How to use this guide

Step 1: Quickly skim through the entire guide to get a feel of the information included.

Step 2: Start with the first objective in the section you are studying and:

a. Read the objective and understand what it is asking you.

b. Next, begin to search for information using the references provided and any other materials and sources you have available. The internet is a great source of information, so try doing a search on your topic.

c. Jot down notes as you go.

d. Do not spend too much time on one subject that you cannot get to another.

e. If you get frustrated with a topic, move on to the next and come back to it later. You may discover information on it while you are searching for other things.

f. This is a group effort, so work together. Two brains are better than one.

g. Share information and divide the workload.

h. Your local Natural Resources Districts and other agencies are always willing to help. Explore your options and use every available resource.

i. Look up terms you do not understand and jot down their meanings.

j. Remember, make good notes that you can come back to later and still understand.

Step3: Look over the sample questions and quiz yourself. Answers are located at the back of the section. Make new questions on flash cards. Make each objective a question and answer it with as many details as you can.

Step 4: Have fun with it. This guide provides useful information that can be very difficult to understand at times so do not be afraid to ask questions. Work together and follow these steps.

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.
- 770 million acres of rangelands exist within the United States.
- Within Florida, rangelands account for 11% or 3.9 million acres of the state's land area.

Objective 1 Range Resource

Principles:

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

Try out these activities

1. Determine where rangeland is located in the US and Florida. Also, look for information on the health of these rangelands, what makes them unique and their uses.

2. Determine what the percentage of land that rangeland occupies in the US.

2) Look at vegetation and soils maps of Florida 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.

Sample Questions

1. A manager would expect to find which of these types of vegetation growing on Freshwater Marsh range sites in Florida?
    a. annual forbs,
    b. annual grasses,
    c. shrubs,
    d. perennial grasses.

2. Range site classification is based on?
    a. soils,
    b. climate,
    c. topography,
    d. combinations of all.

3. On a South Florida Flatwoods range site heavy grazing will result in?
    a. A decline in herbaceous vegetation
    b. A decline in woody vegetation.

4) How many square feet are in an acre?

Reference Material

Karen Launchbaugh, et al, 2009, Rangelands: An Introduction To Idaho's Wild Open Spaces, Department of Rangeland Ecology and Management, University of Idaho. https://fishandgame.idaho.gov/sites/Wildlife/IDMasterNaturalist/HenrysFork/Habitat%20Articles/MN_Rangelands_final.pdf

Karen Launchbaugh, Notes and Presentations for University of Idaho course REM-151, http://www.webpages.uidaho.edu/rem151/Notes.htm

Stubbendieck, J. and P.E. Reece. 1992. Nebraska Handbook of Range Management. Nebraska Coop. Ext. Serv. Circular EC 92-124-E.

Jerry D. Volesky, et al., 2009. Range Judging Handbook.. University of Nebraska-Lincoln Extension EC 150-F. http://www.ianrpubs.unl.edu/epublic/live/ec150/build/ec150.pdf

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?
    a. physiognomy,
    b. physiography,
    c. life form
    d. biome

2. Which of the organelles below are most commonly associated with the exchange of genetic material?
    a. golgi bodies,
    b. nucleus,
    c. mitochondria,
    d. vacuole

3) What are three differences between grasses and grass-like plants?

Reference Material

Karen Launchbaugh, et al, 2009, Rangelands: An Introduction To Idaho's Wild Open Spaces, Department of Rangeland Ecology and Management, University of Idaho. https://fishandgame.idaho.gov/sites/Wildlife/IDMasterNaturalist/HenrysFork/Habitat%20Articles/MN_Rangelands_final.pdf

Jerry D. Volesky, et al., 2009. Range Judging Handbook.. University of Nebraska-Lincoln Extension EC 150-F. http://www.ianrpubs.unl.edu/epublic/live/ec150/build/ec150.pdf

Objective 3 Range Ecology

Principles:

- Plant succession, climax, ecological thresholds
- Role of livestock and wildlife in the ecosystem
- Water, mineral, energy flow
- Role and effects of fire in range ecosystems
- Range 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 part of this system and are often left out of

the concept of an ecosystem that interacts. 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.

Sample Questions

1. Which of the following are biotic factors of an ecosystem?
    a) Climate
    b) microflora and microfauna
    c) plants
    d) humans

2. What are the three critical components necessary for a fire to occur on rangelands?
    a) fuel, oxygen, slope
    b) ignition source, fuel, oxygen
    c) plants, animals, fire oxygen, fuel, heat

3. In an ecological context, plant species that were absent or present in very small amounts in undisturbed portions of the original vegetation of a specific range site and take over the site following disturbance or continued *overuse* are called?
    a) annual sunflower
    b) decreasers
    c) increasers
    d) invaders

4. Which form of competition is usually more intense?
    a) interspecific
    b) intraspecific

Reference Material

Overview of Rangeland Ecology by K. Launchbaugh, L. Roselle, and others.

Ecological Sites, Succession& Retrogression -- National Range and Pasture Handbook

✎ Student Reading Guide

Jerry D. Volesky, et al., 2009. Range Judging Handbook.. University of Nebraska-Lincoln Extension EC 150-F. http://www.ianrpubs.unl.edu/epublic/live/ec150/build/ec150.pdf

Barbour, M.G., J.H. Burk, and W.D. Pitt. 1980. Terrestrial Plant Ecology. Benjamin/Cummings Publishing Co., Menlo Park, CA.

Society for Range Management. Assessment of Rangelands and the Trend of the United States. Denver, CO.

Bonham, C.D. 1989. Measurements for Terrestrial Vegetation. John Wiley & Sons. New York.

Society for Range Management. Glossary of Terms Used in Range Management, 2nd Edition. Denver, CO.

Objective 4: Rangeland and the Livestock Industry

Principles:

- Relationship of livestock and rangeland
- Grazing effect on plants
- Range condition or threshold (estimation and calculations)
- Determining stocking rates (calculations)
- Monitoring and adjusting stocking rates.
- Grazing systems and management
- Livestock distribution
- Range improvements (seedling, 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 health can be determined 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 used 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 often 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. Of the grazing systems described in the "Summary of Livestock Grazing Systems Used on Rangelands in the Western United States and Canada", which system requires the most labor and investment in capital (such as fencing)?
    a. Continuous
    b. Rest rotation
    c. Short duration
    d. Winter
3. Stocking rate us 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

Summary of Livestock Grazing Systems Used on Rangelands by L. Howery, J. Sprinkle and J. Bowns
✎ Student Reading Guide

Invasion and Invasive Species. by the Ecological Society of America. 2004
✎ Student Reading Guide

Integrated Rangeland Weed Management by R. Sheley. 1995. Rangelands 17(6): 222-223.
✎ Student Reading Guide

Landscape Attributes Of Subdivided Ranches by J.E. Mitchell, R.L. Knight, and R.J. Camp. 2002. Rangelands 24(1):3-9.
✎ Student Reading Guide

Jerry D. Volesky, et al., 2009. Range Judging Handbook. University of Nebraska-Lincoln Extension EC 150-F. http://www.ianrpubs.unl.edu/epublic/live/ec150/build/ec150.pdf

Stubbendieck, J. and P.E. Reece. 1992. Nebraska Handbook of Range Management. Nebraska Coop. Ext. Serv. Circular EC 92-124-E.

Heitschmidt, R.K. and J.W. Stuth. 1991. Grazing Management: An Ecological Perspective. Timber Press, Portland, OR.

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

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. Fragmentation of rangelands is caused by _____, _____ and construction of roads.
   a. Bison and mineral extraction
   b. Use of fire by "Native Americans" and wood gathered by early settlers
   c. Rural subdivisions and human activities
   d. Cattle grazing and hunting

2. Rangelands in the western U.S. are 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

Ecosystems, Sustainability and Grassland Management

Karen Launchbaugh, et al, 2009, Rangelands: An Introduction To Idaho's Wild Open Spaces, Department of Rangeland Ecology and Management, University of Idaho. https://fishandgame.idaho.gov/sites/Wildlife/IDMasterNaturalist/HenrysFork/Habitat%20Articles/MN_Rangelands_final.pdf

Jerry D. Volesky, et al., 2009. Range Judging Handbook. University of Nebraska-Lincoln Extension EC 150-F. http://www.ianrpubs.unl.edu/epublic/live/ec150/build/ec150.pdf

Vallentine, J.F. 1971. Range Development and Improvement. Brigham Young, University Press. Provo, UT.

Heitschmidt, R.K. and J.W. Stuth. 1991. Grazing Management: An Ecological Perspective. Timber Press, Portland, OR.

Society for Range Management. Grazing land Hydrology Issues: Perspectives for the 21st Century. Denver Colorado

Society for Range Management. Rangeland Wildlife. Denver Colorado

Society for Range Management. Coordinated Resource Management Guidelines. Denver, Colorado

Answers:

Objective 1 Range Resource

1) perennial grasses,
2) combinations,
3) decline in herbaceous vegetation,
4) 43,560

Objective 2 Range Plants

1) biome,
2) nucleus,
3) hollow stems vs solid stems, jointed stems vs non-jointed stems, stems round vs stems triangular

Objective 3 Range Ecology

1) b) microflora and microfauna, c) plants, d) humans
2) ignition source, fuel, oxygen
3)) invaders
4) intraspecific

Objective 4: Rangeland and the Livestock Industry

1) Forage,
2) Short duration,
3) Aum/ha or aum/ac

Objective 5 Range and the Environment

1) Rural subdivisions and human activities
2) All of the above