Practice Specification
Prescribed Grazing (Code 528)

General specifications for all purposes

The following guidance and technical information is provided as direction. It reviews the requirements for specific components and the considerations of Conservation Practice Standard 528, Prescribed Grazing.

The prescribed grazing practice assures that the available forage produced, and supplementation provided, will be in balance with animal intake and needs. This provides assurance that grazing practices will not degrade the resource while supplementing to meet animal nutrient requirements. Prescribed grazing provides a safe initial stocking rate based on current land conditions. *Proper stocking is the most important consideration in grazing management and is more important than the grazing system used.* An emphasis on management skill rather than the installation of infrastructure during the planning process results in more significant improvements in the resource once the management plan is implemented.

For rangeland, a key area will be set up for each conservation management unit. For introduced pasture lands key grazing will be based on the type of grazing plan implemented (See below for more information on monitoring and managing introduced grasses). Key Areas are typically small areas in the field where information is gathered during the inventory and can be re-visited during monitoring to determine changes to the land and if changes are needed to the grazing management plan.

Specifications to Improve or maintain desired species composition, structure and/or vigor of plantcommunities.

Criteria for Rangeland: Key Areas and Key Species

- Key areas are typically selected based on the dominant ecological site within a field. Consider items like topography, grazing season or sensitive soils when selecting key grazing areas. Sensitive areas may also serve as key grazing areas when they are degraded, and improvement is needed to improve the site. Key grazing areas may be parts of a field preferred by animals that degrade quicker during grazing activities.
- When accelerating or facilitating practices are included in a management plan (i.e. plantings, brush management, prescribed burning, mowing, etc.), those areas may be used as a key grazing area during that grazing season or seasons. Base grazing pressure for the key area on the identified range health indicators that identified the resource concern until the practice objectives have been accomplished.
- Once a key area has been inventoried using rangeland health; which will help to determine needs; the results of rangeland health and the following information in Table 1 will provide deferment periods that can be included in the grazing management plan. If similarity index is used to evaluate rangelands, then use Table 2 to prescribe management options.
- Key species will be based on palatable plants and may need to be adjusted as vegetative change occurs to plant composition. Use of a functional and structural group is acceptable and, in some cases, superior than the use of a specific plant as a key species. Typically, the key species plant(s) should make up about 15% by weight of the plant community.
- If management objectives are to maintain rangeland in a lower successional state for a specific purpose; then the key plant should be a major perennial plant managed for that purpose, so long as the vegetative community will protect the soil from erosion.
- Occasionally it may be desirable to designate different key plants for summer and winter use or when different kinds of livestock and wildlife are being managed.

Table 1: Specifications on Rangeland Rest and Deferment. (Rangeland Health)

Range Health Indicators	Indicator Rating	Required Growing Season Deferment *
Annual production, erosion categories or functional and structural group ratings	Extreme to Total	Full Growing Season at least every other year
Annual production, erosion categories or functional and structural group ratings	Moderate to Extreme	90-120 days
Annual production, erosion categories or functional and structural group ratings.	Moderate	60-90 days
Annual production, erosion categories or functional and structural group ratings.	Slight to Moderate	0-60 days
Annual production, erosion categories or functional and structural group ratings.	None to Slight	As needed to maintain
*Required deferment should be continued until such time that the indicators have been re-evaluated and changes documented.		

Table 2: Specifications on Rangeland Rest and Deferment. (Similarity Index)

Similarity Index	Required Growing Season Deferment *
Less Than 25	Full Season at least every other year
26-45	90-120 days
45-60	60-90 days
60-75	0-60 days
>75	As needed to maintain
*Required deferment should be continued until such time that the indicators have been re-evaluated and changes documented.	

Criteria for Pastureland:

- Common management in pastureland and rangeland systems is the use of a proper stocking rate based on forage condition. Pastureland differs from rangeland in the use of inputs, periodic renovation techniques and other agronomic principles not typically used in rangeland management. The use of agronomic management practices in pasture may lead to higher dry matter yields, control of nutritive value and the ability to be grazed closer with fewer negative effects when these activities are timed with grazing pressure. Refer to the Oklahoma NRCS Practice Standards and Specifications for Nutrient Management (590), Integrated Pest Management (595) and Herbaceous Weed Control (315) for additional information on fertilization and weed control. For irrigated pastureland, refer to the Oklahoma NRCS Practice Standard and Specification for Irrigation Water Management (449) for timing and amounts of water.
- Grazing management plans will not prescribe established monocultures of forage plants to be grazed closer than the minimum grazing heights as in Table 5. Grazing should not be initiated until the designated forages have reached the minimum heights shown in Table 5. These minimum heights should also be attained prior to the first killing frost in order to maintain the health and vigor of the designated forage plants. Grazing management with introduced grasses may vary greatly based on the growth habit off the forage (sod vs bunch), soils conditions and the age of the stand.
- Pastures with multiple forage plants should base minimum grazing heights on the plant identified for management or if the management plan outlines use of multiple forages, base grazing height on the taller of the two residual heights.
- When cool season legumes or small grains are mechanically or naturally over-seeded in a permanent sod, use the following guidance:
    - To allow for germination of the cool season species from mechanical seeding or natural reseeding, graze, mow or hay existing grass competition to a height of 3 inches at least 4 to 6

weeks prior to the first frost date.

- To decrease competition with the permanent sod, graze, mow or hay cool season annuals intensively as they begin to approach maturity and the permanent species begin to grow.

Table 3: Specifications on Pastureland Rest and Deferment

Pasture Condition Score Indicators	Indicator Rating	Required Growing Season Deferment *
Percent Desirable Plants, Plant Cover or Plant Vigor and causative factors for severity of use, or insect or disease pressure.	1	>120 days every other year
Percent Desirable Plants, Plant Cover or Plant Vigor causative factors for severity of use, or insect or disease pressure.	2	90-120 days every other year
Percent Desirable Plants, Plant Cover or Plant Vigor causative factors for severity of use, or insect or disease pressure.	3	60-90 days every other year
Percent Desirable Plants, Plant Cover or Plant Vigor causative factors for severity of use, or insect or disease pressure.	4	0-60 days every other year
Percent Desirable Plants, Plant Cover or Plant Vigor causative factors for severity of use, or insect or disease pressure.	5	As needed to maintain
*Required deferment should be continued until such time that the indicators have been re-evaluated and changes documented.		

Deferred Grazing Following Chemical Control of Pest Plants

This following table is to be used to develop deferment plans following control of pest plants. Deferment following treatment of pest plants provides timing for species to re-establish after the pest plants have been removed. Refer to the brush management and herbaceous weed control standards and specifications for more information. The time of deferment will be based on requirements from the herbicide label or by the following table, whichever is longer.

Table 4: Rangeland Deferred Grazing Specifications Following Control of Pest Plants

Range Health Indicators	Indicator Rating	Treatment Type	Required Growing Season Deferment *
Functional and structural group and/or invasive plants ratings	Extreme to Total	Broadcast	91-120 days
Functional and structural group and/or invasive plants ratings	Moderate to Extreme	Broadcast	61-90 days
Functional and structural group and/or invasive plants ratings	Moderate	Broadcast	30-60 days
Functional and structural group and/or invasive plants ratings	Extreme to Total	IPT	61-90 Days
Functional and structural group and/or invasive plants ratings	Moderate to Extreme	IPT	31-60 days
Functional and structural group and/or invasive plants ratings	Moderate	IPT	0-30 days
*Required deferment is for the acres treated and additional deferment may continue until such time that the indicators have been re-evaluated and changes documented and/or pest plants are no longer an issue.			

Table 4: Pastureland Deferred Grazing Specifications Following Control of Pest Plants

Pasture Condition Score Indicators	Indicator Rating	Treatment Type	Required Growing Season Deferment *
Percent Desirable Plants and/or Plant Cover	1	Broadcast	91-120 days
Percent Desirable Plants and/or Plant Cover	2	Broadcast	61-90 days
Percent Desirable Plants and/or Plant Cover	3	Broadcast	30-60 days
Percent Desirable Plants and/or Plant Cover	1	IPT	61-90 Days
Percent Desirable Plants and/or Plant Cover	2	IPT	31-60 days
Percent Desirable Plants and/or Plant Cover	3	IPT	0-30 days
*Required deferment is for the acres treated and additional deferment may continue until such time that the indicators have been re-evaluated and changes documented and/or pest plants are no longer an issue.			

Additional Criteria:

When slow-acting, soil-applied herbicides are used or plants are treated during the non-growing season period, the area will be deferred from the time of the first visual signs of chemical activity through the remainder of the first growing season. A deferment period during the second growing season will be based on the physiological needs of the plant community. It is highly probable that a deferment period will be needed the second growing season to allow vegetation to respond to reduced competition.

If chemical control is applied after August 15th, the area will receive the required deferment for the remainder of the growing season; as well as, 90 consecutive days at the beginning of the succeeding year.

Mechanical Control of Pest Plants

Rootplowing

The area will be deferred the remainder of the growing season starting when the seed is planted. If the stand is weak in vigor at the end of the first growing season, a deferment period during the second growing season will be required as needed to ensure a stand develops in the seeded area.

All Other Mechanical Methods

For mechanical methods apply the same deferment from the above tables under Chemical Treatment for rangeland or pastureland. When brush species exceed 30% canopy, the above specifications for broadcast will be applied for deferment.

Specifications for Planted Areas

All seeded or planted areas must be rested or deferred until the plants are well established. Criteria for establishment are contained in the Oklahoma Plant Materials Technical Note 21. All newly established stands must meet the live plants per the acceptable portion of the table in Appendix 1 before any grazing will be initiated except for limited flash grazing for annual grasses and forbs. Typically, when used flash grazing will not exceed 7-10 days.

For rangeland, defer the entire first growing season following seeding and, in many instances the second growing season as well. Further deferment periods during succeeding growing seasons may be necessary to establish or increase the stand. Stand development is reliant upon plants becoming established before being grazed. Grazing should be initiated once the stand has no additional plant community concerns identified.

For pastureland once established grazing plants will be based on **Table 1** of this standard, if utilization heights and management insure establishment. Longer rest should be given if needed based on the conditions during stand establishment. Flash grazing can be used to control weeds. Old world bluestems planted in wheat can be established by grazing out the wheat, then resting the grass until established.

Specifications to Improve or Maintain Surface and/or Subsurface Water Quality and/or Quantity.

Excluding livestock from areas where water quality is an issue can be helpful; but, must be coupled with management plans that contain changes in grazing management at the conservation management unit scale. An improvement in vegetation throughout the unit not only slows water across the landscape but also increases infiltration and protects the soil against erosion.

Manage vegetation to heights greater than in column one of Table 5 to insure stability of the soil during periods of high intensity rainfall when improving water quality is the goal.

Specifications to Improve or Maintain Riparian and/or Watershed Function.

Riparian areas should be managed either by controlled access, by developing off-site water points, by herding techniques, or through grazing management that provides enough of a rest period to allow establishment and/or maintenance of the vegetation. Patch grazing, intensive early stocking or rotational grazing are management systems that may meet this need. Dormant season grazing can meet this need as long as livestock do not break down banks and minimum heights are adhered to.

Refer to Tables 1,2,3 (above) for the appropriate deferment periods based on the evaluation used when planning for riparian and watershed function. It may be necessary to use multiple evaluation techniques along a riparian area(s) of a field to determine unique resource concerns that may not be present in the adjoining plant communities.

Specifications to Reduce Soil Erosion and Maintain or Improve Soil Health

Reducing erosion is tied directly to stocking rate. In cases where erosion is an identified resource concern refer to the information in Table 1, 2 or 3 for management activities to correct erosional problems.

When erosion is a concern in streambank or riparian areas, use of exclusion or deferment of areas to grazing animals is an appropriate practice.

An applicable practice for soil health management of grazing animals is using them as a mechanical tool to help place vegetation on the soil surface is.

Plans and Specifications

This section describes items that are common within a grazing management plan. Resource concern planning criteria and required assessment tools can be located in Section III of the eFOTG. Many of items below are referenced directly from the National Range and Pasture Handbook and more information on each section can be found there.

1. **Goals and objectives –**
   - Clearly stated list or narrative indicating, as specifically as possible, the desired goals and objectives of the manager.
   - Where wildlife is a primary or secondary resource concern, prescribed grazing will be applied as directed in the wildlife habitat plan to address limiting factors identified in an approved habitat evaluation guide.
2. **Resource inventory**– The resource inventory should include the following applicable information on the plan map and/or within the plan folder, in a manner that is easily understood by the producer using appropriate forms or suitable documentation:
   - Field numbers and associated acreage
   - Existing Resources Concerns and Conditions
   - Current Animal Inventory – Document the number of, the kind and the class of livestock when their requirements differ significantly. This can be documented as the current system on the Oklahoma GrazeCalc spreadsheet.
   - Livestock Watering Points - Location of current and planned water developments (size, type, dependability, and other pertinent information). Livestock water supplies must be adequate to meet the demands of the livestock over the specified grazing period for all grazing systems. Refer to Conservation Practice Standard and Construction Specifications 614, Watering Facility, concerning water development requirements.
   - Locations of existing and planned infrastructure; including, but not limited, to fences, structures, and natural barriers.
   - Erosion predictions – If the primary or secondary purpose for a prescribed grazing plan is erosion control, then erosion predictions will be included for that field(s). On pasture lands, RUSLE 2 will be used to identify when erosion concerns are present, and Rangeland Health Assessments will be used on rangeland to determine the same.
3. **Forage inventory**– The expected forage quantity for each management unit will be based on the data that was collected during the inventory process from above and supports the resource concerns that were identified. All data for production and composition that is collected will be based on weight, as it has a direct relationship to feedstock for grazing animals. The following worksheets, tools and references are provided as minimum documentation for establishing available forage as determined during the inventory process.
   - Rangeland - Forage Inventory: Oklahoma Dry Weight Rank Method
   - Pastureland – Step Transects and Reconstructed Forage Weights
   - Cropland- Current Forage (residue) Weights and expected amount of use
   - Hay and grain (optional) inventory – The expected supplemental feed requirements needed to meet the desired nutritional level for the kind and class of livestock, not supplied by the grazed forages listed in the Forage Inventory. It is not the intent to use hay and supplemental feed to

balance the needs of the animal when overstocked.

4. **Feed and forage balance inventory** – ***A proper stocking rate is the most important consideration in grazing management and is more important than the grazing system used.*** In this section we document the projected balance of forage quantity and quality based on the inventories above, estimated for an average growing season and the resulting animals that the resource can support. This section can be adjusted by year based on the growing conditions during the year. Livestock producers can make yearly or seasonal adjustments to their herd based on favorable or unfavorable growing conditions. Minimum documentation of surpluses and deficiencies of forage resources will be completed on the Planned Oklahoma GrazeCalc spreadsheet. Other references for this documentation can be found in the NRPH Exhibit 5-5).
5. **Grazing plan (narrative)**– The plan shall identify and record the items needed for the projected use of fields, pastures, management units or portion of a management unit identified in the resource inventory.
   - Balanced initial stocking rate by field or management unit. (planned system)
   - Graze, rest, and/or deferment periods as appropriate for the grazing system.
   - Identified adjustments to the grazing schedule based on favorable or unfavorable climate conditions, season of use or natural disasters when applicable.
   - The grazing plan will be recorded in a manner that is easily understood by the decision- maker. Documentation will depend upon the intricacy, size and available resources of the operating unit. Suitable documentation of this element of the grazing plan is not limited to, but must include, one or more of the following;
6. **Contingency plan** – Contingency planning should be developed with information gained during the inventory process, especially that information that has been gleaned from the land user. The land user is in the position to identify past problem areas (i.e. pastures with flooding concerns or those that change quickly during periods of drought) and how they have adjusted to these items in the past. This plan is in addition to and supports the prescribed grazing schedule. It serves as a guide to adjusting the grazing system to ensure proper resource management and economic feasibility without resource degradation. At a minimum, at least one item must be documented in the plan that provides insight into the producers contingency planning
   - Examples of contingency planning are listed below;
     i. Reduction in Herd Size
     ii. Increase or Decrease rotation periods
     iii. Use of reserve pastures
     iv. Stop grazing heights or precipitation windows based expected growing conditions.
7. **Monitoring plan-** The monitoring plan should incorporate an annual plan review with the producer that occurs at or near the end of the growing season where: 1) the prescribed grazing schedule is reviewed to determine if the plan is meeting the desired goals and objectives, 2) improving the documented resource concerns, and 3) accomplishing the objectives of the plan. When applicable, the monitoring plan should incorporate the same type of resource inventory methods that were initially used. The monitoring plan will use an appropriate recording system that is readily understood and usable by the operator in their daily operations.

Plant Control With Goats

GENERAL SPECIFICATIONS

Goats may be used to reduce species such as oaks, Sericea lespedeza, blackberries, sumac, winged elm, greenbrier, kudzu, and other species that goats will eat. Goats may be used as initial treatment, or as a follow-up treatment to chaining, dozing, roller chopping, prescribed burning, or shredding. Some success has been observed with eastern red cedar control. If the brush is too tall for the goats, they will eat out the understory, leaving no forage for grazing.

The past browsing experience of the goats will influence their choice of forages. If the targeted species is a novel forage, there may be a conditioning period before the goats will consume the desired forage.

Goats that have prior experience will more readily begin browsing the targeted plant. Goats will also eat grasses and desirable forbs. Therefore, a rest-period is needed to achieve recovery of the desired plant community.

Record the objectives, which will be for plant reduction or sustainability. The resource inventory shall record the canopy of the targeted species. The forage inventory should reflect the initial forage-animal balance.

CONTINGENCY PLAN

The grazing plans should also contain a contingency plan to adjust the stocking rates. This would include provisions for the goats during the “off season” when deciduous forage is not available.

MONITORING

Develop appropriate records to measure progress toward goals. This could consist of canopy counts, goat days per acre, or other measures that will provide a trend analysis.

CONSIDERATIONS

The client may not want to eliminate the targeted plant from the pasture, particularly if goats are an economically beneficial enterprise. If the objectives of the goating are to browse at an intensity that will maintain the species for goats, then plan accordingly.

Removal of some woody species may adversely impact wildlife species. If wildlife is a consideration, the objective of goating should be to maintain the needed amount of brush for wildlife.

The following grazing plans are available to be used with goats to manage problem plants:

Plant Reduction

1. **Priority Pasture Method**
   - Knock the target plants down to the goats’ browsing level using mechanical, fire or other means if needed.
   - Use two or more pastures (five preferred), designating one as the priority pasture. Use high density grazing that will begin when the leaf of the target brush species is one half to two thirds full size in the spring. Use enough goats to achieve 80% defoliation within 7 to 14 days in the priority pasture. A suggested starting stocking rate would be to stock at 1 goat per acre in the priority pasture for each 1- 3 percent of canopy cover. Rotate the goats through the remaining pastures to maintain nutrition until the priority pasture plants have regrown to about half to two-thirds full size. This should take about 25-35 days. Pull the goats out of the rotation and put them back into the target pasture, again achieving an 80 percent defoliation.
   - Repeat this process until the desired level of reduction has been achieved. Depending upon brush species and density, it may take three years to effect a favorable change.
   - Once the reduction has been achieved in the priority pasture, then another pasture can be designated as a priority pasture and the process applied accordingly.
2. **Thirty (30) days in and 30 Days Out or Two-Pasture Switchback Method**
   The most effective control occurs when new leaves and twigs are browsed in the initial stage of growth. Stock with enough goats to obtain at least 65 percent defoliation in approximately 30 days. After defoliation, rest the pasture for approximately 30 days. This system is a 30-day in and 30-day out grazing system with goats that results in at least 3 months of rest each growing season. Alternate the starting pasture each year. A minimum of 3 years of goating is generally needed to obtain desired control. Calculate stocking rate the same as the Priority Pasture method.

   Sustainability

Some client objectives are to manage woody plants, including sericea lespedeza for sustained use. Grazing strategies are different than for plant reduction. There is little precedence for managing woody plants for sustainability in Oklahoma. Therefore, the following guidelines are to be used along with monitoring for self-evaluation and adjustment:

a. Multi-pasture scenario

Utilize one herd of goats in three or more pastures, five or more being preferred. Introduce the goats in the early spring. Defoliate the key species of plants to about 25% of current growth, and then rotate to the next pasture. Set the rest period so that the woody plants are not defoliated any more than twice per growing season. Select a suggested starting stocking rate of 0.25 goats for each one percent of woody cover unless a forage inventory - animal balance analysis suggests a different amount. Monitor the re- growth and goat performance. If excessive use is being observed, adjust stocking rate accordingly.

b. Thirty (30) days in and 30 Days Out or Two-Pasture Switchback Method

Stock with enough goats to obtain about a 20 percent defoliation in approximately 30 days. After defoliation, rest the pasture for approximately 30 days. This system is a 30-day in and 30-day out grazing system with goats resulting in at least 3 months of rest each growing season. Alternate the starting pasture each year. Calculate the stocking rate as in the multi-pasture scenario.

c. One pasture system

Goats are introduced into the pasture only once per growing season for no longer than a 30 day grazing period. Defoliation should be targeted for 50 percent.

TABLE 5. Minimum residual height in inches and approximate recovery period.

Species	Plant Height to start grazing *1/*(in)	Average height for continuous use (in) *1/*	Average height for rotational use *1/* (in)	Approximate recovery or rest period *2/*(days)
GRASSES – Monocultures *3/*				
bahiagrass	5	3	2	20-28
bermudagrass	4	3	2	18-28
bluestems, Introduced, old world, or yellow	4	4	2	25-35
creeping foxtail	6	4	3	28-32
dallisgrass	5	3	2	15-25
eastern gamagrass	12	10	8	28-45
fescue	6	4	3	21-30
hybrid wheatgrass	6	4	3	28-32
Johnsongrass	20	10	5	21-30
'Luna' & 'Manska' pubescent wheatgrass	6	4	3	25
meadow bromegrass	6	4	3	28-32
orchardgrass	6	3	2	20-32

Species	Plant Height to start grazing *1/*(in)	Average height for continuous use (in) *1/*	Average height for rotational use *1/* (in)	Approximate recovery or rest period *2/*(days)
'Paiute' orchardgrass	6	4	3	25
ryegrass	5	3	2	14-25
Russian wildrye	6	4	3	28 - 32
sacaton, alkali	7	6	3	25-35
smooth bromegrass	6	4	3	25-35
switchgrass	10	6	4	30-45
weeping lovegrass	8	5	4	18-25
western wheatgrass	6	4	3	25-35
wheatgrass, tall	7	5	3	21-30
LEGUMES				
alfalfa	8	4	3	28-35
annual lespedeza	4	3	2	20-30
Sericea lespedeza *4/*	4 - 8	5	3	20-30
vetch	6	3	3	18-28
vetch, crown	6	4	3	25-35
Alsike clover	4	3	2	25-30
Arrowleaf clover	6	4	3	14-21
Bur clover	4	3	2	18-25
Button clover	4	3	2	18-25
Crimson clover	4	3	2	18-25
Persian clover	4	3	2	18-25
Red clover	4	3	2	18-25
Sweet clover	8	4	3	21-30

1/ The specified heights are minimum for guidelines in maintaining plant health. However, for optimum growth and animal performance, less utilization is preferred during each grazing event. Use the Minimum Heights for Rotational Use to determine grazing use heights when warm season species are grazed during plant dormancy.

2/ The rest period should be keyed to the recovery rate of the managed species. Fast growth indicates shorter recovery periods,

while slow growth rates indicate longer recovery periods. Also, irrigation and fertility levels could shorten deferment needs. 3/ When managing polycultures of plants, select the predominate desired species and manage accordingly.

4/ If the management objective is to reduce Sericea lespedeza with cattle, utilization or grazing heights can be as severe as desired. Generally, for this approach to be effective, cattle should be introduced prior to Sericea reaching 8 inches height. Very

Specific Site Requirements

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