Why Native Plants?

Saving Nature One Yard at a Time

By Lynn Kunstman Jackson County Master Gardeners Association

Based on the presentation "Nature's Best Hope" by Douglas W. Tallamy With special thanks to Tom Landis and Susie Savoie for many photos

Restoring the Little Things that run the World

Your homework assignment!

Taitency is one of the most original and persuasive present-day authors on conservation." —EDWARD 0. WILSON, beneraty Research Protestar Several Chineman

A New Approach to Conservation That Starts in Your Yard

 \mathbf{RE}

DOUGLAS W. TALLAMY

bestselling author of Bringing Nature Home

The Problem Why should we care?

- "Insect Apocalypse"
- Loss of native habitat
- Loss of 3 billion North American birds in 30 years
- Loss of other wildlife

Biological Conservation

Volume 232, April 2019, Pages 8-27

Science 04 Oct. 2019 Vol.366, Issue 6461, pp.120-124

What are the drivers of this massive loss?

- Industrial agriculture
- Roads and their hazards
- Unnecessary lights
- Tens of millions of acres of sterile lawns
- Widespread destruction and displacement of native plants



Windshield circa 1955 - 1965 1 - 2 hour drive across California

Shifting baseline

My car - trip to Corvalis from Medford and back July 2023



We cannot survive without the insects that support all of our food webs, and provide our pollination services





How can we turn this around??

Phoebus Apollo butterfly nectaring on horsemint *Agastache urticifolia*

(1) Radcliff's Dager Moth

Blooms May - June



Good News!

We can reverse the insect decline...

...and save nature and our beautiful birds!

By making our yards and public spaces look like this....





... instead of like this...



YOU can focus on the land that is easiest to fix...



....your own property

Red flowering currant *Ribes sanguineum* (81)

Blooms February - April Early flowering shrub

Native insects specialize on eating native plants





90% of the insects that eat plants can develop and reproduce only on the plants with which they share an evolutionary history.





(Forister et al. 2014)

... and Native Plants have adapted to their hungry, hungry caterpillars....



"Like it or not, gardeners have become important players in the management of our nation's wildlife." - Doug Tallamy



Step One Remove at least half of your lawn

- don't support native insects
- don't build or protect soil
- waste and pollute water
 - overwatering
 - \circ chemical run-off to streams
- pollute the air
 - \circ lawnmowers
 - leaf blowers



The Staggering Wastefulness of THE AMERICAN LAWN

45 Million Acres of Lawn
2 Billion Gallons of Gas for Lawn Equipment
41 Billion Pounds of CO2 Emitted from Leaf Blowers
13 Billion Pounds of Toxic and Carcinogenic Air Pollutants Emitted From Leaf Blowers and Mowers
100 Million Pounds of Pernicious Lawn Chemicals and Fertilizers
9 Billion Gallons of Water a Day

pollinator friendly yards on facebook







This is why you don't have to water native plants. And those roots act like sponges to control flooding.



By removing half of the lawns nationwide we could add more native acreage than Everglades

Yellowstone Yosemite **Mount Rainier Grand Tetons** Canyonlands North Cascades Badlands Olympic Sequoia Denali

and Great Smoky Mountains National Parks, combined

Step Two

Remove, as much as possible, non-native and invasive plants



<u> Garden Smart Oregon - a quide to non-invasive plants</u>

Invasive Species

Oregon Noxious Weed Profiles



Step Three PLANT NATIVE PLANTS!

Philadelphus lewisii Mock Orange (4)







Past criteria for selecting landscape plants

Functional Decorative Pollinator Weather moderation habitat soil watershed restoration Focal value Decorative point Food web value value carbon Wildlife sequestration appreciation anchor screens Native plants! **Plant choice matters!**



Native plants build and hold our soil....

Soil restorationCarbon sequestration

Provide food for native insects

90% of our native insects MUST feed on native plants

sphinx moth nectaring on Great Camas

Blooms April - May



And our native caterpillars must eat NATIVE PLANTS



Cornus sericea Red Twig Dogwood (54)



Caterpilars are essential to most bird group reproduction

Titmice, chickadees, bushtits







Acrobatic foragers of insects off of branches and leaves of trees and shrubs

Often found in mixed flocks with many other species of birds - "gleaning guilds"

Gleaning insects for food



A chickadee weighs .35 ounces.... about four pennies To rear one clutch of young, a pair must catch 6,240 to 9,120 caterpillars!


So, if we want chickadees, we need to grow the trees and shrubs that grow the caterpillars they eat



Why caterpillars?







It could be because they are beautiful

Painted Lady

It could be because they have cool names



Battus philenor

Hyalophora cecropia

But really it's because they are

<u>Soft</u> 1) large 2) high in protein 3) high in lipids (fats) 4) best source of carotenoids 5) 6) easy to stuff down a baby bird throat!



There can be no chickadees where there are not enough caterpillars!

... and we want more than chickadees, and most other birds are bigger

Warblers

Yellow-rumped



Orange Crowned

Townsend's





Glean insects off of branches and leaves of trees and shrubs



Coffeeberry Frangula californica

(21)

Thrushes

Mountain Bluebird

Varied Thrush

Hermit

Thrush

Western Bluebird

Robin

Hunt for insect larvae and worms in lawns, fields and fallen leaves of trees and shrubs



Woodpeckers

Pileated

Northern Flicker

Downy

Yellow-bellied Sapsucker

Acorn



Forage for insects in <u>dense vegetation</u> from the <u>ground into high canopy</u>.



Jays













Vireos



Warbling Vireo

Cassin's Vireo

These groups forage from ground to tree tops.

So we need to think about <u>vertical</u>, as well as horizontal plantings, to maximize foraging opportunities.

flycatchers

Olive-sided flycatcher



Western



Western Kingbird



"Fly catch" insects on the wing - in the air



HOST plant choice matters!

Here are some examples...

Amelanchier alnifolia Serviceberry (81)

We add caterpillars to landscapes by adding the NATIVE plants that make them



Ceanothus integerrimus Deer Brush **KEYSTONE** species

Willow Salix (312)

White oak

KEYSTONE PLANT



Remove the KEYSTONE, and the arch collapses



Black cherry





Native Western Cherries (Prunus)You Can Grow(240)

- Bitter cherry (Prunus emarginata)
- Chokecherry (Prunus virginiana)
- Klamath plum (Prunus subcordata)

Bradford pear = non-native

Caterpillars on Bradford Pear July 26, 2014 Geometrid inchworm 11

Caterpillars 11 Species 1

Grow Black Hawthorn instead

Burning bush ls an invasive, non-native species in Oregon (1)



If we add caterpillars to our suburban ecosystems, by planting the native vegetation they need, we will be breeding birds!





You do not need to rip out ALL your non-native plants!

However, to sustain bird populations at present levels, we need to aim for 70% native vegetation.

• Think of the green biomass in your yard.

 One large tree plus some shrubs can be up to 50% of your vegetation

Making insects supports life!

Mountain Lilac or Deer Brush *Ceanothus intergerrimus* (93) Blooms May - June



Mountain Lilac is Host to the larvae of

Pale Swallowtail

Hedgerow Hairstreak

Spring Azure

Blue Echo



California Tortoiseshell

Diversity of core genera of **KEYSTONE NATIVE plants** is key when choosing landscape plants...

Plant a willow add a cherry add a poplar add an alder add an oak add a pine add a birch add a blueberry add a caneberry add a ceanothus

(Salix) (Prunus) (Populus) (Alnus) (Quercus) (Pinus) (Betula) (Vaccinium) (Rubus) (Ceanothus) 312 species of lepidoptera hosted 552 spp 779 spp 989 spp 1189 spp 1388 spp 1586 spp 1716 spp 1812 spp 1905 different species of caterpillar

• When you buy a plant at the nursery, you are buying a **BIRD FEEDER**.

• You get to decide whether that feeder will be full or not

Willow = 312 species of caterpillars



Ginkgo = 4 species of caterpillars

...oops, your bird feeder

is EMPTY!

Native Prunus supports

240 species of caterpillars
Nandina (non-native) (Heavenly Bamboo) supports no caterpillars





And the berries are toxic to our Cedar Waxwings ar.audubon.org 2104 https://ncbg.unc.edu/2022/05/04/nandina-toxic-to-birds/ https://vet.uga.edu/toxicity-due-to-nandina-domestica-in-cedar-waxwings-bombycilla-cedroru/

Native Viburnum 31 spp

Viburnum ellipticum

Always choose a native when you can





Oregon grape Berberis (Mahonia) aquifolium

Blooms Mar - May

Plant choice matters!

Native Plant Finder https://www.nwf.org/NativePlantFinder/Plants



Avoid or minimize the use of herbicides, insecticides and fungicides

Use Integrated Pest Management Practices



If you are growing natives, you will need far fewer chemical inputs: less (hopefully NONE) of these!





If you see one of the following names listed, the insecticide includes a neonicotinoid:

- Acetamiprid.
- Clothianidin.
- Dinotefuran.
- Imidacloprid.

- Nitenpyram.
- Thiocloprid.
- Thiamethoxam.



<u>Science</u>

Vol 346, Issue 6211

14 November 2014

Native plants require fewer, or no chemical inputs, as they have evolved to deal with the native insects that feed on them.

- no need for fertilizers
- No need for pesticides
- You save money and have less maintenance

When choosing NATIVE plants for our yards, focus on these two groups of insects

Caterpillars (larvae of butterflies and moths) V Pollinators (bees, <u>adult</u> butterflies/moths)

Step Five Build a pollinator garden



Pearly everlasting Anaphalis margaritacea (7)



Insecta Spectra

https://www.youtube.com/watch?v=9CpEV9_JOv8

Who are our major pollinators?

- 1 species of honey bee (non-native)
- 4000 species of natives bees
- 14,000 species of moths and butterflies



Bees are critical for our pollination needs, so we want to plan for them.



Huckleberry *Vaccinium ovatum* (130) Both native and honey bees use pollen from goldenrods to provision their nests









Most productive **NATIVE** plant genera for native bee <u>specialists</u>

Solidago
Salix
Symphyotrichum
Vaccinium
Eutamia
Lysimachia
Helianthus

Goldenrods Willows Asters Blueberries Goldentops Fringed loosestrife Sunflowers

11 spp 8 spp 7 spp 5 spp 3 spp 3 spp

3 spp

Fowler and Droege 2015

40 species of **specialist** bees on just <u>7 plant varieties</u>. Generalist bees will visit these as well...

monarch butterflies use goldenrod nectar to build up their body fats for their long migrations and overwintering.



Think of Plant FAMILIES

Carrot Family

Cultivars

- Dill
- Fennel
- Coriander
- Parsley

Natives

- Lomatium
- Angelica



Mustard Family

Cultivars

- Rock cress
- Alyssum
- Broccoli
- Cauliflower

Natives

- Wall flowers
- cresses



Aster Family

Cultivars & Natives

- Asters
- Sunflowers
- Daisies,
- Yarrow



Bolander's Sunflower

Mint Family

Cultivars

Natives

- Thyme
- Oregano
- Catnip
- Basil
- mint

- Horsemint
- Salvias
- Sages
- Monardella



Bunch Grasses

Cultivars

Blue fescueIdaho fescue

Natives

- Squirrel-tail grass
- California fescue
- Lemmon's needlegrass
- Roemer's fescue





Always choose Native plants if they can work in your yard!

Avoid "nativars" and cultivars that have

- Different flower color than the native plant
- Different leaf color than the native plant
- Double flowers





Our pollinators need plants that bloom over a LONG period of time We need to choose a *variety* of blooming <u>annuals</u>, perennials, ground covers, herbs, shrubs and trees that bloom across all the seasons

We need to plan food <u>and</u> nesting opportunities for them

Western Goldentop *Euthamia occidentalis*



What do bees need to reproduce?



Bees need pollen and nectar to reproduce



Where do native bees nest?

- Ground nesters
- Woody stem nesters
- Pithy stem nesters
- Hollow stem nesters

Pithy Stem nester

Woody Stems





Mason Bee

Wool carder bee

Nests of

Leaf cutter --

Resin --

Mason --

bees



Ground




These look great but ...



Bee hotels and commercial bee houses have problems

- Concentrating all your bees attracts their
 - predators and parasites
- Have to be maintained
- Concentrate disease

Native plants spread the bees out in the landscape!

Hundreds of Krombein's hairy-footed pollen mites on a mason bee. Image by <u>@GeeBee60</u>.





Leaves are not litter - they are habitat

Leave the leaves!

70 species of moth caterpillar eat dead leaves, fungi and lichen

Many species of moths and butterflies overwinter in leaves or the soil

Luna moth

Leave the leaves!

Mourning cloak

Hawk moth

Thousands of species of native flies* breed in decaying vegetation Leave the leaves!

*Fly larvae are critical, nutritious food for many animals



Black Soldier Fly





Long-legged fly Condylostylus occidentalis

Feeds on

- Fungus gnats
- Aphids
- thrips

... and flies are our second most important pollinator group, after bees...





Hoverfly Larvae - a voracious predator

Syrphid fly - Hover fly



Leave the stemsLeave the seed heads



• Leave the leaves

• Build a brush pile



Plan for WATER, COVER, NESTING SITES and FOOD

Step Seven Turn out the lights!

AND Y TO BE

12-14-10

Leaving lights on at night confuses and exhausts our nighttime pollinators

 use motion sensor lights in your yard
OR, install yellow LED lights

We can save nature only if we learn to live with nature

You CAN save the world!

Make America Native Again!

Thank you!

If you want a PDF copy of this presentation email me at:

kunlynn52@gmail.com

Special thanks goes to Dr. Doug Tallamy for much of the material here Buy his books, and watch his videos on Youtube

Doug Tallamy: Bringing Nature Home Video https://www.youtube.com/watch?v=JwJbP0yA0gc

Doug Tallamy: Bringing Nature Home Website http://www.bringingnaturehome.net/

"Native Plant Finder" National Wildlife Federation <u>http://www.nwf.org/NativePlantFinder/</u>

Dr. Doug Tallamy: "Creating Living Landscapes to Restore Nature's Relationships" <u>https://www.youtube.com/watch?v=HbsAAwpP34E</u>

Dr. Doug Tallamy: Restoring the Little Things that Run the World. A presentation to the California Native Plants Society <u>https://www.youtube.com/watch?v=bF5e-vyKLw0</u>

Homegrown National Park https://homegrownnationalpark.org/ Xerces Society: Recommended Plants for Pollinators & Beneficial Insects* https://xerces.org/sites/default/files/2019-10/19-003_01_PPBI_CA-SierraFoothills web.pdf

* Note that California Foothills and Rogue Valley are the same climate zone.

Native Pollinator Plants for Southern Oregon Thomas D Landis and Suzie Savoie <u>https://klamathsiskiyouseeds.files.wordpress.com/2016/04/native-plant-pollinators</u> <u>-3-31-2016.pdf</u>

State of the Birds 2016 stateofthebirds.org/2016

Garden Smart Oregon - list of invasive plants, and alternate, native plants you can choose https://www.nature.org/media/oregon/gardensmart-rev-2010.pdf

Top Twenty Host Plants for Pollinators in the Rogue Valley

https://docs.google.com/spreadsheets/d/1t38u5VejiKfykKCwZXzT79_J nVEq4ASSU5NHjgKycCQ/edit#gid=33045384

Oregon Flora - resources for native plants. See especially the GROW NATIVES section <u>https://oregonflora.org/</u>

Audubon Plant Database - by Zip Code https://www.audubon.org/native-plants