Summary

This is a report supporting the Buzz on the Range project. The monitoring detailed here includes:

- Ecological Health Evaluation using the Savory Short Term Monitoring methodology
- Water Infiltration Test
- Plant Species inventory on a transect
- Detailed photos and other observations

Ecological Health Evaluation

Methodology

This methodology looks at several indicators and scores them based on clear subjective guidelines. The guidelines are intended to be interpreted in line with the site potential, which is dependent on the ecoregion that the evaluation is taking place. **High scores are generally difficult to attain. Low scores represent sites with significant room for improvement.** These indicators are generally a good clue into soil health.

Score Sheet Definitions

Please see Appendix 1: Savory EOV Evaluation Matrix

Scores for this Site

Parameter	Score
Live Canopy	0
Microfauna	-5
FG 1 Warm Season Grasses	-5
FG 2 Cool Season Grasses	-5
FG 3 Forbs & Legumes	0
FG 4 Trees & Shrubs	-10
Contextually Desirable Rare Species	0
Contextually Undesirable Species	-5
Litter Abundance	5
Litter Incorporation	5
Dung Decomposition	0
Bare Soil	10
Capping	0
Wind Erosion	0

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Parameter	Score
Water Erosion	0
Total	**-10**

Photos

Figure 1 - Ecological Eval Site Down

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Figure 2 - Ecological Eval Site 45 degrees

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Figure 3 - Ecological Eval Site Horizontal

Water Infiltration Test

Methodology

- 5 inch diameter cylinder 6 inches tall with scribe line at 3 inches
- 308 ccs (mL) of distilled water to simulate 1” rain with 5 inch diameter cylinder
- Tested twice in same location

Results

First test took 7 minutes 27 seconds to infiltrate
Second test took over 45 minutes

Photos

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Figure 4 - Measuring and Infiltrating Water

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Figure 5 - Water Infiltration

Plant Species Inventory on a Transect

Methodology

An inventory of the species along a transect was taken using the pin method that is used in Savory Long Term Monitoring transects.

1. A 75 foot transect was established with 2 stakes and a measuring tape
2. A long thin pin with a flag was dropped through the field forage and plants. (Similar to a utility marking pin)
3. A count of all plant species that touched the pin was taken

IMPORTANT NOTE:
Species identification is tricky depending on lifecycle and experience of the monitor. To get this right, detailed photos were taken onsite of all species encountered. If you suspect an error in a species identification, kindly provide that feedback. Together we can do this!

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Count Results

Site (ft) / Species	1 Broam	2 Vetch	3 Bindweed	4	5 Alfalfa	6 Sedge	7 Herb Sophia	8 Crested Wheatgrass
5	3	3						
10	4		1					
15	4			1				
20	None living							
25	2				1			
30						2	1	
35	2							
40		1		1	1	2		
45	4					4		
50						4		
55	2			1		1		1
60	1					4		
65	3			1				
70	2							3
75	4			1				2

Species Inventory

The following document the species found.

Species Number / Name (if known)	Photo
1 / Broam	

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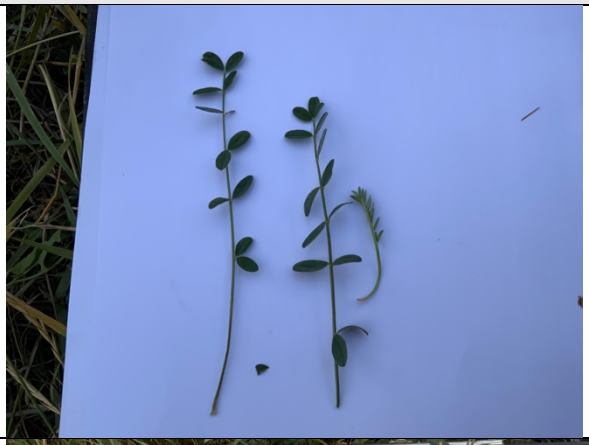
Species Number / Name (if known)	Photo
2 / Vetch	
3 / Bindweed	

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Species Number / Name (if known)	Photo
4	
5 / Alfalfa	

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Species Number / Name (if known)	Photo
6 / Sedge	
7 / Herb Sophia	

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Species Number / Name (if known)	Photo
8 / Crested Wheatgrass	

Transect Photo

Figure 6 - A photo of the transect line

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Other Observations

No evidence of Buzz on the Range pollinator promoting species

Even outside of the transect, this pasture had no evidence of our species of four seed which makes it particular interesting if they come up in later growing seasons.

Feeding Protocol – Evidence of Seed in Manure

The cows in this case had already been feeding on the Buzz on the Range seed mix and there was ample evidence of the seed in the cows poop.

Figure 7 - Seed in the Mineral Mix

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Figure 8 - Evidence of seed already in the manure!

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Appendix 1: Savory EOV Evaluation Matrix

EOV FORM 3 : EVALUATION MATRIX 1/2

HUB | EOV MONITOR | ECOLOGICAL STATE | DATE

					DEPARTURE FROM REFERENCE SHEET				ECOLOGICAL PROCESSES			
NUM.	ECOL INDICATORS	PROCESS INDICATOR	SCORE	None to slight	Slight to moderate	Moderate	Moderate to extreme	Extreme to total	Water Cycle	Mineral Cycle	Energy Flow	Com. Dynam
1	LIVE CANOPY ABUNDANCE	% of SITE POTENTIAL	-10 to 10	Live canopy exceeds 80% of potential plant community for site and climate. Maximum photosynthesis. Reduce one score class if more than 40% of biomass is annual plants	60-80% of live canopy abundance potential based on recent climate. Reduce one score class if more than 40% of biomass is annual	40-60% of site live canopy potential based on recent climate.Reduce one score class if more than 40% of biomass is annual	20-40% of site live canopy potential based on recent climate.Reduce one score class if more than 40% of biomass is annual	Less than 20% of site live canopy potential based on recent climate. Minimal photosynthesis			✓	
2	MICROFAUNA	EVIDENCE OF MICROFAUNA	-10 A 10	Microfauna - life signs are abundant and very easy to find -10	Slight to moderate reduction in microfauna signs, still abundant 5	Moderate reduction of microfauna signs. Some components missing 0	Little abundance of microfauna signs related to site potential. -5	Next to no sign of microfauna. Components of the ecosystem are clearly missing -10	✓			
3	FG 1 WARM SEASON GRASSES	Vigour, Reprod and crown integrity of Key Species:	-10 TO 10	Amount of floral stems and young plants this group matches site and year potential. -10 Plants show vigour and amount of green leaves that matches the expected for the site and the year. -10	Amount of floral stems and young plants this group is slightly lower than site and year potential. 5 Plants show vigour and amount of green leaves that is slightly below the expected for the site and the year. 5	The group maintains a moderate amount of flower stems and young plants 0 Moderate loss of vigour and increase of % standing dead. Few decadent or dead plants 0	Stand reproduction is significantly reduced. Minimal amount of flower stems. Young plants unfrequent -5 High frequency of plants with poor growth and high standing dead percentage. High percentage of plants with dead centers -5	The group stand does not exhibit flower stems or young plants -10 Decadent or dead plants are the most common. Abundant standing dead material -10			✓	✓
4	FG 2 COOL SEASON GRASSES	Vigour, Reprod and crown integrity of Key Species: fill the name	-10 TO 10	Amount of floral stems and young plants this group matches site and year potential. -10 Plants show vigour and amount of green leaves that matches the expected for the site and the year. -10	Amount of floral stems and young plants of this group is slightly lower than site and year potential. 5 Plants show vigour and amount of green leaves that is slightly below the expected for the site and the year. 5	The group maintains a moderate amount of flower stems and young plants 0 Moderate loss of vigour and increase of % standing dead. Few decadent or dead plants 0	Stand reproduction is significantly reduced. Minimal amount of flower stems. Young plants unfrequent -5 High frequency of plants with poor growth and high standing dead percentage. High percentage of plants with dead centers -5	The group stand does not exhibit flower stems or young plants -10 Decadent or dead plants are the most common. Abundant standing dead material -10			✓	✓
5	FG 3 FORBS & LEGUMES	Vigour, Reprod and crown integrity of Key Species: fill the name	-10 TO 10	Amount of floral stems and young plants this group matches site and year potential. 10 Plants show vigour and amount of green leaves that matches the expected for the site and the year. 10	Amount of floral stems and young plants of this group is slightly lower than site and year potential. 5 Plants show vigour and amount of green leaves that is slightly below the expected for the site and the year. 5	The group maintains a moderate amount of flower stems and young plants 0 Moderate loss of vigour and increase of % standing dead. Few decadent or dead plants 0	Stand reproduction is significantly reduced. Minimal amount of flower stems. Young plants unfrequent -5 High frequency of plants with poor growth and high standing dead percentage. High percentage of plants with dead centers -5	The group stand does not exhibit flower stems or young plants -10 Decadent or dead plants are the most common. Abundant standing dead material -10			✓	✓
6	FG 4 TREES & SHRUBS	Vigour, Reprod and crown integrity of Key Species: fill the name	-10 TO 10	Amount of floral stems and young plants this group matches site and year potential. 10 Plants show vigour and amount of green leaves that matches the expected for the site and the year. 10	Amount of floral stems and young plants of this group is slightly lower than site and year potential. 5 Plants show vigour and amount of green leaves that is slightly below the expected for the site and the year. 5	The group maintains a moderate amount of flower stems and young plants 0 Moderate loss of vigour and increase of % standing dead. Few decadent or dead plants 0	Stand reproduction is significantly reduced. Minimal amount of flower stems. Young plants unfrequent -5 High frequency of plants with poor growth and high standing dead percentage. High percentage of plants with dead centers -5	The group stand does not exhibit flower stems or young plants -10 Decadent or dead plants are the most common. Abundant standing dead material -10			✓	✓
7	CONTEXTUALLY DESIRABLE SPECIES	FREQUENCY of (fill the name)	0 TO 10	Species f requency is the maximum expected for the site and the year. 10	Species frequency is lower than expected for the site, but still abundant. 5	Minimal frequency of species. Hard to find. 0	Species only in protected areas. -5	Species only in protected areas. -10			✓	✓
8	CONTEXTUALLY UNDESIRABLE SPECIES	Abundance and reproduction of (fill the name)	0 to -10	Undesirable species are absent or in low abundance Frequency of young plants ofcontroctaxilly undesirable species is minimal 0 70	0 35	0 0	Contextuality undesirable species are abundant Frequency of young plants of contextuality undesirable species is high. Invasive species are increasing. -5 -35	0 Contextuality undesirable species very abundant, co-dominate or dominate the site Contextuality undesirable species show a high frequency of young plants, a fast translocation is happening. -10 -70			✓	✓

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NUM.	ECO. INDICATORS	PROCESS INDICATOR	SCORE	DEPARTURE FROM REFERENCE SHEET					ECOLOGICAL PROCESSES			
				None to slight	Slight to moderate	Moderate	Moderate to extreme	Extreme to total	Water Cycle	Mineral Cycle	Energy Flow	Com Dynam
9	LITTER ABUNDANCE	%COVER	0 TO 10	Amount is what is expected for the site potential and weather 10	Slightly more or less restrictive to site potential and weather 5	Litter is scarce, absent or in excess for the site 0			✓	✓		
10	LITTER INCORPORATION	LITTER/SOIL CONTACT	0 TO 10	Litter mixes well with soil and it is composting 10	Some litter is composting and other is mulching 5	Litter is detached from soil surface and is not decomposing (Mulching litter) 0			✓	✓		
11	DUNG DECOMPOSITION	DUNG AGE STRUCTURE	0 TO 10	Dung decomposes fast, most dung pellets age is less than one year. High insect activity 10	Dung decomposes slightly slower, but old dung pellets are relatively few. Moderate insect activity 5	White, mummified dung is predominant. Decomposition is slow. Little insect activity 0			✓			
12	BARE SOIL	% BARE SOIL	-20 to +20	Amount and size of bare areas match what expected for the site 20	Slightly to moderate higher than expected, bare areas are small and rarely connected 10	Moderately higher than expected for the site and sporadically connected 0	Moderate to much higher than expected for the site and occasionally connected -10	Much higher than expected for the site. Bare areas large and usually interconnected -20	✓	✓	✓	✓
13	CAPPING	SURFACE SOIL RESISTANCE	-10 TO 0	Soil surface is loose or with a light capping that breaks easily with the finger 0			Obvious capping, that breaks making pressure with the finger -5	Heavy Capping, requires metal object to break. Nature capping -10	✓			
14	WIND EROSION	ACTIVE BLOWOUT/DEPOSITION PROCESSES	0 TO -20	Soil is stable, evidence of deflation/deposition patterns is absent or ocassional. 0			Blowout/deposition patterns are frequent, but not connected -10	Extensive blowout/deposition patterns. Connected -20	✓			
		ACTIVE PEDESTALS		Not present, and if present, very unfrequent and with depth less than 2 cm 0			Moderate Active pedestalling.Terracettes common.Some rocks and plants are pedestalled, exposed plant roots.Sediment movement follows predominant wind direction -10	Abundant active pedestalling and numerous terracettes. Many rocks and plants are pedestalled, exposed plant roots.Sediment movement follows predominant wind direction -20	✓			
15	WATER EROSION	LITTER MOVEMENT	0 to -20	Sheet erosion hard to identify. Soil stable 0			Sheet erosion is evident but not ge accumulate at obstacles -10	Sheet erosion is evident and extensive. accumulates at obstacles -20	✓			
		ACTIVE RILLS		Not present, and if present, very unfrequent and with depth less than 2 cm 0			Moderate Active pedestalling.Terracettes common.Some rocks and plants are pedestalled, exposed plant roots.Sediment movement follows water flow directionm -10	Abundant active pedestalling and numerous terracettes. Many rocks and plants are pedestalled, exposed plant roots.Sediment movement follows water flow directionm -20	✓			
		ACTIVE WATER FLOWS		Minimal evidence of past or current soil deposition or erosion 0			Water flow patterns more numerous and extensive than expected; occasionally connected -5	Water flow patterns extensive and numerous; unstable with active erosion; usually connected -10	✓			
		ACTIVE GULLIES		Drainages are represented as natural stable channels;vegetation common and no signs of erosion 0			Moderate in number to common with indications of active erosion;vegetation is intermittent on slopes and/or bed. Headcuts are active; downcutting is not apparent -10	Common with indications of active erosion and downcutting; vegetation is infrequent on slopes and/or bed. Nickpoints and headcuts are numerous and active -20	✓			
		TOTAL		50	25	0	-35	-70				
				120	**60**	**0**	**-70**	**-140**				

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