



PACIFIC PLANTS & PROPAGULES

AUGUST 2008

Welcome to the Corvallis Plant Material Center newsletter. Inside, read about our partnership projects to develop innovative plant solutions that heal the land, protect clean water, and support native wildlife...



Corvallis Plant Materials Center
3415 NE Granger Ave
Corvallis, OR 97330

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UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CORVALLIS PLANT MATERIALS CENTER

3415 NE Granger Ave
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Phone: 541-757-4812

Partnering to develop innovative plant technologies for conservation solutions.

Since 1957, the Corvallis Plant Materials Center (PMC) has selected conservation plants and developed innovative planting technology to solve natural resource concerns. The Corvallis PMC service area includes the northern Pacific Coast Range, Willamette Valley, and Puget Sound as well as the Olympic, Cascade, and Siskiyou Mountains.



PACIFIC PLANTS & PROPAGULES

A SEMI-ANNUAL NEWSLETTER OF THE CORVALLIS PLANT MATERIALS CENTER

AUGUST 2008

VOL. 2 No. 1

California oatgrass: An interesting and useful—but challenging—plant.

Dale C. Darris

California oatgrass (*Danthonia californica*) forms important wildlife habitat and an often dominant component of our native prairies and savannas, both drier upland ones and those transitional to wetlands. It tolerates full sun to partial shade and most soil types. The species has the somewhat unusual ability to form hidden seeds in the lower stems and a special “hygroscopic” awn or appendage on the seed which helps in natural burial.



Hardy once established, this long lived, rather benign bunchgrass should not be confused with non-native tall oatgrass (*Arrbenatherum elatius*) which has become an invasive weed in many settings. While less productive

than introduced pasture plants, California oatgrass is considered good forage for cattle and horses where locally abundant. It easily withstands and even benefits from moderate grazing. While the biggest use is for native plant restoration, the species’ high tolerance to “traffic” and close mowing gives it good potential for native turf, trail side use or perennial cover in certain crops. That is, if you can overlook the cost of the seed.

Another downside: establishment from seed can sometimes be a challenge because of delayed germination and slow seedling development. Delayed germination is the result of single or even double seed dormancy in many

continued on page 3...

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NOTES FROM THE CORVALLIS PMC

Welcome to the Corvallis PMC Newsletter!

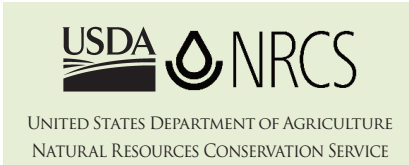
SUBMITTED BY JOE WILLIAMS, Corvallis PMC Manager

I am happy to bring you the new and improved newsletter of the Corvallis PMC. While we have produced a newsletter in the past, we have changed the format, increased the content and expanded distribution. We hope the added features prove useful for our previous audiences, as well as the first-time readers among our many clients and partners, including conservation districts, federal and state agencies, tribes, private conservation organizations and others.

Each issue of this newsletter will include updates on the recent work we have been doing to identify and develop conservation plants and techniques. We will incorporate useful plant establishment and maintenance tips that you can use in the field, as well as updates on our various projects.

If you have questions about our work or need technical plant information, the Corvallis PMC is here to assist you. Also keep in mind that we welcome opportunities to work with our partners to research plant solutions for conservation projects in our service area. Please feel free to contact us.

Joe Williams



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New Pacific & Scouler's willow cutting blocks

Two new species have been added to the willow cutting blocks at the Corvallis PMC Schmidt Farm. The cutting blocks provide dormant wood for our research trials and for your restoration and revegetation projects throughout the Northwest.

About 20 wild Pacific willow (Salix lucida ssp. lasiandra) whips were collected from the Truax Access Area along the Willamette River in Linn County, Oregon. Two more Pacific willow plants, originating from the Peoria County Boat Ramp just a few miles upstream, were acquired through the Benton SWCD Native Plant Sale.

Scouler's willow (Salix scouleriana) is the second new species added to the cutting blocks. These whips were collected from a wet prairie near Muddy Creek in southern Benton County.

Cuttings and live stakes of these species will be available for your field projects starting in November 2009, along with our six other species of willow.

Dormant cutting pre-soak experiment with cottonwood & willows

Peter Gonzalves

Rooting and streamside establishment of 'live stake' cottonwood or willow may be improved by pre-soaking dormant cuttings in clean water. Soaking should be just long enough to stimulate rooting without actual callus or root formation so that these tissues will not be damaged during installation.

An experiment was conducted late in 2006 to test the effect of water temperature on the timing of callus formation and root initiation for black cottonwood and seven local willow species at three different water temperatures. Scouler's willow was represented with both upland and wetland ecotypes. Cuttings were checked daily for calluses and roots.

At a water temperature of 84°F callusing first appeared on day 6 (all selections except upland Scouler's willow) followed by the first roots on cottonwood and Arroyo, Columbia River and, especially, erect willows on day 7. The first roots for Sitka, Hooker and Scouler's (wetland) willows appeared on day 8 and Pacific willow showed roots on day 9. The upland selection of Scouler's willow did not produce any roots until day 21.

When held at 66°F, the cuttings followed a similar pattern with first calluses appearing on day 7 and the first roots of most selections emerging on days 9 through 11. Pacific and Sitka willows produced roots on days 13 and 15 respectively. Upland Scouler's produced its first roots at this temperature on day 25.

The first calluses occurred on day 12 for cuttings soaked in 57°F water and roots first appeared on erect willow on day 14. Hooker and

Species Tested

- black cottonwood, Populus balsamifera ssp. trichocarpa Scouler's willow, Salix scouleriana 'Rogue' Arroyo willow, Salix lasiolepis 'Multnomah' Columbia River willow, Salix sessilifolia 'Placer' erect willow, Salix liquifolia 'Plumas' sitka willow, Salix sitchensis 'Clatsop' hooker willow, Salix hookeriana 'Nehalem' Pacific willow, Salix lucida ssp. lasiandra

wetland Scouler's willows produced roots on day 17, Arroyo willow and cottonwood on day 19, and Sitka and Pacific willows on day 23. Upland Scouler's willow had yet to produce any roots by the end of the study on day 29. In a previous experiment using water held at 38°F, no callus or root development was detected in any willow species even after 59 days.

This experiment shows that pre-soaking cottonwood and willow cuttings, if undertaken, should generally be done for no more than 5 to 11 days, depending on water temperature, in order to prevent injury to newly forming roots during installation.

Crossword Solution (from page 4)

Grid of crossword puzzle solution with letters and numbers.

PLANT MATERIALS UPDATE

Plant materials assistance in the field

Kathy Pendergrass

Endangered plant identification



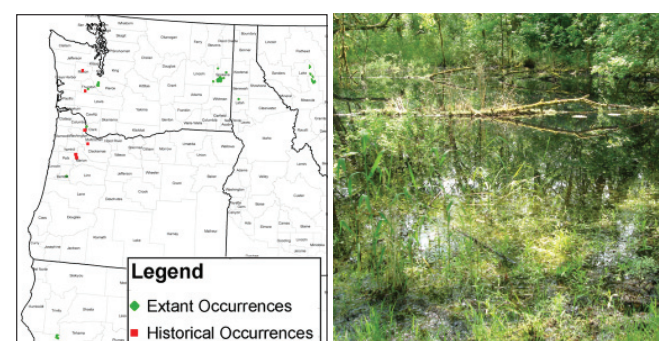
© 2004, Rod Gilbert

Water howellia (*Howellia aquatilis*) is an endangered aquatic forb found in ponds, oxbows and deep vernal pools. To help people working in the field comply with their responsibilities under the Endangered Species Act, NRCS held a training session on the identification of this species at Ridgefield National Wildlife Refuge in Washington, where one of the few remaining populations exists today.



© 2006, Rod Gilbert

Now believed to be extinct in Oregon, the plant was first located in 1879 at Sauvie Island, just downstream from Portland. Lake Oswego, Oregon is another historical habitat for the species. A small specimen of the species was also identified from the Finley National Wildlife Refuge in 2003; this population has not been relocated. Water howellia is believed to be extinct in all previously known sites in the state. Based on known habitats throughout its range, however, it has potential to occur in appropriate habitats. If you work in the field in these or similar areas, be on the lookout for an existing population of water howellia in Oregon.



Requests for training & assistance

In June, NRCS held plant identification training for the Salem, Oregon NRCS and conservation district office. The group visited the botanically-rich Kingston Prairie, with permission from The Nature Conservancy. Keep in mind that you, too, may be able to arrange training or other plant identification



Willamette Valley T&E Species, clockwise from top left: Willamette daisy, Kincaid's lupine, golden paintbrush.

T&E plants in the Willamette Valley

Back by popular interest, NRCS conducted training on the Federally-listed plant species of the Willamette Valley. The session was held at Baskett Slough National Wildlife Refuge on June 28. Species covered included:

- water howellia (*Howellia aquatilis*),
- Bradshaw's lomatium (*Lomatium bradshawii*),
- golden paintbrush (*Castilleja levisecta*),
- Kincaid's lupine (*Lupinus sulphureus* ssp. *kincaidii*),
- Willamette daisy (*Erigeron decumbens* var. *decumbens*), and
- Nelson's checker-mallow (*Sidalcea nelsoniana*).

The group was able to view four of these species in the field. As an added bonus, the two other species of lupines on which the rare Fender's blue butterfly lays its eggs were also spotted. Depending on field interest, this training may be offered again next year.

assistance for your field office. Training sessions can be tailored for your local area to focus on specific plant groups (e.g., grasses, woody plants, etc.) or other subjects. Contact: Kathy Pendergrass, *Plant Materials Specialist* at:

Kathy.Pendergrass@or.usda.gov

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PMC demonstration garden to double in '08

Responding to customer requests, the PMC will double the number of species on display in our Demonstration Garden this year.

To complement the existing dozens of native grasses and forbs, we will be planting sections with threatened and endangered species, beneficial insect nectar plants, and introduced pasture legumes and grasses.

The Garden is arranged to demonstrate four native Northwest habitats: upland prairie, moist woodland, wet prairie and marsh.

Please visit us this spring or summer for a colorful garden tour!

continued from page 1... California oatgrass

populations. A recent germination test is required from the vendor by law, but an accompanying TZ (tetrazolium) test will give a better indication of the amount of seed that is actually alive. The difference between the two tests is an indicator of how much seed is dormant.

The best way to overcome the physiological dormancy in California oatgrass is by fall seeding. A good precaution may be to also have the vendor (or yourself) lightly scratch (scarify) the seed

Native grasses vary in seasonal flood tolerance

Peter Gonzalves

Nine native grasses were evaluated in mid summer 2007 for vigor and seed production following various depths of prolonged seasonal inundation (from top 10 cm drained to 42 cm water depth) maintained from November 4, 2006 to April 2, 2007.

All wet prairie species performed best under shallow or no flooding. Slender hairgrass and spike bentgrass showed little survival beyond 10 and 20 cm depth, respectively. The deepest bluejoint and pale false mannagrass plants showed the most vigor while peak vigor for tall mannagrass and slimheaded mannagrass correlated to 15 to 30 cm of flooding. The greatest seed production for pale false mannagrass and slimheaded mannagrass occurred near 40 cm, while it was greatest for bluejoint and tall mannagrass near 10 cm. Western sloughgrass performed well to moderate depth but began to decline at depths greater than 30 cm.

Preliminary results of this study suggest that these wet prairie species

may be appropriate for restoration sites with prolonged shallow flooding but that the marsh species tested would be more appropriate where prolonged seasonal flooding may exceed 20 cm in depth. This study is continuing in 2008.

Wet Prairie Species

Meadow barley *Hordeum brachyantherum*

Slender hairgrass *Deschampsia elongata*

Spike bentgrass *Agrostis exarata*

Tufted hairgrass *Deschampsia caespitosa*

Marsh Species

Bluejoint *Calamagrostis canadensis*

Slimheaded mannagrass *Glyceria leptostachya*

Tall mannagrass *Glyceria striata*

Western sloughgrass *Beckmania syzigachne*

Pale false mannagrass *Torreyochloa pallida* var. *pauciflora*

to reduce any seed coat dormancy. For establishment, reduce your soil weed seed bank first and try sowing the species alone to minimize competition from other plants. You can use the delayed germination to your advantage by spraying out germinating weeds with a nonselective herbicide after planting and before emergence of the California oatgrass. A PMC pre-variety release called Baskett Slough Germplasm is available on the market.

Given the complexities of establishment from seed with this species, vegetative plugs may be a better choice on small projects. A much more detailed discussion on the planting and use of California oatgrass is covered in a new fact sheet and plant guide soon to be available on the PLANTS Database:

<http://plants.usda.gov/java/factSheet>

You may want to read these items before plunging in.

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PLANT MATERIALS CROSSWORD

PMC Plant Releases

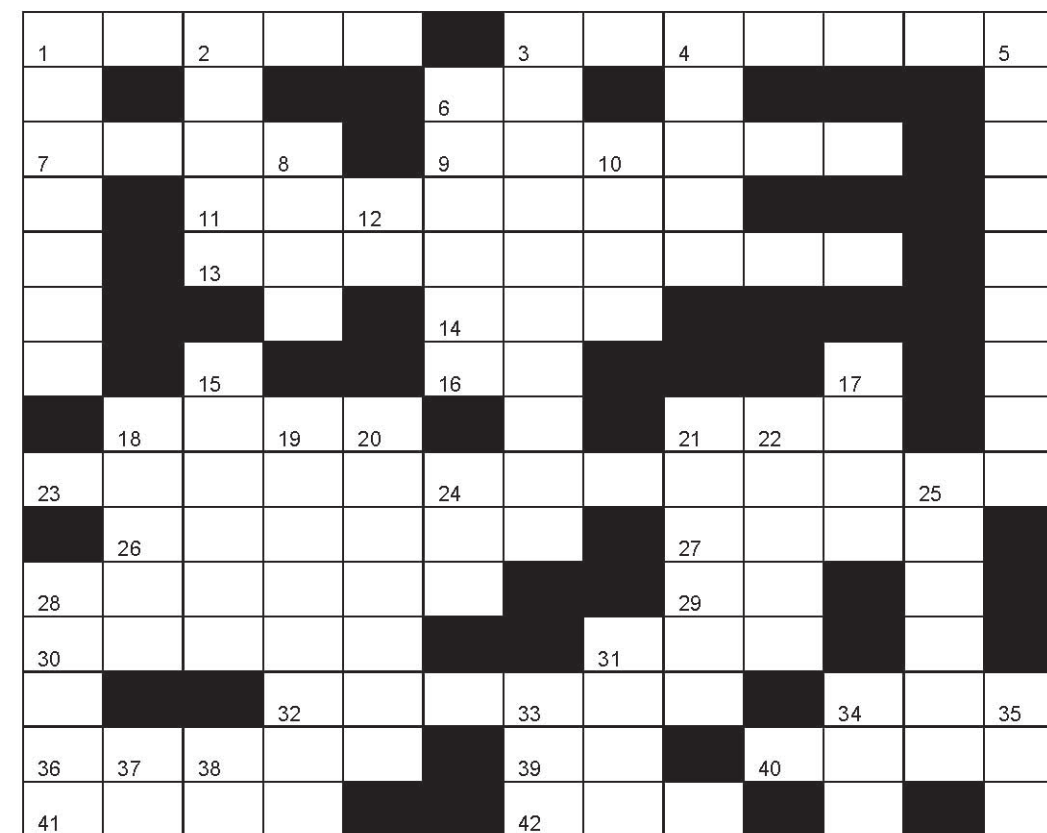
The Corvallis PMC has released 15 native plant varieties since 1958, and more are on the way! Can you name some of them? Hint: <http://plant-materials.nrcs.usda.gov/orpmc/releases.html>

Across

- formerly male chicken
- native houses
- hello
- culture media
- blue wildrye (near ODF nursery)
- oceanic willow (Vernonia waterway)
- dairyland tufted (1933 burn)
- thymidine monophosphate
- ___/she
- whiskey precursor
- no amateur
- interesting, useful, challenging Danthonia (NWR)
- not 'suneer'
- duckling
- medium textured
- muonium elemental symbol
- Sadat
- Society of American Engineers
- New Mexico Mexican blue or Sonoran scrub, for example
- energy source
- vessel Andrea
- ___ the people
- apple or pear
- common yet secretive marsh bird (a rail)
- fertilizer combo

Down

- Hooker willow (NW Oregon)
- P of PMC
- Oregon valley tufted
- Cuba detention center
- PNW mythical mammal
- no disease
- horse control
- Dole running mate
- teams on ice
- Douglas spirea (a clay soil)
- out of bounds
- redosir dogwood (home of Hood Canal)
- symbol = ALVIS (home of gorge, St. Helens & Pinchot)
- riverbank legume (sweet smell, L.)
- Salix sitchensis (home of Susanville)
- Arroyo willow (SW Oregon river)
- ESA lists (+Y)
- CaSO₄-2H₂O
- "helping people help the _____"
- old style bee hive
- grass seed appendage
- grass turf
- young
- middle of "book"
- train track, abr.



Solution on page 7...

PLANTING TIPS FOR THE FIELD

Tips for successful establishment of unrooted dormant cuttings for streambank stabilization

Dale C. Darris

Part 1 of 2: Plant Selection & Handling

- Primarily use native riparian willows (Sitka, Pacific, Hooker's = Coast = Piper, Northwest Sandbar=River, Arroyo, Geyers, Strapleaf, Coyote, Red, Erect), and black cottonwood. This is the "A" list and is easiest to root. These species even work well as live posts and poles taken from boles and thick branches.
- Secondarily use black twinberry, snowberry, Pacific ninebark, salmonberry, redosier dogwood, Scouler's willow, and Lewis' mockorange. This is the "B" list. These species can be successful but are higher risk. Douglas spirea also works but it can become weedy.
- "A" species do best in full sun. The willows can even be planted in shallow standing water along the shoreline, such as the toe zone (the portion of a streambank between the streambed and the average normal river stage/average water level).
- Plant "B" species further up the bank and at higher densities to hedge against losses. Other than spiraea and Scouler's willow, they are also more shade loving and do well under the canopy of taller trees that may happen to remain nearby.
- Take cuttings off of multiple healthy plants and from multiple "local" populations. This will add genetic diversity and associated benefits. Don't over harvest individual plants or natural groves. Between harvest sites, disinfect cutting tools with rubbing alcohol or disinfectant to reduce the spread of diseases.
- Restrict salmonberry to cuttings from current year's wood (canes) and Lewis mockorange to planting in medium to coarse textured soils.
- Make cuttings at least 18 inches and live stakes at least 30 inches long. Diameter or caliper depends on species, but wider is usually better. Substantially longer material will be needed where the summer water table or sufficient soil moisture is deeper down, or adjacent vegetation is taller.
- Remove terminal ends of branches (6-12 inches or more). This part of the branch produces too many leaves and stores less plant reserves. Cut the top end flat or blunt and the thicker, bottom end angled or pointed for easier insertion and to help differentiate the top from the bottom when planting.
- Prevent material from dehydrating and overheating between harvest and planting. Store in shade, wrapped in tarps or moist burlap, or with butt ends in nearby water.
- In some situations soaking butt ends of "A" species up to 11 days in cool water to stimulate pre-rooting may be useful, especially if logistics require the material to be held before planting anyway (see article for details).
- Don't paint or wax coat to "seal" the top ends of cuttings unless needed to mark which end should point up. If paint is used, stay with a 50% dilution of white latex. However, some people paint the top 2-3 inches other colors to mark different species or treatments.
- While some organizations suggest dipping cuttings in rooting hormones, this has yet to demonstrate strong benefit outdoors: recommended species root readily and seem to gain minor or no improvement from such treatment.

Look in the next issue for: Part 2 of 2: Timing, Planting & Management