United States Department of Agriculture

Natural Resources Conservation Service

PRESCRIBED GRAZING: INCLUSION OF WOODLANDS IN SMALL RUMINANT GRAZING SYSTEMS

Alabama Guide Sheet No. AL528B

Description

The inclusion of woodlands for small ruminant, primarily goats, grazing systems may be done when properly designed and managed to utilize the woodland browse in a sustainable manner. To be sustainable, woodland grazing must be managed as part of a rotational grazing system. Cleaning up woodlots or removing understory may be landowner objectives, but these practices typically do not fit the definition of a prescribed grazing system and are not typically sustainable.

Woodland grazing (the term “grazing” will be used to describe all forms of vegetation harvest by livestock) is a management component within the conservation practice, Prescribed Grazing (528). Other common facilitating practices that should be considered are Fence (382), Watering Facilities (614), Pipeline (516), Critical Area Planting (342) and Land Clearing (460).

Purposes

Proper woodland grazing can serve several purposes within a farming operation. They include:

1) Providing alternative grazing opportunities for small ruminants in combination with forest production.
2) Providing rest for other pastures, promoting healthy and vigorous vegetation in the prescribed grazing system.
3) Assisting with plant management using small ruminants.
4) Facilitating parasite management by providing natural sources of helminthic tannins and reducing the exposure of livestock to the parasites.

Suitable Woodland Sites

This grazing method may be applied to on-farm woodland areas as long as the grazing animals do not cause resource concerns, such as excessive erosion. Proper woodland management will focus on a sparse tree canopy which allows the sunlight to reach the forest floor. Significant periods and amounts of sunlight are necessary to support suitable understory vegetation.

A site evaluation guide will be used to determine suitability of each site. This guide is located starting on page 6 of this document.

Certain stands of trees consisting of pines, hardwoods or mixed stands of both may be used, as long as they meet the following National Resource Inventory forestland definition:

Forest land. A *Land cover/use* category that is at least 10 percent stocked by single-stemmed woody species of any size that will be at least 4 meters (13 feet) tall at maturity. Also included is land bearing evidence of natural regeneration of tree cover (cut over forest or abandoned farmland) and not currently developed for non-forest use. Ten percent stocked, when viewed from a vertical direction, equates to an aerial canopy cover of leaves and branches of 25 percent or greater. The minimum area for classification as forest land is 1 acre, and the area must be at least 100 feet wide.

Other criteria must be met to qualify as a suitable site. An understory layer of shrubs, forbs or grass must be present and be able to support 2-3 adult small ruminants per acre during the designated grazing periods, with a maximum of 14 consecutive days per grazing period. The woodlands sites should be rated as good or better to offer the best conditions for success.

Preparation and Planning

This grazing method is not designed to clean up woodlands. It is designed to allow small ruminants, primarily goats, to utilize the woodland browse and herbaceous vegetation in a sustainable manner. Woodlands should be used in conjunction with other nearby (less than one-fourth mile away) grass pastures as part of the full rotational or prescribed grazing system. The grazing system must include enough paddocks so that the forages will have the necessary rest to recover after the grazing event. For woodlands this means resting at least 60 days. For grass pastures the rest periods may range from 3 – 5 weeks.

Prescribed Grazing Plans will be designed to ensure that an adequate stand of vegetation exists for browsing in all paddocks especially the woodland acres. A forage and animal balance worksheet will be developed to establish baseline conditions and planned grazing improvements on grass pastures.

Prescribed grazing plans will also include at least one acre of grass pasture for every two acres of woodland used for grazing. There should be enough grass production to provide at least 6 months of grazing.

Land clearing of woody vegetation may be needed to accommodate fences in woodlot paddocks. The lanes should be 20 feet wide, or less. The installation of net wire or high tensile electrical fence systems will be used to sustain and manage a rotational grazing system following the Fencing Standard (382). Land clearing will follow the Land Clearing Standard (460). Cleared land will be immediately vegetated using the Critical Area Planting Standard (342).

Livestock watering facilities may be installed as part of the grazing system.

Grazing Management

The prescribed grazing management system may include rotationally managed woodland paddocks designed to accommodate a **maximum stocking rate of 2 - 3 adult small ruminants per acre** (paddock acreage includes woodlot area and the cleared area used to construct the fencing). Stocking rate is defined as the number of livestock that can be properly maintained during the seasonal period of use for forage. It is often considered the seasonal carrying capacity. The woodland stocking rate and length of grazing periods may be adjusted downward as needed.

Producers should begin the activity using a conservative stocking rate until experience indicates more animals per acre are sustainable. The stocking rate should never exceed 3 adult small ruminants per acre.

It is permissible to graze woodlands at higher densities than 3 adult small ruminants per acre. However, the grazing periods will be reduced accordingly. The maximum stocking density will be 6 adult small ruminants per acre and the grazing period will be 7 days or less, depending on the 50% forage removal guideline. Livestock will be rotated from one woodland paddock to another paddock (grass or woodland) leaving 50% or more of the preferred

browse. By doing this the browsing resource will be sustained and may be used again much sooner.

Removing more than 50% of the preferred browse reduces the ability of the plants to regenerate more browse in a timely manner. It can also weaken the plants causing a decline in the stand and productivity. When woodland understory is overgrazed it may take 6 months or more before the plants have recovered enough to graze again. Over-browsing can decimate a valuable forage resource and facilitate erosion problems. In some instances it may be necessary to defer grazing for a year or more.

Following a grazing period, the woodlands will be rested a minimum of 60 days before being browsed again. An adequate number of grass or woodland pastures must be incorporated into the grazing system to support this. For grass pastures follow the starting and ending grazing height recommendations. However, it is suggested that small ruminants graze grasses to 5 inches or higher to facilitate parasite management.

The grazing period for each paddock may range from 1 to 14 consecutive days. Shorter grazing periods may be needed when vegetation is limited or when larger animals with higher daily dry-matter needs are used.

Woodland grazing will follow the grazing calendar located within this guide. This guide allows for woodland forage to have: enough growth in the spring before grazing, and; enough rest after grazing in the fall for plants to recover before leaf drop or frost.

Summary of minimum criteria for prescribed grazing that includes woodland grazing:

- Site must be considered suitable using the site evaluation tool.
- A Prescribed grazing system includes at least 6 months of grass grazing and at least 1 acre of grass pasture for each 2 acres of woodland grazing.
- Maximum length for a continuous grazing event is 14 days.
- Minimum rest period for woodlots is 60 days.
- Stocking rates ≤ 3 goats per acre.
- Monitoring is required to prevent over-browsing and retain at least 50% of preferred browse after grazing the woodland understory.
- Adhere to the grazing calendar.

Preferred Plants for Small Ruminants

Preferred plant species for goats include: multiflora rose, briars, ironweed, ragweed, lambsquarter, sericea lespedeza, honeysuckle, various pigweeds, Chinese privet and kudzu. Goats will also utilize the following (not inclusive) plants: orchardgrass, tall fescue, many winter annuals, alfalfa, brassicas, chicory, eastern gamagrass, big bluestem, Indiangrass, crabgrass, pearl millet, Sudangrass and sorghum-sudan grass.

Failure to maintain adequate forage for livestock can result in species depletion and likely soil erosion.

Monitoring

Monitoring is a key component to proper implementation. Producers must monitor the grazing system to insure livestock are not over-browsing and to know when to rotate the livestock. Setting up monitoring or exclusion cages in woodlands is one way to monitor browsing. Comparing photographs taken at designated locations is another way to monitor browsing conditions. Grass pastures may be monitored by taking average plant heights and comparing to the target ending heights. For small ruminants grazing on grass pastures, the minimum target height should be 5 inches.

Timber Management

For planted or natural stands of woodland, tree thinning may be needed to open the canopy so that the understory vegetation can flourish and support the goats. Refer to CPS Forest Stand Improvement, Code 666 for additional guidance

Publications show forage production is lowest and does not change when there is about 45% canopy, or greater. Forage production

increases significantly as the canopy coverage decreases beginning at 30% canopy.

Some woodland may be suitable for prescribed burning. Burning may help to improve availability and nutrient quality of the understory vegetation. The prescribed burning should be timed to achieve the desired results. Warm season burns may kill some understory plants reducing grazing potential. Consult with a burn specialist and develop an appropriate burn plan before implementing the Prescribed Burning (338) practice.

Watering facilities

Consideration will be given to provide an adequate water supply for small ruminants with this practice. Generally, a water trough system supplied by well water or a rural water system is the preferred water supply. Small ruminants should travel less than 1000 feet to access drinking water. Follow the conservation practice standard, Watering Facilities (614).

Animal shelters

Shelters may be needed to protect animals from inclement weather. Adoption of the practice is dependent upon existing shelter and is at the discretion of the producer. Refer to guidance from appropriate extension system publications.

References:

Woodland Livestock Grazing, George W. Tanner and Sid Brantley, University of Florida, Extension Publication 1020.

Managing Cattle on Timberlands: Forage Management, Chris Demers and Rob Clausen, University of Florida Extension, SS-For-20.

Managing Forages for Meat Goats, Bruce Pinkerton and Frank Pinkerton

Managing Southern Pine Forests to Produce Forage for Beef Cattle, Nathan Byrd and Clifford Lewis, SE Area State and Private Forestry, USDA Forest Service.

Forestland Grazing, USDA Forest Service, Forestry Report SA-FR10

Alabama NRCS Conservation Practice Standard, Forest Stand Improvement (666)

Forage Needs and Grazing Management for Meat Goats in the Humid Southeast, NC-State, ANS00604MG

Managing Forages for Meat Goats, Bruce and Frank Pinkerton, Meat Goat Production Handbook

National Goat Handbook, University of Maryland

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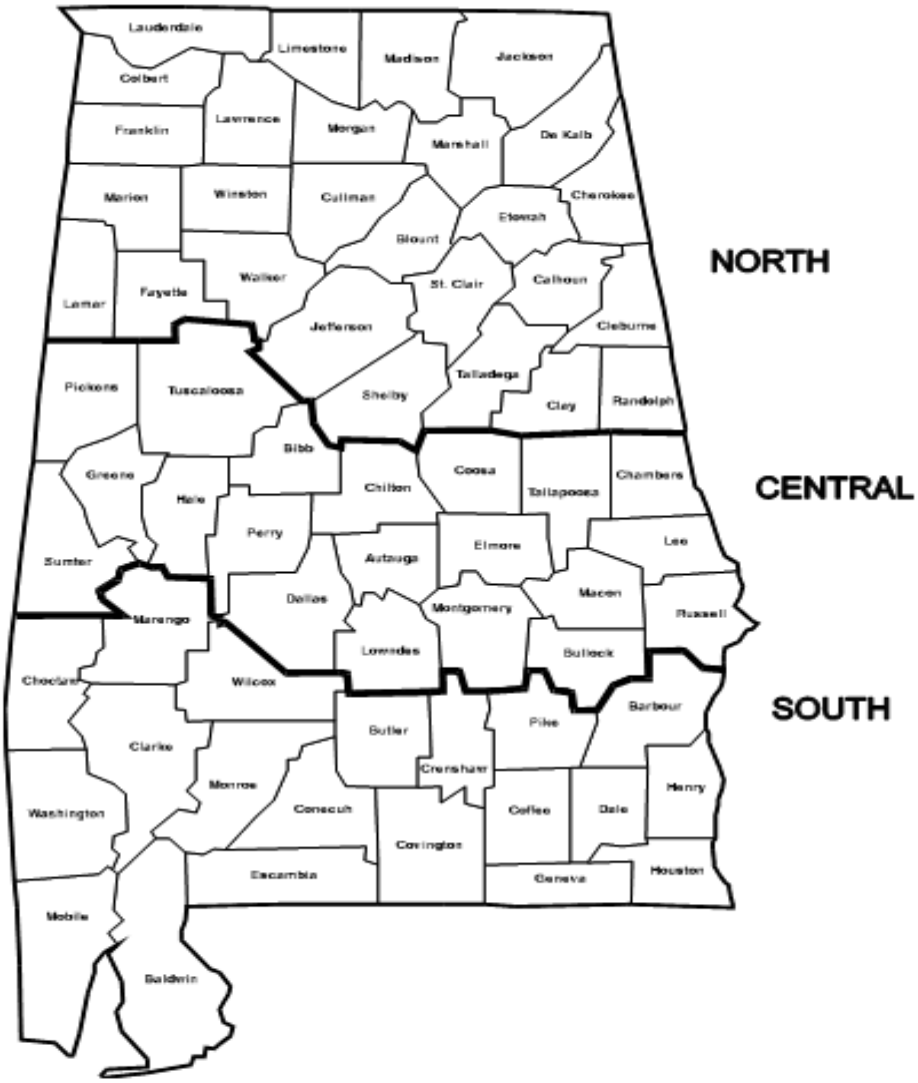
WOODLAND GRAZING CALENDAR BY REGION:
North: May 1 – September 1
Central and South: April 15 – September 15



WOODLAND GRAZING SITE EVALUATION TOOL (10.17.13)

Client Name or Farm:
Farm/Tract Number:
Field(s)
Date:

Color Key: Site not suitable

(1) Soils		
1. Majority of soils in each field meet this criteria. Document the tool(s) used to decide soil suitability (e.g., Web Soil Survey, soils maps, etc.).		**Score**
a) Suitable: Class I, II, III, and IV unless active surface erosion or gullies are present.	50	
b) Less Suitable: Class VI, VII	20	
c) Unsuitable, (hydric, urban land, sites with active erosion, gullies), Class V, VIII Soils. Stop the site evaluation.	0**	

**Stop. Site should not be used for woodland grazing. Excluding unsuitable areas is an option.

Link: http://soils.usda.gov/technical/handbook/contents/part622.html

(2) Basal Area (BA) (BA = sq. ft./acre)		
1. Basal Area (BA) is determined for each field in question. BA is averaged for the evaluation of each field; If all fields are similar in management, site Index, composition, etc., then one representative evaluation is needed using an angle gauge, 10-factor Prism, penny coin.		**Score**
2. Only live trees will be used for BA.		
3. BA is not limited to softwoods and may include hardwoods.		
a) ≤ 60 BA . This also includes plantations with pines about 3 years old and at least 6 feet high.	50	
b) 61 ≤ 90 BA*	40	
c) 91 BA ≤ 150 BA*	30	
d) ≥ 150 (likely dense trees with crowns touching and little sunlight reaching forest floor)	0**	

* Trees shall have an average DBH ≥ 8 inches.
**Site should not be used for woodland grazing.

(3) Preferred or Suitable Understory [Browse/Herbaceous plants (%) (See Attached plant list]		Score
1. Percent of site occupied by either woody or herbaceous understory determined by conducting a visual estimate of foliage up to 6' high.		
2. Shrubs are all woody species (including woody vines) <3" DBH.		
3. Mid-season leaf-on condition will be used or predicted.		
a) **Sparse:** The site consists of scattered populations or individual plants that are either woody or herbaceous in nature or both. These plants occupy < 40% of the site. Site not suitable.	0**	
b) **Medium:** The site consists of populations or individual plants that are either woody or herbaceous in nature or both. These plants occupy 40% to 60% of the site.	30	
c) **Heavy:** The site consists of populations or individual plants that are either woody or herbaceous in nature or both. These plants occupy ≥ 60% of the site.	50	

* I.D. Primary plant species that provide about ≥80 % of the total understory vegetation. See attached plant list on page 10.

** Less than 30 = Stop, site should not be used for woodland grazing.

(4) Threatened and Endangered Species		Score
a) Species are present and associated practices will have a negative effect on T&E Species. Stop, not suitable for woodland grazing.*	0**	
b) There are not any known T&E species present; or, species are present and associated practices will have a neutral or positive effect on the identified T&E Species.	30	

**Stop. Site should not be used for woodland grazing at this time.
Identify the T&E species.

(5) Grazing System Consideration		Score
a) A grazing management system where livestock do not graze herbaceous forages.*	0**	
b) A grazing management system where livestock are expected to graze herbaceous forages for up to 6 months each year.	20	
c) A grazing management system where livestock are expected to graze herbaceous forages for up to 8 months each year.	40	
d) A grazing management system where livestock are expected to utilize herbaceous forages greater than 8 months each year.	50	

*Herbaceous forages include grasses that are typically planted as an annual or perennial in pastures for livestock production. Pastures are managed with fencing and water. **Woodland grazing not suitable under these conditions.

(6) Woodland Site Characteristics in Grazing System		Score
a) Site consists mainly of well managed* softwoods, hardwoods or both. Understory consists of a medium to heavy stand of suitable woody browse and/or grasses less than 6 feet high.	50	
b) Site consists mainly of unmanaged softwoods or hardwoods or mixture of both. Understory consists of a medium to heavy stand of suitable woody browse and grasses less than 6 feet high.	30	
c) Site consists of young planted pine trees and has an abundance of grasses, forbs and shrubs suitable for goats. Pine trees are at least 6 feet tall. Understory thickness will allow goats to move through it. Site is expected to be grazed for seven or more years before understory is shaded out or becomes unusable.	20	
d) All other site conditions not suitable for woodland grazing.	0**	

*Well managed = Managed following a professional management plan.
Medium to heavy stand of suitable plants = ≥ 40% suitable cover. See Category 3, Preferred or Suitable Understory.
** Stop, site is not suitable.

	Final Score
Outstanding Site = 280 points	
Very Good Site = ≥ 260 < 280	
Good Site = ≥ 220 < 260	
Fair Site = ≥ 160 < 220	
Poor Site = < 160	
Unsuitable (based on criteria within evaluation form)	

NRCS Employee Conducting Evaluation

Supporting documentation (e.g. site photographs, understory plant list, plant composition estimation, transect data) are attached:

COMMONLY FOUND PLANTS IN SMALL RUMINANT WOODLAND GRAZING SITUATIONS

PREFERRED	%
Blackberry species	
Chinese privet	
Cowpeas	
Desmodium species	
Hackberry	
Honeysuckle	
Ironweed	
Juniper	
Kudzu	
Lambsquarters	
Lespedeza species	
Mimosa	
Mulberry	
Native grasses	
Oak species	
Persimmon	
Pigweed species	
Poison ivy	
Sumac	
Sweet gum	
Thistle species	
Various forbs	
Wild roses	
Others	

SUITABLE	%
Annual grasses	
Bahiagrass	
Bermudagrass	
Cereal grains	
Clover species	
Crabgrass	
Crabgrass	
Crabgrass	
Native grasses	
Orchardgrass	
Perennial grasses	
Smilax species	
Tall fescue	
Various forbs	
Vetch species	
Others	

POISONOUS	%
Azaleas	
Black nightshade	
Bracken fern	
Buckwheat	
Buttercup	
Cherry	
Horse nettle	
Hypericum	
Lantana	
Larkspur	
Lily-of-the-valley	
Milkweed	
Mountain laurel	
Oleander	
Other stone fruit	
Plum	
Poison hemlock	
Pokeweed	
Rape	
St. Johswort	
Water hemlock	
Yew	
Others	

PRODUCE MECHANICAL INJURY	%
Cocklebur	
Cogongrass	
Downy brome grass	
Mesquite	
Sandbur	
Others	

AVOIDED Plants	%
Yellow Crown beard	
Others	

SPECIFIC POISON GROUPS

CYANOGENETIC PLANTS (PRODUCE GLUCOSIDES/GLYCOSIDES)	%
Black locust	
Corn cockle dogbane	
Elderberry	
Horse nettle	
Ivy	
Johnsongrass	
Laurel	
Milkweeds	
Milo	
Nightshade	

Alkaloid Containing Plants	%
Black cherry	
Boxwood	
Horse Nettle	
Jimson weed	
Larkspur	
Lobelia	
Lupines	
Nightshade	
Rattle weed	
Showy crotalaria	