

# **“Seeds of Success” in Wyoming: Promoting Seed Collection and Native Plant Materials Development**

**Adrienne Pilmanis, BLM  
Wyoming Native Seed Issues  
Workshop  
April 3, 2012**





# Today's Presentation:

1. What is “Seeds for Success”?
2. WY BLM SOS Program & Partners
3. Current projects
4. Accomplishments to date
5. Future outlook



# The Seeds for Success Program is:

## 1. Native Plant Materials Development (NPMD)

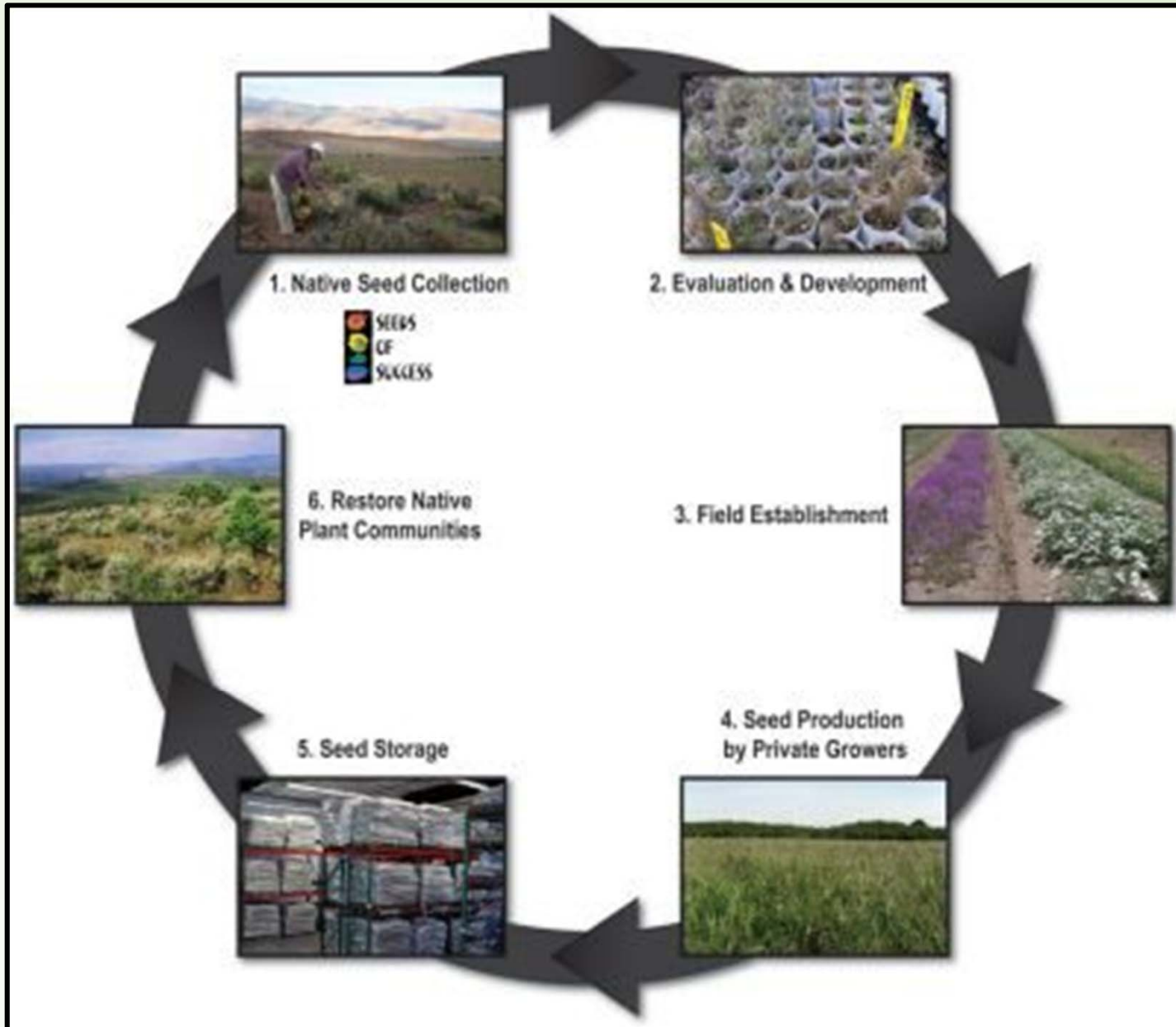
- BLM 2001: to collect, conserve, and develop native plant materials for stabilizing, rehabilitating and restoring public lands in the US.

## 2. Preservation of Genetic Biodiversity

- Long-term curation of germplasm from across breadth of species' ecological ranges; working collection for research

- Partners & Facilities include: USDA Agricultural Research Service, NRCS, Plant Materials Centers (PMCs), Millennium Seed Bank, Botanic Gardens, Agencies, Arboreta, Zoos, Municipalities

# Native Plant Materials Development



# Seeds for Success Basics:

- SOS Teams follow a common protocol and coordinate seed collecting and species targeting efforts:
  - Target Species list; Scout locations;
  - Record site data; Take images & press specimens
  - Monitor ripeness; Train & coordinate collectors
  - Collect >10,000 seeds from >50 plants
  - Clean & analyze “accession” (collection)
  - Curate at ARS facilities in Pullman and Ft. Collins
- Then:
  - Seed used for lab & field evaluation (UW, PMCs)
  - Increase amount of seed (PMCs foundation)
  - Release to commercial growers



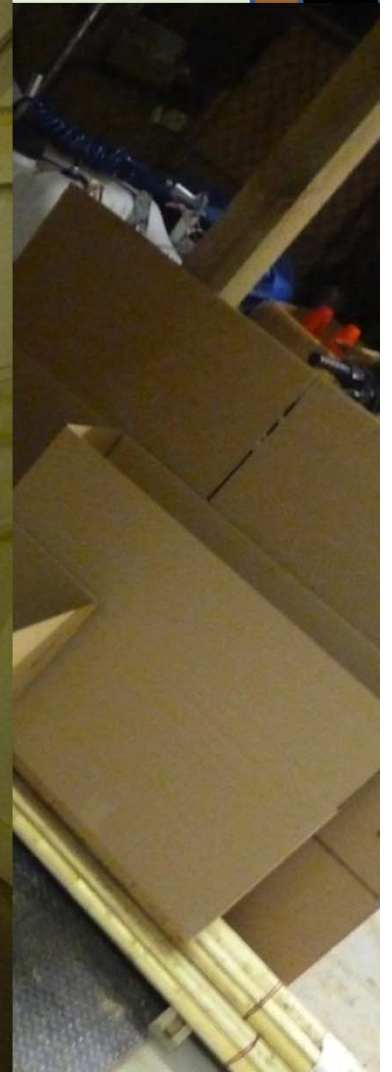


# Scout, Identify, Press



# Collect, Ship, Clean & Curate

BLM





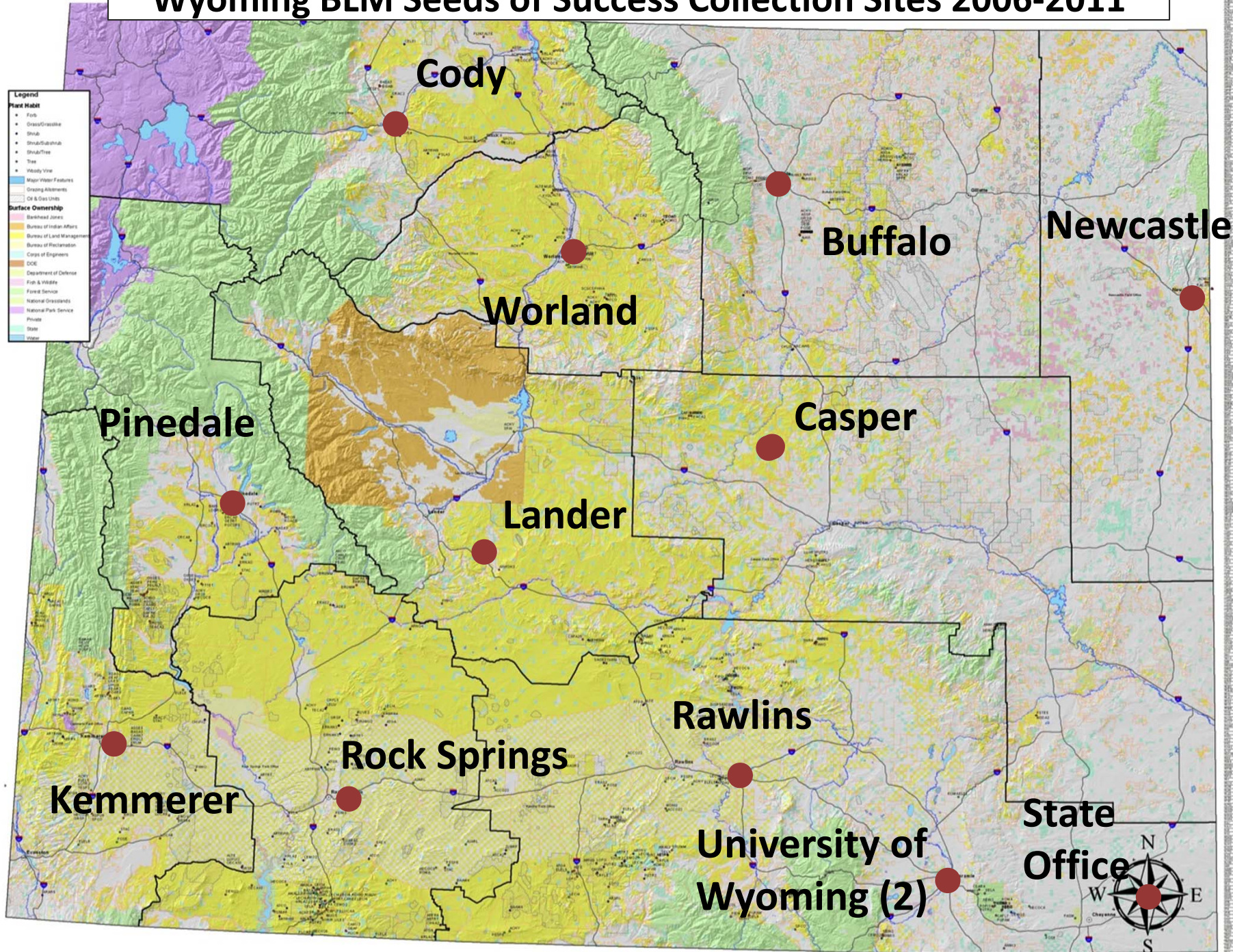
# WY BLM SOS

- Identify collection priorities & targets
  - WY species, WY ecotypes, WY needs
- Mobilize resources to make collections
  - BLM or partner staff, contractors, Interns, Youth Corps, Assistance agreements, volunteers
- Curate collection information
  - Geospatial location, site data, photos, herbarium specimens
- Send cleaned seeds to storage or project use
  - Germplasm storage (USDA ARS seed banks, Botanic Gardens), PMCs, Universities, Growers
- Facilitate research, development, & use by partners & stakeholders





# Wyoming BLM Seeds of Success Collection Sites 2006-2011



Site ID	Site Name	County	Plant Habit	Surface Ownership	Collection Date	Collector	Notes
1	Cody	Fremont	Shrub	Bureau of Land Management	2006	J. Smith	...
2	Worland	Worland	Shrub	Bureau of Land Management	2007	J. Smith	...
3	Buffalo	Buffalo	Shrub	Bureau of Land Management	2008	J. Smith	...
4	Newcastle	Newcastle	Shrub	Bureau of Land Management	2009	J. Smith	...
5	Casper	Casper	Shrub	Bureau of Land Management	2010	J. Smith	...
6	Lander	Lander	Shrub	Bureau of Land Management	2011	J. Smith	...
7	Pinedale	Pinedale	Shrub	Bureau of Land Management	2006	J. Smith	...
8	Kemmerer	Kemmerer	Shrub	Bureau of Land Management	2007	J. Smith	...
9	Rock Springs	Rock Springs	Shrub	Bureau of Land Management	2008	J. Smith	...
10	Rawlins	Rawlins	Shrub	Bureau of Land Management	2009	J. Smith	...
11	University of Wyoming (2)	Laramie	Shrub	State	2010	J. Smith	...
12	State Office	Cheyenne	Shrub	State	2011	J. Smith	...



# Worland Field Office

*Thermopsis rhombifolia*  
Prairie Thermopsis



Warren  
Big Horn Basin  
Natural Resource  
Specialist

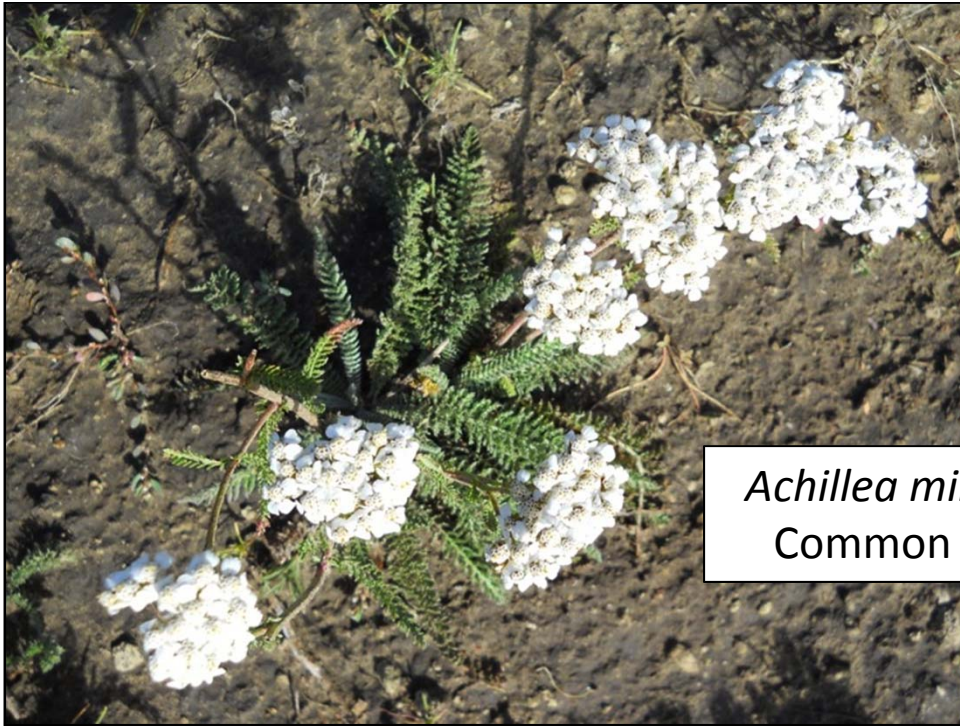
*Artemisia tridentata ssp. wyomingensis*  
Wyoming Big Sagebrush



*Calochortus nuttallii*  
Sego Lily

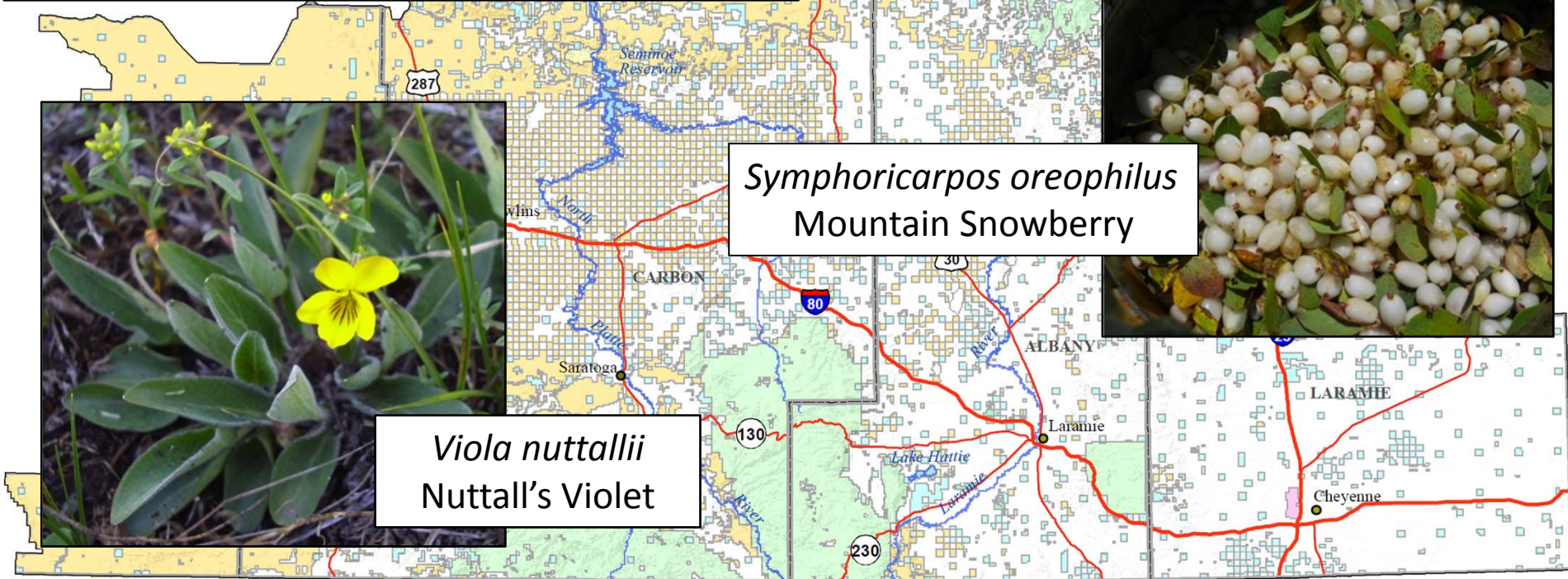






*Achillea millefolium*  
Common Yarrow

Rawlins SOS Interns  
Taking Herbarium Vouchers



*Viola nuttallii*  
Nuttall's Violet

*Symphoricarpos oreophilus*  
Mountain Snowberry



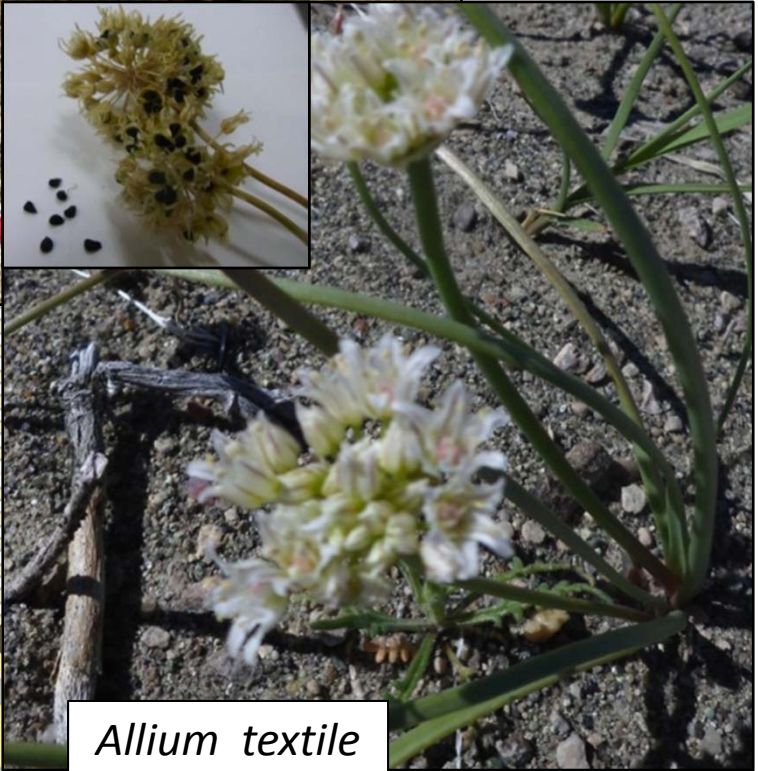




*Penstemon nitidus*  
Wax-leaved Penstemon



**Not Pictured:  
Rock Springs Botanist,  
Jim Glennon**



*Allium textile*  
Textile Onion

**Rock Springs  
Field Office**





# 2011 Interns



**Pinedale Field Office:**  
Matt Candeias  
Brian Josey



**Newcastle Field Office:**  
Andrew Buijs



**Rock Springs Field Office:**  
Marie Dematatis



**Kemmerer Field Office:**  
Dan Brown, Seasonal  
Carson Hughes, Volunteer

**Not Pictured:**  
Susan Anderson  
Sammi Bray  
Other Interns that  
helped part-time



**Wyoming State Office:**  
Jeannine Strenk, WYSO  
Emma Stewart, WYNDD

# 2011 Conservation Crews

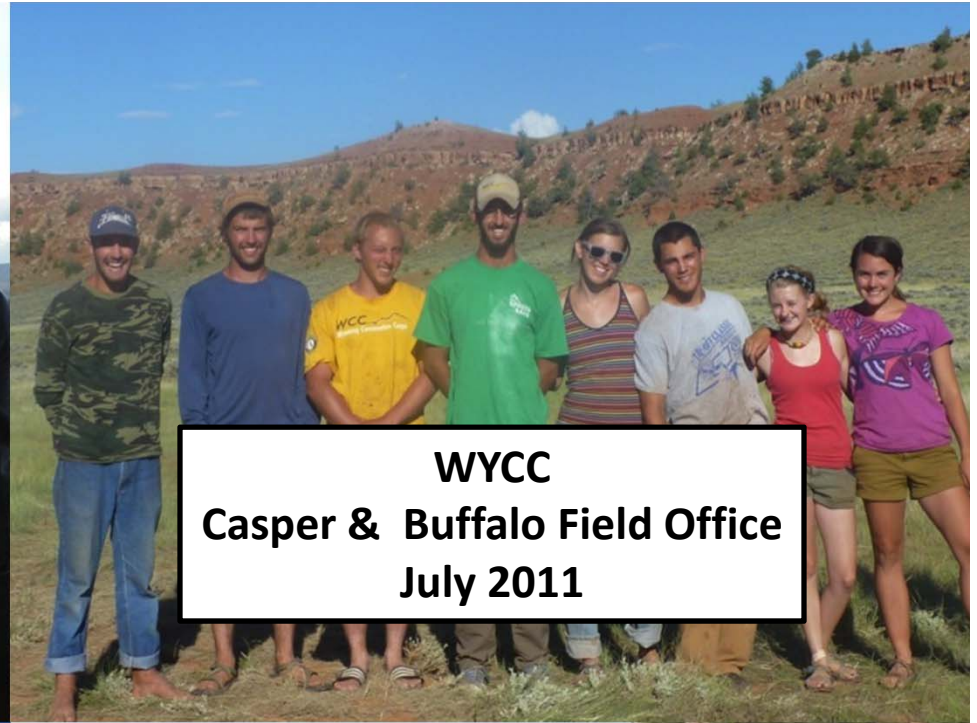




**MTCC Leaders Crew  
Cody Field Office  
October 2011**



**WYCC  
Casper & Buffalo Field Office  
July 2011**



**Rocky Mountain Youth Crew  
Rock Springs Field Office  
September 2011**



**Wind River Youth Crew  
Casper Field Office  
August 2011**





# Current Projects with WY SOS

- Bridger, Meeker, Aberdeen PMC evaluation trials
- Germination Restrictions – across latitudinal and elevational gradients (UW: K. Hufford lab)
- Herbicide tolerance – wildland seed compared with cultivars & non-natives (UW: B. Meador lab)
- Bentonite Reclamation forb trials with local collections (UW: P. Stahl, L. King, K. Hufford labs)
- Native Plant Demonstration Gardens, Albany & Johnson counties (UW: Meador, Meador, Hufford)
- Increase of Buffalo Field Office forb & grass genotypes
- Education & Outreach







**BLM WY – Bridger PMC  
5-yr Assistance Agreement  
Grass & Forb Trials**

**BLM WY – Meeker PMC  
5-yr Assistance Agreement  
Forb & Grass Trials & Increase**



# Dr. Kristina Hufford, University of Wyoming Restoration & Reclamation Center

Germination Requirement research,  
Common Garden Studies,  
Demonstration Gardens





# Lyle King

## Sage Grouse Habitat Reclamation on Bentonite Mines

BLM





# DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT



## Wyoming



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## Plant Conservation Program

<http://www.blm.gov/wy/st/en/programs/pcp.htm>

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**Plant Conservation Program Mission:** The BLM Wyoming Plant Conservation Program (PCP) strives to protect and sustain native plant communities and the ecosystems in which they are found, and to prevent plant species from becoming rare and threatened with extinction. We work to minimize short- and long-term loss of biological resources on lands that may be subject to development for energy, minerals and recreation, and to facilitate recovery of disturbed lands.



The Plant Conservation Program's 2010 Field Season was a safe and successful one and we are looking forward to the 2011 season. There are many opportunities to join Wyoming's Plant Conservation Program. Positions for 2011 include Seeds of Success Internships, volunteering, Youth Conservation Crews and contracted employees. If you are interested in employment or volunteering visit our "Get Involved Page" to learn more about joining our team!

The national Seeds of Success Program received the DOI Partners in Conservation Award in 2010! Congratulations to all of our past and current SOS mentors and interns for all of your hard work in seed collection for restoration.



# Partnerships are key!

- Engage with partners for SOS and at all levels of NPMD:
  - Identify species needs; collection sites
  - Collection of local seeds to bank & use
  - Increase seeds for future reclamation
  - Propose, lead & participate in trials
  - Use new and developing plant materials
  - Technology transfer: share failures & successes
  - Address BLM WY Reclamation challenge





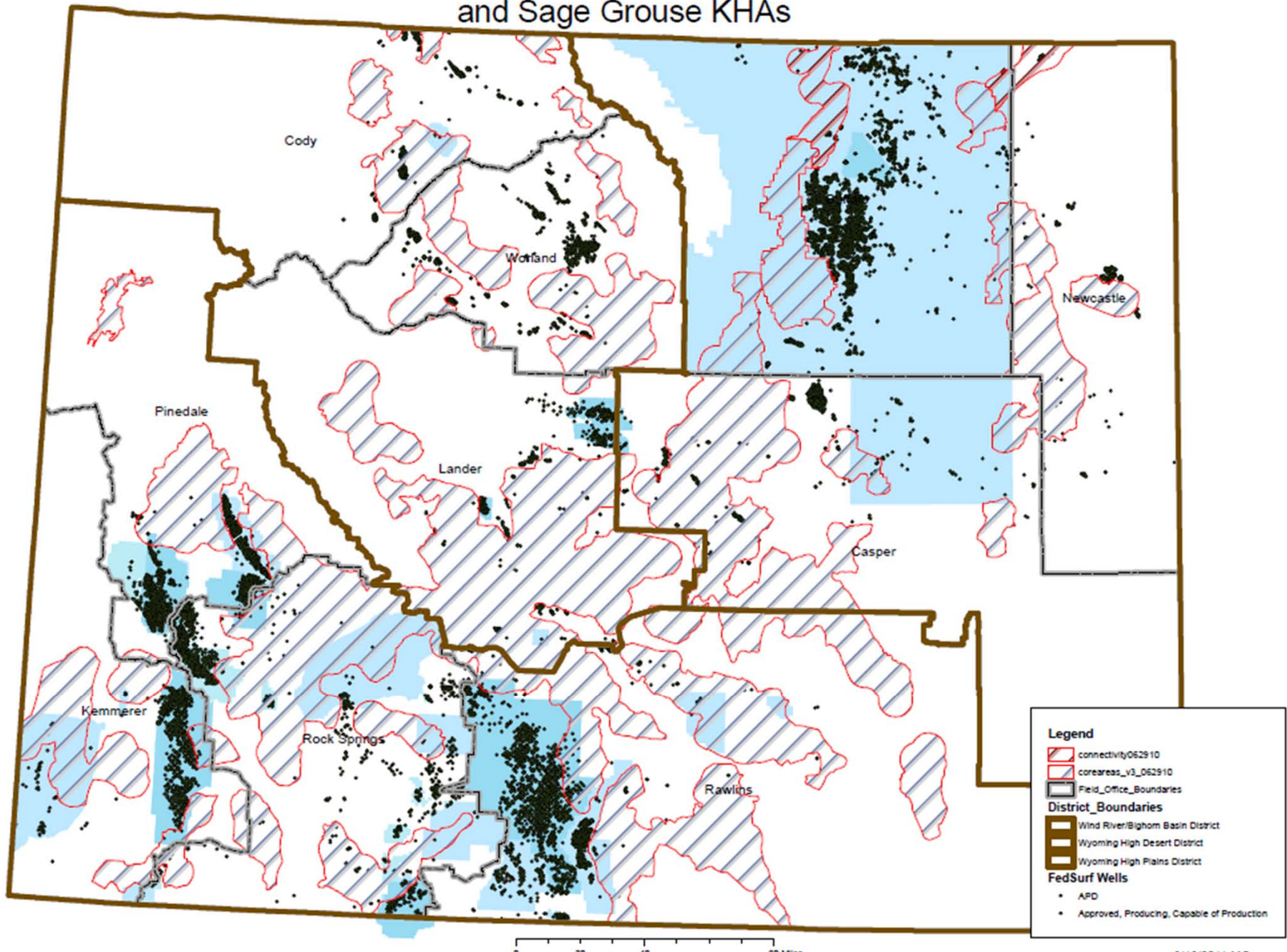


# Major Use of Seed in Wyoming: Reclamation

Source: Skytruth



# NEPA, O&G Development and Sage Grouse KHAs





# Partnership Example: Shell trials

NRCS Industry-Agency Partnership in Pinedale area  
- Karen Clause  
- used cultivars and new Bridger PMC materials

Opportunities at many other locations!!





# SOS & Wyoming Reclamation

- Native ecotypes are adapted to local conditions
  - “Put back what you took off”; Diversity = Resiliency
  - Facilitate Natural Succession
- But, WY site-specific seed availability is limited
  - need more ecotype and seral stage options,
  - esp. those competitive with weeds
- SOS Goals:
  - Support Wyoming Ecoregional Native Plant Materials Devel. by working with industry and partners to **Plan Ahead** to increase probability of success by using local plant materials
  - Policy to promote use of local genotypes as a BMP
  - Preserve overall ecosystem genetic diversity





# WY BLM SOS Accomplishments

2006 – 2011:

>600 collections of 276 species in 20 counties and in  
>20 Level IV Ecoregions

134 grass, 150 shrub/woody, 317 forb collections

- Trained >50 individuals in SOS protocol

>100 accessions to PMCs for NPMD efforts

~60 to University of Wyoming partners for research

- Policy Influence – language in BLM WY Reclamation  
policy v. 2; draft Resource Management Plans

- Numerous Partners, Agreements & Outreach efforts

<http://www.blm.gov/wy/st/en/programs/pcp.html>





# Future Projects with WY SOS

- **Formalization** of WY Basins NPMD Program: Vision, Mission, Operation Plan, MOU, Short- & Long-term goals; BLM guidance and BMPs
- SOS collections (cont.); esp. natives competing with weeds
- Reclamation trials of ecotypes with industry partners
- Study cultivar and ecotype exchange in field
- Develop seed zones for sage grouse habitat forbs
- Study SOS collections in high CO<sub>2</sub> and high temperature trials
- Seed increase: Wyoming Landscape Conservation Initiative, post-fire restoration, old reclamation projects
- Education & Outreach





# Thank you!

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Coordinator

Cheyenne WY

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# Maximize Program potential with more Partners:

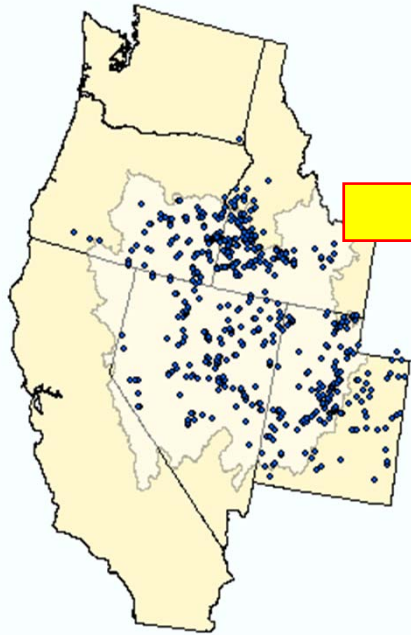
- UW Researchers and Departments.
- WY Dept. of Agriculture
- WY Business Council
- Conservation Districts
- Conservation organizations (e.g. TNC)
- Industry: Energy – oil, gas, wind
- Seed Supply Companies, Native Seed Network
- Regional BLM IDIQ Contract for Native Seed increase awarded, but no Wyoming growers
- Local grower contracts to come





# Example: Great Basin Native Plant Selection and Increase Project

## Seed Collection



500+ seed collection sites

## Common gardens Cultural practices



## Private Production

## Results!



## Application