Rangeland Plan Assignment 1 – Site Selection & Plants

Answer Page – Answer the following questions. View the Dry Creek Example on Bb-Learn to see the level of detail and example of answers to these questions.

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1) (2 points) What is the URL Link of your hypothetical management unit?
https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx?aoicoords=((-104.04461%2047.09591,-104.04461%2047.12214,-104.02036%2047.12214,-104.02036%2047.09591,-104.04461%2047.09591))

Soils

2) (3 points) What are the major soils on your management unit? Describe the major soil types. For example, is the unit mostly loamy soils, sandy soils, rocky outcroppings etc.
The soils of the Dry Creek Ranch are primarily silt loams on slopes 3 to 9%. About 25% of the management unit includes badland hills which are clay-type soils that form steep outcropping (6 to 50% slope). The lower areas on the landscape have associated alluvial fans and occasional channels that are frequently flooded. (Information from Soil Survey Staff 2017).

About half of the management unit is Lonna-Cabbart silt loams located at the base or footslope of alluvial fans. Slope varies from 6 to 35 percent slopes that is a deep soil (exceeding 79 inches to bedrock) with a shallow (0-3 inches) silty top soils. Most of the lands above the Lonna-Cabbart soils are Patent, frequently flooded-Badland-Cabbart complex. These soils are shallow (< 2 inches) and is characterized as steep slopes (6 to 50 percent). Most of the are is classified as "Not Prime Farmland" with only 7% of the area with farmable soil.

Plants and Forage Supply

3) (3 points) What are the major plants (grasses, forbs, and shrubs) on your unit?
In the loamy and shallow loam sites, are dominated by grasses (80-85%) with 10-12% forbs, 7% shrubs and 1% cryptogams (Soil Survey Staff 2017).
Most of the grasses are cool-season with a smaller amount of warm season grasses.
Cool-season grasses include:

- *Western wheatgrass (Agropyron smithii*)
- Green needlegrass *(Stipa viridula*)
- Needle and Thread (*Stipa comata*)
- Prairie Junegrass (*Koeleria macrantha*)

Warm-season grasses include:

- Little bluestem (*Schizachyrium scoparium*)
- Plains muhly *(*Muhlenbergia cuspidate)
- Bue grama (*Bouteloua gracilis)*
- Sideoats grama (*Bouteloua curtipendula*)
- Red threeawn (*Aristida purpurea*)

The significant forbs in this management unit include:

- Western yarrow (*Achillea millefolium*)
- Dotted gayfeather (*Liatris punctata*)
- Purple coneflower (*Ratibida columnifera*)
- Green sagewart (*Artemisia dracunculus*)

- Silverleaf scurfpea (*Pediomelum argophyllum*)
- Missouri goldenrod (*Solidago missouriensis*)

Significant shrubs include:

- Fringed sagewort (*Artemisia frigida*)
- Western snowberry (*Symphoricarpos occidentalis*)

Prairie rose (*Rosa arkansana*)

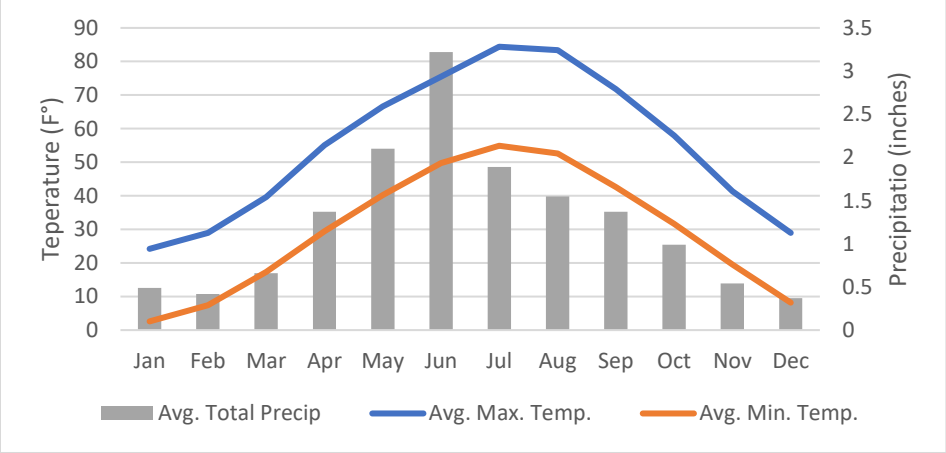
4) (3 points) What is the productivity, in terms of pounds/acre/year, of your map unit? *State the total amount of forage produced on your management unit expected in a year? In your description, include other details you learned that will put this total in context, such as difference between normal, favorable or unfavorable year, or, variation among soil map units.*

The total amount of biomass expected in an average year on the Dry Creek management unit is 1,969,080 pounds which equates to 1,485 pounds/acre on the Dry Creek unit which encompasses 1,326 acres. The soil map types on Dry Creek ranch express a great range in productivity form 24 lbs/acre and 2,023 lbs/acre. The most productive soil types on Dry Creek is Lonna-Cabbart silt loams soil map unit which produced 2,023 lbs/acre and account for nearly half the management unit (662 acres).

Climatic Conditions

5) (3 points) What are the long-term precipitation and temperature patterns on your management unit? *Describe in words or include a small table or graph.*

The average annual precipitation in this area is about 15 inches. Most of the precipitation occurs as rainfall in high-intensity thunderstorms during the growing season. Winter precipitation occurs as about 32 inches of snow accounting for about 15 % annual precipitation. (Western Regional Climate Center 2017).



The summers are generally mild with average maximum temperatures in July of about 85° F. Winters can be cold with minimum temperatures near 0° F. The freeze-free period averages 120 days and ranges from 85 to 139 days (Western Regional Climate Center 2017).

6) (3 points) What opportunities and challenges will the climate of your management unit cause to wildlife or livestock management?

Th greatest climatic opportunities for managing forage and animals on this management unit is that precipitation generally occurs in summer and occurs just before the with the highest of the

growing season. This means that peak biomass will occur during the middle of the summer when forage demand for young growing animals will be highest.

The greatest challenge is that the winters are cold with a monthly high temperature below freezing from December through February. This will create a period when native and domestic animals have high energy demands to maintain body temperature at a time when forage quality will be very low. Plus, dormant grasses may be unavailable for forage as the average snow depth is 1-3 inches during the winter and can be much greater (Western Regional Climate Center 2017). Effective management of livestock and wildlife may require supplementation or planting of forages such as palatable shrubs that will be available in the winter.

Surface Water Resources

7) (3 points) What are the primary surface water sources that occur on your management unit.
Dry Creek flows north through the management unit entering at the central west side of the ranch and runs north staying on the west side of the management unit. Dry Creek is a perennial stream that flows into Beaver Creek which flows into the Little Missouri River (USGS 2017).

Sources of Information:

Soil Survey Staff. 2017. Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at https://websoilsurvey.sc.egov.usda.gov/. Accessed 02/15/2017.

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Western Regional Climate Center. 2017. Beach North Dakota (3200590). Retrieved from http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?nd0590. Accessed 02/15/2017.