

# IROAM

## RANGELAND CURRICULUM

### TEACHER GUIDE



## Section 1: Introduction to Rangeland

1. Introduction-What is Rangeland? 20-25 minutes
2. Skills Challenge: Describe Rangeland; 15-20 minutes
3. Rangeland Stewardship, Can You Have it All? Uses and Values of Rangeland; 30-35 minutes

### Key Learning Objectives:

- Use a map legend to evaluate rangeland around the world and rangeland characteristics.
- Describe rangeland
- Understand that rangeland is managed for multiple uses to meet the desires and needs of society

### Idaho General Education Performance Standards

- LS2-5-3, LS2-5-4, ESS3-5-1, LS2-MS-1, ESS3-MS-3

### 1. What is Rangeland?

#### Introduction:

What is rangeland, and why does it matter? Although rangeland covers more than 40% of the earth's land area, most people do not know much about these unique and valuable landscapes.

**Time:** 30-35 minutes

**Supplies:** "What is Rangeland" quiz for each student, maps (PowerPoint)

#### Do:

Take the "What is Rangeland" quiz\*

\*The "What is Rangeland" quiz should serve as a discussion tool and be used when exploring the map, pictures, and describing major rangeland characteristics. Answers are provided at the end of the section. Printable quiz and maps (PowerPoint) can be found at <https://idrange.org/education-2/iroam/>.

**Reflect/Apply:** (Description for each map can be found below).

- Using the "Rangelands of the World" map, have students describe what rangeland is (use the map legend for a general description). This will be discussed further in the *Skills Challenge: Describe Rangeland* activity below. Discuss "What is Rangeland" quiz questions 1-3.
- Using the "Rangelands of the U.S." map, have students identify what rangeland vegetation type(s) are found in Idaho. Discuss "What is Rangeland" quiz question 4.
- Using the "Variation in Annual Precipitation across the U.S." map, have students identify the precipitation range where they live. Determine the average annual precipitation that most rangeland receive. Discuss "What is Rangeland" quiz question 5.
- Using the "Who Owns the West" map, have students identify how much land the federal government manages in the state they live. Use the map to discuss "What is Rangeland" quiz question 6.
- Using the "Land Cover in Idaho" map, discuss "What is Rangeland" quiz question 7.
- Using the "Rangeland Stewardship" map, have students identify the primary management agencies/ownerships in Idaho. Discuss quiz questions 8.
- BONUS: Describe the difference between public and private lands, how can YOU be a better

steward of public land? Public lands are generally described as lands that are open to the public and managed by the government.

## What is Rangeland?

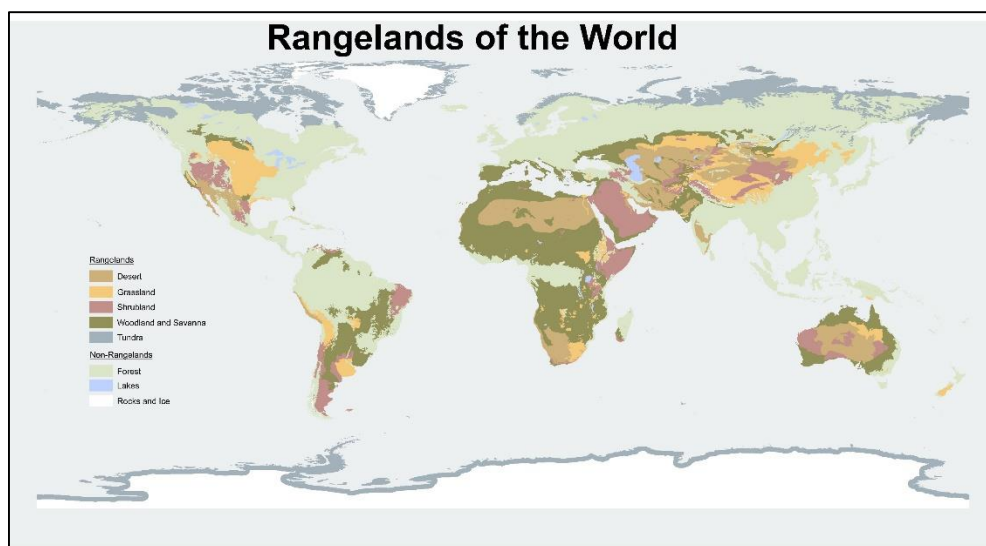
### Rangeland Quiz

- 
- 1. What is rangeland?**  
*Check all that apply*
    - ☐ Shrublands
    - ☐ Dense Forests
    - ☐ Woodlands and Savannas
    - ☐ Barren Desert
    - ☐ Tundra
    - ☐ Grasslands
    - ☐ Irrigated Pastures
    - ☐ Deserts
  - 2. How much of the earth's land area is rangeland?**
    - ☐ Less than 20%
    - ☐ 21 to 40%
    - ☐ 40 to 50%
    - ☐ More than 51%
  - 3. Which continent has the greatest % of land classified as rangeland?**
    - ☐ Africa
    - ☐ South America
    - ☐ Australia
    - ☐ Asia
  - 4. What are the types of rangeland found in Idaho?** *Check all that apply*
    - ☐ Sagebrush Steppe
    - ☐ Oak Woodland
    - ☐ Pinyon-Juniper Woodlands
    - ☐ Salt Desert Shrublands
    - ☐ Tallgrass Prairie
    - ☐ Intermountain Grassland
  - 5. What is the average annual precipitation that most rangeland receives?**
    - ☐ Less than 6 inches
    - ☐ 6 to 28 inches
    - ☐ 29 to 48 inches
    - ☐ More than 48 inches
  - 6. Which state has the highest % of its land managed by federal land management agencies?**
    - ☐ Texas
    - ☐ Nevada
    - ☐ Wyoming
    - ☐ Montana
  - 7. How much of Idaho is rangeland?**
    - ☐ Less than 20%
    - ☐ 21-40%
    - ☐ 40-50%
    - ☐ More than 51%
  - 8. Rangeland in Idaho are primarily managed by what federal agency?**
    - ☐ Bureau of Land Management (BLM)
    - ☐ U.S. Forest Service (USFS)
    - ☐ National Park Service (NPS)
    - ☐ Bureau of Indian Affairs (BIA)

### Answer Guide:

1. Shrublands, Woodlands and Savannas, Tundra, Grasslands, Deserts
2. 40 to 50% (most estimate 47% of the earth's land area is rangeland)
3. Australia (86%+ of Australia is considered rangeland)
4. Sagebrush Steppe, Pinyon-Juniper Woodlands, Salt Desert Shrublands, Intermountain Grassland
5. 6 to 28 inches (climatic conditions do not typically favor cultivations or provide enough precipitation for most trees)
6. Nevada (80%)
7. More than 51% (54% of Idaho is classified as rangeland)
8. Bureau of Land Management (38.1%)





## Rangelands of the World

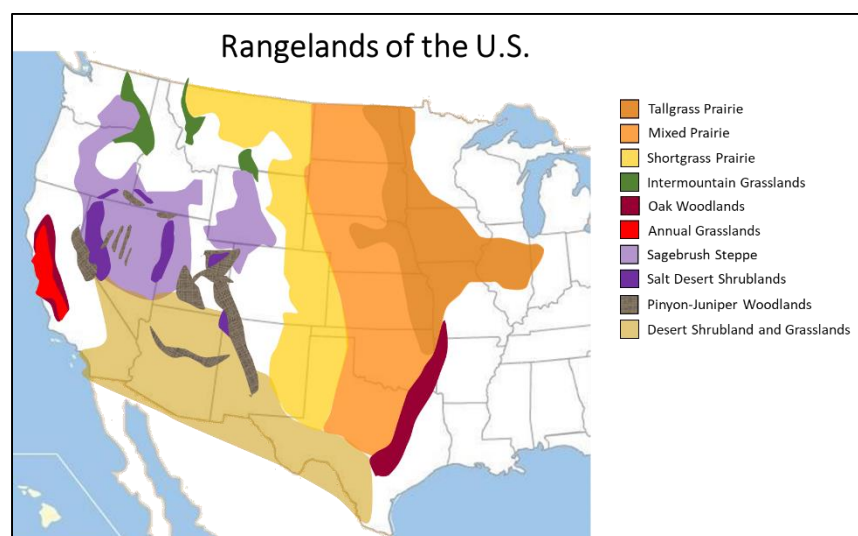
Deserts, grasslands, shrublands, woodlands, savannas, and tundra are rangeland that occur in a diverse array of forms across the globe, and extensively on every continent.

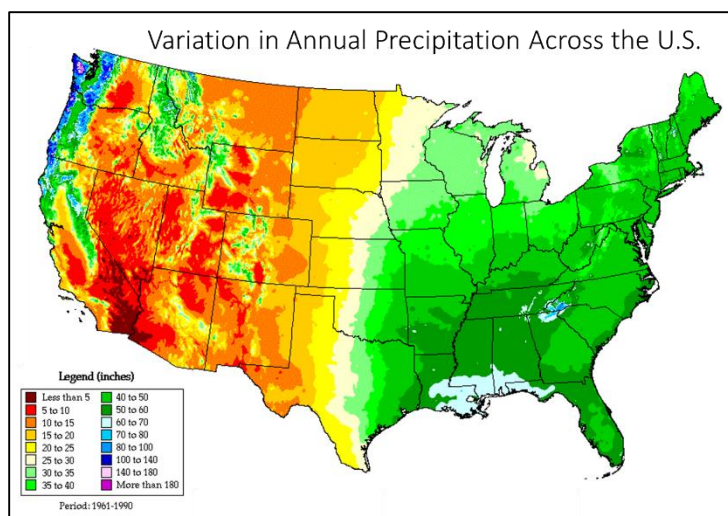
- **Deserts** are the driest rangelands. Vegetation on these lands is often sparse and dominated by shrubs and succulent cactus plants.
- **Grasslands** are lands dominated by grasses and grass-like plants.
- **Shrublands** are lands dominated by shrubs that have an understory of grasses and forbs.
- **Woodlands and Savannas** are lands dominated by widely-spaced trees with an understory of grasses and forbs.
- **Tundras** are treeless plains in the arctic or high-elevation (cold) regions.

## Rangeland of the U.S.

Examples in North America:

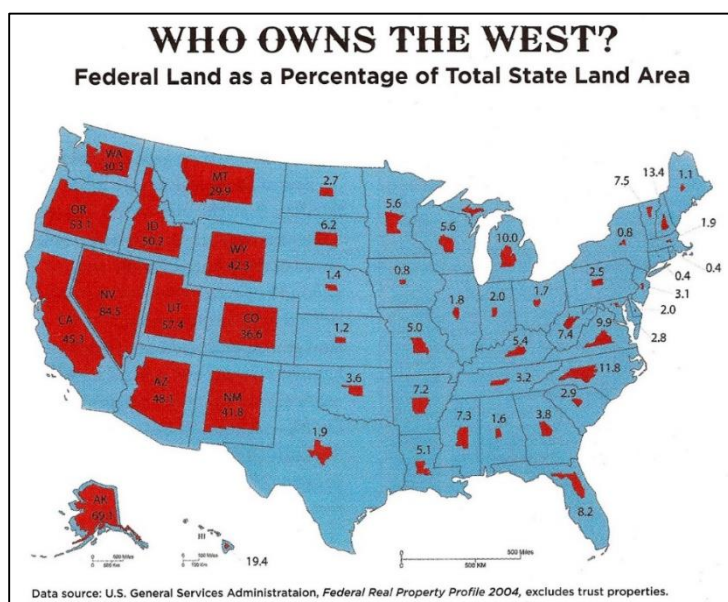
- **Desert Shrubland and Grasslands:** Mojave, Sonoran, and Chihuahuan deserts
- **Grasslands:** Tallgrass Prairie, Mixed Prairie, Shortgrass Prairie, Intermountain Grasslands (e.g., Palouse Prairie), and Annual Grasslands
- **Shrublands:** Sagebrush-Steppe, and Salt- Desert Shrublands
- **Woodlands and Savannas:** Pinyon-Juniper Woodlands and Oak Woodlands





### Variation in Annual Precipitation across the U.S.

- Rangeland receives between 6-28 inches of annual (yearly) precipitation.
- The Sierra Nevada Mountains and Rocky Mountains create an orographic barrier which means they intercept moisture heading east from the Pacific Ocean; this creates a dry area (red and orange on the map) on the east or leeward side of the mountain. This effect is known as a **rain shadow**.



### Rangeland Stewardship

Public lands are lands that are managed by federal and state land management agencies. Private lands are owned by individuals, corporations, or non-governmental organizations (NGOs).

### Federal Lands:

- Federal lands are 26% of all U.S. land. Almost half (48.6%) of the thirteen western states are federal lands, most of which are rangeland.
- Federal public land is to be managed for “multiple use” (discussed later) and for the greatest good of all Americans. These federal lands belong to all U.S. citizens and they are managed and cared for on our behalf by various federal agencies such as the Bureau of Land Management (BLM), U.S. Forest Service (USFS), National Park Service (NPS), U.S. Military and a few others.

### State Endowment Lands

- Through the *Morrill Act* in 1862, a portion of federal lands were granted to states. This act created the checkerboard pattern across much of Idaho's landscape (red squares in the Rangeland Stewardship map).
- State lands are actively managed to "secure the maximum long-term financial return" to public schools and other beneficiaries.
- State endowment lands are managed to be sustainable (remain healthy, productive, and resilient) and promise to generate returns for generations to come.

### Private Lands:

- Private lands include those owned by individuals, corporations, or non-governmental organizations (NGOs). Just like people own homes and yards in the city, rangelands were homesteaded in the mid-1800s and many have been purchased since.
- Prior to the 1930s, government policies encouraged the settlement of the West. The *Homestead Act* opened public lands to settlers and pioneers; U.S. citizens willing to settle on and improve the land for at least five years were given between 160-640 acres.
- Private lands tend to be in areas where there is water; pioneers homesteading the land needed water for themselves, animals, and to grow crops. Lands with limited water were difficult to homestead and tend to be the lands managed by state and federal agencies today.

### Land Cover in Idaho

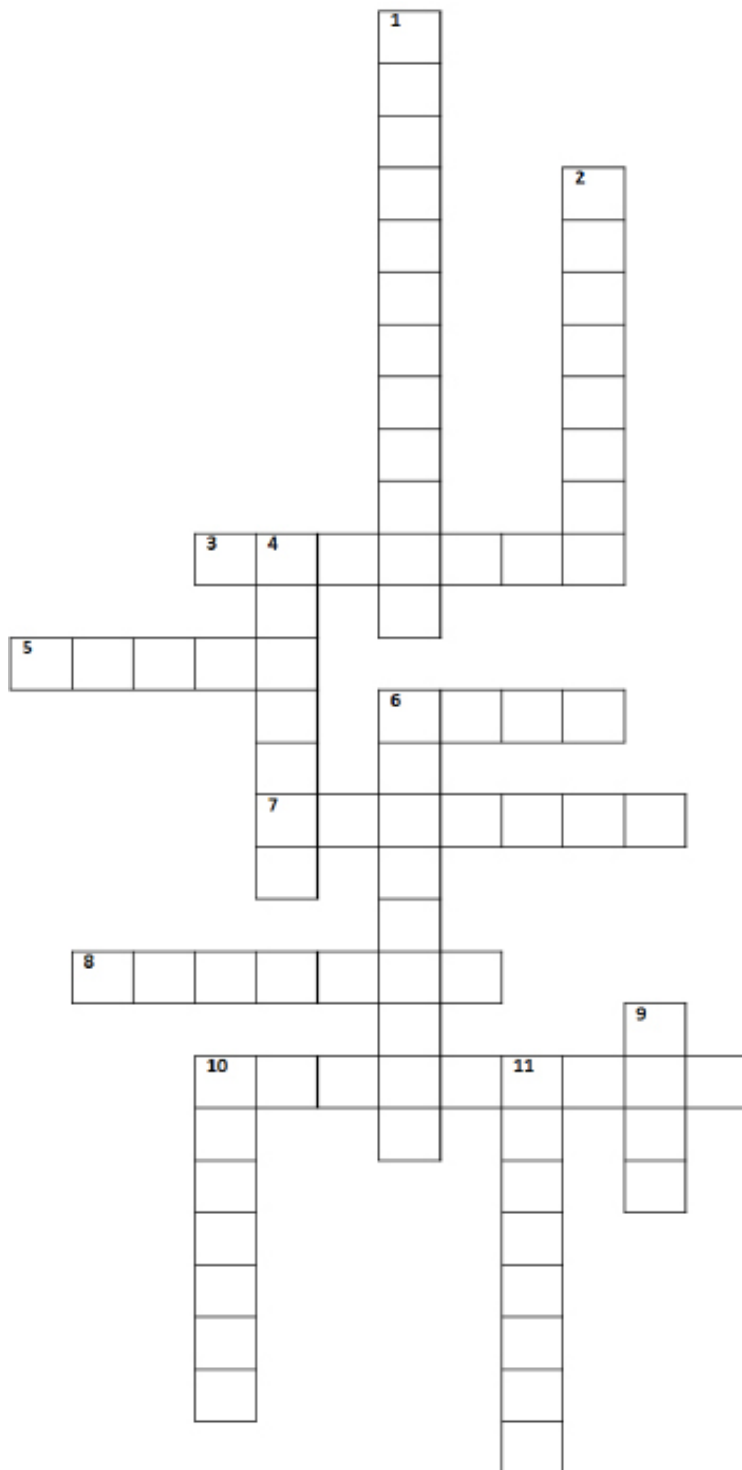
Land cover describe the characteristics of the land surface (for example, urban, agriculture, forest, and rangeland). Land cover can change over time, for example as agricultural lands are development into urban properties, however, this changes often take time. In Idaho, land cover is as follows:

- Rangeland = 54.4% or 28,793,382 acres
- Forest = 32.0% or 16,950,807 acres
- Cultivate Crops (or agricultural lands) = 9.3% or 4,898,404 acres
- Urban = 1.7% or 918,048 acres
- Irrigated Pastures = 1.7% 879,739 acres
- Water = 0.9% or 491,743

### Rangeland Stewardship in Idaho: Who manages or owns Idaho rangelands?

- Federal rangeland = 68.8%; Primarily managed by the
  - Bureau of Land Management (BLM)—38.1% or 10,961,030 acres (yellow)
  - US Forest Service (USFS)—25.9% or 7,443,705 acres (green)
- State rangelands = 5.6%
- Private rangelands = 24% or 6,827,264 acres (blue)

## Rangeland Stewardship Crossword Puzzle



### Across

3. U.S. citizens willing to settle on and \_\_\_\_\_ the land for at least five years were given between 160-640 acres.
5. Private lands tend to be in areas where there is \_\_\_\_\_.
6. Almost \_\_\_\_\_ of the thirteen western states are federal lands, most of which are rangelands.
7. Lands with \_\_\_\_\_ water that were difficult to homestead, tend to be the lands managed by state and federal agencies today.
8. \_\_\_\_\_ lands include those owned by individuals, corporations, or non-governmental organizations.
10. State lands are actively managed to "secure the maximum long-term \_\_\_\_\_ return" to public schools and other beneficiaries.

### Down

1. The Morrill Act created the \_\_\_\_\_ pattern across much of Idaho's landscape.
2. Federal public land is to be managed for \_\_\_\_\_ use and for the greatest good of all Americans.
4. Through the \_\_\_\_\_ Act, a portion of federal lands were granted to states.
6. The \_\_\_\_\_ Act opened public lands to settlers and pioneers.
9. A federal agency that manages the majority of rangelands in Idaho is the Bureau of \_\_\_\_\_ Management (BLM).
10. Public lands are lands that are managed by \_\_\_\_\_ and state land management agencies.
11. Most federal lands belong to all U.S. \_\_\_\_\_ and they are managed and cared for on our behalf by various federal agencies.

## Answer Guide:

### Rangeland Stewardship Crossword Puzzle:

#### Across

3. U.S. citizens willing to settle on and **improve** the land for at least five years were given between 160-640 acres.
5. Private lands tend to be in areas where there is **water**.
6. Almost **half** of the thirteen western states are federal lands, most of which are rangelands.
7. Lands with **limited** water that were difficult to homestead, tend to be the lands managed by state and federal agencies today.
8. **Private** lands include those owned by individuals, corporations, or non-governmental organizations.
10. State lands are actively managed to “secure the maximum long-term **financial** return” to public schools and other beneficiaries.

#### Down

1. The Morrill Act created the **checkerboard** pattern across much of Idaho’s landscape.
2. Federal public land is to be managed for **multiple** use and for the greatest good of all Americans.
4. Through the **Morrill** Act, a portion of federal lands were granted to states.
6. The **Homestead** Act opened public lands to settlers and pioneers.
9. A federal agency that manages the majority of rangelands in Idaho is the Bureau of **Land** Management (BLM).
10. Public lands are lands that are managed by **federal** and state land management agencies.
11. Most federal lands belong to all U.S. **citizens** and they are managed and cared for on our behalf by various federal agencies.



## 2. Skills Challenge: Describe Rangeland

**Time:** 15-20 minutes

**Supplies:** “Describe Rangeland” table for each student, PowerPoint

### Identify which pictures are rangeland?

Look at the pictures and fill out the table. Describe why the photos are rangeland, or why they are not. *Printable table can be found at*

<https://idrange.org/education-2/iroom/>

**Bonus:** After identifying which photos are rangeland, use the categories from the “Rangelands of the World” map to determine what type of rangelands are represented.

	Yes, this is Rangeland	No, this is not Rangeland
A		
B		
C		
D		
E		
F		
G		



Photo	Yes, this is Rangeland	No, this is not Rangeland
A	Yes, this is a photo of semi-arid rangeland with diverse topography. On the hills, you have sagebrush-steppe, at the base of the hills you will find a riparian area in green (green means water!), and native and non-native grasses in brown near the fence. Topography often determines which plants grow where. <b>Bonus: Mix of Shrubland/Grassland</b>	
B	Yes, this is a photo of a low-elevation sagebrush-steppe rangeland. Although this may look “unhealthy” this is a good example of rangelands. Rangeland are limited by precipitation and often have sparse vegetation. <b>Bonus: Shrubland</b>	
C		No, rangelands are not farmed lands (no irrigation or fertilizers). Rangelands typically have highly variable soils that are shallow and have low-nutrients (plus, soils are frequently salty or saline) limiting what can grow.
D	Yes, this is an example of the Mojave desert with Joshua trees, shrubs, and lots of bare ground. Fire is rare in the desert because of the bare ground, the plants are not touching so fire doesn't spread very well which ultimately helps all the slow moving critters (like a tortoise) survive. <b>Bonus: Desert</b>	
E		No, rangelands are not cultivated (farmed). They are typically not monocultures (one plant species) like in photo C and E.
F		No, rangelands are not dense forests like in much of this photo. Sometimes, people do consider wet meadow to be rangelands because they are often grazed by livestock.
G	Yes, this is an example of a savanna in Africa. Notice the sparse trees and lots of grass. This rangeland type depends on fire and it occurs often. Fire removes shrubs and trees which allow for more grasses to feed large mammals. <b>Bonus: Savanna</b>	

### 3. Rangeland Stewardship, Can You Have It All? Uses and Values of Rangelands

**Time:** 30-35 minutes

**Supplies:** “Can You Have It All” table for each student, PowerPoint

#### **Introduction:**

Rangeland provides natural beauty, a diversity of wildlife, recreational opportunities like hunting, hiking, and camping, and economic values including ranching, mining, and electric power. Because rangeland is important for their diverse array of uses and values, they are managed under the principle of multiple use. Multiple use means that several uses and values of rangeland are managed simultaneously and with care to avoid overuse and/or destruction of natural resources. This is one of the biggest challenges we face when managing rangeland.

**Directions:** Show students the collage of “Uses and Values of Rangelands” and ask them which of these pictures look like something they would like to see more of where they live. Rangelands can and have been used for all the things in the pictures and many more.

#### **Uses and Values of Rangelands**





## Do:

How do you value rangeland? Have team members rank how they **value land uses** using the table below. Write the ranking in the “Individual Ranking” column. *Each number can only be use once!* **Remember, there is NO right answer on the ranking chart--every use has potential negative and positive consequences.** Printable table can be found at [idranger.org](http://idranger.org)

- Rank of 1 = highest value of rangeland
- Rank of 11 = lowest (or least) value of rangeland

**Directions:** Once team members have completed their survey, have each member write their ranking on a large piece of paper (see example below). Add the scores together for each value (remember, the smallest numbers have the most value).

Land Use	Individual Ranking	Group Rankings	Total
Wildlife Habitat			
Livestock Grazing			
Native Plant Harvest			
Hunting/Fishing			
Non-motorized Recreation			
Motorized Recreation			
Aesthetic (Beauty)			
Rural Housing Development			
Agriculture			
Urban Development			
Energy Development			

### Top 3 Most Valued Land Use

(lowest numbers in the “Total” column)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Least Valued Land Use

(highest number)

1. \_\_\_\_\_

## Do:

Once individual team members have completed their survey, have each member write their rankings under the “Group Rankings” column. Add the scores together for each value and place in the “Total” column. Rank the “Top 3 Most Valued Land uses” and “Least Valued Land Use”. Remember, that the lowest numbers have the most value!

## Example

Land Use	Individual Ranking	Group Rankings	Total
Wildlife Habitat	4	3 + 2 + 2	11
Livestock Grazing	1	2 + 1 + 1	5
Native Plant Harvest	10	9 + 10 + 6	35
Hunting/Fishing	3	4 + 7 + 3	17
Non-motorized Recreation	9	5 + 6 + 4	24
Motorized Recreation	5	6 + 5 + 7	23
Aesthetic (Beauty)	8	7 + 4 + 5	24
Rural Housing Development	7	10 + 8 + 8	33
Agriculture	2	1 + 3 + 9	15
Urban Development	11	11 + 11 + 11	44
Energy Development	6	8 + 9 + 10	32

### Top 3 Most Valued Land Use

(lowest numbers in the “Total” column)

1. Livestock Grazing
2. Wildlife Habitat
3. Agriculture

### Least Valued Land Use

(highest number)

1. Urban Development



### Reflect:

- According to the ranking, how does your team value rangeland? If you surveyed a larger group, how might this ranking change (i.e., if you surveyed a group of realtors or developers, might the value of rangeland change)? Do your results represent society's needs and desires?
- Based on your rankings, do you think it would be easy or hard to manage for multiple uses on rangeland?

### Words to Explore\*:

- **Diversity:** The distribution and abundance of different plants and animal communities within an area.
- **Multiple Use:** Use of range for more than one purpose, i.e., grazing of livestock, wildlife production, recreation, watershed and timber production. Not necessarily the combination of uses that will yield the highest economic return or greatest unit output.
- **Rain Shadow:** The region of diminished rainfall on the leeward side of a mountain range, where the rainfall is noticeably less than on the windward side.
- **Steppe:** semi-arid grassland characterized by grasses occurring in scattered bunches with other herbaceous vegetation and occasional woody species.



\*Definitions from the Society for Range Management Glossary of Terms

### Additional Resources:

Visit the <https://idrange.org/education-2/i-roam-curriculum/> for each topic to see videos and other additional educational links and materials.