

Animal Enhancement Activity – ANM11 – Patch-burning to enhance wildlife habitat



Enhancement Description

Use prescribed burning with livestock grazing to create patches of different vegetation structure and species composition for the benefit of wildlife.

Land Use Applicability

Pasture, Rangeland, Forestland

Benefits

Patch-burning is a management activity for landowners interested in improving habitat for wildlife while still maintaining forage production for livestock, primarily grasslands. This management activity helps create a mosaic of diverse vegetative structure and plant composition in the same pasture. Livestock also benefit as different plant species may be available, especially during mid-and late growing season vegetation slumps. Patches of different vegetation composition can extend and/or supplement livestock during the grazing season.

Conditions Where Enhancement Applies

This enhancement applies to all pasture, range or forest land use acres. This enhancement is not for the purpose of conducting wildfire reduction burns or forest stand improvement burns on forest land use acres.

Criteria

1. Burn at least 10% and not more than 40% of the grazing area in any year
 - a. Annual application by burning a different patch each year is acceptable and desirable for many wildlife species.
 - b. A minimum of two burn treatments should be applied during a 5 year period.
 - For vegetation types with a historic fire frequency greater than 10-15 years as determined by the NRCS State Office, minimum treatment should be two burns applied during a 10 year period.
2. Avoid burning during peak nesting season for targeted wildlife species.
3. Develop a written grazing management plan that identifies:
 - a. Wildlife management objectives describing how patch burning will accomplish those objectives.
 - b. Percentage of area planned to be burned by year
 - c. Locations, total acres, planned year and season of burns
 - d. The desired frequency of burning (example: burn same area once every 4 years) should be stated and based on the desired plant community’s adaptation and response to fire.
 - e. Stocking rates that will allow for proper forage utilization.



- f. Apply monitoring and adaptive management considerations to address potential multiple years overuse of burned areas, especially for those pastures not receiving some amount of annual burning.
 - g. Identify areas where fire is to be excluded for habitat considerations, such as desirable shrub stands, stream sides, etc.
4. Develop a written prescribed burn plan for each prescribed burn that identifies:
- a. Locations to receive burn treatment and level of patchiness desired
 - b. Time of burn
 - c. Firebreaks locations, if needed
 - d. Weather parameters for the burn (temperature, wind speed, relative humidity)
 - e. Burn plans must be conducted in accordance with all state laws.

Adoption Requirements

This enhancement is considered adopted when all four of the criteria above have been implemented together in a one year period.

Documentation Requirements

1. Written prescribed burn plan identifying pasture, range or forest acres and dates of prescribed burn.
2. A map showing where the activities are applied.

References

Coppedge, B.R., S.D. Fuhlendorf, W.C. Harrell, and D.M. Engle. 2008. Avian Community Response to Vegetation and Structural Features in Grasslands Managed with Fire and Grazing. *Biological Conservation* 141:1196-1203.

Fuhlendorf, S.D., and D.M. Engle. 2001. Restoring Heterogeneity on Rangelands: Ecosystem Management based on Evolutionary Grazing Patterns. *BioScience* Vol. 51, no.8: 625-632.

Fuhlendorf, S.D., W.C. Harrell, D.M. Engle, R.G. Hamilton, C.A. Davis and D.M. Leslie, Jr. 2006. Should Heterogeneity be the Basis for Conservation? Grassland Bird Response to Fire and Grazing. *Ecological Applications* 16(5): 1706-1716.

USDA-NRCS. 2010. Conservation Practices Standards: Prescribe Burning-Code 338 and Prescribed Grazing-Code 528.

NRCS Colorado Supplement

National CSP 2015 Enhancement Activity Job Sheet: ANM11

Patch-burning to enhance wildlife habitat

National Supplement to Animal Enhancement Activity – ANM11

For the CSP lesser prairie-chicken Initiative (LPCI) pilot, all actions will be implemented in accordance with the Conservation Measures in the LPCI Biological Opinion.

DOI, 2014. USFWS's Biological Opinion (BO) for the NRCS's Lesser Prairie-Chicken Initiative (LPCI) and associated procedures, conservation practices, and conservation measures.

Located in the Colorado FOTG, Section II, Special Environmental Concerns, T&E, ESA:
http://efotg.sc.egov.usda.gov/efotg_locator.aspx?Map=CO

ANM11 sign-up and enhancement application certification will be approved by NRCS staff that meet NRCS job approval authority certification for Colorado NRCS policy for the Prescribed Burning 338 practice.

Approved ECS staff in the Colorado NRCS State office will review all CSP ANM11 enhancements.

Application of this enhancement activity must meet NRCS Regulations and Policy.

Associated Conservation Practices:

Prescribed Burning 338 (<http://efotg.sc.egov.usda.gov/references/public/CO/CO338.pdf>)

Upland Wildlife Habitat Management 645
(<http://efotg.sc.egov.usda.gov/references/public/CO/CO645.pdf>)

Prescribed Grazing 528 (<http://efotg.sc.egov.usda.gov/references/public/CO/CO528std.pdf>)

Criterion #1b

It is not recommended to use this practice on cool-season pasture forages unless a secondary objective is a control measure, e.g., weed or brush management, because of the loss of grazeable forage.

For native pasture, rangeland and forestland, enhancement fire return interval will be based on the fire return interval (FRI) for the specific or representative plant community specified below. If the community that burning is planned in is not listed, provide documentation of recommended FRI to NRCS for approval. All burn plans must be submitted to the NRCS State Office for review prior to conducting the burn.

Less than 10 year FRI

Southern short grass steppe (6 – 9 years, or by condition for specific species) [Ford, P.L., and C.S. White. 2007](#), [Augustine, D. 2010](#), [Augustine, D. and Derner, J. 2010 \(presentation\)](#)

Northern mixed grass prairie (5-10 years, or by condition for specific species) [Sieg, C. 1997](#)

OR

Greater than 10-15 year FRI

Mountain Meadows: Typically associated with the predominant surrounding forest cover

Sage Brush Communities: Low sage brush (>200 years), Wyoming big sagebrush (200-350 years), Mountain big sage brush (150-300 years), and mountain grasslands with Mountain big sage brush (40-230 years), and potential need for suppression with no Rx burning required Rhodes, E. et al 2010, Western Association of State Fish and Wildlife Agencies white paper 2009

Forest Communities: Ponderosa pine, southwest (2-24 years) [Brown, P & Wu, R. 2005](#), southern Front Range (~1-30 years) [Brown, P. et al 1999](#), and northern Front Range (5-25 years) [Kaufmann, M. et al 2006](#)

Criterion #2

All burning will take place outside the peak-nesting season of March 15-July 15.

Criterion #3

See NRCS Colorado Conservation Practice 528 Standard, Specification, and associated documents for additional guidance on requirements for a grazing plan. In Colorado a written grazing plan will provide the additional information:

- Management Objectives in addition to wildlife objectives.
- A description of types and amounts of forage available, and any additional resource considerations that are being considered in the grazing plan
- Stocking rate by pasture that is based on forage available and livestock demand and included additional required considerations.
- Proper forage utilization or grazed plant heights, with identified Key Species
- Grazing Schedule that identifies grazing periods, period of rest and other treatment activities by pasture for all pastures including deferred and non-deferred. Rest periods must be long enough to provide adequate plant recovery before being grazed again.
- Contingency plan that details potential problems such as drought, fire, flooding) and serves as a guide for adjusting the grazing plan to ensure that the management and wildlife objectives are met.

National Range and Pasture Handbook, Chapter 5 is a resource available to provide guidance on procedures and worksheets for planning grazing management. Other reputable sources and information are available as well.

http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1043064.pdf

Criterion #3e:

Stocking rate is defined as the number of animals allotted to an area for a given length of time. Stocking rates are typically expressed as a number of animal units (AU) per unit time per area (usually an acre). Large or less intensively managed operations tend to use Animal Unit Months/acre (AUMs/ac) or Acres/AUM) and smaller pastures or intensively managed grazing operations tend to use Animal Unit Days/acre. If setting an initial stocking rate determine the following:

1. Forage Demand – Forage requirements by the type and class of animal being grazed.

Example Calculation:

AUM's = # of Animals X Animal Unit Equivalent (AUE) X Time (in months)

*An animal unit is defined as 1000 lb cow with calf. Use National Range and Pasture Handbook, Chapter 6, Table 6.5 Animal Units-Equivalents Guide, or other reputable sources such as extension publications to determine the AUE. For cow herds with animals having a different average weight than the 1000 pound average, AUE can be adjusted for every 100lbs of animal weight equates to 0.10 Animal Units.

(http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1043065.pdf)

2. Forage Availability – Quantity of forage being produced

Example Calculations:

AUM's = Pasture Acres X Total Forage (lbs/ac) X % Distribution X % Harvest Efficiency

912.5lbs per AUM

Distribution is the percentage of the pasture that is available for grazing. Topography, distance to water and other issue can sometimes limit the acres that are accessible to the livestock grazing.

Harvest Efficiency (HE) is defined as the percentage of total annual standing forage that is consumed by the grazing animal. Use the following for determining HE percentages:

Rangeland/Forestland

Continuous, Season Long	25%
Deferred Rotation, 2+ Pastures	25-30%
Rest Rotation, 2+ Pastures	25-30%
Short Duration, High Intensity	30-35%

Pastureland 30-35%

National Range and Pasture Handbook, Chapter 4

(<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>) or the Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems, Volume II Chapter 9 (<http://jornada.nmsu.edu/monit-assess/manuals/monitoring>) provides information on how to collect plant production data.

3. Duration of grazing

Once the estimated carrying capacity has been determined for the ranch, the amount of time a group of animals spends in each pasture should be determined.

The forms for optional use are the following Prescribed Grazing worksheets to plan proper forage utilization.

Colorado Prescribed Grazing 528 Inventory Worksheet

([http://efotg.sc.egov.usda.gov/references/public/CO/ws528\(2\).doc](http://efotg.sc.egov.usda.gov/references/public/CO/ws528(2).doc))

Colorado Prescribed Grazing 528 Livestock Forage and Feed Worksheet

([http://efotg.sc.egov.usda.gov/references/public/CO/ws528\(3\).doc](http://efotg.sc.egov.usda.gov/references/public/CO/ws528(3).doc))

Colorado Prescribed Grazing 528 Schedule

Worksheet_ [http://efotg.sc.egov.usda.gov/references/public/CO/ws528\(6\).doc](http://efotg.sc.egov.usda.gov/references/public/CO/ws528(6).doc)

Criterion #3f

Colorado NRCS Prescribed Grazing Monitoring Plan provides guidance and references for establishing monitoring plan. (http://efotg.sc.egov.usda.gov/references/public/CO/CO528_monitoring.pdf)

Monitoring needs to be relevant to the plant composition, production and utilization of burned areas and non-burned areas.

Criterion #4

Burn plans must adhere to all federal, state, and local laws regarding burning, fire control, smoke management and air quality. Separate burn plans must be developed for each identifiable prescribed burn. An example of burn plan can be found in the National Range and Pasture Handbook, Appendix A. (<http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/landuse/rangepasture/?cid=stelprdb1043084>)

In addition to National Criteria the burn plan must include the following:

- Resource management objectives of the burn
- Pre-burn vegetative description of the area
- Description of the burning method to be used
- Description of the pre-burn preparation
 - Firebreaks will be minimum 2/3 greater than two times the height of adjacent vegetation. Description of type of fire break, Identification of existing firebreaks, etc.
 - Identification of potential hazards within the burn area, and contingency requirements needed.
- Identification of adjacent areas (outside of the burn area) that need special precautions and backup or secondary fire breaks if needed.
- Ignition plan and/or Fire sequence of area to be burned, include map
- Job assignments and description of responsibilities for all persons assisting with the burn
- Equipment and materials checklist
- Job assignments and descriptions of responsibilities for all persons assisting with the fire patrol, containment, mop-up and suppression of the burn.
- Special considerations – precaution to prevent fire escape, suppression plan if fire escapes and patrol and mop-up plan.
- Post-burn evaluation and management
- Plan prepared by and checked by signatures and date

Additional Documentation Requirements

- Copy of written burn plan – separate for each burn.
- Copy of applicable permits to conduct burn.
- Application checklist (to be completed day of the burn) – pre-burn check list and post-burn evaluation
- Written copy of the written grazing plan
- Copy of monitoring plan – include worksheets, methodology, and actual monitoring data
- Provide copies of changes to grazing/burn plan that were made as a result of monitoring and adaptive management
- References for FRI, as needed