LESSON 1: KINDS OF RANGELAND IN NEBRASKA

- FOR STATE ENVIROTHON: WHAT PRAIRIE TYPE IS FOUND IN THIS PART OF NEBRASKA?
- WHERE IS THE LARGEST INTACT AREA OF TALL GRASS PRAIRIE FOUND?
LESSON 2: IMPORTANCE OF RANGELAND

■ What county is the top cow country in the United States?

■ Scientific, educational, and religious benefits derived from rangelands are called what kind of ecosystem services?
  - Provisioning
  - Regulating
  - Cultural
  - Supporting

■ Nutrient cycling, energy cycling, biodiversity and wildlife habitat are what kind of ecosystem service
  - Provisioning
  - Regulating
  - Cultural
  - Supporting
LESSON 3: HISTORY OF RANGELAND

- The law that opened the western US to settlement offered settlers up to how many acres of land?
- What Nebraska town was located at the end of the cattle drive route called the western trail (or Texas trail)?
- What percentage of US rangelands are owned by the federal government?
- What state has the most acres of federal land within its boundaries?
LESSON 4: CLASSIFICATION OF RANGE PLANTS

- Herbaceous plants with long, narrow leaves with parallel veins, and jointed stems that are hollow between the joints are what plant type?
- A plant that was part of the original vegetation of North America is _______________?
- Plants that flower in late spring or early summer are referred to as ____________season.
Which of these plants are legumes:
LESSON 4: CLASSIFICATION OF RANGE PLANTS

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- Which of these plants are legumes:
LESSON 5: PLANT ID

What is the term for an appendage or ring of hairs on the inside of the leaf at the junction of the leaf and sheath?
Lesson 6: NOXIOUS AND INVASIVE PLANTS

■ What is the name of this noxious plant?
True/False: This thistle is a noxious weed in Nebraska.
Which of these plants is federally listed as endangered?

- See this slide and the next two slides.
Which of these plants is federally listed as endangered?
LESSON 7: ENDANGERED AND THREATENED SPECIES

Which of these plants is federally listed as endangered?
Which of these plants are federally listed as threatened in Nebraska?

- Colorado Butterfly Plant
- Western Prairie Fringed Orchid
- Ute Ladies’ Tresses
LESSON 8: POISONOUS PLANTS

- How many plants in Nebraska are listed as Primary Toxic (dangerous and lethal) in Nebraska?
  - 2
  - 5
  - 12
  - 17
LESSON 8: POISONOUS PLANTS

- What is this poisonous plant?
  - Woolly Locoweed
  - Missouri Milkvetch
  - Crazyweed
  - Breadroot scurfpea
Lesson 9: How Plants Grow and Respond to Grazing

- Defoliation is the removal of plant material. Which of the following are types of defoliation?
  - Livestock grazing
  - Wildfire
  - Consumption by insects
  - Hail
Lesson 9: How Plants Grow and Respond to Grazing

- When moderate grazing is implemented, how much of the production is allocated for use?
  - 40%
  - 50%
  - 60%
  - 30%
Lesson 10: Ecological Sites

- Biotic factors that impact ecological sites include:
  - Plant species, soils, climate, and fire
  - Plant species, vegetation states, and grazing
  - Soils, geology, hydrology, and landform
  - Landform, water table, soils, and parent material
The name for the state that is the most stable, diverse state for a specific ecological site called:
- Steady State
- Stable State
- Reference State
- None of the above
Lesson 11: Ecological Sites of Nebraska

- The ecological site that is composed of sandy soils, occurs on steep uplands with slopes exceeding 20 and that have catsteps and blowouts is:
  - Sands
  - Sandy
  - Choppy Sands
  - Loess Breaks
Lesson 11: Ecological Sites of Nebraska

- The ecological site that is composed of deep, loamy soils, occurs on level to steep slopes and that has an abundance of lime in the surface layer is:
  - Loamy
  - Shallow Limy
  - Limy Upland
  - Loess Breaks
Lesson 12: Evaluating Health of Rangeland Ecosystems

The three components or attributes of rangeland health are:

- Water, energy, and nutrients
- Soil stability, hydrologic function, and biotic integrity
- Similarity index, productivity, and ecological site
- Production, erosion, plant diversity
Lesson 12: Evaluating Health of Rangeland Ecosystems

- The indicators that describe rills, water flow patterns bare ground, and gullies apply to:
  - Soil stability and hydrologic function
  - Hydrologic function and biotic integrity
  - Soil stability and biotic integrity
  - None of the above
Lesson 13: Role of Fire in Rangeland Ecosystems

- T/F Removal of fire from grassland ecosystems has resulted in less diverse plant communities.
Lesson 13: Role of Fire in Rangeland Ecosystems

- In general which group of plants is the most fire resistant growth form?
  - Trees
  - Shrubs
  - Grasses
  - Forbs
Lesson 14: Habitat Needs of Rangeland Animals

- In the US, which group of animals is experiencing the greatest declines?
  - Reptiles and amphibians
  - Mammals
  - Grassland Birds
  - Woodland birds
Lesson 14: Habitat Needs of Rangeland Animals

- A relationship between two species in which one benefits at the expense of the other is:
  - Antagonism
  - Predation
  - Parasitism
  - All of the above
Lesson 15: AU, AUM, Stocking Rates, and Carrying Capacity

- The average amount of forage that one animal unit (AU) will consume during a month is:
  - An AUM (Animal Unit Month)
  - 780 # dry forage
  - Both of the above
  - None of the above
Lesson 15: AU, AUM, Stocking Rates, and Carrying Capacity

- There will always be a stocking rate problem – see Lesson 15 for examples.
Lesson 16: Range Management and Conservation Practices on Rangeland

T/F The appropriate amount of time that a land unit can be grazed does not depend on weather conditions such as drought, extreme cold, or excessive high temperatures.
Lesson 16: Range Management and Conservation Practices on Rangeland

- T/F A livestock pipeline should not be implemented in areas with sandy soils it will take many years for grass to re-establish.

- On level terrain, the recommended distance between watering facilities for livestock under an intensive grazing system is:
  - $\frac{1}{4}$ mile
  - $\frac{1}{2}$ mile
  - $\frac{3}{4}$ mile
  - 1 mile
Lesson 17: Grass Seedings

- T/F Improved varieties are not important in grass seedings because most prairie grasses are found throughout the US.

- Rancher Jones wants to seed a 50 acre field to grass. 6 lbs pounds / acre of a specific grass mix are needed to achieve the recommended 20 pure live seeds / ft$^2$. How much bulk seed with 70% purity and 90% germination are needed for this project?
  - 300 pounds
  - 476 pounds
  - 333 pounds
  - 428 pounds
Lesson 18: Prescribed Burning

- The elements of the fire triangle are:
  - Speed, Direction, and intensity
  - Fuel, continuity, chemical composition
  - Oxygen, heat, fuel
  - Grasses, trees, shrubs
Lesson 18: Prescribed Burning

- T/F A burn site is steeply sloping, has a heavy fuel load with a lot of large, dead materials, and the fuel moisture is low. This fire will tend to be low intensity.
Lesson 19: Prescribed Grazing

- T/F A prescribed grazing plan consists of a schedule of the order in which pastures will be grazed and for how long.

- A grazing rotation which includes several pastures each of which is grazed for part of the grazing season is:
  - Rest rotation
  - Deferred rotation
  - Patch burn grazing
  - Continuous grazing
Lesson 20: Monitoring Grazing

- Line point intercept, modified step point, and 10-pin frames can be used to monitor:
  - Canopy and foliar cover
  - Basal cover
  - Litter cover
  - All of the above
Lesson 20: Monitoring Grazing

- The monitoring tool in the photo is called a:
  - Daubenmire frame
  - 10-pin frame
  - Frequency plot
  - Robel pole
State Contest

- State contest will always have a number of hands on questions.
  - Usually ½ of the questions
- These questions will vary based on the location and what there is to work with on site.
- These will include some of the following: identifying the season of growth, growth form, origin or lifespan of flagged plants.
- Identifying an ecological site (key will be provided)
- Will be some questions that involve use of monitoring tools.
  - Measuring litter cover, or bare ground, or canopy cover
  - Identifying monitoring tools
  - Using the Robel Pole
ANSWERS

■ SLIDE 2:
  1\textsuperscript{st} Question – WILL DEPEND UPON WHERE THE STATE ENVIROTHON IS BEING HELD
  2\textsuperscript{nd} QUESTION – Flint Hills (KS & OK)

■ SLIDE 3:
  1\textsuperscript{st} Question – Cherry County
  2\textsuperscript{nd} Question – Cultural
  3\textsuperscript{rd} Question - Supporting

■ SLIDE 4:
  1\textsuperscript{st} Question – 160 acres
  2\textsuperscript{nd} Question – Ogallala
  3\textsuperscript{rd} Question – 43%
  4\textsuperscript{th} Question – Alaska

■ SLIDE 5
  1\textsuperscript{st} Question – Grass
  2\textsuperscript{nd} Question – Native
  3\textsuperscript{rd} Question - Cool
SLIDE 6-9:
All four plants are legumes. American vetch, prairie buckbean, Platte lupine and breadroot scurfpea (all have the “pea-like” flower structure).

SLIDE 10:
Ligule

SLIDE 11:
Purple loosestrife

SLIDE 12:
False (Wavyleaf thistle)

SLIDE 13-15:
13 = White Penstemon
14 = Shell leaf Penstemon
15 = Blowout Penstemon (federally endangered)

SLIDE 16
- Ute Ladies Tresses & Western Prairie Fringed Orchid
- Colorado Butterfly plant is on State endangered list.
ANSWERS

■ SLIDE 17:  
  17 primary toxic plants

■ SLIDE 18:  
  Woolly locoweed

■ SLIDE 19:  
  All listed

■ SLIDE 20:  
  50%

■ SLIDE 21:  
  Plant species, vegetation states, grazing

■ SLIDE 22  
  Reference State

■ SLIDE 23  
  Choppy Sands

■ SLIDE 24  
  Limy Upland
ANSWERS

- SLIDE 25:
  Soil stability, hydrologic function, biotic integrity

- SLIDE 26:
  Soil stability and hydrologic function

- SLIDE 27:
  True

- SLIDE 20:
  Grassland birds

- SLIDE 30:
  All are correct

- SLIDE 31
  Both of above

- SLIDE 33
  False

- SLIDE 34
  1st Question – False
  2nd Question – ¼ mile
ANSWERS

- SLIDE 35:
  1\textsuperscript{st} Question – False
  2\textsuperscript{nd} Question - 476

- SLIDE 36:
  Oxygen, Heat Fuel

- SLIDE 37:
  False

- SLIDE 38:
  1\textsuperscript{st} Question – False
  2\textsuperscript{nd} Question – Deferred Rotation

- SLIDE 39:
  All are correct

- SLIDE 40
  Daubenmire Frame