

The Sweep Net

October 2010

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.



A hummingbird hawk moth (*Macroglossum stellatarum*) extracting nectar from a purple sage flower (*Salvia dorrii*) at the Othello Experiment Station. Pamela Pavek

Revised Pollinator Technical Note Available Soon

The **Washington Biology Technical Note 24 (Revised), Plants for Pollinators in the Inland Northwest**, is in its final stages of review and will be released in November. The Tech Note includes the same general information about pollinators as the original Tech Note, Plants for Pollinators in the Intermountain West, however includes new lists of plant species that are adapted to the Inland Northwest (eastern Washington, eastern Oregon and northern Idaho). The revised Tech Note also includes protocols for forb establishment. If you are a Washington NRCS employee, expect it to soon show up in your email Inbox!

Pollinator Habitat in CRP

The 2011 Conservation Reserve Program (CRP) sign-up included an optional practice to enhance pollinator habitat. This practice falls under N1b – Wildlife Enhancement . The requirements for this practice include: 10% of the total parcel must be converted to pollinator habitat and each area must

be a minimum of 0.5 acre in size, a mixture of at least 9 species should be planted, three that bloom in each season: spring, summer and fall (exemptions have been granted for the lower precipitation zones) and grasses must not exceed 25% of the mix based on seeds per square foot. Consult the Biology Technical Note 24 (Revised) for guidelines to develop seeding mixes and planting plans for pollinator habitat in eastern Washington. Information contained in this Tech Note has been submitted to the Farm Service Agency (FSA) and will become official amendments to the CRP manual. If you're not in Washington, use guidance outlined by the Plant Materials Program and FSA in your state.

Current Pollinator Study Updates



Bumble bee visiting a blazing star flower

Native Plant Evaluation in Othello

After two seasons of evaluation, we have amassed a fair amount of data concerning bloom time, growth pattern, and pollinator visitors of nine native dryland forb species. The earliest and longest blooming species in this study include blanketflower, Munro's globemallow and purple sage. The latest blooming plants are round-headed buckwheat and snow buckwheat, however snow buckwheat was significantly more popular with the pollinators. Throughout the season we collected insects that visited the plot and they are currently being identified by an ARS entomologist. We also collected seed from the plot, which we will use this fall to evaluate seeding methods.

Pollinator Habitat Demonstration Planting at the Pullman PMC

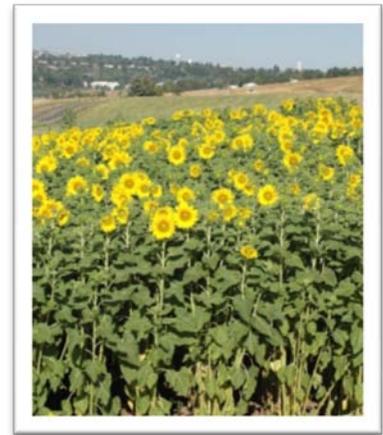
The Pollinator Habitat Demonstration Planting fared exceptionally well during its first season of growth. The planting was discovered by numerous species of pollinating insects in the area. They obtained pollen and nectar from the planting mid June until late October!



Hedgerow with early, mid and late blooming plants



Butterfly visiting a blanketflower



Plot of sunflowers

New Pollinator Studies

Western Prairie Clover and Basalt Milkvetch Agronomic Studies at the PMC

The Pullman PMC is conducting studies in partnership with the ARS Forage and Range Research Laboratory (FRRL) in Logan, UT, to determine the optimal seed treatment and seeding depth of two native legumes: western prairie clover (*Dalea ornata*) and basalt milkvetch (*Astragalus filipes*). The ARS-FRRL made collections of these species throughout the Inland Northwest and Great Basin, determined population boundaries based on genetic analysis, and released the germplasm this year to the public. However little is known about optimal techniques for stand establishment. Both species can be used to improve diversity and forage quality of rangeland, and improve pollinator habitat.



**Bumble bee visiting a
Dalea ornata flower**

Establishing Forbs into Existing Stands of CRP Using No-Till Techniques in Latah County, ID

Conservationists in the Palouse are interested in finding ways to increase the forb component of CRP stands without exposing bare soil. This month we planted experimental plots in three stands of CRP with differing species compositions and ages to compare mowed and non-mowed site-preparation and compare the effectiveness of two no-till drills: a Great Plains® double disk and a Cross Slot®. A mixture of 16 native forbs was planted in all plots. In the coming years, we will monitor establishment rates, stand density and diversity.



**Seeding native forbs with a Great Plains double disk
drill**



Seeding native forbs with a Cross Slot drill

Did you know.....

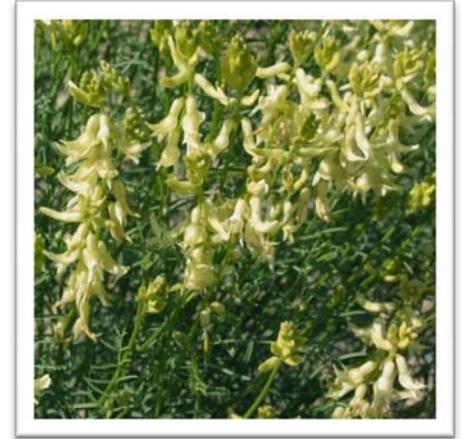
entomologists have developed a system to categorize relationships between pollinators and the plants they visit? The system is made up of what they call **pollinator syndromes**, and they can be used to determine what type of pollinator visits a particular flower, or what type of flower for which a pollinator may be searching. The chart below is from Steve L. Buchmann and Gary Paul Nabhan's book, *The Forgotten Pollinators* (1996). It has been adapted from its original source, Wyatt (1983). Buchmann and Nabhan warn this chart should be used only as a starting point when learning about pollinators and the plants they visit, because of course, there are many exceptions.

Syndrome	Pollinator	Time of Flower Opening	Flower Color	Flower Odor	Flower symmetry	Flower depth	Nectar guides	Reward
Cantharophily	Beetles	Day and night	Variable; usually dull	Strong, fruity or meaty	Radial	Flat to bowl-shaped	None	Pollen or food bodies
Sapromyophily	Carrion and dung flies	Day and night	Purple-brown or greenish	Strong, often decaying meat	Usually radial	None, or deep if traps involved	None	None
Myophily	Syrphids and bee flies	Day and night	Variable	Variable	Radial or bilateral	None to moderate	None	None, pollen or nectar
Melittophily	Bees	Day or day and night	Variable but no pure red	Present, usually sweet	Bilateral; held horizontal or pendant	None to moderate	Present	None (41.6%) and pollen; open or concealed
Sphingophily	Hawk moths	Night or twilight	White or pale to green	Strong, usually sweet	Usually radial; upright	Deep, narrow tube or spur	None	Ample nectar (22.1%); concealed
Phalaenophily	Small moths	Night or twilight	White or pale to green	Moderately strong; sweet	Radial or bilateral	Moderately deep tube	None	Nectar; concealed
Psychophily	Butterflies	Day or day and night	Bright red, yellow or blue	Moderately strong; sweet	Radial or bilateral	Deep narrow tube or spur	Present	Nectar (22.8%); concealed
Ornithophily	Birds	Day and night	Bright red	None	Radial or bilateral	Deep, wide tube or spur	None	Ample nectar (25.4%); concealed
Chiropterophily	Bats	Night	Dull white or green	Strong; fermented	Variable	Brush or bowl-shaped	None	Ample nectar (18.9%) and pollen; open

Featured Pollinator Plant

Basalt milkvetch (*Astragalus filipes*) is a native perennial legume adapted to dry habitats in western North America, from British Columbia to southern California and east to northern Utah. It is currently being promoted by the Agricultural Research Service (ARS) in Logan, UT, for diversification and revegetation of rangelands. The plant flowers in the early spring and is attractive to several native bees. Jim Cane, ARS entomologist, has determined the plant is primarily pollinated by *Osmia* (mason bee) species, as well as few species of *Eucera* (long-horned bee), *Anthidium* (cotton bee), *Bombus* (bumble bee) and *Hoplitis* (leafcutter bee). Dr. Cane has also discovered basalt milkvetch produces nine times more seed when cross-pollinated compared to self-pollinated.

(http://www.ars.usda.gov/research/publications/publications.htm?SEQ_NO_115=261020.) Seed supplies of basalt milkvetch are somewhat limited, but several companies are increasing production. Contact your local seed companies to inquire about availability.



Basalt milkvetch. Clint Shock, Oregon State University

Featured Pollinator



Agapostemon texanus. Sam Houston

Sweat bees (subfamily Halictidae, which includes *Lasioglossum*, *Agapostemon*, *Halictus* and other spp) are native, non-social bees that typically nest in clay soil or sandy stream banks. They are black or brownish, small to medium-sized, and some species have metallic green or bluish highlights. A few species are attracted to sweat and will sometimes sting if disturbed. Most species are polylectic; they collect pollen from a variety of unrelated plants. The sweat bee pictured at left, *Agapostemon texanus*, is a common pollinator species of the Palouse ecoregion. (Sources: www.bugguide.net; Timothy D. Hatten, www.invertebrateecology.com)

Who We Are

The Pullman Plant Materials Center is one of 27 Plant Materials Centers throughout the country which have the responsibility of developing plant materials and technology for establishing and managing plants used in resource conservation efforts. The Pullman Plant Materials Center was established in 1935 and services the Inland Northwest region, including eastern Washington, eastern Oregon and northern Idaho. For more information, 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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