Gardens and parks are buzzing with pollinators in spring and summer in the Northwest, and not just with honey bees. The European honey bee is just one of the 500 bee species thought to occur here in the state of Oregon. Native bees are currently declining due to a number of threats, such as habitat loss. Even remnant habitats are declining in diversity to the spread of invasive plants that outcompete with the native species that wild bees rely on for pollen and nectar. The spread of pathogens is another reason for declining bee populations. Managed bees, like bumblebees used for tomatoes grown in greenhouses, spread disease to native species. Although scientists agree that native bees are in trouble, we don’t know the cause or the species that are at the greatest risk. There has never been a coordinated survey of the Oregon’s bees. Without even a checklist of species, it is very difficult to know whether the health of Oregon bees is improving or declining.

In 2017, Beyond Toxics and WRP spearheaded the first Eugene Bee Survey to determine if native bees were using the wildflowers that were planted and seeded on WRP’s “Community Involvement” restoration site in the Whilamut Natural Area in Alton Baker Park. The survey was organized with the intent to expand our understanding of the native pollinators present in urban parks and their foraging patterns. In 2018, citizen scientists and local experts from WRP, Beyond Toxics, Oregon Bee Project, and Mount Pisgah Arboretum made 16 distinct observations of different bee tribes, genera, and species during just one day of surveying in late June.

The identification of bees to species, and often genera is a difficult task that takes years, if not a lifetime of practice. We relied on local experts to assist with identifying each bee collected and photographed during the survey to the lowest taxonomic level possible. Bug nets were used to trap bees, which were then transferred into insect-collecting jars and placed into a cooler with ice for 1-2 minutes in order to slow down bee activity to allow for photography and close-up examination of the bee without harming it. The results of our survey will contribute to the Oregon Bee Atlas, an effort to develop a stronger base of knowledge about the bees of Oregon. The project’s success rests on the shoulders of citizen scientists its’ mission is to train volunteers to seek out new native bee records across the state.

We utilized the free application for smartphones, iNaturalist, to record our observations and contribute to the Oregon Bee Atlas. Below is a list of urban bees that we encountered. We hope to expand this list in the coming years, so stay tuned in the spring and summer for WRP’s bee surveying activities. To view the full survey methods and results of the 2018 survey, you can visit the “Get Involved” page on our website.

1. European honeybee (Apis mellifera)
2. California bumblebee (Bombus californicus)
3. White shouldered bumblebee (Bombus appositus)
4. Yellow faced bumblebee (Bombus vosnesenskii)
5. Cuckoo bee (Nomada sp.)
6. Small carpenter bee (Ceratina sp.)
7. Long horned bee (Eucerini tribe)
8. European wool carder bee (Anthidium manicatum)
9. Mason bee (Osmia sp.)
10. Leaf cutter bee (Megachile sp.)
11. Alfalfa leaf cutter bee (Megachile rotundata)
12. Mining bee (Andrena sp.)
13. Anthidiini tribe, many possible genera /species with different common names
14. Sweat bee (Halictus ligatus)
15. Sweat bee (Lasioglossum sp.)
16. Masked bee (Hylaeus sp.), there are many common names for this genus

California bumblebee collected and released during the 2nd Annual Eugene Bee Survey.
A Special Thank You to the following:
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New Day Bakery
Toby’s Bread Stop
Sizzle Pie
Izzy’s Pizza
Mazamas
Wellsprings Friends School
Beyond Toxics
BARK
New Day Bakery
Passionflower
Injoy Wellness Massage Center
SLO Farm
WildCraft Ciderworks
Plank Town Brewing Company
National Forest Foundation
Mt. Hood National Forest
Nancy’s Yogurt
Toby’s Family Foods
De Casa Fine Foods

The Many Volunteers who help in the restoration of our Local Open Spaces!

Mt. Hood Pollinator Garden Update

By Maya Goklany

WRP has entered a Stewardship Agreement with National Forest Service to establish and support the Mt. Hood Pollinator Garden in the Clackamas watershed. The “garden” will feature over 40 species of native plants sourced from local ecotypes within Mt. Hood National Forest. Target plant species are known to provide forage and hosts for numerous pollinators. Seed and cuttings produced at the garden will be used on forest health improvement projects across over 111 acres of habitat, and the garden will allow the Forest Service to have a continuous and diverse supply of native plant materials to use for soil productivity, wildlife habitat, erosion control, and reestablishment of native vegetation.

One of the greatest hindrances to the recovery of Oregon’s degraded forests is limited availability of locally sourced native plant materials. Resilient forest habitat not only requires a healthy tree canopy, but also requires a diverse understory of shrubs and forbs, components that are too often overlooked because the supply of native plant materials cannot keep up with restoration demands. Large scale native seed suppliers in the Northwest are almost entirely focused on the collection and propagation of plants native to the Willamette Valley and Puget Sound, which leaves restoration practitioners in the Cascades in a bind. WRP and the Forest Service hope to remedy this issue in the Clackamas Watershed with the creation of the garden.

The garden is located along Forest Road 240 at the Podunk Seed Orchard. In the summer of 2017, WRP began to solarize the future garden beds by placing black fabric over the ground surface to kill weedy vegetation, roots, and the seed bank, one of our favorite and most successful ways to prep nursery and restoration sites without the use of herbicide. The fabric will be removed this coming winter or spring, and planting will commence shortly after.

With the help of volunteers giving over 130 hours of their time during the field season, the WRP Restoration Crew and Stewardship Program has, to date, located and mapped 35 species of the target native plants and collected seed from 20 of these species in Mt. Hood National Forest. Just finding our target plants is no small feat, as vegetation in much of the Clackamas Watershed is poorly documented by databases that provide location information for plant populations, such as the Oregon Flora Project and iNaturalist. As such, we rely heavily on interpreting habitat types that are suitable for our target plants from aerial images. However, there is a plus side to the lack of data; it means that this area of the forest is also relatively unexplored by humans and rich in plant, fungal, and wildlife diversity.

(Article continued on page 5)

Every Nickel Counts: Mention WRP at Sequential Biofuels!

SeQuential Biofuels Station on McVay Highway in Eugene will donate 5 cents for every gallon you pump into your vehicle and 5% of store purchases to Walama Restoration Project. You must mention WRP when you make your purchase!
The From Seed to Habitat Program (FSH) is serving the most classrooms ever this year! With the addition of seventh grade science classes at Hamlin Middle School in Springfield, we are at 34 classrooms for the 2018/2019 school year. The math works out to roughly 1,000 students across three districts who will participate in environmental restoration this year. Each student will help to grow native wildflowers, rushes and sedges at their schools in order to establish 15,000 pots of plants for restoration sites in adopted public spaces. Each valley bottom prairie species is chosen to maximize the impact for pollinator forage/ host plants and water quality in upland prairie, wet prairie, and oak savanna in Lane County. This coming year, the FSH program will also be working with high elevation species to establish a pollinator seed garden to increase biodiversity in the Mt. Hood National Forest in Clackamas County. The work of our students is now having an impact all across Oregon!

**Planting field trips**

Five restoration sites on public lands are being planted by From Seed to Habitat Students this year. Agnes Stewart Middle School is working with WRP to restore the wetlands behind their school in Springfield along the recently established three mile long Mill Race Path. Elmira Elementary School and Territorial Elementary School in the Junction City School District are working with the Army Corps of Engineers to install native wildflowers at the North Applegate Unit wet prairie and upland prairie near Shore Lane Park. In the spring, they will travel to Fisher Butte wildlife viewing area to learn about wetlands and identify waterfowl and blooming wildflowers. The other FSH classrooms in the 4j school district are traveling to Alton Baker Park, managed by the City of Eugene, where they are planting at 2 sites: the Butterfly Meadow and CILOS. CILOS, which stands for the Community Involvement and Longterm Ownership Strategy, is the mosaic of habitats adjacent to the Knickerbocker bike/pedestrian bridge in the Whilamut Natural Area. This 3.5 acre site is in its 3rd year of planting and the 5th full year of restoration using non-chemical techniques and volunteer labor. This year, students will focus on installing bulbs and weeding out exotic species to maintain the site. The Butterfly Meadow is where the younger groups will travel to this fall in order to plant hardy upland prairie species like Yarrow, Achillea Millefolium, Willamette Valley Gumweed, Grindelia integrifolia and Self Heal, Prunella vulgaris. The Butterfly Meadow is across from Nearby Nature and will be getting a facelift this year with all of the black “shade tarp” coming up! It still needs a lot of love to remove the encroaching noxious weed Queen Anne’s Lace though, so make sure to come out for a volunteer work party this spring and bring your family.

**Become a Walama Board Member!**

WRP is currently seeking members of our community to join the Board of Directors. We encourage interested individuals sit in on a board meeting or contact us at info@walamarestoration.org. Serving on the board is a great way to resume build and contribute to your community! Our next board meeting is Dec 13th at 6:00 in the upstairs meeting room of the Growers Market. See you there.
Species Spotlight: Red-femured Milkweed Borer Beetle
By Maya Goklany

The monarch butterfly (Danaus plexippus) is arguably the most popular and charismatic insect that requires milkweed plants for breeding, but there are also many of lesser known insects that have also developed intimate relationships with milkweed (Asclepias spp.) and depend on these plants for the completion of their life cycle. Upon inspecting milkweed plants for monarch eggs and caterpillars, Oregonians may also find red-femured milkweed borer beetle (Tetraopes femoratus).

Milkweed borers belong to the longhorn beetle family (Cerambycidae) and are host-specific to milkweeds and in some cases, other plants in the dogbane family (Apocynaceae). The red-femured milkweed borer is the most variable and probably the most widespread species in the genus Tetraopes. It occurs in the Central and Western U.S., with a range similar to that of its’ host species, showy milkweed (Asclepias speciosa). Larvae bore into and feed on milkweed rhizomes, or roots, and over-winter beneath the ground surface. Adults emerge during the blooming period of the host plant, and begin to feed on the leaves and flowers. Females chew holes in vegetation in the vicinity of the host plant (within centimeters) to deposit their egg. A few weeks after oviposition, eggs will hatch and the larvae burrow into the soil to search for sustenance from milkweed roots.

Milkweeds and other species in the dogbane family possess cardiac glycosides and alkaloids, secondary metabolites that provide the plant with a defense against herbivory. These organic compounds are toxic, but their deleterious effect depends on the amount ingested and the relative size of the animal consuming plant material. Horses for instance, would need to consume at least 1 pound of milkweed before poisoning occurs. This is an extremely rare scenario because these compounds are also unpalatable and most animals will avoid consumption. Adult beetles and early instars incorporate these toxins into their bodies, which provides a defense against predators. The beetle’s red and black coloration is “aposematic”, serving as a warning for its distastefulness. This chemical defense mechanism and coloration is similar to that of the monarch butterfly. An additional line of defense for milkweeds is the sticky, white, latex sap that is exuded when the aboveground portions of the plant are damaged. This makes the plants even more inedible and can glue the mandibles of chewing insects shut. Milkweed borers are not however, deterred by these secondary metabolites or sap. They have evolved a physiological tolerance to the toxins and exhibit specific foraging patterns that that avoid feeding on the canals in the plant that secrete latex sap. The relationship between milkweed borer beetles and their host plants is a classic example of interspecies coevolution and demonstrates an “evolutionary arms race” where milkweed toxicity increases with an uptick in herbivory, and in response, the herbivore must continue to adapt to this changing toxicity. Both the plant and insect act as agents of selection on one another, and the overtime this increases the fitness of both species.

Next time you’re kneeling at milkweed plant, listen closely, you might hear a series of squeaks. The red-femured milkweed borer beetle squeaks when feeding and when handled, and they make a purring noise to communicate with each other. We wanted to shine the spotlight on the red-femured milkweed borer beetle to serve as a reminder for the myriad of plant-insect relationships that often go unseen, or unheard! The positive impact of milkweed cultivation and conservation will have a much wider breadth than just benefiting the iconic monarch, and will extend to many other and organisms.

Planting for Pollinators in Bee City USA
By Maya Goklany

WRP is excited that Eugene is now a Bee City USA affiliate! What does this mean? As a community we are now active participants in a national movement committed to pollinator conservation by maintaining healthy pollinator habitat on public and private land, sharing knowledge of funding opportunities and research, and providing accountability for achieving conservation goals through annual reporting. WRP is serving on the Bee City Committee along with Beyond Toxics, Eugene Parks and Open Spaces, Xerces Society, Lane County Audubon Society, Lane County Beekeepers Association, GloryBee, and the Oregon Bee Project. Together we can create a more conscientious landscape in our city.

What can you do to help pollinators? There are opportunities to improve habitat on every landscape, from unattractive lawns and asphalt jungles to degraded agricultural land and road sides. Increasing vegetative cover of native wildflowers, rather than introduced plants, in all of these areas will improve the health of pollinator populations. Purchasing plants that haven’t been treated with systemic pesticides like neonicotinoids is essential when planting for pollinators because these chemicals can be expressed in pollen and nectar, making them toxic to many insects. Planting the same species in clusters will help pollinators hone in on their food source or host plants more easily. Selecting a suite of species that will provide a continuous bloom from spring through early fall will help to ensure there is always a food source and/or breeding site for pollinators with different temporal life cycles. Allowing woody debris, dead hollow plant stems, and patches of bare ground to remain on a landscape can provide nesting sites for some of these beneficial insects, especially bees.

If you want to learn more about creating a pollinator friendly landscape, WRP will be hosting a workshop on “Improving Habitat at Home: Selecting, Harvesting, and Processing Plants for Pollinators” on Saturday, January 26th at the Portland Nursery on Division. Visit our website and https://portlandnursery.com/events/ to register after December 1st.
By Nicole Smedegaard

The Village School 5th graders of Matthew Rutman’s class have once again chosen to support WRP education programs and environmental restoration through donations from their annual Walk-A-Thon fundraiser which gives each class the opportunity to support an ecologically-minded non-profit organization of their choice. Thank you Village School for your 9th consecutive year of support!

Events

Saturday, November 17th (10am to 1pm) - Volunteer Work Party, Whilamut Natural Area
Tuesday, December 4th (5pm to 7pm) - Science Pub, WildCraft Ciderworks
Saturday, December 15th (10am to 1pm) - Volunteer Work Party, Whilamut Natural Area
Wednesday, January 9th (5pm to 9pm) - Green Drinks, Plank Town Brewing Company (Springfield location)
Saturday, January 26th (11am to 12pm) - “Improving Habitat at Home: Selecting, Harvesting, and Processing Plants for Pollinators” Workshop, Portland Nursery (Division Ave. location)

To learn more about our upcoming events, stewardship opportunities, and internships, visit http://walamarestoration.org/get-involved

Thank you, Mt. Hood National Forest, National Forest Foundation, and Network Charter School!

This August Walama Restoration Project was awarded over $10,000 by the National Forest Foundation Matching Awards Program for removing hound’s tongue, Cynoglossum officinale, and other invasive species. WRP’s current project "Invasive Vegetation Management in the Crystal Clear Restoration Project Area" is on the east side of the Mt. Hood National Forest in the Barlow Ranger District. This area historically was ponderosa pine, Douglas fir, and a mosaic of openings with Oregon white oak that become more common on the east end of the national forest. The past 100 years of fire suppression, timber harvest, and tree plantations altered the landscape into mono-cultures and allowed grand fir to fill in openings shading out vegetation on the ground and preventing new generations of ponderosa pine to develop. The legacy trees become stressed by competition, lose the lower part of their crown, and become more susceptible to disease, beetles, and wildfire. The actions the forest service has taken to improve the current state of conditions include opening areas to return the area to historic structure and use fire as a tool to maintain the area. Invasive weeds in the area are taking advantage of the disturbances and must be combated to allow native vegetation to establish. The largest threat in the area is Hound's tongue; Cynoglossum officinale. This plant is native to Eurasia and from the picture below you can see how this plant has been able to hitch a ride to new areas with its multi-barbed seeds. The seeds will not simply fall to the ground; they hold on through the winter into the next waiting to hitch a ride on passing ungulates. The first step in combating this species has been cutting and bagging the seed. WRP has taken three trips to the area since August, collecting over 6 yards of seed material across 43.5 acres. The seed holds so well we collected more than 50% of 2017 seed production and over 99% of this year’s seed. WRP will continue work through July of 2019 digging out plants and removing hounds tongue seeds in new areas.

The National Forest Foundation promotes the enhancement and public enjoyment of the 193-million-acre National Forest System. By directly engaging Americans and leveraging private and public funding, the NFF improves forest health and Americans’ outdoor experiences. The NFF’s programs inform millions of Americans about the importance of these treasured landscapes. Each year, the NFF restores fish and wildlife habitat, plants trees in areas affected by fires, insects and disease, improves recreational opportunities, and enables communities to steward their National Forests and Grasslands.
Walama Restoration Project relies on community support to facilitate our education programs. If you would like to make a tax deductible contribution or would like to volunteer with WRP, please fill out this form & send it to:

Walama Restoration Project
PO Box 894
Eugene, OR 97440

Yes! I would like to be a supporter!
___ Limited Income    $15
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___ Sponsor           $500
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**You can also donate on our website  
www.walamarestoration.org**

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My interests include _______________________

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