BRUSH MANAGEMENT (code 314)
PLANNER GUIDE – Washington State

Purpose:

This document provides guidance for the planning & implementation of brush management on all applicable land uses including forestland, rangeland and pastureland. Brush management is the control of undesirable woody plants. The application of this practice may be with mechanical, chemical or biological means.

Phase I – Resource Inventory, Assessment and Analysis

The planning of practice 314 begins with a good resource inventory, assessment and analysis. During Phase I the planner and landowner improves their understanding of the current situation, and of the constraints and issues that must be considered.

1. Identify the initial set of landowner objectives & goals for this project. What is the landowner trying to accomplish? This should drive the field inventory and assessment.

2. Determine the context of the project area. Using maps and a reconnaissance describe the areas that surround the project area. Is the project area a critical part of a habitat corridor, or is the project area surrounded by other shrublands, or is the project area completely surrounded by cropland? Make an assessment of the existing habitat in the surrounding area and, if needed, which habitat elements are lacking.

3. Describe pre-treatment site conditions for the project using maps, tables, written description, worksheets, etc.
    a. Land use (forestland, rangeland, pastureland, etc.)
    b. Land cover type (Douglas fir-pinegrass, Wyoming sagebrush-bluebunch wheatgrass- cheatgrass, etc.) information
    c. Current plant community (species representing 10% or more)
    d. Primary land use (wood fiber production, forage for livestock & wildlife, wildlife, etc.) information.
    e. Site potential as reflected by – soils, ecological sites, or forest site index, forage suitability groups – and expected plant composition
    f. Cover & density of desirable and undesirable plants. How does this vary over the project area? How does this compare with what is expected for the site? Line intercept transects should cover the maximum, minimum and average canopy of the targeted species.
    g. Water resources on and adjacent to project area
    h. Assessment of condition and function such as – rangeland heath, wildlife habitat evaluation, Stream Visual Assessment Protocol, pasture condition scoring, forest health
    i. T&E species and species of concern
    j. Proximity to roads, powerlines and houses

4. Work with appropriate biologist – NRCS, state, federal, tribal – to ensure that biological interests are identified and detailed. Identify the location of critical sites
5. List applicable resource concerns & resource issues that must be addressed. Indicate extent of project area affected and magnitude of the problem. Are the set of resource concerns and issues complete and accurate?
6. Are the initial set of landowner goals and objective attainable? If not, revise and refine as necessary.

Phase II – Project Alternatives Formulated and Evaluated

The planning of practice 314 continues with the formulation and evaluation of treatment alternatives. During Phase II, the planner and landowner improves their understanding of the various treatment options.

1. Refer to the set of resource concerns and issues and also the set of project goals and objectives. See #3 & #4 above.
2. With the resource concerns, constraints and objectives in mind, list possible treatment options including mechanical, chemical and biological
3. For each treatment option list
    a. Pros and cons
    b. Both positive and negative effects and impacts. Refer to examples below:
        i. Effect = undesirable species reduced; impact = increased forage
        ii. Effect = soil erosion reduced from 25 tons/year to 10 tons/year; impact = savings of 15 tons/year
    c. Treatment costs and equipment needed
    d. Management required before, during and after treatment
    e. Necessary permits
4. Recommended treatment
5. Present finding to landowner

Phase III – Project Implementation & Evaluation

During Phase III, specifications for brush management are finalized, the project is completed, monitored and evaluated. The planner and landowner understand the results and a better understanding of future brush management projects.

1. Document landowner decisions for the project
2. Develop specifications for the project including
    a. Material and construction specs including treatment method and timing.
    b. Timing & schedule of necessary management before, during and after treatment
    c. Identify conditions where follow up treatment is recommended or not allowed
    d. Maps, drawings and narratives that identify areas to be treated, pattern of treatment and areas that will not be disturbed
    e. Necessary associated practices including fencing, seeding and planting
3. Develop a monitoring plan that identifies
    a. What should be measured (including timing and frequency)
    b. Pre-treatment and post-treatment measurements, and the net results
4. Document treatment activities using narrative and photographic methods
5. Complete post-treatment monitoring and evaluate
    a. Whether the objectives were met
    b. Net results
    c. How the implementation of this project could have been improved

Methods of Treatment

A. Mechanical
    a. Operation will be completed prior to any seed set of the species being controlled during the season of control.
    b. For sagebrush summer is the optimum time for mechanical treatment
    c. May include mowing/beating equipment (flail-type rotary or circular beaters, saw-type equipment), railing and chaining
    d. On slopes less than 30 percent
    e. For mechanical treatment, plans and specifications shall include
        i. Map of treated and untreated areas
        ii. Types of equipment and dates of treatment
        iii. Operating instructions
        iv. Mowing height or plowing depth

B. Chemical
    a. Operator shall follow all federal, state and local regulations covering the use of pesticides
    b. All herbicides will be applied in accordance with the manufacturer's label.
    c. For aerial application wind speed shall not exceed 7 miles per hour. Daytime temperatures should be between 60 & 70 degrees, and night temperatures above 40 degrees
    d. To achieve a control level of 80 percent, the application of herbicides must be made during a period of high physiological activity. Temperature and soil moisture conditions should ensure that rapid growth will continue for three to ten days following application. Generaly, soil moisture should be at field capacity to eighteen inches.
    e. The rates and timing of application may be adjusted as necessary to meet project objectives.
    f. For chemical treatment, plans and specifications shall include
        i. Map showing treated areas and untreated areas. Also an indication of how these areas will be marked on the ground
        ii. Applicable treatment references for containment and management or control of target species
        iii. As chosen by landowner and their consultant – herbicide name, rate of application, and mixing instructions
        iv. Acceptable dates of application
        v. Evaluation and interpretation of herbicide risks using WIN-PST
        vi. Any special application techniques, timing considerations or other factors that must be considered to ensure the safest, most effective application of the herbcide

C. Biological
    a. For biological treatment, plans and specifications shall include
        i. Applicable biological treatment references for containment and management of target species
        ii. Kind of biological agent or grazing animal to be used
        iii. Timing, duration and intensity of grazing or browsing
        iv. Degree of grazing or browsing use for effective control of targeted species
        v. Maximum allowable degree of use on desirable non-target species
        vi. Special precautions or requirements when using insects or plants as control agents

Requirements for Brush management

The purpose of brush management is to reduce undesirable species and to release desirable species for reasons of economics, habitat, or other reasons. So, the conditions for the proposed project must meet the below listed general requirements and also the more specific land use requirements which are also listed below:

General Requirements for Brush Management

A. Undesirable plant species must exceed natural or climax conditions by a significant margin (more than twice)
B. When the primary use is by domestic livestock, the objective may be to reduce the amount and distribution of brush to approximate what is natural for the site
C. When wildlife is an important concern, the objective may be to maintain more brush than is natural for the site
D. The species to be released needs to be of sufficient quantity and vigor to warrant the control measures. Refer to specific land use conditions below.
E. To ensure requirement E. is met, prescribed grazing shall be implemented at least two years prior to treatment.
F. Management of the project area, both before and after treatment, needs to be planned and discussed with the landowner and operator. This must be implemented to achieve the desired results.
G. The phenological development of both the plants being treated and the plants being favored is of prime importance. Select the time when the species to be treated are most vulnerable to the specific treatment being used, and when non-target plants and animals are less susceptible. For growth regulating chemical this is the time of most active growth. Mechanical treatment is most successful just prior to seed maturity when root reserves are lowest.

Requirements for Brush Management on Rangeland

1. Desirable functional group(s) of grasses being released must be in good vigor and provide 15% or more by weight of the plant community. The desirable grass group is perennial cool season mid-grass decreasers as listed in the ecological site descriptions.
2. On rangelands, prescribed grazing shall be applied for at least two year prior to treatment. Also, rest shall be applied the year before treatment and the year of treatment. The treated area shall be deferred until after seed shatter the second growing season after treatment.
3. Within sage grouse and sharp-tailed areas, brush management criteria will be used to protect their habitat
4. Site-specific conditions may require adaptation of the criteria to best maintain the best possible sage grouse habitat
5. Derivations or exclusions to the criteria must have prior approval by the State Resource Conservationist
6. The NRCS State Biologist and appropriate WDFW, USFWS and tribal biologists will be immediately informed so they can be involved during the planning process
7. Inform the landowner that time will be required to locate leks, nesting brood-rearing and wintering areas, and to measure sagebrush canopy and understory plants. No shrubs will be eliminated during the evaluation period

8. Guidelines to follow to protect sage grouse habitat:
    a. Sagebrush will NOT be controlled within one-hale mile radius of any active sage grouse lek. Improve the plant community via prescribed grazing

    b. Wintering areas for sage grouse are usually of limited extent, 100 acres or less. Shrubs will NOT be controlled on known wintering areas
    c. An irregularly-shaped strip of untreated sagebrush approximately 100 yards wide will be left on each side of streams, shrubby intermittent watercourses, grassy meadows and other riparian areas

    d. Sagebrush will NOT be controlled within one-half to a two-mile radius of an active lek unless sagebrush canopy exceeds 25% canopy cover. Design the project to:
        i. Leave a minimum of 12% live canopy, or
        ii. Leave one-third of the area untreated
        iii. Achieve the optimum amount of habitat and edge for the birds
        iv. Consider habitat needs, terrain, density of sagebrush and ecological sites
        v. Implement in irregularly-shaped patches rather than a pattern of treated and untreated strips
        vi. Leave at least one strip of sagebrush, 100 yards wide, to serve as a movement corridor. Use irregular pattern as mentioned above
        vii. To the extent possible, improve range condition, meet the critical habitat needs of the birds, and the desires of the operator

    e. Outside the two-mile radius form the lek the NRCS will not assist with sagebrush control unless live canopy cover exceeds 20%. The objective is to achieve excellent ecological condition

Requirements for Brush Management on Forestland (placeholder)

Requirements for Brush Management on Pastureland

It is usually desirable to exclude brush on pastureland except for odd areas and patches left for shade, wildlife or esthetics. Consider the costs of treatment and the expected return to see if the project is feasible.

Requirements for Brush Management in Western Washington (placeholder)