Volunteer Pollinator Monitoring

2018 Achievements & Results

WEST MULTNOMAH
Soil & Water Conservation District

21 Projects monitored

16 Volunteers

86 Monitoring visits

19 Volunteer hours spent monitoring

1,368 Total pollinators observed

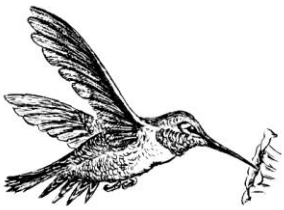
22 Types of pollinators seen

82 Species of plants observed being pollinated

44 Native plant species

33 Introduced plant species

5 Unknown plant species

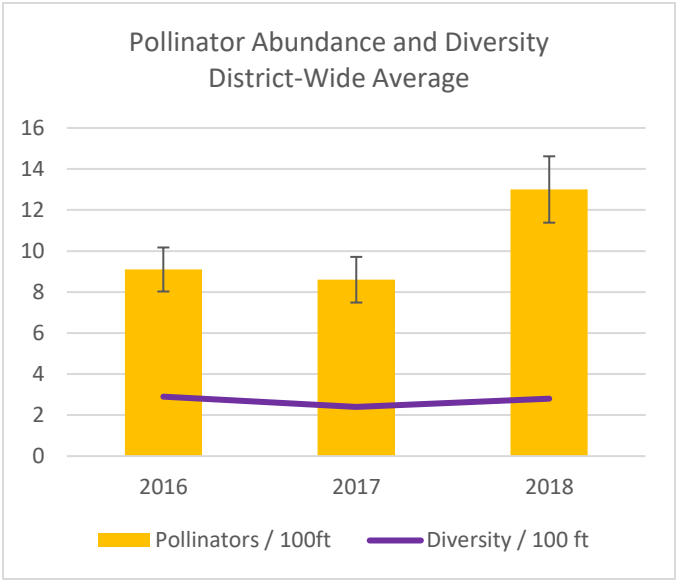


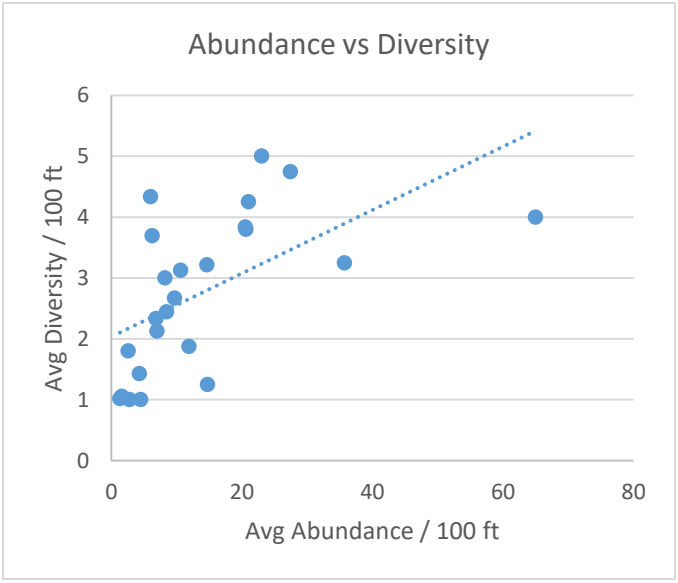
Project overview

2018 was our third year of offering the Community Science Pollinator Monitoring Project. We once again paired trained volunteers with private land owners' pollinator habitat projects to gather information on pollinator diversity, abundance, and use of our plantings. All sixteen people who volunteered with us in 2018 returned from previous years. Volunteer coordination was managed through a continued partnership with OSU Extension's Oregon Master Naturalist (OMN) Program over the first half of the season. All volunteers received a refresher training on the Xerces Society's *Maritime Northwest Citizen Science Monitoring Guide* at the beginging of the spring, and then were free to monitor their assigned sites over the remainder of the season. Each team of volunteers was assigned to two to four sites, and monitored each site two to six times from April to September. Having trained volunteers return for a third year enabled us to monitor earlier in the year thus capturing more early-season pollinators and flowers.

Results and Discussion

Overall trends: The district-wide average abundance of pollinators was around 13 pollinators per 100 ft, a slight increase from the ~ 9 pollinators per 100 ft that were observed in each of the previous two years. District-wide average diversity was 2.8 morphogroups per 100 ft, similar to the previous two years (2.9 types/100 ft in 2016, and 2.4 types per 100 ft in 2017). This is a promising sign that our projects are experiencing increased pollinator abundance as they continue to mature. Sites with greater numbers of pollinators often also had a more diverse pollinator community present.





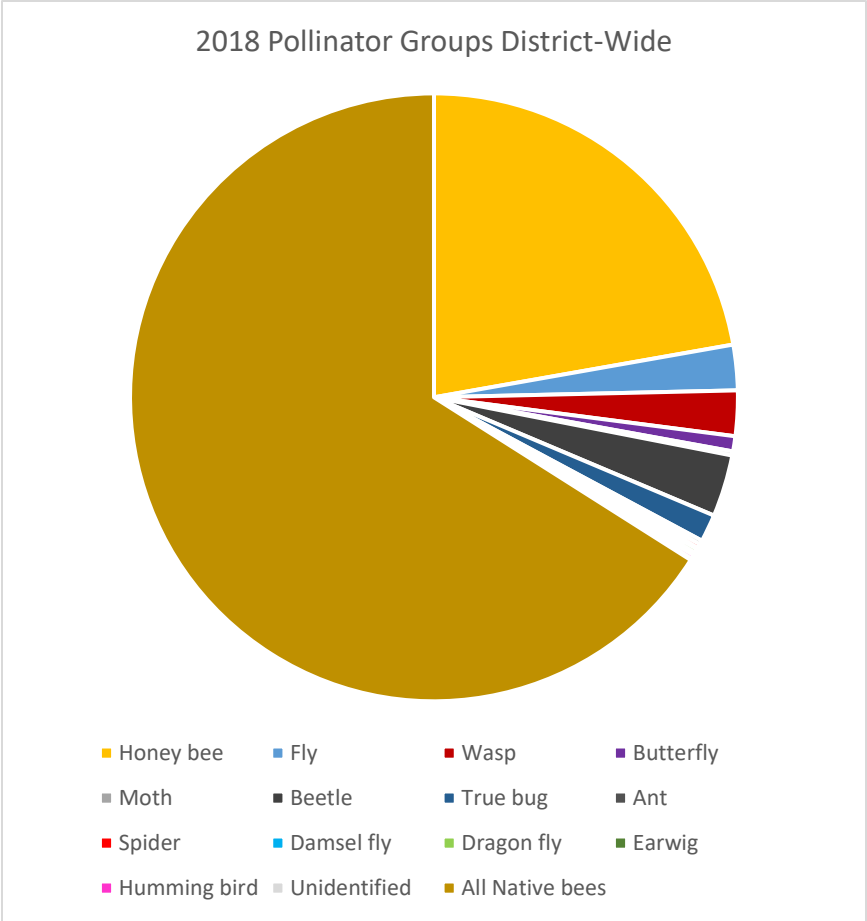
Left: A 'medium dark bee' aka sweat bee on native Nutka rose

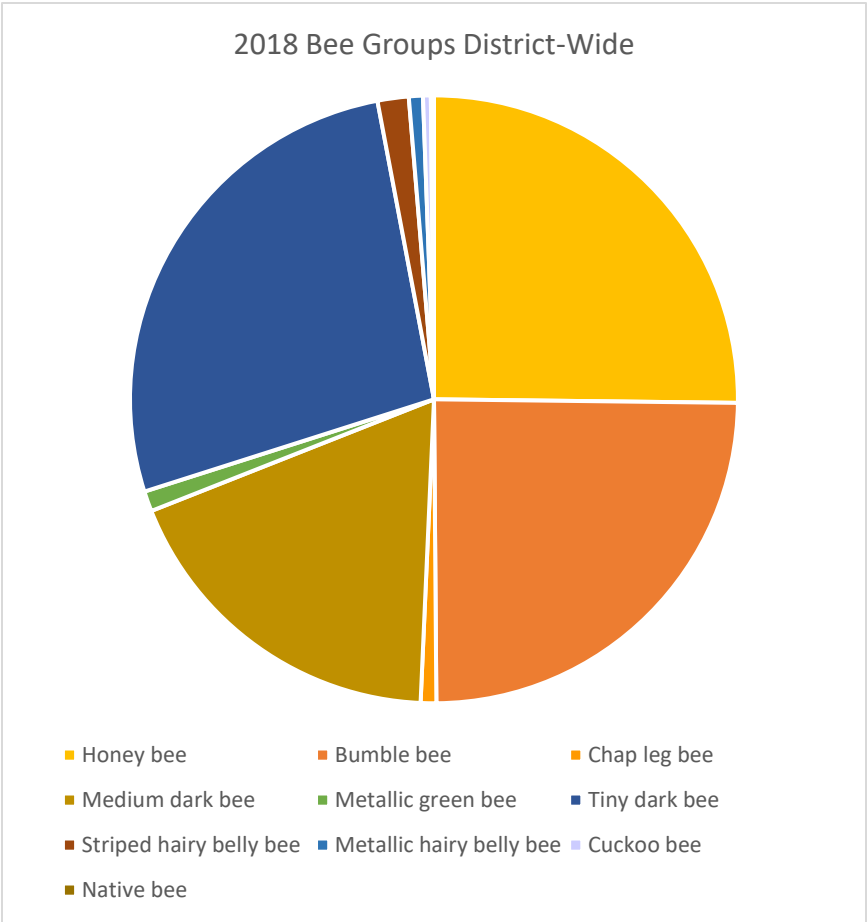
Pollinator morphogroups: A total of 22 pollinator morphogroups were observed in 2018. The vast majority (88%) of the pollinators observed were bees with 2/3 of all pollinators being native bees. The most common types seen were tiny dark bees, honey bees, bumble bees, and medium dark bees.

Below: hoverfly on Queen Anne's lace

Total pollinators found at all projects in 2018

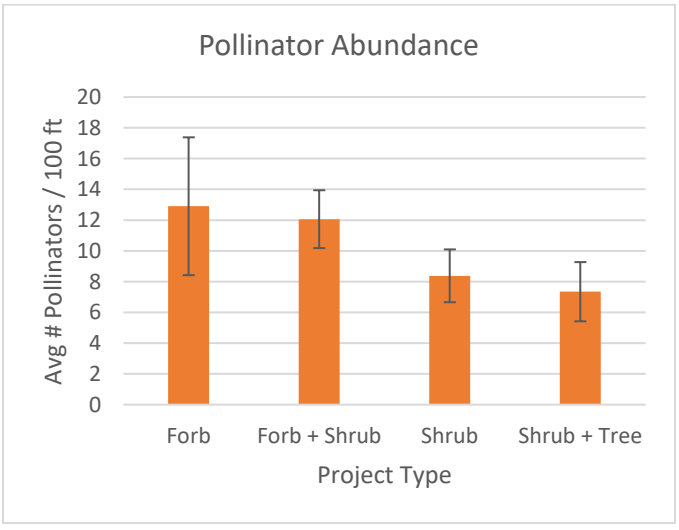
Pollinator Category	# Pollinators
Honey bee	304
Bumble bee	298
Chap leg bee	10
Medium dark bee	221
Metallic green bee	13
Tiny dark bee	325
Striped hairy belly bee	20
Metallic hairy belly bee	9
Cuckoo bee	5
Native bee	2
Fly	33
Wasp	33
Butterfly	11
Moth	3
Beetle	45
True bug	20
Ant	3
Spider	3
Damsel fly	1
Dragon fly	3
Earwig	2
Humming bird	3
Unidentified Flying Insect	1
Grand Total	**1368**

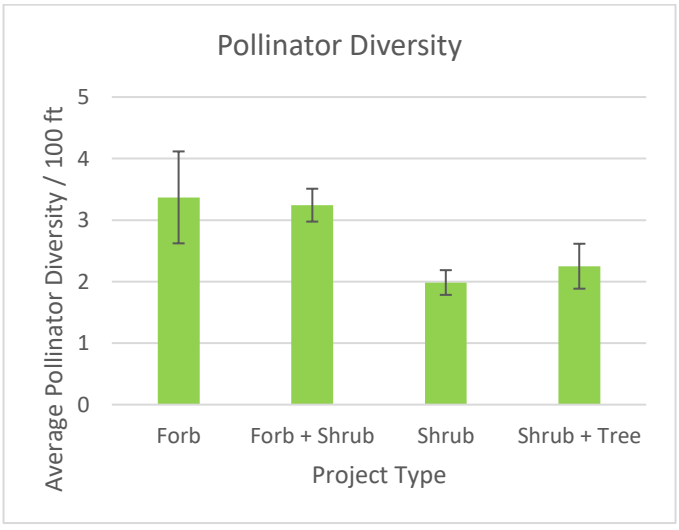




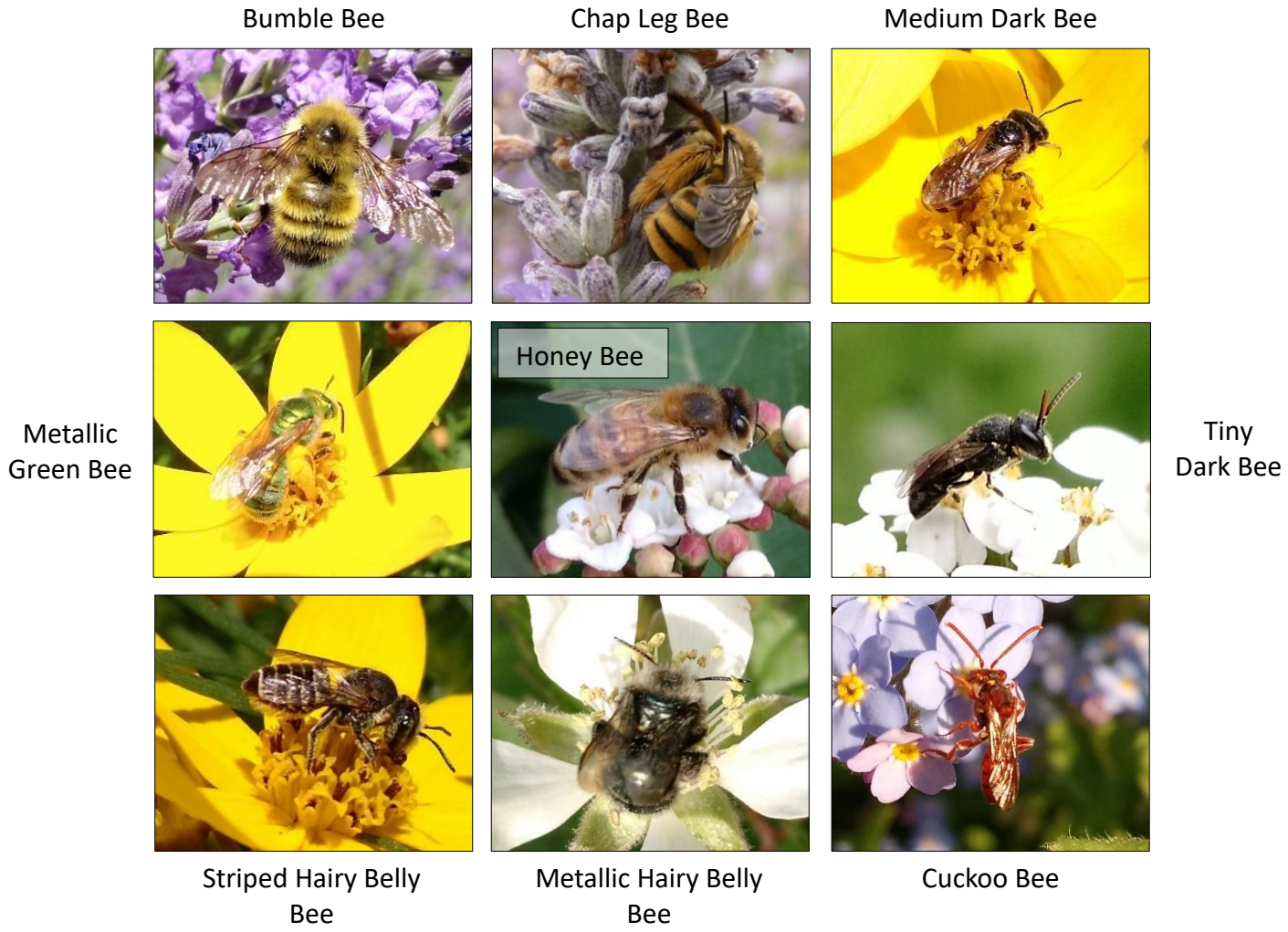
Pollinator Morphogroups

Abundance and diversity by project type: Four different types of planting projects were monitored: those with herbaceous flowering forbs only, a mix of forbs and shrubs, shrubs only, and a mix of shrubs and trees. In general, planting projects with forbs supported a greater number of total pollinators and hosted a more diverse pollinator community than projects without forbs. This suggests that future pollinator habitat planting projects should include flowering forbs such as Canada goldenrod and yarrow in addition to shrubs such as snowberry.

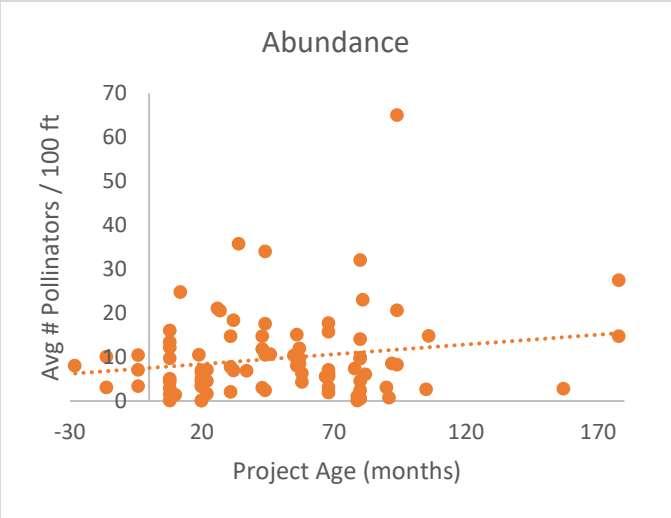


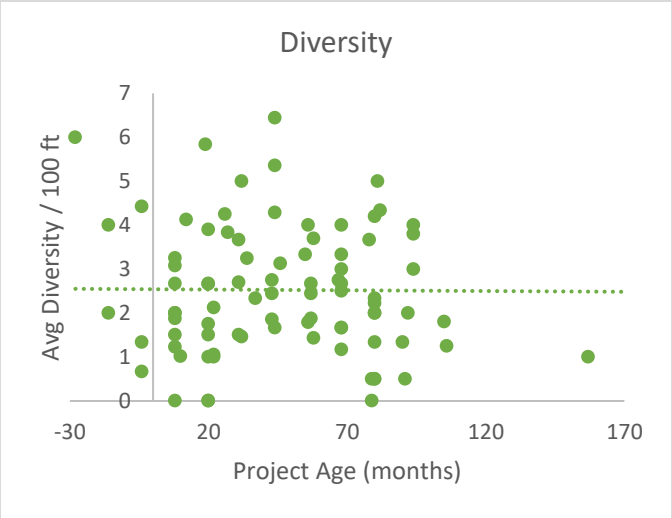


Nine Bee Morphogroups



Effects of project age on abundance and diversity: The projects we monitored ranged significantly in age, i.e. how long they had been planted. Some were still in a site-preparation phase and not yet planted, while one had been planted over fourteen years ago. Most sites had been planted between two and six years ago. Project age had only a very small effect on pollinator abundance, and no real effect on pollinator diversity. We would expect higher numbers and greater diversity of pollinators at more mature projects where our plantings have had time to grow to full size and offer a greater volume and diversity of blooms as a resource to pollinators. This result is therefore somewhat puzzling and raises some questions for follow-up.





One question these results raise is why some more mature projects are not supporting very many pollinators? Perhaps they need renewed maintenance and interplanting and are becoming dominated by grasses or shaded out by surrounding trees and therefore less atractive to pollinators. Many of our older plantings focused on shrubs that bloom earlier than our volunteers were often able to begin monitoring, and so may actually support an abundance of pollinators that we were unable to document. These shrub plantings may also take longer than we would expect to mature and begin really attracting large numbers of pollinators.

On the other hand, why do some younger projects manage to support plenty of types and numbers of pollinators? In some cases, the pre-existing plants at theses sites (primarily introduced species) are the main floral resource providing for polinators during these early years, yet these plants are still able to support a decent pollinator community. In other cases, projects focused on quickly establishing forbs that could offer dense floral resource patches within only a few years of being planted.

Pollinator Plants: Our volunteers not only documented the pollinators at our projects, but also observed which plants they were visiting. Volunteers documented a total of 82 plant species being pollinated in our projects. Of these, 44 species were native to Northwest Oregon, 33 species were introduced, and 5 were unidentified. While native plants made up 54% of the species, they received 66% of all the pollination visits we observed. Conversely introduced plants made up 40% of the species, but only received 34% of the pollination visits we observed. This could suggest that native plants are more attractive to pollinators than introduced plants. However, more comprehensive data on the relative abundance of each plant species would be needed to support this conclusion.

Certain plants received a large majority of the pollination visits we observed. Althought we don't have the plant abundance data needed to fully support a claim that these species are especially attractive to pollinators, their high frequency of pollinator visitation still makes them noteworthy. They are listed with more frequently visited plants first.

Native plants most frequently visited	Introduced plants most frequently visited
Canada goldenrod	Queen Anne's lace
Snowberry	Oxeye daisy
Yarrow	Lavender
Douglas Aster	Armenian blackberry
Streambank lupine	Oregano

Left: Canada goldenrod with a bumblebee and a crab spider

Right: Queen Anne's lace with a metallic green bee