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

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Wyoming Native Seed Issues Workshop
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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

1. Native Seed Collection
2. Evaluation & Development
3. Field Establishment
4. Seed Production by Private Growers
5. Seed Storage
6. Restore Native Plant Communities
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
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
*Worland Field Office*

- **Thermopsis rhombifolia**
  - Prairie Thermopsis

- **Artemisia tridentata ssp. wyomingensis**
  - Wyoming Big Sagebrush

- **Calochortus nuttallii**
  - Sego Lily

*Warren / Big Horn Basin Natural Resource Specialist*
Achillea millefolium
Common Yarrow

Viola nuttallii
Nuttall's Violet

Symphoricarpos oreophilus
Mountain Snowberry

Rawlins SOS Interns
Taking Herbarium Vouchers
Penstemon nitidus
Wax-leafed Penstemon

Allium textile
Textile Onion

Not Pictured: Rock Springs Botanist, Jim Glennon
2011 Interns

Pinedale Field Office:
Matt Candeias
Brian Josey

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

Newcastle Field Office:
Andrew Buijs

Rock Springs Field Office:
Marie Dematatis

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

Wyoming State Office:
Jeannine Strenk, WYSO
Emma Stewart, WYNDD
2011 Conservation Crews
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. Mealor lab)
- Bentonite Reclamation forb trials with local collections (UW: P. Stahl, L. King, K. Hufford labs)
- Native Plant Demonstration Gardens, Albany & Johnson counties (UW: Mealor, Mealor, 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
Plant Conservation Program

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
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 ecotopes 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

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$_2$ and high temperature trials
- Seed increase: Wyoming Landscape Conservation Initiative, post-fire restoration, old reclamation projects
- Education & Outreach
Thank you!

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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

Common gardens Cultural practices

Private Production

Results!

500+ seed collection sites

Application

Seed Collection

Common gardens Cultural practices

Private Production

Results!