

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



Part 1B – Current Rangeland Issues (40 pts)

***Participants will be asked 5 multiple choice questions based on Wind Energy on Public Lands in 2023 (20 points, 4 points each).*

1. First Question
 - a.
 - b.
 - c.
 - d.
2. Second Question
 - a.
 - b.
 - c.
 - d.
3. Third Question
 - a.
 - b.
 - c.
 - d.
4. Fourth Question
 - a.
 - b.
 - c.
 - d.
5. Fifth Question
 - a.
 - b.
 - c.
 - d.

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)

| Plant Name <i>(write name from list below)</i> | 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. | | | | | | | | | | | | |
| 16. | | | | | | | | | | | | |
| 17. | | | | | | | | | | | | |
| 18. | | | | | | | | | | | | |
| 19. | | | | | | | | | | | | |
| 20. | | | | | | | | | | | | |

- Antelope Bitterbrush
- Arrowleaf Balsamroot
- Baltic Rush
- Basin Wildrye
- Big Sagebrush
- Bluebunch Wheatgrass
- Canada Thistle
- Cheatgrass (Downy Brome)
- Chokecherry
- Coyote Willow
- Crested Wheatgrass
- Curl-leaf Mountain Mahogany
- Curlycup Gumweed
- Dalmatian Toadflax
- Elk Sedge
- Fourwing Saltbush

- Foxtail Barley
- Gambel Oak
- Greasewood
- Halogeton
- Hoary Cress (Whitetop)
- Idaho Fescue
- Indian Ricegrass
- Intermediate Wheatgrass
- Leafy Spurge
- Locoweed
- Louisiana Sage (Cudweed Sagewort)
- Lupine
- Medusahead Rye
- Mormon Tea
- Mule-ears
- Nebraska Sedge

- Needle-and-Thread
- Orchardgrass
- Penstemon (Beardtongue)
- Pinyon Pine
- Poison Hemlock
- Prairie Junegrass
- Purple Threeawn
- Quaking Aspen
- Rabbitbrush
- Redosier Dogwood
- Russian Thistle (Tumbleweed)
- Salt Cedar
- Saltgrass
- Sandberg Bluegrass
- Saskatoon Serviceberry
- Scarlet Globemallow
- Shadscale Saltbush

- Skunkbrush Sumac
- Smooth Brome
- Snowbrush Ceanothus
- Spotted Knapweed
- Squirreltail
- Tall Larkspur
- Tansymustard
- Tapertip Hawksbeard
- Thurber’s Needlegrass
- Timothy
- Ventenata
- Wax Currant
- Western Yarrow
- Winterfat
- Woods’ Rose
- Yellow Star-thistle



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 for the correct soil texture; 5 pts for texture adjacent to the correct texture on the soil triangle

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)

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

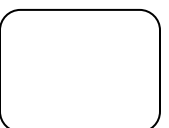
- | | |
|---|---|
| <input type="checkbox"/> North (338°–22°) | <input type="checkbox"/> North East (23°–67°) |
| <input type="checkbox"/> North West (293°–337°) | <input type="checkbox"/> East (68°–112°) |
| <input type="checkbox"/> West (248°–292°) | <input type="checkbox"/> South East (113°–157°)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

Biomass Estimate – Based on 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):

Current Season Shrubs (select one):

- | | |
|--|--|
| <input type="checkbox"/> 0-400 pounds/acre | <input type="checkbox"/> 0-400 pounds/acre |
| <input type="checkbox"/> 400-800 pounds/acre | <input type="checkbox"/> 400-800 pounds/acre |
| <input type="checkbox"/> 800-1200 pounds/acre | <input type="checkbox"/> 800-1200 pounds/acre |
| <input type="checkbox"/> 1200-1600 pounds/acre | <input type="checkbox"/> 1200-1600 pounds/acre |
| <input type="checkbox"/> >1600 pounds/acre | <input type="checkbox"/> >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 | | | |

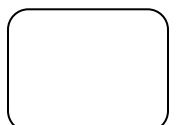
Average Observed Composition % (28 pts) | 7 pts for each plant class if answer is within ±5 % 3 pts if answer is within ±10% = _____ pts

% 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 | | | |
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| 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 ± 1" | 4 pts ± 2-3" | 2 pts ± 4"

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 = _____

3 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 sagebrush canopy that intercept the transect, and calculate percent cover. (35 pts total; yard sticks will be provided)
 Calculation Process = 20 pts | Appropriate Estimate (within ±5% = 15 pts; within ±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 = | | | | | |

