

INCREASING THE AVAILABILITY OF NATIVE PLANT MATERIALS FOR RESTORATION EFFORTS ON THE COLORADO PLATEAU

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Dolores Public Lands Office**

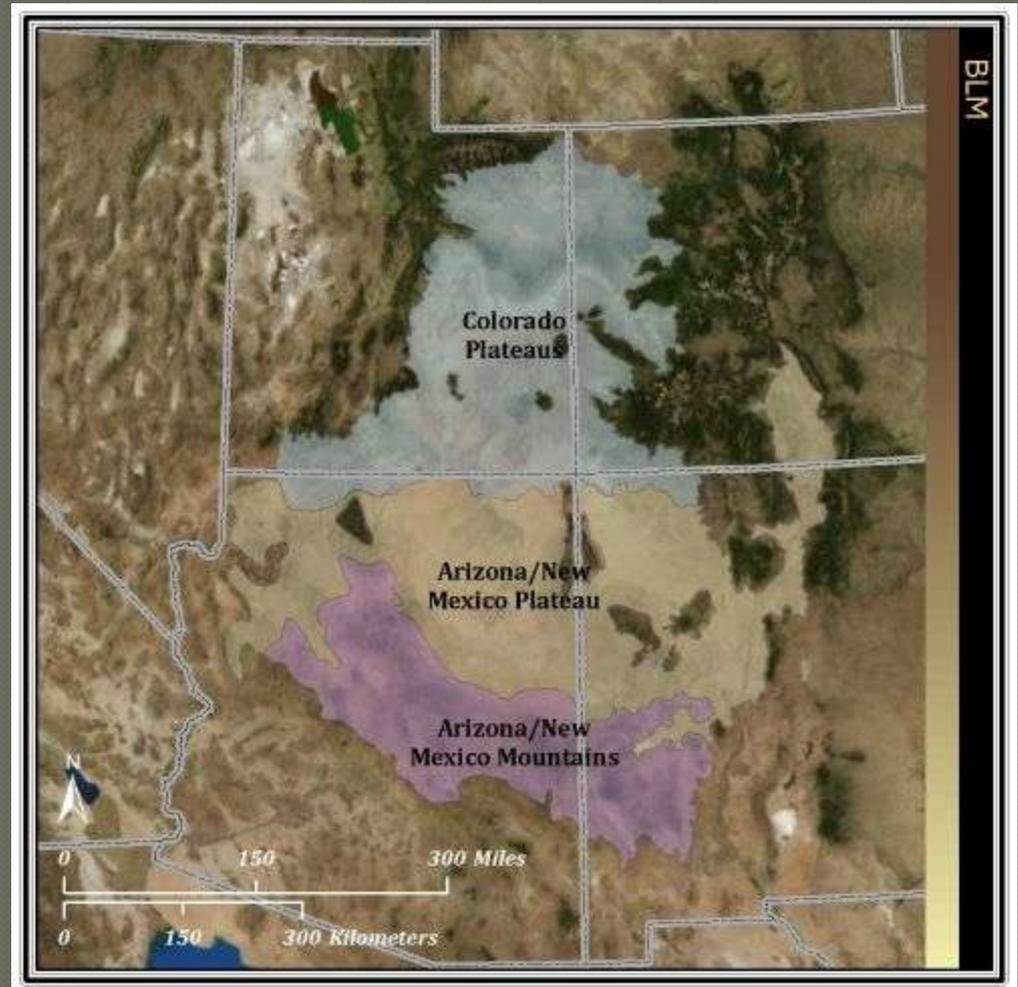
**Wayne Padgett, Colorado Plateau Native Plant Program
Coordinator, BLM Utah State Office**

Outline

- Give overview of the Colorado Plateau Native Plant Materials Program (CPNPP).
- Discuss varying viewpoints regarding development of native plant materials.
- Present provisional seed zone approach.
- Propose a strategy for the CPNPP.
- Questions and comments.

CPNPP-Geographic Extent

- Three EPA Level III Ecoregions.
- Connectivity of ecoregions by the pinyon-juniper ecosystem.
- Sensible working area for native plant materials development.



CPNPP-Disturbance Types

- Livestock grazing
- Oil and Gas exploration and development
- Catastrophic wildfire
- Unmanaged OHV use

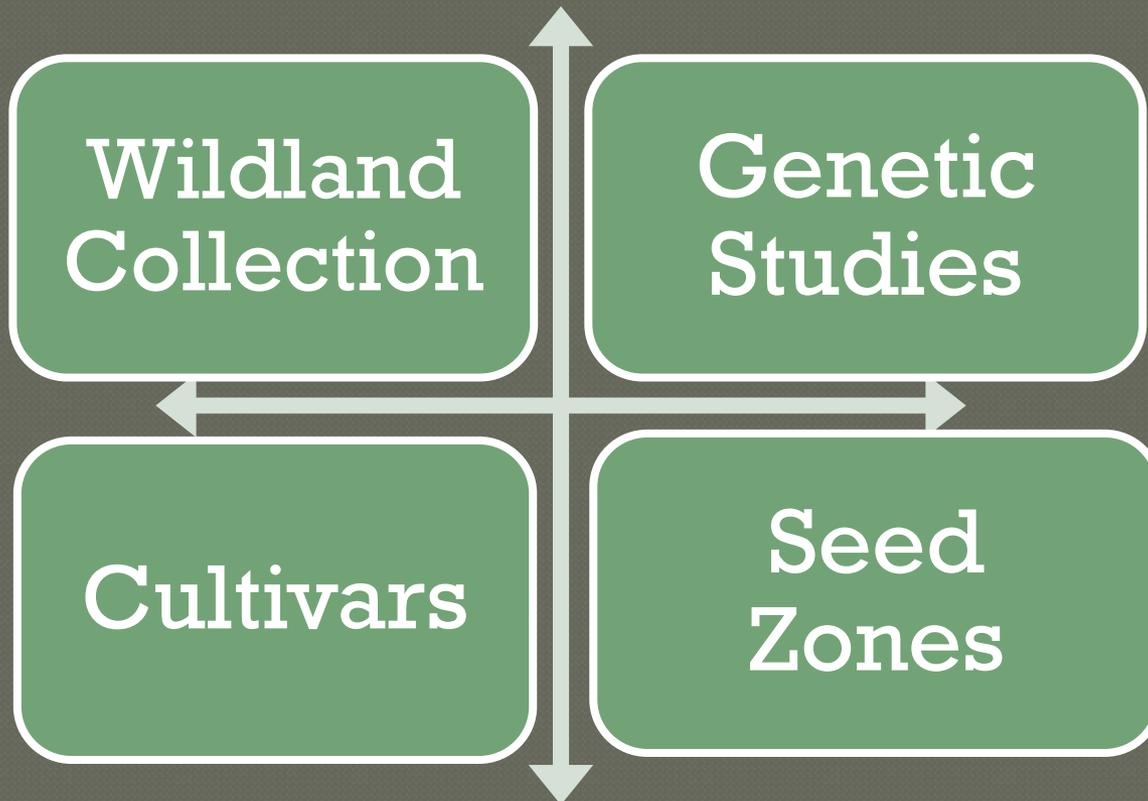


Diversity within the Colorado Plateau

- Geologic, Topographic and Soil Diversity
- Climatic Diversity
- Ecosystem Diversity
- Species Diversity
- Genetic Diversity
- And . . .

Diversity within the Colorado Plateau

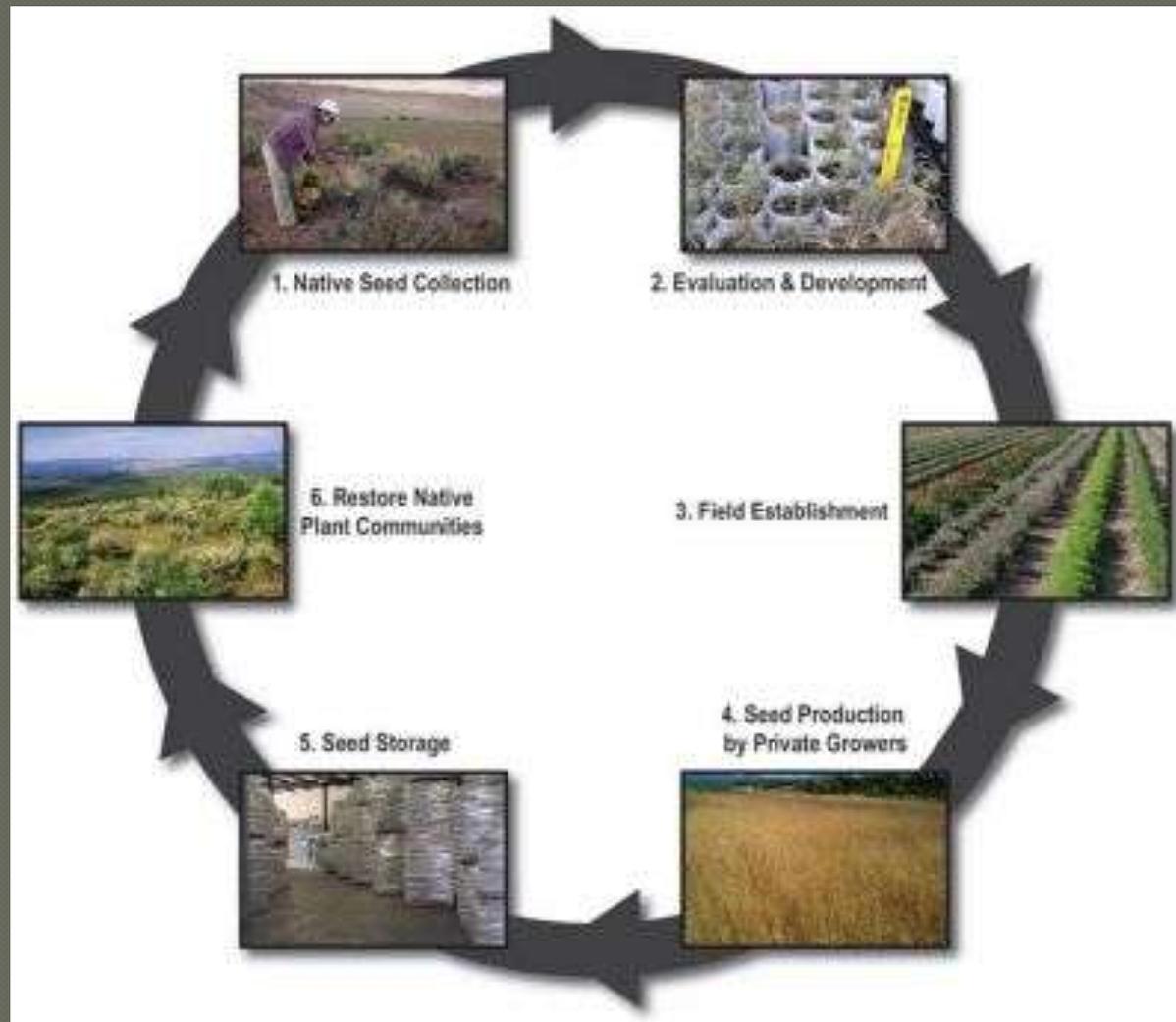
... Opinions on how to develop native
plant materials!!!



CPNPP-Program Goals

- GOAL 1 - Identify Existing and Future Needs for Native Plant Materials for Restoration Purposes on the Colorado Plateau.
- GOAL 2 - Follow the *National Native Plant Materials Development Protocol* to develop an adequate supply of diverse, economical, and regionally-adapted native plant materials for restoration efforts on the Colorado Plateau.
- GOAL 3 - Identify existing methodologies and work with partners to develop and test new methodologies to ensure successful establishment and persistence of native plant materials.
- GOAL 4 – Communicate within agencies, partners, and the public regarding the roles, responsibilities, values, and products of the CPNPP.

CPNPP follows the National Native Plant Materials Development Program Protocol



Proposed Strategy for CPNPP

- ① Use germplasm from the CO Plateau.
- ① Prioritize species for development within each land cover type.
- ① Use Provisional Seed Zones to further refine appropriate areas of use.
- ① Focus on seed zones that cover the largest areas within the CO Plateau.

Seed Zones are useful because:

- ① SEED ZONE = an area within which plant materials can be transferred with little risk of being poorly adapted to their new location.

Western Wildland Environmental Threat Assessment Center.

- ① Seed zones help land managers make informed decisions in selecting plant materials that will be adapted to local climates and planting site conditions.

USDA Celebrating Wildflowers Website.

Provisional Seed Zones are a combination of:

● Level III Ecoregions

- By recognizing the spatial differences in the capacities and potentials of ecosystems, ecoregions stratify the environment by its probable response to disturbance (Bryce and others, 1999).

● Significant Environmental Gradients

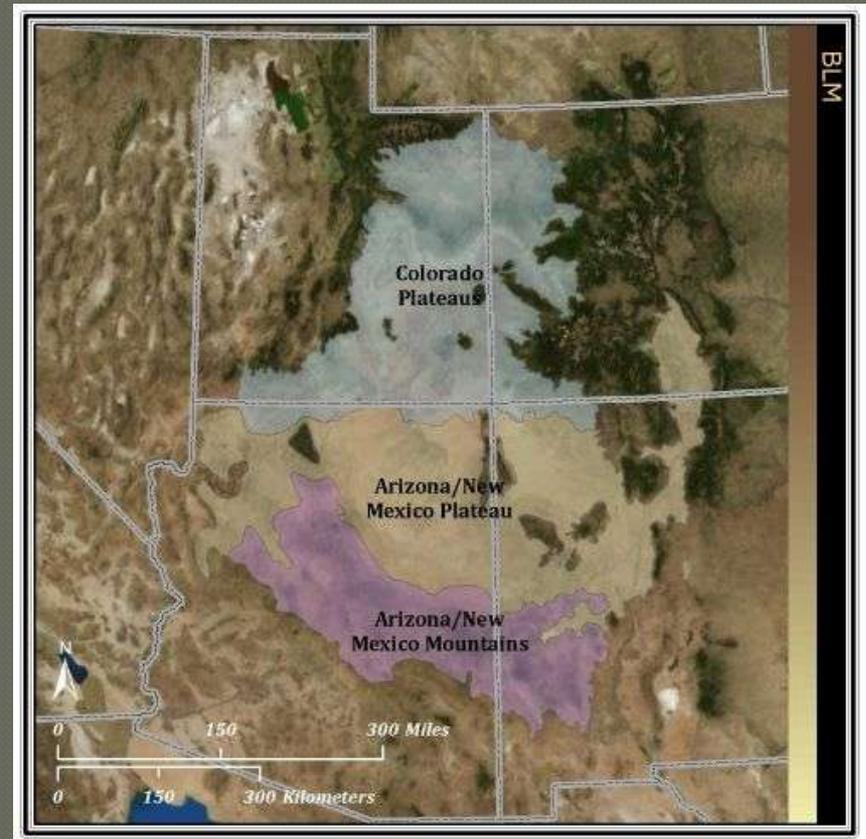
Vicky Ericson and Andy Bower, *Pacific Northwest Region, US Forest Service, Portland, OR & Olympia, WA*

Charlie Shrader-Patton, *USFS Remote Sensing Application Center, Bend, OR*

Alan Ager, *Western Wildland Environmental Threat Assessment Center, Prineville, OR*

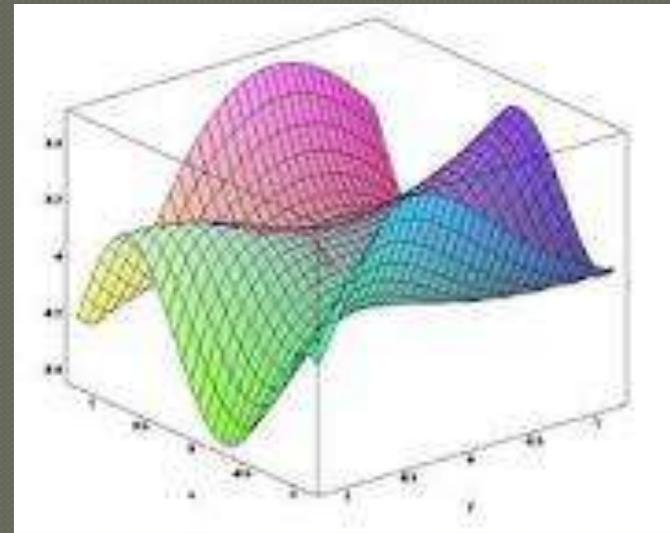
Level III Ecoregions

- Connectivity of ecoregions by the pinyon-juniper ecosystem.
- Sensible working area for native plant materials development.

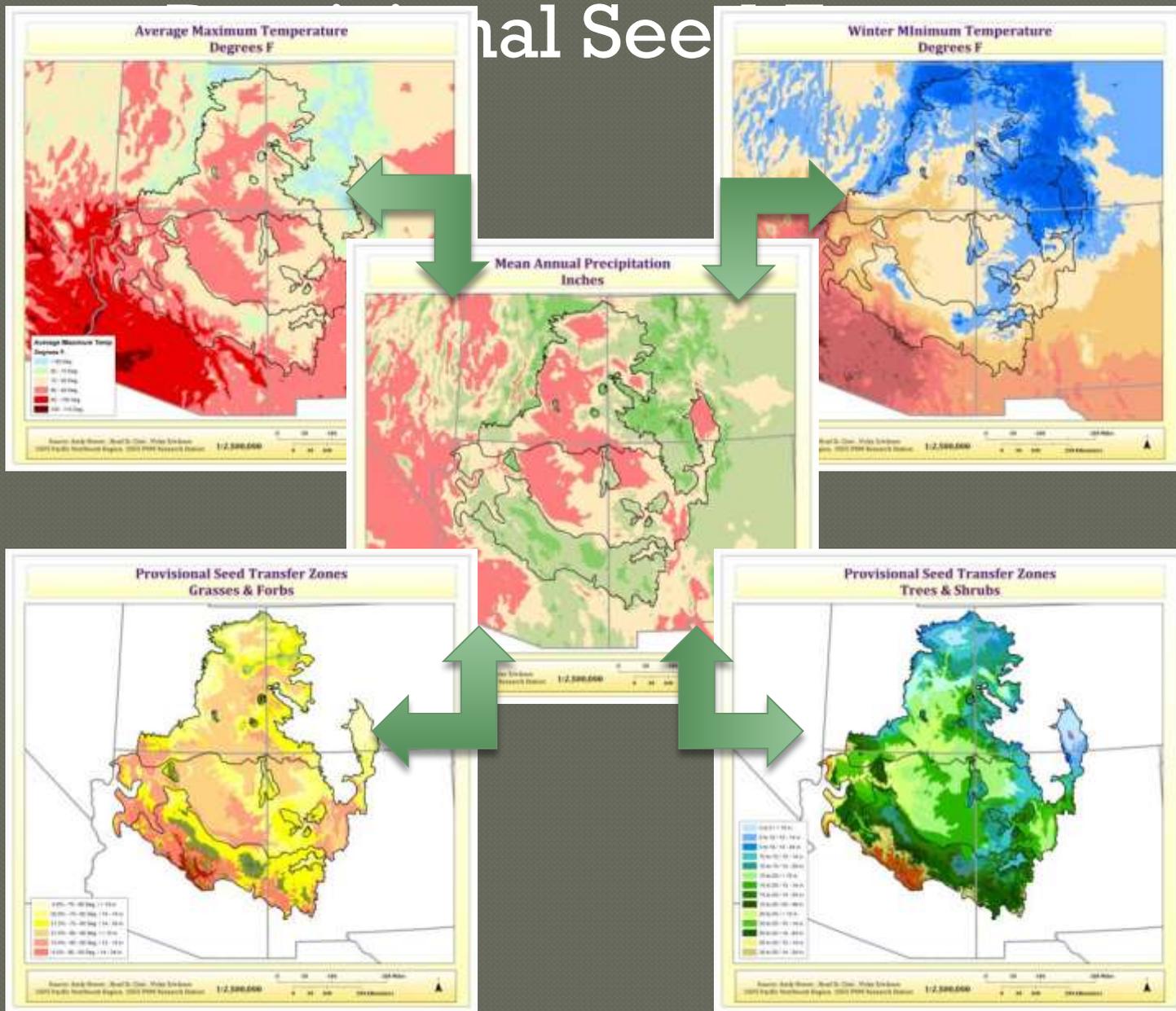


Significant Environmental Gradients

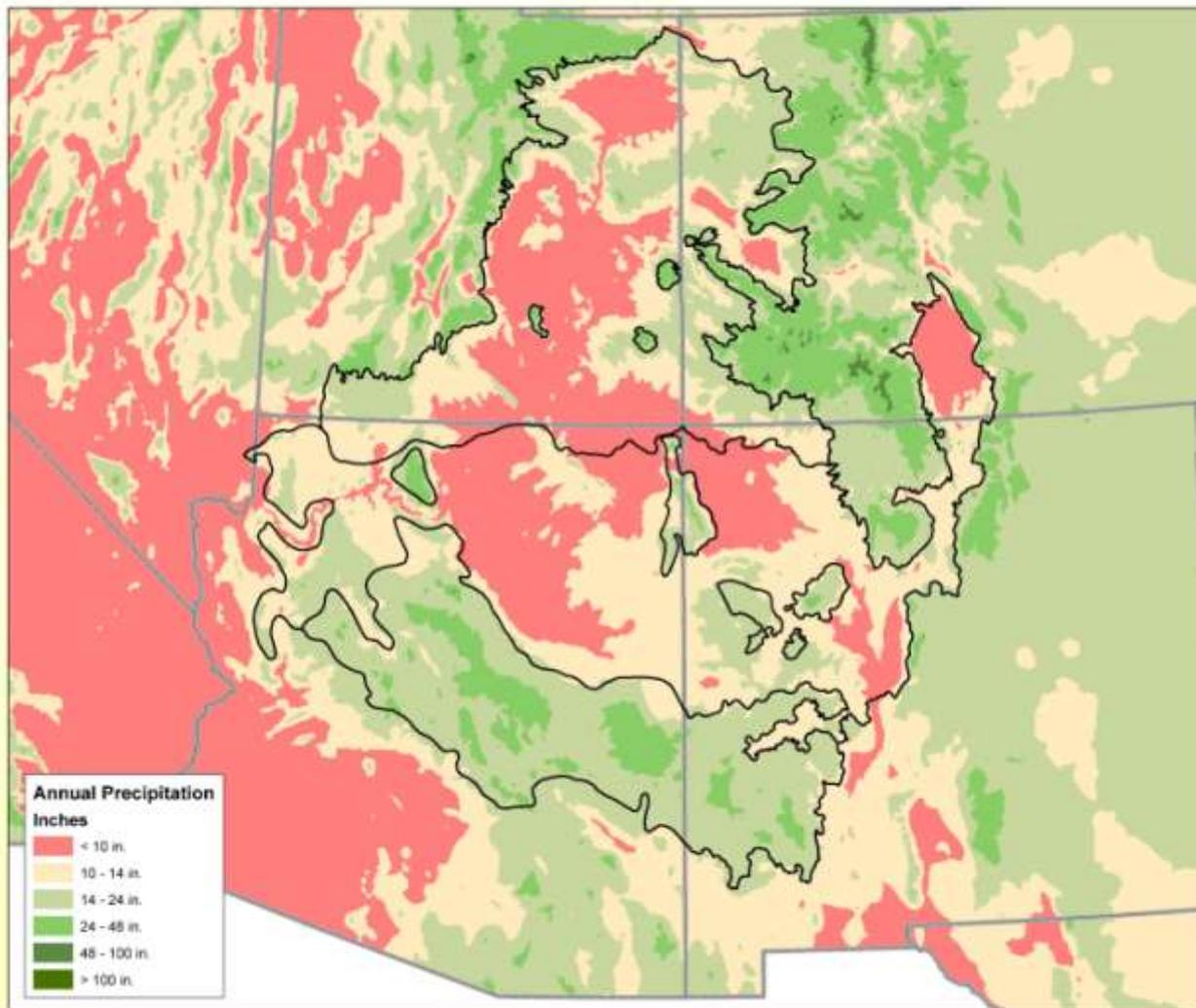
- Precipitation Zones
- Average Summer Maximum Temperatures
(herbaceous species)
- Average Winter Minimum Temperatures
(woody species)



Final See



Mean Annual Precipitation Inches



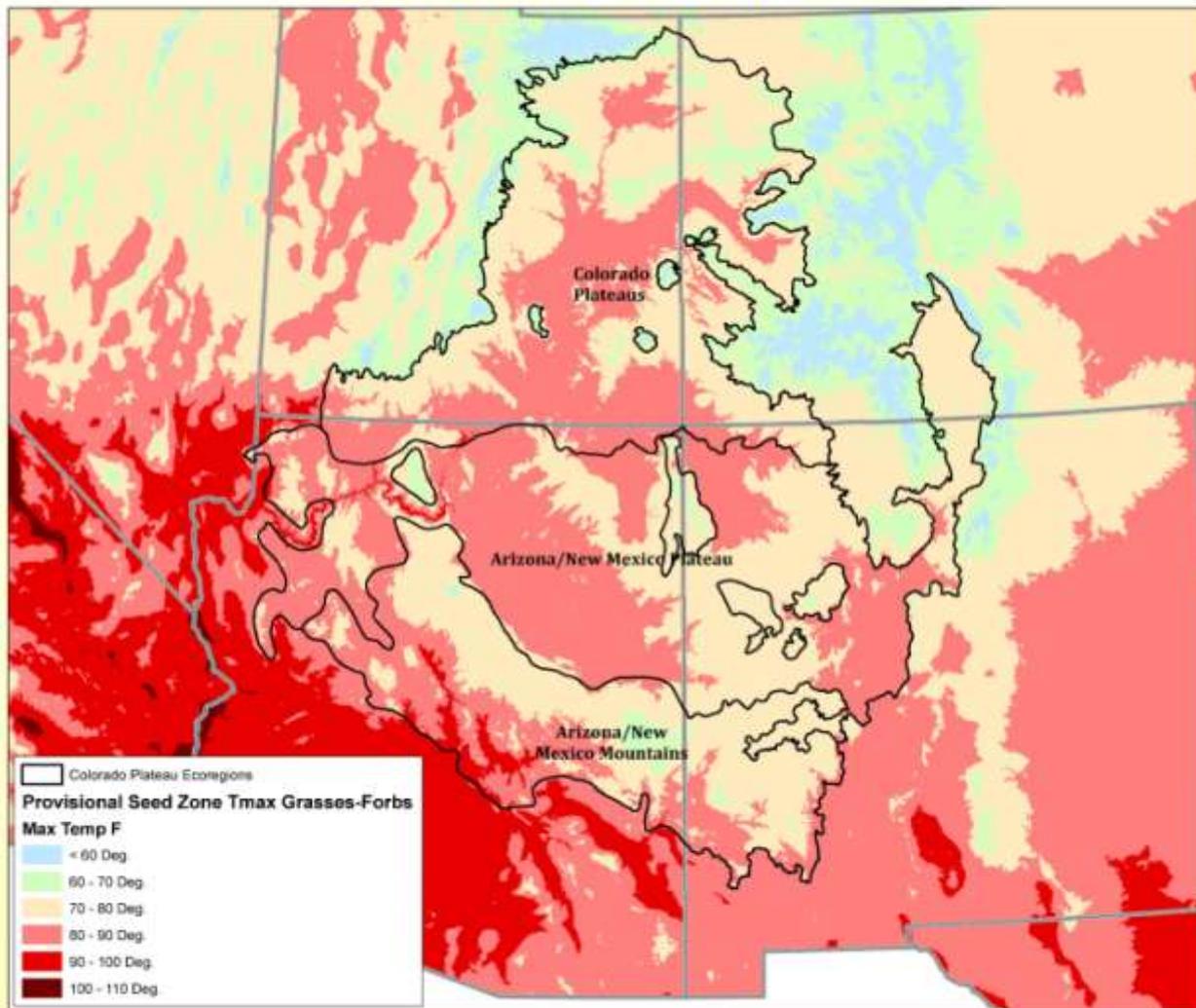
Source: Andy Bower , Brad St. Clair , Vicky Erickson
USFS Pacific Northwest Region, USFS PNW Research Station

1:2,500,000

0 50 100 200 Miles
0 50 100 200 Kilometers

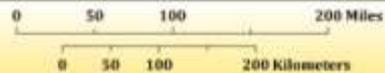


Colorado Plateau Provisional Seed Zones Grasses & Forbs Max Temp Classes

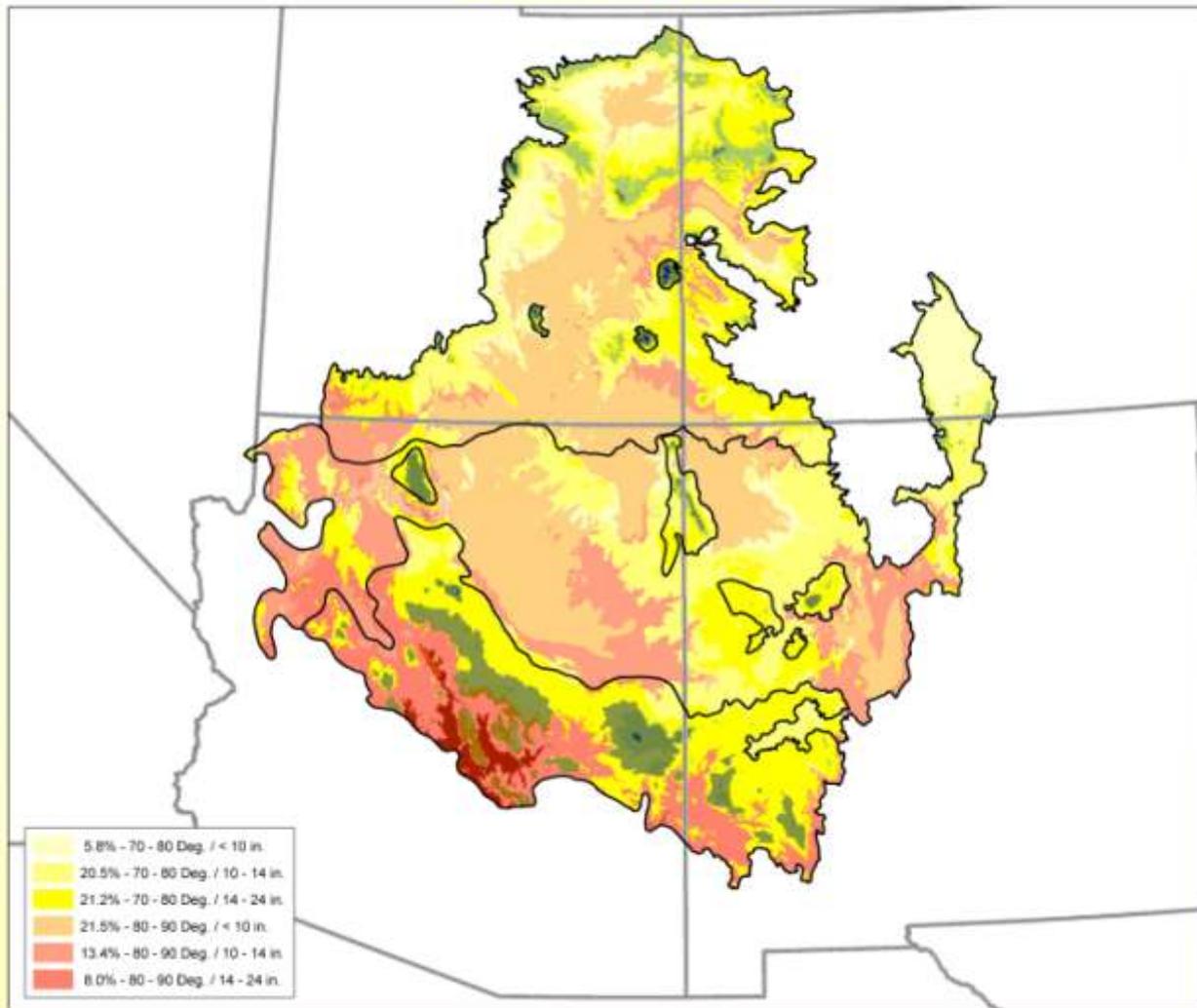


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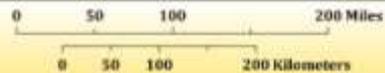


Provisional Seed Transfer Zones Grasses & Forbs



Source: Andy Bower, Brad St. Clair, Vicky Erickson
USFS Pacific Northwest Region, USFS PNW Research Station

1:2,500,000



Seven seed zones capture 94% of the acres

Seed Zones	Acres	Percent	Cumulative Percent
80 - 90 Deg. / < 10 in.	20,149,145	21.5%	21.5%
70 - 80 Deg. / 14 - 24 in.	19,932,640	21.2%	42.7%
70 - 80 Deg. / 10 - 14 in.	19,216,662	20.5%	63.2%
80 - 90 Deg. / 10 - 14 in.	12,556,402	13.4%	76.6%
80 - 90 Deg. / 14 - 24 in.	7,518,700	8.0%	84.6%
70 - 80 Deg. / < 10 in.	5,441,861	5.8%	90.4%
60 - 70 Deg. / 14 - 24 in.	2,916,670	3.1%	93.5%
Others	6,123,615	6.5%	100.0%

Priority for Species Selection

One grass and one forb species per land cover type within each seed zone.

1. Keep soil in place and avoid erosion.
2. Fulfill habitat needs for rare species, especially Gunnison sage grouse.
3. Improve habitat for pollinators.
4. Other compelling reasons . . .

Dominant species adapted to major cover types and seed zones

Seed Zones	% of CP	Cover Type	Species Recommendations
80 - 90 Deg. / < 10 in.	28.7%	Salt Desert Shrub	<i>Elymus elymoides</i>
70 - 80 Deg. / < 10 in.	8.4%	WY Big Sage, Basin Big Sage	<i>Elymus elymoides</i> , <i>Pseudoroegneria spicata</i>
80 - 90 Deg. / 10 - 14 in.	9.7%	WY Big Sage, Basin Big Sage	<i>Elymus elymoides</i> , <i>Pseudoroegneria spicata</i> , <i>Pascopyrum smithii</i>
70 - 80 Deg. / 10 - 14 in.	22.1%	Pinyon-Juniper	<i>Elymus elymoides</i> , <i>Pseudoroegneria spicata</i> , <i>Pascopyrum smithii</i>
60 - 70 Deg. / 10 - 14 in.	0.2%	Mtn. Big Sage	<i>Pseudoroegneria spicata</i> , <i>Pascopyrum smithii</i>
70 - 80 Deg. / 14 - 24 in.	21.5%	Mtn. Big Sage, Pinyon-Juniper	<i>Pseudoroegneria spicata</i> , <i>Pascopyrum smithii</i>
60 - 70 Deg. / 14 - 24 in.	7.5%	Mtn. Big Sage, Subalpine Big Sage	<i>Pseudoroegneria spicata</i> , <i>Pascopyrum smithii</i>

Note: *Elymus elymoides* has CO Plateau germplasm available.

Summary and Conclusions

- CPNPP aims to increase the availability of native plant materials required to restore diverse native plant communities across the Colorado Plateau.
- Provisional seed zones provide a starting point when genetic information is lacking.
- Proposed strategy for how to work together to develop priority species.

Contact Information

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