

The Sweep Net

August 2012

A newsletter to keep you up-to-date on pollinator and beneficial insect activities at the Pullman Plant Materials Center, the Washington NRCS State Office and beyond.



Forbs seeded with no-till drills into a 20-year-old stand of intermediate wheatgrass in Latah County, Idaho. The blooming yellow flower is Oregon sunshine (*Eriophyllum lanatum*). Pamela Pavek

No-Till Forb Seeding Update

Second-year data was collected on the no-till forb seeding trials in Latah County, Idaho. In these trials, two seed bed preparation techniques (mowed and un-mowed) and two no-till drills (a Cross-Slot® and a Great Plains® double disk) were compared for the establishment of 16 native forb species in three existing CRP fields (Sites 1 and 3 were 7-year-old stands of native bunchgrasses; Site 2 was a 20-year-old stand of intermediate wheatgrass). All sites were seeded in October 2010. Details of seedbed preparation techniques, seeding methods and site characteristics were described in the [July 2011](#) and [January 2012](#) editions of The Sweep Net.

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To control weedy grass species and suppress the regrowing perennial grasses, all sites were sprayed with 0.09 lb ai (active ingredient)/ac clethodim (12 oz/ac Select™) in spring 2011 and spring 2012. To control the broadleaf weeds, Sites 1 and 3 were mowed in the spring and late summer 2011, and Site 2 was mowed in late summer 2011.

The number of native wildflower seedlings increased in all plots at all sites from Year 1 to Year 2, and all 16 species were present in Year 2. The annual species, grand collomia (*Collomia grandiflora*), increased substantially in Year 2 in the plots that were not mowed prior to seeding. There was likely less thatch in these plots, allowing seed from Year 1 to have contact with the soil and germinate. The seed production of grand collomia this year will be diminished due to infection with powdery mildew. The plots mowed prior to seeding continue to have slightly more perennial seedlings. Seedlings per linear foot can be converted to seedlings per square foot by multiplying by 1.2. A successful planting in this precipitation zone has 3 to 5 seedlings per square foot. All plots at Site 2 and the double disk plots at Site 3 are successful plantings.

Average number of seedlings per linear foot in plots seeded with two no-till drills and two ground preparation methods on three CRP sites in Latah County, ID.



Weeds present at Site 1 in 2011, in the order of predominance, were ventenata and prickly lettuce. In 2012, the weeds were tall willowherb (a ruderal native), prickly lettuce, and ventenata. Site 2 in Year 1 had fiddleneck, bedstraw and pennycress. In 2012, the only predominant weed was tall willowherb. Site 3 in Year 1 had prickly lettuce, and in Year 2 had prickly lettuce, tall willowherb and rattail fescue.

Douglas County Forb Establishment Update

In November 2011, two trials were established in Douglas County, Washington, to compare different drills and seedbed preparation methods. The first site was an existing stand of CRP. This field was planted to Nordan crested wheatgrass and Tyrell tall wheatgrass in 1987. In 2010, the stand was comprised of weak crested wheatgrass, Japanese brome and other weeds. The field was sprayed in June 2011 with 2.5 lb ae (acid equivalent)/ac glyphosate (72 oz/ac RT3®), 5 oz/ac activator (6.25 oz/ac Gunsmoke®), 3.75 oz/ac drift control agent (3.75/ac oz Liberate®), and 9.5 oz/ac ammonium sulfate water conditioner (25 oz/ac Ultra Pro®). Three drills were compared at this site: 1) a John Deere LZB hoe drill, 2) a Truax Flex II 818 double disk drill, and 3) a Concord 3612 no-till air seeder.

The second site was a new CRP seeding previously in wheat-fallow rotation. The field was prepared for planting by harrowing twice and burning the weed piles the previous fall, then after green-up in spring (first week of May), glyphosate was applied at a rate of 0.56 lb ae (acid equivalent)/ac glyphosate (16 oz/ac /RT3®), followed by disking in June, and another 0.56 lb ae (acid equivalent)/ac glyphosate (16 oz/ac /RT3®) in July. After green up in the fall, the field was cultivated with 3 to 4 inch sweeps and harrowed. The field was harrowed again the day before it was sowed. Two drills were compared at this site: 1) a John Deere double disk drill and 2) a Truax Flex II 818 double disk drill.

Both sites were seeded the first week of November with:

Common Name	PLS lb/ac	PLS seeds/sq ft
Yarrow	0.07	4.25
Lewis' flax	0.71	4.25
Arrowleaf balsamroot	1.73	2.19
Munro's globemallow	0.37	4.25
Rubber rabbitbrush	0.06	0.88
Blanketflower	0.93	4.25
Douglas' dustymaiden	0.04	0.34
Evening primrose	0.14	2.19
Shaggy fleabane	0.10	4.25
Snow buckwheat	0.19	2.19
Hoary tansyaster	0.14	4.06
Chelan penstemon	0.06	4.25
Sandberg bluegrass	0.30	7.00
Snake River wheatgrass	1.72	5.50
TOTAL	6.57	49.84



Blooming blanketflower
(*Gaillardia aristata*)

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The grasses were not seeded at the existing CRP site to allow the option of using grass-selective herbicides to control cheatgrass and other weedy grasses. Native grasses may be seeded after two or three years.



Blooming pale evening primrose (*Oenothera pallida*) and shaggy fleabane (*Erigeron pumulis*) in the existing CRP plots seeded with a hoe drill.

Seedling count data was collected at both sites on July 19, 2012. The data has not been analyzed, but a few conclusions can be made:

- 1) The hoe drill at the existing CRP site resulted in the best seedling establishment. The tubes were pulled and duct-taped to the upper section of the opener, so the seed dropped into a variety of depths, rather than all in the furrow.
- 2) The species with the best first-year establishment are: yarrow, shaggy fleabane, blanketflower, Douglas' dustymaiden, Lewis' flax, and hoary tansyaster.
- 3) Species not observed were snow buckwheat and Chelan penstemon.
- 4) The Concord 3612 no-till air seeder did not adequately deliver seed to the openers. The seed was mixed with rice hulls as a carrier and was too light to fall into the auger and be blown out to the openers. If the hopper had an agitator or if the seed was mixed with kitty litter or other heavy material it may have worked.

First-year data of these plots will be analyzed this winter, and the plots will be monitored for the next three years.

Featured Pollinator Plant

Goldenrods (*Solidago* spp) bloom late summer through fall, and provide vital sources of pollen and nectar for bees and other insects. Honey bees collect large amounts of nectar from goldenrod prior to winter, and other bees use pollen from goldenrods as food for late-season nests. Many oligolectic bees such as *Andrena hirticincta*, *A. nubecula*, *A. placata*, *A. simplex*, *A. solidaginis*, *Colletes simulans armatus*, and *Melissoides druriella* prefer goldenrod and aster species. In addition, goldenrods are visited by beneficial solitary wasps and pollen-eating beetles such as the soldier beetle (*Chauliognathus pennsylvanicus*) and the black blister beetle (*Epicauta pennsylvanica*). The most common goldenrod species in our region are Canada goldenrod (*S. canadensis*) and Missouri goldenrod (*S. missouriensis*). (Sources: Attracting Native Pollinators, Mader et al., 2011; USDA PLANTS Database)



Missouri goldenrod (*Solidago missouriensis*).
Pamela Pavek

Featured Pollinator



***Peponapis pruinosa* inside a zucchini flower.**
Shane Fitzgibbons, www.bugguide.net

Squash bees (*Peponapis* spp) are oligolectic bees that collect nectar and pollen only from plants in the squash family (Cucurbitaceae). There are 13 species in this genus, and they are mostly found in Mexico and the U.S. desert southwest. There is one species, however, that followed the expansion of pumpkins and squashes throughout North America. This bee is *Peponapis pruinosa*. Squash bees are typically brown with sparse bands of brown hair on their abdomens. Many species have a protruding lower face that makes them appear to have a big nose. A yellow patch on their face indicates they are male. Males sometimes spend the night inside the flowers. *Peponapis pruinosa* constructs nests in the ground, often at the base of a host plant. (Source: Attracting Native Pollinators, Mader et al., 2011)

Did you know?

- * Bees are more abundant and diverse in the deserts and savannas of the world than in the tropics, which is contrary to the general rule that diversity decreases as one moves away from the equatorial zone.
- * Within the tropics, bees are outnumbered by other pollinators (flies, beetles, butterflies, moths, birds, bats and other mammals).
- * Male mosquitoes are reliable pollinators in many parts of the world. In the peat bogs of Wisconsin, they pollinate rare orchids.
- * Nectar-feeding bats are a large component of the mammal species considered threatened with extinction. Many species of hummingbirds and other birds are also threatened.
- * There is one known pollinating group of reptiles, the geckos. In New Zealand geckos move pollen from plant to plant as they obtain nectar. They are highly endangered due to introduced birds and mammals.

(Source: The Forgotten Pollinators, Nabhan and Buchmann, 1997)



Mosquito with pollinium of northern bog orchid (*Platanthera obtusata*). H. Taki

Who We Are

For information about the Pullman Plant Materials Center, please visit our [website](http://plant-materials.nrcs.usda.gov/wapmc/index.html):
<http://plant-materials.nrcs.usda.gov/wapmc/index.html>

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