

**Western National Rangeland  
Career Development Event  
2020 Scorecards**

**Part 1A - Stocking Rate and Management Recommendations** (90 points)

The scenario and map will be provided. You must show your work to receive full credit.

Space for Calculations:

Supply of usable forage = \_\_\_\_\_ pounds **AND** \_\_\_\_\_ AUMs 30 pts

Forage demand = \_\_\_\_\_ pounds **AND** \_\_\_\_\_ AUMs 30 pts

Determine if the stocking rate is appropriate for the site. You must show your work in order to receive full credit. (Check appropriate box) 10 pts

- Decrease Stocking Rate
- Increase Stocking Rate
- Keep Rate the Same

Choose the correct management activities that apply to improve this site (Select "Yes" for all that apply and select "No" for all that do not; 2pts each) 20 pts

Yes | No

- Defer from spring grazing
- Rest from grazing for a growing season
- Install a rotation grazing system
- Add or revise fencing
- Develop additional water sites

Yes | No

- Control brush, trees and/or noxious weeds
- Seed or interseed with adapted species
- Reduce human recreation activities on site
- Manage for endangered species
- Change salt location



**Part 1B – Current Rangeland Issue** (40 pts)

Range management is a dynamic science and constantly evolving. Answer the 5 multiple choice questions about the current rangeland issues that was identified by the host state (20 points, 4 points each).

- 1.
- 2.
- 3.
- 4.
- 5.

Complete the scenario addressing the current rangeland issue. This may include fencing installment, forage planting, water improvement, etc. This will require a calculation for total cost of implementation of the plan based on inputs and requirements. You must show your work to receive full credit (20 pts; partial credit may be given).

Show Calculations:

Total Cost of Implementing Project:



**Part 2 – Plant Identification** (150 points). *Identify the plants from a list of 76 plants + the 5 additional plants important in the local ecosystem.*

Plant Name (write name from list below)	Forage Value												
	Growth Form			Life Span		Origin		For Grazers		For Browsers		Toxic	
	G	F	W	A	P	N	I	D	U	D	U		T
1.													
2.													
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													
11.													
12.													
13.													
14.													
15.													

- |                        |                           |                    |                         |                     |
|------------------------|---------------------------|--------------------|-------------------------|---------------------|
| Antelope Bitterbrush   | Crested Wheatgrass        | Kentucky Bluegrass | Prairie Junegrass       | Shadscale           |
| Arrowleaf Balsamroot   | Curl-leaf Mountain        | Leafy Spurge       | Pricklypear             | Shrubby Cinquefoil  |
| Baltic Rush            | Mahogany                  | Locoweed           | Purple Threeawn         | Skunkbrush Sumac    |
| Basin Wildrye          | Curlycup Gumweed          | Louisiana sage (or | Quaking Aspen           | Smooth Brome        |
| Big Sagebrush          | Dyer's Woad               | Cudweed Sagewort)  | Rabbitbrush (Green or   | Spotted Knapweed    |
| Bluebunch Wheatgrass   | Elk Sedge                 | Lupine             | Rubber)                 | Squirreltail        |
| Bulbous Bluegrass      | Fourwing Saltbush         | Medusahead Rye     | Redosier Dogwood        | St. Johnswort       |
| Broom Snakeweed        | Foxtail Barley            | Mormon Tea         | Rhizomatous Wheatgrass  | Tall Larkspur       |
| Canada Thistle         | Gambel Oak                | Mountain Brome     | (Thickspike or Western) | Tansymustard        |
| Cheatgrass (or Downy   | Greasewood                | Mule-ears          | Rush Skeletonweed       | Tapertip Hawksbeard |
| Brome)                 | Halogeton                 | Nebraska Sedge     | Russian Olive           | Timothy             |
| Chokecherry            | Hoary Cress (or Whitetop) | Needle-and-Thread  | Russian Thistle (or     | Tufted Hairgrass    |
| Columbia Needlegrass   | Idaho Fescue              | Orchardgrass       | Tumbleweed)             | Ventenata           |
| Common Mullein         | Indian Paintbrush         | Penstemon (or      | Salt Cedar              | Western Yarrow      |
| Common Snowberry       | Indian Ricegrass          | Beardtongue)       | Saltgrass               | Wild Buckwheat      |
| Coyote Willow          | Intermediate Wheatgrass   | Phlox              | Sandberg Bluegrass      | Wild Geranium       |
| Creeping Bentgrass (or | Juniper (Utah, Rocky      | Pinyon Pine        | Saskatoon Serviceberry  | Winterfat           |
| Redtop)                | Mountain, or Western)     | Poison Hemlock     | Scarlet Globemallow     | Woods' Rose         |



**Part 3 - Site Description** (85 points)

Precipitation Zone (Select one)

5 pts

- |                                      |  |
|--------------------------------------|--|
| <input type="checkbox"/> Desert      | <input type="checkbox"/> Mountain      |
| <input type="checkbox"/> Semi-Desert | <input type="checkbox"/> High Mountain |
| <input type="checkbox"/> Upland      | <input type="checkbox"/> Alpine        |

Soil Depth & Rockiness (Select one)

10 pts

- |                                  |  |
|----------------------------------|--|
| <input type="checkbox"/> Shallow | <input type="checkbox"/> Deep Gravelly |
| <input type="checkbox"/> Deep    | <input type="checkbox"/> Deep Stony    |

Soil Texture (Select one)

10 pts

- |  |  |
|--|--|
| <input type="checkbox"/> Sand            | <input type="checkbox"/> Silty Clay Loam |
| <input type="checkbox"/> Loamy Sand      | <input type="checkbox"/> Clay Loam       |
| <input type="checkbox"/> Sandy Loam      | <input type="checkbox"/> Sandy Clay      |
| <input type="checkbox"/> Silt Loam       | <input type="checkbox"/> Silty Clay      |
| <input type="checkbox"/> Loam            | <input type="checkbox"/> Clay            |
| <input type="checkbox"/> Sandy Clay Loam |  |

Slope – Clinometers will be provided on site (Select one) – NOTE: Measure the slope delineated between the flags.

10 pts

- |  |  |
|--|--|
| <input type="checkbox"/> 0-5% (nearly level)     | <input type="checkbox"/> 16-20% (moderately steep) |
| <input type="checkbox"/> 6-10% (slight slope)    | <input type="checkbox"/> 21-45% (steep)            |
| <input type="checkbox"/> 11-15% (moderate slope) | <input type="checkbox"/> >45% (very steep)         |

Aspect – Compasses will be provided on site (Select one)

10 pts

- |   |   |
|---|---|
| <input type="checkbox"/> North (338°–22°)       | <input type="checkbox"/> North East (23°–67°)   |
| <input type="checkbox"/> North West (293°–337°) | <input type="checkbox"/> East (68°–112°)        |
| <input type="checkbox"/> West (248°–292°)       | <input type="checkbox"/> South East (113°–157°) |
| <input type="checkbox"/> South West (203°–247°) | <input type="checkbox"/> South (158°–202°)      |

Biomass Estimate – Based on averaging the dry weight in 3 designated 4.8 ft<sup>2</sup> plot.

40 pts

(20 pts for each correct answer for herbaceous and shrubs; or 10 pts if category nearest to correct answer is selected).

Herbaceous (select one):

- 0-400 pounds/acre
- 400-800 pounds/acre
- 800-1200 pounds/acre
- 1200-1600 pounds/acre
- >1600 pounds/acre

Current Season Shrubs (select one):

- 0-400 pounds/acre
- 400-800 pounds/acre
- 800-1200 pounds/acre
- 1200-1600 pounds/acre
- >1600 pounds/acre



**Part 4 – Rangeland Assessment** (95 points)

**4A. Similarity to Desired State** (40 points)

Calculate the similarity between observed and desired composition based the expected annual biomass production on a dry weight basis. “Observed Composition” will be estimated in the field (in Plots 1, 2, and 3) and “Desired Composition” will be provided. The evaluation area will consist of 3 marked, square plots (50 by 50 cm) within a larger marked area.

Plant Class	Plot 1 Proportion of Biomass (%)	Plot 2 Proportion of Biomass (%)	Plot 3 Proportion of Biomass (%)	Average Observed Composition (%)	Scoring	Desired Composition (Provided at Site) (%)	% Counted Toward Similarity
Perennial Grass					±5% ±10%		
Annual Grass					±5% ±10%		
Forbs ( <i>annual and perennial</i> )					±5% ±10%		
Shrubs					±5% ±10%		
	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>Calculated Similarity</b>			

*Average Observed Composition % (28 pts) | 7 pts for each plant class if answer is within ±5%. 3 pts if answer is within ±10% = \_\_\_\_\_ pts*

*% Counted Toward Similarity (12 pts) | 3 pts for each plant class with correct composition category counted toward similarity = \_\_\_\_\_ pts*

**4B. Browse Age Diversity** (40 pts total)– Determine the diversity of age classes for browse plants present in a belt transect delineated on the site. Examine flagged plants to determine age structure. Calculate the proportion of shrubs by age class for shrubs based on your observations (*Complete table and make calculations*).

Age Classes of Shrubs	Tally of Plants (field count)	Total Tally Count	Relative Age Class Distribution (%)	Relative
Young (All stems alive)				±5%
Mature (> 50% live stems < 50% dead stems)				±5%
Aged (< 50% live stems and > 50% dead stems)				±5%
Dead (No live stems; all stems appear dead)				±5%
<b>Total</b>			<b>100%</b>	

*10 pts for each % relative age distribution within ±5% = \_\_\_\_\_ pts*

**4C. Browse and Ecosystem Change.** (5 pts total) Based on your data for browse age diversity, which of the following statements best describes the ecosystem dynamics: 5 pts

- The site is in a state of renewal or invasion with mostly young plants.
- The site is apparently stable with abundant young plants and a nearly equal mix of age classes.
- The site is apparently transition to a site with less shrubs as most woody plants are aged or dead.

**4D. Identify state or phase in simplified State and Transition Model.** (10 pts total)

*10 pts*

Enter correct state/phase of site as depicted in State and Transition provided: \_\_\_\_\_



**Part 5 -Rangeland Ecosystem Measurements (70 pts)**

**5A. Landscape Appearance Utilization Estimate** (Based on observations recorded in 20-25 flagged sections on a transect; (35 pts)

Class Intervals	Interval Midpoint (M)	"Hits" Tally	Count (C)	Midpoint x Count (M x C)	Herbaceous Utilization Classes Based on Landscape Appearance
0-5 %	2.5				Desirable forage plants show no evidence of grazing or negligible use.
6-20%	13				Desirable forage plants have the appearance of very light grazing. The herbaceous forage plants may be topped or slightly used. Current seedstalks and young plants are little disturbed.
21-40%	30				Desirable forage plants may be topped, skimmed, or grazed in patches. The low value herbaceous plants are ungrazed. Most young plants are undamaged.
41-60%	50				Half of the available desirable forage plants appear to have been utilized. No more than 10% of the undesirable herbaceous forage plants are utilized.
61-80%	70				More than half of the available desirable forage plants are almost completely utilized. More than 10% of the undesirable herbaceous forage plants have been utilized.
81-94%	88				The rangeland has a mown appearance. Desirable forage plants appear to be heavily utilized and there is no evidence of reproduction or current seedstalks.
95-100%	97.5				The rangeland appears to be completely utilized. More than 50% of the undesirable herbaceous plants appear to have been completely utilized. The remaining stubble is grazed to the soil surface.
		Totals		<input type="text"/>	<input type="text"/>

**Average Utilization** =  $\frac{\text{Total M x C}}{\text{Total C}}$  =  = **Average Utilization**

Correct Calculation Process = 20 pts  
 Appropriate Estimate (within ±5% = 15 pts; within ±10% = 10 pts) = \_\_\_\_\_

**5B. Shrub Cover Estimates** (35 pts)

Shrub cover by line intercept.

Examine the transect line placed on the site, record segments of shrub canopy that intercept the transect, and calculate percent cover. (30 pts total; yard sticks will be provided)

Shrub Cover Intercept   Transect Length = _____ ft					
Plant Intercept	Intercept (inches)	Plant Intercept	Intercept (inches)	Plant Intercept	Intercept (inches)
1		7		13	
2		8		14	
3		9		15	
4		10		16	
5		11		17	
6		12		18	
Subtotal =		Subtotal =		Subtotal =	
<b>Total Intercept =</b>					
<b>% Cover =</b>					

Correct Calculation Process = 20 pts  
 Appropriate Estimate (within ±5% = 15 pts; within ±10% = 10 pts) = \_\_\_\_\_

