United States Department of Agriculture
Natural Resources Conservation Service

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2017 – 1 Renewal

Plant Enhancement Activity – PLT02 – Monitoring key grazing areas to improve grazing management

Enhancement Description
Adjust grazing management based on monitoring data. Monitor key grazing areas to determine if current grazing management is meeting management goals and objectives. A key grazing area is a small area of a grazed field that is identified as being representative of the entire field.

Land Use Applicability
Pastureland, Rangeland, Forestland

Benefits
Proper grazing management will maintain and improve vegetation and soil conditions, improve water quality, and enhance wildlife habitat. Monitoring can be utilized to determine if current grazing management actions are having the desired effect on natural resources. Monitoring enables managers to make decisions and adjust management strategies as needed.

Conditions Where Enhancement Applies
This enhancement applies to all acres in the operation for the selected land use.

Criteria
1. Key grazing areas will be established for each grazed field
2. Each key grazing area will be monitored based on the frequency of grazing once established (i.e., more than annually if grazed multiple time per year)
3. Monitoring will include a photo for each pasture of key grazing area and use of one or more of the following techniques:
   a. Plant productivity determinations
   b. Measurements of key forage plant heights (before and after grazing) at least once per period
   c. Locally applicable methods such as those described in "Monitoring for Grasslands, Shrublands and Savanna Ecosystems" available at http://jornada.nmsu.edu/monit-assess/manuals/monitoring .
4. Each grazed field will follow a written grazing plan which meets NRCS requirements

Adoption Requirements
This enhancement is considered adopted when there is documentation that monitoring data has been collected and used to adjust the objectives in a grazing management plan.

Documentation Requirements

1. A written grazing plan which meets NRCS requirements,
2. A map showing the location of each key grazing area,
3. Photographs from the fixed photo location points for each monitoring time,
4. Written documentation of the monitoring data collected, and
5. Written documentation of how monitoring data was used to adjust grazing management plans including modifications and objectives.

References

BLM Technical Reference 1734-3. 1999. Utilization Studies and Residual Measurements. Interagency Technical Reference.

BLM Technical Reference 1734-4. 1999. Sampling Vegetation Attributes. Interagency Technical Reference.

Herrick, J. E., J.W. Van Zee, K.M. Havstad, L.M. Burkett and W.G. Whitford. 2005. Monitoring Manuel for Grassland, Shrubland, and Savanna Ecosystems, Vol II. 2005. USDA-ARS Jornada Experimental Range. http://usda-ars.nmsu.edu/monit_assess/monitoring.php

Rayburn, E. B. (editor). 2007. Forage Utilization for Pasture Based Livestock Production. NRAES – Book 173; Chapter 1 – Assessing Species Composition and Forage Quality, Chapter 2 – Assessing Forage Mass and Forage Budgeting. PALS Publishing, Ithaca, New York.

Utah Supplement to National CSP Enhancement Activity Job Sheet: PLT02

1. Key Areas and Monitoring Units:

A monitoring unit is the largest contiguous area with the same plant community potential (i.e., ecological site or range site) that is expected to respond similarly to management changes (Herrick et al. 2009).

a. **For CSP enhancement PLT02:** Additional key areas will be identified if appropriate based on the following:
   i. Riparian Areas
   ii. Diverse pasture – all ecological sites in the grazed area are highly susceptible to change in management and need to be monitored to make management decisions.
   iii. Size of pasture dictates multiple management responses.
   iv. Sensitive species habitat.
   v. Invasive Species
   vi. Other reasons as identified in the monitoring plan.

2. Monitoring Indicators and Records

Which techniques are selected should be determined by the goals and objectives, as well as an assessment to determine what and where to monitor. Grazing records and monitoring data should provide the decision maker with the necessary information to determine trend and what adjustments are needed to management practices. State specific references and guidance can be utilized as appropriate.

a. **For CSP enhancement PLT02:** At least one short-term monitoring indicator **and** one long-term indicator will be selected. Selection will be based on the plan objectives and any assessments conducted during the planning inventory (i.e. rangeland health, proper functioning condition, pasture condition score sheet). Monitoring can be accomplished by the landowner with minimal government technical assistance.

Short –Term Monitoring Indicators

i. Productivity (pre-grazing forage)
ii. Residual (post grazing forage)
iii. Nutrition (fecal analysis with NUTBAL)
iv. Photo Plots (pre and post grazing)
v. Streambank Alteration (hoof shearing)

Long-Term Monitoring Indicator

vi. Permanent Photo Plots
vii. Composition by annual production
viii. Composition (greenline)
ix. Structure and/or age class
x. Cover – Foliar and Ground
xi. Frequency
xii. Gap
xiii. Density
xiv. Soil Stability
xv. Streamside Stability (For Riparian)
xvi. Stream metrics (i.e. width, depth, substrate)

3. Frequency of Monitoring:

Short term monitoring may be repeated at any time interval, and is designed to check whether or not the management system is meeting short term objectives. Long-term monitoring method is designed to document changes in the condition of the land and/or plant community to determine trend.
Each key area will be visited at least annually to monitor and/or keep records of the grazing management. Some methods may require multiple times within a year depending on grazing management or the objectives. When a new monitoring plan is being implemented determining trend is important. The frequency of monitoring can be lengthened from 1-5 years to get the monitoring into a rotation that is manageable by the landowner.

a. **For CSP enhancement PLT02:** Monitoring will occur annually. The indicator and method used will be at intervals appropriate for each indicator and method chosen as prescribed by the conservation planner, not to exceed every 5 years.

4. Data Analysis and Interpretation

Precipitation data is a very important component and should be collected and recorded when analyzing data and determining grazing management decisions. This can be from a nearby rain station or a local rain gauge used on site. Specific guidance on monitoring data interpretation and analysis should be referenced for the monitoring method or technique chosen to monitor the chosen indicators.

5. Monitoring Methods and Techniques

An appropriate, feasible, and accepted method should be chosen to monitor each of the selected indicators. The following list is a limited group of resources that provide very good guidance on building a monitoring program, considerations of what goes into a monitoring program, provide techniques as well as data forms. There are other acceptable resources available. A sound resource should clearly identify methods, frequency and techniques used when developing the monitoring plan for consistency over time on the individual operation.

Colorado Rangeland Monitoring Guide, Coordinated Resource Monitoring Initiative
http://www.coloradocattle.org/crmi.aspx

National Range and Pasture Handbook, NRCS GLTI 2003 Chapter 4: Inventorying and Monitoring Grazing Land Resources.
http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=STELPRDB1043084

Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems Volume I and II, USDA - ARS Jornada Experimental Range, Las Cruces, New Mexico, Reprinted 2009
http://jornada.nmsu.edu/monit_assess

Measuring and Monitoring Plant Populations, Caryl L Elzinga et al. BLM Technical Reference 1730-1 BLM/RS/ST-98/005+1730
http://www.blm.gov/nstc/library/pdf/MeasAndMon.pdf

Land-Potential Knowledege System (LandPKS), landpotential.org, a phone app for monitoring rangelands

Sage Grouse Initiative Supplement 2015 to PLT02

Additional Documentation Required:

1. The grazing plan must be developed in accordance with NRCS practice standard (528) Prescribed Grazing to ensure that stocking rate is in balance with forage supply, season of use is rotated to ensure plants have adequate reproduction opportunity, and rangeland is monitored to inform of adaptive management.

2. Photographs from fixed location points showing residual plant heights and ground cover. These photos should be taken annually within a fixed timeframe (i.e., in the fall after grazing or in the spring prior to nesting).

Operations & Maintenance, Conservation Measures, and Client Acknowledgement

Operation and Maintenance
Operation: Maintenance:
Conservation Measures
Actions that must be implemented by the landowner/manager during enhancement implementation:
Client's Acknowledgement Statement
The Client acknowledges that: a. They have received a copy of the enhancement and understand the contents and requirements. b. It shall be the responsibility of the client to obtain all necessary permits and/or rights, and to comply with all ordinances and laws pertaining to the application of this enhancement. **Biologist:** _____ **Date:** _____ **Planner:** _____ **Date:** **Client:** _____ **Date:**