The effectiveness of rangeland and minimum-till seed drills for large-scale restoration of sagebrush wildlands

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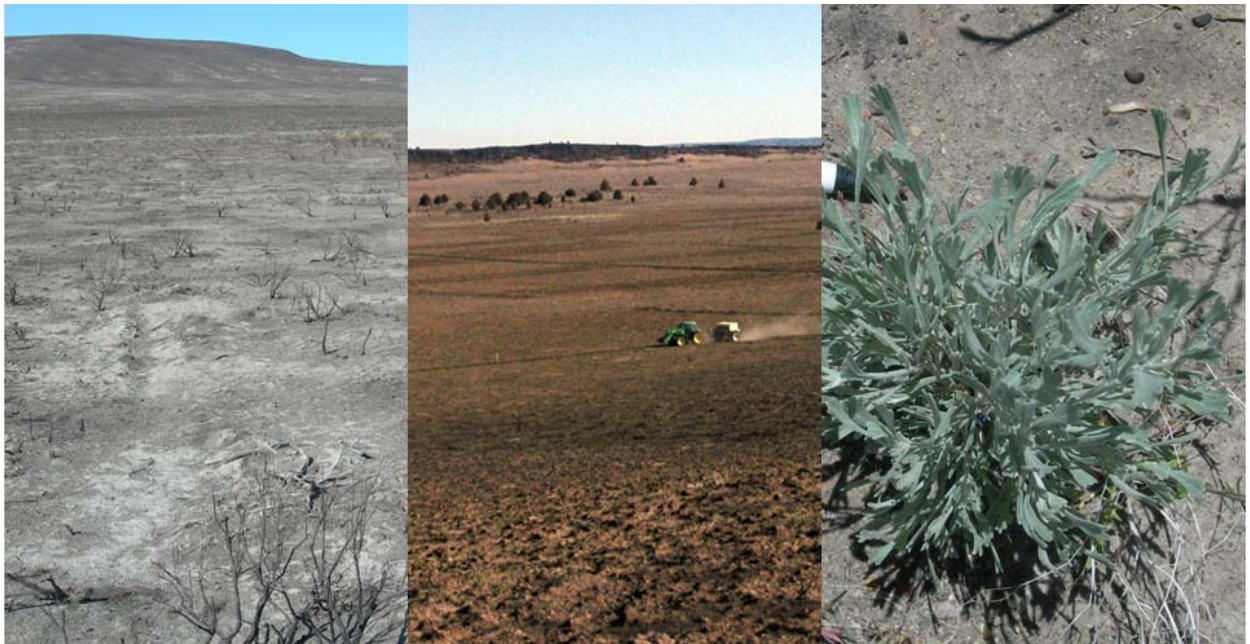
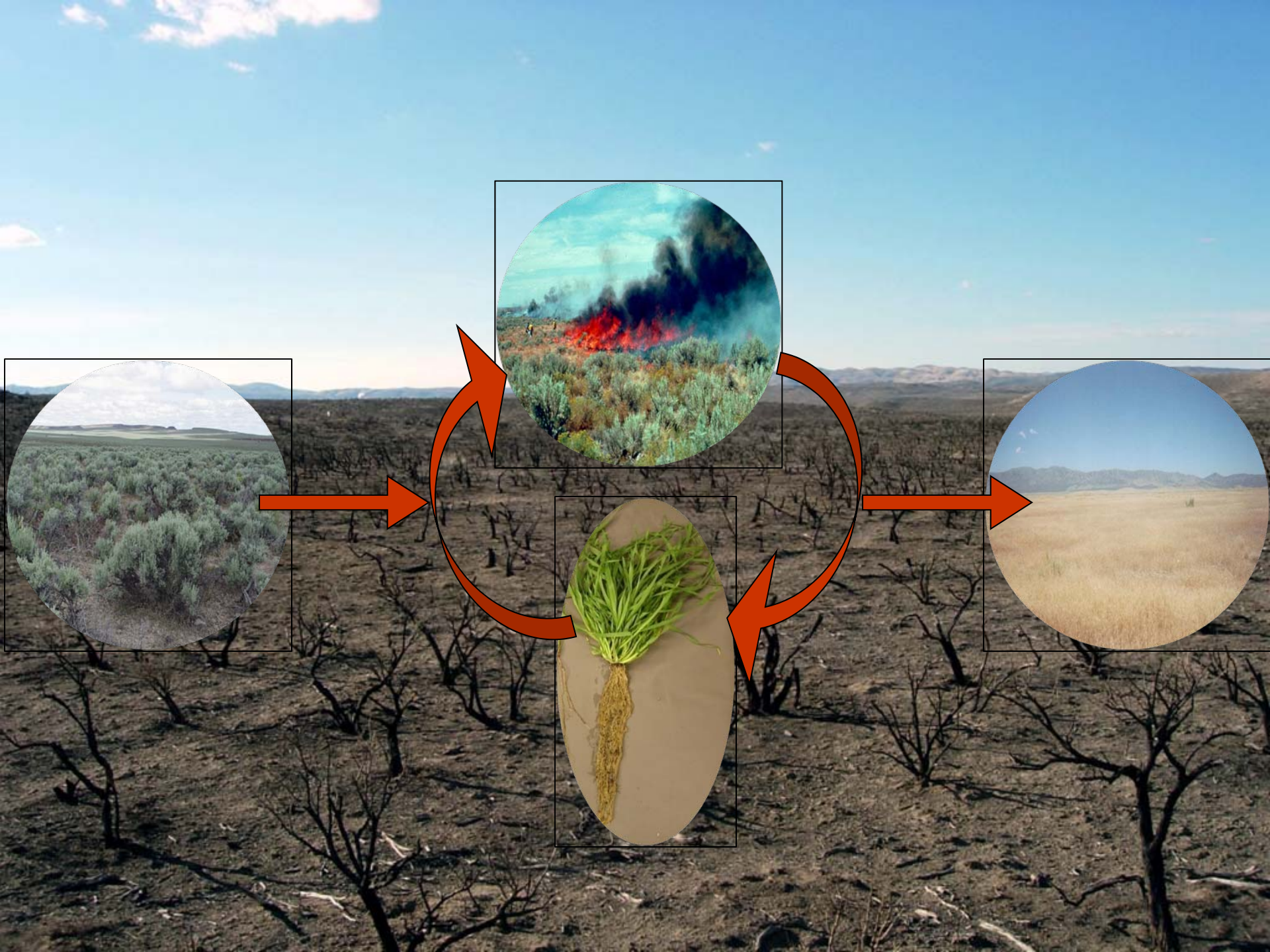
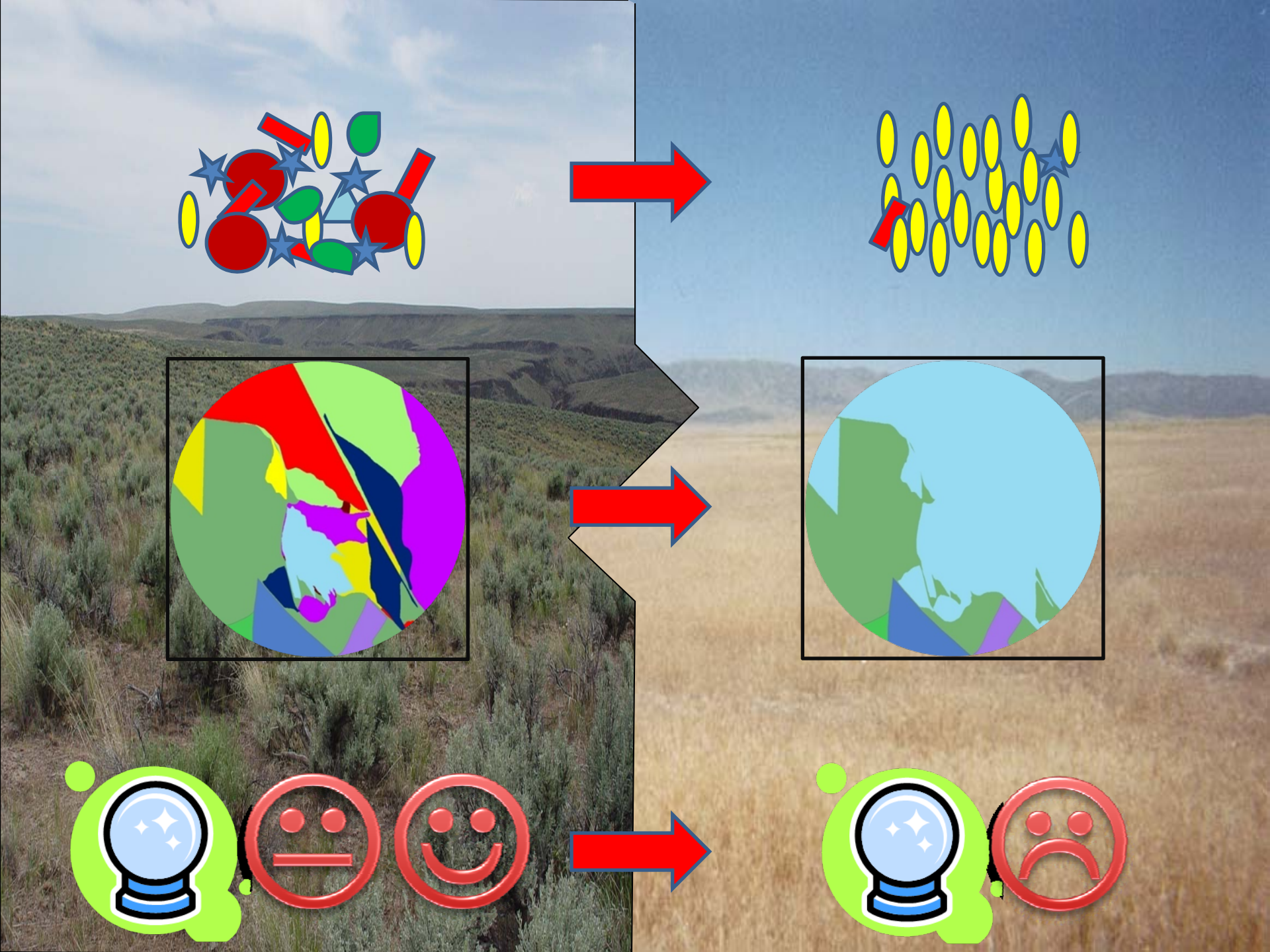
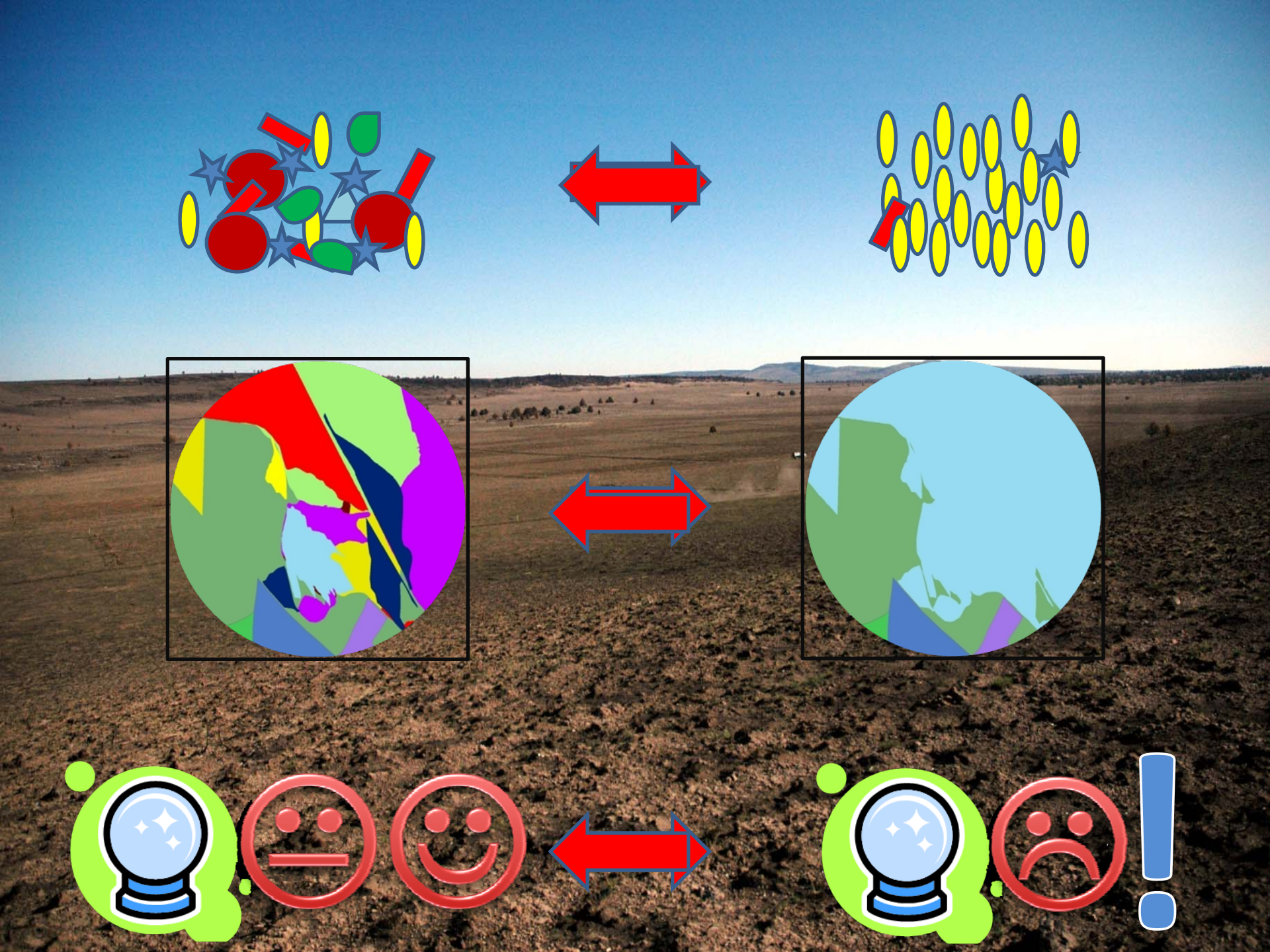








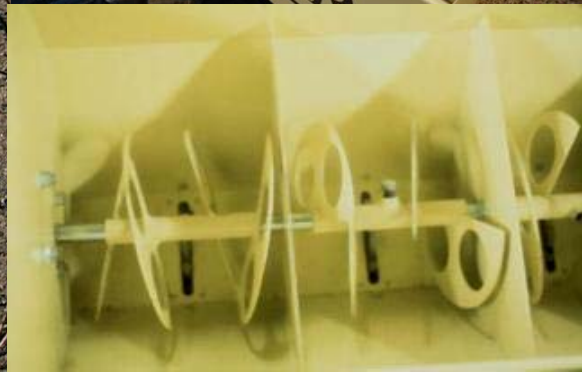
Seed Drills

Treatments

Control (no drilling or seeding)

Rangeland drill (no seed, low rate, high rate)

Minimum-till drill (no seed, low rate, high rate)



Seed Mix

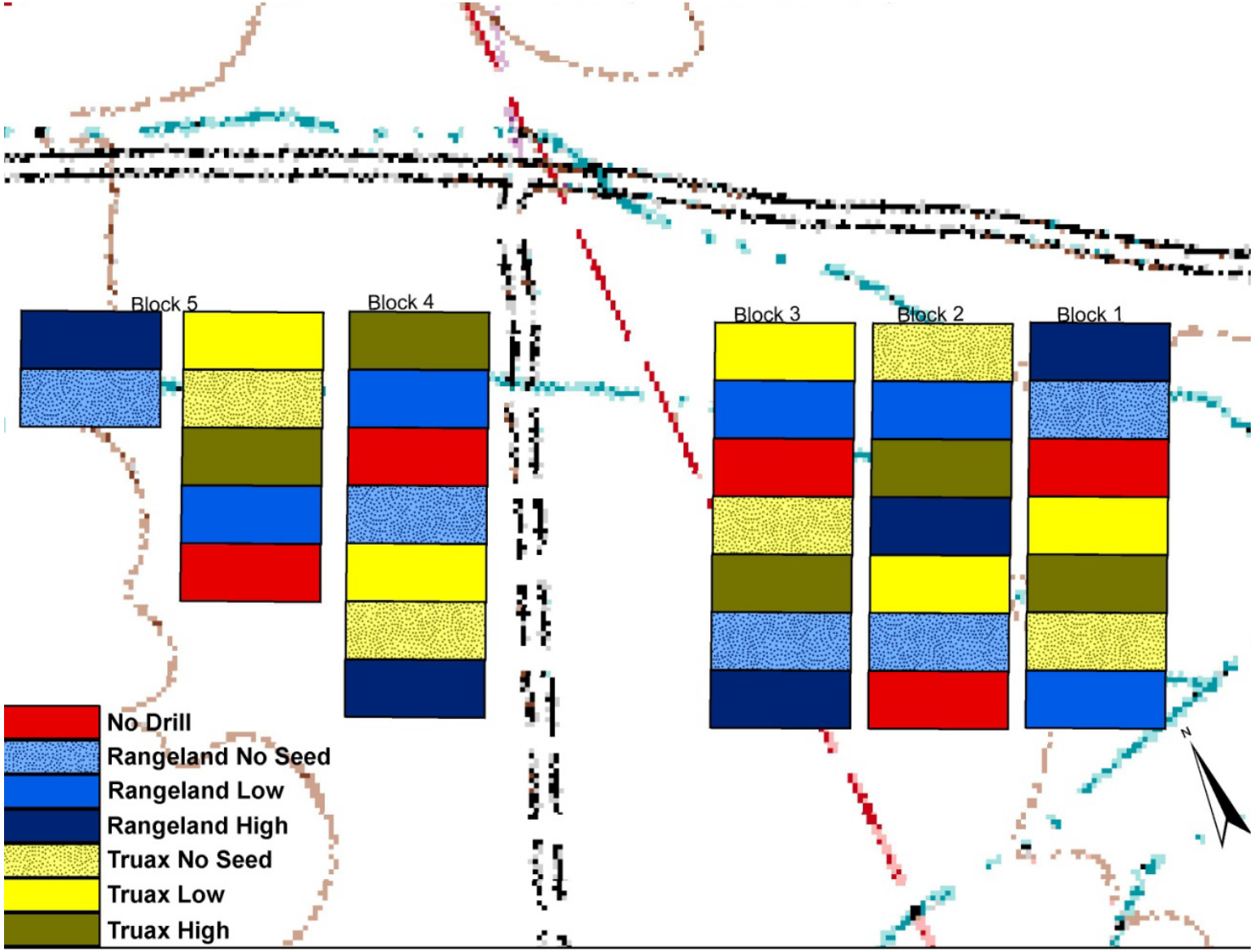
Drill mix

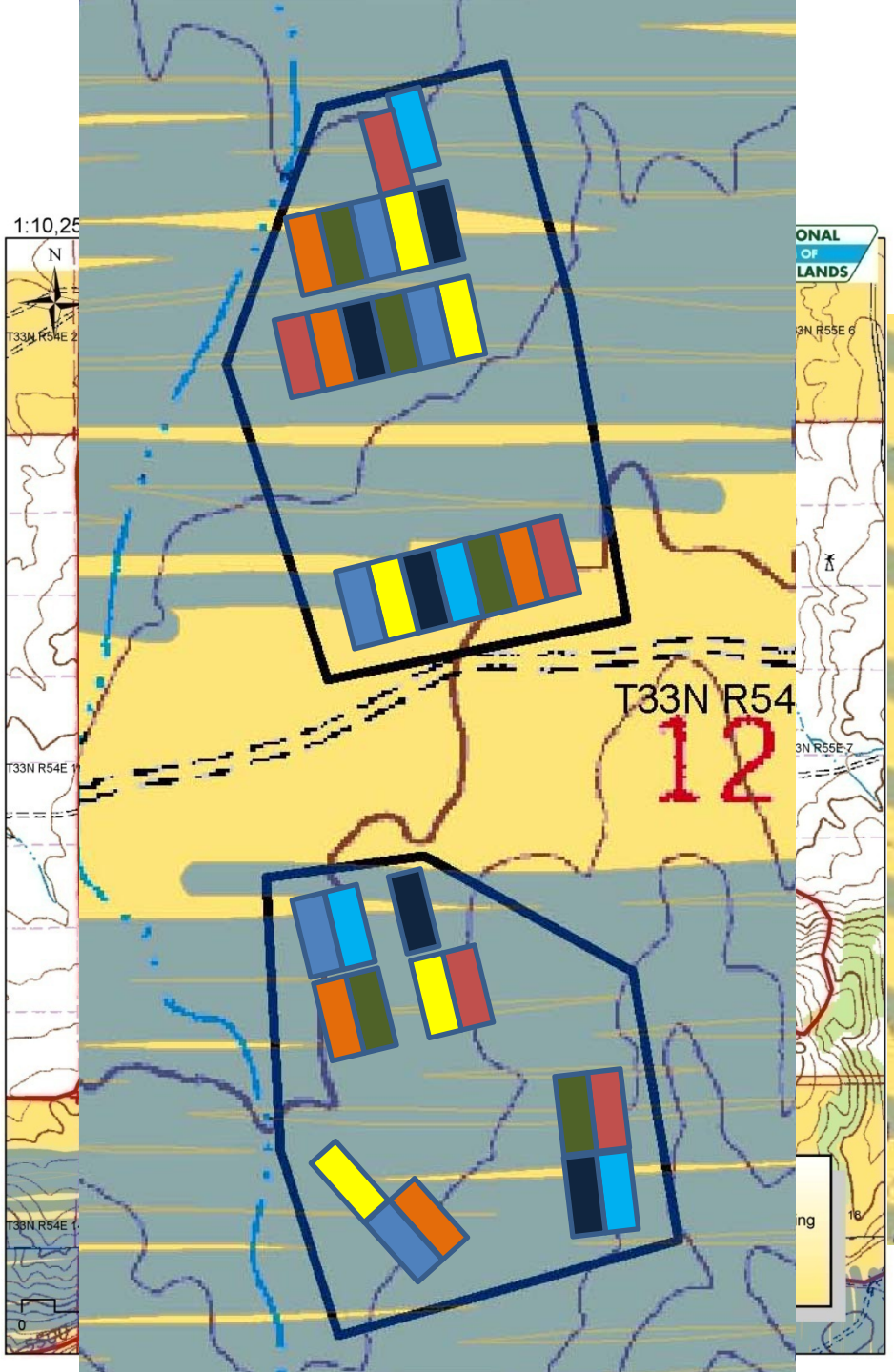
- Fourwing saltbush
- Blue flax
- Munro globemallow
- Bluebunch wheatgrass
- Bottlebrush squirreltail
- Indian ricegrass

Broadcast

- Wyoming big sagebrush
- Rubber rabbitbrush
- Western yarrow
- Sandberg bluegrass

Research Study




1:10,25
N
T33N R54E 2
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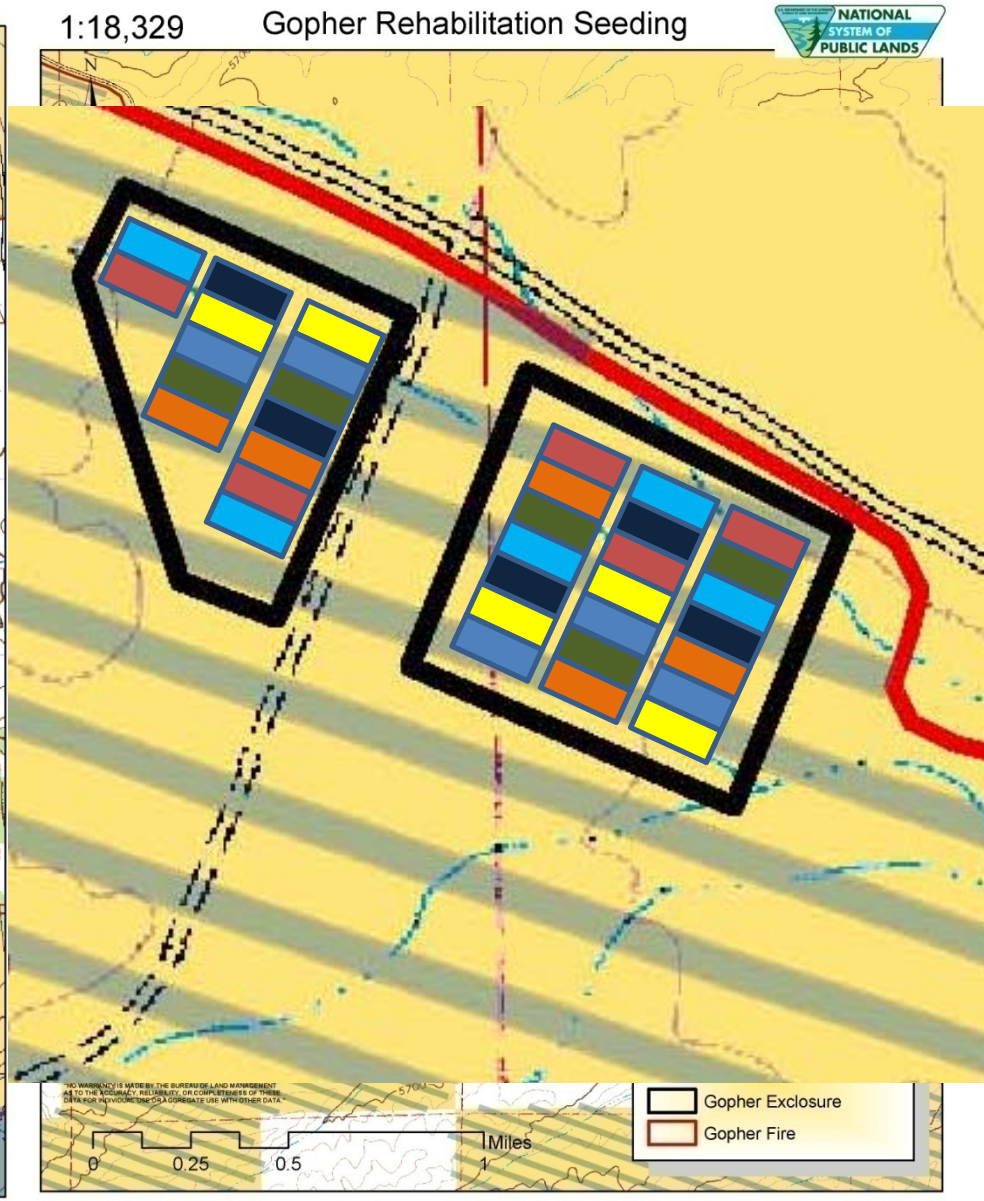
1:18,329
Gopher Rehabilitation Seeding
NATIONAL SYSTEM OF PUBLIC LANDS
N
Gopher Exclosure
Gopher Fire
0
0.25
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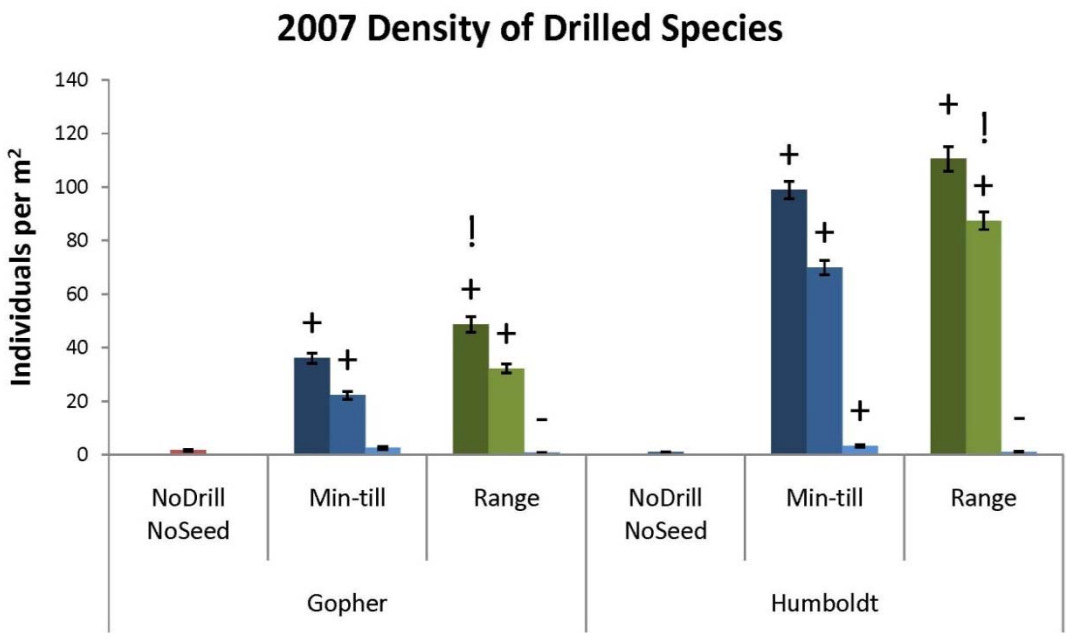
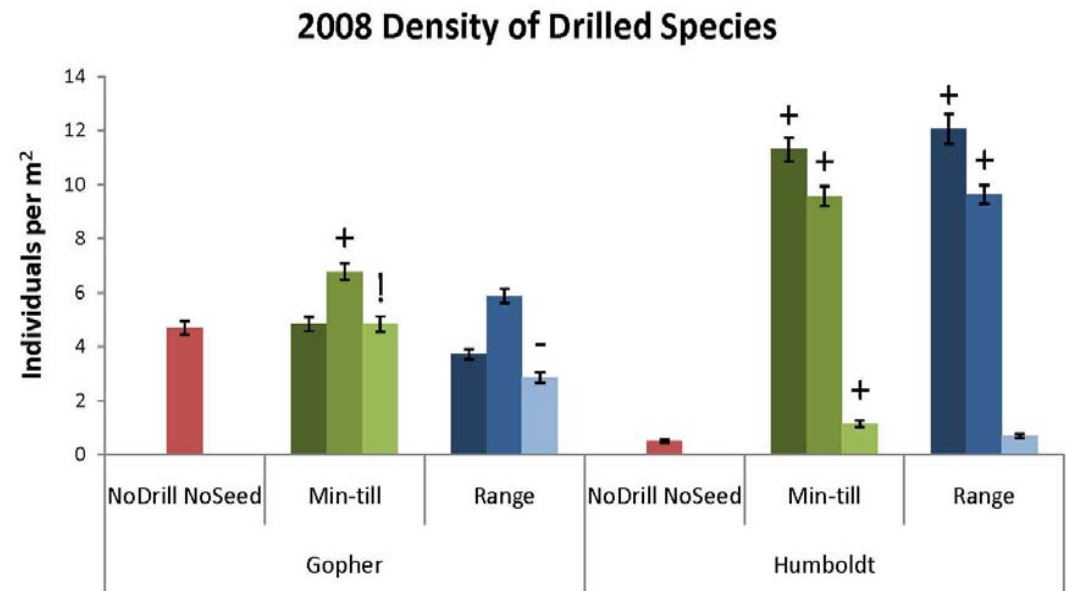
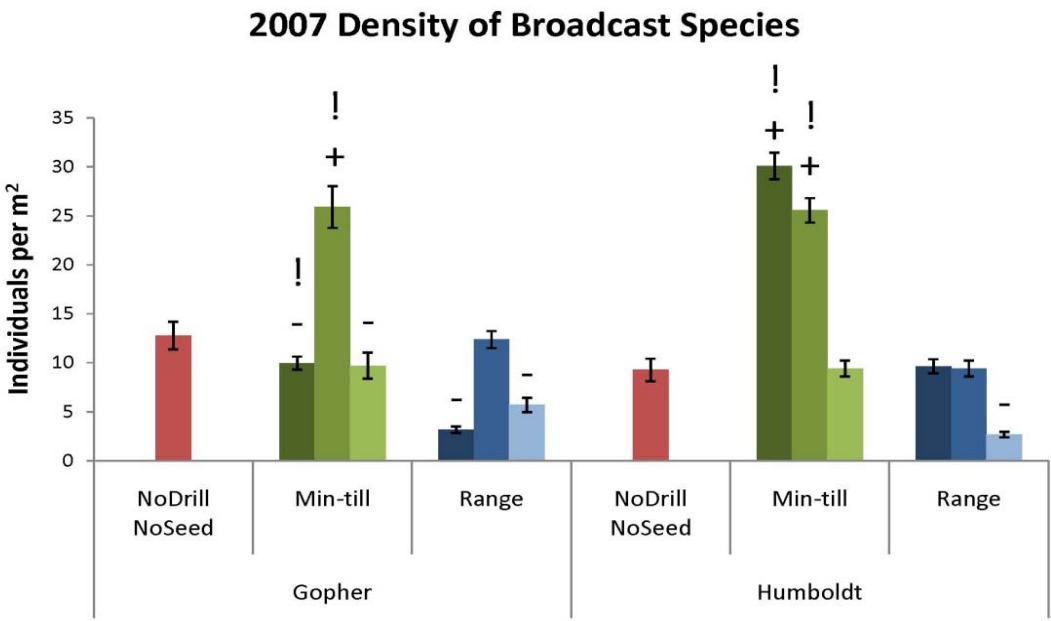
Miles
1

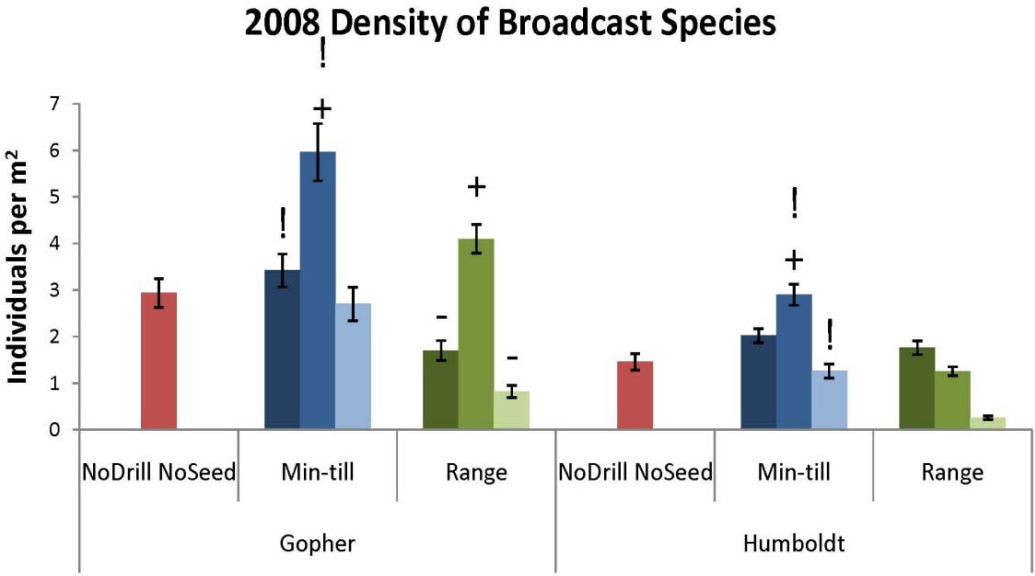
Results- Drilled Species Density



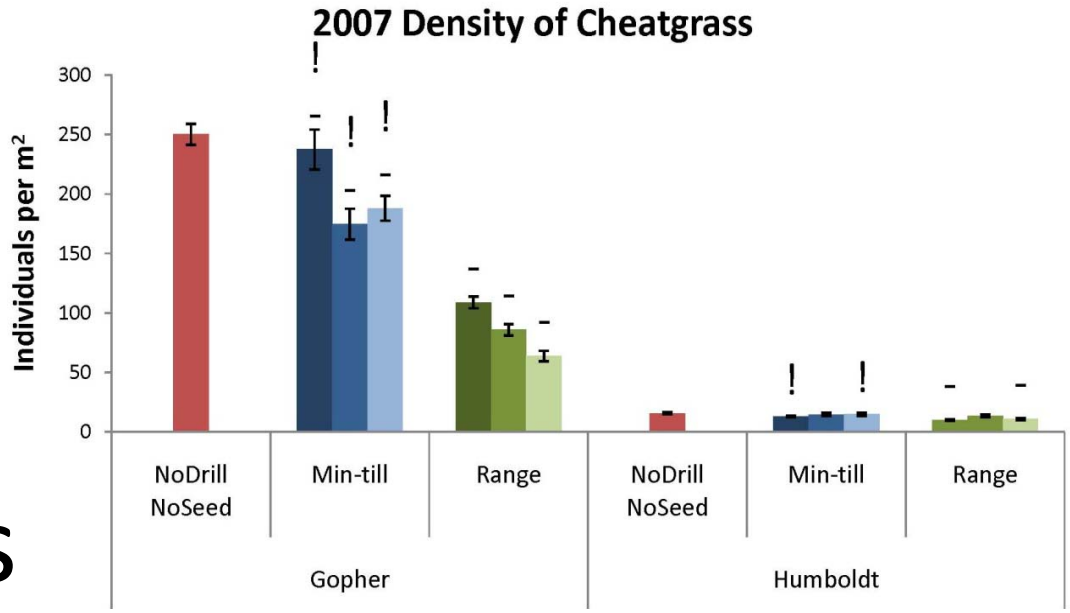


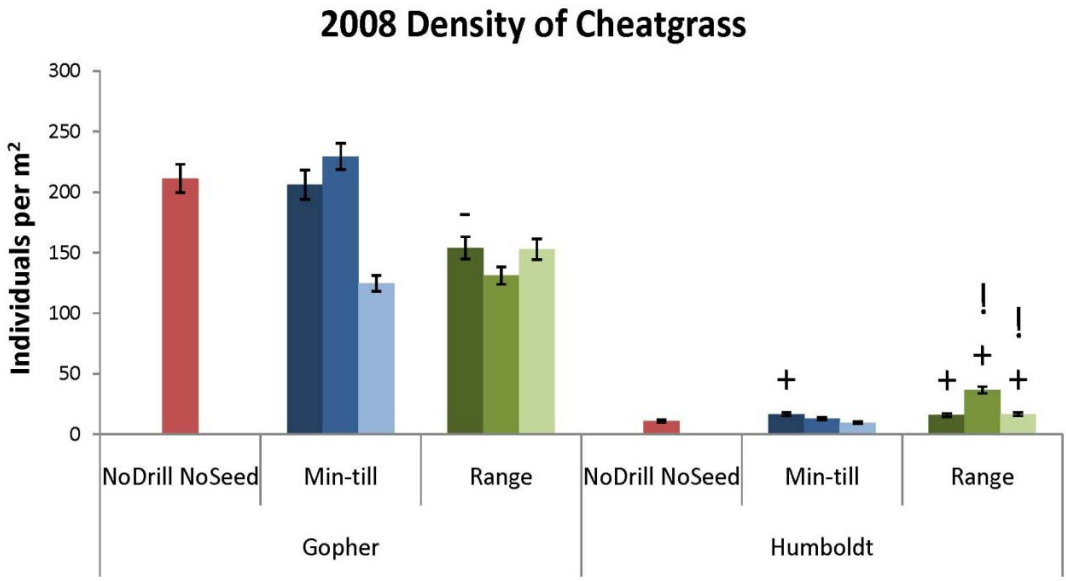
Results- Broadcast Species Density





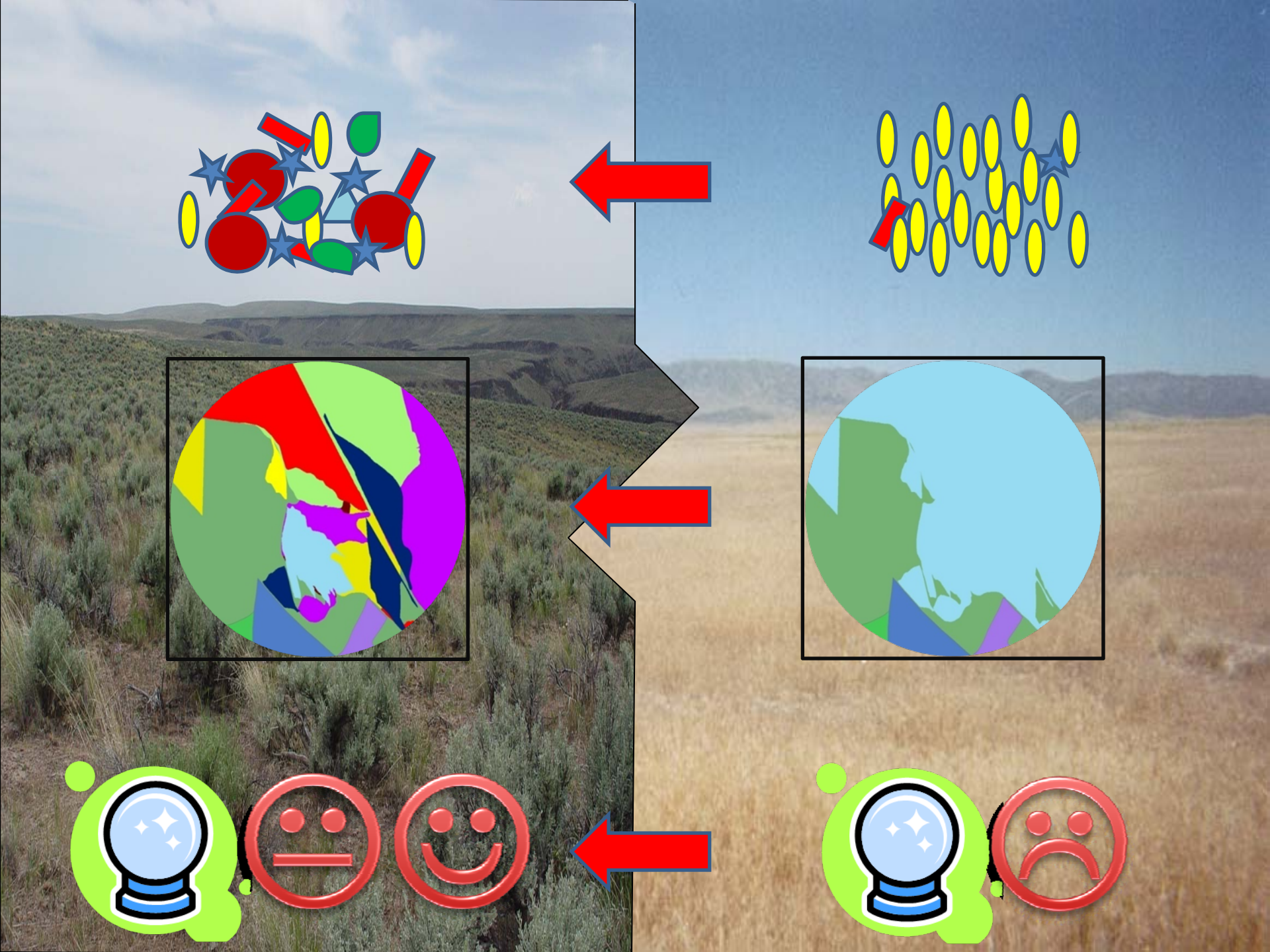
Results– Cheatgrass Density





Conclusions

- The minimum-till drill provided greater emergence of broadcast species
- Emergence of drilled species was similar between the two drills
- During the 1st year, cheatgrass density and cover were lower in plots that experienced the rangeland drill
- **Increase Diversity in Post-Wildfire Restoration Seedings by Using the Right Tool for the Right Job:**
  - When seeding a diverse seed mix including small-seeded species for broadcast, a newer minimum-till drill may provide better emergence at lower seeding rates (= $$$$ saved)



Many Thanks!

- Funding & Support:

- Site selection:
  - Tom Warren, Rehabilitation Manager, Elko Field Office USBLM

- Field and Data help:
  - Jan Gurr
  - Matt Fisk
  - Nick Williams
  - Kelsey Sherich
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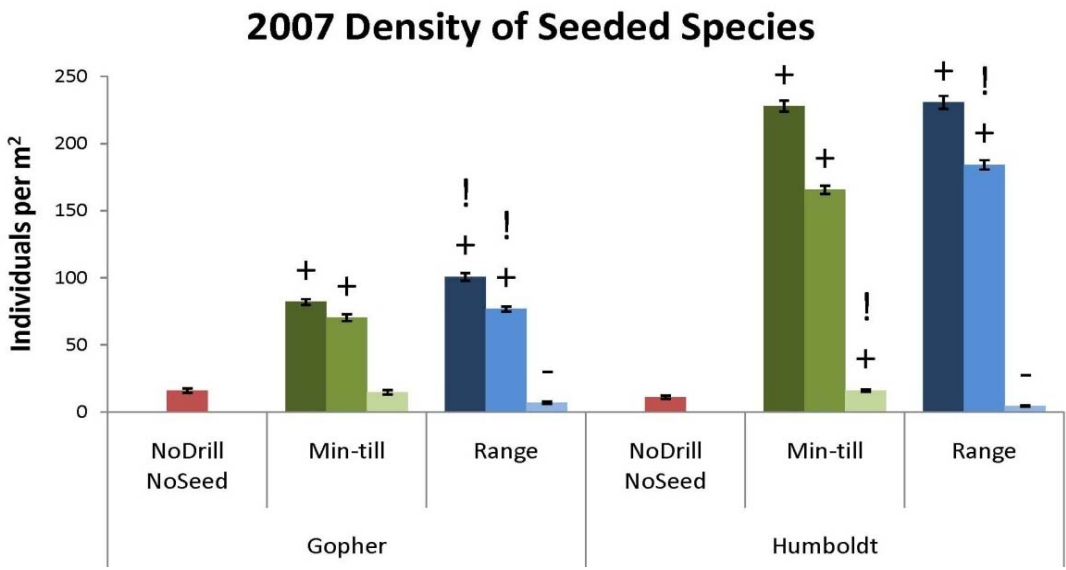
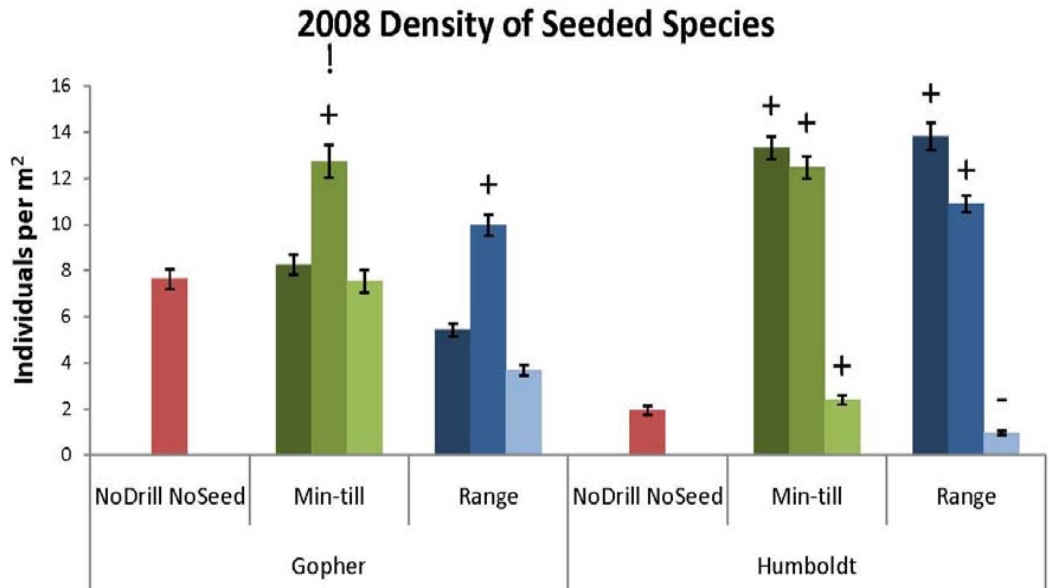
  - Lexie Balanoff
  - Vivian Zapata
  - USDA NRCS Aberdeen PMC

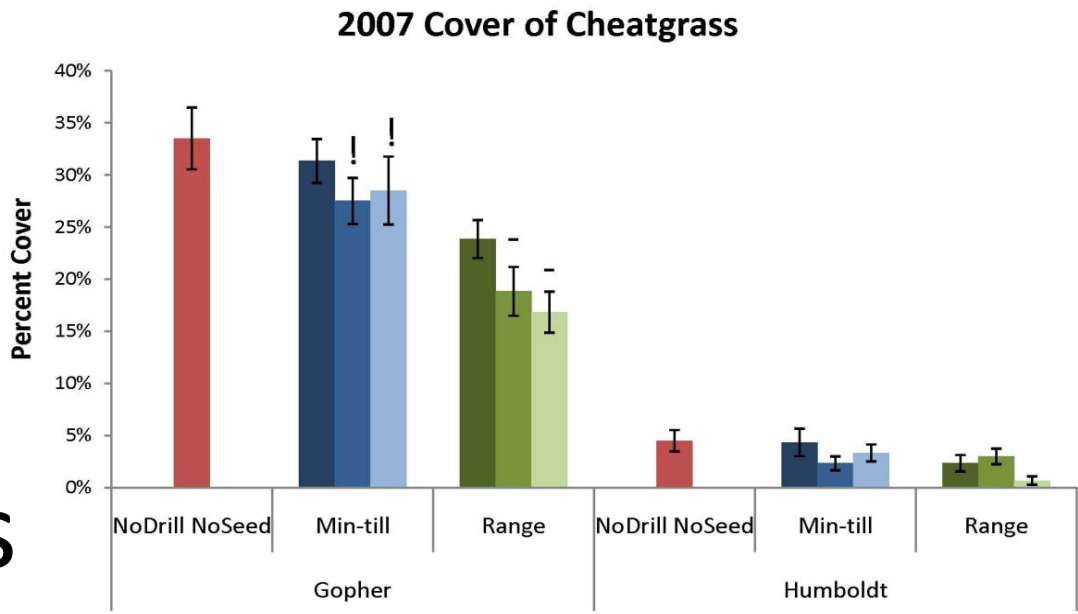
Seedbed Requirements
Seeding Depth and Rates
Species Interactions
Seed Shapes and Sizes
Seed Appendages

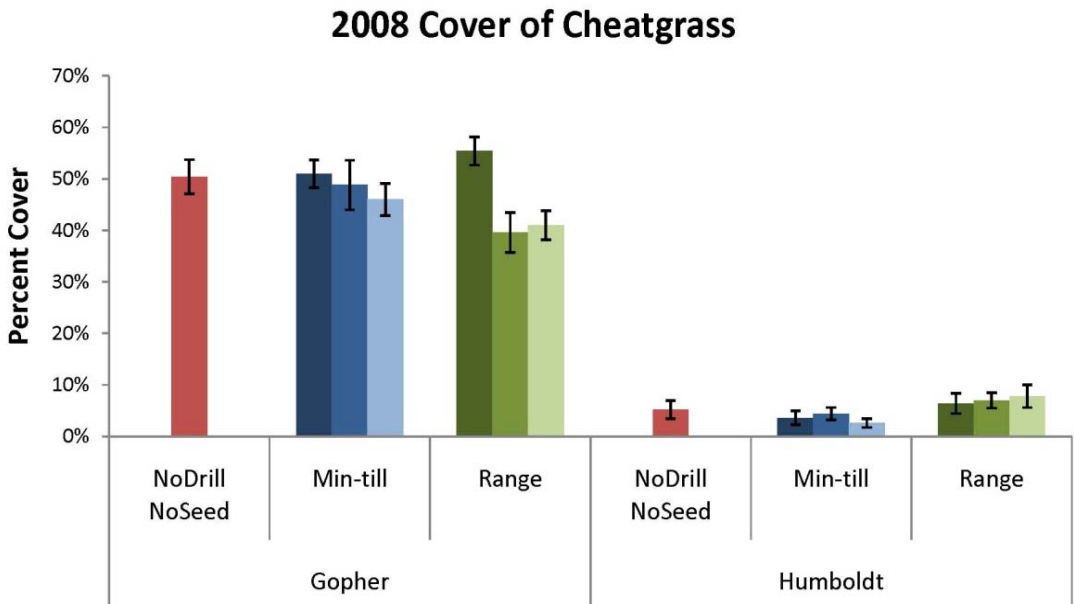
Results- Seeded Density



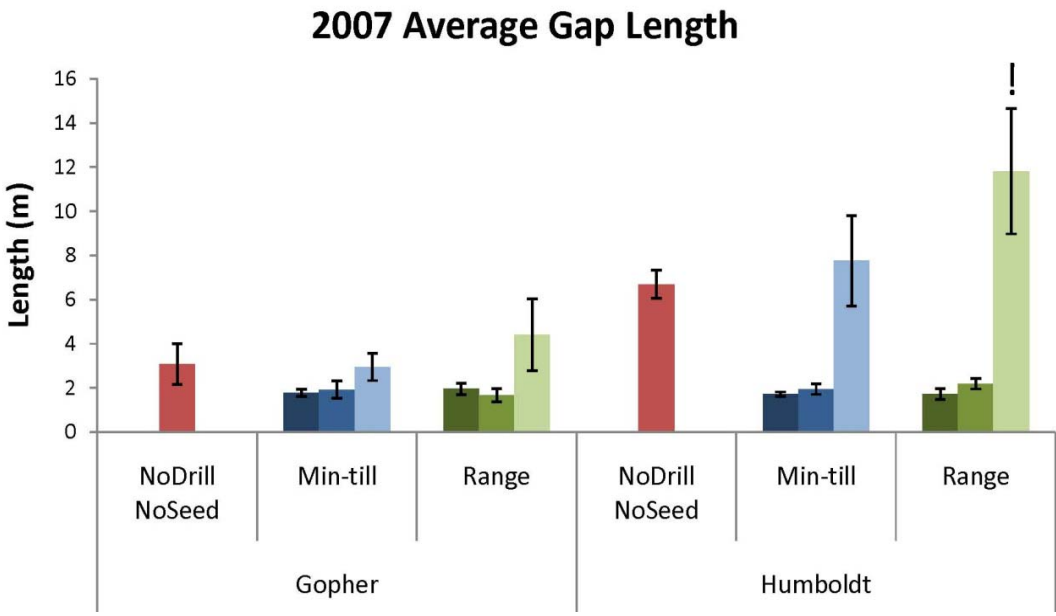


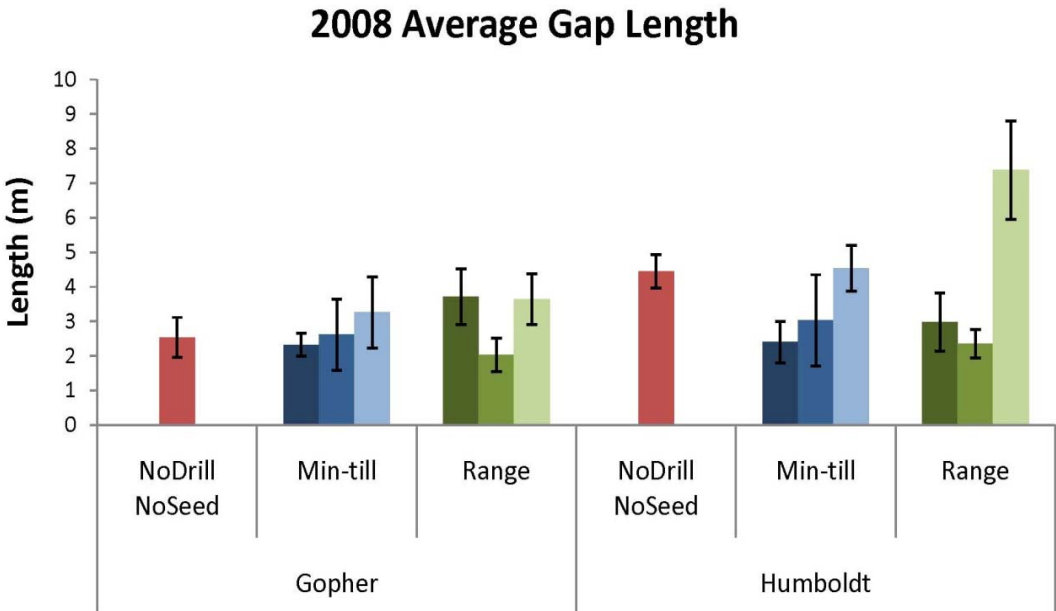
Results– Cheatgrass Cover



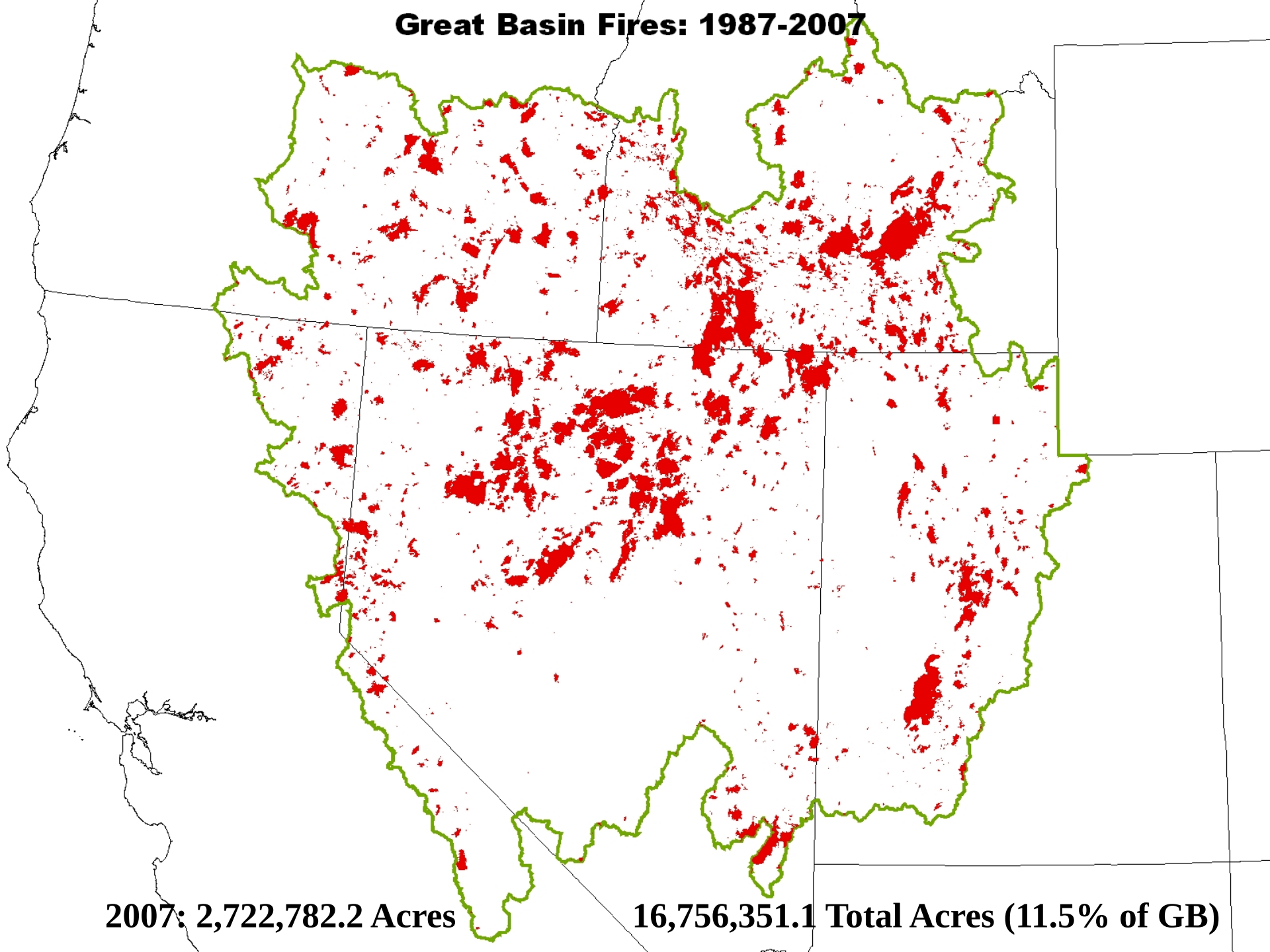


Results– Gap Length





Great Basin Fires: 1987-2007



2007: 2,722,782.2 Acres

16,756,351.1 Total Acres (11.5% of GB)

Rangeland Drill

Minimum-Till Drills