United States Department of Agriculture
NRCS Natural Resources Conservation Service

BRUSH MANAGEMENT

Alabama Job Sheet No. AL314

DEFINITION

The management or removal of woody (non-herbaceous or succulent) plants including invasive and noxious plants.

PURPOSE

- Create the desired plant community consistent with the ecological site.
- Restore or release desired vegetative cover to protect soils, control erosion, reduce sediment, improve water quality or enhance stream flow.
- Maintain, modify, or enhance fish and wildlife habitat.
- Improve forage accessibility, quality and quantity for livestock and wildlife.
- Manage fuel loads to achieve desired conditions.

Brush Management applies on all lands except active cropland where removal, reduction or manipulation of herbaceous vegetation is desired.

CRITERIA

Brush Management will be accomplished by mechanical, chemical, biological, prescribed burning, prescribed grazing, or a combination of these methods to achieve desired control of the target woody species and protection of desired species.

Before starting a brush control treatment, it is important to identify the plants targeted for control and any non-target plants that are to be maintained and enhanced. It is important to understand the life cycles of both types of plants and to time the treatment of the targeted plants when they are most vulnerable. Implement treatments to minimize negative impacts to non-target species.

MANAGEMENT METHODS

For all methods, properly dispose of invasive species materials after treatment to prevent reseeding or spread to new areas.

Chemical: When using chemical control, spot treatment methods should be used whenever feasible to apply herbicides. Apply herbicides at the correct rate, under favorable weather and recommended plant conditions. Examples of chemical treatments are stump treatment, foliar application, and basal bark treatment. Refer to extension systems recommendations. Also, see ACES recommendations: http://www.aces.edu/pubs/docs/A/ANR-0500-A/ or http://www.aces.edu/pubs/docs/A/ANR-0500-B/.

Herbicides must be handled and applied in accordance with the product label and any federal, state, or local regulations.

Manual and Mechanical: Manually or mechanically removing brush species can be successful if done repeatedly over the growing season and over multiple years. Brushy species tend to re-sprout, and follow-up treatments will be necessary. Examples of manual/mechanical methods are hand pulling, cutting and girdling.

Prescribed Fire: Prescribed fire can be an effective tool for brush management by suppressing undesirable species and removing thatch layers. Success will greatly depend on the species present, time of the year applied, and the temperature of the fire. In general, fire applied in late spring or fall will be most effective at controlling brush. Refer to Prescribed Burning (338) standard and job sheet.

Biological:

Grazing with livestock can be an effective tool to manage invading brush species in conjunction with

other treatments. It may take multiple treatments to fully manage unwanted species.

Small ruminants (especially goats) may be used to control or eliminate many types of brush or other noxious plants.

Grazing management plans will include the type of grazing animal, the timing and duration of grazing or browsing as well as any protections needed for threatened or endangered species. The Prescribed Grazing (528) standard will be followed.

Approved biological agents may be used. Plans will identify the agent to be used and any special precautions or requirements when using biological agents.

By itself, any one of the above biological control methods may not completely eradicate targeted brush. When multiple methods are used together, eradication may be possible and may be less expensive.

OPERATIONS AND MAINTENANCE

Brush management practices will be applied using approved materials or procedures. Operations will comply with all local, state, and federal laws and ordinances.

Evaluate regrowth or reoccurrence of target species after sufficient time has passed to monitor the situation and gather reliable data to determine success and/or need for additional treatment.

Following initial application, some regrowth, re-sprouting, or reoccurrence of brush should be expected. Spot treatment of individual plants or areas needing retreatment should be done as needed.

Develop a safety plan for individuals exposed to chemicals, including telephone numbers and addresses of emergency treatment centers for individuals exposed to chemicals and the telephone numbers for the nearest poison control center.

- Alabama Poison Control Center
  Tuscaloosa, Alabama **1-800-222-1222**
- Regional Poison Control Center
  Birmingham, Alabama **1-800-222-1222**

National Pesticide Telecommunications Network (NPTN)
Corvallis, Oregon
Non-emergencies **1-800-858-7378**
Monday-Friday, 6:30 am - 4:30 pm Pacific Time

For advice and assistance with **emergency spills that involve agrichemicals**, the local emergency telephone number should be provided. The national 24-hour CHEMTREC telephone number may also be given:

1-800-262-8200

The Federal Worker Protection Standards (WPS) covers pesticides used in the production of agricultural plants on farms, forests, nurseries, and greenhouses. The WPS requires producers to reduce risk to employees by providing the following: safety training, safety poster, access to label information, exclude workers from treated areas by following restricted-entry intervals (REIs). Those producers who "hire" workers must follow WPS. The County Extension office has training materials available.

- Follow **label requirements** for mixing/loading setbacks from wells, intermittent streams and rivers, natural or impounded ponds and lakes, and reservoirs.
- Post signs, according to label directions and/or federal, state, tribal, and local laws, around fields that have been treated. Follow restricted entry intervals.
- Dispose of herbicide and herbicide containers in accordance with label directions and adhere to federal, state, tribal, and local regulations.
- Read and follow **label directions** and maintain appropriate Material Safety Data Sheets (MSDS). MSDS and herbicide labels may be accessed on the Internet at: http://www.greenbook.net/
- Maintain records of plant management for at least two years. Herbicide application records shall be in accordance with USDA Agricultural Marketing Service's Pesticide Recordkeeping Program and state-specific requirements.

To minimize negative impacts of pesticides on water quality, aquatic organisms, vertebrates and invertebrates, incorporate the following, commonly used mitigation strategies into pesticide application activities:

- Delay application when significant rainfall events are forecast that could produce substantial leaching or runoff which can reduce pesticide transport to ground and surface water.
- Select appropriate nozzles and operating pressure for the application, with an emphasis on higher volume spray nozzles run at lower pressures, that will produce larger droplets and a narrower droplet size distribution, which reduces spray drift. Maintain proper nozzle spacing, boom height, and boom suspension, along with frequent calibration and replacement of worn nozzles and leaking tubing.
- Apply pesticides when wind speed is optimal to reduce pesticide drift. Optimal spray conditions for reducing drift occur when the air is slightly unstable with a very mild steady wind between 2 and 9mph.
- Sanitize equipment before leaving treatment areas to prevent spread of weeds, particularly invasive weeds. A list of plants considered to be the top ten most invasive plants in Alabama may be found at the following web site:
  http://www.se-eppc.org/alabama/

Additional mitigation strategies for consideration include:

- Spray during cooler temperatures (e.g. early morning, evening or at night) to reduce drift losses. Avoid spraying in temperatures above 90^{o} F. Spraying when there is higher relative humidity reduces evaporation of water from spray droplets thus reducing drift losses.

- Use specific pesticide formulations and/or adjuvants to increase efficacy and allow lower application rates or use drift retardant adjuvants are used to reduce pesticide spray drift.

- Reduce the total amount of pesticide applied because applications are based on monitoring that determines when a pest population exceeds a previously determined economic threshold.

- One or more application of this pesticide has been replaced by an alternative cultural, mechanical, biological or chemical pest suppression technique reducing the typical application amounts of the pesticide that poses a hazard to a natural resource. Note, alternative pesticides must be approved by Extension Specialist and MUST be client-selected as NRCS does NOT make pesticide recommendations.

- Use a 30’ - 100' setback from the edge of the field. Do not apply pesticides within 30’ - 100' of the downslope or downwind edge(s) of the field.

- Apply pesticides when pollinators are least active (e.g. at night or when temperatures are low.) Note that dewy nights may cause an insecticide to remain wet on the foliage and still be active the following morning, so exercise caution.

- Apply pesticides when crops are not in bloom to discourage pollinators from venturing into the crop.

- Keep weeds from flowering to discourage pollinators from venturing into the crop around the time of pesticide applications.

- Use liquid or granular formulations instead of dusts and fine powders that may become trapped in the pollen collecting hairs of bees and consequently fed to developing larvae.

Additional Operation and Maintenance requirements specific to this Plan:

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Prepared for: _____**Farm:**_____**Tract:**_____

Prepared by: _____**Date:**_____

PRE/POST-TREATMENT CONDITIONS

Transect methods used to determine the Degree of Infestation by Species:

☐ % Canopy ☐ Belt ☐ 1/10th acre Plots

☐ Photographs

Data: ☐ ATTACHED ☐ IN CASE FILE

Plant Species	Before Treatment (% Canopy Cover) [1/]	After Treatment (% Canopy Cover [1/])	Before Treatment (Plants per Acre [2/])	After Treatment (Plants per Acre [2/])

[1/] % Canopy Cover

1. % canopy will be determined along a 100 – 300 foot transect line. The line can be paced or a tape of sufficient length used.
2. The number of transects will be sufficient to determine an average for the field or site in question.
3. If using tape method (100 ft. tape). Lay out tape along a line through area where canopy is to be determined. Count the number of foot markers that have canopy above them. The number of points is the % canopy. Example: Line established using 100 ft. tape. Brush canopy is counted over 35 of the 1 foot markers. Brush canopy is 35%.
4. If using paced method. Determine a line to pace by selecting a point in the distance to walk toward. Place a flag at beginning point and pace toward selected point for 100 paces (approx. 300 feet) Turn around and walk back towards flag, counting the number of paces in which canopy is above the point of each foot. Example: 100 paces are made along the predetermined line. 27 steps are intercepted with brush canopy above tip of foot. Brush canopy is 27 %.

[2/] Plants per Acre

1. Mark off area 66 feet by 66 feet (1/10 of an acre). This can be done with tape or paced (approx. 22 paces). Count the number of targeted species within marked off area and multiply by 10. Example: 23 trees counted in the marked off area. Plants per acre are 230.
2. Transect Method (Belt Transect): Determine transect line as for canopy determinations. Measure or pace 300 feet (approx. 100 paces). Walk back toward starting point along transect, counting number of targeted species within 6 feet on both sides of tape (total of 12 feet)

    a. Multiply number of plants counted by 12 to get number of plants per acre. Example: Number of trees counted along the line, 6 feet on both sides is 25. Number of plants per acre is (25x12) 300.

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SPECIFICATIONS

Target Plants to Control	
Mechanical Treatment of Methods and Plans ☐ Not Applicable (Producer is responsible for making sure all equipment is clean and free of invasive seed sources before treatment begins)	
Field (s)	
Plants to be controlled	
Amount to be controlled per acre	
Types of equipment to be used (Mowing, hand clearing, roller chopping, light disking, etc.)	
Dates of treatment	
Operating instructions	
Techniques and procedures to be followed	
Chemical Treatment Methods and Plans ☐ Not Applicable (Chemical application will be according to label)	
Field(s)	
Plants to be controlled	
Amount to be controlled per acre	
Planned Herbicide(s) (Carrier/Surfactant)	
Rate(s) of application or spray volumes	
Acceptable dates of application	
Any special application techniques, timing consideration, for safe and effective applications	
Reference to label instructions	
☐ Pest Management Plan and WIN PST Soil Pesticide Interaction Loss Potential and Hazard Rating Report is attached and was discussed with landowner in formulating alternatives.	
Planned Mitigation Activities:	
Planned Mitigation Practices:	

Biological Treatment Methods and Plans	☐ Not Applicable
Field(s)	
Plants to be controlled	
Amount to be controlled per acre	
Kind(s) of biological agent or grazing animal to be used (Insects, plants, diseases, etc.)	
Timing, duration, intensity of grazing or browsing	
Desired degree of grazing or browsing use for effective control of target species	
Maximum allowable degree of use on desirable non-target species	
Special precautions or requirements when insect or plants are used for control agents	
Prescribed Grazing. See Prescribed Grazing Plan.	☐ Not Applicable
Prescribed Burning. See Prescribed Burning Plan.	☐ Not Applicable
See attached Conservation Plan map showing areas to be treated and areas to be left undisturbed.	