Why are we here?

Building resiliency for wildlife and working lands

Jeremy Maestas and Trisha Cracroft
Conifer Expansion

Residential Development

Infrastructure

Grazing Land Cultivation

Wildfire & Invasives

Mesic Habitat Degradation

Since 2010: 1,700 ranchers, 6.3 million acres
Nesting/Early Brood-Rearing
Lekking/Breeding
Late Brood-Rearing
Fall/Winter
“Emerald Islands” in the Sagebrush Sea

Ken Miracle
Higher bird abundance near reliable wet habitats

Donnelly et al. (2016) - Ecosphere
Public lands and private waters

Overall Ownership
- Private: 19%
- Public: 81%

Mesic Resources
- Private: 75%
- Public: 25%

Donnelly et al. 2016
Remember the water cycle?
Re-wetting the “sponge”
Shared Vision: Resiliency

“The ability to maintain hydrologic/ecological functions in the face of drought & intense precipitation events” ~ Gunnison Climate Working Group
What are we helping landowners do?

Higher Cost, Limited Extent
- Easements
- Mechanical restoration

Lower Cost, Broader Extent
- Low-tech restoration ("sticks and stones")
- Grazing management
- Spring protection and enhancement
- Conifer removal
Easements
Mechanical Restoration

Pond and Plug - Rees Creek, UT

Pre-Restoration

2003

Post-Restoration

2014
Low-Tech Restoration
(“sticks and stones”)

Beaver Dam Analogues (BDAs)

Zeedyk Structures

Wheaton Et-Al Lab

Gunnison Basin Working Group
1991: Grazed with annual hot-season use

1999: Cool season grazing, willow recovery

2007: Beaver occupied the reach

2012: Transition to cattails

2014: Transition to a wet meadow

"By 2014, even in the midst of severe drought, Susie Creek had water all summer. A lot of my peers were having to haul water to stock."

~ Jon Griggs, Maggie Creek Ranch
Can we measure this?

Soil Moisture

↓

Productivity

↓

Resiliency
Normalized Difference Vegetation Index (NDVI)
Landsat Thematic Mapper
Late-Season NDVI: July 15 - Sept. 30
1984 - Present

map.sagegrouseinitiative.com
Before

After

NDVI (Productivity)

1984 → 2016

Courtesy of: Adam Haarberg
Case Study: Does it work?

Silverman et al. In Press

Zeedyk Structures
(Short-term: 2-5 yrs)

Beaver Dam Analogs
(Mid-term: 9 yrs)

Grazing Management
(Long-term: 20+ yrs)
Gunnison Results

~24% increase in productivity, natural storage, and resiliency.

Silverman et al. In Press
Gunnison results from the ground...

On average, wetland plant cover increased >5 fold at treated sites relative to controls (Rondeau et al. 2018)
Bridge Creek Results

~20% increase in productivity and natural storage resiliency

Silverman et al. In Press
Bridge Creek results from the sky...

Stay tuned for more later on other ecological outcomes...
Maggie Creek Results

Post-Restoration

Slope = 0.002
P-value = 0.04

Slope = -0.001
P-value = 0.888

NDVI

Avg. Precipitation (mm/day)


Silverman et al. In Press
Maggie Creek results from the ground...

Active beaver dams more than doubled and area ponded increased by 9 miles (White Horse Associates 2011)
Restoration sites are also staying greener longer

Gunnison

Greatest Improvement
Oct. - Nov.

Bridge Creek

Greatest Improvement
Sep. - Nov.

Maggie Creek

Greatest Improvement
Jul. - Nov.

Silverman et al. In Press
Building resiliency over time...

Productivity no longer sensitive to precipitation!
For more information...

Photo by: Utah NRCS

sagegrouseinitiative.com