



# Our Continuum of Native Plants

SEEDBANKS & DISPERSAL DURING ECOLOGICAL CHANGE AND RESTORATION

Prepared for the **RMSA Seed Summit**  
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(Note: all photos by Sylvia Rains Dennis unless otherwise noted)

# Native Plants in Gardens & Farms

- ❖ Pollinator plantings
- ❖ Shrubs and trees for structure and site protection
- ❖ Buffer and edge plantings
- ❖ Erosion and soil development
- ❖ Island plantings in cultivated areas
- ❖ Multistoried and landscape biodiversity
- ❖ Wild to farm habitat considerations



# CELEBRATING BIODIVERSITY

- WILDLANDS
- LANDSCAPE
- VERTICAL/STRUCTURAL
- AGE/LIFE STAGE
- LAND HISTORY
- *CHANGE!*

## *KEY CONCEPTS:*

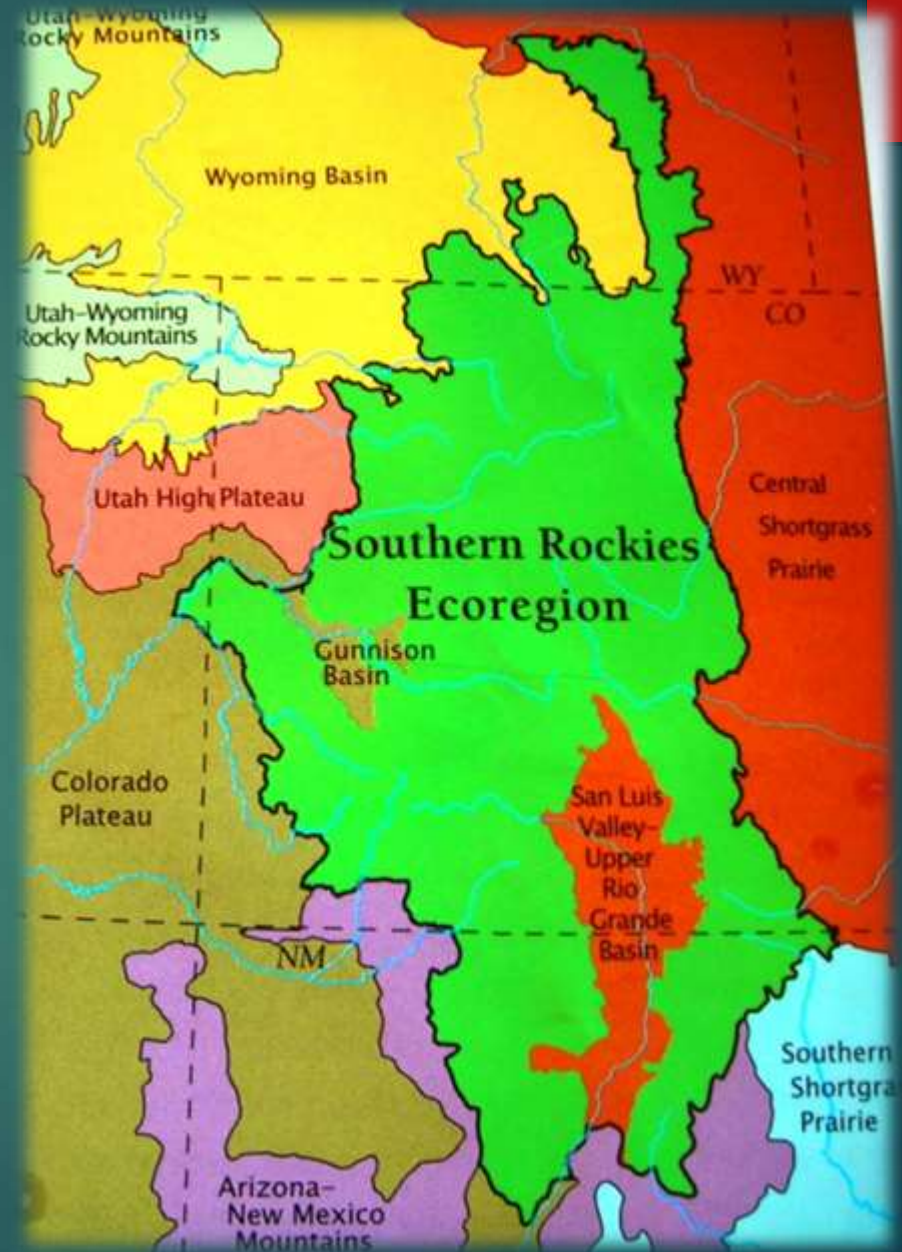
- ❖ ECOSYSTEMS,  
HABITATS &  
SPECIES
- ❖ ECOLOGICAL  
RESILIENCE

HOW TO CONSERVE: **ON-FARM BIODIVERSITY...GARDEN HABITATS...ECOLOGICAL SUSTAINABILITY**

# Our Ecoregional Overlap

- ▶ Southern Rockies
- ▶ Colorado Plateau
- ▶ Upper Rio Grande Basin/ San Luis Valley
- ▶ Great Plains
- ▶ Upper Sonoran (AZ-NM mtns here)

Source: *Southern Rockies Ecosystem Project (updates available)*

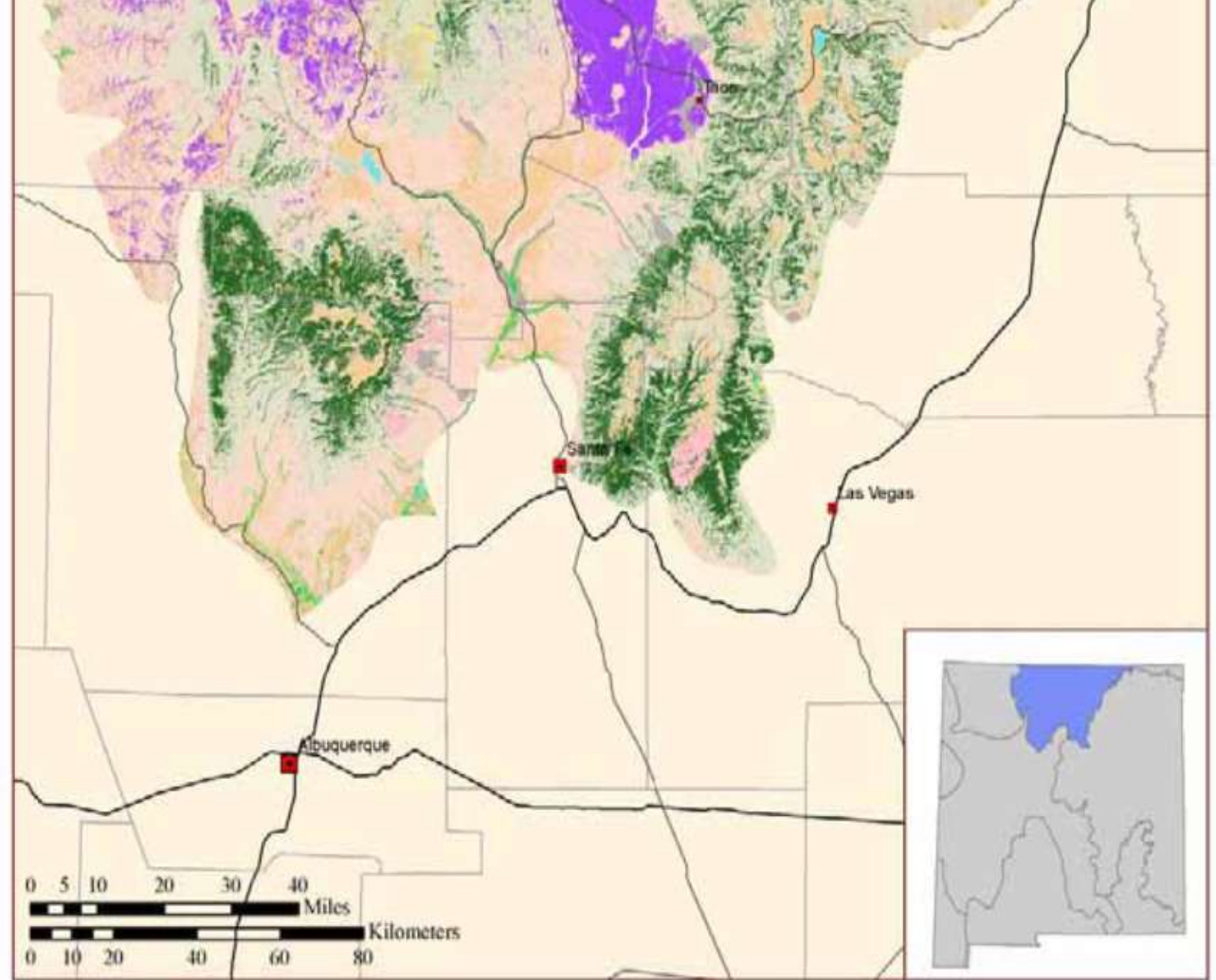


# Where we live...

getting to know your ecological context & land history



Photo by Mary Pickett



### Key Terrestrial Habitats

- Chihuahuan Semi-Desert Grassland
- Inter-Mountain Basins Big Sagebrush Shrubland
- Madrean Encinal
- Madrean Pine-Oak Conifer-Oak Forest and Woodland
- Riparian
- Rocky Mountain Alpine-Montane Wet Meadow
- Rocky Mountain Montane Mixed Conifer Forest and Woodland
- Western Great Plains Sandhill Shrubland
- Western Great Plains Shortgrass Prairie

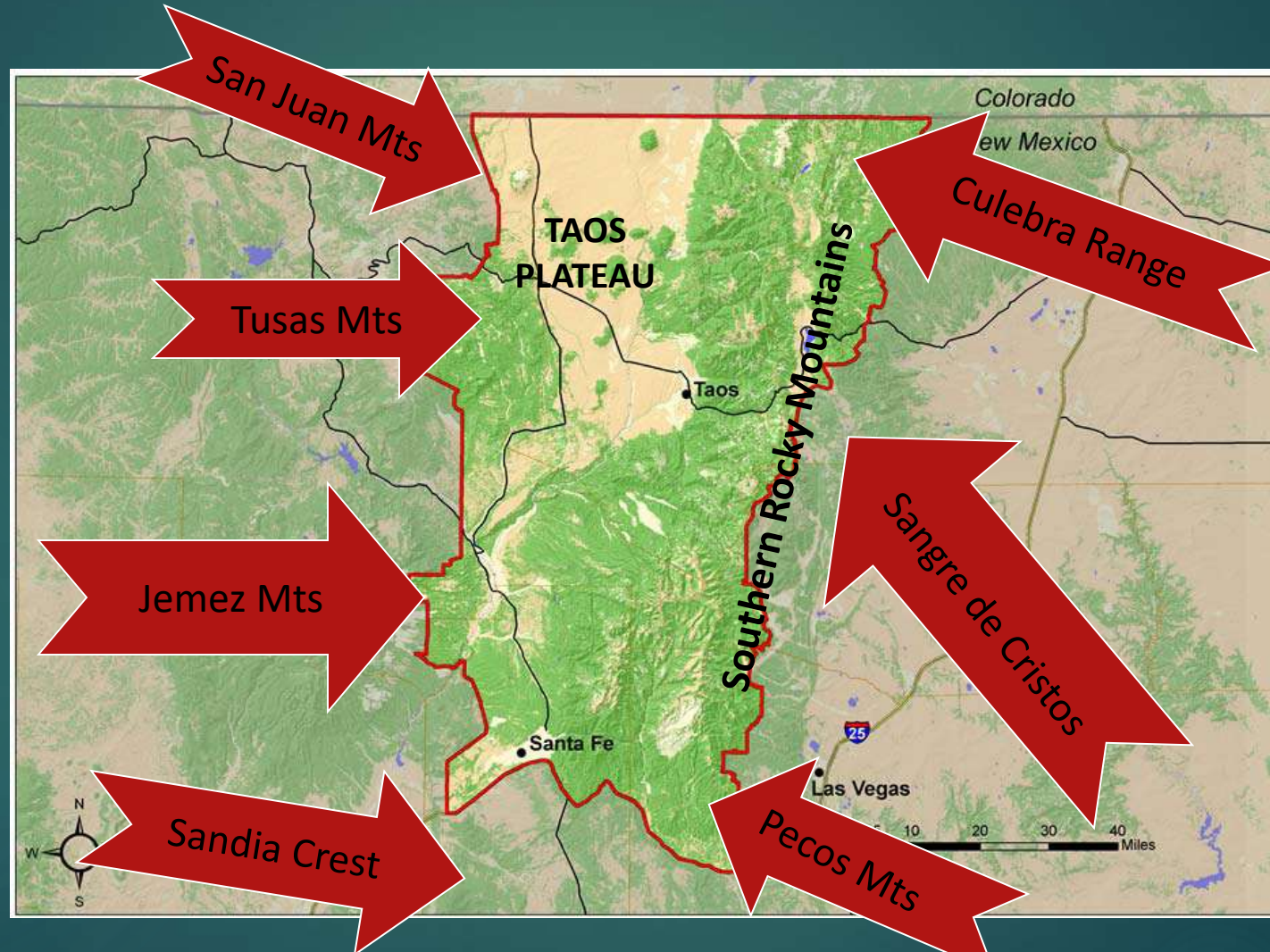


### Adjacent Landcover

- Active and Stabilized Dunes
- Agriculture and Developed
- Open water
- Pinyon-Juniper/Juniper Savanna
- Recently Disturbed
- Rocky Mountain Forest and Woodland
- Scrub and Shrubland
- Steppe and Grassland

The source of data is the Southwest Regional Gap Analysis Project (SWREGAP). For information regarding methods, results, and data accuracy, refer to <http://fws-nmcfwrn.nmsu.edu/swregap/>.

# Ringed by mountains



Source of basemap: ForestERA project, Northern Arizona University & Forest Guild, 2006



# ECOLOGICAL SITE CHARACTERISTICS

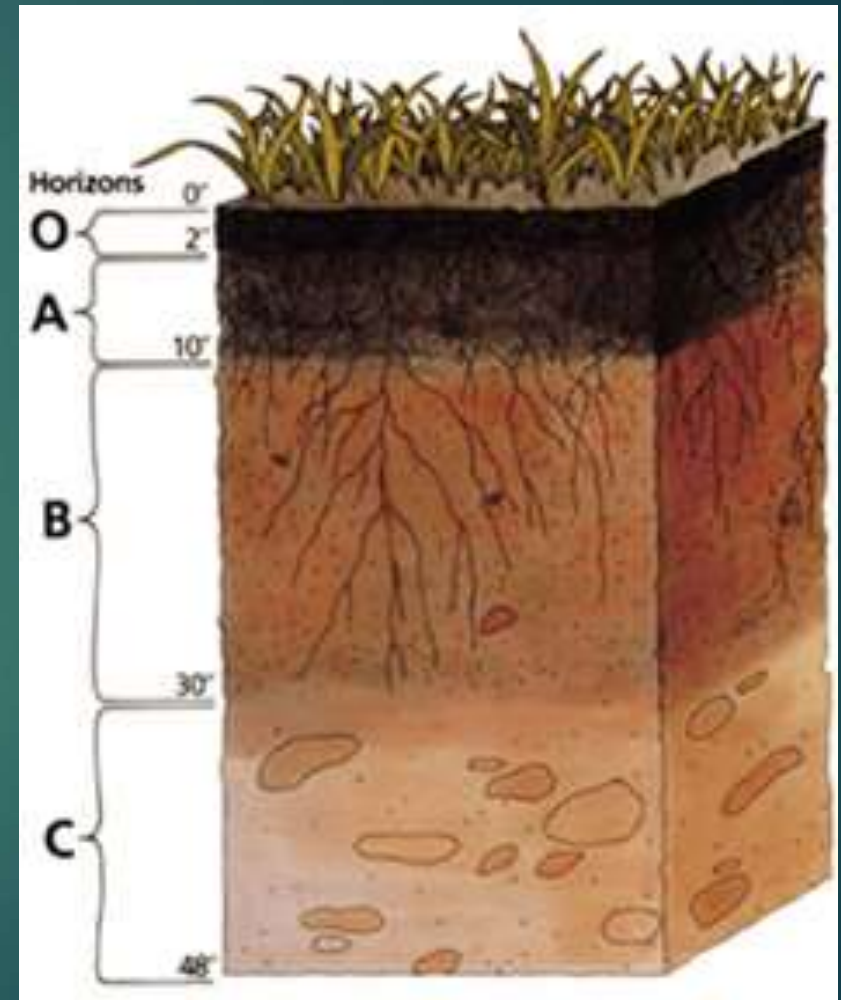
WILDLANDS  
CULTIVATED AREAS  
RESTORABLE LAND  
BUFFER & TRANSITION AREAS

# SEEDBANKS AND SEEDS: biodiversity!

**SEEDS** that occur at the surface and in soil profile, exhibiting a wide range of characteristics:

- ▶ Viability, dormancy and germination requirements; may persist from several years to decades or more
- ▶ Susceptibility to loss from erosion, predation, other disturbances; e.g., dustdevils on the mesa
- ▶ Timing of arrival in the seedbank, including those shed by resident plants, dispersed seed, incubating from prior vegetation types/plant associations and habitats/communities; coevolving circumstances
- ▶ Annuals generally outnumber perennials in seedbank studies, indicating past and present plant populations AND ECOLOGICAL CONDITIONS; consider envtl. change
- ▶ NATIVE vs. WEEDS and cultivated species; most seedbank studies look at invasives for agriculture, but should be considered in every land management practice, esp. restoration and prescribed burning

*Q: What happens to your land plan if 25% of the seedbank = weeds?*





# LANDSCAPES AND SEED DISPERSAL



*Photo by Mary Pickett*



# Seed types and means of dispersal



*Ecological diversity*



## What happens to seeds?

**Consider: ripening to maturity, gathering, predation, weather effects, dispersal, burial onsite . .**



*Diversity in seeds*



Plant storytime...



# Pollinator plantings Biodiversity and Ecological Resilience: knowing our natural habitats & native biota



*Consider various types of pollination occurring in your habitat:*

Wind, self-pollinated, insect & bird pollinated . . .

*What conditions ensure successful pollination?*

Lifestages present in habitat; seed sources, bloom sequences, nectar production; altered floral characteristics; weather . .

*How is this linked with reproductive fitness for species of plants?*



One  
morning . . .



Containing  
ecologically  
distinct farm  
and garden  
plantings



Herbs and  
edibles in a  
native  
landscape



**Native shrub islands** offer site stabilization; habitat improvement; hiding cover; nesting sites; protection from wind and predators; plant succession and ecosystem recovery; soil development; species diversity; and opportunities for infiltration or to capture runoff







**Native meadowlands, pasture & company:  
farming within the larger ecological context**

**Consider:**  
Native turf to outcompete weeds;  
Resilient meadow habitat;  
Grazing rotation;  
Isolation of impacts to trees, etc.;  
water tank;  
Health and safety;  
Buffer zones;  
Rescue & recovery  
Weed-free hay/supplements



*Site improvement features of native plantings in this example include:*

- Intermittent & sheet flows
- Erosion control
- Habitat improvement
- Soil fertility & percolation/ infiltration
- Corridors
- Buffers to wild landscapes
- Refugia and reservoirs for biodiversity



Chickens in habitat



## Landscape buffers and adjacent land use patterns

*Habitat and farm/ranch needs continuing for centuries; overlapping ecoregions*

Discussion: please share some ideas about SUSTAINABILITY



**Native fruit at  
the habitat  
transition:**

*Wild currant,  
Hawthorne,  
Elderberry,  
Wild raspberry,  
canyon grape,  
wild strawberry &  
more...*

*with the full suite  
of grasses,  
herbs, and plant  
community  
diversity in every  
life-stage (from  
seed to seed)*



**Wild fruits for all beings...**

# Small fruit cultivation: Black raspberries with natives



# Garden habitats during drought

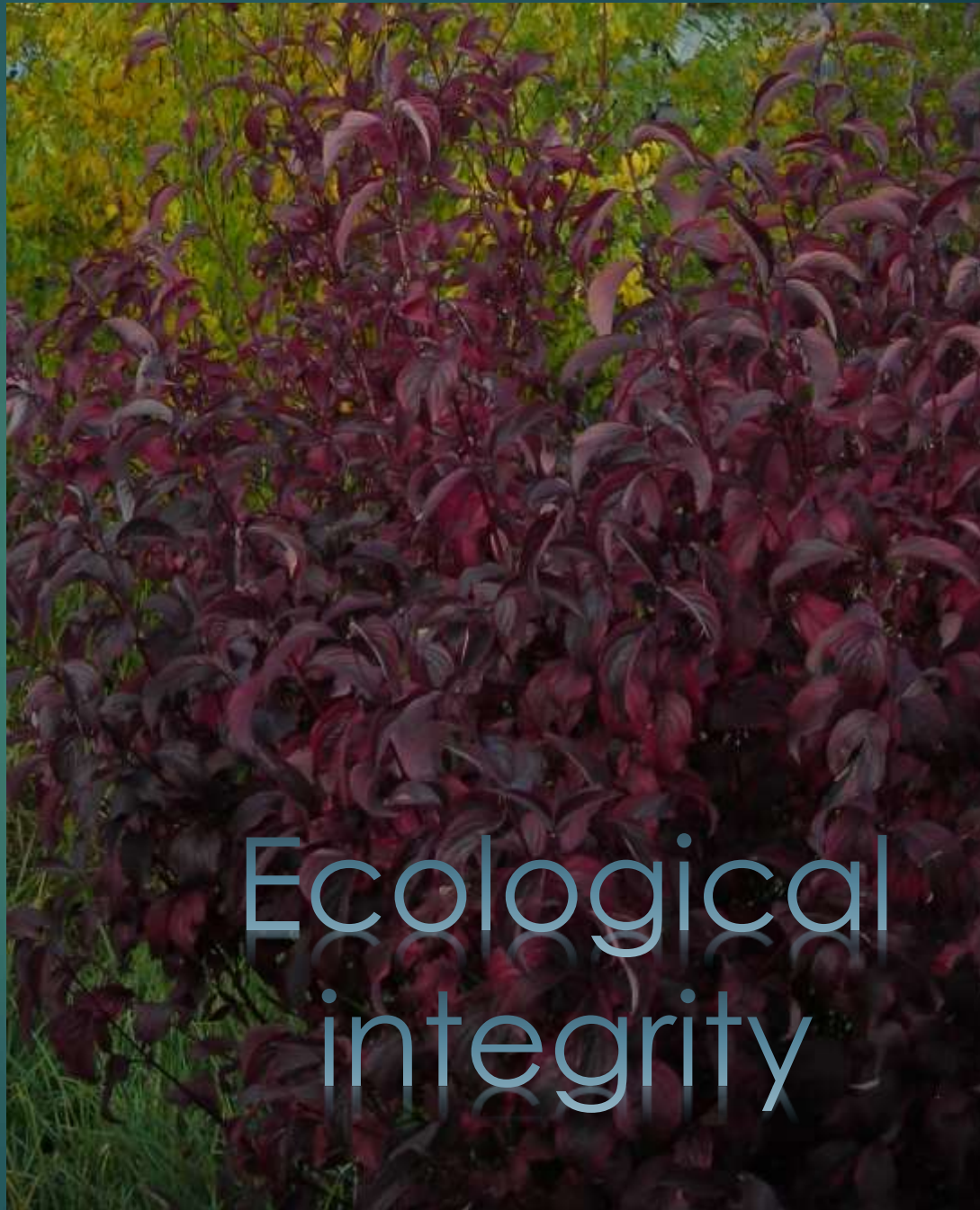


Eye spy: who's here?





**Native plant  
community  
example:  
Red-osier  
dogwood,  
peachleaf  
willow, and  
tufted  
hairgrass, all  
wet meadow  
and shrub  
complex  
natives**



**Ecological  
integrity**

# Wild farm edge effect: harvest time



# Rosehips in winter (& fall fog)



A landscape photograph showing a valley at sunrise. The sun is low on the horizon, creating a bright glow and casting long shadows. The sky is filled with scattered clouds, some illuminated from below. In the foreground, there are trees and a fence line. The background features rolling hills and mountains under a clear blue sky.

Interconnected gifts of the land:  
*fog at sunrise following severe drought &  
fire/heat/smoke afflicted growing season*

**Thank you for joining the Seed Summit and for making  
so many contributions to our mutual sustainability!**

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