Bi-state Strategic Native Forb Seed Collection and Increase

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Why Forb Increase Now?

- Secretarial Order 3336
  - Expand efforts to utilize native seed, where appropriate, to accelerate efforts to improve and restore post-fire rangeland health
- Greater Sage-Grouse Approved Resource Management Plan Amendments for Ten Western States
  - Re-establish sagebrush, native grass, and forb cover in areas where they have been reduced below desired levels or lost
  - Increase plant diversity and sagebrush cover in crested wheatgrass seedlings
  - Use native plant materials for restoration and rehabilitation based on availability, adaptive capacity, and probability for successful establishment
  - Use provisional and established seed zones identified by the Great Basin Native Plant Project to determine appropriate seed sources

Why Forb Increase Now?

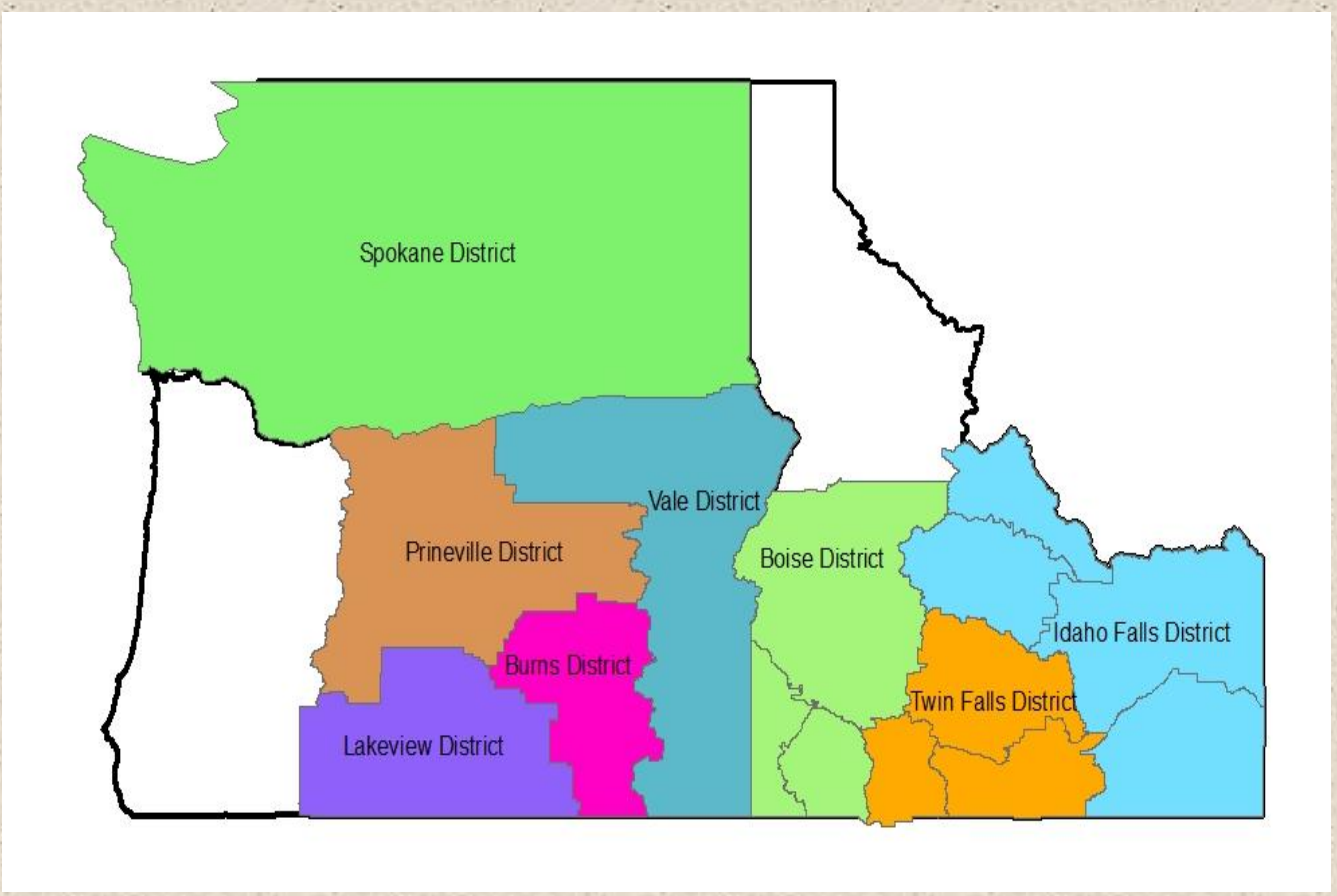
- National Seed Strategy for Rehabilitation and Restoration
  - Identify seed needs and ensure reliable availability of genetically appropriate material by improving agency and partner capacity to plan for seed needs by seed zone
  - Assess and implement alternative seed production methods for “workhorse” grass, forb, and shrub species to augment wildland seed collection

Goal

Have genetically appropriate forb seed available for restoration of Greater Sage-grouse habitat.

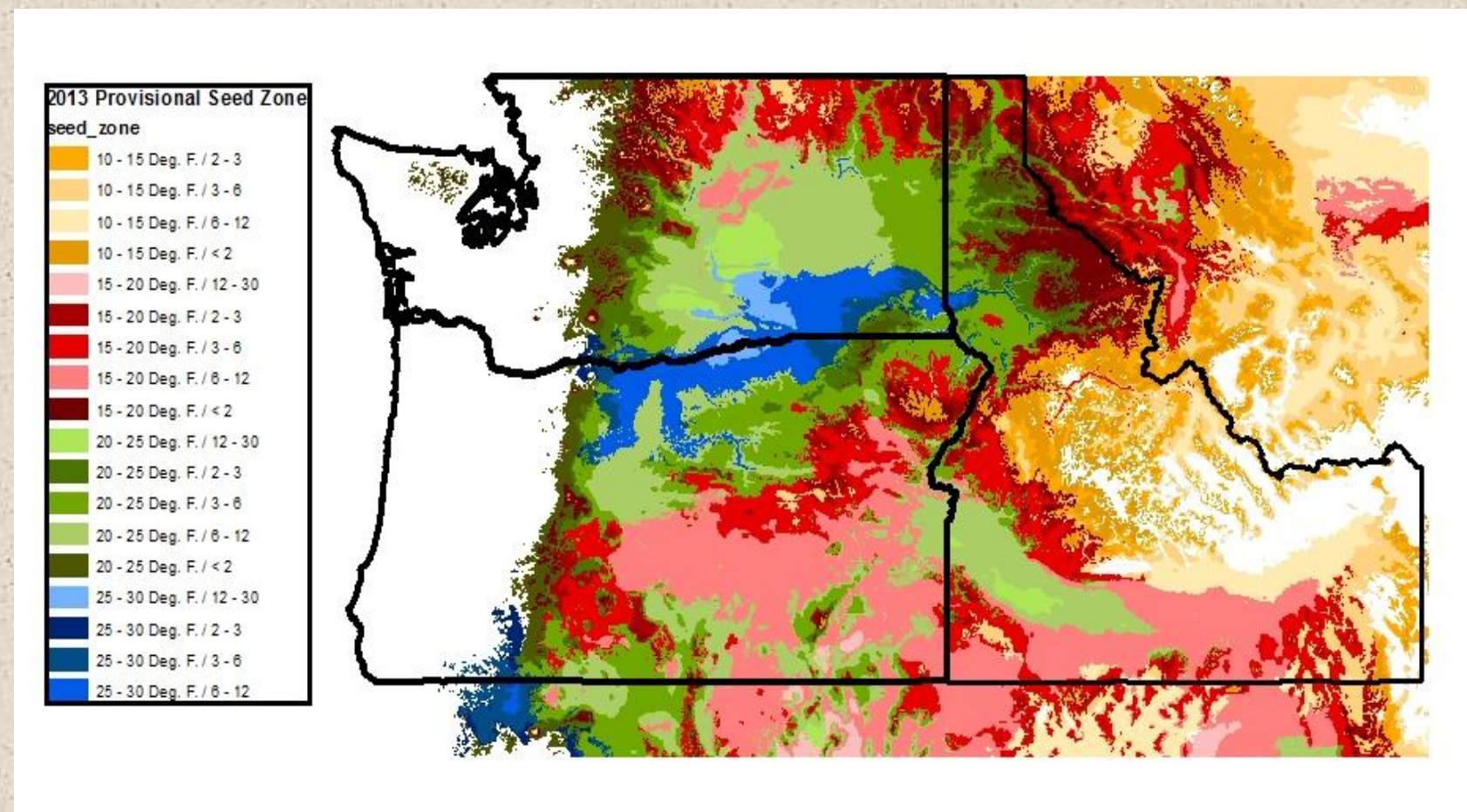
Large Scale Seed Increase Benefits

- Economy of scale
- Increase supply to decrease price



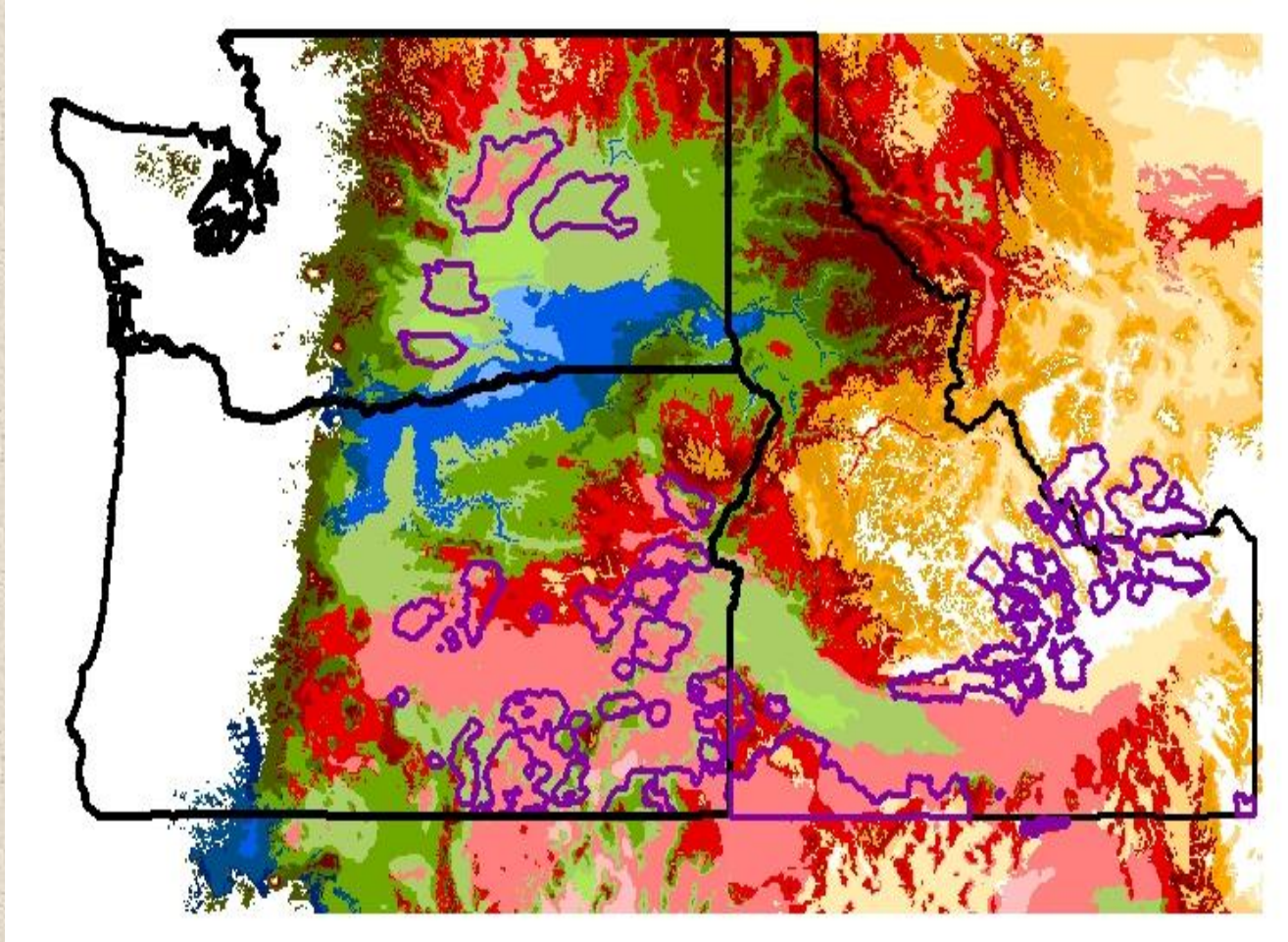
How did we choose where to focus our efforts?

- Provisional seed zone –Bower et. al., 2010

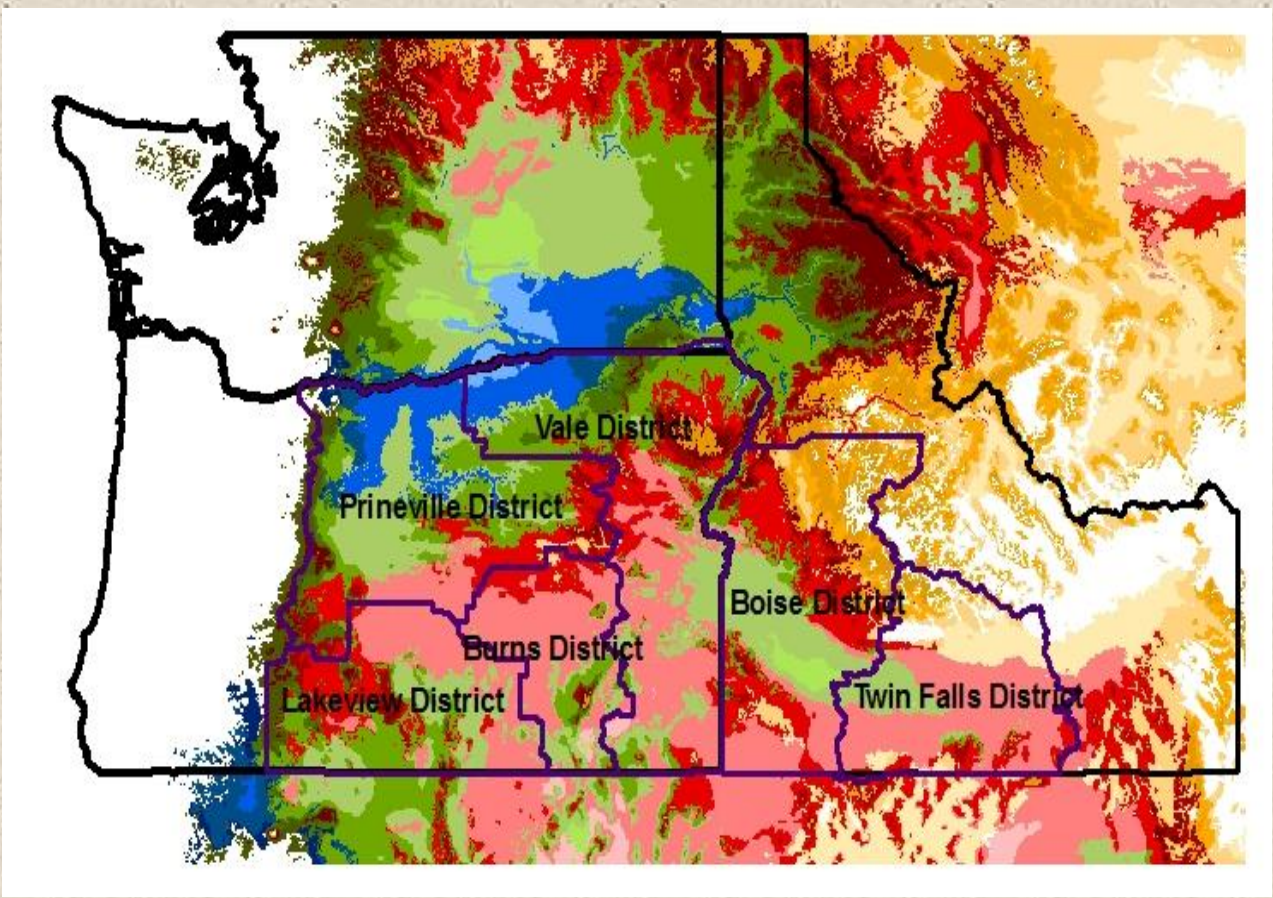


Sage Grouse Priority Conservation Areas

15-20 degree F/6-12



Target Seed Collection Areas



Species Selection

- Sage-grouse Preferred Forb List
- Species that are not currently in production
- Species found throughout our focal area
- Ease of growing in agricultural setting for seed increase i.e. genera that have been grown before as opposed to genera that have never been grown in production
- Benefit pollinators

Priority Collection List 2016

Species					Seed Increase Potental			
Family	Common name	Latin name	Lifeform	Food or Cover	Ease of Growing	Expected 1st Year of Seed Production	Species or similar Species with Past	Seed Harvest Issues
Asteraceae	Mountain Dandelion	Agoseris glauca	Forb/Perennial	Food	Moderate	1 or 2	yes	none
Asteraceae	Long-leaved hawksbeard	Crepis acuminata	Forb/Perennial	Food	Moderate	2	yes	none
Polygonaceae	Creamy buckwheat	Eriogonum heracleoides	Forb/Perennial	Food	Easy	2	yes	none
Apiaceae	Bigseed biscuitroot	Lomatium macrocarpum	Forb/Perennial	Food	Easy	2	yes	none
Asteraceae	Hoary Tansyaster	Machaeranthera canescens	Forb/Biennial	Food	Easy	2	Yes	None
Asteraceae	Sagebrush false dandelion	Nothocalais troximoides	Forb/Perennial	Food	Moderate	2	Yes	None

Collection Goal

Species	Average Seeds/lb	PLS/ft^2 of planting bed	Lbs PLS/acre	Lbs PLS per 1/10th acre	Minimum PLS Lbs (Rounded)	Target PLS Lbs for contract
Agroseris glauca	560,000	30	2.33	0.23	0.25	0.5
Crepis accuminata	150,000	20	5.81	0.58	0.75	1
Eriogonum heracleoides	230,000	30	5.68	0.57	0.75	1
Lomatium macrocarpum	35,000	15	18.67	1.87	2	2
Machaeranthera canescens	1,100,000	30	1.19	0.12	0.25	0.5
Nothacalis troximoides	200,000	25	5.45	0.54	0.75	1

- PLS/ sq foot is based on what could be found in literature and professional knowledge
- Important to round up targets

How to Get the Seed Collected

- Contracts
- Seeds of Success program/Summer Interns
- Excess seed from previous seed collection



Logistics

- Make sure collections receive a unique collection number
- Use the Seeds of Success form to document the collection site
- Proper storage before cleaning
- Long term storage to maintain viability

Results from 2016 Collections

Oregon Collections from Contract

Species	Code/District and Seed zone	County	Bulk lbs collected	Purity%	TZ %	PLS lbs collected
Agoseris glauca	AGGL_Vale_15-20/6-12	Malheur	1.70	51.90%	47%	0.415
Crepis acuminata	CRAC2_Burns_15-20/6-12	Harney	3.53	42.91%	42%	0.636
Crepis acuminata	CRAC2_Lakeview_15-20/6-12	Lake	3.51	50.25%	25%	0.441
Crepis acuminata	CRAC2_Prineville_15-20/6-12	Deschutes/Crook	2.94	37.20%	29%	0.317
Crepis acuminata	CRAC2_Vale_15-20/6-12	Malheur	4.65	41.09%	33%	0.631
Lomatium macrocarpum	LOMA3_Vale_15-20/6-12	Malheur	3.73	78.70%	76%	2.231
Machaeranthera canescens	MACA2_Burns_15-20/6-12	Harney	7.43	16.01%	10%	0.119
Machaeranthera canescens	MACA2_Lakeview_15-20/6-12	Lake	4.97	23.83%	27%	0.320
Machaeranthera canescens	MACA2_Prineville_15-20/6-12	Deschutes/Crook	4.88	25.67%	29%	0.363
Machaeranthera canescens	MACA2_Vale_15-20/6-12	Malheur	7.23	18.50%	25%	0.334
Nothocalais troximoides	NOTR2_Prineville_15-20/6-12	Deschutes/Crook	1.51	77.69%	51%	0.598
Nothocalais troximoides	NOTR2_Vale_15-20/6-12	Malheur	2.92	52.60%	52%	0.799

Idaho Collections from Seeds of Success

Species	Code/District and Seed zone	County	Bulk lbs collected	Purity%	TZ %	PLS lbs collected
Nothocalais troximoides	SOS-ID931-457_15-12/6-12	Blaine	0.22	96%	96%	0.203
Nothocalais troximoides	SOS-ID931-457_15-20/6-12	Blaine	0.22	96%	96%	0.203
Nothocalais troximoides	SOS-ID230-1_15-20/6-12	Blaine	0.58	99%	93%	0.534

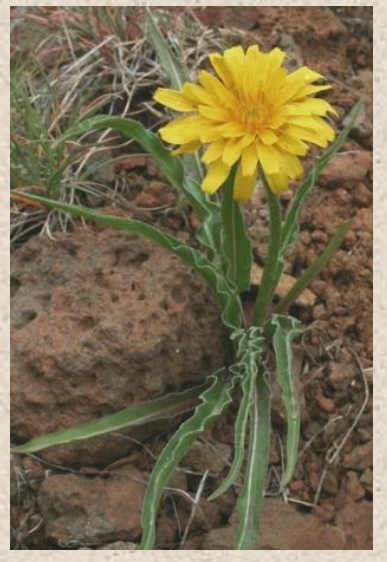
What could go wrong?!?

- Species not located throughout the range or only in limited habitats such as upper elevations, use PNW Consortium of Herbaria database
- Low abundance of plants or seed available for collection
- Low PLS from collected seed
- Potential ploidy issues with *Crepis accuminata*

Priority Collection List for 2017

- *Chaenactis douglasii*
- *Lomatium triternatum*
- *Machaeranthera canescens*
- *Nothocalais troximoides*






Next Steps

- Continue seed collection with our revised list
- Write contract for commercial seed increase
- Start seed increase with wildland seed via contracts

Timeline

Year 1

- Identify focus area and target species
- Hire collectors or write contract
- Collect seed

Year 2

- Continue collections
- Write contract for seed increase
- Start growing seed

Timeline

Year 3

- Continue seed growing
- Possible seed harvest

Year 4

- Seed harvest
- Possibly start using seed for restoration

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Peggy Olwell – Washington Office BLM

For more information on:

Seeds of Success

https://www.blm.gov/programs/natural-resources/native-plant-communities

Great Basin Native Plant Project

http://www.greatbasinnpp.org/

Questions?

The preceding presentation was delivered at the

2017 National Native Seed Conference

Washington, D.C. February 13-16, 2017

This and additional presentations available at http://nativeseed.info

NATIVE SEED NETWORK

Institute for Applied Ecology