

Community Science Pollinator Monitoring

Laura Taylor

Conservationist & Education Coordinator



Overview

- Pollinator Habitat Projects
- Community Science Pollinator Monitoring Program
 - Why
 - How
 - What
 - Results
 - Lessons Learned
- Other Pollinator Education Efforts



West Multnomah SWCD Pollinator Habitat Projects



West Multnomah SWCD Pollinator Habitat Projects



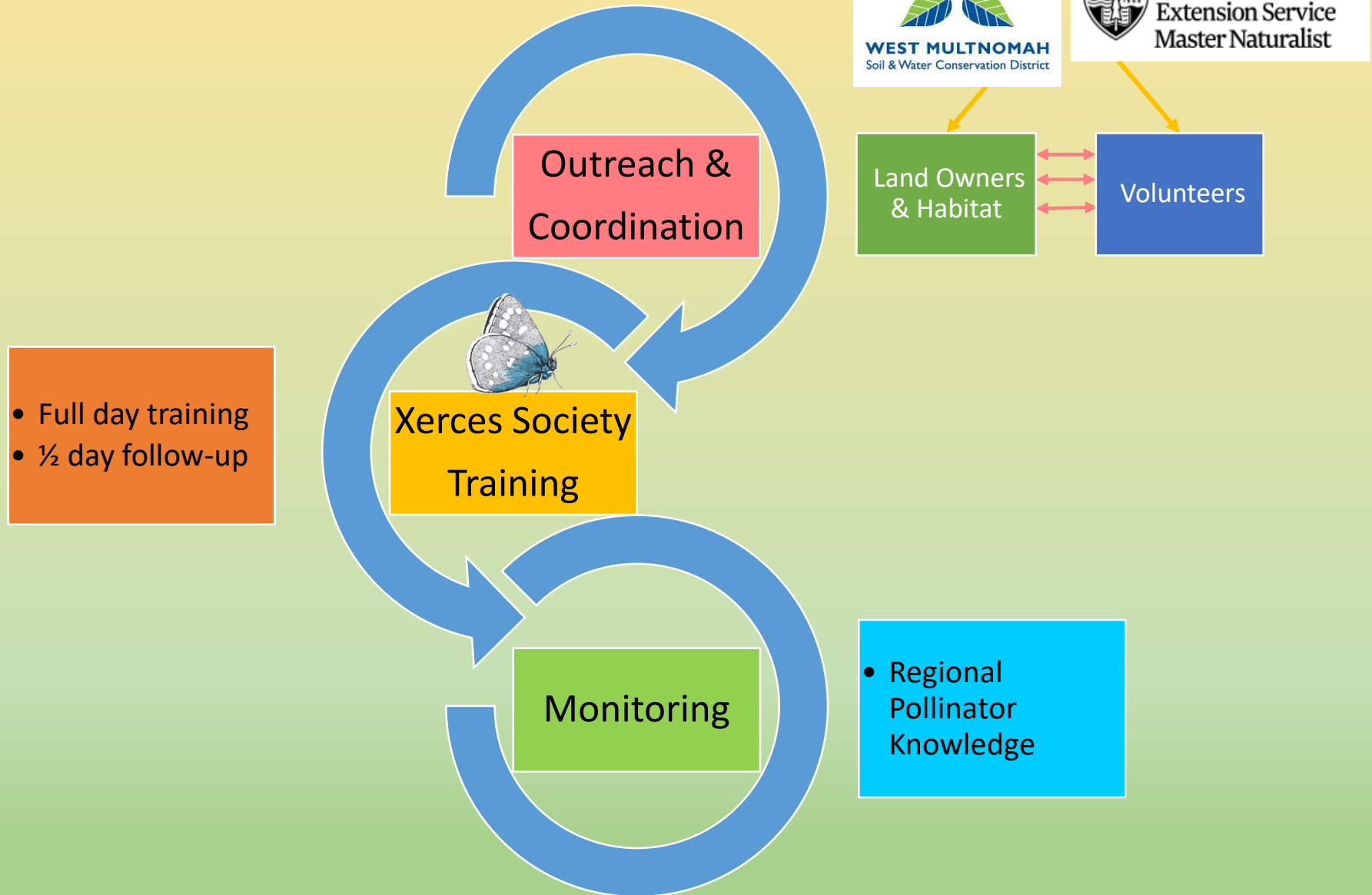
Why a Community Science Pollinator Monitoring Program?

- Pollinator declines
- More info needed
 - Pollinator diversity & populations
 - Are our habitat projects working?
- Pollinator ambassadors



A fly mimicking a wasp

The Process



Volunteer Training with The Xerces Society





MARITIME NORTHWEST CITIZEN SCIENCE MONITORING GUIDE NATIVE BEES & BUTTERFLIES



Pollinator Groups



Butterfly



Fly



Moth



True Bug



Wasp



Beetle



Bee



Spider

9 Bee Morpho-groups

Bumble Bee



Chap Leg Bee



Medium Dark Bee



Metallic
Green
Bee



Honey Bee



Tiny
Dark
Bee



Striped Hairy
Belly Bee

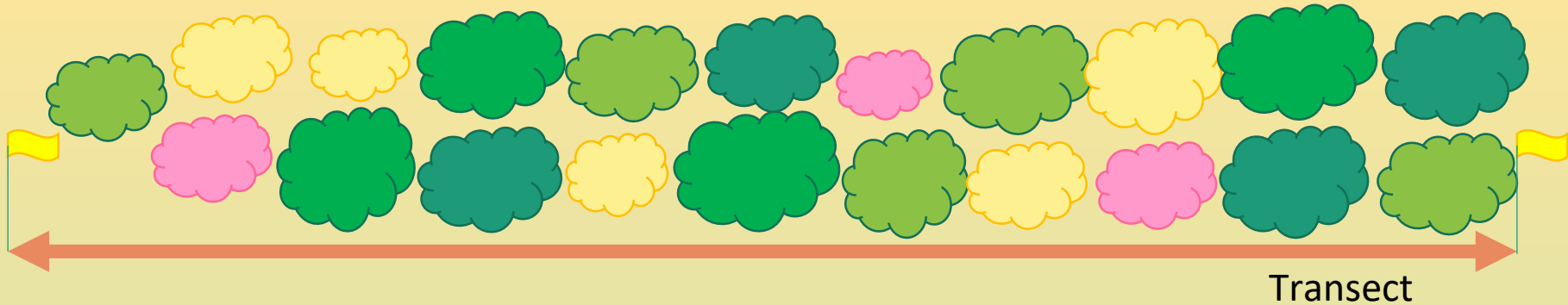


Metallic Hairy
Belly Bee



Cuckoo Bee

Hedgerow



POLLINATOR MONITORING DATASHEET

Instructions: 1. Fill out top part of the data sheet. 2. Set timer and hit start when ready. 3. Note any floral visitors you see and identify to your confidence level. 4. Pace the transect until the time is up. 5. Fill out remainder of top of datasheet. 6. Take additional notes about the site.

Site name: Guthrie
 Transect: T1
 Monitoring time: 130' = 13 min
 (1 minute per 10 feet of transect)

Date: 8/18/16
 Observation start time: 12:57
 Observation end time: 1:10
 Weather at start:
 Weather at end:
 Observer: LT
 Shade temp (°C): 89°F
 Shade temp (°C): 92°F
 Data recorder: LT
 Wind: calm
 Wind: calm
 (Calm / Light air / Light breeze / Gentle breeze)
 Sky: clear
 Sky: clear
 (Clear / Partly Cloudy / Bright Overcast)

Floral Visitor Categories:

Honey bee: HB
 Bumble bee: BB (black face/yellow face/orange patch/white tip)
 Chap Leg Bee: CLB
 Medium Dark Bee: MDB
 Green Sweat Bee: GSB
 Striped Sweat Bee: SSB (Small/Medium)
 Tiny Dark Bee: TDB (dull round tip/shield tip/yellow face)

Striped Hairy Belly Bee: SHBB (Tiny or Small/Medium)
 Metallic Hairy Belly Bee: MHBB (blue/black or green)
 Cuckoo Bee: CB (red abdomen/thick antenna/pointed abdomen)
 Other: Other bee, fly, wasp, butterfly, moth, spider, beetle, bug, ant, bird, unidentified flying insect (UFI)

Observations

Important: Remember to look at a diversity of flowers, stand so that you do not cast a shadow, and only ID floral visitors to the level at which you are confident in your identification.

Floral visitor category	Description	Number of times visitor observed	Flowers (optional)
1 BB	B. Vos queen	III mostly yellow w/ black on thorax	bird vetch
2 BB	B. Vos	III	bull thistle
3 BB	B. Vos	I	tansy ragwort
4 CLB		I	"
5 SSB		II	"
6 BB	B. Vos worker	I	St. Johns wort
7 BB		I	Senecio sylvaticus
8 BB	cuckoo gangly legs	I	bird vetch
9 Unk Bee - CLB	All yellow fem. body stripes on lower ab med size, chap leg?	I	bull thistle
10 TDB		I	wall lettuce
11 Fly	haver	II	Senecio sylvaticus
12 SSB	small, dark	I	bull thistle



Monitoring Transect

Program Arc





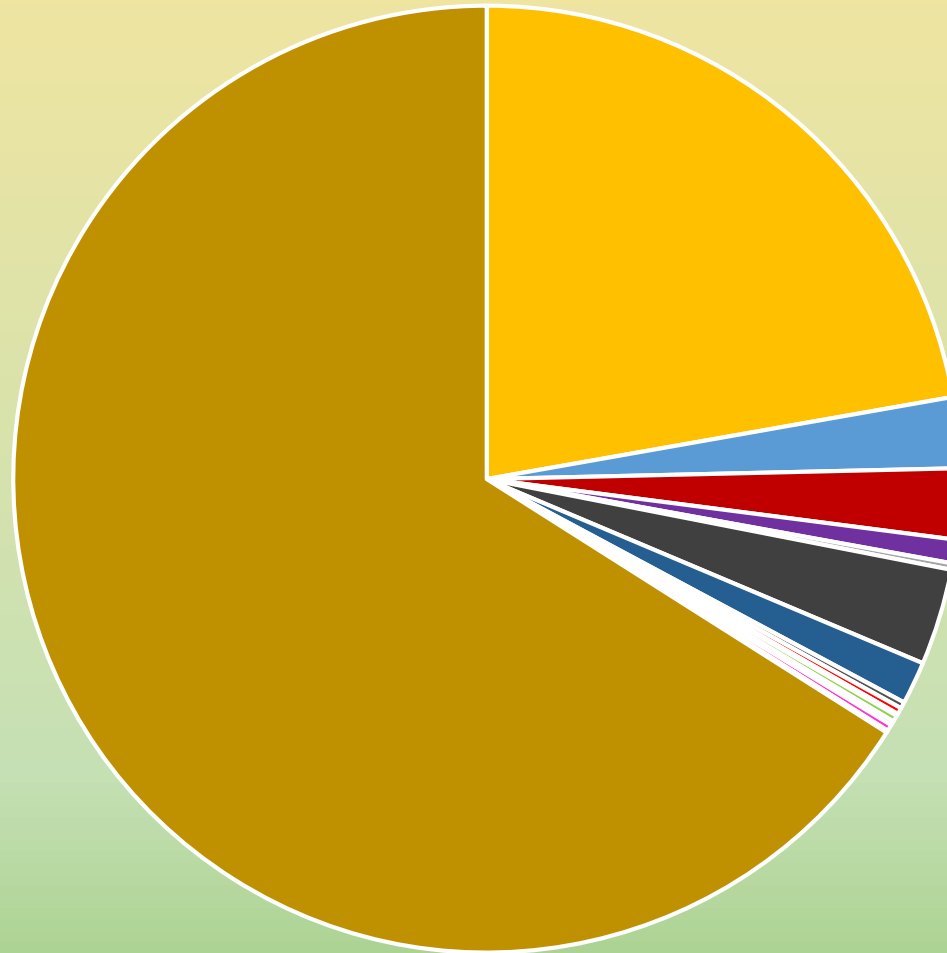
Volunteer Pollinator Monitoring Achievements



	2016	2017	2018
Projects monitored	21	32	21
Volunteers	13	20	16
Monitoring visits	79	122	86
Volunteer hours spent monitoring	14	23	18
Total pollinators observed	778	1,668	1,368
Types of pollinators seen	21	23	23
Plant species observed	72	96	82
Native plants	22	41	44
Introduced plants	41	40	33

Results – Pollinator Diversity

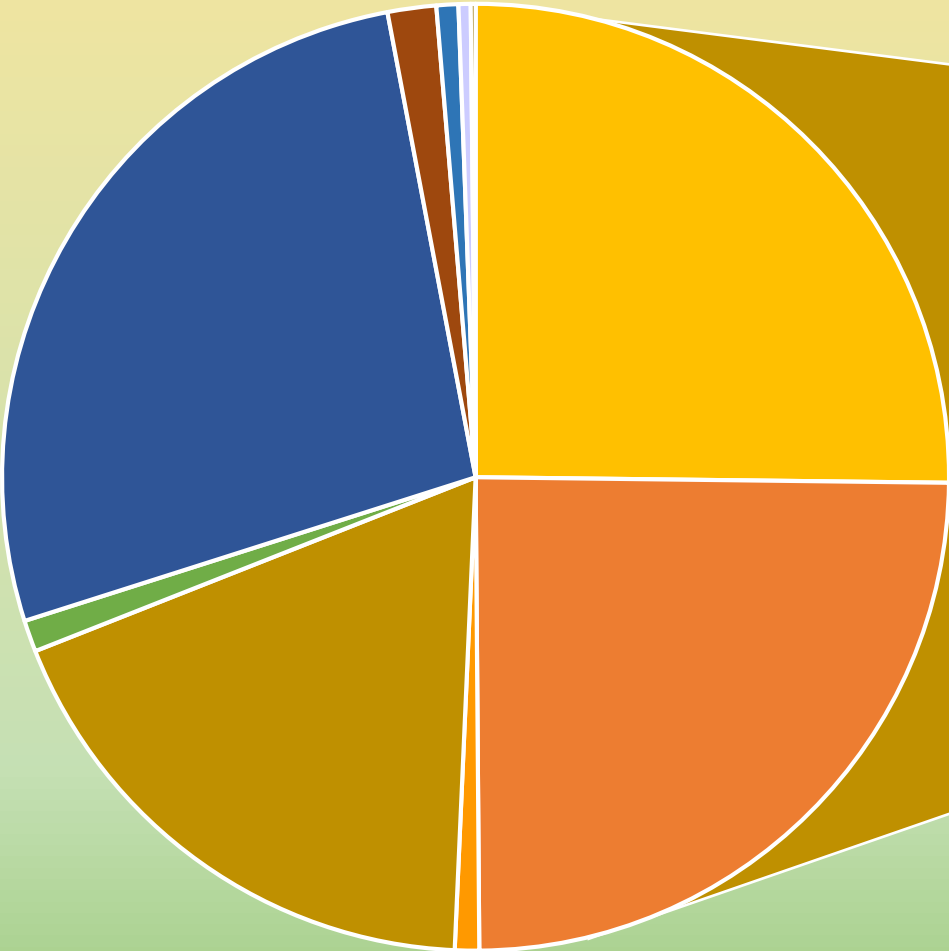
2018 Pollinator Groups District-Wide



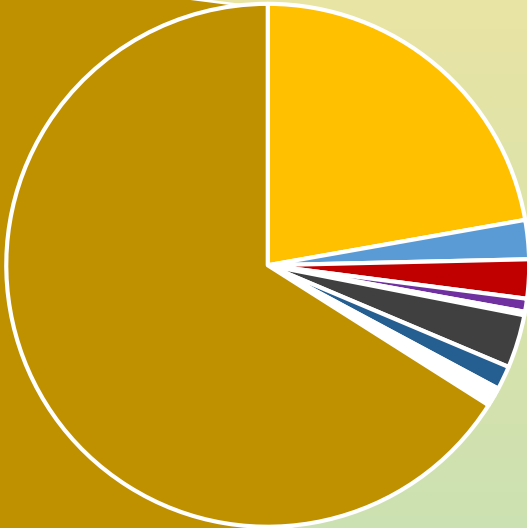
Honey bee	Fly	Wasp	Butterfly	Moth
Beetle	True bug	Ant	Spider	Damsel fly
Dragon fly	Earwig	Humming bird	Unidentified	All Native bees

Results – Pollinator Diversity

2018 Bee Groups District-Wide



2018 Pollinator Groups District-Wide



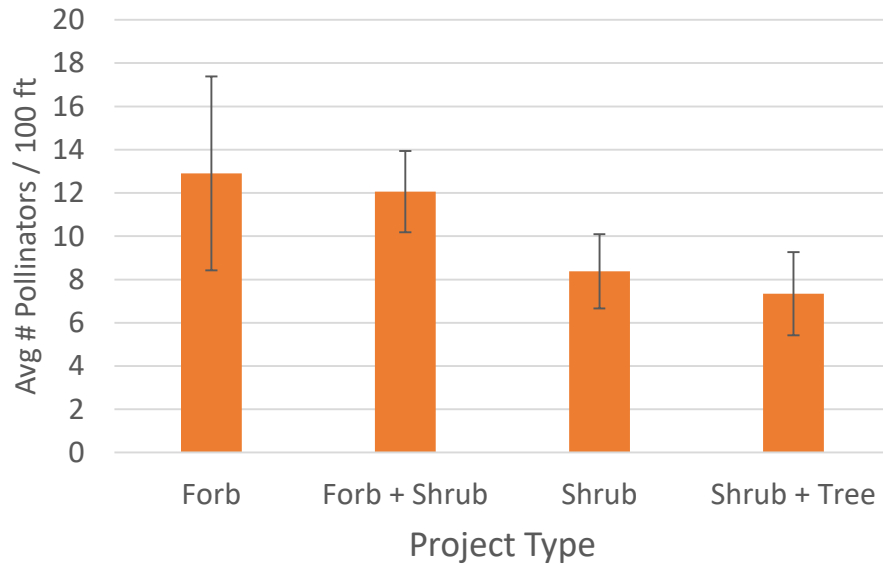
- Honey bee
- Moth
- Spider
- Humming bird
- Fly
- Beetle
- Damsel fly
- Unidentified
- Wasp
- True bug
- Dragon fly
- All Native bees
- Butterfly
- Ant
- Earwig

- Honey bee
- Bumble bee
- Chap leg bee
- Medium dark bee
- Metallic green bee
- Tiny dark bee
- Striped hairy belly bee
- Metallic hairy belly bee
- Cuckoo bee
- Native bee

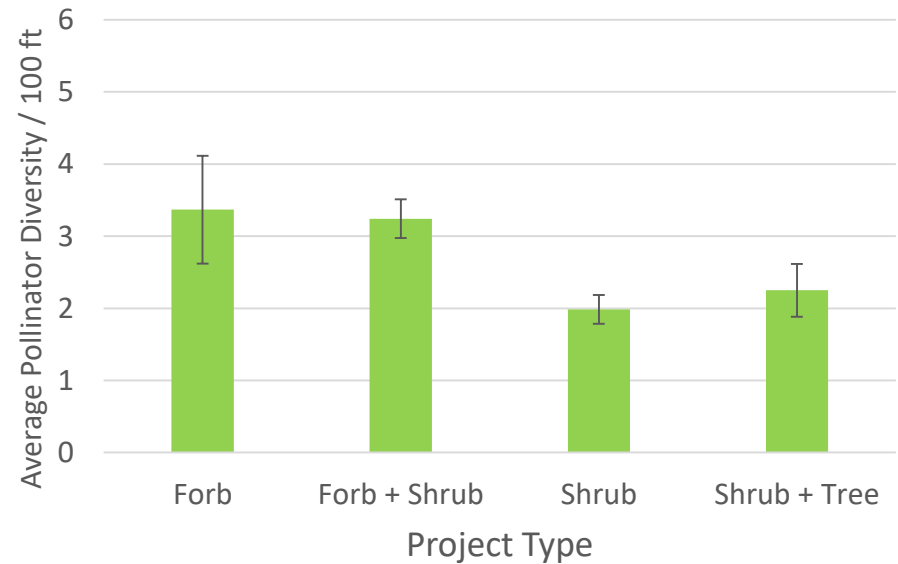
Results – What project types work best?



Pollinator Abundance



Pollinator Diversity



Results – What plants do best?

Native Plants	% of Visits*
Canada goldenrod	12%
Snowberry	10%
Native asters	5%
Streambank lupine	4%
Yarrow	4%
Top 5 Natives	24%
Total natives (35)	55%

Exotic Plants	% of Visits*
Queen Anne's lace	11%
Oxeye daisy	8%
Lavender	4%
Armenian blackberry	3%
Oregano	3%
Top 5 Exotics	29%
Total exotics (33)	44%

* Data not normalized for relative abundance of different plants in the study area.

Lessons Learned So Far...

- Pollinators are the coolest!

- It's complicated

- Time savings?

- Volunteer retention

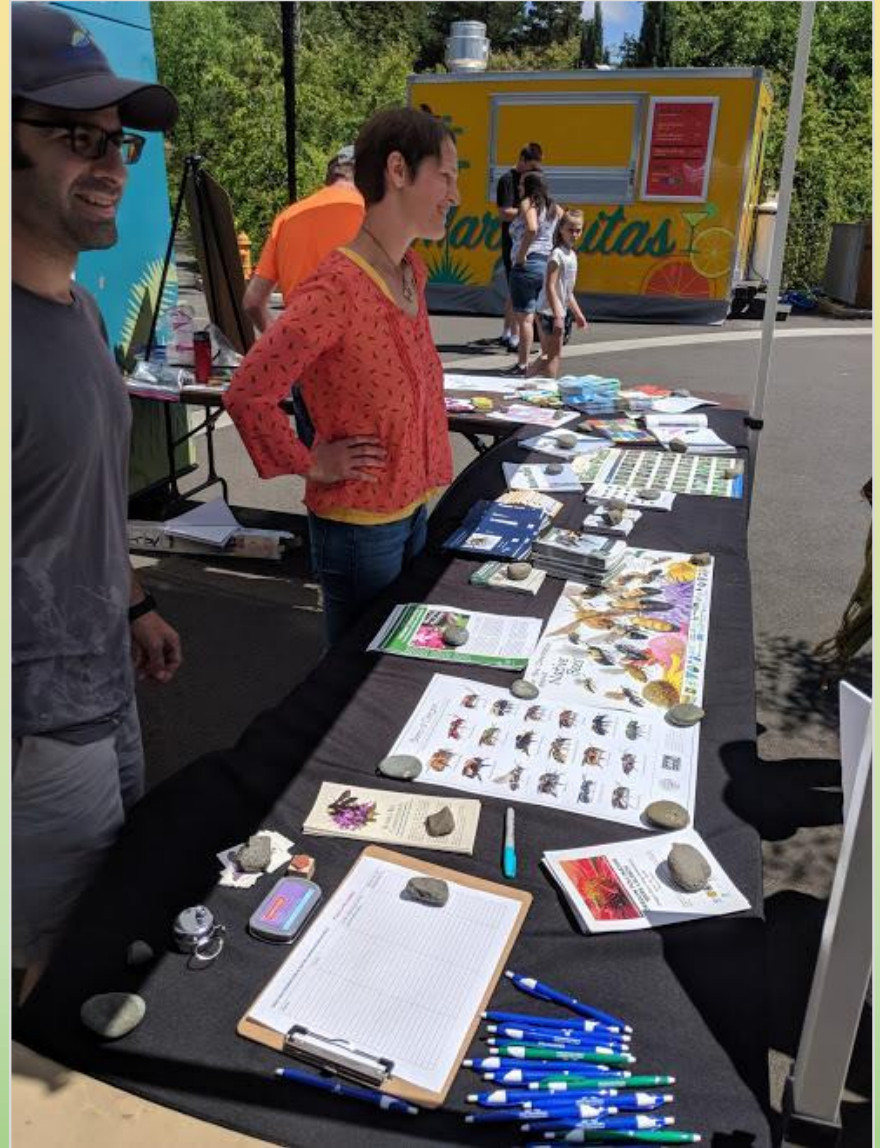
- Plant Forbs too!

- Results -> Adaptive management

- Weeds... aren't all bad



Other Efforts in Pollinator Conservation



Pollinator Habitat / Education Projects

Native Pollinator Seed Packets



Planting Resources

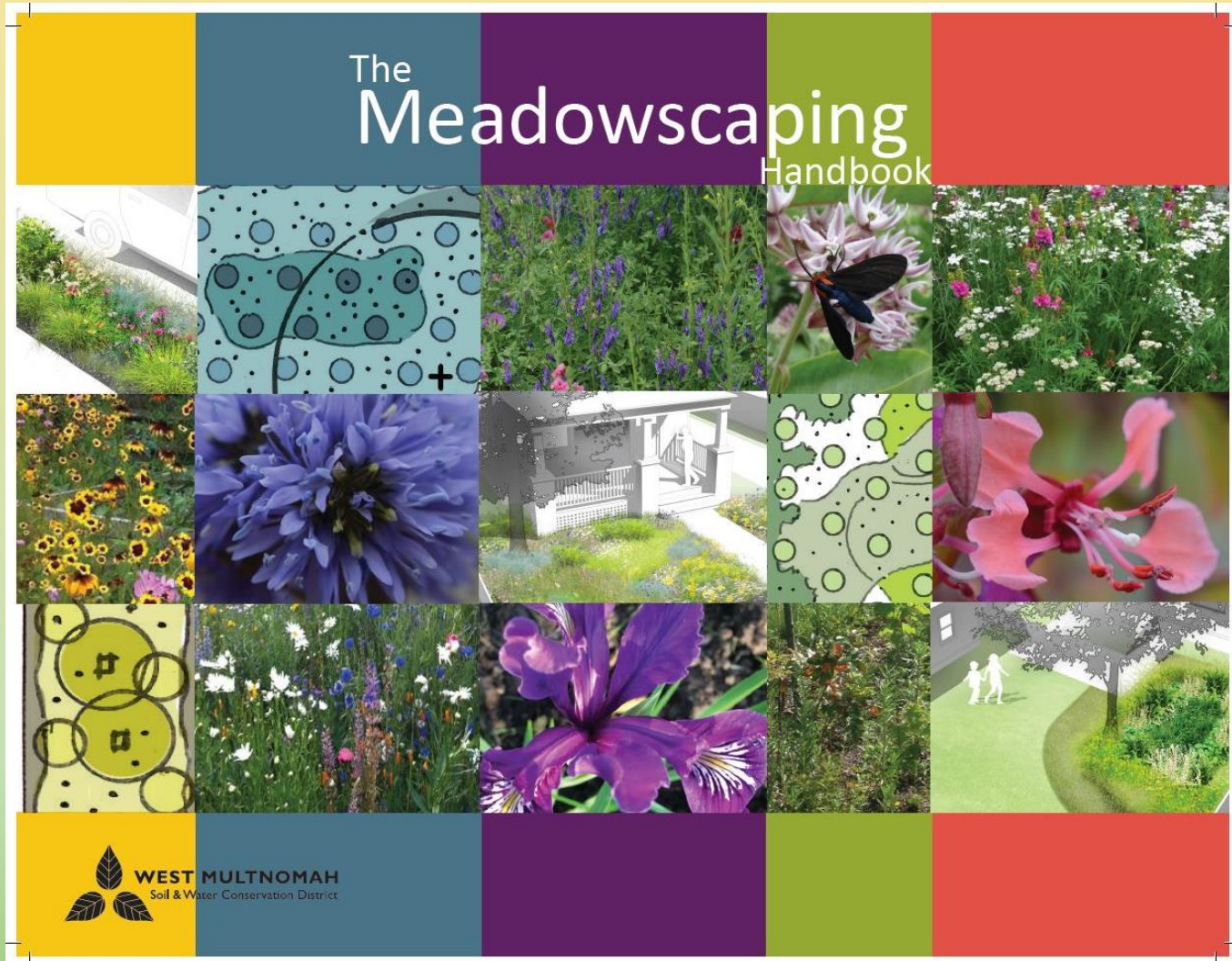


Pollinator Plants & Bloom Periods for West Multnomah & Portland Metro Area

TREE/SHRUB SPECIES - common name (scientific name)	NEEDS	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG
California hazelnut (<i>Corylus cornuta</i>)	☀️💧	(color of flower) yellow						
native willow species (<i>Salix lucida</i> , <i>sitchensis</i> , and <i>hookeriana</i>)*	☀️💧		yellow					
Scouler's willow (<i>Salix scouleriana</i>)*	☀️💧		yellow					
osoberry/Indian-plum (<i>Oemleria cerasiformis</i>)	☀️💧		white					
tall Oregon-grape (<i>Mahonia aquifolium</i>) aka Berberis	☀️💧		yellow					
salmonberry (<i>Rubus spectabilis</i>)	☀️💧		pink					
kinnikinnick (<i>Arctostaphylos uva-ursi</i>)*	☀️💧		purple					
red elderberry (<i>Sambucus racemosa</i>)	☀️💧		white					
vine maple (<i>Acer circinatum</i>)	☀️💧		red					
bigleaf maple (<i>Acer macrophyllum</i>)	☀️💧		greenish-white					
dwarf Oregon-grape (<i>Mahonia nervosa</i>) aka Berberis	☀️💧		yellow					
Oregon crabapple (<i>Malus fusca</i>)	☀️💧		white					
western chokecherry (<i>Prunus virginiana</i>)	☀️💧		white					
Pacific madrone (<i>Arbutus menziesii</i>)	☀️💧			white				
Pacific dogwood (<i>Cornus nuttallii</i>)	☀️💧			white				
Oregon white oak (<i>Quercus garryana</i>)	☀️💧			yellow				
swamp rose (<i>Rosa pisocarpa</i>)*	☀️💧			pink				
red flowering currant (<i>Ribes sanguineum</i>)	☀️💧			pink				
Pacific ninebark (<i>Physocarpus capitatus</i>)	☀️💧			white				
blue elderberry (<i>Sambucus caerulea</i>)	☀️💧			white				
oceanspray (<i>Holodiscus discolor</i>)	☀️💧				white			
Saskatoon serviceberry (<i>Amelanchier alnifolia</i>)	☀️💧				white			
black hawthorn (<i>Crataegus douglasii</i>)	☀️💧				white			
casara (<i>Rhamnus purshiana</i>)	☀️💧				white			
salal (<i>Gaultheria shallon</i>)	☀️💧				white to pink			
mockorange (<i>Philadelphus lewisii</i>)	☀️💧				white			
thimbleberry (<i>Rubus parviflorus</i>)*	☀️💧				white			
Douglas spiraea (<i>Spiraea douglasii</i>)*	☀️💧				pink			
Nootka rose (<i>Rosa nutkana</i>)*	☀️💧				pink			
baldhip rose (<i>Rosa gymnocarpa</i>)	☀️💧				pink			
twinberry (<i>Lonicera involucrata</i>)	☀️💧					yellow		
snowberry (<i>Symphoricarpos alba</i>)*	☀️💧					pink		

At wmswcd.org

Meadowscaping Handbook



At wmswcd.org

Meadowscaping Handbook

WILLAMETTE VALLEY UPLAND MEADOW



LEGEND

Willamette Valley Upland Meadow
















This upland meadow plant community is for seasonally moist soils in full sun. It is composed of a foundation of native Willamette Valley shortgrass prairie species and additional western Oregon native wildflowers to extend the bloom season.

Species	Plant Type	Spacing/Seed Rate
Perennial Grass/Rush/Sedge Matrix* (25%) <i>Carex tumulicola</i> (25%) <i>Danthonia californica</i> (25%) <i>Festuca roemerii</i> (25%) <i>Juncus tenuis</i>	Plug Plug Plug Plug	3' O.C.
*Distribute matrix species evenly throughout the entire planting area.		
Wildflower Edge Patch <i>Achillea millefolium</i> <i>Fragaria virginiana</i> v. <i>platypetala</i> <i>Eriophyllum lanatum</i>	Plug Plug Plug	10' O.C. 10' O.C./groups of 3-7 10' O.C./groups of 3-7
Wildflower Patch 1 <i>Asclepias speciosa</i> <i>Camassia leitchlinii</i> <i>Ranunculus occidentalis</i> <i>Grindelia integrifolia</i>	Plug Bulb Plug Plug	10' O.C. 10 bulbs/100 s.f. in groups 10' O.C./groups of 3-7 6' O.C.
Wildflower Patch 2 <i>Aquilegia formosa</i> <i>Potentilla gracilis</i> <i>Sidalcea virgata</i> <i>Symphyotrichum hallii</i>	Plug Plug Plug Plug	6' O.C. 10' O.C. 10' O.C. 6' O.C.
Annual Wildflower Mix <i>Clarkia amoena</i> <i>Callionymus grandiflora</i> <i>Gilia capitata</i>	Seed Seed Seed	< .01 oz./100 s.f. < .01 oz./100 s.f. < .01 oz./100 s.f.

Note:

Wildflower Patch outlines are shown overlapping to indicate that patches can be combined together.

Meadowscaping Handbook

	Common Name <i>Scientific Name</i>	Moisture Regime	Exposure	Height	Width	Time of Bloom
FORBS	 common yarrow <i>Achillea millefolium</i>			2.5'	2'	mid-April - June
	 western columbine <i>Aquilegia formosa</i>			2'	2'	May - June
	 showy milkweed <i>Asclepias speciosa</i>			2'	2'	June - July
	 great camas <i>Camassia leitchlinii</i>			2'	12"	April - May
	 common camas <i>Camassia quamash</i>			18"	12"	April - May

Questions?

Thanks



Spring sweat bee



WEST MULTNOMAH
Soil & Water Conservation District

Laura Taylor
laura@wmswcd.org