

CHAPTER NAME: _____ STUDENT ID #: _____

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

*** Figure showing area and soil types will be placed here.*

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 to receive full credit. (Check appropriate box) 10 pts

☐ Decrease Stocking Rate ☐ Increase Stocking Rate ☐ Keep Rate the Same

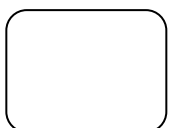
Choose the correct management activities that apply to improve this site (Select "Yes" for all that apply and select "No" for all that do not; 2pts each) 20 pts

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 or add salt location



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Part 1B – Current Rangeland Issues (40 pts)

***Participants will be asked 5 multiple choice questions based Wildland Fire (20 points, 4 points each).*

A scenario will be presented on the back of this page. Participants will assess options to addressing a habitat issue.

Show Calculations



Part 2 – Plant Identification (200 points)

Part 2 – Plant Identification (200 points)										Forage Value							
	Growth Form				Life Span			Origin			For Grazers			For Browsers			Toxic
Plant Number	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.																	
16.																	
17.																	
18.																	
19.																	
20.																	

1. Antelope Bitterbrush
 2. Arrowleaf Balsamroot
 3. Baltic Rush
 4. Basin Wildrye
 5. Big Sagebrush
 6. Bluebunch Wheatgrass
 7. Canada Thistle
 8. Cheatgrass (Downy Brome)
 9. Chokecherry
 10. Coyote Willow
 11. Crested Wheatgrass
 12. Curl-leaf Mountain Mahogany
 13. Curlycup Gumweed
 14. Elk Sedge
 15. Fourwing Saltbush
 16. Foxtail Barley

17. Gambel Oak
 18. Greasewood
 19. Halogeton
 20. Hoary Cress (Whitetop)
 21. Idaho Fescue
 22. Indian Ricegrass
 23. Intermediate Wheatgrass
 24. Leafy Spurge
 25. Locoweed
 26. Louisiana Sage (Cudweed Sagewort)
 27. Lupine
 28. Medusahead Rye
 29. Mormon Tea
 30. Mule-ears
 31. Nebraska Sedge
 32. Needle-and-Thread

33. Orchardgrass
 34. Penstemon (Beardtongue)
 35. Pinyon Pine
 36. Poison Hemlock
 37. Prairie Junegrass
 38. Purple Threeawn
 39. Quaking Aspen
 40. Rabbitbrush
 41. Redosier Dogwood
 42. Russian Thistle (Tumbleweed)
 43. Salt Cedar
 44. Saltgrass
 45. Sandberg Bluegrass
 46. Saskatoon Serviceberry
 47. Scarlet Globemallow
 48. Shadscale Saltbush
 49. Skunkbrush Sumac

50. Smooth Brome
 51. Spotted Knapweed
 52. Squirreltail
 53. Tall Larkspur
 54. Tansymustard
 55. Tapertip Hawksbeard
 56. Timothy
 57. Ventenata
 58. Western Yarrow
 59. Winterfat
 60. Woods' Rose
 61. Blue Grama
 62. Galleta
 63. Manzanita
 64. Showy Milkweed
 65. Yellow Starthistle

Part 3 - Site Description (85 points)

Precipitation Zone (Select one)

5 pts

- | | |
|--------------------------------------|--|
| ☐ Desert | ☐ Mountain |
| ☐ Semi-Desert | ☐ High Mountain |
| ☐ Upland | ☐ Alpine |

Soil Depth & Rockiness (Select one)

10 pts

- | | |
|----------------------------------|--|
| ☐ Shallow | ☐ Deep Gravelly |
| ☐ Deep | ☐ Deep Stony |

Soil Texture (Select one) – 10 pts for the correct soil texture; 5 pts for texture adjacent to the correct texture on the soil triangle

10 pts

- | | |
|--|--|
| ☐ Sand | ☐ Silty Clay Loam |
| ☐ Loamy Sand | ☐ Clay Loam |
| ☐ Sandy Loam | ☐ Sandy Clay |
| ☐ Silt Loam | ☐ Silty Clay |
| ☐ Loam | ☐ Clay |
| ☐ Sandy Clay Loam | |

Slope – Clinometers will be provided on site (Select one)

10 pts

- | | |
|--|--|
| ☐ 0-5% (nearly level) | ☐ 16-20% (moderately steep) |
| ☐ 6-10% (slight slope) | ☐ 21-45% (steep) |
| ☐ 11-15% (moderate slope) | ☐ >45% (very steep) |

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

10 pts

- | | |
|---|---|
| ☐ North (338°–22°) | ☐ North East (23°–67°) |
| ☐ North West (293°–337°) | ☐ East (68°–112°) |
| ☐ West (248°–292°) | ☐ South East (113°–157°) |
| ☐ South West (203°–247°) | ☐ South (158°–202°) |

Biomass Estimate – Based on average dry weight in 3 designated 4.8 ft² plot. (20 pts for each correct answer for herbaceous and shrubs; or 10 pts if category nearest to correct answer is selected).

40 pts

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 (50 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 (<i>Provided at Site</i>) (%)	% Counted Toward Similarity
Perennial Grass					±5% ±10%		
Annual Grass					±5% ±10%		
Forbs (<i>annual and perennial</i>)					±5% ±10%		
Shrubs					±5% ±10%		
	100%	100%	100%	Calculated Similarity			

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. Identify state or phase in simplified State and Transition Model.

10 pts

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

Part 5 -Rangeland Ecosystem Measurements (70 pts)

5A: Height Weight Method (35pts) –Twenty grasses will be flagged, and participants will measure grass height of grazed and ungrazed plants. Yard sticks will be provided or participants can use their own.

Plant Number	Height (measured in inches)		% Utilization
	Ungrazed	Grazed	
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Number of ungrazed plants = _____

6 pts if correct | 4 pts ± 1 plant | 2 pts ± 2 plants

Total Height of ungrazed plants = _____

6 pts correct if ± 10% | 4 pts ± 20% | 2 pts ± 30%

Average ungrazed plant height = _____

3 pts if calculated correctly based on data above

Number of all sampled plants = 20

Total % utilization of all sampled plants = _____

15 pts ± 10% | 10 pts ± 20% | 5 pts ± 30%

Average % Utilization = _____

5 pts if calculated correctly based on data above

5B. Shrub Cover Estimates (35pts)

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. (35 pts total; yard sticks will be provided)

Calculation Process = 20 pts | Appropriate Estimate (within $\pm 5\%$ = 15 pts; within $\pm 10\%$ = 10 pts)

Shrub Intercept Transect Length = ____ ft (or _____ inches)					
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 =	
Total Intercept =					
% Cover =					

