BENTON SOIL AND WATER CONSERVATION DISTRICT

# Horizons

## 2015-2016 Annual Report

*Serving Benton County Since 1956—We're 60 years old in 2016*

### Inside This Issue


Pollinators need shelter……..2
Pollinators need water……...3
Pollinators need connectivity……...4
Pollinators need soil……...5
Pollinators need native plants……6
Pollinators need nesting materials……...……...7
Butterflies of Benton County.8


### Upcoming Events

**1/10** BSWCD Annual Meeting
**1/12** Farm Practices to Support Beneficial Insects and Raptors: Workshop
**1/14** Mason Bee Info Table at Corvallis Indoor Winter Farmers Market
**1/24** Mason Bee Talk
**1/31** Native Plant Sale electronic order deadline
**2/11** Mason Bee Info Table at Corvallis Indoor Winter Farmers Market
**2/25** Native Plant Sale Order Pick-up Day and Native Plant Market

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## BSWCD's Focus on Pollinators Takes Flight!

Pollinators are critical to the nation's economy, food security, and environmental health. The actions of pollinators are necessary for successful pollination of 90% of all flowering plants, including ⅓ of human food crops. It's hard to imagine not being able to enjoy the Willamette Valley's glorious bounty of agricultural crops. However, without pollinators, the harvest of crops such as blueberries, cherries, apples, and many other favorites would be significantly reduced.

Honey bee on popcorn flower

The plight of pollinators has grabbed the attention of scientists, farmers, beekeepers, gardeners, and land managers. Bees and other pollinators like butterflies, moths, beetles, and flies are in decline or being threatened by decreased availability and integrity of natural habitats, improper pesticide use, and encroachment of non-native invasive plants.

In June of 2014, President Barack Obama created the Pollinator Health Task Force, a nationwide attempt to increase pollinator populations and restore their habitat. Legislation may be a good place to start but so much can be done at the local level to address the threat to our pollinators. During the 2016 fiscal year, Benton SWCD dedicated a significant portion of our outreach efforts to promote pollinators and help others learn how they can support pollinators and their habitats. In this annual report, we share how our efforts mirror the needs of pollinators.

We invite you to join us in supporting pollinators by planting native trees, shrubs and flowers. Be a friend to pollinators by attending our Annual Meeting on January 10th from 6-8 pm to learn what positive actions you can take to provide essential resources for native pollinators like monarch butterflies. Purchase plants and seeds at our annual native plant sale and market on February 25th (pre-order deadline is January 31st). Check out our Horizons Native Plant Sale newsletter (available online) to see the beautiful butterfly garden designed by Jenny Brausch.

Bumble bee on common selfheal

We invite citizens of all ages to join Benton SWCD in helping our local pollinators succeed. Thank you!

*—Holly Crosson, Executive Director*

# Pollinators need shelter

Pollinators need shelter from storms, for overwintering, and at night. Butterflies and caterpillars protect themselves from raindrops and wind by clinging to the undersides of leaves, hiding deep in tall grasses and in the cracks of rocks or trees. To provide winter shelter, tidy your garden in late spring instead of fall. Rock piles, hanging baskets and fences are other places for pollinators to hide. Ground nesting bees and other helpful insects make use of loose soil, so leave excavated soil piles when possible. Create beetle banks to provide shelter for beetles and other beneficial fauna that prey on garden pests. Find out all about beetle banks at the IBPM workshop on January 12 .

## Syrphid or Hover Fly

**Scientific Name**
*Syrphidae family*

**Preferred Plants**
Generally, syrphids prefer yellow and white flowers with easy access to nectar and pollen. Yarrow is a good example.

**Nesting Style**
Females lay up to 100 eggs over their lifetime. The eggs are laid on plants, but only when a food source (aphids, e.g.) is present.

**Size**
6 — 13 mm

**Active Season**
Spring — summer

**Fun Fact**
These insects are doubly beneficial! Adults are pollinators, and larvae consume pests including aphids, cabbage worms, and caterpillars.

Photo: Fly on wapato flower.

## Support for Pollinators and Other Beneficials

IBPM Education Team, from left to right: Teresa Matteson, Benton SWCD; Annie Young-Mathews, USDA NRCS Plant Materials Center; Drew Harper, Curry County SWCD; Mara Friddle, USDA NRCS Plant Materials Center; Karen Lamson, Wasco County SWCD; Lisa Kilders, Clackamas SWCD; Rachel Suits, OSU Extension Mt Hood/Wasco County; Robert Yarnall, OSU graduate student; Toni Kessler, Linus Pauling Institute Healthy Youth Program; Heidi Noordijk, OSU North Willamette Research and Extension Center; Gwendolyn Ellen, OSU Integrated Plant Protection Center; Tim Pitz, Mt Adams Orchards; James Cassidy, OSU Soil Science Department; Juli Waarvik, Tualatin SWCD; Stacey Garrison, Polk SWCD. Not pictured: Maud Powell, OSU Small Farms Jackson/Josephine County; Dan Richardson, Underwood CD (WA); and Miriam Edell, LBCC Horticulture Department.

Providing resources for pollinators increases biodiversity at many levels. Pollinators dwell in habitats that also support beneficial predators and parasitoids. If you have plant pests of any ilk, from explosive aphid populations to root-munching gophers, consider the implementation of practices to support beneficial creatures, including insects and birds of prey. This strategy is called integrated biological pest management (IBPM). Land stewards on the IBPM path begins with a whole farm inventory of pests and beneficial creatures and their habitats. Based on the inventory findings, the landscape is enhanced with habitat features, such as native plants and nesting boxes, to attract beneficial organisms that naturally control pests.

Networking and grant writing over the past year bloomed with bountiful rewards. Thanks to funding from the USDA Risk Management Education Partnerships Program, we are working with a swarm of partners who will host winter workshops and summer field courses to encourage farmers to manage risk through integrated biological pest management. Farmers will learn to identify insects and implement practices to attract beneficial organisms that moderate the pests' impact.

To launch the project, the IBPM partners and their local supporters participated in a Train-the-Trainer at OSU's North Willamette Research and Extension Center on November 1-2, 2016.

If you are interested in attracting beneficial insects to your farm or garden, attend the **Farm Practices to Support Beneficial Insects and Raptors** workshop on January 12 at the NRCS Plant Materials Center in Corvallis. The $10 registration fee includes lunch and materials. Register online at www.bentonswcd.org/practices-support-beneficials/.

*—Teresa Matteson, Soil Health Coordinator*

# Pollinators need water

Pollinators need water for drinking, hygiene, and reproduction. Butterflies "puddle" to get the critical minerals they require. Puddles can be created using shallow dishes filled with soil or sand and kept wet. Bees drink at watering stations, which may be water buckets with corks floating on top, bird baths with stones placed in as bee perches, or boards placed under the slow drip of a rain barrel. Hummingbirds need water for washing their feathers. Rivers, streams, and ponds are also good water sources for pollinators. BSWCD is working to protect high quality riparian and aquatic habitats along the Willamette River through the efforts of the Willamette Mainstem Cooperative.

## The Willamette Mainstem Cooperative

Goats eat ivy at Takena Landing

The Willamette Mainstem Cooperative (WMC) is a group of landowners, organizations, and volunteers working together to improve stewardship across all landownerships along the mainstem of the Willamette River with a focus on the Corvallis to Albany river reach.

In 2015, over 30 acres of riparian forest on public and private land were treated for English ivy. Much of the work was conducted at Takena Landing in partnership with the City of Albany. Several techniques were employed: hand-pulling by volunteers; cutting, spraying, and girdling of tree ivy by contractor; and grazing by goats.

In 2015, we treated the invasive *Ludwigia hexapetala* in four miles of river sloughs and two ponds. We also continued to treat the first reported occurrence of the invasive yellow floating heart (*Nymphoides peltata*) in Benton County (pictured below).

The Willamette Mainstem Cooperative experienced a smooth transition in leadership in the spring of 2016, when Melissa Newman joined the BSWCD staff after Crystal Durbecq moved to Tualatin Hills Park & Recreation District.

In June of 2016 we partnered with Willamette Riverkeeper, Oregon State Parks Department, and Portland State University to hold an aquatic weed workshop. Sixteen people paddled from Corvallis to Albany and learned first-hand identification of aquatic weeds and native species, and visited some of the WMC's project sites.

Yellow Floating Heart

BSWCD worked with Willamette Riverkeeper and Oregon Department of Agriculture to survey about 20 river miles for *Ludwigia hexapetala* and other invasive plant species. Numerous small "satellite" populations have been removed as a result. Over 30 private, public, and industry landowners are partners in the WMC efforts.

*—Melissa Newman, River Restoration & Invasive Species Program Coordinator*

### Metallic Sweat Bee

**Scientific Name**
*Agapostemon spp.*

**Preferred Plants**
These generalists, seen above on native camas, use many crops, especially carrot and flowers grown for seed.

**Nesting Style**
Predominantly solitary, nesting in small tunnels in the ground.

**Size**
7 — 12 mm

**Active Season**
Summer — fall

**Fun Fact**
Some *Agapostemon* species create communal nest galleries that share a single entrance, which one bee guards.

Photo: Sweat bee on camas © Maya Evelyn

# Pollinators need connectivity

Connectivity refers to the ability of a species to move between habitat patches. These patches are ideally connected by corridors or smaller patches called stepping stones. Maintaining connectivity is extremely important for species like monarch butterflies, which migrate over multiple generations between northern breeding grounds and southern overwintering sites. Streamsides and roadsides are some of the best corridors in developed landscapes. In fact, some of the rarest plant species in Benton County occur in rights-of-way, and support endangered insects like the Fender's blue butterfly. CREP, described below, fosters connectivity by protecting and restoring streamside habitat.

## Monarch Butterfly

**Scientific Name**
*Danaus plexippus*

**Preferred Plants**
LARVAL HOST PLANTS:
-Showy Milkweed
-Narrow-leaved Milkweed
-Other Milkweed spp.

ADULT NECTAR PLANTS:
-Milkweed spp.
-Goldenrod
-Thistles
-Asters

**Nesting Style**
Eggs are laid on the underside of milkweed leaves, usually 1 egg/leaf.

**Size**
94 — 104 mm wingspan

**Active Season**
In Oregon, you might see monarchs from May to September.

**Fun Fact**
The monarch is the only butterfly known to make a multi-generational, two-way migration. They can travel 50-100 miles/day.

Photo: A monarch raised in Corvallis. © Molly Monroe

## 15 Years of Riparian Protection through CREP

The Conservation Reserve Enhancement Program was established in 1998 by a unique partnership between the U.S. Department of Agriculture and the State of Oregon. Its purpose is to work in partnership with landowners to establish riparian vegetation on the borders of agricultural land along streams, protecting water quality and restoring fish and wildlife habitat. Through this program, riparian buffers are established, maintained, and removed from agricultural production for 10-15 years and a rental payment is given to the farmers who participate. The Oregon Watershed Enhancement Board provides 25% of the cost of CREP program implementation. Oregon's CREP program offers an additional payment that a landowner (or group of landowners) can receive if the riparian establishment is more than 2.5 miles of a 5 mile stream segment. In Benton County, we have three watersheds where this additional payment is given to a group of landowners.

In 2015, four individuals re-enrolled a total of 79 acres in CREP for an additional 15 years. Two landowners enrolled 93.2 new acres into the program, adding to over 742 riparian buffer acres restored and protected by 36 landowners in Benton County since the program began. These acres contribute to over 40,066 riparian buffer acres restored in the state of Oregon.

The photo at right, from 2003, was taken at the time of an initial CREP planting in Kings Valley. Dying cottonwoods were the primary vegetation. It was not a healthy functioning riparian buffer, so native shrubs and trees were planted throughout the buffer around the wetlands.



In the photo at left, taken in 2016, shrubs have filled in the areas around the wetland and stream, creating greater habitat diversity, reduced stream temperatures, increased infiltration, and bank stabilization.

*—Donna Schmitz, Resource Conservationist*

# Pollinators need soil

Pollinators need bare soil for nesting in, nesting materials, and minerals. Approximately 70% of native North American bees are ground nesters. Ground nesting bees need bare patches in sunny, exposed, well-drained, uncompacted soil. It's also okay to be messy: brush piles, leaf litter, and debris provide useful habitat elements for beneficial insects like the soldier beetle in the spotlight below. Mason bees need mud within 20 to 30 feet of their nesting site. The female mason bee scoops up clayey mud and packs it in between nest compartments. In summary, pollinators need healthy soil conditions. Benton SWCD has helped pave the way for the principles of soil health to take root in Oregon.

## Digging into Soil Quality

In healthy soil, down in the moist, warm spaces, tucked between roots, rocks, and particles, thrive billions of creatures unimaginable to most humankind save the scientists who seek them out. These soil beasts transform wastes into nutrients and set the stage for the aboveground scenes we cherish: farm fields, oak savannahs, wetlands, and the buzzing habitats where pollinators, parasitoids, and predatory insects dwell. Through channels, pores, and burrows, invertebrates and mammals dine at soil food web eateries, driving decomposition and releasing wastes that become plant nutrients. Evidence of this remarkable nutrient transfer reaches our perception through the fauna and flora that straddle both the edaphic and aerial worlds. Healthy soils support vigorous habitats and the benefits are less work and fewer dollars as we naive humans manage the landscape.

Here at Benton SWCD our soil program continues to expand, thanks to cherished partnerships and exceptional opportunities. This annual report shares what we have accomplished and foretells upcoming activities.

Recently, national attention to soil health has surged. We are honored to participate on Oregon's soil health team to help deliver education and promote practices that foster the well-being of Oregon's varied soils.

For seven springs we have pulled farm and pasture soil samples for lab analysis and delivered soil health reports to the land stewards to help them understand how management impacts soil function. During this year's work, four OSU student interns applied classroom concepts to real world activities as they visited farms, processed samples, and performed lab assessments. We extend heartfelt THANKS to Amanda Pennino (*below, right*), Zoe Ash, Kathleen Knight (*below, left*), and Katelyn Noragon for their hard work. Please read their student essays at our blog, The Dirt (www.bentonswcd.org/activities/the-dirt).

For two years we have measured soil moisture at local plots to help OSU Small Farms Dry Farming Collaborative narrate the impacts of irrigation and biochar amendments on crop yield and flavor.

New this year, we collaborated with the OSU Central Analytical Lab to provide for-fee soil health assessments to the general public. This exciting merger assures the viability and longevity of the Soil Quality Program.

With a glance to the future, we will orchestrate a NRCS-funded exploration of soil characteristics in Fender's blue butterfly prairie habitats. Stay tuned!

*—Teresa Matteson, Soil Health Coordinator*

### Soldier Beetle

**Scientific Name**
*Chauliognathus spp.*

**Preferred Plants**
Often seen on goldenrod and hydrangeas.

**Nesting Style**
Larvae hatch under leaf litter.

**Size**
7 — 12 mm

**Active Season**
Late summer — early autumn

**Fun Fact**
Soldier beetles are beneficial insects that feed on aphids and the eggs and larvae of other insects. They are related to lightning bugs.

Photo: Soldier beetle on yarrow
© Smidon33 , wikimedia.org

# Pollinators need native plants

Native plants serve as larval hosts and are important sources of nectar and pollen for adult pollinators. Complex flowers are often visited by specific pollinators, whereas open flowers attract a wide range of pollinators. Mix and match natives on your land to provide blooms throughout the season, and cluster plantings to make foraging easier. Early spring bloomers such as Oregon grape and red flowering currant are favorites for hummers and humans alike. Native plants are low maintenance: they require water only during establishment and never need fertilizer. We encourage the use of native plants through our annual Native Plant Sale. Order online through the end of January.

## Anna's Hummingbird

**Scientific Name**
*Calypte anna*

**Preferred Plants**
Red Columbine
Bleeding Heart
Columbian Larkspur
Red Flowering Currant

**Nesting Style**
Female builds a ping-pong ball-sized nest between mid-January and late February out of mosses, lichens, and spider silk.

**Size**
9 — 10 cm

**Active Season**
Year-round

**Fun Fact**
Anna's hummingbird is the only year-round resident hummer this far north.

Photo: Female Anna's Hummingbird © Alan Vernon, wikimedia.org

## Our Native Plant Sale Supports Pollinators

We began the Native Plant Sale in the 1990's, and yet 2016 was a year of firsts.

**In-House Coordination:** In years past, the District hired a contractor to coordinate the sale, but the 2016 sale was coordinated by District staff. This allowed us to separate out some of the planning duties amongst the staff, troubleshoot and make decisions more quickly. This change gave us all an increased sense of pride and level of buy-in for the Native Plant Sale, and allowed us to grow as a team.

**Customer Surveys:** Many of the changes in 2016 resulted from customer input that we received through surveys. In 2015, 52 customers, 18 volunteers, and at least 15 other people responded to the on-line survey. Your thoughtful responses alerted us to customer interest in water efficient gardening and an overall preference for bare root plants. We will continue to survey our customers each year, and offer survey-takers a chance to win a plant sale gift certificate!

**Pollinator Outreach Theme:** In 2016, the sale adopted its first outreach theme. We focused our inventory on plants that support pollinators throughout the growing season. Board member Jerry Paul hosted a pollinator info station at the sale, and we offered a number of thematic lectures, workshops, and blog posts.

**New Location:** After many good years at the Eichler Hay Farm, we moved the sale to Benton County Fairgrounds. This large and central location allowed us to make the sale an even more festive experience with live music, honey tasting, expanded market selection, and the ability to accept credit cards on-site.

**New Products Offered:** Due to a generous donation from a local wetland and grass seed farmer, we added a large selection of pollinator– friendly plant seeds at very low prices. We also sold some of our favorite field guides and gardening books.

**Raffle for Pollinator Garden Plants:** Signe Danler created a sunny pollinator garden design for the 2016 sale, and we raffled off all the plants needed to create the garden, a $200 value. The raffle was won by Elizabeth and David Patte.

*—Heath Keirstead, Communications Program Coordinator*

From left to right: Sally Shaw sold books, Lindsay Willrick sold seeds, David Patte won the plant raffle, and Paul Regan played music with his band, Cheatgrass at Native Plant Sale 2016.

# Pollinators need nesting materials

Nesting sites are almost as varied as the types of pollinators themselves. Butterflies and moths lay their eggs on larval food plants, so adult nectar sources should be situated near larval host plants, and associated leaf litter should remain undisturbed. Some bees are ground nesters, and they need bare, loose soil with sun exposure. Cavity-nesting bees use old beetle tunnels, reeds, and teasel. You can create artificial nesting sites, such as bundles of hollow stems or bee blocks, which must be replaced or cleaned each year to prevent disease. At BSWCD, we "build nests" by providing conservation education for youth , and our sound fiscal management will help us sustain these efforts into the future.

## Salmon Watch

The first time I saw salmon spawning was as a volunteer instructor on a Salmon Watch field trip in 2003. It was also the year I first saw loggerhead sea turtles nesting on the beaches of Florida. Witnessing the culmination of two ancient species' epic journeys inspired an even greater respect for these wild creatures than I already possessed. Since then, I have happily volunteered for Salmon Watch every fall.

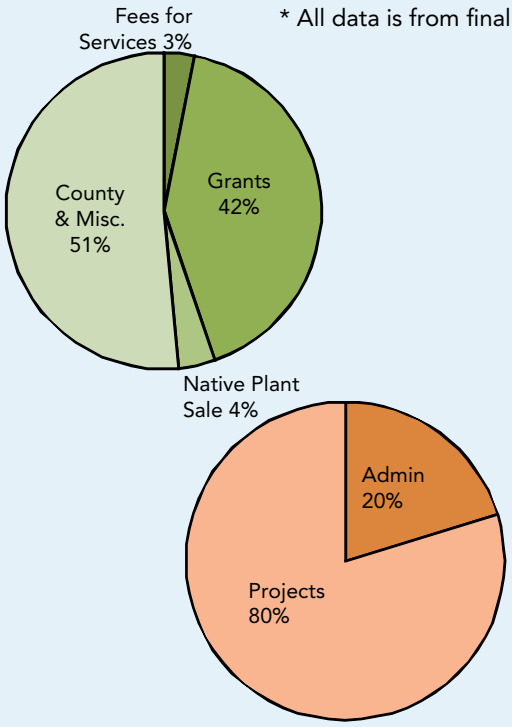
In 2015, Benton SWCD took on coordination of Salmon Watch field trips for Benton County schools. Our goal is to take all fifth grade students to Clemens Park in Alsea each fall while the Chinook are spawning. The students watch salmon digging their redds (gravel nests), vying for position, and protecting their eggs. They collect and sort aquatic macroinvertebrates, test water quality, and investigate the riparian area. We do this work in partnership with Calapooia Watershed Council, Oregon Department of Fish & Wildlife, South Santiam Watershed Council, Siuslaw National Forest, and OSU Sea Grant. We rely on the unwavering dedication of scores of volunteers and the help of Jana Seeliger, our devoted volunteer coordinator. Please join us in 2017.

Students test water quality.

*—Heath Keirstead, Youth Education Coordinator*

## Financial Report for Fiscal Year 2015-2016*

* All data is from final audited financial information for FY 2015-16.




| Revenue | |
|---|---|
| County & Misc. | $369,834 |
| Grants | $298,978 |
| Native Plant Sale | $27,277 |
| Fees for Services | $22,461 |
| **Total** | **$718,550** |

| Expenditures | |
|---|---|
| Admin | $132,731 |
| Projects | $520,761 |
| **Total** | **$653,492** |
| **Net Change** | **$65,058** |

## Taylor's Checkerspot

**Scientific Name**
*Euphydryas editha taylori*

**Preferred Plants**
Paintbrush *(Castilleja hispida)*

Plantains *(Plantago spp.)*

**Nesting Style**
Butterflies lay clusters of eggs on leaves in May. From May-June, the eggs hatch into larvae. The larvae remain clustered, eat the leaves, and grow from May-July.

**Size**
5.7 cm wingspan

**Active Season**
April — May

**Not-So-Fun Fact**
The Taylor's checkerspot was listed as an endangered species under the ESA in 2013. The last remaining Oregon population is in Benton County.

Photo: Taylor's checkerspot at Beazell Memorial Forest © Melissa Newman

Benton Soil and Water
CONSERVATION DISTRICT

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# Butterflies of Benton County

## An Evening of Presentations

Please join us for our annual meeting and a celebration of the butterflies who live in and travel through Benton County. Find out what is being done and how you can improve butterfly habitat on your property.

**Tuesday**
**January 10th**
**6:00 to 8:00 PM**
**Corvallis-Benton County Public Library**

| Presenter | Topic |
|---|---|
| **Paul Severns**<br>*OSU Botany Department* | More Than Just Being There: Butterfly-Plant Interactions |
| **Sean Prive**<br>*Restoration Ecologist* | Partnerships for Landscape-scale Pollinator Habitat Restoration |
| **Molly Monroe**<br>*Wildlife Biologist* | Monarch Butterflies in the Pacific Northwest |

*Refreshments by Valley Catering: Treats that rely on pollinators!*