

Wolakota Buffalo Range

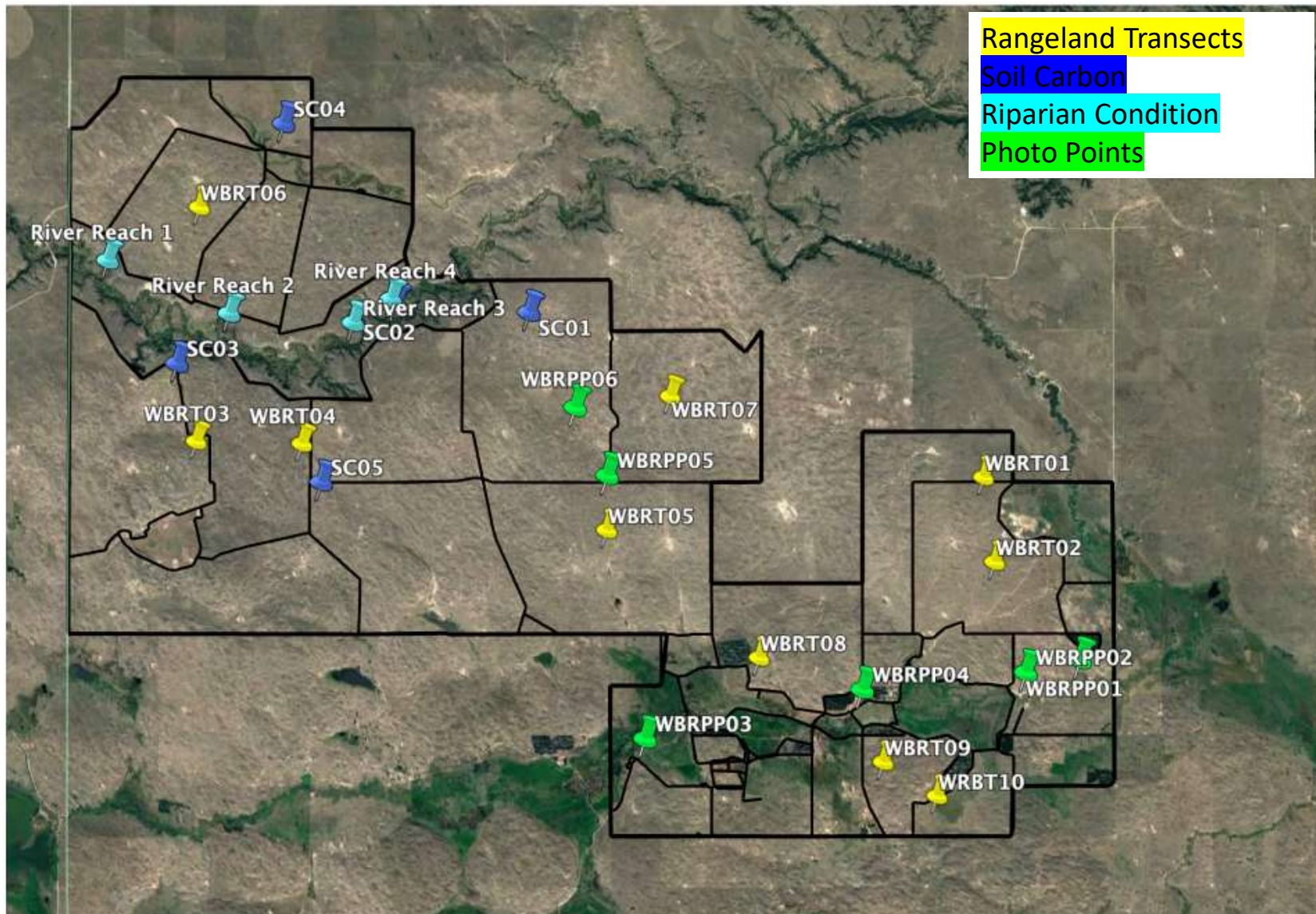
Ecological Monitoring



- Late June 2020

Ecological Monitoring

Ecological Indicator Category	Metric
Soil	Soil organic carbon
	Soil stability
	Soil compaction (e.g., bulk density)
	Ground cover (e.g. bare ground, litter depth)
Water	Water infiltration
	Condition of lotic channels (if applicable)
Vegetation	Cover, abundance, and/or diversity of native plants
	Cover, abundance, and/or diversity of non-native and invasive plants
	Extent & condition of riparian systems (if applicable)
	Forage Productivity
Biodiversity	Grassland bird diversity and abundance





Overview

- High level of soil health across the ranch.
 - Generally healthy plant communities displaying high vigor and the capacity to recover from disturbance events like grazing or fire.
 - Some sites where improvements can be made through the return of buffalo and grazing management
 - All surveyed river reaches were deemed to be in proper functioning condition and the riparian resources were intact.
- 
- A photograph of a herd of bison grazing in a field. The bison are dark brown with thick, shaggy fur. They are scattered across a field of tall, dry grass. In the background, there is a metal fence and a line of trees under a clear sky. The overall scene is a typical ranch or wildlife management area.

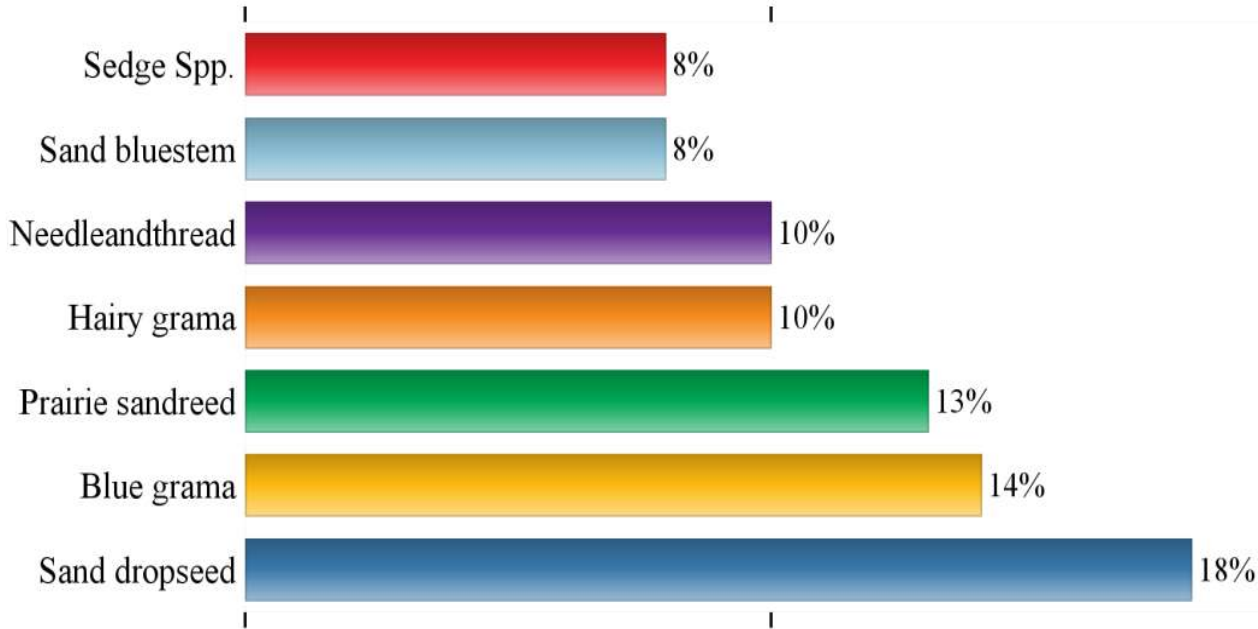


Average soil
properties

	Observed	Expected or Range
Soil organic carbon (t/ac)	8.1	7.5
Soil stability	3	< 4
Bulk density (g/m ³)	1.2	< 1.6
Litter cover (%)	84.4	40-60
Bare ground (%)	12	0-15
Water infiltration (in/hr)	16.8	Rapid, 6 to 20

Plant species composition

Basal Cover by Top 7 Species




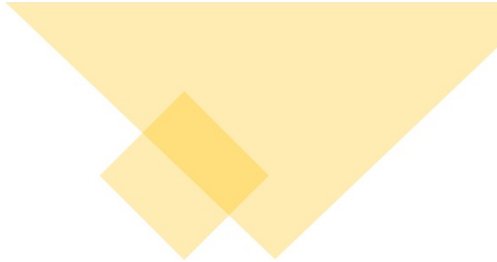
- 14-36 plant species observed per site
- Vast majority were desirable native species and of high forage quality
- Few non-native species
 - cheatgrass
 - Japanese brome
 - Hayfields



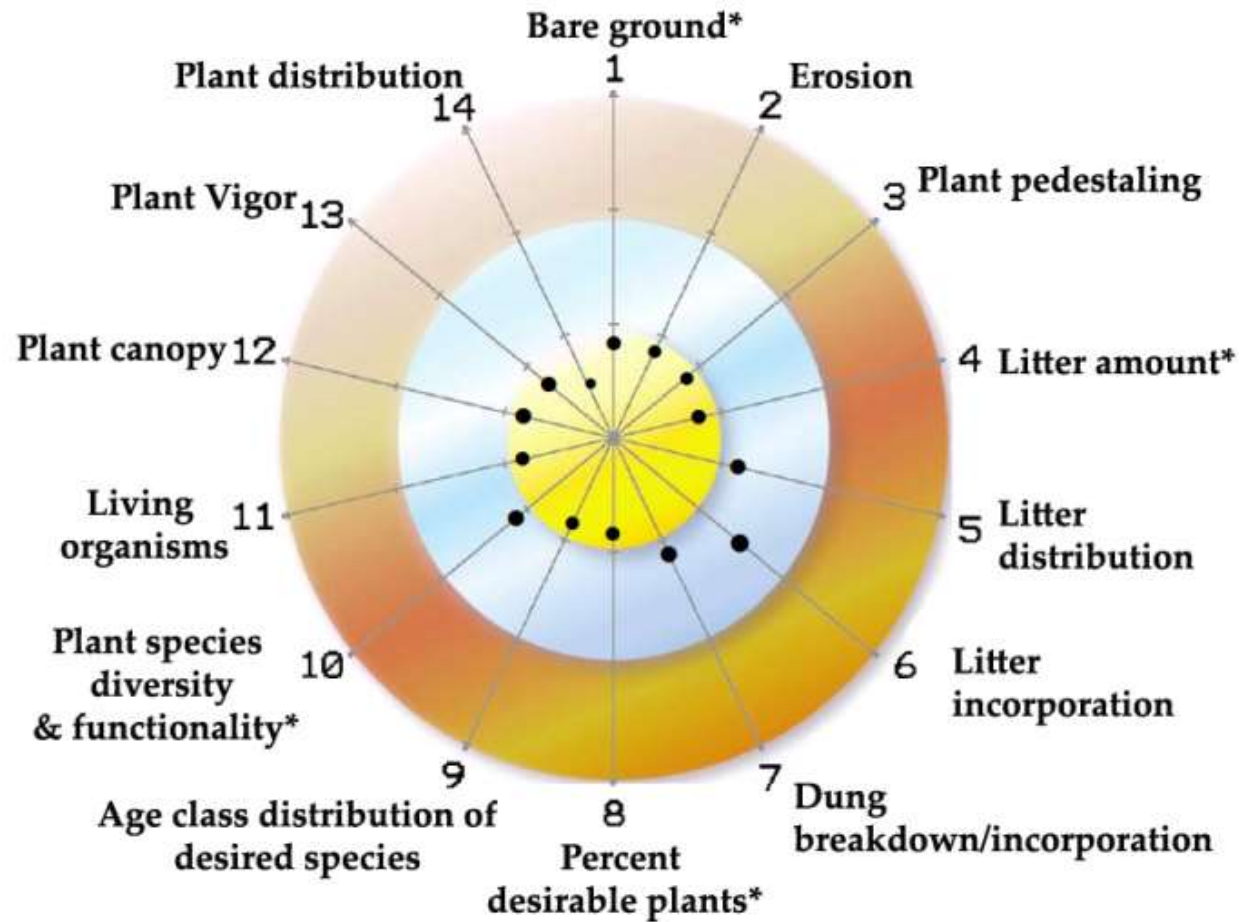
% Foliar Cover **91%**

Vegetative Composition

Needleandthread	18 %
Sand dropseed	17 %
Prairie sandreed	15 %
Little bluestem	10 %
Blue grama	8 %
Sand bluestem	6 %
Hairy grama	5 %
Sedge Spp.	5 %
Sixweeksgrass	4 %
Annual ragweed	3 %
Spiderwort spp	2 %
Leadplant	2 %
Prairie junegrass	1 %
Phlox Spp	1 %
Groundsel spp	1 %
Cudweed Sagewort	1 %
Western wheatgrass	1 %
Cactus species	1 %



Bullseye assessment





High Rangeland Health

- Site Characteristics
 - Needle-and-thread was the dominant grass
 - High plant vigor
 - Bare ground in expected range
 - Plant canopy in expected range
- Management Suggestions
 - Altering seasons of use annually
 - Short duration grazing
 - Light to moderate utilization rates

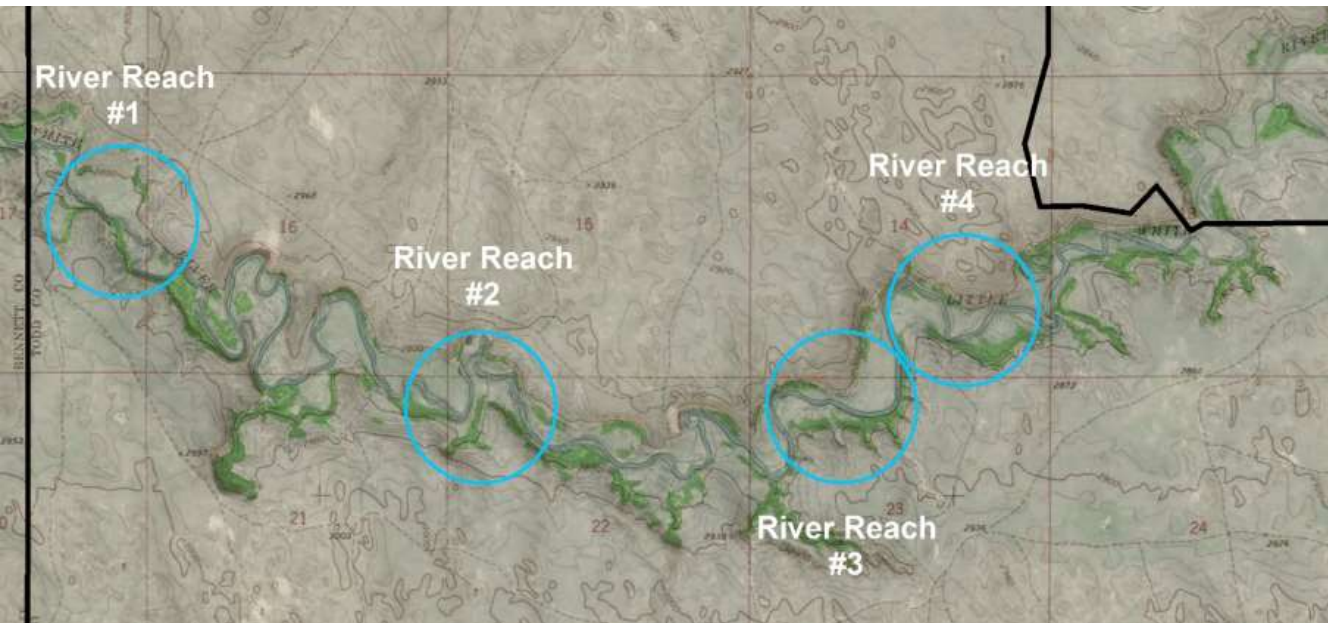


Areas for improvement

- Site characteristics
 - High use in the past
 - Bare ground exceeded the desired range for the site
 - Sedge and annual ragweed were overly abundant
- Management Suggestions
 - Short durations and light utilization rates would help build up litter.
 - Periodic rest in this area would also help the plant community continue its rapid recovery.



River Condition



Active beaver sign at Reaches 1, 2, 3

River Reach	Stability Rating	Stability Class
#1	5.8	Moderate
#2	7.2	Good
#3	7.5	Good
#4	6.4	Good
Average	6.7	

Scale of 0 - 10

- Healthy riparian plant communities across most transects
- Overabundance of cheatgrass in floodplains where evidence of high cattle use in the past – eastern reaches



Next steps

- Repeat monitoring late July 2021
 - Continue as long as desired and funding is secured
- Track changes over time as buffalo return, numbers increase, and range use expands and inform management decisions