

**NATURAL RESOURCES CONSERVATION SERVICE
WYOMING CONSERVATION PRACTICE SPECIFICATION
BRUSH MANAGEMENT (ACRE)**

CODE 314

DEFINITION AND PURPOSE: The work will consist of removal, reduction, or manipulation of non-herbaceous plants (including succulents) with burning, chemical, mechanical, or biological methods to restore natural plant community balance, create a desired plant community, restore desired vegetative cover for soil quality, water quality, and enhancement of stream flow, maintain or enhance wildlife habitat, improve forage accessibility, quality, and quantity for livestock, and/or manage fuel loads.

PLANNING AND GENERAL REQUIREMENTS: All brush management practices in Wyoming have the potential to affect wildlife habitat. All brush management plans will be made in consultation with Wyoming Game and Fish Department, and other appropriate partner agencies.

On native rangeland areas, brush management treatments will be used to control, contain, or eradicate undesirable woody and/or succulent vegetation. Use Ecological Site Description (ESD) State and Transition model to determine if proposed actions are ecologically sound and defensible. If an ESD is not available, base design criteria on best approximation of native plant community composition, structure, and function. Treatments need to be compatible with dynamics of the ecological site(s) and targeted towards vegetative states that have the potential and capability to support the desired plant community.

It is the responsibility of the owner to obtain all necessary permits and/or rights, and to comply with all regulations and laws pertaining to the installation of this practice. On federal, state, or tribal lands, the landowner/lessee must have clearances and approvals or permits from the responsible permitting agency prior to any implementation.

Before any soil disturbance occurs, the area of potential effect for each undertaking must be investigated for cultural resources under Section 106 of the National Historical Preservation Act (1966), as amended.

The NRCS must determine if installation of this practice will affect any federal, tribal, or state-listed Endangered, Threatened, Proposed, or Candidate species or their habitat prior to application or construction. If this action may affect a listed species or result in modification of critical habitat, the NRCS will advise the land user of the requirements of the Endangered Species Act and recommend alternative conservation treatments that avoid adverse effects. Further assistance will be provided only if the land user selects one of the alternative conservation treatments for installation; or at the request of the landowner, the NRCS may initiate consultation with the U.S. Fish and Wildlife Service.

If during installation, any cultural resources, historic properties, Endangered, Threatened, Proposed or Candidate species are found, the landowner/lessee agrees to stop all work and immediately notify the NRCS.

Brush management may be applied to the following species:

1. Native Species

Ponderosa pine *Pinus ponderosa*

Juniper species *Juniperus spp.*

Fringed sagewort *Artemisia frigida*

Big sagebrush *Artemisia tridentata (and subspecies)*

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Silver sagebrush *Artemisia cana*

Western or common snowberry *Symphoricarpos occidentalis* or *S. albus*

Plains pricklypear *Opuntia polyacantha*

Broom snakeweed *Gutierrezia sarothrae*

Rabbitbrush species *Chrysothamnus spp.* or *Ericameria spp.*

Mountain mahogany species *Cercocarpus spp.*

2. Introduced Species

Russian olive *Elaeagnus angustifolia*

Tamarisk *Tamarix spp.*

Non-herbaceous species not contained in the above list may be treated after consultation and written approval of the state resource conservationist, state rangeland management specialist, or state biologist.

I. TREATMENT METHODS:

NRCS will not develop biological or chemical treatment recommendations except for biological control utilizing grazing animals. NRCS may provide clients with acceptable biological and/or chemical control references.

Many species are best contained, controlled, or eradicated by burning or by a combination of burning and chemical, mechanical, or biological treatments. Refer to FOTG, Section IV Practice Standards and Specifications, 338-Prescribed Burning when fire is used as a treatment alternative.

A. Chemical Treatment

Specifications for the kind of chemical, methods, and time of application will be in accordance with the herbicide label and the latest edition of *Montana * Utah * Wyoming Weed Management Handbook*.

Dates of chemical application must coincide with the proper growth stage(s) of the target species.

Diesel carriers may be used for spot treatment applications including stump painting with chemical and diesel mixes, or straight diesel. Due to potential negative impacts on wildlife and other resources, when a broadcast spray application method is used (ground or aerial), diesel will not be used, either alone or in combination with other chemicals.

Aerial Application: Flight must be low enough to obtain proper distribution and coverage and be made when wind velocities are low enough to prevent drift into sensitive areas. Where water is used as a carrier, commercial wetting agents will be used according to manufacturer's recommendations.

Caution cooperators using chemical herbicides as follows: If pesticides are handled or applied improperly, or if unused portions are not disposed of safely, they may be injurious to humans, domestic animals, desirable plants, and fish or other wildlife, and they may contaminate water supplies. Drift from aerial spraying can contaminate nearby crops and other vegetation. Follow the directions and heed all precautions on the container label.

B. Mechanical Treatment

Equipment will consist of mowers, choppers, beaters, bulldozers, blades, rails, chains, or other suitable equipment, as appropriate to the site and target species. The optimum season or

date(s) for the treatment selected will be outlined in the specification. Erosion protection needed during and after treatment will be addressed. Specific treatments will list the techniques or procedures to be followed, including the handling of residue.

C. Biological Treatment

Grazing with alternative kinds of livestock, particularly browsers such as sheep or goats, during critical growth stages of target plants can be effective control for certain species. The hoof action associated with winter-feeding of livestock may also effectively reduce some brush species. Specifications for biological treatment will be developed based on the individual problems of the area, and available research data. Specific treatments will address the kind of grazing/browsing animal to be used; timing, duration, and intensity of grazing or browsing; desired degree of grazing or browsing use for effective control of target species; and maximum allowable degree of use on desirable non-target species.

II. SPECIES SPECIFIC TREATMENT RECOMMENDATIONS:

A. Native Species

Ponderosa Pine: Mechanical methods such as cutting individual trees or dozing are effective but more labor and cost intensive. Chemical methods are also available but are generally cost prohibitive. Prescribed burning may be the least cost alternative.

Thinning to achieve stands of commercial timber, where applicable, may provide additional income while maintaining the desirable understory vegetation. See FOTG, Section IV Practice Standards and Specifications, 666–Forest Stand Improvement.

Juniper species: Mechanical methods such as cutting individual trees, dozing, chaining, and cabling are effective but labor and/or cost intensive. Chemical methods are also available but are generally less cost effective. Prescribed burning may be the least cost alternative.

Use Caution When Planning Treatment of the Following Species:

High density, canopy cover, or production of the following species is often indicative of improper grazing management sometime in the past. Manipulation treatments should only be applied if prescribed grazing is planned to assure the success of treatment, and the desired plant community following treatment. Native brush species provide valuable food and cover for wildlife, and the potential impacts to wildlife species of concern must be addressed in the plan before applying treatment.

Brush management for the following species with less than 25% canopy cover shall not be recommended. For plains pricklypear this “canopy” includes pads, spines and any area within two and three quarter ($2\frac{3}{4}$) inches of a spine.

Fringed sagewort: Chemical control is preferred due to this species’ ability to sprout from roots and plant bases following burning or mechanical treatment. Utilizing alternative grazing animals such as sheep and goats can be effective in controlling this species.

Big sagebrush: Chemical control is effective. Correct timing of treatments is important to assure best control, and to lessen impacts to non-target species.

Prescribed burning is very effective. Expect mountain big sagebrush to re-populate within 15-30 years. Wyoming & basin big sagebrush may take generations to re-populate the area.

Utilizing alternative grazing animals such as sheep and goats can be effective in controlling this species.

Mechanical methods such as chaining or cabling are not as effective, are higher cost, and cause soil disturbance. Brush manipulation can also be done with a “Lawson” style aerator. Mowing at approximately an 8 inch height can reduce canopy cover and may increase leader growth of big sagebrush.

When planning for sagebrush dependent wildlife species, additional planning guidance can be found in Governor Mead’s Sage-Grouse Executive Order (2015-4) and Governor Mead’s Direction on Greater Sage-Grouse Mitigation & Wyoming’s Greater Sage-Grouse Mitigation Assessment located at the Wyoming Game & Fish Website:

<https://wgfd.wyo.gov/Habitat/Sage-Grouse-Management>

Silver sagebrush: Chemical control is preferred due to this species’ ability to sprout from roots and plant bases following burning or mechanical treatment. Utilizing alternative grazing animals such as sheep and goats can be effective in controlling this species.

Plains pricklypear: Chemical control methods generally produce the best control. Dense stands can be reduced by blading in the dormant season just at or slightly below the soil surface into windrows. Windrows must be turned the following year to prevent bladed pads from re-establishing. From blading, expect no more than 75-80% reduction after five years.

Broom snakeweed: This species is cyclical in its occurrence, so feasibility of treatment must be carefully considered. Chemical control is effective.

Rabbitbrush species: Chemical control is preferred due to this species’ ability to sprout from roots and plant bases following mechanical treatment. Repeated annual mechanical treatment in the summer (before flowering) can control or eradicate the species (2-3 years of treatments).

Western or common snowberry: Utilizing alternative grazing animals such as sheep and goats can be effective in controlling this species. Intensive prescribed grazing with cattle directly within colonies of this species will provide adequate control. Hoof action associated with winter-feeding may also be effective. Chemical methods are effective as this species has the ability to sprout from roots and plant bases.

Mountain mahogany: Prescribed burning (338) can be an effective tool to rejuvenate decadent (clubbed) stands of mountain mahogany. Mechanical treatment would also be effective but terrain usually precludes that alternative. Hand cutting has also proven effective but is labor intensive.

B. Introduced Species:

Russian olive: Chemical control methods generally produce the best control. Mechanical methods such as cutting individual trees, dozing, and cabling are effective but labor and cost intensive. Stumps of individually sawn trees should be chemically treated to prevent sprouting, unless chemical control of regrowth is planned. Control is most effective where trees are less than five feet in height. Plants may sprout after treatment.

Submergence in water where feasible for 28 months will reduce light to moderate stands. Inundate plants for one entire growing season, and over half of the next two growing seasons.

Tamarisk: This species is an aggressive sprouter. Effective control of medium to heavy stands can be accomplished by chemical treatments or a combination of root plowing, burning, and chemicals. Cutting down tamarisk and treating the stump with herbicides is very effective but is labor intensive. Root plow 12 to 18 inches below soil surface. Pile and burn treated vegetation to prevent re-sprouting: follow-up with chemical treatments on regrowth.

Submergence in water where feasible for 28 months will reduce light to moderate stands. Inundate plants for one entire growing season, and over half of the next two growing seasons.

III. MANAGEMENT FOLLOWING TREATMENT:

If the area is grazed by livestock, the treatment area will be deferred from livestock grazing for the entire growing season (spring green up until seed set of key species each spring and summer) for a *minimum of one year* if the area receives at least 10 inches average annual precipitation and a *minimum of two years* if the area receives less than 10 inches average annual precipitation following the treatment except for a specific kind of browsing animal being used as a biological control method. Additional periods of livestock deferral may be needed prior to treatment application based on the treatment method used. ***(Brush management of Ponderosa pine, Juniper species, Russian olive, and Saltcedar is excluded from this deferral requirement.)***

If chemical methods of treatment are used, all label restrictions concerning grazing, haying, or other uses will be applied.

If there is a compelling reason to use browsing animals for a specific vegetation modification purpose during the deferral period, the browsing plan and expected results will be clearly described in accordance with specifications for FOTG, Section IV Practice Standards and Specifications, 528–Prescribed Grazing

Drought following treatment, low vigor of desirable grasses, invasion of the treated area by undesirable plants, and/or other abnormal conditions may make it desirable to extend the deferral beyond the above requirements. If any of these conditions exist, the NRCS conservationist will inform the cooperators of required extended additional deferral periods.

The manner in which the forage species will be grazed following the deferral period will be in accordance with specifications for FOTG, Section IV Practice Standards and Specifications, 528–Prescribed Grazing.

IV. MONITORING:

Collecting post-treatment data is necessary to determine efficacy (% cover removed) and to determine if objectives have been met. In general, measure cover (foliar or canopy) before and after treatment using continuous line intercept or other acceptable method.

Other methods may be desired depending on the treatment objectives. Refer to the Wyoming Rangeland Monitoring Guide for additional methods.

V. OPERATION AND MAINTENANCE:

The life of this practice can be assured or extended by thorough and timely operation and maintenance. Some recommendations to help develop a successful operation and maintenance program include:

- Prescribed Grazing shall be applied to ensure desired response from treatments.
- Following initial application, some regrowth, sprouting, or reoccurrence of brush should be expected and planned for.
- Spot treatment of individual plants or areas will be done as needed.
- In some situations, it may be appropriate to apply a maintenance treatment following a previous brush management treatment, to extend the life of the practice and achieve desired long-term objectives.