

# Range

Information Provided By: Natural

Resources Conservation Service:

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policy **range** aquatics soil forestry wildlife

## Did you Know that:

Rangeland is a type of land that supports different, uncultivated vegetation types that can provide the necessities of life for both native and domestic herbivores in a sustainable fashion. Range management is a synthesis discipline that draws from many different areas such as wildlife, soils, botany, ecology, aquatic biology, physiology, entomology, forestry, systematic, hydrology, GIS/RS, animal science, and others. It is not as it is often times portrayed, just for cows!

- Rangeland occupies approximately 51% (16.6 Billion acres) of the earth's surface.
- One billion acres of rangelands, pastures, and woodlands exist within the United States.
- Within Nebraska, rangelands account for 48% or 23.9 million acres of the state's land area.

## Objective 1 Range Resource

Principles:

- Understand the important uses and needs of rangeland in Nebraska.
- Understand major range ecosystems and plant associations in Nebraska.
- Know some of the legislation affecting maintenance and use.
- Keep up with current range issues

Try out these activities

1) Determine how much of the US and Nebraska is considered to be rangeland. Also, look for information on the health of these rangelands, what makes them unique and their uses

2) Look at vegetation and soils maps of Nebraska and determine what plants and plant groups occur within the state. Determine if there is a relationship to the soils, and to land uses past and present.

3) Read your local and state newspapers, magazines, and newsletters to learn about current rangeland issues. Look at the Nebraska Legislature's home page to learn about any pending legislation that affects rangeland uses.

### Sample Questions

- 1) On abandoned fields in Nebraska, a manager would expect to find which of these types of vegetation growing? annual forbs, annual grasses, shrubs, or perennial grasses?
- 2) Range site classification is based on? soils, climate, topography, or combinations of all?
- 3) On shortgrass prairie heavy grazing will result in? warm season or cool season grasses?
- 4) How many square feet are in an acre?

### Reference Material

- Reece, P.E., W. H. Schacht and J. D. Volesky. 2008. [Integrating Management Objectives and Grazing Strategies on Semi-arid Rangeland](#). University of NE Cooperative Extension Circular EC01-158.
- Stubbendieck, J. and P.E. Reece. 1992. [Nebraska Handbook of Range Management](#). University of NE Cooperative Extension Circular EC 92-124-E.
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- Reece, P. E., W. H. Schacht, and J. D. Volesky. 2007 [Skillful Grazing Management on Semiarid Rangelands](#). University of NE Cooperative Extension Circular EC07-162.
- Barbour, M.G., and W.D. Billings. 1988. North American Terrestrial Vegetation. Cambridge University Press. New York.
- <http://www.nebraskalegislature.gov> (Nebraska Legislature)
- Local newspapers, Omaha World Herald, and the Lincoln Journal Star
- Natural Resources Conservation Service at your local Farm Service Center, [Native Vegetation Map of Nebraska](#): Kaul, R.B., and Rolfsmeier, S.B.-Conservation and Survey Division, UNL.

### Objective 2 Range Plants

Principles:

- Classification, description, and distribution
- Plant morphology
- Value as feed/habitat for livestock and wildlife
- Poisonous plants (recognition)
- Identification of range plants

Try out these activities

- 1) Find out how plants are classified and described both for their names and for grouping. What influences the distributions of these plants? Climate, soil, topography etc.
- 2) Plants all have specific ways in which they grow and reproduce. Learn how this happens and how plants are influenced by herbivores.
- 3) Determine the suitability of plants for their value or detriment as forage and habitat for both livestock and wildlife. How does their use influence their value?

### Sample Questions

- 1) A vegetation type that extends over a large area, is termed a? physiognomy, physiography, life form or biome?
- 2) Which of the organelles below are most commonly associated with the exchange of genetic material? golgi bodies, nucleus, mitochondria, or vacuole?

3) In a rangeland condition, which plant below would be considered an invader? annual sunflower, smooth brome, little bluestem, or blowout grass?

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- Stubbendieck, J. and K. Kottas. 2005. [Common Grasses of Nebraska](#). University of Nebraska Cooperative Extension Circular EC170.
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- Reece, P. E and Moser, C. P. 1985. [Nebraska Poisonous Range Plants](#). University of Nebraska Cooperative Extension Circular EC198.
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- Cotton, Scott. 1964. [Minimizing Livestock Plant Poisoning on Western Nebraska Rangelands](#). University of Nebraska Cooperative Extension Circular EC1948.
- Heath, M.E., D.S. Metcalf, and R.F. Barnes. 1973. Forages. Iowa State University Press, Ames.
- Society for Range Management. 1996. Wildland plants: physiological ecology and developmental morphology. Society for Range Management, Denver, Co.
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### Objective 3 Range Ecology

Principles:

- Plant succession, climax, ecological thresholds
- Role of livestock and wildlife in the ecosystem
- Water, mineral, energy flow
- Rangeland Health
- Role and effects of fire in range ecosystems
- Range sites and ecological Sites (recognition and description)
- Vegetation measurements

Definitions, how to measure, and calculations

- Frequency
- Density
- Yield
- Ground Cover

Try out these activities

1) Develop a sound knowledge of both the biotic and abiotic portions of the ecosystem and understand their interconnectedness. Fire and man are all part of this system and are often left out of the concept of an ecosystem that interact. To be a good land steward, a manager must understand these interactions and the consequences of an ecosystem's mismanagement.

2) To successfully manage an area, the manager must know what plants occur within an area and how many there are. Learn about all of the different sampling methods and tools that exist and how they are used to make management decisions.

3) To determine if management decisions are resulting in desired results, the manager must know what and how to monitor vegetation. Learn about the various monitoring methods that can be used to make sound management decisions.

### **Sample Questions**

1) Which of the following are biotic factors of an ecosystem?

- a) Climate
- b) microflora and microfauna
- c) plants
- d) humans

2) The fire triangle for prescribed fire on rangelands include:

- a) fuel, oxygen, slope
- b) ignition source, fuel, oxygen
- c) plants, animals, fire oxygen, fuel, heat

3) In an ecological context, which plant listed below would be considered an invader? a) annual sunflower

- b) leafy spurge
- c) western wheatgrass
- d) blowout grass

4) Which form of competition is usually more intense?

- a) interspecific
- b) intraspecific

### **Reference Material**

- Barbour, M.G., J.H. Burk, and W.D. Pitt. 1980. Terrestrial Plant Ecology. Benjamin/Cummings Publishing Co., Menlo Park, CA.
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### **Objective 4: Rangeland and the Livestock Industry**

Principles:

- Relationship of livestock and rangeland
- Grazing effect on plants
- Range condition or threshold (estimation and calculations)
- Rangeland Health

- Determining stocking rates (calculations)
- Monitoring and adjusting stocking rates.
- Grazing systems and management
- Livestock distribution
- Range improvements (seeding, prescribed burning, weed and brush management, etc.)

Try out these activities

- 1) Determine the relationship that has existed between grazing lands and herbivores and the effect of these relationships on vegetation.
- 2) Rangeland can be evaluated in many ways, what are some of the theories that exist, how is rangeland health determined?
- 3) Grazing systems and management seek to solve the problem of animal distribution while maximizing animal production. Learn about all of the different systems and practices that have been employed over the years and the successes and failures.
- 4) Often, people try to “improve” an area for livestock production and wildlife habitat. What are the differing methods employed and how successful are they on the many differing rangeland ecosystems.
- 5) Grazing of public lands by cattle, beef production, and the consumption of red meat are controversial topics, become familiar with both sides of the argument.

### Sample Questions

- 1) The portions of a grass plant that are considered to be available for a grazing animal are?
  - a. Forage
  - b. Herbage
  - c. Standing crop
  - d. Browse
  
- 2) Grass tetany usually occurs in the \_\_\_\_\_ when \_\_\_\_\_ livestock are turned onto rapidly growing, lush pastures.
  - a. Spring; hungry
  - b. Spring; lactating
  - c. Summer; young
  - d. Fall; young
  
- 3) Stocking rate is expressed in which of the following units:
  - a. Au/kg or au/lb
  - b. Aum/ha or aum/ac
  - c. Au/ha or au/ac
  - d. Kg/ha or lb.ac

### Reference Material

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- Holechek, J.L., R.D. Piper, and C.H. Herbel. 1995. *Range Management Principles and Practices*. Prentice Hall.

- Pellant, M, P. Shaver, D. Pyke and J. E. Herrick. 2005. [Interpreting Indicators of Rangeland Health, Version 4](#). US. Department of Interior, Bureau of Land Management. Technical Reference 1734-6.

### **Objective 5 Range and the Environment**

- Species inhabiting rangeland areas
- Role as habitat and as food
- Management benefiting wildlife, including improvements
- Wildlife/livestock interactions
- Multiple use concept of managing rangeland
- Role of rangeland in environmental protection
  - soil
  - water
  - wildlife
  - streams
  - wetlands
- Effects of human use

Try these activities

- 1) Make a list of the many multiple uses of rangeland and include the concept of coordinated (or integrated) resources management.
- 2) Determine how our uses and perceptions of the uses of rangelands influence management decisions. What are the roles of politics in rangeland management?
- 3) What are some of the rangeland improvement techniques used for the benefit of livestock and wildlife?
- 4) Do livestock and wildlife really compete for resources? If so how? Can one be used to improve an area for the other?

### **Sample Questions**

- 1) Many foresters believe that a large portion of the grasslands that currently comprise over 97 percent of Nebraska should be forests and is a dis-climax situation created by:
  - a. Bison
  - b. Use of fire by “Native Americans”
  - c. Wood gathered by early settlers
  - d. Cattle grazing
- 2) The Pine Ridge Region of northwestern Nebraska is considered by some to be a degraded ecosystem due to?
  - a. Increase in the number of pine trees
  - b. Suppression of fire
  - c. Overgrazing
  - d. All of the above

## **Reference Material**

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- Society for Range Management. Rangeland Wildlife. Denver Colorado
- Society for Range Management. Coordinated Resource Management Guidelines. Denver, Colorado
- Schneier, R., M. Humpert, K. Stoner, and G. Steinauer. 2005. [The Nebraska Natural Legacy Project – A Comprehensive Wildlife Conservation Strategy](#). Nebraska Game and Parks Commission.

## **Answers:**

- 1.1) annual forbs, 1.2) combinations, 1.3) warm-season grasses, 1.4) 43,560
- 2.1) biome, 2.2) nucleus, 2.3) annual sunflower
- 3.1)b, c, & d, 3.2)d, 3.3)d, 3.4)b
- 4.1)a, 4.2)b, 4.3)b
- 5.1)b, 5.2)d