Native Plant Selection and Increase Project, the PMC is evaluating propagation techniques and attempting to increase seed of native forbs that have been identified as high priority species. The species include: sulphurflower buckwheat, fernleaf biscuitroot, Gray's biscuitroot, nineleaf biscuitroot, sand penstemon, hotrock penstemon and sagebrush penstemon.

These native forbs were direct-seeded in the fall of 2005 into weed barrier fabric at the PMC and observations are being made on establishment and plant growth. Seed was harvested from the Penstemon and buckwheat plots during 2007. The biscuitroot species are much slower establishing plants and we are still waiting for those plants to flower!

## Off-Center Testing

In November 2006 the PMC planted a new off-center evaluation planting at the Coffee Point test site, 20 miles northwest of Aberdeen. The replicated planting includes 58 accessions of forbs, shrubs, and native and introduced grasses. Evaluations of this test planting are underway and will continue through 2017 to determine long-term performance of the test species. The PMC also planted another test site at Skull Valley, Utah about 50 miles west of Salt Lake City in November 2007.



Seeding plots at Coffee Point

The PMC is continuing its cooperation with the Great Basin Native Plant Selection and Increase Project, Brigham Young University and the ARS Oregon Agricultural Research Center to evaluate methods to determine effective ways to control cheatgrass using introduced species such as crested wheatgrass and then controlling the introduced grass to establish native species while minimizing weed invasion. Plots were seeded near Tooele, UT and Burns OR in late October 2005 and 2006. Treatments being evaluated include 1-way and 2-way disking and herbicide treatment (partial and full) to control crested wheatgrass.

## Breeder and Foundation Seed Production

The PMC is responsible for Breeder and Foundation seed production of 19 plant releases. During 2007, Foundation seed fields of 'Goldar' bluebunch wheatgrass, Anatone bluebunch wheatgrass, 'Bannock' thickspike wheatgrass, Richfield Selection firecracker penstemon, Clearwater Selection Venus penstemon, 'Delar' small burnet, Northern Cold Desert Selection winterfat and Snake River Plains Selection fourwing saltbush were in production. New fields of Anatone bluebunch wheatgrass and 'Appar' blue flax were also established.

The PMC is also cooperating with the Department of Defense and ARS in Logan, UT in the release of 'Vavilov II' Siberian wheatgrass and seed increase of test materials of western wheatgrass and slender wheatgrass that will be used for further testing at military installations in the western United States.

## **Interagency Riparian/Wetland Plant Development Project**

The Interagency Riparian/Wetland Plant Development Project was established in 1991. NRCS and several federal, state, local, and private organizations decided more information was needed on how to propagate and plant riparian and wetland plants, how to establish and maintain wetland and riparian vegetation in artificial situations, and other uses related to water quality improvement.

### **Streambank Soil Bioengineering Technical Training**

As part of our technology transfer efforts, we teach a 3 day workshop on streambank soil bioengineering treatments. This includes classroom training and actual field training where the students get to install a number of bioengineering treatments on an actively eroding bank.



*Class installs tree revetments, live cuttings, erosion control fabric, and grass seed at a project on the East Walker River*



*Volunteers install a willow fascine on the bank of the Snake River as part of a training session on the Shoshone Bannock Reservation near Ft. Hall.*

This year, Streambank Soil Bioengineering Technical Training workshops were held in St. George UT in a continuing effort to help treat flood damaged areas. Workshops were also held in Laredo, TX, San Antonio, TX for a second time, Woodland, CA., Los Angeles, CA, Bishop, CA, Yerington, NV, Blacksburg, VA, OR and ID Cattleman at Blackfoot ID, and on the Shoshone/Bannock Reservation near Ft. Hall, ID. A total of 262 people were trained in FY2007.

### **Wetland Restoration and Enhancement Course in Hastings, NE**



*Students getting directions on how to plan a wetland restoration of this site that has less water going into it.*

About 35 people attended a wetland restoration and enhancement course was taught in Hastings NE. This course is sponsored by the NRCS National Employee Training Center in Ft. Worth, TX. This course identifies different types of rainwater basin wetlands that occur in the central flyway states. These wetlands are temporary wetlands that occur as a result of the early spring rains. These wetlands are extremely important to migrating waterfowl.



*Early spring rainwater basin wetlands provide needed protein to nesting and migratory waterfowl.*

## Willow soaking trial

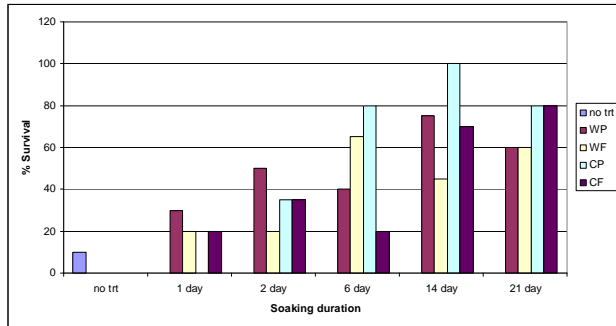


Figure 1: Survival of dormant hardwood cuttings of Peachleaf willows following different presoaking treatments. WP=warm partially submerged, WF=warm fully submerged, CP=cold partial, CF=cold full.

This year the PMC investigated the benefits of pre-soaking dormant cuttings of Peachleaf willow (*Salix amygdaloides*) in a controlled study at the PMC greenhouse. Dormant hardwood cutting survival of Peachleaf willow increased in greenhouse trials following pre-planting soaking treatments. 100% survival was achieved by soaking cuttings partially submerged in cold water for 14 days. Other soaking treatments resulted in varying levels of success, but nearly all treatments had increased survival rates when compared to the non-soaked control. Cutting survival also improved with increasing diameter of cuttings regardless of pre-soaking treatments.

## Wetland Plant Direct Seeding Trial



This summer the PMC continued evaluation of direct seeding techniques available for use with wetland species. In the most recent trial we compared establishment of Baltic rush in outdoor artificial ponds using two hydroseed treatments (tackifier alone and Fertil Fibers™ Nutrimulch), a dry broadcast treatment (seed mixed with rice hulls and pressed with an imprinting jig) and Submerseed™ pellets. Plots were seeded in July and then flood irrigated with a soaker hose multiple times during the growing season and evaluated in late August for establishment. Best establishment came from the Fertil Fibers™ hydroseed mulch followed by the broadcast and tackifier alone

treatments and finally Submerseed pellets. The results were encouraging and will be used to design field-scale trials for the PMC wetland ponds next year.

## Technology Transfer - New Publications

A number of new publications were completed this year:

- Hoag, JC and RW Sampson, 2008. *Planting Willow and Cottonwood Poles under Rock Riprap*. Idaho Plant Materials Technical Note 21, Boise, ID. Jan., 2008. 5p.
- Hoag, JC, N Melvin, and D Tilley, 2007. *Wetland Plants: Their Function, Adaptation and Relationship to Water Levels*. Riparian/Wetland Information Series No. 21, USDA- NRCS Plant Materials Center, Aberdeen, ID. May 2007. 15p.
- Hoag, JC and DJ Tilley, 2007. *How to Manipulate Water in a New, Restored, or Enhanced Wetland to Encourage Wetland Plant Establishment*. Riparian/Wetland Information Series No. 22, USDA- NRCS Plant Materials Center, Aberdeen, ID. June 2007. 5p.
- Hoag, JC, DJ Tilley, D Darris, and K Pendergrass, 2008. *Field Guide for the Identification and Use of Common Riparian Woody Plants of the Intermountain West and Pacific Northwest Regions*. USDA-NRCS Plant Materials Centers, Aberdeen, ID and Corvallis, OR. Oct. 2007. 196 p. (NOTE: This publication will only be available as a download. No copies will be printed because it is so big and in color.)
- Tilley, DJ, 2007. *Intermountain Plant Notes 2007*. USDA- NRCS Plant Materials Center, Aberdeen, ID. May 2007. 4p.
- Ogle, DG, DJ Tilley, and L. St. John, 2007. *Plant and Seed Vendors for Idaho, Montana, Nevada, eastern Oregon, Utah, eastern Washington and Wyoming*. USDA- NRCS, Boise, ID. 24 p.
- Benson, B, DG Ogle, DJ Tilley, and L. St. John. *Plant Materials Technical Note No. 15. Managing Black Greasewood Sites*. USDA- NRCS Plant Materials Center, Aberdeen, ID. February 2007. 9p.
- St. John, L, DG Ogle, L Holzworth, M. Stannard, 2007. *Calibrating a Seed Drill for Conservation Plantings*. USDA- NRCS Plant Materials Center, Aberdeen, ID. April 2007. 15p.

## Aberdeen Plant Materials Website

For more information about the Aberdeen Plant Materials Center go to <http://plant-materials.nrcs.usda.gov/idpmc/>

The Interagency Riparian/Wetland Plant Development Project has also produced a number of publications on wetland and riparian plant species, propagation and transplanting techniques as well as harvesting and soil bioengineering techniques. For more information go to <http://plant-materials.nrcs.usda.gov/idpmc/riparian.html>