

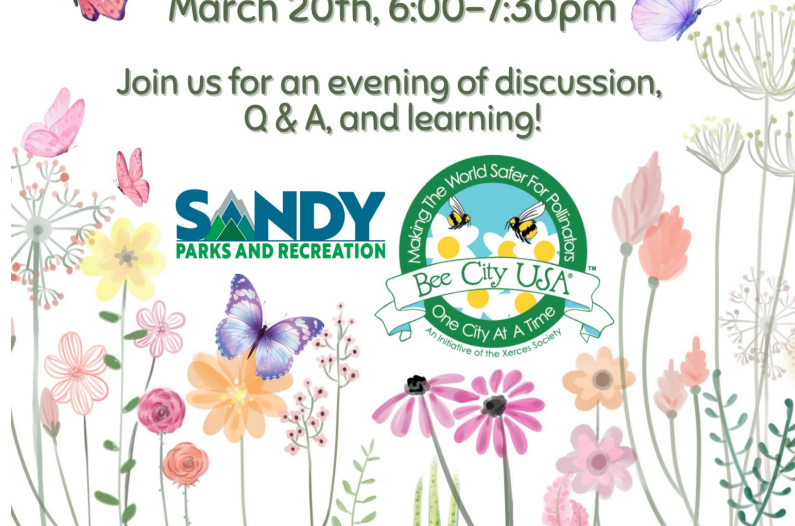
In honor of National Learn About
Butterflies Day, Sandy's Bee City USA
Action Group is happy to invite you to...

A POLLINATOR PANEL: HOW CAN YOU MAKE A DIFFERENCE?

Sandy Community Center
March 20th, 6:00–7:30pm

Join us for an evening of discussion,
Q & A, and learning!

SANDY
PARKS AND RECREATION





DO YOUR PART TO HELP THE
BEES (AND OTHER POLLINATORS)
IN SANDY AND...

JOIN THE BEE CITY ACTION GROUP!

SCAN THE QR CODE OR CONTACT
AMY LYTTLE AT ALYTTLE@CI.SANDY.OR.US TO SIGN UP



The Action Group will meet quarterly
to discuss the ongoing efforts and
projects by the city to promote the
outreach, education, and support of
local pollinators.

All are welcome to apply!



Suzi Cloutier



CLACKAMAS SOIL AND WATER
CONSERVATION
DISTRICT

Celebrating 50 Years of Conservation

The Problem



We have to change the way we look at our yards

LAND USE CHANGES

200,000,000+

Hundreds of millions of acres of **INDUSTRIAL FARMS** have replaced small, family farms.



Nearly **4 MILLION** miles of **HIGHWAYS**

ALTERATION OF RIVERS AND WATERWAYS



75%

of America's rivers and streams have been altered in ways detrimental to wildlife habitat.



ONE-THIRD of the nation's rivers and streams do not meet basic water quality standards



WHY WILDLIFE ARE DECLINING:

LARGE-SCALE AND RAPID CHANGE

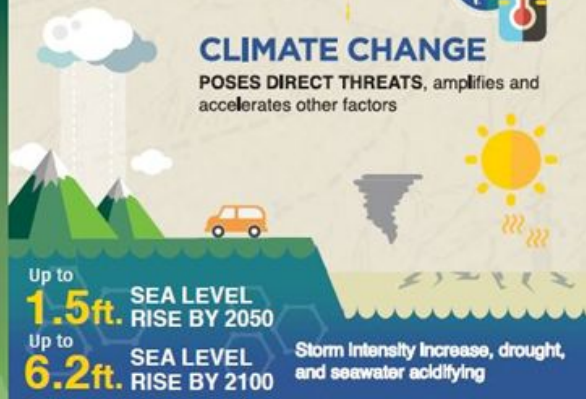


POPULATION GROWTH



CLIMATE CHANGE

POSES DIRECT THREATS, amplifies and accelerates other factors



INVASIVE SPECIES

HARMFUL INVADERS are degrading natural habitats across the country.



WILDLIFE DISEASES

NEW AND EMERGING DISEASES are an increasing problem for many species.

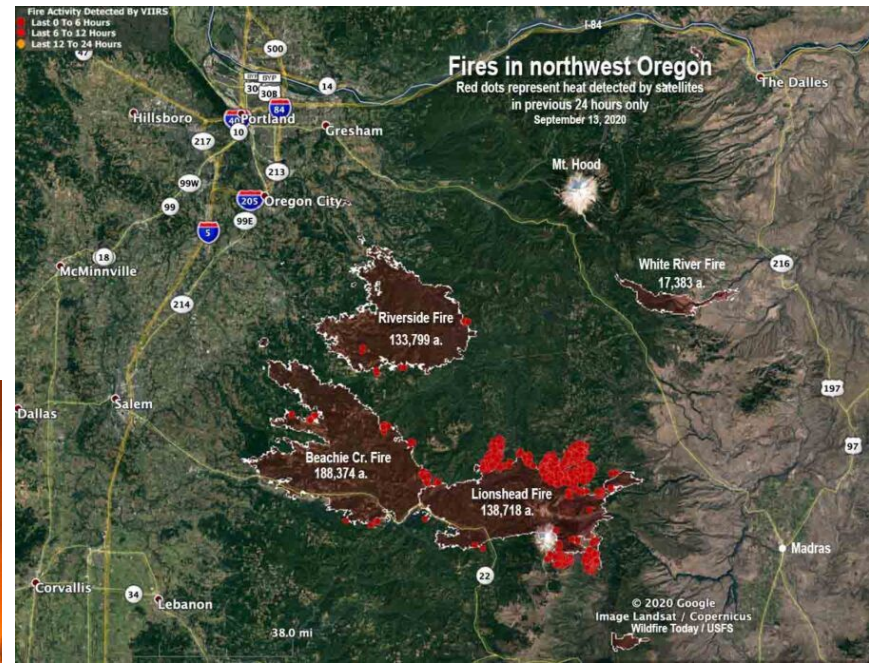
CHRONIC WASTING DISEASE ravaging deer/cervids' brains.

now in
22
STATES

Chytrid Fungus (Bd) decimating amphibian populations worldwide.



And let's not forget more recent events



Noxious Weed Species



Native plants evolved over 4.6 billion years in relationship to each other and the fauna they support

- Ecological disruptors: have advantages that help them overwhelm native species, *decreasing biodiversity*
- Can be harmful, or not very beneficial to wildlife
- Alter the native ecology and use up resources otherwise occupied by natives
- Take the place of species that feed “specialist” insects, interrupting the food web



Our Future Flies on the Wings of
POLLINATORS



UNITED STATES
BOTANIC GARDEN



Why do pollinators even matter?

**367 Species of birds
and other wildlife call
our region home**

Pesticide Reduction

Use of pesticides that cause reproductive problems like miscarriages and reduced fertility:


150 million pounds per year

(based on U.S. Environmental Protection Agency data)





Stop
neonics

A cartoon illustration of a bee with a yellow and black striped body, blue wings, and a small antenna. It is positioned below the text "neonics".



Let's Talk Butterflies

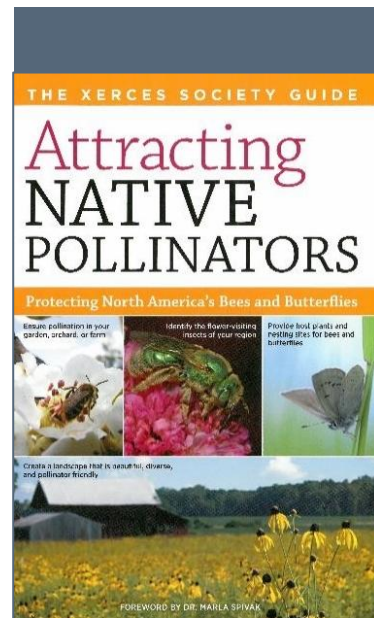
Marcia Sinclair
Xerces Ambassador
The Xerces Society for Invertebrate
Conservation

Protecting the Life That Sustains Us

- Conservation
- Advocacy
- Research
- Education



Photos: Paul Jepson; Dick Dewey; Xerces Society/Brianna Borders



Plant Reproduction

85%

of flowering plants
require a pollinator to
move pollen that
fertilizes the flower



Photo: Obscure Skipper (Bryan E. Reynolds)

Food Production

1 in 3

mouthfuls of food and drink we
consume

>\$30
billion

value of crops in North America



Photo: Pixabay

Support Other Wildlife

Pollinators are at the center of complex food webs.

They enable the fruits and seeds that make up a major part of the diet of many animals.



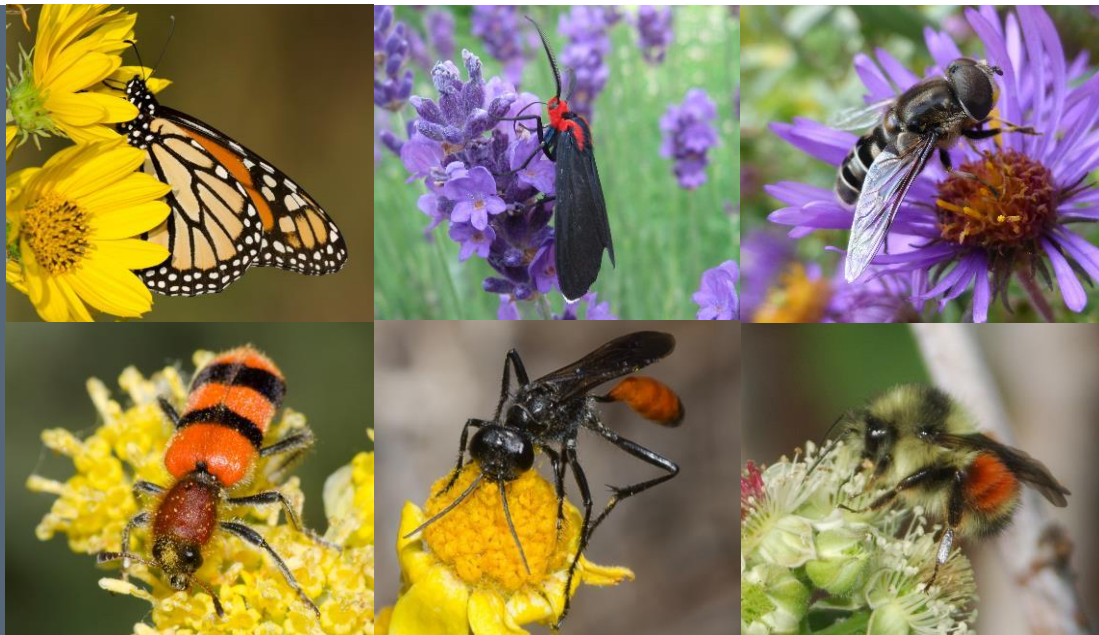
And sometimes they are the food themselves.



Photos: Wildreturn, Flickr; Colleen Prieto, Flickr; U.S. Forest Service; kansasphoto, Flickr.

Main Groups of Pollinators

Butterflies, Moths, Flies, Beetles, Wasps and Bees



Photos: Bryan E. Reynolds (3); Matthew Shepherd; Xerces Society/Sarah Foltz Jordan; Xerces Society/Mace Vaughan

Butterflies need our help

Overall numbers have dropped by 20% since 2000

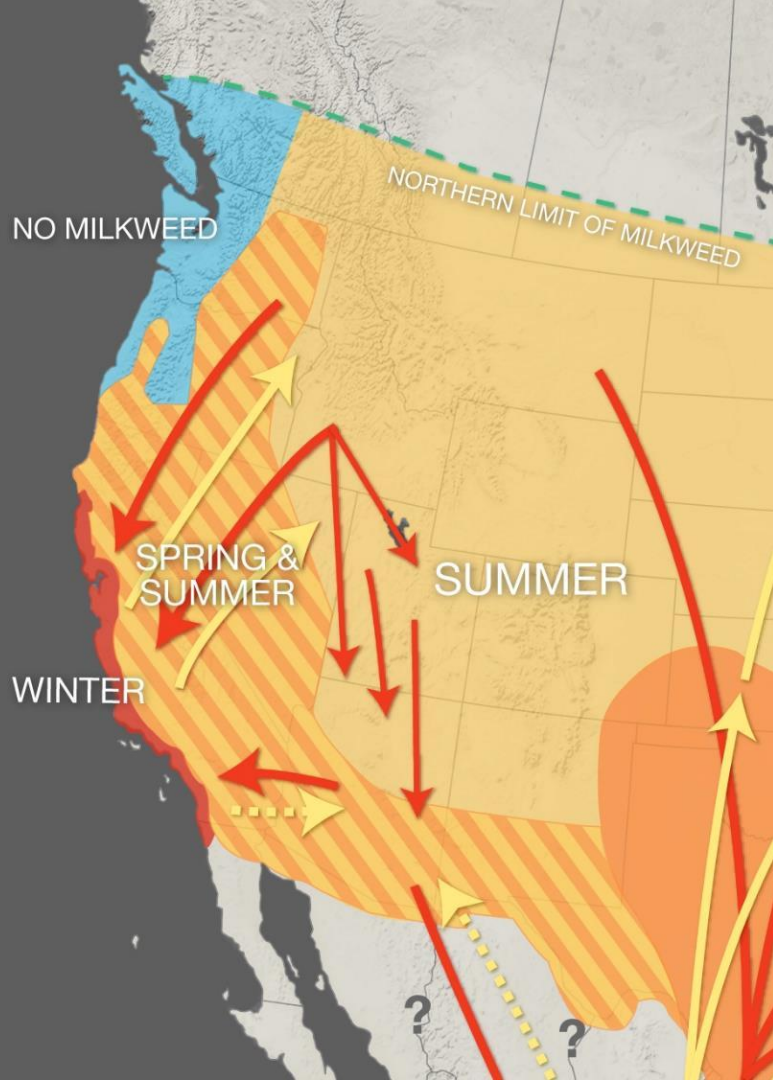


Western Population

Overwinters along Pacific Coast from northern California to Baja California

Breeds in western states and into Canada

Not in Maritime NW





How Many Monarchs?

Historically hundreds of millions

California

Western Monarch count

2022-2024 = 200,000+ monarchs

2025 = 9119

Mexico

World Wildlife Fund Mexico

Area of forest occupied by monarchs

2024 = 2.22 acres

2025 – 4.42 acres

Greatest threats



Habitat loss

Pesticides

Climate Change

Photo: Xerces Society • Stephanie McKnight

We All Can Make Space for Butterflies



Photo: Eric Bastidas, Napa RCD

Habitat in All Shapes and Sizes

Patio pot to a garden bed. Parking strip to a prairie garden.



Preston Keres, USDA



Native is Best

Provide bloom from late-winter to late-fall



Avoid Pesticides

Insecticides are everywhere, often at levels that are harmful to butterflies.

- Don't use them unless no alternative
- Avoid systemic products
- Buy plants that haven't been treated



Photo: Matthew Shepherd



Pledge

Grow pollinator-friendly
blooming plants

Provide nesting sites

Avoid using pesticides

Spread the word

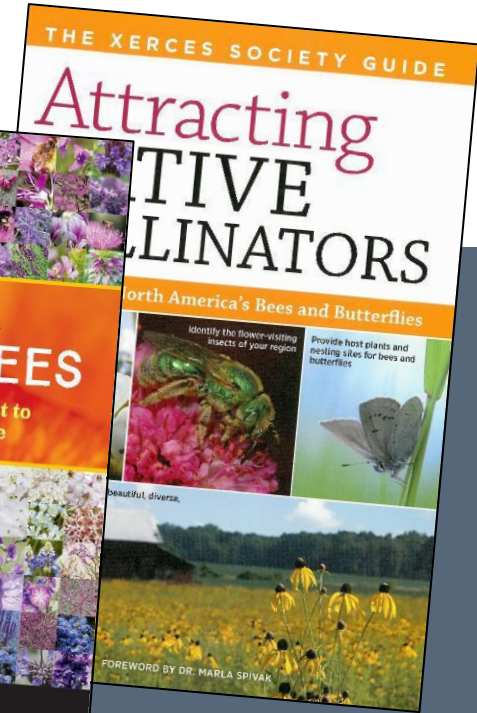
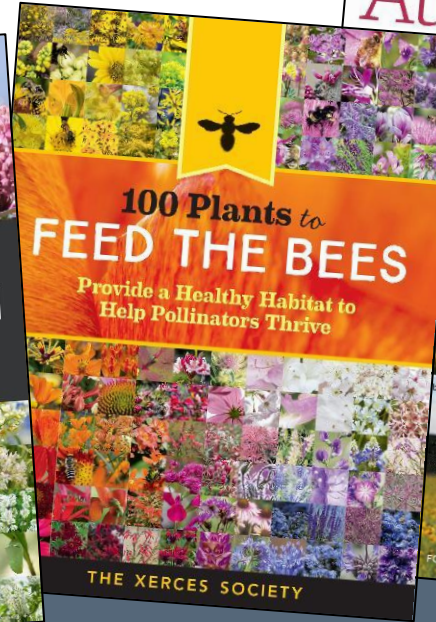
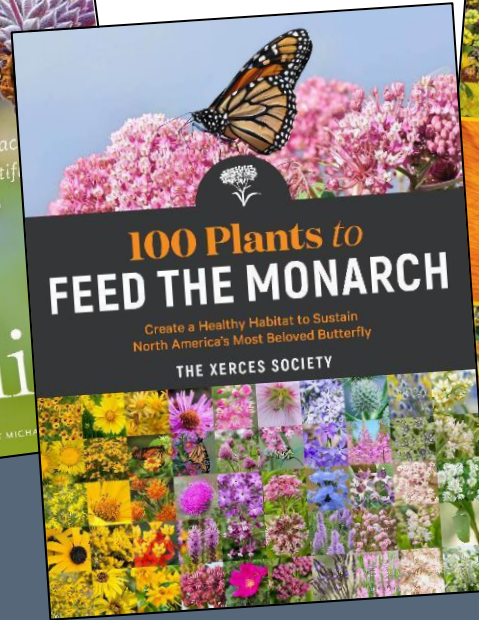
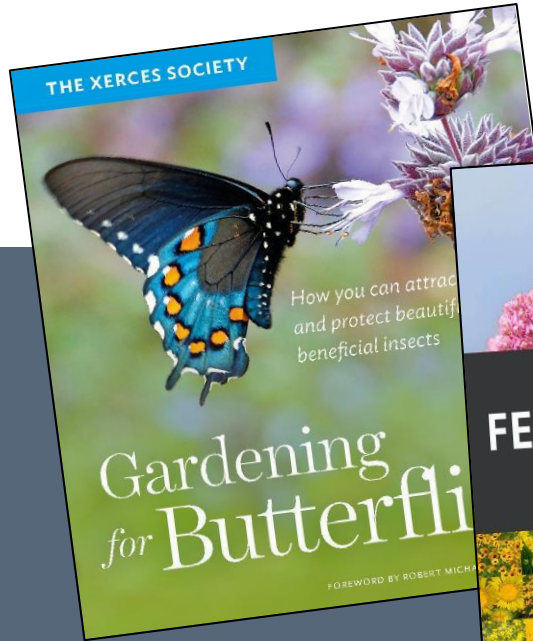
Fact sheets & brochures



Guidelines & reports



Books by the Xerces Society



Bug Banter Podcast Webinars & Xerces YouTube Channel

[Xerces.org](https://www.xerces.org)



Connect

@xercessociety



Thank you!



Photo: Jennifer Hopwood



Native Plants for Native Pollinators!

**Renee Robinson
Echo Valley Natives
Retail Nursery
Sandy, Oregon**



Why Grow Native Plants?

- ★ Native plants are designed to grow in the PNW and are adapted to our climate and soils
- ★ They often require less maintenance
- ★ Native gardens can be just as beautiful as ornamental gardens!
- ★ **Native plants have evolved alongside native wildlife!**
Our backyards can become important habitat for birds & insects



Pollinators are in decline!

- ★ **Habitat loss is the #1 reason**
- ★ **95-97% of lower 48 USA land has been modified by humans** (41% agriculture, 55% urban/suburban)
(Douglas Tallamy)
- ★ **90% of insect herbivores are specialists** and require the plants they evolved alongside to reproduce.
- ★ Invertebrates are the base of the ecosystem!
- ★ In the contiguous United States, the total number of **butterflies declined 22 percent over the last 20 years**, according to a study in the journal Science.
- ★ Of the 65 species of butterfly native to northwest Oregon, 15 are now rare or thought extinct.

Oregon Silverspot Butterfly

Listed as threatened in 1980

Native to coastal meadows from N. CA to S. Washington.

Viola adunca is the larval host plant.

Habitat loss due to development of coastal bluffs and invasive grasses.

5 populations remain, 3 of which are in NW Oregon.
Mt. Hebo population = strong population.

Oregon Zoo has a conservation strategy plan where they raise caterpillars on *Viola adunca* to release in the wild & restore habitat.



Peter Pearsall,
U.S. Fish and Wildlife Service



Gerald D. Carr, Courtesy of OregonFlora



Aaron I. Liston, Courtesy of OregonFlora

Fender's Blue Butterfly

Willamette Valley prairie and oak savannah.

Feeds on Kincaid's Lupine (*Lupinus oreganus*) which is listed as threatened.

It was thought extinct until 1989 when they found small populations.

Listed as endangered in 2000 with fewer than 4,000 of the butterflies

2016 survey found populations had grown to 29,000 total individuals. Now listed as threatened.

Working with private landowners on restoration efforts have made a difference! Success story!



Great Spangled Fritillary

A butterfly in the Sandy area!

Listed as a strategy species for the West Cascades area

Feed strictly on violets (mostly on *Viola glabella* in western Oregon).

A beautiful and easy plant species to add to the shade garden!





You can make a difference in your own backyard!

- ★ Plant natives local to your area
- ★ Limit pesticide use
- ★ Learn to see bugs and minor plant damage as GOOD for the ecosystem!
If we want to have butterflies, we have to feed the caterpillars.





Milkweed
&
Monarchs

Caterpillar
Food!

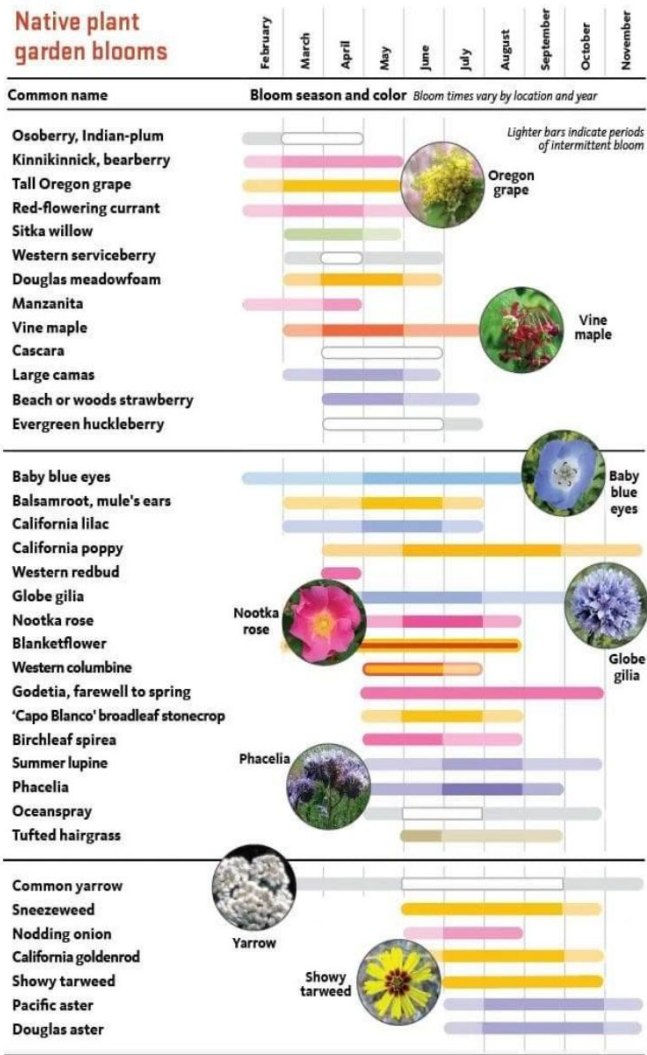


Plant in DIVERSITY!

- ★ Design your garden for year-round forage
- ★ Diversity of plant species = diversity of pollinators!
Some are preferred by hummingbirds, others by butterflies, etc.



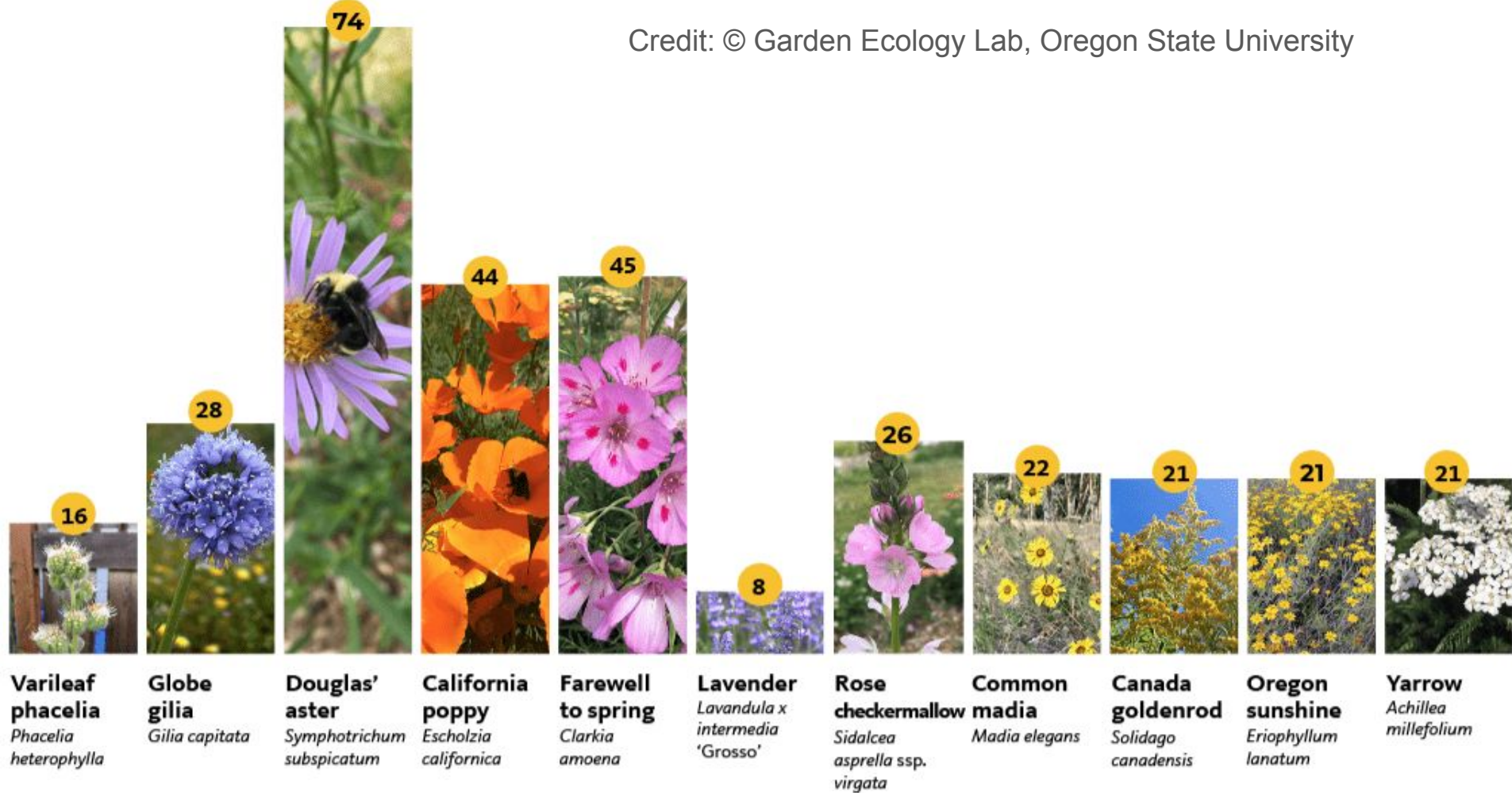
Native plant garden blooms



SPRING BLOOMS

SUMMER BLOOMS

FALL BLOOMS



#

Number of estimated bee species supported, based on three years of bee collections.



EXPLORE

RESOURCES

PUBLICATIONS

ABOUT

CONTRIBUTE

CONTACT

DONATE

LOGIN

Search all plants



Welcome to OregonFlora, your comprehensive guide to the vascular plants of Oregon



Get started right now:

Type a plant name here



to access all its information,
including maps, images and more...

Or take an introductory tour of our site



Choose the right plant for
your garden or landscape.

In our **Grow Natives** resource.



Identify a plant you've
seen in Oregon.

With our location-driven **Identify Plants** tool.



Find where any Oregon
vascular plant calls home.

With our powerful **Mapping** resource.



Explore the collections of
the OSU Herbarium.

Explore **OSU Herbarium** plants, mosses, lichens,
algae, and fungi.



Come out and visit your local native plant nursery: Echo Valley Natives!

- ★ Located behind Calamity Janes
- ★ Over 200 PNW native plant species for sale!
- ★ Open 6 days/week for retail shoppers



Types of Pollinators



Bees



Butterflies



Wasps



Moths



Beetles



Flies



Birds



Bats



Wind



You!

ALL BEES:



AN ESTIMATED:

**1/3 OF
FOOD**

IS POLLINATION
DEPENDENT



MAKE 6000
METRIC TONS OF HONEY



POLLINATE **70**
TYPES OF CROP



POLLINATE
\$15 BILLION IN
U.S. CROPS ANUALLY

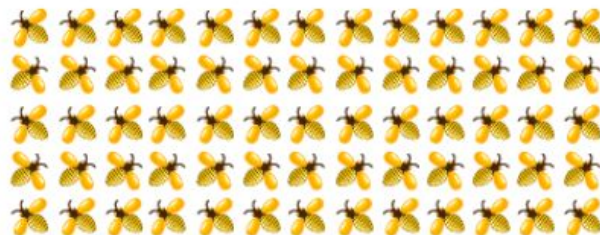
A COLONY:



POLLINATES
4,000m²
FRUIT TREES



AVG OF
14KG
OF HONEY
PER YEAR



CONTAINS
50,000
BEES

Native Plants



- 95% of native insects are specialists and rely on native plants for survival
- 96% of terrestrial birds rear young on insects (esp. caterpillars)
- Native to where?
- What about cultivars?





Pollination:

With an Emphasis on Butterflies

By Marek Stanton





Pollination Ecology!

- Pollination Definition
- Significance
- Floral Rewards
- Finding and Gathering Floral Rewards
- Cheats of Pollination

Definition:

Pollination

noun

The transfer of pollen to a stigma, ovule, flower, or plant to allow fertilization.



art by Marek Stanton, 2024

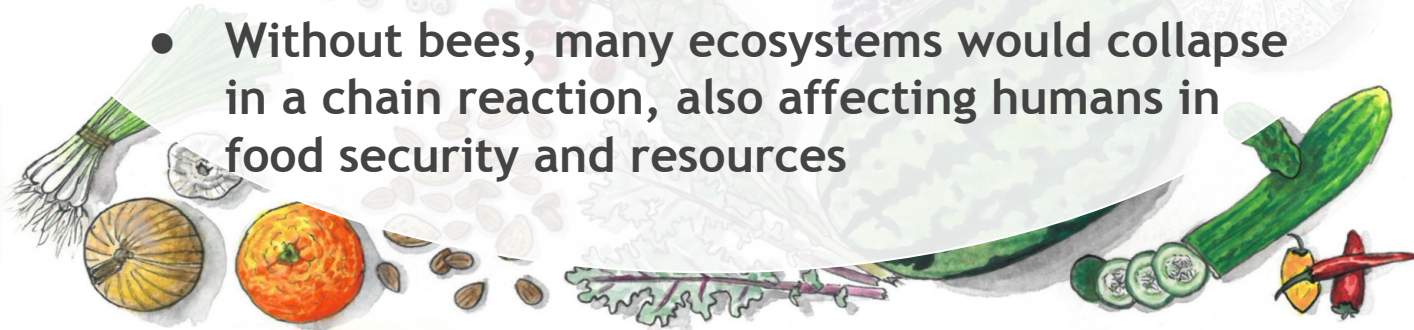


Significance of Pollination

art by Marek Stanton, 2024



- Most of our crop species need or benefit from pollination-> we rely on crops for food
- Ecosystems are based on plants, much of which rely on pollinators like bees to create seeds/more plants
- Without bees, many ecosystems would collapse in a chain reaction, also affecting humans in food security and resources



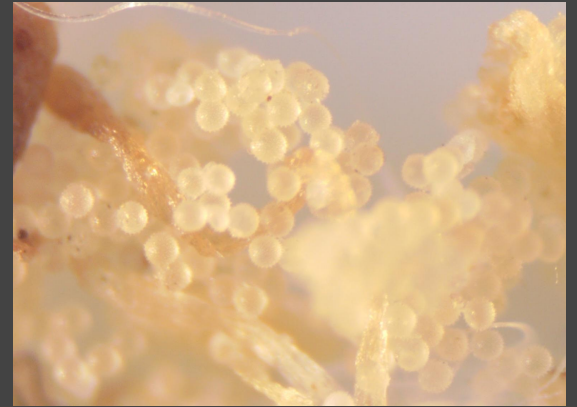
* Floral Rewards *



Oil



Nectar

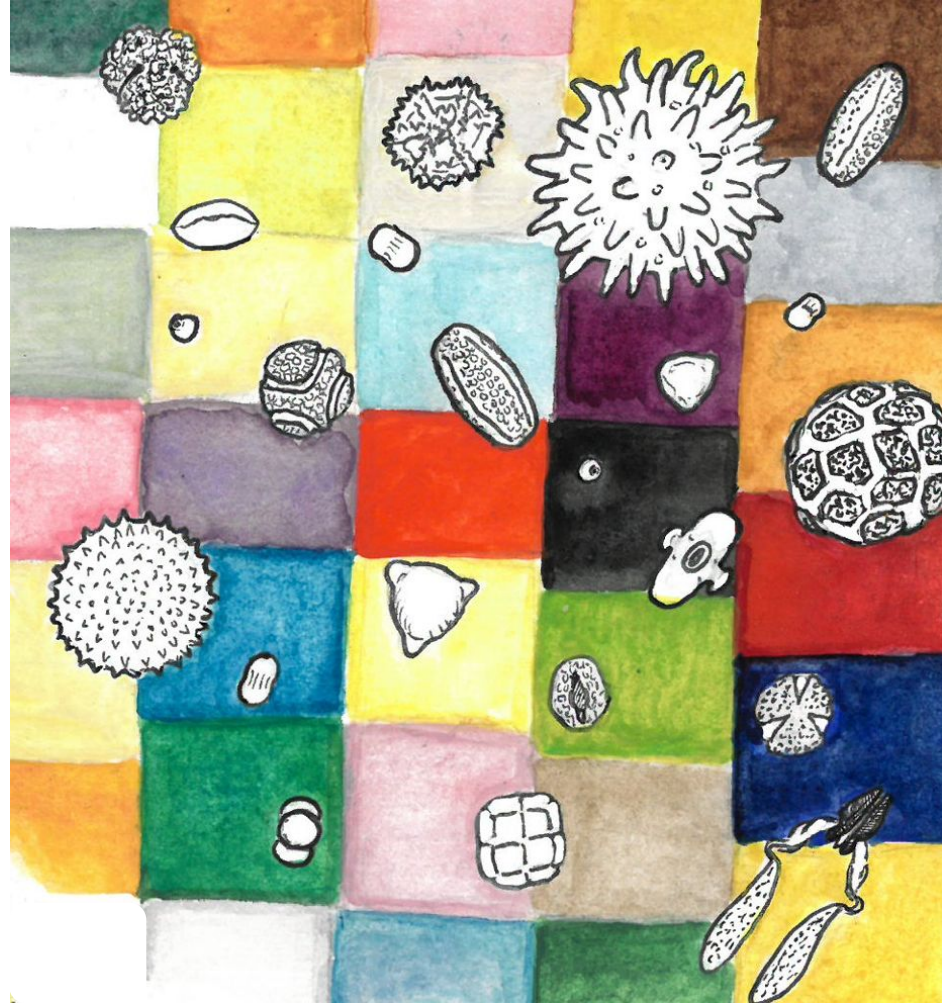


Pollen

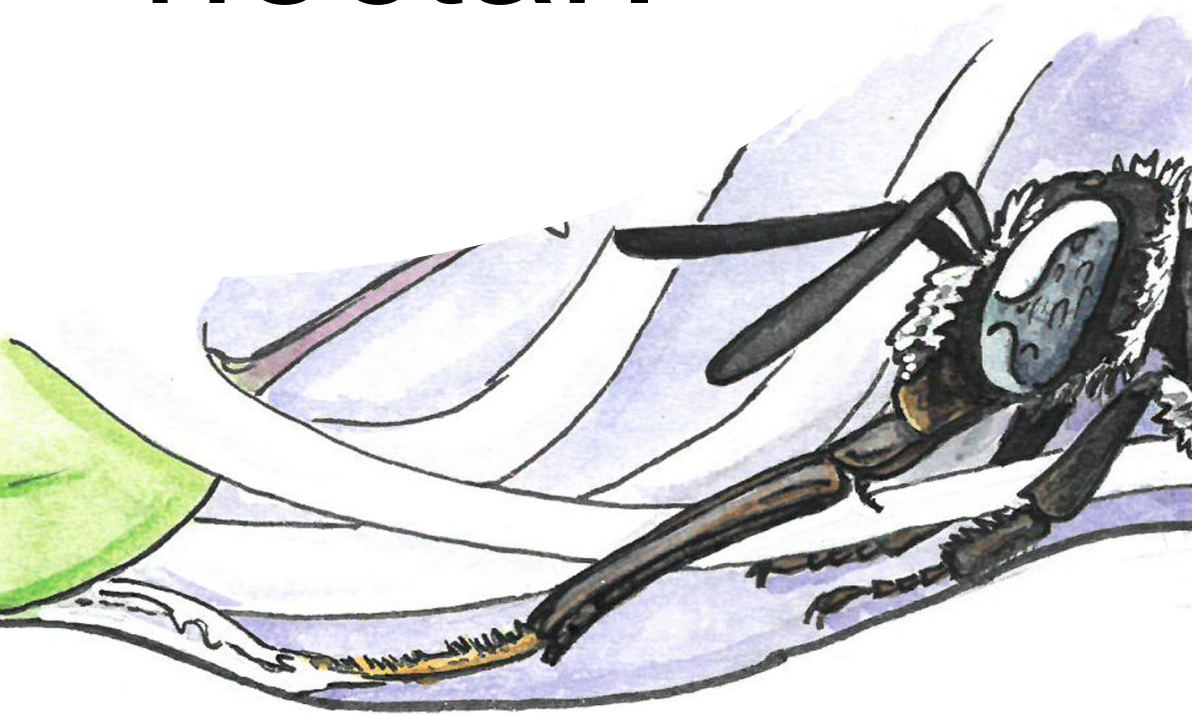
pollen

- Protein rich
- Includes a nutrient rich lipid coating
- Has a wide range of shapes, colors and sizes

art by Marek Stanton, 2024



nectar:



- Composed of water, sugars, and other nutrients
- Sugar content varies with the flower

Butterflies have evolved features that allow them to interact with flowers



Woodland skipper (photo by @selwell on iNaturalist)



Linstead, D. (2016). Butterfly Tongue: The Blind Watchmaker's Main Spring. *The Quekett Microscopical Club*.
<https://www.quekett.org/resources/article-archive/bsw-2016/bsw16-butterfly-tongue>

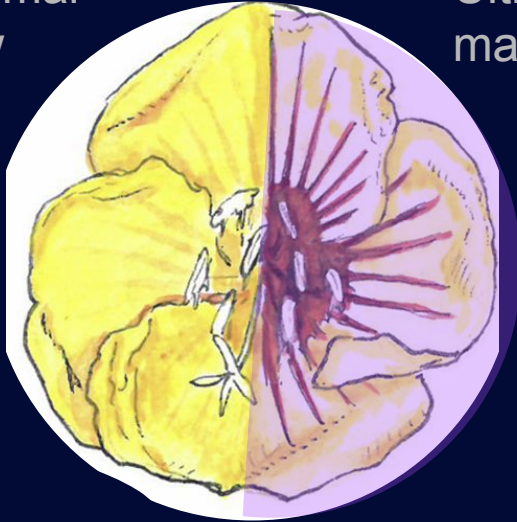
Floral visual signals & butterfly vision



Photo by Marek Stanton, 2023



“Normal”
view



Ultraviolet
markings

“Normal”
view



Ultraviolet
markings

UV markings

Petal surface structures



- Effect the color of the flower
- The ability of insects to latch on
- Can cause a flower to be iridescent, glossy, or matt

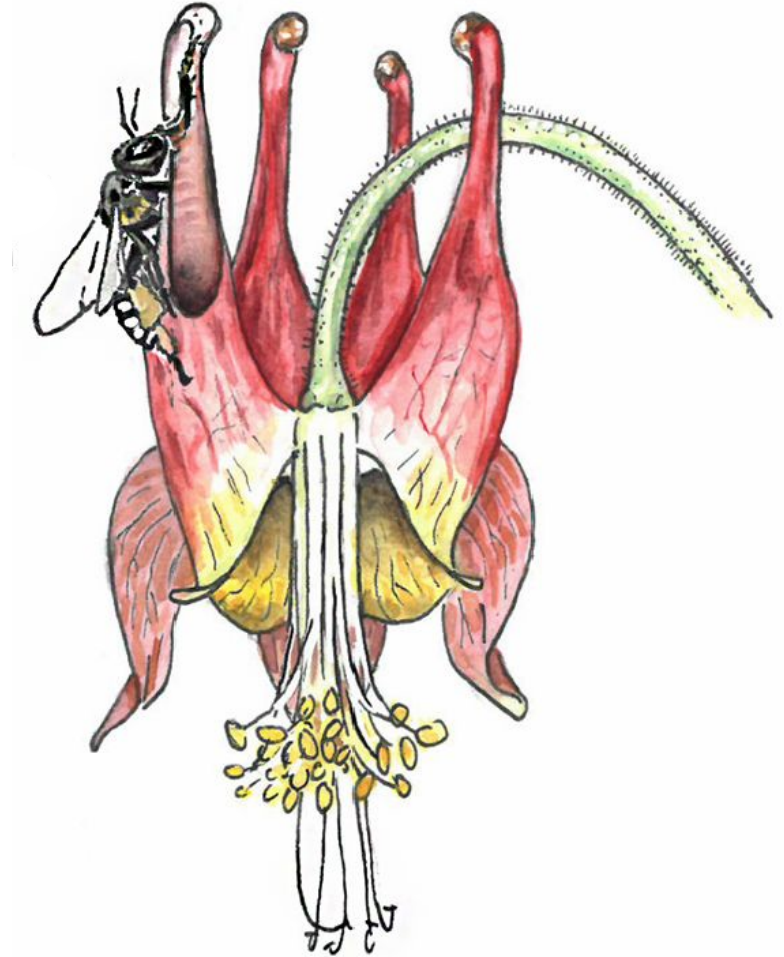
The Cheats of Pollination



art by Marek Stanton, 2024

Nectar robbers

Bees that steal the nectar
without pollinating



art by Marek Stanton, 2024

Pollen thievery



Bees that steal pollen
without pollinating the flower

A wide-angle photograph of a grassy hillside covered in wildflowers. In the foreground, there are several large, vibrant purple lupine flowers with green leaves. The middle ground is a mix of green grass, small white daisies, and clusters of yellow wildflowers. The background shows a rolling landscape under a clear blue sky. A semi-transparent text box is overlaid on the left side of the image.

This presentation explores only a small piece of pollination ecology



Lorquin's Admiral
mimic

Questions?

Email:
marekstanton@gmail.com

Instagram: @beetonist



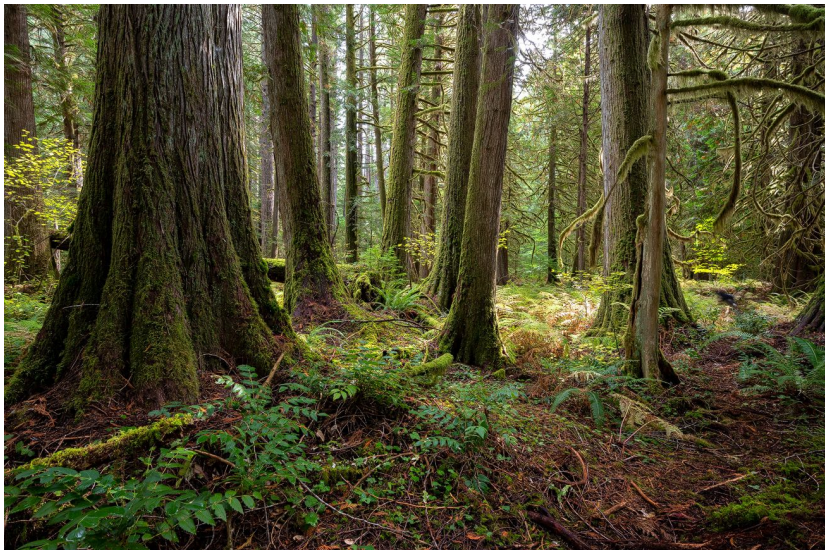
California Sister
foul tasting

HEATHER MICHET

Rabidly Green Earth Girl, Educator, and Ceremonialist

Purple Crow Sings





Provide puddling areas





All Seasons



Leave the leaves
and stalks!



Oregon Bee Project
-<https://www.oregonbeeproject.org>

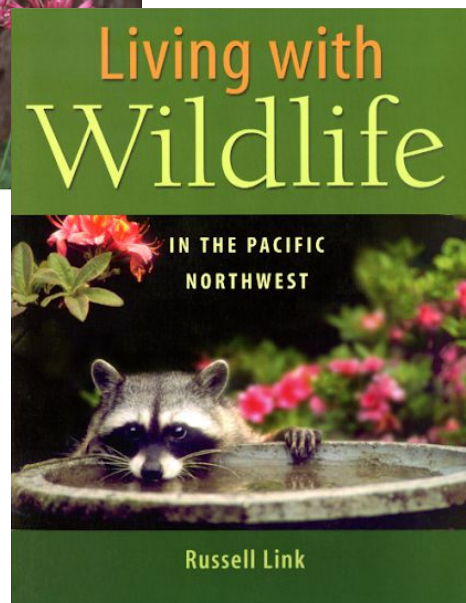
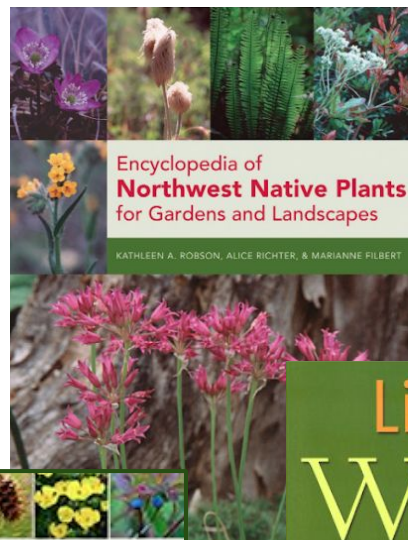
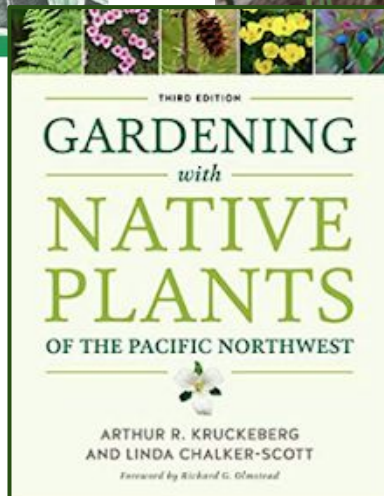
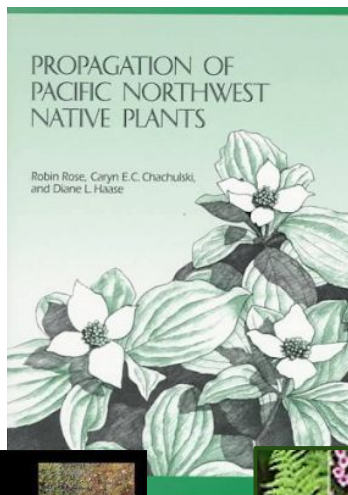
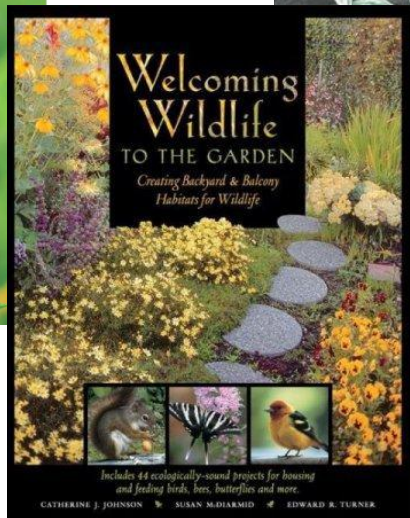
Xerces Society
-xeres.org

Bee City U.S.A.
-beecityusa.org

Pollinator Partnership
-pollinatorpartnership.org



Helpful Books



Regional Resources

- **The Portland Plant List:** this is the best place for finding out about Lower Willamette Valley native plants.
<http://www.portlandonline.com/auditor/index.cfm?&a=322280&c=34460>
- **Invasive Weed Control:** <http://emswcd.org/on-your-land/weeds/>
- **A Guide on Choosing Safer Alternatives to Chemicals:** *Grow Smart, Grow Safe*
<http://www.growsmartgrowsafe.org/>
- **Meadowscaping Resources:** Pacific Northwest Urban Meadowscaping: A fantastic step-by-step guide and resource list: <https://wmswcd.org/programs/pacific-northwest-urban-meadowscaping/>
- **National Wildlife Federation Northern Rockies, Prairies, and Pacific Region** website:
<https://www.nwf.org/en/Northern-Rockies-and-Pacific-Region>
- **Naturescaping Basics** http://www.plantnative.org/how_intro.htm
- **NWF Native Plant Finder:** www.nwf.org/nativeplants-beta
- **Pollinators and Monarchs** resources: www.nwf.org/Garden-For-Wildlife

