Native Plant Materials for Northeast Wyoming

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Challenges:

- Germination/dormancy
- Agronomic production setting
- Indeterminate seed maturity...collection
- Irregular plants/seed locations make mechanical harvest difficult
Partnerships

- BLM
- Conservation Districts
- USDA-ARS FRRL
- Pawnee Buttes Seed
- Granite Seed
- Bridger Plant Materials
- Wyoming Apple Project
- Bayer U.S.
- Corteva Agriscience

- Custom grow-outs
- Germplasm and variety development
  - Long term goal to meet the needs of the region and state
Desert Biscuitroot: *Lomatium foeniculaceum*

- Native perennial herb in the carrot family
- Important for sage grouse
- Also used as herb for cooking or medicinal purposes
- Dry open slopes, valleys, and plains

Sulfur Buckwheat: *Eriogonum umbellatum*

- Native, low-growing, woody perennial
- Important for adult sage grouse, insects on plants are important for chicks
- Used by browse grazers
- Usually found on dry, open, rocky sites with shallow, sandy soils, on sunny slopes and ridges, 8 to 18 in annual precip as winter rain/snow

Lettermans Needlegrass: *Achnatherum lettermanii*

- Native, slender, perennial, cool season, bunchgrass
- Wide range of elevation and locations
- 8-20 in annual precip
- Provides valuable forage for many species of livestock
Results

Desert Biscuitroot: *Lomatium foeniculaceum*
- May 22, 2018
- Transplants
  - 68 Plants
  - 19.4% Survival
- Direct Seeding
  - 1202 Plants

Sulfur Buckwheat: *Eriogonum umbellatum*
- May 22, 2018
- Transplants
  - 254 Plants
  - 72.6% Survival
- Direct Seeding
  - 14 Plants
**Methods**
- Seeded into cone-tainers mid February- late March 2017
- Transplanted to field with 18 in spacing May 15-16, 2017

**Results**
- 503 plants on May 22, 2018
- ~30.2% survival
Fourwing saltbush
Large-scale field work

- Western wheatgrass – successful planting and 1st year harvest
  - Working through best ways to harvest and clean seed
- Green needlegrass – establishment research
Seed production vs weed management

- Annual weeds negatively impact grass seed production (competition, seed contaminates)
  - Herbicide options limited (weed control and little damage to desirable species)

Weed seed: 5.6%
Other Crop: 2.31%
Established Perennial Grasses

- 18 species/varieties
- Planted May 23, 2013
- Randomized complete block design, 4 blocks

Big Bluegrass, ‘Sherman’
Nevada Bluegrass, ‘Opportunity’
Indian Ricegrass, ‘Nezpar’
Indian Ricegrass, ‘Rimrock’
Basin Wildrye, ‘Continental’
Basin Wildrye, ‘Trailhead’
Basin Wildrye, ‘Washoe’
Beardless Wildrye, ‘Shoshone’
Russian Wildrye, ‘Bozoisky-Select’
Russian Wildrye, ‘Mankota’
Bluebunch Wheatgrass, ‘Anatone’
Bluebunch Wheatgrass, ‘Goldar’
Green Wheatgrass, ‘AC Saltlander’
Hybrid Wheatgrass, ‘Newhy’
Slender Wheatgrass, ‘Copperhead’
Slender Wheatgrass, ‘Pryor’
Siberian Wheatgrass, ‘Vavilov’
Siberian Wheatgrass, ‘Vavilov ll’
- Herbicide applied 27 March 2017
  - Half of each seeding, randomized between blocks
  - Indaziflam (73 g ai/ha) and glyphosate (420 g ai/ha)
Inflorescence Weight (2017)

Species

- Slender Wheatgrass 'Pryor'
- Slender Wheatgrass 'Copperhead'
- Siberian Wheatgrass 'Vavilov II'
- Siberian Wheatgrass 'Vavilov'
- Russian Wildrye 'Mankota'
- Russian Wildrye 'Bozoisky-Select'
- Nevada Bluegrass 'Opportunity'
- Indian Ricegrass 'Rimrock'
- Indian Ricegrass 'Nezpar'
- Hybrid Wheatgrass 'Newhy'
- Green Wheatgrass 'AC Saltlander'
- Bluebunch Wheatgrass 'Goldar'
- Bluebunch Wheatgrass 'Anatone'
- Big Bluegrass 'Sherman'
- Beardless Wildrye 'Shoshone'
- Basin Wildrye 'Washoe'
- Basin Wildrye 'Trailhead'
- Basin Wildrye 'Continental'

Herbicide $p<0.0001$
Species $p<0.0001$

$>90\%$ reduction
Conclusions

- Production is under way for some species
- Working through questions around germination, establishment, seed collection, cleaning, and end use
- Partners and cooperators
  - “Custom” growouts
  - Foundation seed production to enhance capacity of WY/MT PMP
What next?

- What species are most needed?
- What are some species-specific problems and/or solutions?
- Would a NE WY or PRB plant materials meeting be useful?
- What are the local (defining which local) needs?