

Prairie Restoration in the Willamette Valley

Lynda Boyer

Heritage Seedlings Inc.

Lots of information at: www.heritageseedlings.com

TO BE ADDED TO RESTORATION TOUR LIST EMAIL US AT
sales@heritageseedlings.com



Riparian Corridor



Mixed Woodland



Oak Woodland



Open Prairie

Restoration Steps

- Step 1: Define your starting conditions and desired outcome
- Step 2: Write your Management Plan (it will look good on paper anyway)
- Step 3: Site Preparation
- Step 4: What to Plant & When to Plant
- Step 5: Follow up Management (be adaptive!!!)

INTRODUCTION TO NATIVE WILLAMETTE VALLEY PRAIRIE AND SAVANNA



Heritage Seedlings, Jefferson Farm

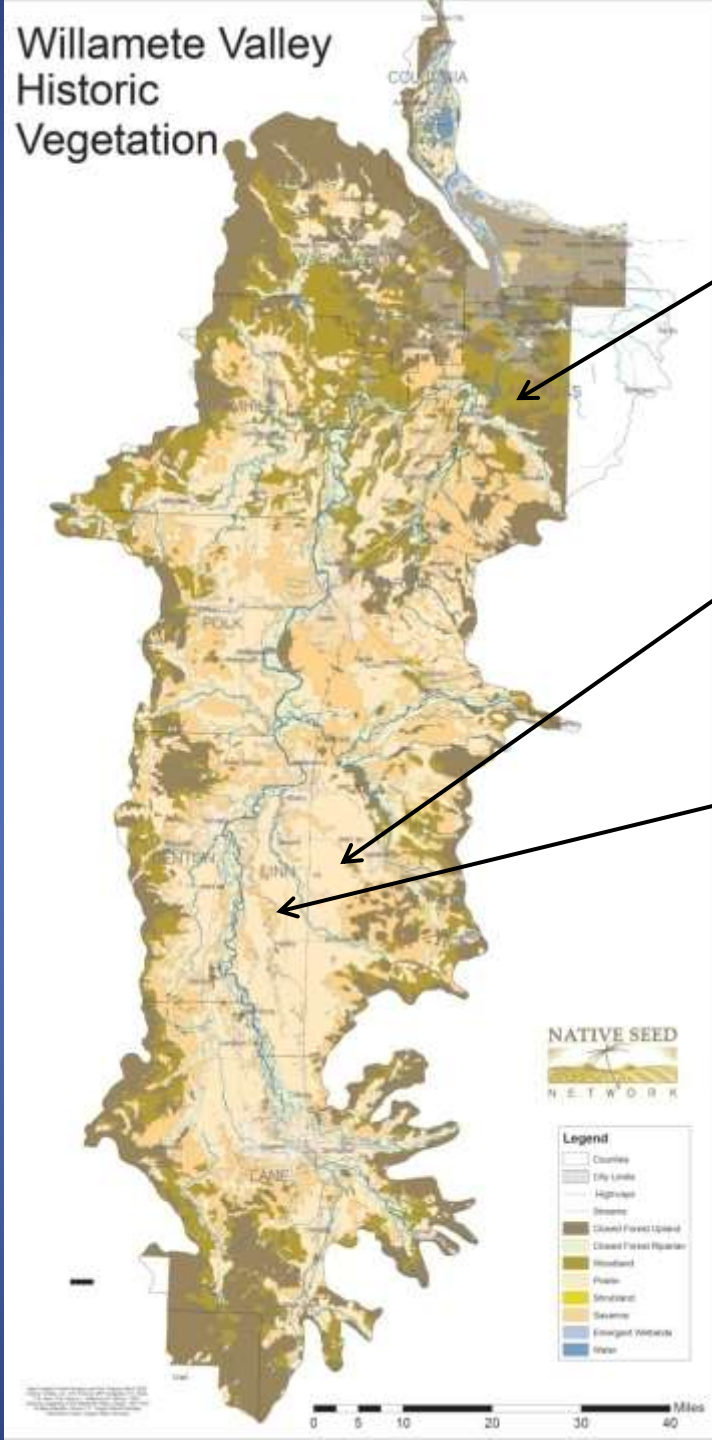
Willamette Valley Historic Vegetation

Green =
woodland

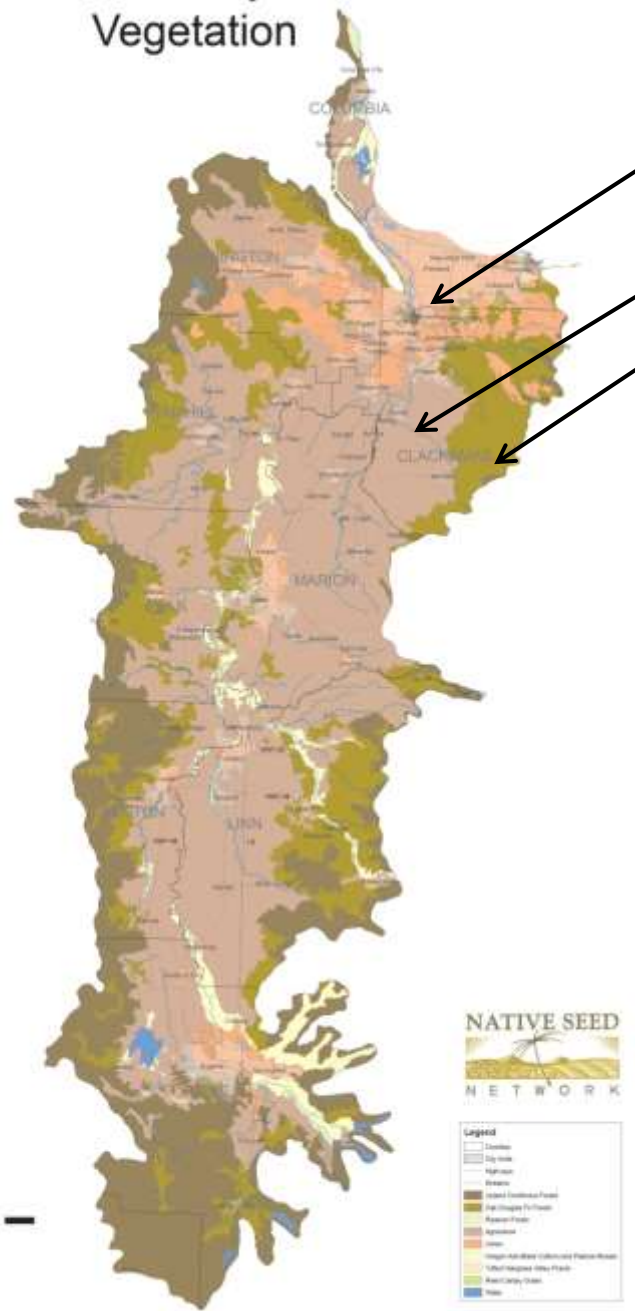
Prior to
1850 the
Willamette
Valley was
mostly
open
prairie

Light peach =
open prairie

Dark peach =
oak savanna
(large oaks in
open prairie)



Willamette Valley Current Vegetation



Pink=Urban

Mauve =Agriculture

Green =Forest

Where's the Peach????

There is less than 1% Willamette Valley Prairie left!



What prairie is left is degraded with lots of non-native species and noxious weeds

NATIVE SEED NETWORK

Legend	
[Symbol]	County
[Symbol]	City limits
[Symbol]	Highway
[Symbol]	Roadway
[Symbol]	Water
[Symbol]	Forest (Undisturbed Forest)
[Symbol]	Forest (Disturbed Forest)
[Symbol]	Open Space
[Symbol]	Urban
[Symbol]	Urban (Disturbed Forest)
[Symbol]	Urban (Undisturbed Forest)
[Symbol]	Urban (Disturbed Forest)
[Symbol]	Urban (Undisturbed Forest)
[Symbol]	Urban (Disturbed Forest)
[Symbol]	Urban (Undisturbed Forest)



In only 150 years we have gone from
this.....☺



Native camas and buttercup - Bufford Park Eugene

To this ☹️

Canadian thistle infestation (old fields
and pastures many, many places)



WV Prairies

80 species of
graminoids





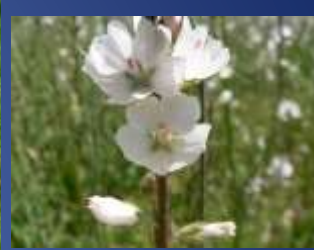
And lots of forbs! 130 species of annuals
& 203 species of perennials





Forbs..





Forbs!



Native Graminoids Provide Structure for Ground Nesting Birds and Resources for Insects

flutey
whistles,
gurgling
whistle,
“Chupp”



U.S. Fish and Wildlife



And of course.....

Room for Forbs!!!! [I'm not biased or anything]



Tall checkerbloom



& Forbs
attract
more
insects



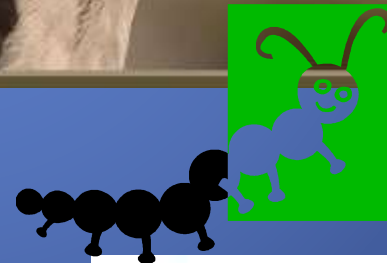
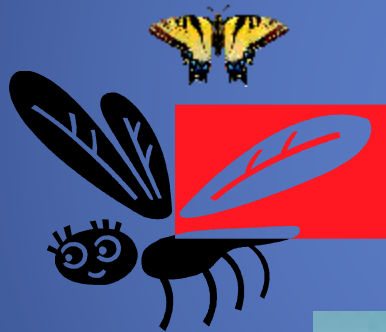
And Insects provide FOOD FOR BIRDS!
96% of terrestrial birds rear young on insects



↑ Native Plant Diversity

↑ Insect Diversity

↑ Bird Diversity



U.S. Fish and Wildlife

HOORAY #1 !!!!!!!

U.S. Fish and Wildlife Service

Willamette Valley National Wildlife Refuge Complex

*Land Protection Plan for the Proposed
Willamette Valley Conservation Area*

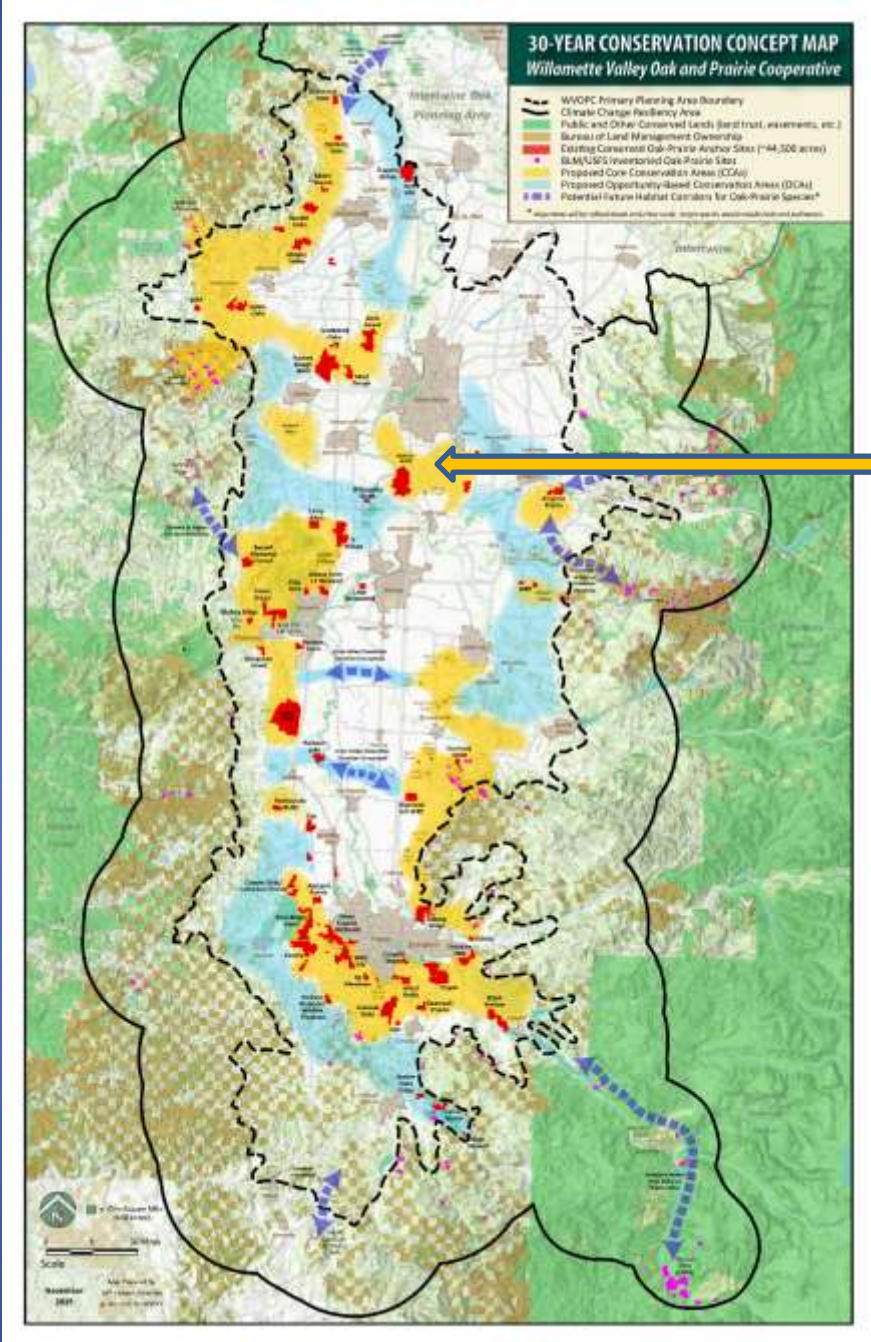
[Google title for link to Plan]

Portions of Benton, Lane, Linn, Marion, Polk, and Yamhill
Counties, Oregon

Fruition of hard work by the WV Oak & Prairie Cooperative and
the subsequent Strategic Plan

Protected lands would become part of the Willamette Valley National Wildlife
Refuge Complex

PUBLIC COMMENT DUE BY DECEMBER 18TH, 2022



Krautmann
Jefferson
Farm

GOAL – to increase
number of
protected sites in
the Core
Conservation Areas
(orange)

HOOORAY #2 !!!!!!!



Permanent Conservation Easement with USFW for 226 ac of restored Prairie and Oak at our Jefferson Farm Property

Restoration in Rural Areas –
Private landowner programs are
the key to go from this.....



Cropped field

Heritage Seedlings Joseph
Street Farm 2003

To this!



Reestablished Native Prairie

Heritage Seedlings Joseph
Street Farm 2006

From this...



Fallow pasture choked
with invasive plants

Heritage Seedlings
Jefferson Farm 2005

To this!



Reestablished Native Prairie

Heritage Seedlings
Jefferson Farm 2008

From this...

Remnant oak savanna
choked with brush
and trees



Heritage Seedlings
Jefferson Farm 2005

To this!

Enhanced
Remnant Prairie



Heritage Seedlings
Jefferson Farm 2008

NATIVE HABITAT RESTORATION
DEFINE YOUR STARTING CONDITIONS AND DESIRED
OUTCOME

1. Remnant prairie with high diversity
of native grasses and forbs



Maintain diversity

Kingston Prairie – non-profit owned

Dominant grass Pine bluegrass

Rare plants such as Willamette

daisy and Bradshaw's lomatium



Sublimity Prairie – privately owned

Dominant grass California oatgrass with shooting star, camas, and so much more!




1. Management Recommendations

- Tiptoe around the natives whatever you do!
- Broadcast herbicides where natives are not present or use herbicides that only target the non-native spp. (e.g grass herbicides, or specific shrubs and weeds)
- Spot-spray or use mechanical methods (mowing, weed-whacking, pruners etc.) where natives are present
- Use fire or mowing to manage brush and thatch
- If area to be used for seed collection, only augment with seed collected from site or add species not on the site
- If not used for seed collection, augment the populations and add species not on site with materials from the appropriate seed transfer zone

NATIVE HABITAT RESTORATION DEFINE YOUR STARTING CONDITIONS AND DESIRED OUTCOME

2. Remnant prairie/meadow with some native forb component but non-native grasses dominate



Increase native grasses and forbs after disturbance such as burning, clearing brush and trees, gophers, low mowing

DO YOU HAVE THESE?????

Species often found in pastures and old fields



Buttercup



Camas



Yarrow

Checkermallow

Foothill sedge



Woodrush





**Krautmann Jefferson Farm –
privately owned – USFW Conservation Easement
secured September 2022**



Purple sanicle



Lots of endemic
forbs

Oregon Iris



Hall's aster



Mariposa lily

2. Management Recommendations

- Maintain current condition using mowing and/or burning
- Treat with a grass-specific herbicide (Poast or Fusilade)
 - But, most native grasses are susceptible
 - As site opens up, beware of non-native forb species increasing! Know what is on and around your site!
- Spot-spray invasive species: triclopyr choline for blackberry, clopyralid for thistles, or glyphosate (non-specific so be careful it kills non-target plants too!)
- Treat stumps or use a basal-bark treatment of invasive shrubs and trees with Garlon 4 (triclopyr)
- Increase forb diversity post-burn/disturbance by seeding and/or planting plugs

Example:
Remnant Open
Areas were
burned MID-
SEPT



Seeded with
natives that
germinate late-
fall/early winter



Results amazing! - Six years after seeding remnant part of the property with Rose-checkermallow after Burning (pretty in pink!)





Pacific hound's tongue



Balsamorhiza

ADDED MORE DIVERSITY BY PLANTING BULB AND PLUGS LATE-FALL/EARLY SPRING



Scurf pea



Hyacinth
brodiaea

3. Starting Condition

Wooded Areas

Thin young oak, mow brush, and remove or snag conifers if needed



TOOLS

CHAINSAW

SKID-STEER WITH
TREE SHEAR/STUMP
SPRAYING HEAD

SKID-STEER ROTARY
MOWER



ADD NATIVE SEED

by

- *Spinner seeding
- *Hydroseeding or
- *Jonny Apple Seeding!!!



Prairie Natives that Compete Well with Non-natives

Perennial forbs

- Yarrow
- Buttercup
- Oregon sunshine
- Self-heal
- Riverside lupine
- Goldenrod
- Checkermallow

Grasses

- Slender wheatgrass
- Blue wildrye
- California brome
- Tufted hairgrass
- Spiked bentgrass

Annual forbs

- Large-flowered collomia
- Large-flowered collinsia
- Farewell to spring
- Western burnet
- Spanish clover
- Tarweed sp
- Rosy plectritis

NATIVE HABITAT RESTORATION DEFINE YOUR STARTING CONDITIONS AND DESIRED OUTCOME

4. Meadow/Pasture with only a few patches of natives, natives in low abundance, or no natives



Recreate Historic Prairie

Management Recommendations

- **Mow/Burn & Survey for Natives** (might be lots of natives hiding in the thatch) – if so - plan to *augment* with seed or plants (similar to remnant recommendations)
 - Choice of material limited to those that compete well with non-native species
- If response not positive (e.g. non-native component still dominates) – plan to *start from scratch*
 - Choice of site-preparation determined by site size, time/money constraints, amount of native cover desired
 - Save genetics of native populations by collecting seed, do plant rescue, and/or cut to ground or cover before herbicide application

Site Preparation



Starting
from Scratch
2-3 years!

Use short-lived
herbicide glyphosate

- *Collect seed and/or tiptoe around patches of natives
- *Reduce existing vegetation and reduce weed seed bank
- *DO NOT TILL! It just digs up weed seed each time

Respect the weed seed bank

it's bigger than you are!

Area just prior to third year of glyphosate - teasel and wild carrot dominate... (grrrrr)



SAME AREA 7 AREAS AFTER SEEDING.....

I CAN'T BELIEVE IT! 😊 😊



What to Plant and When?

- **Grass first, then forbs**
 - Common for old fields/pastures since non-native forbs often problematic or if time-frame limited
 - Warning! Established native grasses and weedy grasses makes forb establishment difficult due to lack of space
- **Forbs first, then grass**
 - Common for grass seed fields where residual crop grass might be an issue or **want high pollinator diversity!!! Or open site for bare-ground nesters like the newly listed Streaked horned lark**
 - Warning! The drier the site, the more invasive forb species may take up the space formerly occupied by the grass
- **Grass and forbs together 😊 - my fav!**
 - Recommended for all sites if you can take the time to do it right
 - Can seed a high diversity mix since everything has the best chance to establish

GRASS & FORBS TOGETHER

2 year prep - **high diversity results**



**8 YEARS AFTER SEEDING -
WOW**

GRASS & FORBS TOGETHER

2 year prep - **high diversity results**



4 years after seeding and previous fall burn –
double WOW

Upland Meadow Success – Forb only meadow



*High
diversity of
forbs from
seed

*More
issues with
weeds due
to more
space

*Non-native
grasses only

Follow up Management



Burning best! September burns - fast, not too hot, reopens the site (can also mow if not too much thatch)

Smaller Areas for Natives – native plant gardens



OSU Horticultural Dept (Al Shay leading the charge) went under the radar to create prairie spaces by taking over small nooks and crannies around OSU Facilities and Housing grounds



Native Hedgerow Plantings
EX Year 2 June
Heritage Seedlings Farm

Perennials in full bloom



Lupine, Oregon
sunshine, Yarrow, Self-
heal galore!!!





Early-May

- *Tall checkerbloom
- *White camas (wild colorform from Benton County)
- *Oregon geranium
- *Ookow
- *Large-leaved avens (blooms most of summer if deadhead)

Lynda and Cliff's Garden

Early-May

- *Straight-beaked buttercup (amazing garden plant)
- *Douglas' meadowfoam (amazing garden plant)
- *Large-leaved avens (yup, it spreads around so keep it in check with...more plants!)





Mid-May

*Apple tree (for bees, people and birds perches!)

*Fringecup (shaded by plants in foreground)

Fern-leaved lomatium (also a good perch and structural interest in fruit)

*Green-flowered alumroot (bee magnet and structural interest in fruit)

Early-June – *Layered structure*

*Mix of Oregon natives, mid-western natives, and ornamentals

*Slim-leaf onion and polomonium (Jacob's ladder) along the border



Where to Buy Native Plants

- Plantnative.org [lists vendors by state and city]
- <https://oregonflora.org/garden/index.php> (commercial list coming soon)
- Retail: Sparrowhawk Native Plants, Xera Plants, Inc., Bosky Dell, Portland Nursery, Doak Creek, Grays Garden Center, Territorial Seed Co, Fox Hollow, Willamette Gardens, Watershed Garden Works (WA), Planta nativa (WA), Las Pilitas (CA but wow what a selection!)
- Wholesale (buy with friends!): Willamette Wildings, Seven Oaks, Champoeg, Scholls Valley, Trillium Garden, Beaver Lake, Heritage Seedlings (some spp.), Fourth Corner Nursery (WA)
- Soil and Water Conservation District plant sales

Note: Vendors will often donate to public space projects!



Thank you!
Ready for Questions 😊