Master Gardener™ Program

Native Plants

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Topics

- What is a native plant
- Why natives are important
- Introducing natives into our residential landscapes
- What natives do well in our area
- Plant walk

Some Basic Terms

- Native Plant
  - A plant that occurs naturally in a **particular region, habitat or ecosystem** without human introduction
- Ecosystem
  - A biological community of plants and animals that **interact** with each other and **contribute** to the health of their physical environment.
- Plant Community
  - Loose associations of species that tolerate or thrive in similar conditions and are **well-adapted** to particular soils, climate, moisture and landscape features.

Not Native

- **Invasive:** Plants that have been introduced to an area and have established a breeding population, which spreads to the extent that agriculture or ecosystems are damaged. Developed outside the local ecosystem.
  - Oregon invasive plant list
  - Oregon Smart
- **Naturalized:** Plants that are thoroughly established, and have not caused extensive damage or spread. Generally unknown whether naturalized plants are interacting and contributing.
  - Hard to find examples that aren’t also invasive

OR Endangered Species

59 protected plant species

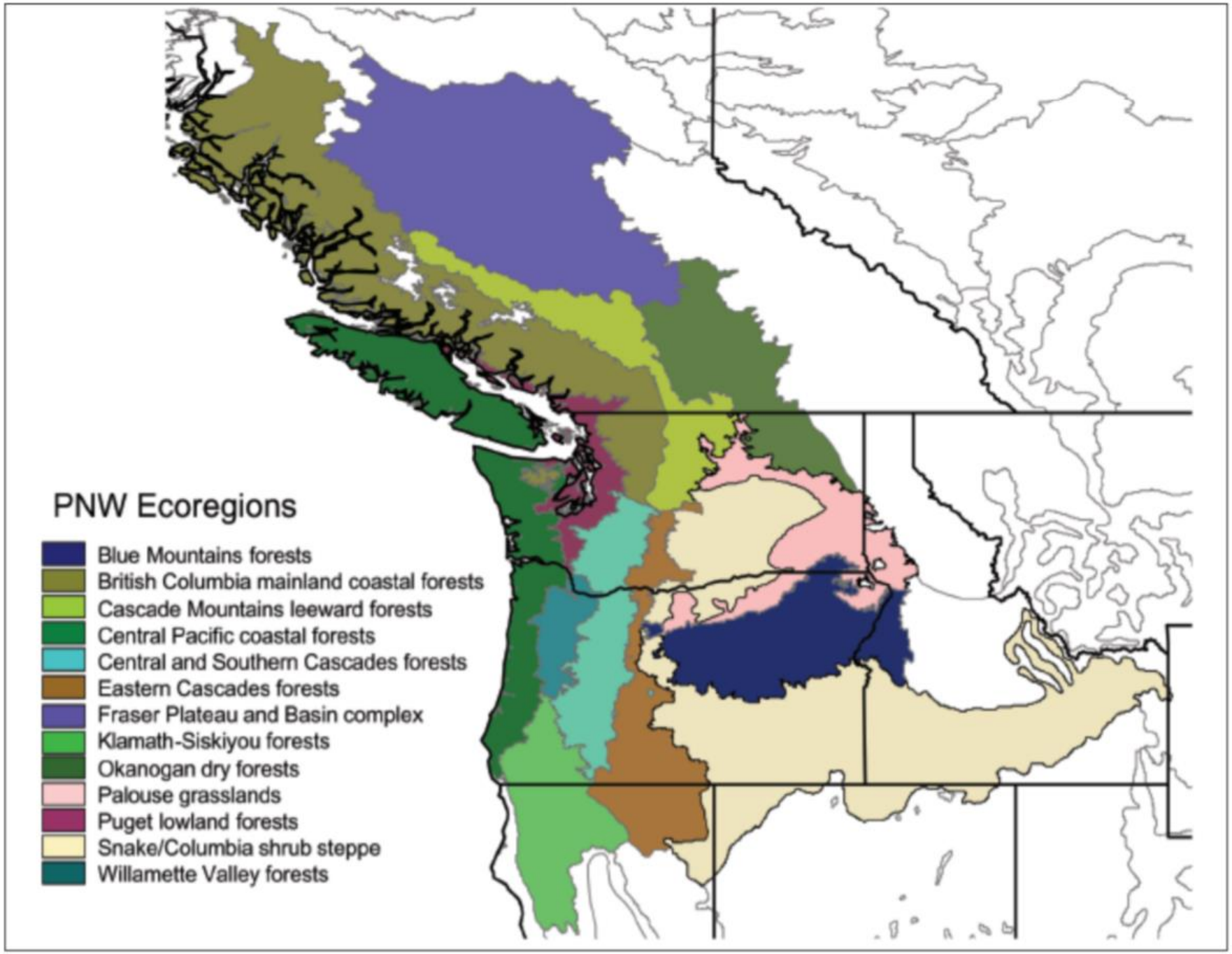
- 30 endangered
- 28 threatened
- 77 other species under consideration

Cannot be picked or harvested in wild without a permit

Sustainability of Cultivated vs. Native

- Cultivated plants are like “twins”
  - All offshoots have the same DNA
  - Asexually propagated by cuttings, layering, division, and budding grafting
  - Creates high degree of similarity, consistency and repeatability in look and behavior
- Native plants are like “siblings”
  - DNA is similar but not identical
  - Sexually propagated through pollination or natural methods
  - Results in greater diversity in appearance and characteristics
  - Creates a higher survivability rating

PNW Ecosystems



Salt Marsh

- Transitional areas between land and water
- Salinity ranges from ocean strength to near fresh
  - Roots have to withstand 2x daily flood of salt water
  - Matted roots stabilize the shore and buffer pollution from runoff
  - Plants die and decompose to feed clams, crabs, fish
  - Marsh itself acts as a sponge to trap bacteria and break down nutrients, heavy metals, and chemicals
- Dominant Salt marsh plants
  - Pickleweed—Salincorna spp.
  - Saltgrass—Distichlis spicata

Coastal Strand

- Beaches above high tide and secondary sand dunes
- European beachgrass has invaded—decreasing the area because the primary dune is expanding
- Typically only 2-3 species
  - Yellow sand-verbena—*Abronia latifolia*
  - Beach bursage—*Cakile* ssp
  - Majority are rhizome or stolon propagated
  - Wind seed dispersal; maybe tides as well
  - Because of dune stabilization efforts, many to most species are introduced, non-natives

Freshwater Wetlands

- Deflation plain wetlands, sphagnum bogs, and lakes formed by small creeks—See lots of these as drive toward Walport
- Dominant Species
  - Pitcher plant
  - Russet cottongrass
  - Willow pond lily- Nuphar letuem
  - Bladderwort Utricularia vulgaris

Scrub Shrub Wetlands

- Species
- Dominant Trees
  - Willow spp., Shore Pine, Western redcedar
- Dominant Shrubs
  - Red-osier dogwood, Pacific ninebark, Twinberry, Pacific crabapple
- Dominant Herbaceous
  - Skunk cabbage, Marsh marigold, Rush spp., Bulrush spp., Foamflower

- South Beach State Park—good example

Coastal Headlands

- Dominated by evergreen shrubs; <3’ tall
- Lost of wind pruned trees
- Withstand harsh environmental conditions—daily dosages of wind, salt spray, fog

- Dominant Species
  - Coyote brush-Baccharis pilularis
  - Salal
  - Black crowberry-Empetrum nigrum
  - Common juniper-Juoperus communsh
  - Hazel nut-Corylus cornuta
  - Black Twinberry-Lonicera involucrate
  - Was Myrtle-Myrica californica
  - Reed grass-Calamagrostis nukanensis
  - Frosted paintbrush-Castilleja affinis

Riperian

- Areas between land and a river or stream
- Dominant Trees
  - Black cottonwood, Red alder, Oregon ash, Western hemlock
- Dominant Shrubs
  - Salmonberry, Red-osier dogwood, Vine maple
- Dominant Herbaceous
  - Fringe cup, Lady fern, Vanilla leaf, Red columbine, Bleeding heart

Coniferous Forest

- Stabilized sandy soil to hard clay
- Dominant Trees
  - Douglas Fir, Western Hemlock, Western Redcedar, and Bigleaf Maple

Dominant Shrubs

- Dwarf Oregon grape, Salal, Red huckleberry, Oceanspray, Vine maple

Dominant Herbaceous

- Sword fern, Bracken fern, Western starflower, Twinflower, Western trillium

Mixed Forests

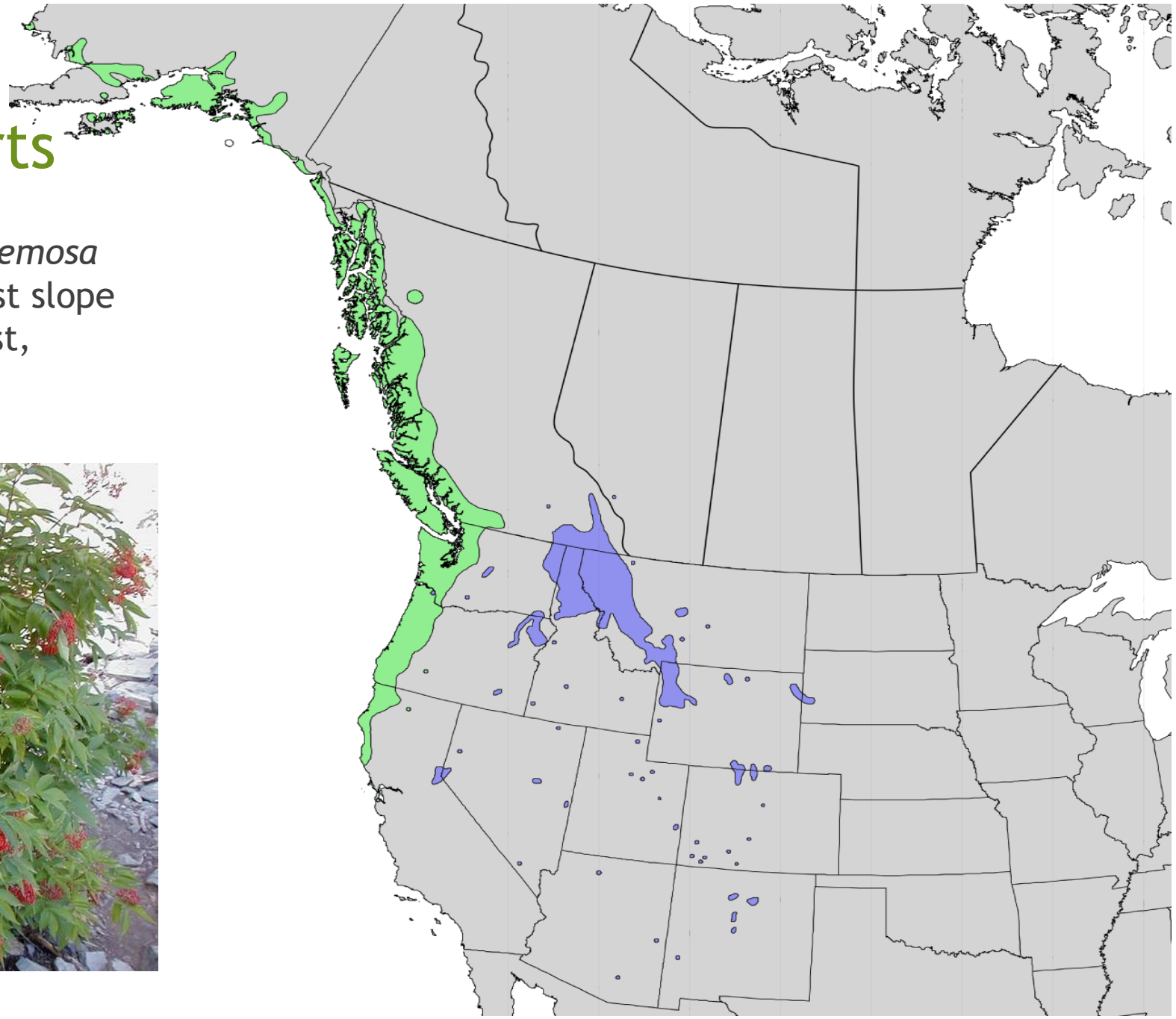
- Forest canopy is dominated by the Pacific madrone
- Forest is often dry and found on the sunny slopes adjacent to saltwater shorelines
- Dominant Tree
  - Pacific madrone, Douglas-fir, Grand fir, Shore pine
- Dominant Shrub
  - Trailing blackberry, Salal, Orange honeysuckle, Oceanspray, Baldhip rose
- Dominant Herbaceous
  - Sword fern, Bracken fern, Western starflower

Prairie Oak

- Dominant species is the Quercus garryana—Garry Oak (WA) or Oregon White Oak (OR)
- Host more caterpillars than any other species
- Also support over 100 different species of lichen
  - Capture nitrogen
  - Provide food, shelter, and nesting material for birds and small animals
  - Discourage disease and insects
- Dominant Tree
  - Oregon white oak, Douglas fir, Oregon ash, Bigleaf maple
- Dominant Shrub
  - Snowberry, Trailing blackberry, Beaked hazelnut, Baldhip rose, Tall Oregongrape, Serviceberry
- Dominant Herbaceous
  - Sword fern, Licorice fern, Western starflower, Starry false Solomon’s-seal

Plant Range Charts

Red Elderberry—*Sambucus racemosa*
Habitat: riparian, forest, forest slope
Conditions: FSun-Fshade; moist, seasonally wet soil



CO Blue Spruce

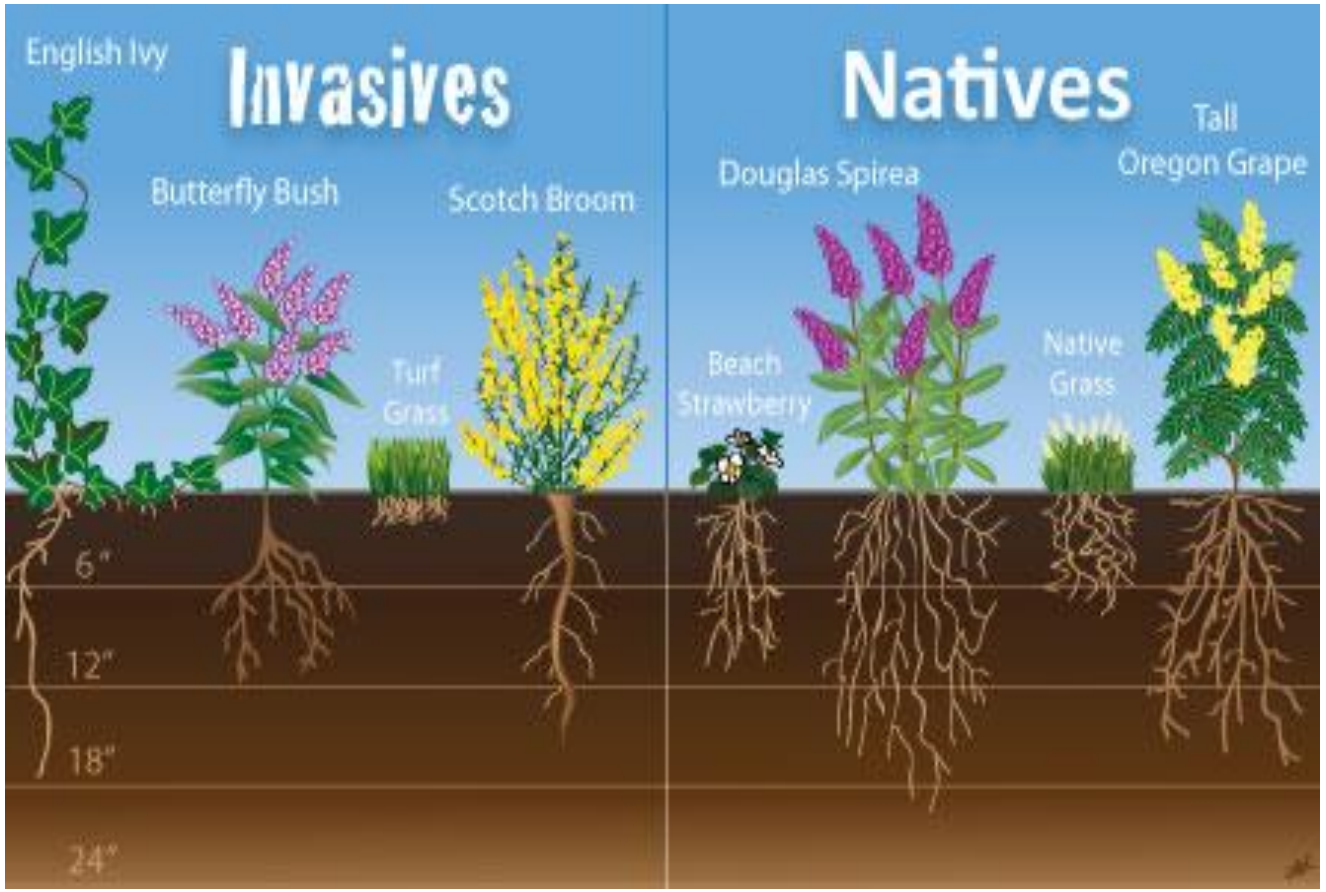
Why Grow Natives

- Well-suited to our locale
  - Grow well with minimal effort
  - Able to live within rainfall levels
  - Adapted to soil and climate
  - Creates a naturalistic landscape

Natives are Important

- Repair or maintain habitat
- Interact and contribute to the ecosystem
- Critical to the health of our food web
- Avoid problems created by introduced plants

Roots Adaptive to Habitat

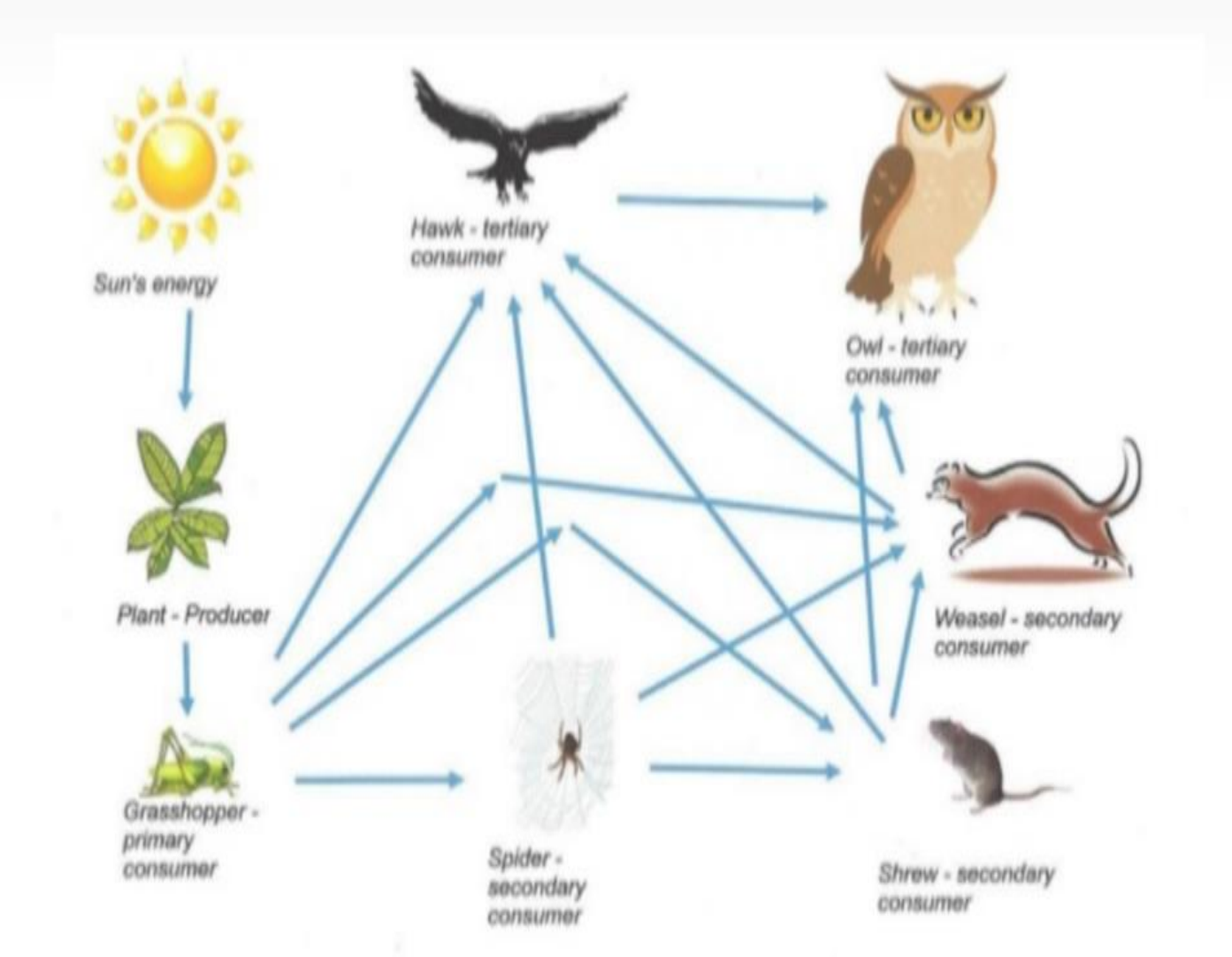


Native plant communities—those that interact and cooperate—have different sizes and have varying root depths

- adaptations that help them to survive our dry summers and wet winters, while simultaneously reducing erosion and filtering pollutants.
- complex system of roots holds together stream banks and reduces erosion.
- Trees growing over water provide shade to keep the water cool, which helps fish and other wildlife.
- When trees die and fall into streams, they provide benefits including nutrients and habitats for water-dwelling insects and fish.
- Native plants also absorb storm water to filter pollutants and help prevent flooding.

Natives are the basis of our food web

- Almost all food webs rely on plants
- Plants convert energy into protein
- Insects rely on plants directly for protein
- Most insects can develop and reproduce only on plants within their local ecosystem



Natives are Higher in Nutritional Value

Native	%Fat
Northern bayberry (Myrica pensylvanica	50.3%
Arrowwood (Viburnum dentatum)	48.7%
Spicebush (Lindera benzoin)	48.0%
Gray dogwood (Cornus racemosa)	34.9%
Virginia Creeper (Parthenocisus quinquefolia)	23.6%
Non-native	
Multiflora rose (Rosa multiflora)	0.9%
Bush Honeysuckles (Lonicera spp.)	0.7%
European Buckthorn (Rhamnus cathartica)	0.5%
Russian Olive (Elaeagnus umbellate)	2.1%
Oriental Bittersweet (Celastrus orbiculatus)	2.6%

Smith et. All 2007, 2013

Insects are Specialists

90% of insects are specialists; they only eat 1-2 species of plant

Plants produce chemicals to affect the taste of leaves as a defense mechanism

As a plant species declines so do the insects that rely on it

As insects decline so do the birds and animals

Insect Preferences

- Top Ten (250-500)
  - Oak
  - Pit Fruit
  - Willow
  - Birch
  - Crabapple
  - Maples
  - Huckleberry
  - Alder
  - Pine
  - Berries
- Popular Introduced Ornamentals
  - Burning bush 12
  - Wisteria 10
  - Hydrangea 5
  - Cotoneaster 3
  - Lavender 2
  - Weigela 2
  - Buddleia 1
  - Forsythia 1
  - Callicarpa 1
  - Heather 1

Doug Tallamy, Bringing Nature Home

“Non-native plants are usually dead weight in the garden because they add little to the ecosystem”

Introduced plants are taking over our landscapes

Even in our natural area—1/3 of vegetation is from Asia

Chickadees

- Require 400 caterpillars per day to feed young
- Fledglings spend 16 days in the nest
- Equates to 4800 caterpillars for each clutch
- Ave 25 caterpillars/tree -- it takes 192 trees to produce one clutch
- Each tree takes 225 sq ft so about **1 acre of trees for each nest**

Tallamy et. al 2010

Need More Native Plants

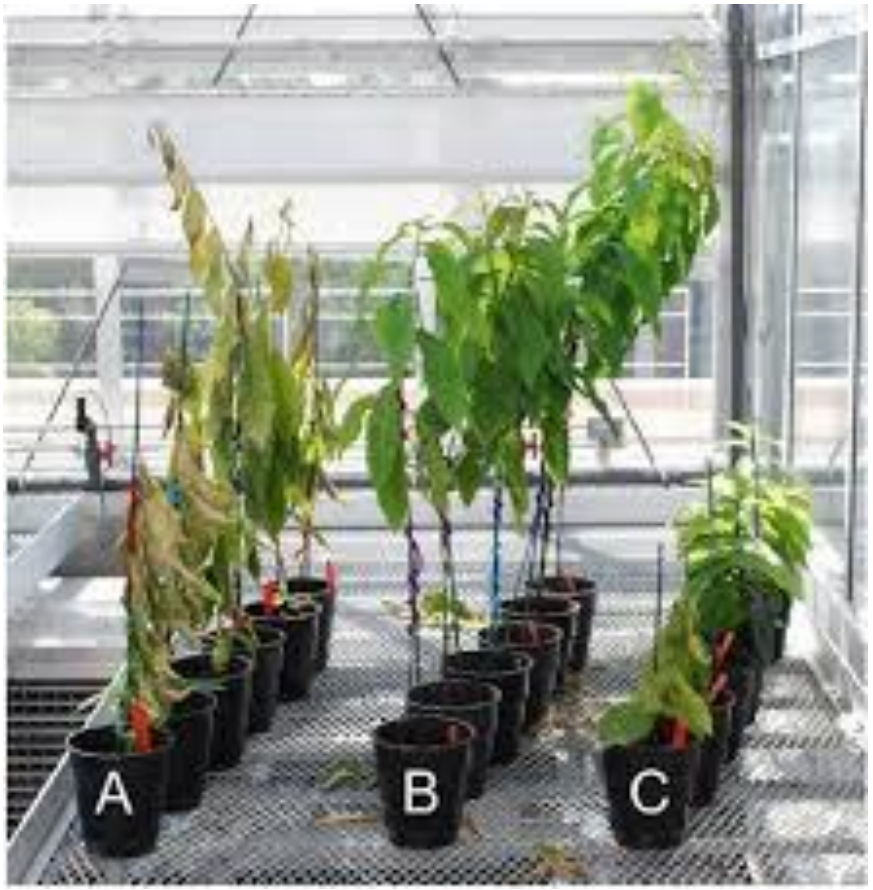
- 1:1 relationship between habitat and the number of species
- 90-95% of US land does not support any ecosystem
  - 50,000 sq miles of paved roads (5X size of NJ)
  - 41% of land is in agriculture
  - 54% is suburban or urban
  - 40 million acres of non-native lawn
  - Remaining forested land is fragmented into small lots
- Half of world's wildlife has disappeared in last 40 years
- Only 1% of the 4 million insect species are "pests"
- The other 99% contribute in positive ways to their ecosystems

58 high impact insects and diseases have entered US on ornamental stock

- Chestnut blight
- Dogwood anthracnose
- Sudden oak death
- White pine blister rust
- Greeening disease
- Hemlock wooly adelgid
- Chestnut gall wasp
- Japanese beetle
- Light brown apple moth

American Chestnut

- 4B trees until 1900
- Imports of Chinese Chestnut carrying a blight
- Virtually wiping out all trees



Dogwood Anthracnose

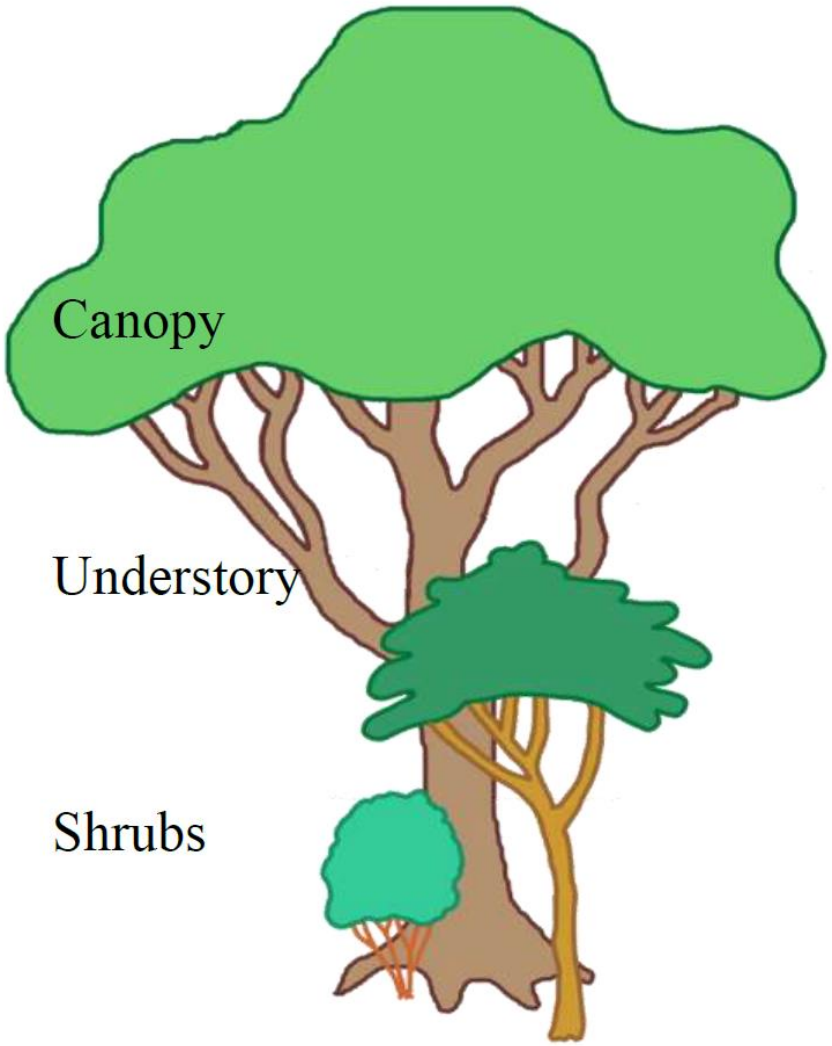
- First identified in 1970
- Serious destruction of dogwoods *Cornus nutallii* and *Cornus kousa*
- High ornamental value
- High fat content berries for animal food
- No treatment yet available
- Recently confirmed as caused by an exotic pathogen through independent introductions in PNW and East Coast

Natives for the Oregon Coast

Dominant landscape plants

Introducing Natives Into Your Landscape

1. Reduce lawn
2. Add trees
3. Caterpillar friendly
4. Plant more—27 plants per ½ acre
5. Select focal species and plant 3-5 of each
6. Keep mature size in mind
7. Remove existing invasives; avoid new ones
8. Aim for better balance between ornamentals and natives
9. Practice benign neglect
10. Enjoy the process



Coastal Shore

Sand dune, shore pine forest and headland grassy areas; subject to salt and wind; dry, somewhat compacted sandy soils or rocky basalt.

- Trees
  - Sitka Spruce 240’
  - Western Hemlock 200’
  - Western Red Cedar 180’
  - * Shore Pine 50’
  - * Silk Tassel Tree 40’
- Understory Trees
  - * Indian Plum
- Shrubs
  - * Twinberry 12’
  - Salmonberry 10’
  - Thimbleberry 8’
  - * Snowberry 6’
  - * Douglas Spirea 6’
  - * Nootka Rose 6’
  - * Oceanspray 12’
- Shrubs-Evergreen
  - * Huckleberry 10’
  - * Oregon Grape 8’
  - * Salal 10’
- Ferns
  - * Deer 3’
  - * Sword 6’

Coastal Shore

Sand dune, shore pine forest and headland grassy areas; subject to salt and wind; dry, somewhat compacted sandy soils or rocky basalt.

- Perennial Flowering All Urban
  - Beach strawberry 5”
  - Yarrow 4’
  - Douglas aster 3’
  - Hooker’s Fairy Bells 2’
  - Tenax iris 15”
  - Thrift/seapink 10”

Coastal Forest

Inland from shore; drier soils with more clay content, lower elevations
(East of Pacific Coast Hwy; Hwy 20 going east)

- Trees
  - Douglas Fir 200”
  - Western Red Cedar 180’
  - Not Shore Pine 50’
- Understory Trees
  - Big Leaf Maple 100’
  - * Bitter Cherry 25’
  - Cascara 45’
  - Oregon Ash 60’
  - * Crabapple 15’
  - Pacific Dogwood 50’
- Shrubs
  - * Black Gooseberry 12’
  - * Red Elderberry 40’
  - * Mock Orange 12’
  - * Red Flowering Current 8’
  - * Red Huckleberry 12’
  - * Vine Maple 20’
  - * Serviceberry 15’
  - * Western Azalea 10’
- Shrubs-Evergreen
  - * Cascade Oregon Grape (nervosa) 2’
  - * Wax Myrtle 40’
- Ferns
  - * Maidenhair 5’

Coastal Forest

- Perennial Flowering
  - Bleeding heart 15”
  - Shooting star 16”
  - Goats Beard 6’
  - Fawn Lily 1’
  - Western geranium 2’
  - Western Trillium 2’
  - Wild Ginger 15”

Review of Individual Plants

Evergreen Foliage Plants

Huckleberry

Salal

Oregon Grape

Western **Rhododendron**

Early Season

Pacific Rhododendron

Mock Orange

Oregon Grape

Mountain lilac-ceanothus

Red Flowering Currant

- Delicate wildflowers and early shrubs
- New leaves emerge on deciduous trees
- Ferns emerge
- Blooming groundcovers
- Great time to hit plants sales

Mid Season

Serviceberry

Oceanspray

Oregon sunshine

Coyote mint

Salal

- Bright flowers for pollinators
- Berries and fruits for wildlife
- Groundcovers to support soil and hide fragile or small creatures

Late Season

Douglas Aster

Hazelnut

White Oak

Vine Maple

- Fall foliage
- Nuts and seeds for wildlife
- Late blooming summer flowers
- Wildlife watching
- Migrations begin

Goldenrod


Go Native!