

Monarch Waystations: An Easy Way to Help All Pollinators



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Monarchs & Milkweeds Workshops



This is Workshop No. 94

Furthest away was Manchester, England

The Bad
News –
Decline of
Pollinators
All Over the
World

Bees &
Butterflies are
especially
threatened

Newsweek

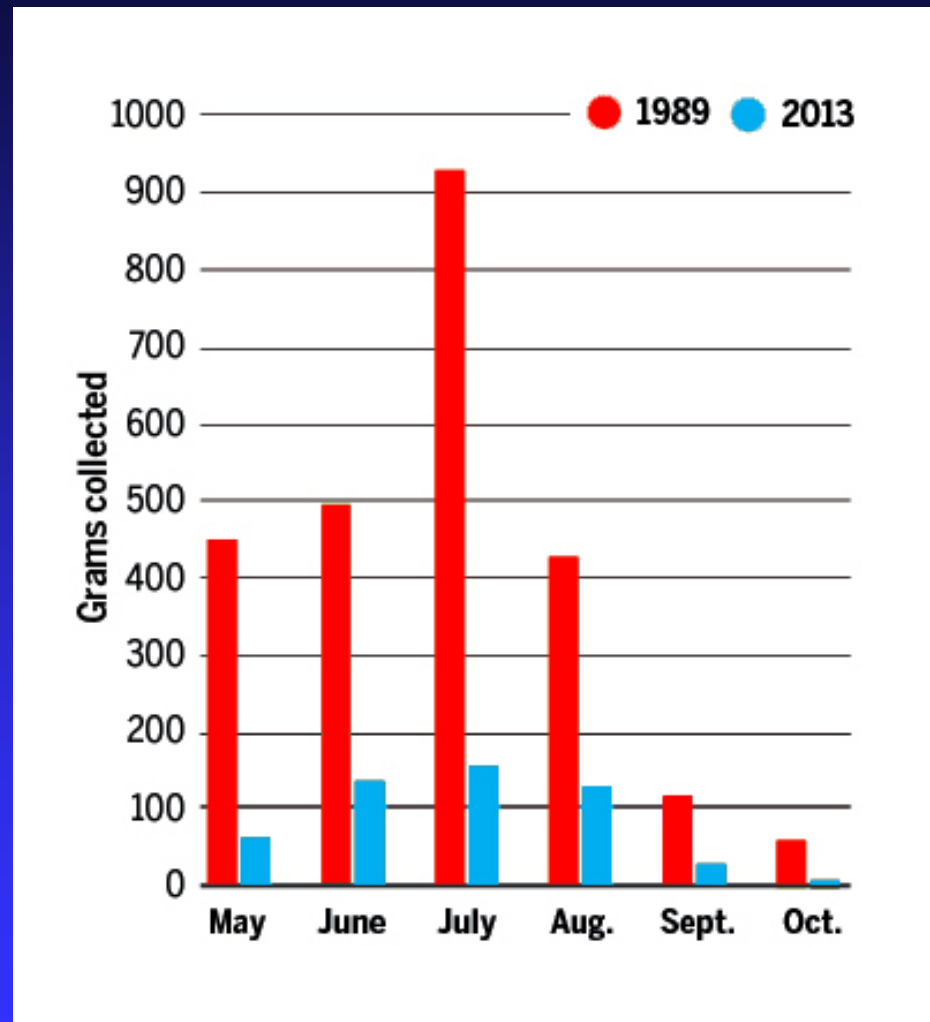
TECH & SCIENCE

**40 PERCENT OF INVERTEBRATE
POLLINATORS FACE
EXTINCTION ACROSS THE
GLOBE**



Where Have All the Insects Gone?

Entomologists
call this the
“Windshield
Phenomenon”



The Good News – Creating Pollinator Habitat Works!

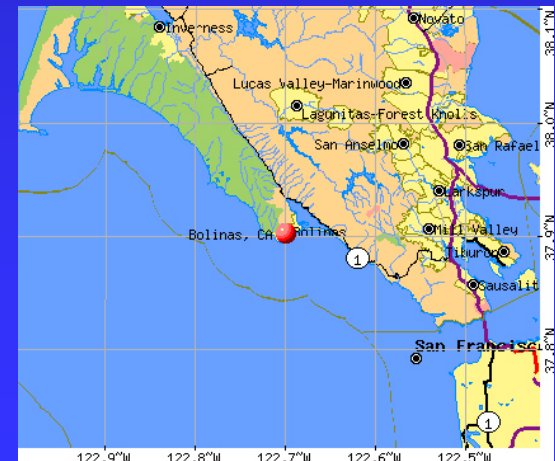


January 1, 2016:

Tagged monarch from Coyote Trails

Nature Center in Medford

Was Found in Bolinas, CA



The Good News - Creating Pollinator Habitat Works!



62 Monarch Eggs & Caterpillars Found in 2017
in Monarch Waystation at Hanley Farm
in Central Point

Why Monarchs?



- Iconic - Most Well-Known Butterfly in the World
- A Tropical Butterfly that has Adapted to a Wide Range through Migration
- Monarch Butterflies Weigh 0.02 oz (0.5 g) – Half the Weight of a Paper Clip
- They can fly over 40 miles per day & migrate 1,000 to 2,000 miles to overwinter

What's So Special about Monarchs?



Charismatic Megafauna



 **Green Gifts** ALL GIFTS | CELEBRITY PICKS | HOW IT WORKS | ABOUT NRDC

GIFTS BY TYPE

- Save Wildlife
- Protect Wild Places
- Promote Clean Energy
- Defend Oceans
- Fight Pollution
- Live Green
- Ultimate Gifts

GIFTS BY PRICE

- \$25 and under
- \$25 to \$50
- \$50 to \$100
- Ultimate Gifts

GIFTS BY OCCASION

- Christmas
- Chanukah
- New Year

CELEBRITY PICKS!

Butterfly Beauty



CREATE A MONARCH SANCTUARY

Here's a regal gift for anyone who treasures beautiful Monarch butterflies. Plant a dozen milkweed plants — the one thing Monarchs need to survive — and you'll help them recover from decades of habitat loss.

\$25.00 Quantity

ADD TO CART

When you give this gift we'll send a personalized card or e-card to your gift recipient!

Preview: [Postal Card](#) | [E-Card](#)



Charismatic Microfauna



Monarchs
Seem to
Have a
Sense of
Humor





Advocates for Idaho Monarchs

[@monarchsidaho](https://www.facebook.com/monarchsidaho)

Local research, citizen science, community outreach

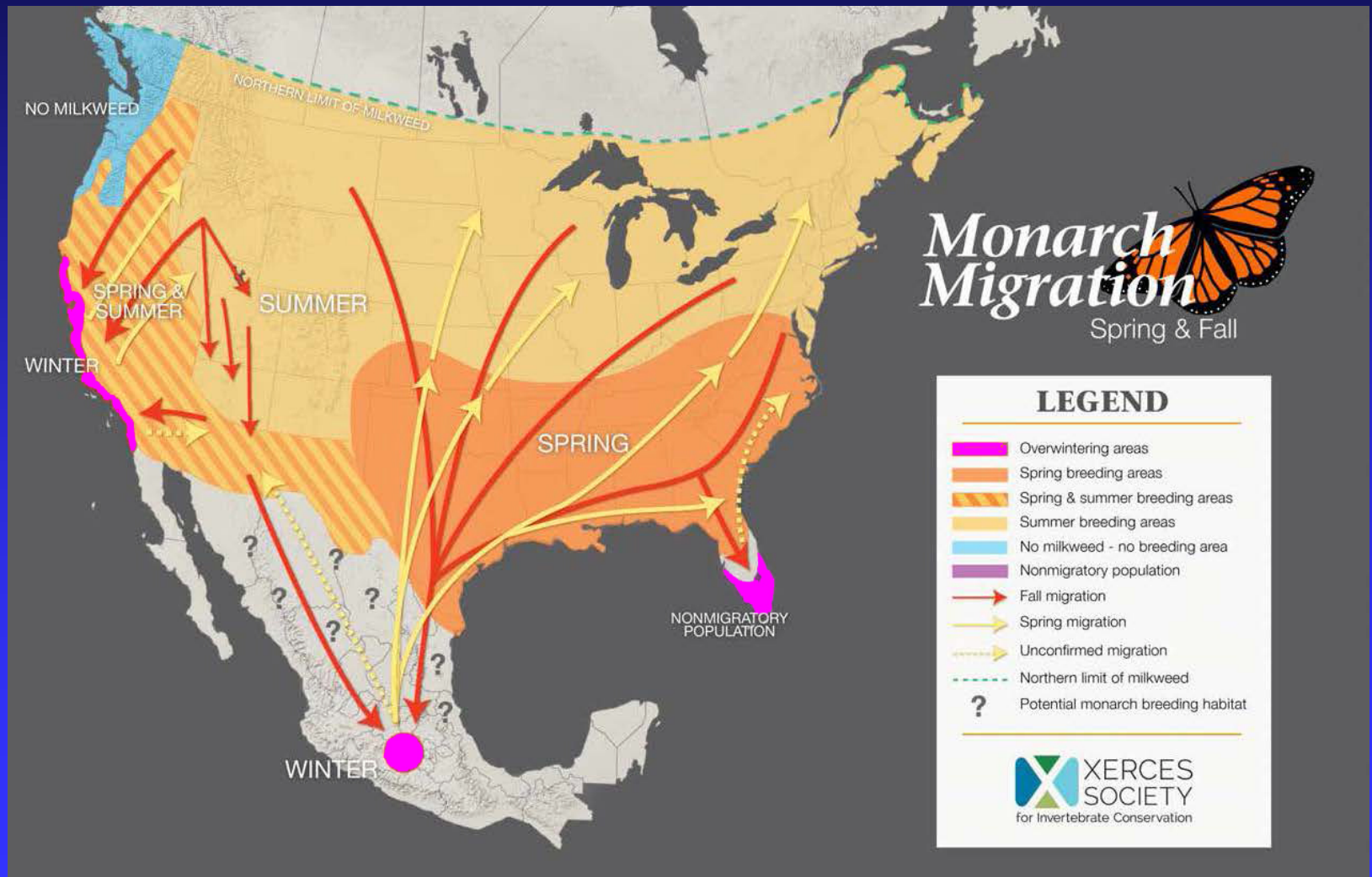
Why Should We Care? The Mystery & Magic of Monarchs



Does Everything Always Have to
Relate Back to Human Benefits?

Eastern Monarchs Overwinter in Mexico

Western Monarchs on California Coast

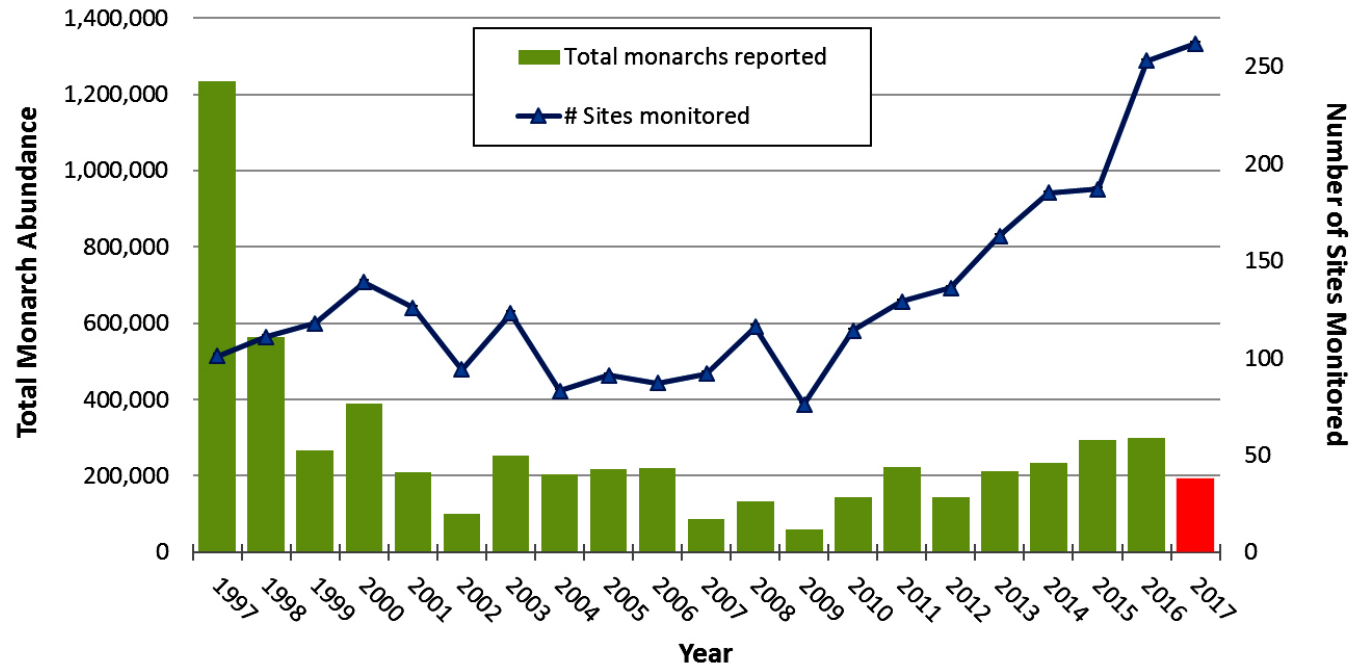


Western Monarch Butterfly Population Crash

The Xerces Society Western Monarch Thanksgiving Count

Total Abundance Estimates w/ Number of Sites Monitored
from 1997-2017

© The Xerces Society for Invertebrate Conservation 2018



In spite of increased effort, populations levels are down

Monarch Activity for Early 2018 is Worrisome



Year	Number of eggs & caterpillars Found by July 21st
2016	57
2017	24
2018	8

Citizen Science for Helping Monarchs



WESTERN MONARCH
MILKWEED MAPPER

Welcome, tdlandis | My Profile | Sign Out

Home

About

Report a Sighting

Milkweed Species

Map

Learn

Habitat Resources

FAQs



Help us track monarchs and milkweed across the west

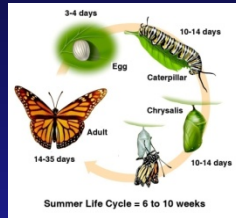
Monarch populations across North America are in serious decline. To preserve and protect populations in western states, we need to better understand where monarchs and their milkweed host plants occur in the landscape.

Your help is critical in collecting data to better inform conservation efforts in the Western U.S.

[Learn More](#)

<https://www.monarchmilkweedmapper.org/>

Multiple Monarch Generations per Year



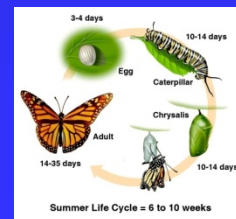
First Generation: March/April: Eggs laid by females after overwintering. Total lifespan = 6 to 10 weeks



2. May/June: Total lifespan = 6 to 10 weeks

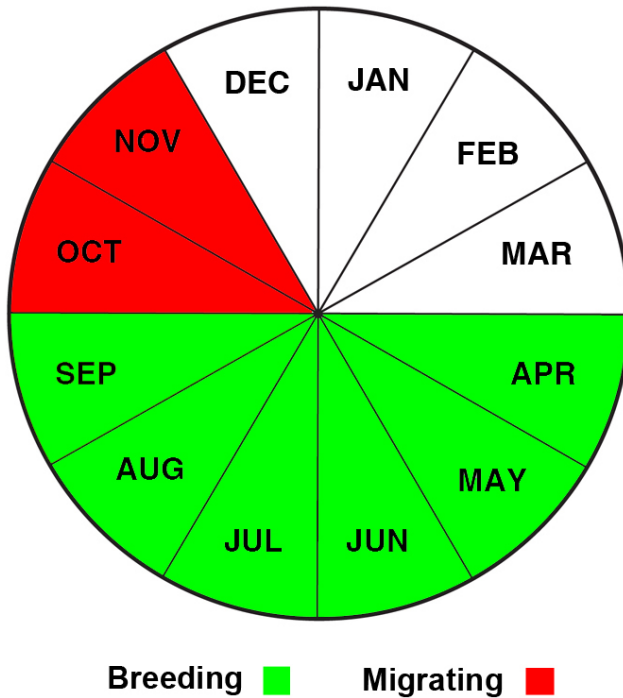


3. July/August: Total lifespan = 6 to 10 weeks



4. Sept/March (Super Generation): Total lifespan = 6 to 7 months

Monarch Activity in Southern OR

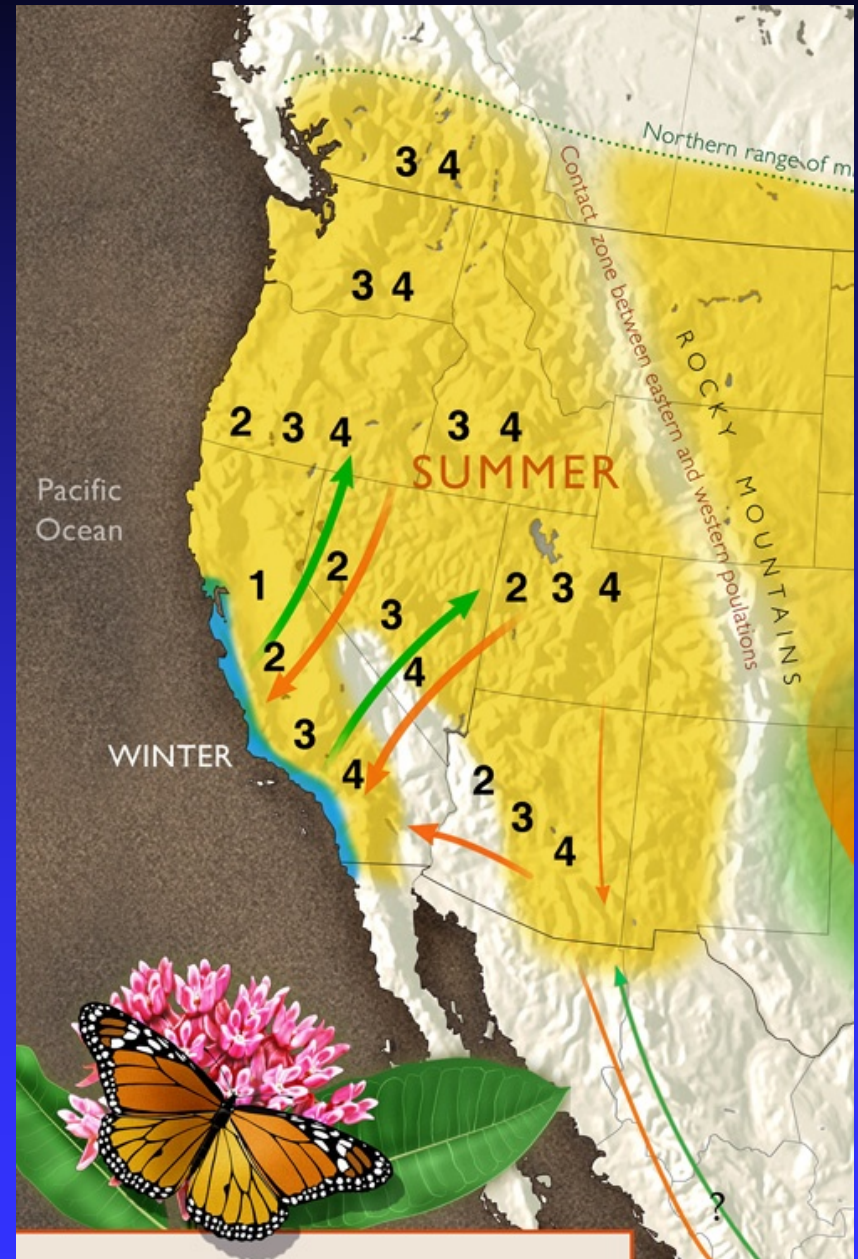


Facebook:

Monarch Butterflies

in the Pacific

Northwest



Tracking Monarch Migrations

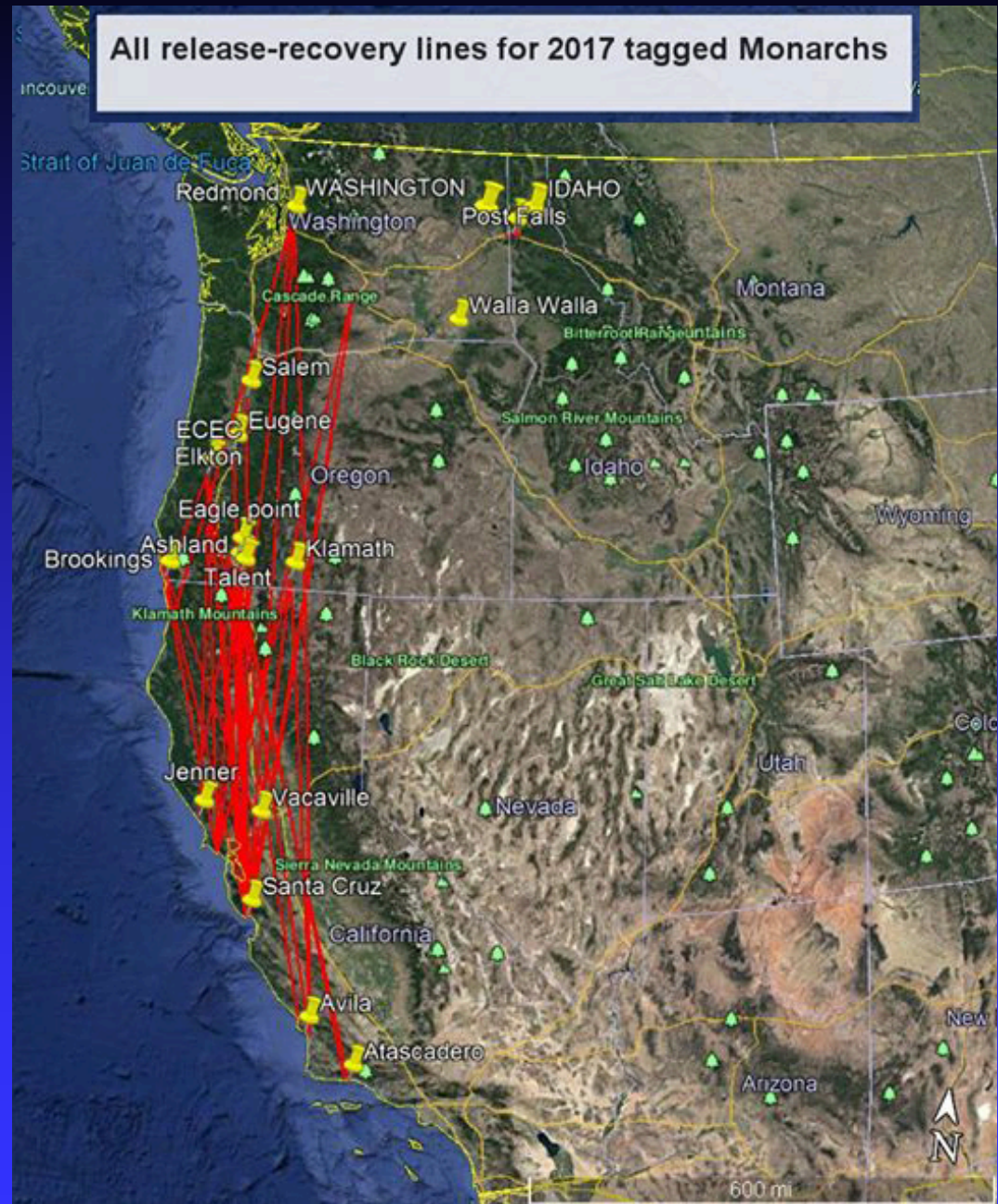


- Sticky Tags Affixed to Lower Wing
- Reports will help us understand monarch migration patterns

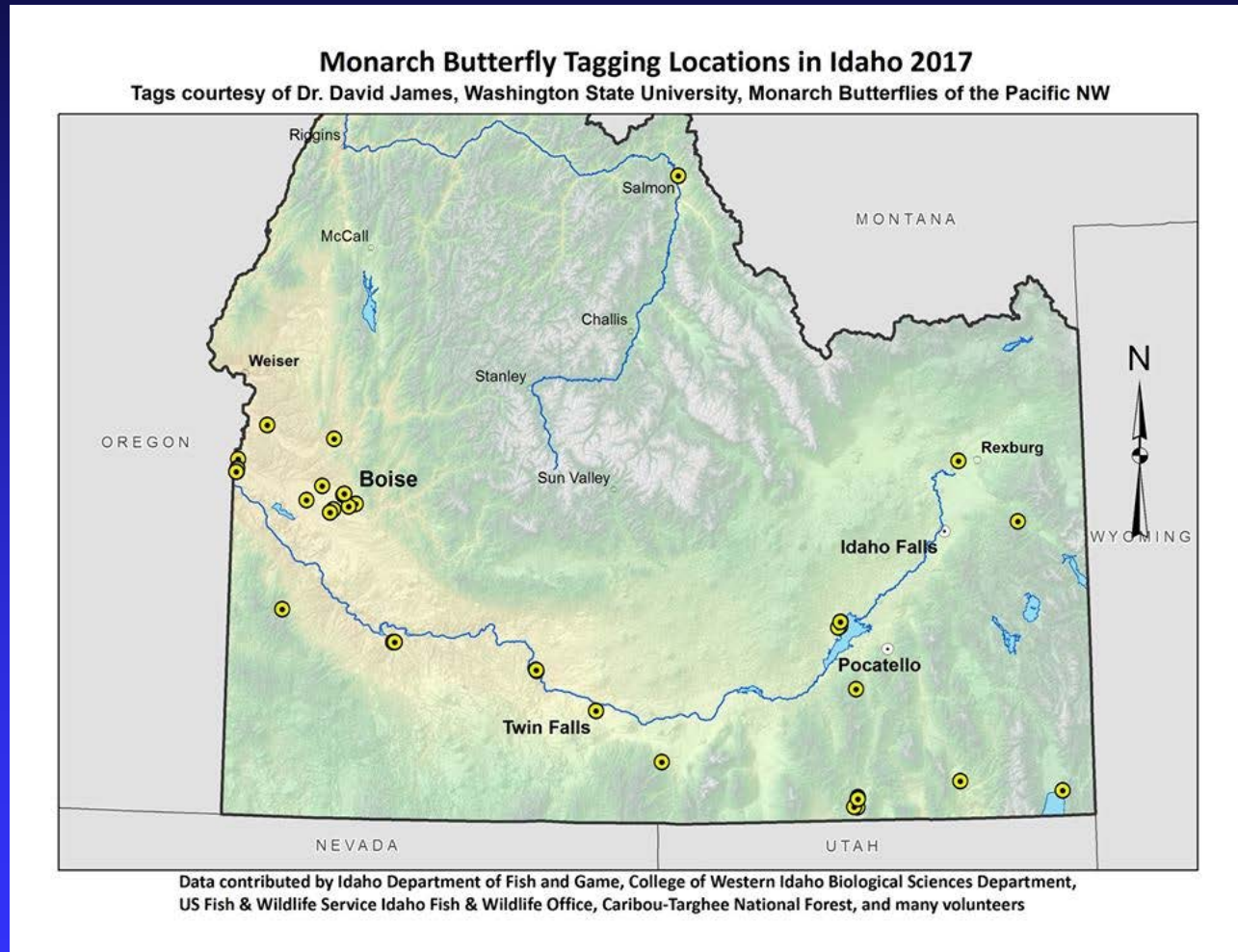
To Date: 1.1 Million Monarch Tagged in Eastern US, but only 1% Recovered in Mexico

Tagging Results for Western Monarchs in 2017

Courtesy of
Dr. David James



AIM Tagging Efforts in 2017



Only 1 Idaho Monarch Has Been Found in CA

Causes for Population Crash of Monarch Butterflies

- ✓ **Overwinter Habitat Loss**
- ✓ **Breeding Habitat Loss**
- ✓ **Diseases, parasites & predation**
- ✓ **Climate Change**
- ✓ **Pesticide Use**



(Commission for Environmental Cooperation, 2008)

Loss of Monarch Breeding Habitat in the Pacific Northwest



Mowing, Spraying,
and Invasive Weed
Competition Are the
Major Culprits

Create Habitat along Migration Routes

- A Milkweed Railroad for Monarchs

Monarch Waystation

These Specialized Pollinator Gardens Provide Habitat (Food, Shelter, and Water) for Monarch Butterflies on their Long Migrations

The diagram illustrates the life cycle of a monarch butterfly and the specific habitat requirements for each stage. It is set against a background of a field of wildflowers. The life cycle is shown in a central column: caterpillars on the left, a pupa in the middle, and an adult butterfly on the right. Arrows point from the caterpillar stage to the pupa stage, and from the pupa stage to the adult butterfly stage. Below each stage are text boxes describing the necessary habitat components: Food, Shelter, and Water. The background also features logos for Oregon State Parks, Oregon State University, and the University of Oregon.

Food:
Native Milkweeds for Monarch Caterpillars

Shelter:
Woody Trees and Shrubs
Protect Monarchs at Night
and During Bad Weather

Food:
Nectar Plants for Monarch Adults and Other Pollinators

Water:
Mud Puddles Provide
Moisture and Minerals

OREGON STATE PARKS
OREGON STATE UNIVERSITY
UNIVERSITY OF OREGON

Habitat = Food, Shelter & Water

Two Types of Monarch Waystations



Backyard Gardens –
Use Native
or Introduced Plants



Natural Areas –
Use Only
Native Plants

Please Register Your Waystation with Monarch Watch

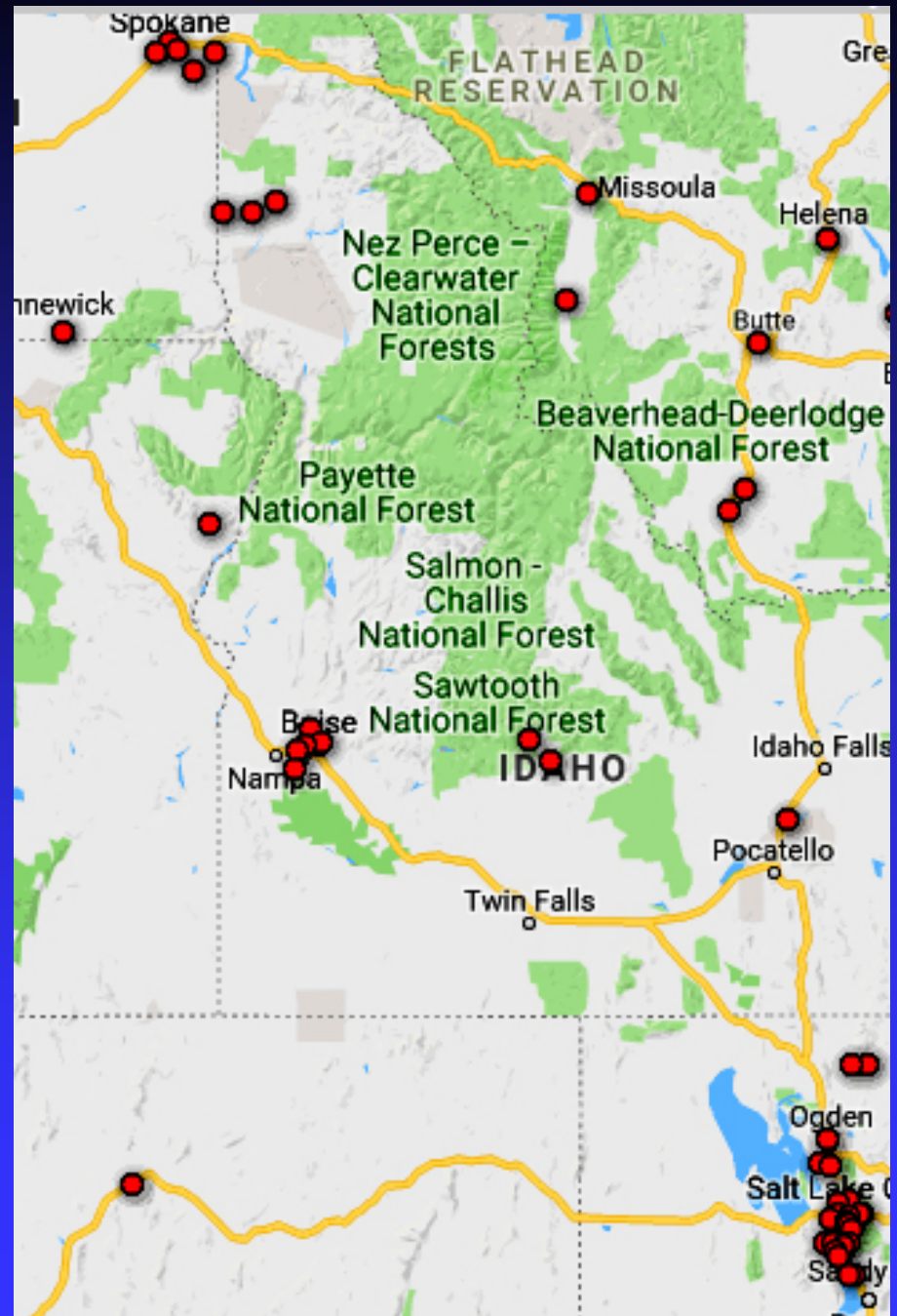


State	Dec. 2013	Jan. 2018
CA	359	1,172
OR	15	112
WA	10	31
ID	2	11
NV	6	24
UT	7	23
AZ	37	177

Website: <http://www.monarchwatch.org/waystations/>

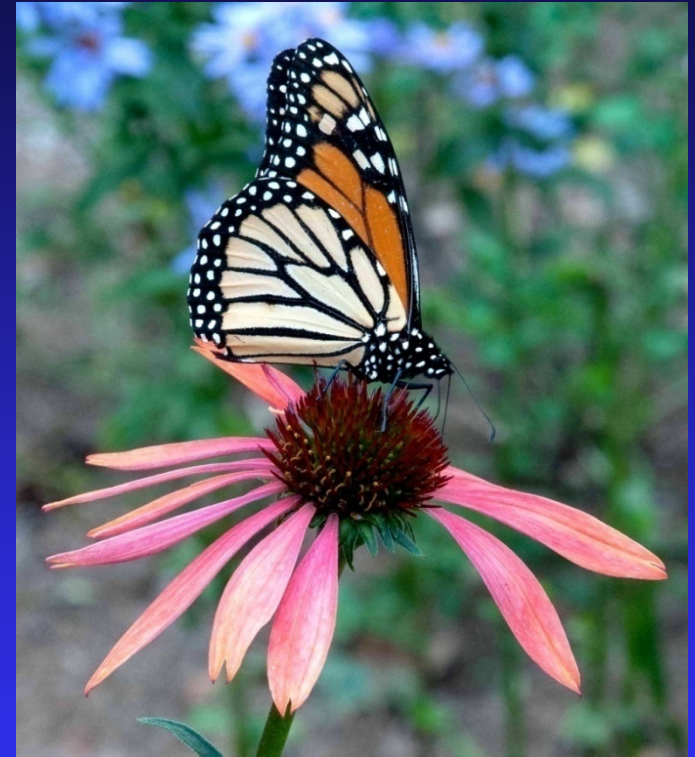
Registered Monarch Waystations Around Boise, ID

20,493 Monarch
Waystations
Internationally



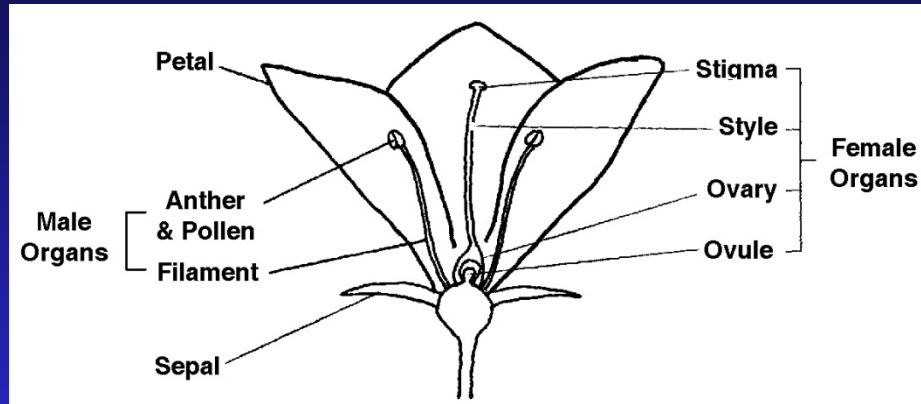
1a. Food: Nectar Plants

Adult Butterflies Get Sugar
from the Nectar in Flowers



- Sugar Content of Nectar Ranges from 8% to 50%
- Nectar also Contains Vitamins, Oils & Amino acids

All Plants Have Pollen, But Not All Plants Have Nectar



Pollen: small powdery particles produced by anthers (male flower organs) that is carried by pollinators to fertilize the female flower organs and produce seeds. Pollen provides vital protein and fats; honey bees use it to make bee bread.

Nectar: sugary substance, produced by **some** plants to attract pollinators (bees, butterflies and hummingbirds). Sugar is metabolized for energy or stored as fats.

All Plants Have Pollen, But Not All Plants Have Nectar

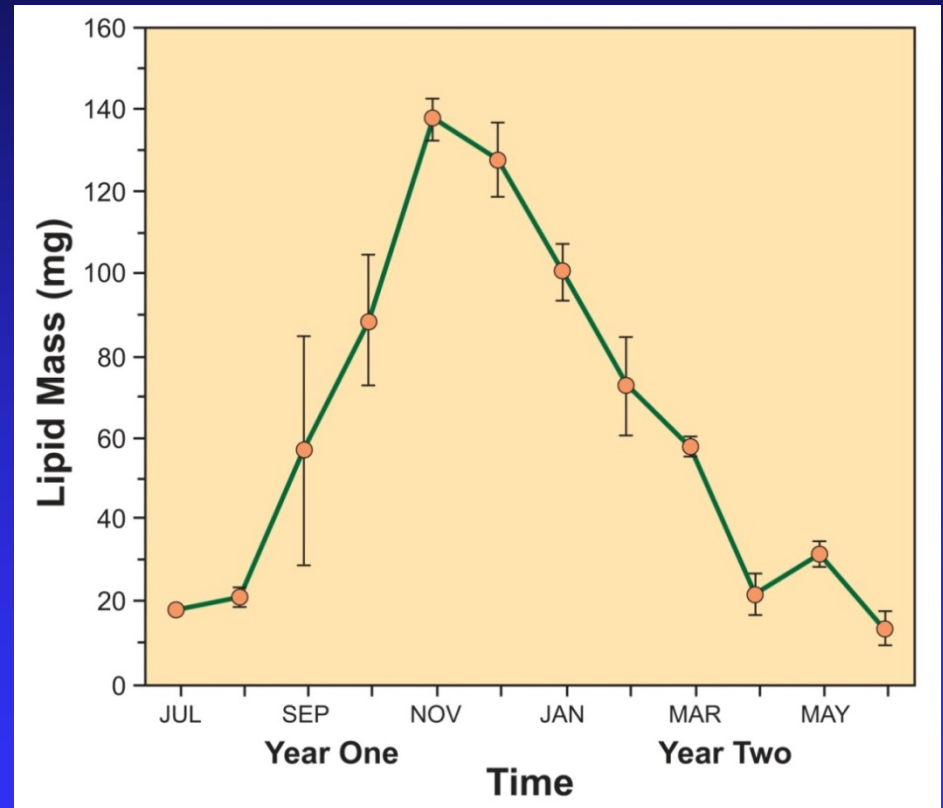
California poppy has no nectar



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Nectar is Stored as Fats in Monarch Butterflies



Nectaring in Late Summer & Fall Builds Up Fat
Reserves for Migration & Overwintering

Food: Host Plants

Monarch caterpillars eat
only milkweed leaves



Western tiger swallowtail hosts
belong to 8 different genera:
willows, cottonwoods, birch,
maple, alder and others

2. Shelter: Woody Shrubs & Trees



Monarch butterflies need places to rest at night and during inclement weather

The flower of some woody shrubs, such as mock orange, are also good sources of nectar

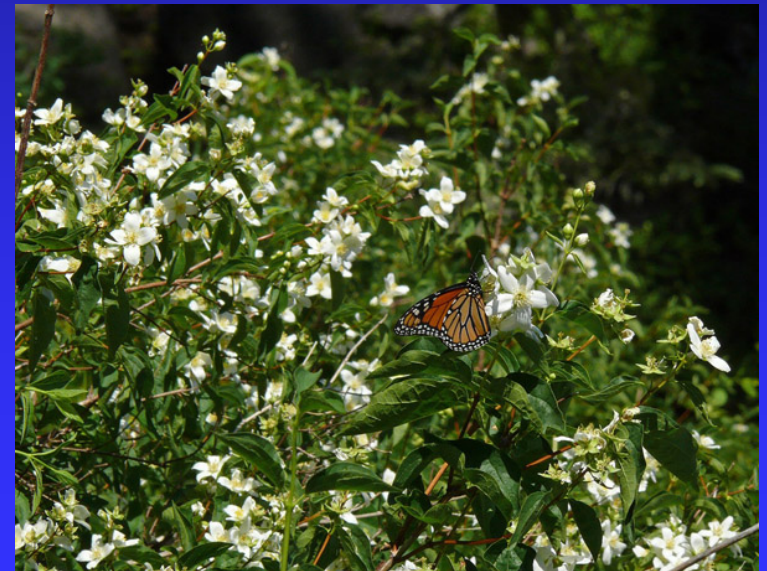


Photo: Tanya Harvey

3. Water: Moisture & Minerals

“Puddling” provides much
needed sodium



Monarchs drinking at
overwintering site in Mexico

Photo: Dennis Curtin



Even in nursery pots

Photo: Suzie Savoie



Plant Palette for Monarch Waystations

Milkweed for Caterpillars



**Narrowleaf
Milkweed**



**Showy
Milkweed**

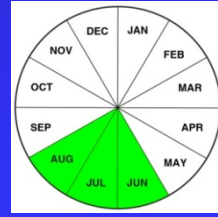


Nectar Flowers for Butterflies



Spring Flowering

Oregon grape



Summer Flowering

Coyote mint



Fall Flowering

Rubber rabbitbrush

Milkweeds are Perennial Forbs



ASFA on Spokane River



- Milkweed **Prefer sunny locations**
- Grows on many different soil types
- Some species spread by rhizomes

14 Native Milkweeds in the Great Basin

“Narrowleaf and Showy Milkweed Are Most Suitable for Restoration Projects”



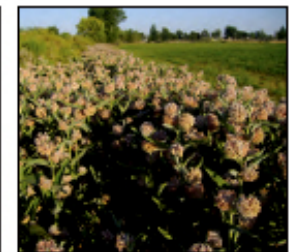
THE XERCES SOCIETY
FOR INVERTEBRATE CONSERVATION



MONARCH
JOINT VENTURE

Great Basin Pollinator Plants

Native Milkweeds (*Asclepias* spp.)



October 2012

The Xerces Society for
Invertebrate Conservation

www.xerces.org

Native Milkweed Species

Narrowleaf milkweed
(*Asclepias fascicularis*)

ASFA

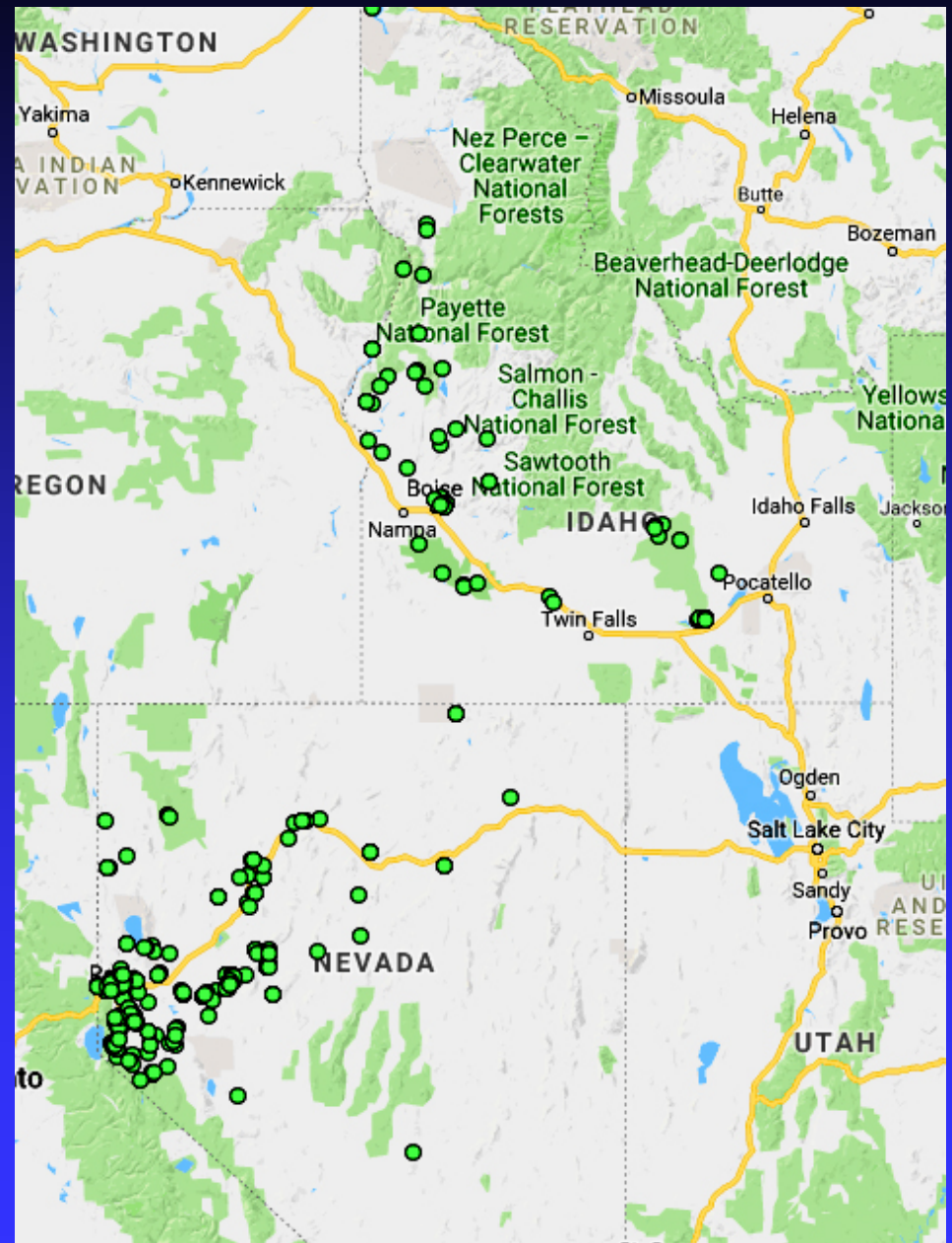


Moderately
Rhizomatous



In My Waystation, Monarch
Females Prefer ASFA for Laying Eggs

Confirmed Locations of Narrowleaf Milkweed in Idaho & Nevada



Native Milkweed Species

Showy milkweed, (*Asclepias speciosa*)

ASSP

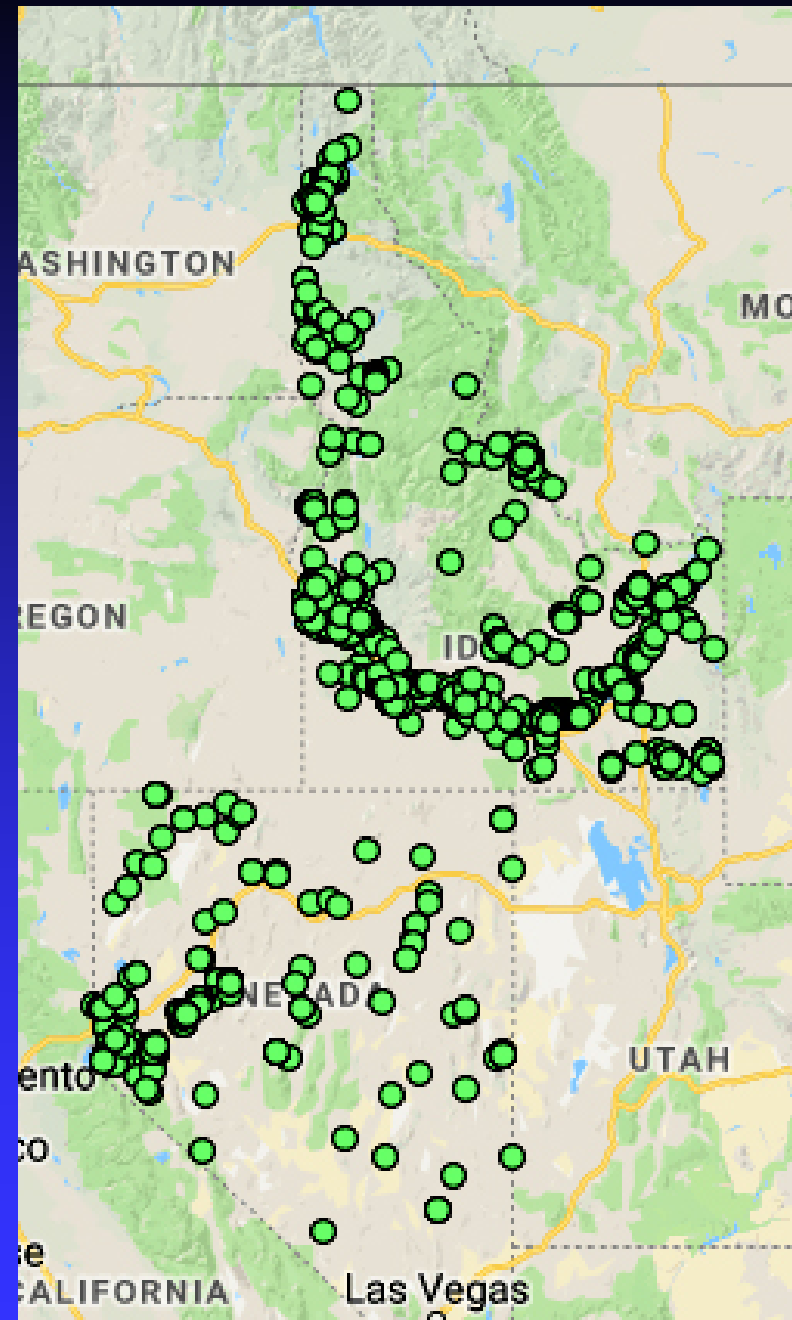


Highly
Rhizomatous

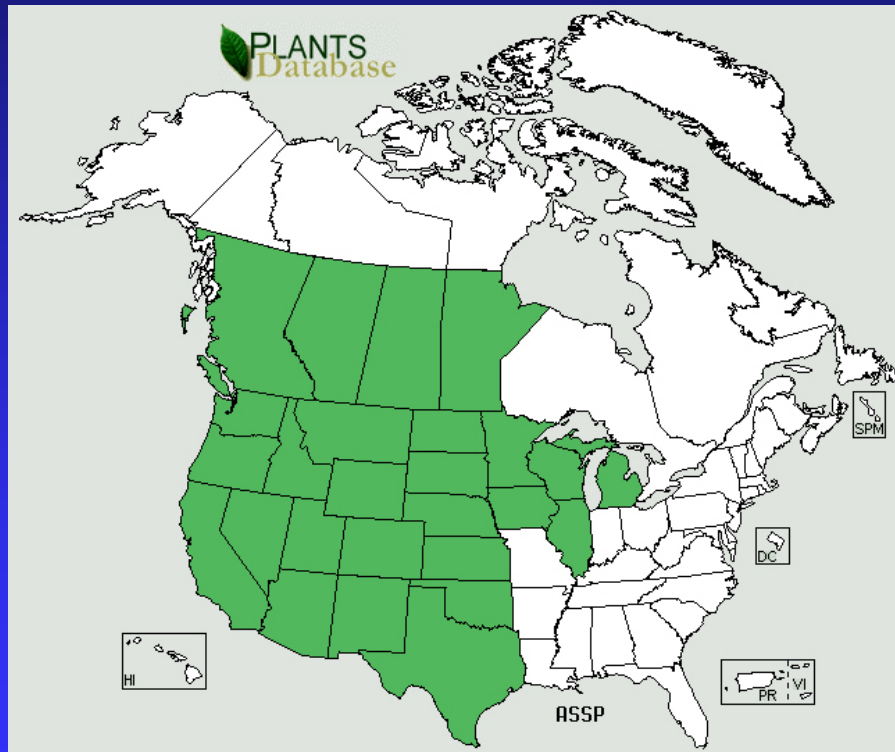


Large leaves of ASSP are Better
for Feeding Late Instar Caterpillars

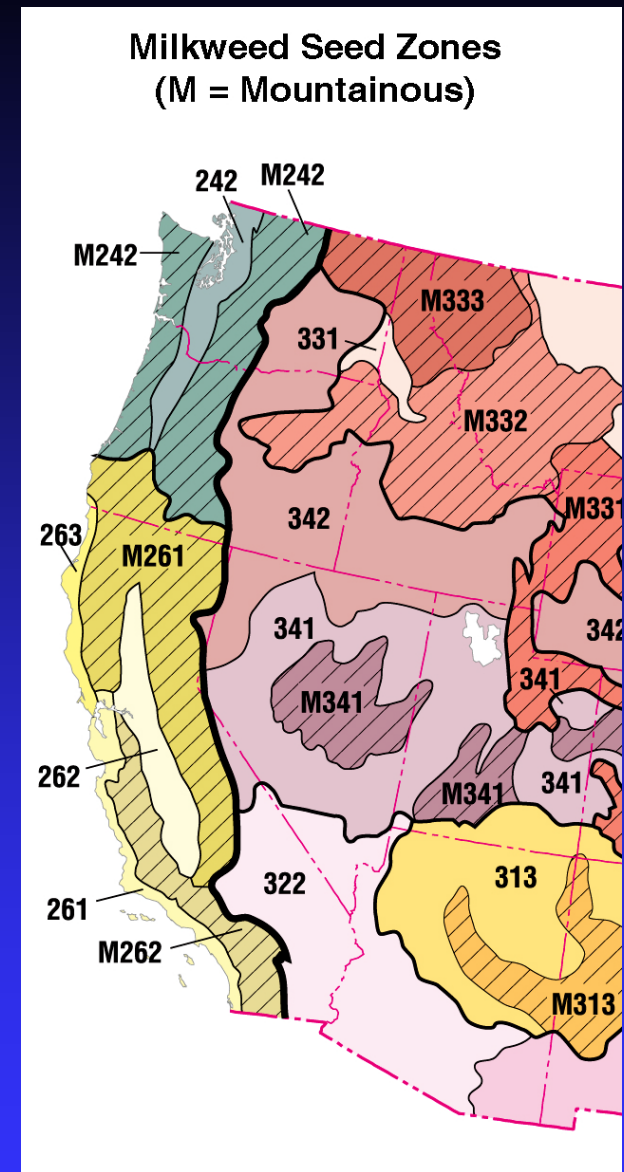
Confirmed
Locations of
Showy
Milkweed
in Idaho &
Nevada



Use Source-Identified, Locally-Adapted Seeds



Range of Showy Milkweed



Source: Monarch Watch

Collecting & Cleaning Milkweed Seeds



Wait until follicles (capsules) turn light brown and split open



Seeds can be shucked from the follicles

Sources of Locally-Adapted Milkweed Seeds & Plants

Showy Milkweed

Asclepias speciosa

Art by
Tiffany Wyatt



Prepared by volunteers of Southern Oregon
Monarch Advocates. Go to our website for
planting instructions. www.somonarchs.org
Thank you for creating Monarch habitat!

Narrowleaf Milkweed

Asclepias fascicularis

Art by Simone



Prepared by volunteers of Southern Oregon
Monarch Advocates. Go to our website for
planting instructions. www.somonarchs.org
Thank you for creating Monarch habitat!

Southern Oregon Monarch
Advocates: somonarchs.org

What Makes a Good Nectar Plant?



Monarch nectaring on
rubber rabbitbrush



Monarch nectaring on
Agastache cultivar

No easy way to measure nectar production,
so direct observation is all we can do

Pollinator Value: Native Plants vs. Cultivated Varieties



Plant Species or Cultivar	Average Pollinator Visits
<i>Echinacea purpurea</i> – Wild Collection	14.65
<i>E. purpurea</i> cv. White Swan	5.96
<i>E. purpurea</i> cv. Sunrise Big Sky	2.44
<i>E. purpurea</i> cv. Pink Double Delight	1.77

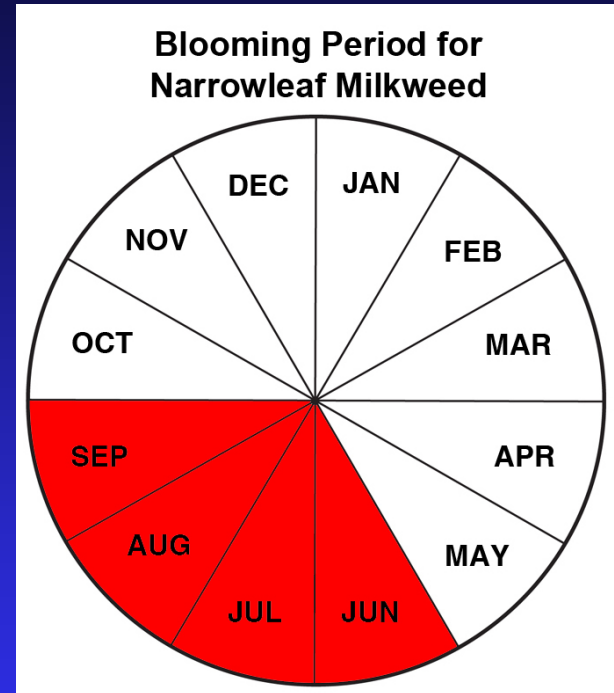
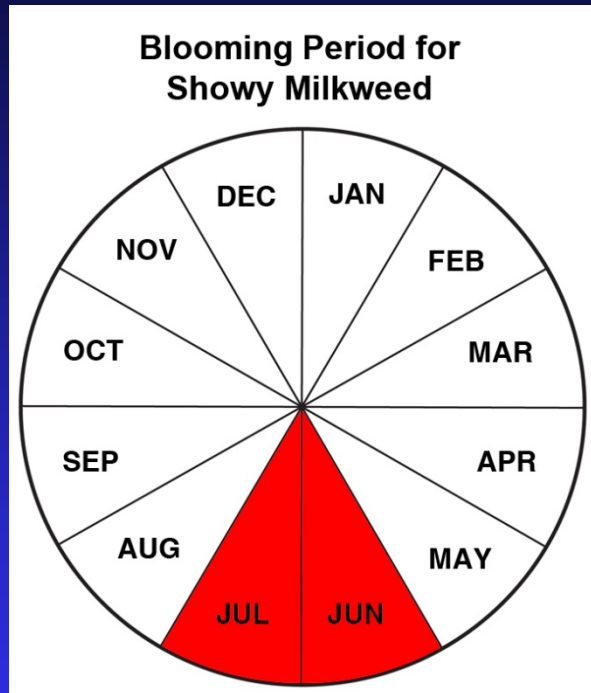
<https://pollinatorgardens.org/2013/02/08/my-research/>

Milkweeds Are Exceptional Nectar Plants



In a recent evaluation of 43 species of native flowering perennials, showy milkweed attracted the highest number of beneficial insects – *David James, WSU*

Just Planting Milkweed is Not Enough

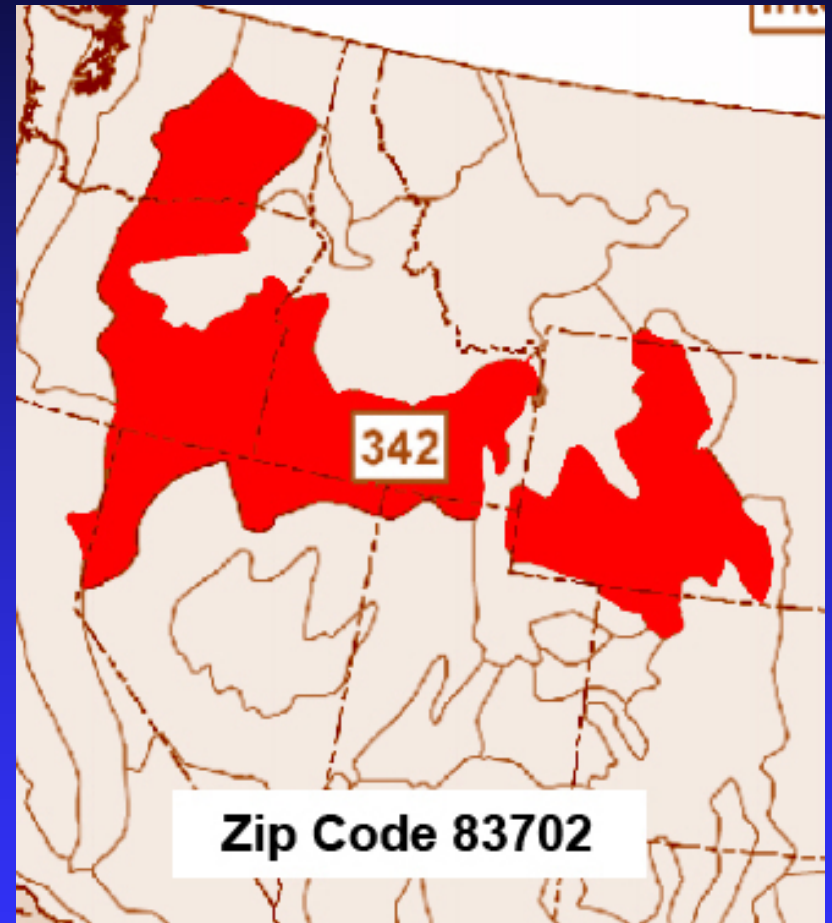
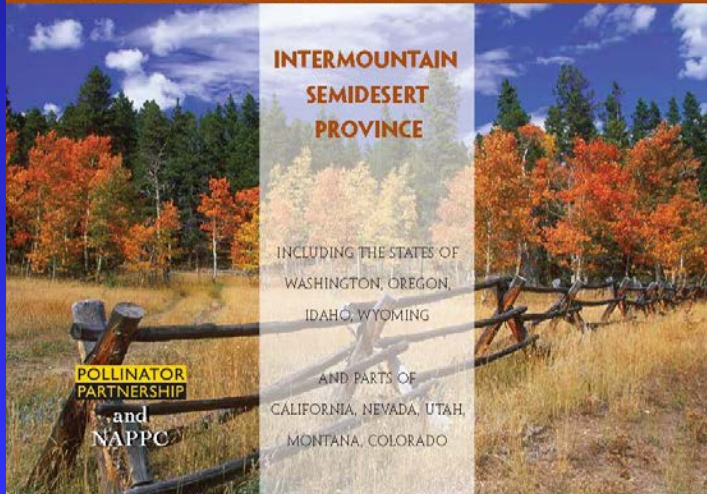


- ✓ Milkweed does not flower early or late in the season
- ✓ Late flowering plants are particularly critical necessary for migrating monarchs

Identifying Local Native Nectar Plants



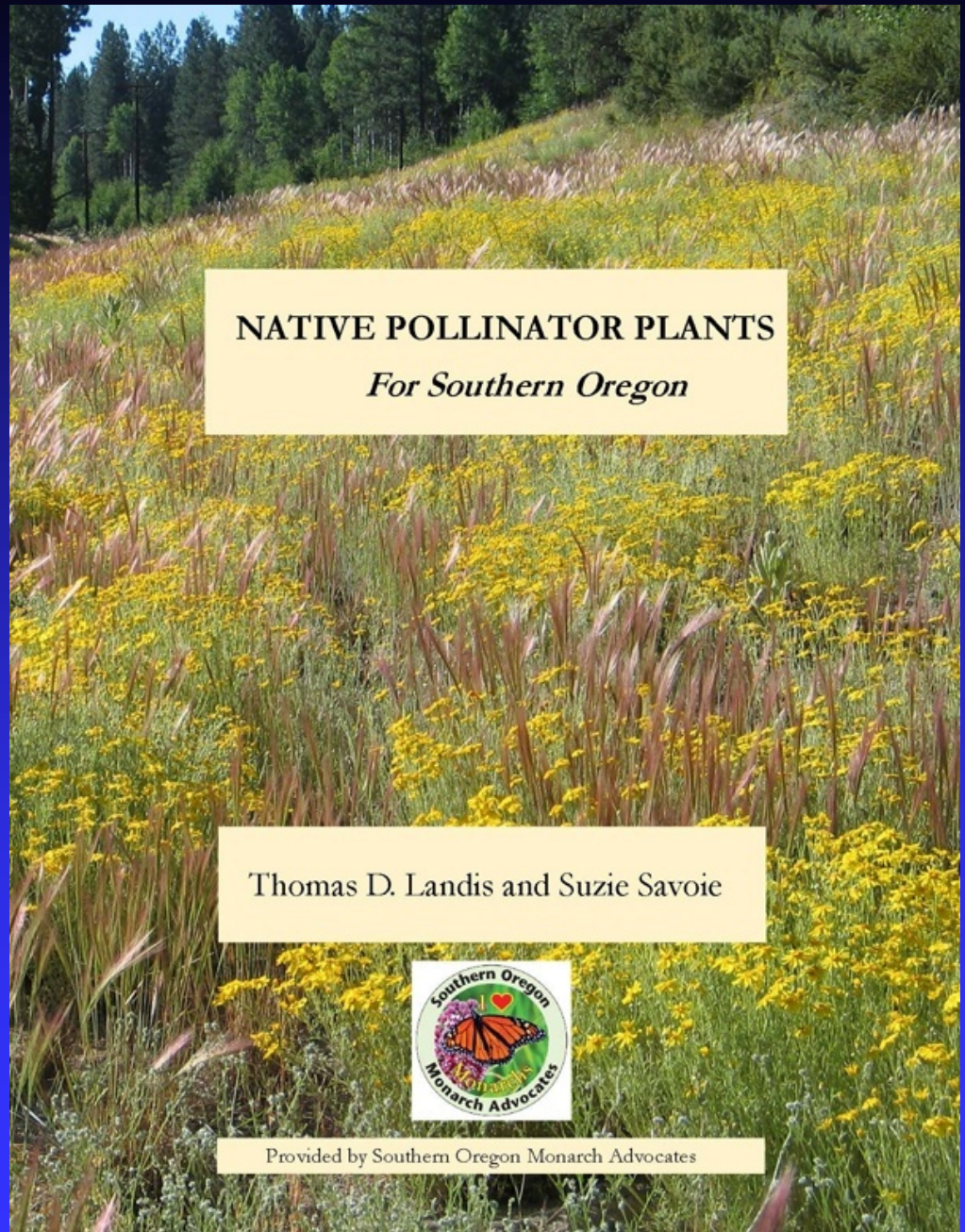
A REGIONAL GUIDE FOR FARMERS, LAND MANAGERS, AND GARDENERS IN THE



<http://www.pollinator.org/guides.htm>

Pollinator Plants for Oregon

- Hard Copies
for Sale
through
SOMA - \$15
- PDF File is
Available for
Downloading



Using native plants to create pollinator habitat in southwest Oregon: lessons learned

Thomas D Landis and Suzie Savoie



Creating pollinator habitat works: Monarch caterpillars were found 5 mo after native milkweeds were planted at this monarch waystation at Coyote Trails Nature Center in Medford, Oregon. Photo by Robert Coffan

Native Plants Journal 19(1) – Spring, 2018

1. Favor Perennial Plants over Annuals

Perennial Meadows Produced 20X More
Nectar & 6X More Pollen than Annuals
(Hicks & Others 2016)



Annuals Can
Become Weedy
Under Garden
Conditions:
Chick lupine &
Winecup Clarkia

2. Include Early-blooming & Late-Blooming Species



Early: Willows



Late: Rubber Rabbitbrush

Importance of Early Blooming Nectar Plants



Bumblebee on Oregon Grape
Angela Street



Firearm Tortoiseshell on willow
David James



Mourning Cloak Butterfly Laying Eggs
John Davis

Some Butterflies Overwinter
As Adults & Need Early
Food Sources

Bumblebee Queens Need Nectar
& Pollen After Overwintering

Combo Plants: Nectar Plants That are Also Host Plants

Oceanspray, *Holodiscus discolor* is a host plant for four different species of butterflies



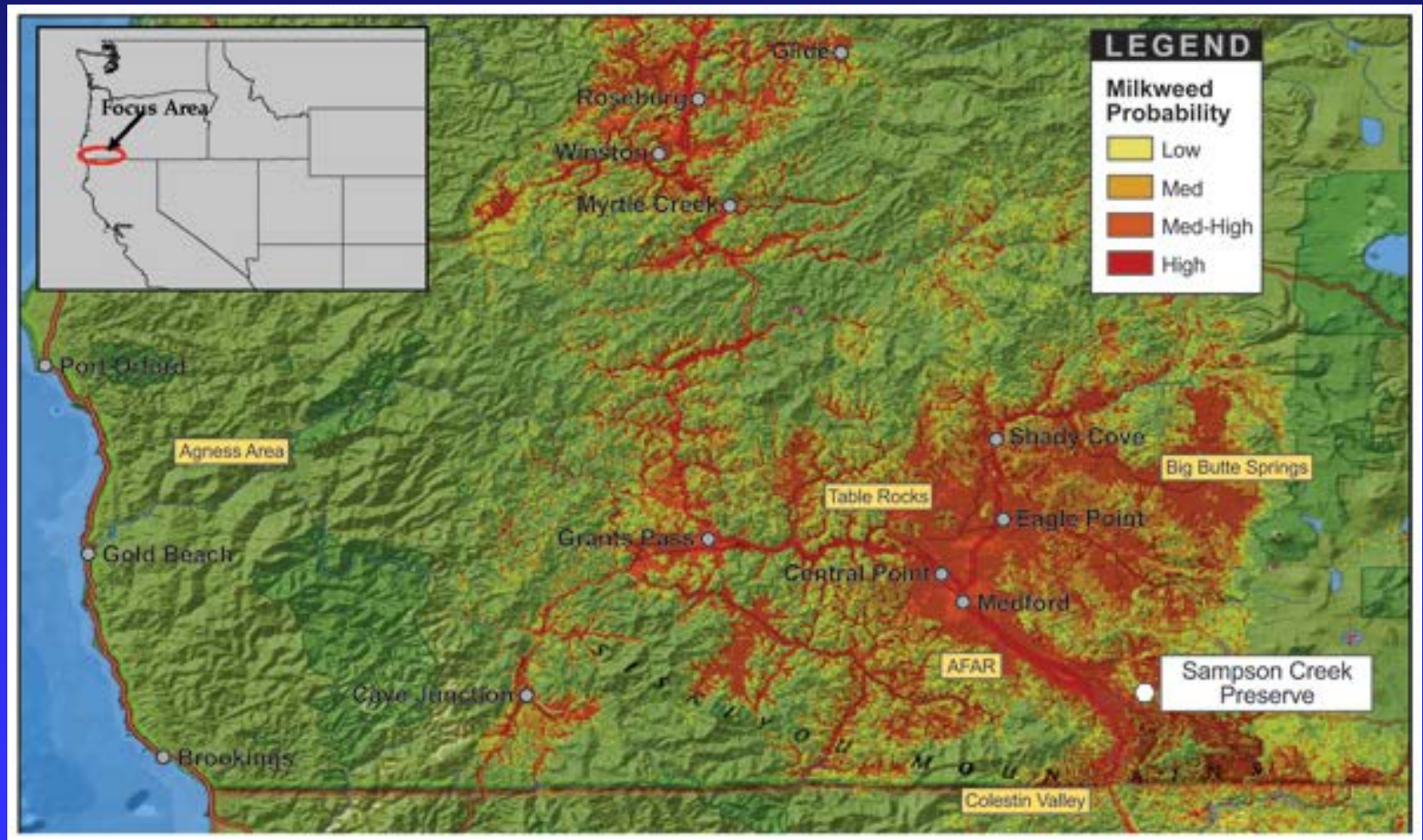
Anicia
checkerspot
butterfly

Behrs
hairstreak
butterfly



Ceanothus species are host plants for pale swallowtail, echo blue, buckeyes, spring azure, brown elfin and CA tortoise shell butterfly larvae

Testing the Target Plant Concept: SW Oregon Monarch Habitat Restoration Initiative



Milkweed Target Plants for Monarch Waystations



Spot Seeding Instead
of Broadcast Seeding

Direct Seeded Plants
Did Not Survive
Dry Summers



Target Plants for Monarch Waystations



Outplanting
Milkweed
Rhizomes in Fall

Sprouted, But Did
Not Survive the
Summer



Target Plants for Monarch Waystations: Nursery Stock



Nursery XXX
ASFA Seedling
After Overwintering



USFS Nursery
ASFA Seedling
At 9 Months

What Can We Do to Help Pollinators?



Monarch waystations are **something positive** that we can do individually & collectively

Monarch Waystations: The People Factor



Photo: Jen Jones



Photo: Katie Hone



“Could this be
the caterpillar of
a monarch butterfly?”



Thomas D. "Tom" Landis

Native Plant

Nursery Consulting

E-mail: tdlandis@aol.com

**Southern Oregon Monarch
Advocates (SOMA)**

<http://www.somonarchs.org/>