



Conservation Evaluation and Monitoring Activity

Prescribed Grazing Conservation Evaluation and Monitoring Activity

CEMA 219

Definition

Monitor and evaluate the selected area in order to determine the effects of prescribed grazing management on natural resource conditions and inform conservation planning decisions.

REQUIREMENTS

Qualified Individual Requirements

This CEMA is to be completed by a Qualified Individual.

The Natural Resources Conservation Service (NRCS) strongly encourages participants to know the following Qualified Individual (QI) Requirements to ensure the person they hire is a good match for their needs and objectives.

The Qualified Individual must be a natural resource professional defined as someone who has at least one of the qualifications listed below:

- The Qualified Individual will be a Certified Forage and Grassland Professional, Certified Range Management Consultant, or Certified Professional in Range Management or
- A non-affiliated consultant with a bachelor's or higher level degree in agronomy, range science or other closely related plant science discipline, or
- A minimum of two years' experience in grazing land and conservation planning, monitoring, and consulting regarding use of grazing land improvement practices generated through Pasture Condition Scoring (PCS), Interpreting Indicators of Rangeland Health (IIRH), Determining Indicators of Pasture Health (DIPH), or similar protocols as described in Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems, or in the National Range and Pasture Handbook, Subpart E Assessment, Inventory and Monitoring. Those monitoring protocols are cited in this document's **References** section.

General Requirements

- 1) This CEMA includes the performance of work and documentation of the tasks, results, interpretations, and other activities described herein by a QI.
- 2) Prior to initiation of the CEMA, the QI must arrange a pre-work conference to ensure all parties understand the participant's objectives, required deliverables, and characteristics of the CEMA tasks.
 - a) The parties in the pre-work conference must include the participant, the QI, and the NRCS field office staff. The parties should agree whether they will join in-person or join via phone, web-meeting, etc.
 - b) If the participant will employ a Technical Service Provider (TSP) to implement a Conservation Planning Activity (CPA) or Design and Implementation Activity (DIA) that will

be supported by results of this CEMA, it is recommended to invite them to the pre-work conference too.

- 3) A QI may use any reference information, resource concerns, conservation practice standards and related documents served in the NRCS Field Office Technical Guide (FOTG) for the state where this CEMA is performed. The FOTG home page hyperlink is: <https://efotg.sc.egov.usda.gov/#/>

Technical Requirements

Basic Site Assessment

- 1) The site assessment activities include interviewing owners, operators and occupants; reviewing historical sources of information and Federal, State, Tribal and local government records; and performing visual site inspections. Refer to **DELIVERABLES** section for requirements.
- 2) An on-site visit is required by the provider to meet with the participant to monitor, evaluate, and obtain information about the current grazing management plan's goals and objectives.
- 3) The CEMA evaluates the effects of grazing land practices implemented in the grazing management plan. The participant must be involved with the monitoring and evaluating activities.
- 4) Provide a narrative that includes:
 - a) Background and Site Information
 - i) Date the site visit(s) was completed.
 - ii) Type, size, and overall management scheme of the operation. Describe other farm enterprise(s), (e.g., poultry, dairy, field crop, etc.) along with production levels, and any unusual factors that affect grazing use such as lease/permit restrictions, unusual weather conditions, etc. Narrative includes enough detail about grazing systems employed and associated practices implemented that support the grazing system(s).
 - iii) Participant concerns and objectives for their agricultural operation. Describe specific grazing plan objectives and rationale for conducting monitoring activities.
 - iv) Locations of grazing management activities and associated implemented practices
 - v) Aerial map or equivalent plan view that shows the agricultural operation including all structures, such as fencing, roads, water locations, handling facilities, and locations of the headquarters, and grazing units. Identify where monitoring activities and recommended management actions are located.
 - b) Current Grazing Management
 - i) Identify current grazing management objectives and establish monitoring objectives.
 - ii) Define stratification criteria (soils, vegetation, management units) where actual monitoring will occur.
 - iii) Current grazing animal inventory.

- iv) Weather records from the nearest weather station for the period between monitoring events.
 - v) Current vegetation conditions.
 - vi) Information concerning any recent disturbances, such as wildfire, storm events, insects, etc.
 - vii) Information concerning actual grazing history for the period between monitoring events. This should include timing, duration, frequency and estimated forage consumed between monitoring events that are conducted over time.
- c) Present the findings of the monitoring in a “Summary” section using table 1 with the headings shown as a guide.

Table 1. Monitoring Summary

Objective	Location of Monitoring Sites	Method / Protocols Used	Results	Evaluation and Recommendation(s)

Monitoring and Evaluating Activities requirements

- 1) Monitoring activities will match the participant objectives and provide all needed information to evaluate the grazing management plan and any other associated practices. Monitoring is the orderly repeated collection, analysis and interpretation of natural resource information data. It can be used to make both short and long-term management decisions in the grazing management plan. Short term monitoring, for example, could be conducted to quantify and evaluate the amount of forage used during a grazing period, whereas long term monitoring can be conducted to quantify and evaluate the extent and direction of change within a plant community on an ecological site over a specific period of time, such as 3-5 years.
- 2) Specific activities will be chosen based on stated objectives, and pertinent resource concern assessments (such as rangeland health assessments, pasture condition score assessments, stream visual assessments, etc.) that were identified during the development of the grazing management plan. Many appropriate monitoring procedures and protocols can be found in the Monitoring Manual for Grassland, Shrubland and Savannah Ecosystems, including how to stratify land into monitoring units.
- 3) Implementation of all monitoring activities will follow the guidance contained in appropriate NRCS approved publications as cited in the **Reference** section below.
- 4) Provide an analysis of the monitoring results to include the following:
 - a) Specific results from the monitoring activity.
 - b) Description of how those results differ from any previous monitoring.
 - c) Description of how disturbances outside the control of the participant may have impacted the results.

- d) Recommended grazing management changes, if any, to assist the participant in meeting or making progress towards their specific planning objective.
- e) Recommended re-evaluation interval.
- f) Include technical documentation of sources used for monitoring. Include the actual documents, references, and/or links that contain technical information used to complete these activities, such as:
 - 1) Fact sheets.
 - 2) Comparisons of specific activity recommendations.
 - 3) Journal article citations.
 - 4) Explanations of privately developed analysis methods, software, and decision support tools.

DELIVERABLES

The QI must provide documentation showing all the tasks indicated in the **General Requirements** section, the **Technical Requirements** section, and the following sections:

Cover Page

Cover page reporting for the technical services provided by the QI. Cover page(s) must include the following:

- 1) CEMA name and number.
- 2) Participant information: Name, farm bill program name, contract number (QI obtains contract number from participant), land identification (e.g., state, county, farm, and tract number).
- 3) QI name, address, phone number, email.
- 4) A statement by the QI explaining how they currently meet the Qualified Individual Requirements for this CEMA. Attaching or enclosing a copy of documentation for how the QI requirements are met is encouraged. Examples include:
 - Certification Name and Number,
 - License Name and Number,
 - Agricultural Retailer Business Name, or
 - Other brief written statement indicating how the requirements of a QI for this CEMA are met.
- 5) A statement by the QI that services provided meet NRCS requirements, such as:

I certify the work completed and delivered for this CEMA:

 - *Complies with all applicable Federal, State, Tribal, and local laws and regulations.*
 - *Meets the general requirements, technical requirements and deliverables for this CEMA.*
 - *Is consistent with and meets the conservation objectives for which the program contract was entered into by the participant.*
 - *Addresses the participant's conservation objectives for this CEMA.*

QI Signature: _____ Date: _____

- 6) A Participant's acceptance statement, such as:

I accept the completed CEMA deliverables as thorough and satisfying my objectives.

Participant Signature: _____ Date: _____

- 7) A space for an NRCS reviewer to certify the agency's acceptance of the completed CEMA and, such as:

NRCS administrative review completion by:

Signature: _____ Title: _____ Date: _____

Notes and Correspondence

- 1) Document each site visit, its participants, the activity completed in the field, and results of each site visit.
- 2) Copies of correspondence between the QI and the participant relating to decision-making and completion of this CEMA.
- 3) Copies of observations, data, technology tool output, or test results prepared during completion of this CEMA.

Maps, Diagrams, Plan Views

- 1) Maps developed from the DIA 159 can be used with CEMA if available.
- 2) At a minimum, all maps developed for the CEMA will include:
 - a) Title block showing:
 - i) Map title.
 - ii) Participant's name (individual or business).
 - iii) Prepared with assistance from USDA – NRCS.
 - iv) Assisted By [name].
 - v) Name of applicable conservation district, county, and state.
 - vi) Date prepared.
 - b) Map scale.
 - c) Information needed to locate the assessment area, such as geographic coordinates, public land survey coordinates, etc.
 - d) For vegetation monitoring, plot the sample point(s) on the field map based on the sampling strategy.
 - e) North arrow.
 - f) Appropriate map symbols and a map symbol legend on the map or as an attachment.

Evaluation or Monitoring Results

- 1) Explanation of analysis, methods, software and decision support tools used in the evaluation and monitoring activities.
- 2) Explanation of specific results from the evaluation and monitoring activities.

- 3) Recommended adaptive management changes to assist in maintaining or improving specific management objectives.
- 4) Provide for any recommended follow-up monitoring and suggested re-evaluation intervals.

Deliver Completed Work

- 1) The QI must prepare and provide the participant two sets of all of the items listed in the **General Requirements**, the **Technical Requirements** and the **Deliverables** sections of this document.
- 2) One set is for the participant to keep.
- 3) The other set is for the local NRCS Office.
- 4) The QI may transmit a set of the completed work to the local NRCS Office, if their participant has authorized it.
- 5) It is recommended to provide the NRCS field office an opportunity to review the CEMA deliverables, prior to asking for their acceptance.

References

Determining Indicators of Pasture Health. NB 190-20-11 ECS – Determining Indicators of Pasture Health).

<https://directives.sc.egov.usda.gov/viewerFS.aspx?hid=45118>

Interpreting Indicators of Rangeland Health

[Range Resources | NRCS \(usda.gov\)](#)

Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems

[Monitoring Manuals | Jornada \(nmsu.edu\)](#)

Pasture Condition Scoring System

<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/pasture/?cid=stelprdb1045215>

Rangelands, Society for Range Management. 2022, Special Issue on adaptive monitoring to support adaptive management. Volume 44, Issue 1, February.

<https://bioone.org/journals/rangelands/volume-44/issue-1/j.rala.2021.07.003/Adaptive-Monitoring-in-Support-of-Adaptive-Management-in-Rangelands/10.1016/j.rala.2021.07.003.full>

Riparian Area Management-Multiple Indicator Monitoring (MIM) of Stream Channels and Streamside Vegetation Technical Reference 1737-23

<https://www.blm.gov/documents/national-office/blm-library/technical-reference/multiple-indicator-monitoring-mim-stream>

Stream Visual Assessment-Protocol Version 2

https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1043252.pdf

Subpart E Assessment, Inventory and Monitoring, National Range and Pasture Handbook

[National Range and Pasture Handbook | NRCS \(usda.gov\)](#)

The Utilization Studies and Residual Measurements, Interagency Technical Reference. 1999.
https://www.blm.gov/sites/blm.gov/files/documents/files/Library_BLMTechnicalReference1734-03.pdf

USDA Natural Resources Conservation Service. Field Office Technical Guide.
<https://efotg.sc.egov.usda.gov/#/>