

## UNR Seed Cleaning & Storage Facility

Shannon Swim Elizabeth Leger



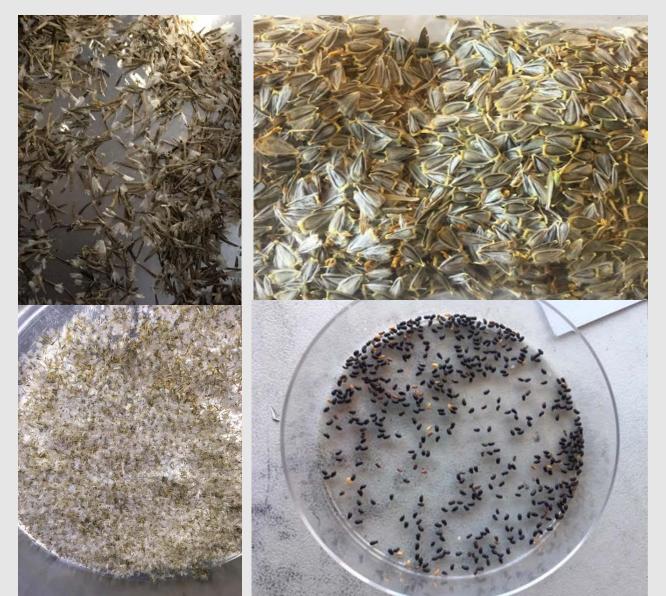


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## **Native Seed Processing Center**

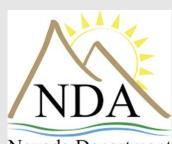
- History
- What is seed cleaning?
- Equipment
- Testing
- Storing
- Lessons learned



# History

- Started as collaboration with WBC
  - Collect Native Seed
    - What species?
    - Where are they?
    - How much?
    - Permit
    - Seed certification
  - Process Native Seed
  - Use Native Seed





Nevada Department of Agriculture



## **Seed Collection**

#### •Collected 17 species

#### Shrubs:

Artemisia tridentata var. tridentata **Atriplex canescens** Atriplex confertifolia Atriplex torreyi Ericameria nauseosa Grayia spinosa Hymenoclea salsola Krascheninnikovia lanata Picrothamnus desertorum Sarcobatus vermiculatus Shepherdia argentea

#### Grasses:

Achnatherum hymenoides Distichlis spicata Pleuraphis jamesii

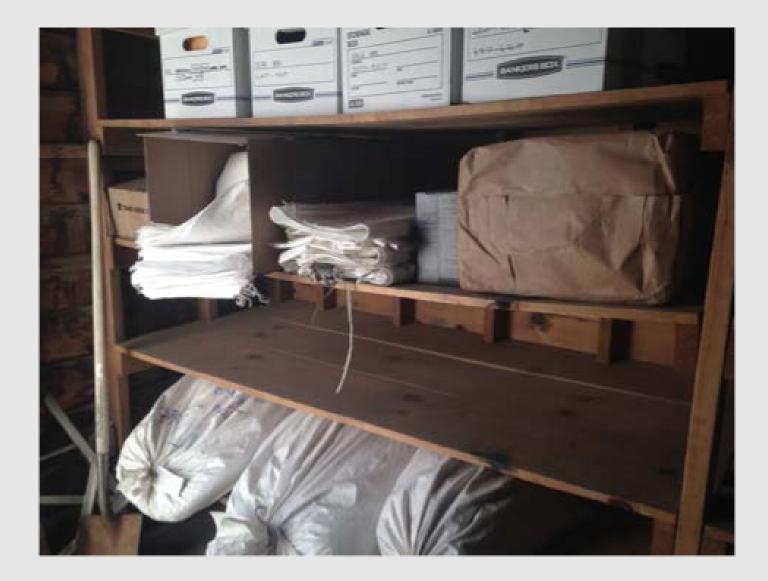
#### Forbs:

Artemisia cana Helianthus annus

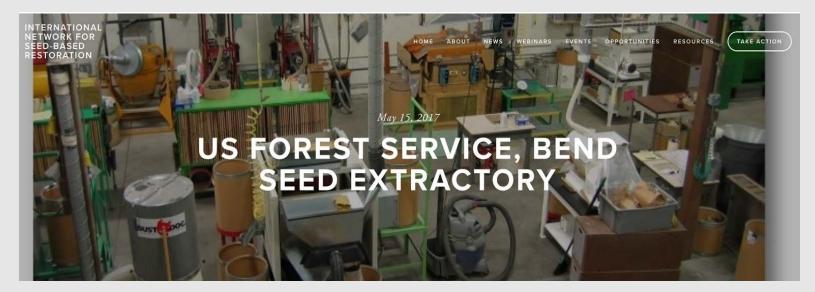




## Dry It!



#### Now What??



United States Department Forest Service		March 10 USDA	Forest Service National L	inks ✓ □□
The second of the second of the		National Seed Laboratory Search		
• Site Map	Forest Service Home About the Agency Contact the National Office Inside the FS	→ NSL Home	WELCOME	UP Front
Boise National Forest	About the Forest	Genetic Conservation	Most native plants used for ecosystem conservation and restoration are propagated exclusively from seeds. Sufficient quantities of seeds	Longleaf
<ul> <li>Home</li> <li>Special Places</li> <li>Recreation</li> </ul>	Lucky Peak Nursery	<ul> <li>(G1-G2 Sd Collection Fm)</li> <li>International Work</li> </ul>	are needed to restore and sustain native plant communities that are increasingly affected by invasive species, pest infestations, wildfire, and climate change. The National Seed Laboratory (NSL) is currently	Pine Cone
Alerts & Notices	A Place That Grows Trees So That Your Forests Are Forever - One Seed at a Time	Native Plant Protocol	addressing these complex challenges and is serving as the primary national strategic resource for forest ecosystem seed science and	Maturity

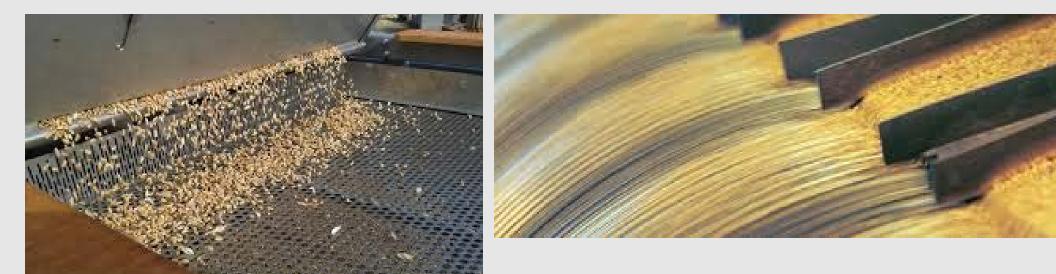
#### **EXTRA SPECIAL THANKS TO THESE FOLKS!!**

#### **Steps to Processing Seed**

#### Seed conditioning

- breaking up plant material
- Seed cleaning
  - separating all the plant material from the seed





## **Seed Conditioning**

- We have:
  - Westrup Brush Machine (6 different mantles)





## **Seed Conditioning**

#### Wintersteiger Thresher



#### Missoula De-winger



## **Seed Conditioning**

• Sieves!





### **Time to Clean!**

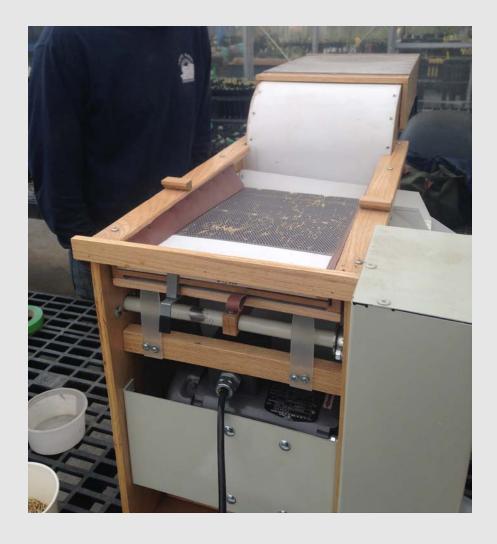
- We have 3 pieces of cleaning equipment
  - Office Clipper
  - Vibratory Separator
  - Continuous Seed Blower



### Seed Cleaning: Office Clipper



We have over 100 different screen sizes!

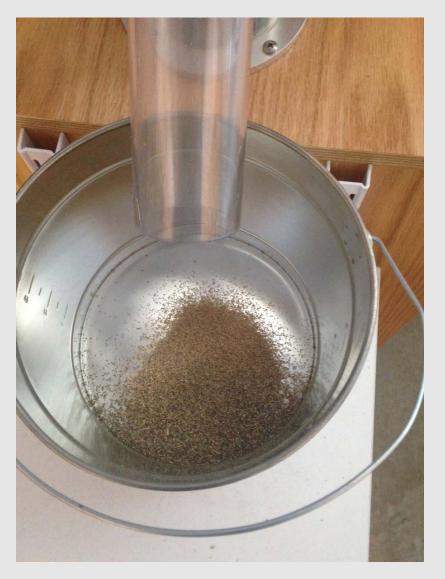


#### **Seed Cleaning: Vibratory Separator**



#### Seed Cleaning: Continuous Seed Blower





### Seed Cleaning: Sieves again!





#### **Busting Common Misconceptions of Seed Cleaning**

- Undesired seed is **NOT** easy to remove
- Similar shape and size VERY difficult
- Costly \$\$\$
- Loss of desired seed
- Risk of spreading noxious or invasive species





## Busting Common Misconceptions of Seed Cleaning

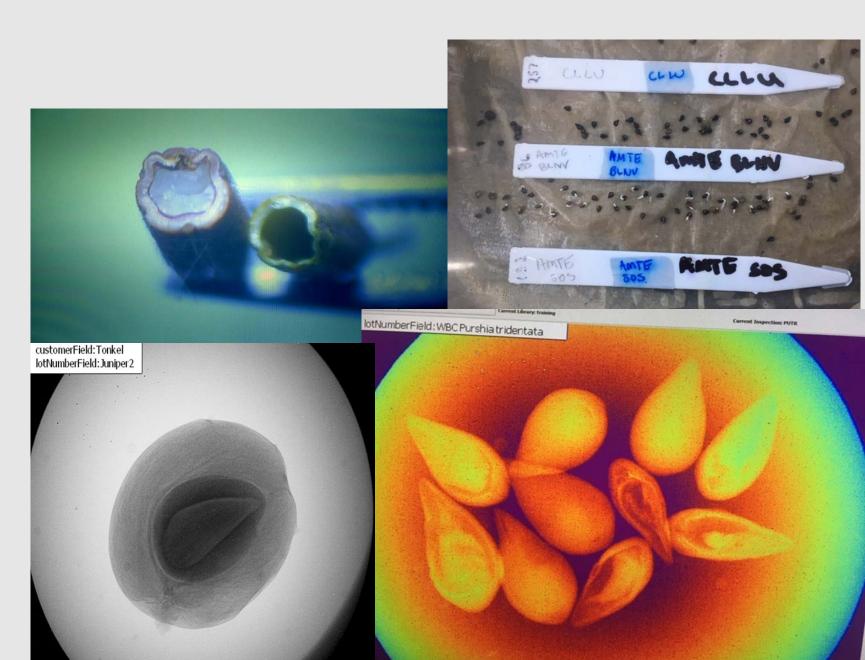
- It is NOT easy to remove extraneous (chaff) material
- Costly \$\$\$
- Loss of desired seed





## **Seed Testing**

- Cut tests
- Purity test
- Germination test
- X-ray machine



### Storage

- Short-term < 18 months
- Long-term > 18 months





### **Short-term Storage**

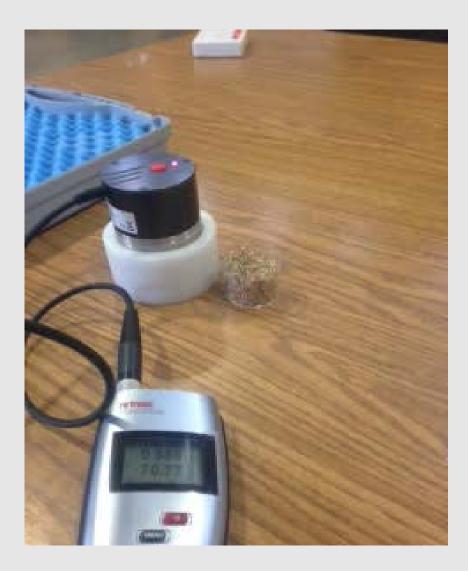
- Historically, store MOST seed between 33\*F and 41\*F (Hong and Ellis, 1996)
- 2 Commercial reach-in refrigerators
  - Temps variable, but range is typically 34-45\*F



### Long-term Storage

Long-term requires an extra step!

- RH of seed needs to be 15% or lower
- Temps around 0\*F
- Moisture analyzer



### **New Guidance**

RESTORATION ECOLOGY The Journal of the Society for Ecological Restoration

#### SER SOCIETY FOR ECOLOGICAL RESTORATION

#### PRACTICAL ARTICLE

#### International principles and standa in ecological restoration

Simone Pedrini<sup>1,2</sup>, Kingsley W. Dixon<sup>1</sup>

Recommends:

- 15\*C for short-term
- -18\*C for long-term



## Labels/ inventory

- What species
- Who owns it
- When collected
- Seed lot
- Tests performed
- Estimated amount of seed (PLS)



## Keep it Clean!

- Pests
  - Rodents
  - Insects
  - Diseases



## SOME LESSONS LEARNED

- Cold storage systems need a monitoring system!
- An inventory system indicating who owns the seed is very important!
- When shipping seed always send a tracking number



### Species cleaned to-date

- 69 different species
  - Shrubs, grasses, and forbs
- Over 280 different lots!







## Special Thanks to....

- FS Bend Seed Extractory
- FS National Seed Lab
- FS Lucky Peak Nursery

Contact: Beth Leger UNR Department of Biology Office: (775) 784-7582 Email: <u>ealeger@gmail.com</u>

