

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
BRUSH MANAGEMENT

(Ac.)

CODE 314

DEFINITION

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

PURPOSE

This practice may be applied for one or more of the following purposes:

1. Create the desired plant community consistent with the ecological site;
2. Restore or release desired vegetative cover to protect soil, control erosion, reduce sedimentation, improve water quality, or enhance stream flow;
3. Maintain, modify, or enhance fish and wildlife habitat;
4. Improve forage accessibility, quality, and quantity for livestock and wildlife;
5. Manage fuel loads to achieve desired conditions;
6. Control pervasive plant species to a desired level of treatment that will ultimately contribute to creation or maintenance of an ecological site description "steady state," addressing the need for forage, wildlife habitat, and/or water quality.

CONDITIONS WHERE PRACTICE APPLIES

On all lands except active cropland where the removal, reduction, or manipulation of woody (non-herbaceous or succulent) plants is desired.

This practice does not apply to removal of woody vegetation by prescribed fire (refer to Prescribed Burning, Code 338) or removal of woody vegetation to facilitate a land use change.

When the intent is to manage trees for silvicultural purposes, use Forest Stand Improvement (666) to remove undesirable woody species and manage the stocking rate, as applicable.

CRITERIA

General Criteria Applicable to All Purposes

Brush management will be planned to achieve the desired plant community based on species composition, structure, density, and canopy (or foliar) cover or height.

Brush management shall be applied in a manner to achieve the desired control of the target woody species and protection of desired species. This shall be accomplished by mechanical, chemical, or biological methods, either alone or in combination.

Preference shall be given to the use of brush control methods having the lowest potential hazard to humans, domestic animals, and the natural environment. Use non-herbicide methods of brush management to the extent feasible.

All applicable federal, state, and local permits and approvals shall be obtained before implementing brush management.

Success of the practice shall be determined by evaluating regrowth or reoccurrence of target species after sufficient time has passed to monitor the site and gather reliable data. Evaluation periods will depend on the species to

be controlled and the methods and materials used.

NRCS will not develop biological or chemical treatment recommendations, except for biological control utilizing grazing animals. In such cases, use Prescribed Grazing (528) in addition to this practice to ensure that desired results are achieved and maintained.

NRCS may provide clients with acceptable biological and/or chemical control references to achieve identified management objectives. Refer to Delaware Cooperative Extension recommendations (<http://extension.udel.edu/ag/weed-science/>) for the species being treated when selecting the appropriate method, timing, and management to achieve the desired results.

Biological control must conform to release standards when using species other than grazing animals as control agents. All necessary local, state, or other permits must be obtained prior to release of the control agent.

When herbicides are used, site-specific application criteria listed on pesticide labels and contained in Cooperative Extension and other approved pest management references must be followed. For specific herbicide recommendations, contact the appropriate specialist from Delaware Cooperative Extension.

Brush shall be disposed of in a manner consistent with maintaining a quality environment, based on the site conditions and the objectives of the land user. Disposal of brush shall not interfere with the establishment of desired plants and future maintenance of the area.

Additional Criteria for Creating the Desired Plant Community Consistent with the Ecological Site

Use the ecological site description “steady state” to develop specifications that are ecologically sound and defensible. Treatments must be congruent with dynamics of the ecological site(s) and keyed to state and plant community phases that have the potential and capability to support the desired plant community. Base specifications on the best approximation of the desired plant community composition, structure, and function.

Additional treatments will be planned and applied as needed to achieve effective control of pervasive plant species through reapplication.

Additional Criteria for Restoring or Releasing Desired Vegetative Cover to Protect Soil, Control Erosion, Reduce Sedimentation, Improve Water Quality, or Enhance Stream Flow

Plan and apply brush management in a manner that minimizes soil disturbance on sites where erosion is currently occurring, or has the potential to occur when brush management is implemented. Use additional conservation practices as needed to protect the soil and prevent erosion.

Additional Criteria to Maintain, Modify, or Enhance Fish and Wildlife Habitat

Plan and apply brush management to meet the habitat requirements for wildlife species of concern, as determined by an approved habitat evaluation procedure.

Conduct treatments during periods of the year that accommodate reproduction and other life-cycle requirements of desired wildlife and pollinator species, and in accordance with specifications developed for Wetland Wildlife Habitat Management (644) and Upland Wildlife Habitat Management (645), as applicable.

If the area is to be replanted, select plant species that are beneficial to wildlife and native to Delaware, or are introduced and are non-invasive (i.e., not likely to spread beyond the planted area and displace native species). Selection of native species shall be a priority when feasible. Refer to the conservation practice standard Conservation Cover (327) for a list of recommended herbaceous plantings, and to Tree/Shrub Establishment (612) for a selected list of native tree and shrub species that may be used.

Additional Criteria to Improve Forage Accessibility, Quality, and Quantity for Livestock and Wildlife

Plan the timing and sequence of brush management in coordination with specifications developed for Prescribed Grazing (528).

Additional Criteria to Manage Fuel Loads to Achieve Desired Conditions

Control undesirable woody plants in a manner that creates the desired plant community, including the desired fuel load, to reduce the risk of wildfire, and to facilitate the future application of prescribed fire.

Note: Specific programs may dictate criteria in addition to, or more restrictive than, those specified in this standard.

CONSIDERATIONS

Consider using Integrated Pest Management (595) as a supporting practice with brush management.

Consider the species of brush to be controlled, the possible methods of control, and timing and duration of treatment needed to achieve the desired results. Some brush management activities can be effective when applied within a single year. Others may require multiple years of treatment(s) to achieve desired objectives. If replanting the area is planned, consider how these factors will affect establishing the desired species.

Consider the potential for soil erosion and difficulty of re-establishing vegetation when choosing a method of control that causes soil disturbance.

For air quality purposes, consider using chemical methods of brush management that minimize chemical drift and excessive chemical usage. Consider mechanical methods of brush management that minimize the dispersal of particulate matter into the air.

Consider impacts to wildlife species, food, and cover availability when planning the method and amount of brush management. Treatments that create a mosaic pattern may be the most desirable.

In a pasture system, consider the timing and sequence of brush management to ensure the availability, quality, and quantity of needed forage.

Identify and evaluate other constraints such as management options, economic feasibility, access, or program requirements.

This practice has the potential to affect National Register listed cultural resources or eligible (significant) cultural resources. These may include archeological, historic, or traditional cultural properties. Care should be taken to avoid adverse impacts to these resources. Follow NRCS state policy for considering cultural resources during planning.

PLANS AND SPECIFICATIONS

Plans and specifications for this practice shall be prepared in accordance with the previously listed criteria. Plans and specifications shall contain sufficient detail to ensure successful implementation of this practice, and may be recorded in narrative form, on Implementation Requirements (IR) worksheets, on fact sheets, or other approved forms.

The appropriate fact sheet(s) and completed 314 IR worksheet can serve as the plan and specifications for this practice. The following items shall be addressed, as appropriate:

1. Purpose(s) of brush management;
2. Plan map and soil map for the site;
3. Method(s) to be used and brush species to be controlled;
4. Pre-treatment cover or density of the target plant(s), and the planned post-treatment cover or density (goal);
5. Maps, drawings, and/or narratives identifying areas to be treated, pattern of treatment (if applicable), and areas that will not be disturbed;
6. A monitoring plan that identifies what shall be measured, including timing and frequency, and the changes in the plant community that will be achieved.

For Mechanical Treatment Methods. In addition, the following components shall be included in a plan for mechanical treatment:

1. Acceptable mechanical treatment references for containment and management of target species;
2. Type(s) of equipment needed;
3. Dates for effective treatment;
4. Operating instructions (if applicable);
5. Techniques and procedures to be followed.

For Chemical Treatment Methods. In addition, the following components shall be included in a plan when chemicals are utilized:

1. Acceptable chemical treatment references for containment and management of target species;
2. Evaluation and interpretation of herbicide risks associated with the selected treatment(s) using WIN-PST or other approved tools;
3. Techniques to be used, planned dates, and rates of application;
4. Any special mitigation, timing considerations, or other factors, such as soil texture and organic matter content, that must be considered to ensure the safest, most effective application of the herbicide;
5. Reference to product label instructions.

For Biological Treatment Methods. In addition, the following components shall be included in a plan with biological treatment:

1. Acceptable biological treatment references for containment and management of the targeted species;
2. Kind and number of biological agents or grazing animals to be used;
3. Timing, frequency, duration, and intensity of grazing or browsing, if used;

4. Desired degree of grazing or browsing use for effective control of targeted species;
5. Maximum allowable degree of use on desirable non-targeted species;
6. Special mitigation, precautions, or requirements associated with the selected treatment(s).

OPERATION AND MAINTENANCE

An Operation and Management (O&M) plan shall be prepared and is the responsibility of the client to implement. The appropriate fact sheet(s) and IR worksheet may serve as the management plan, as well as supporting documentation, and shall be reviewed with and provided to the client.

At a minimum, the following components shall be addressed in the O&M plan, as applicable:

1. Apply brush management practices using approved materials and procedures. Comply with all local, state, and federal laws and ordinances;
2. Inspect the area after treatment to assess the effectiveness of brush management, and then at least annually thereafter, to the extent feasible. Following initial treatment, some regrowth, resprouting, or reoccurrence of brush may be expected. As needed, use spot treatment of individual plants or areas needing re-treatment when undesirable plants are most vulnerable to treatment procedures;
3. When chemical treatment is used:
 - a. Anyone buying or using a restricted use pesticide must be certified by the Delaware Department of Agriculture (DDA). Anyone in the business of applying pesticides, either restricted use or general use, to the land or property of another must be certified and obtain a Pesticide Business License from the DDA;
 - b. Read and follow label directions. Labels include requirements for mixing/loading, and application setbacks from wells, water courses, natural or impounded water

bodies, wetlands, and other environmentally sensitive areas;

- c. Control livestock and human access based on the treatment methods applied and restrictions as listed on the chemical labels. Post signs, according to label directions and/or federal, state, and local laws, around fields that have been treated. Follow restricted entry intervals;
- d. Dispose of leftover herbicide and herbicide containers in accordance with label directions and adhere to federal, state, and local regulations;
- e. Maintain appropriate Material Safety Data Sheets (MSDS). MSDS and herbicide labels may be accessed at:
<http://www.cdms.net/LabelsMsds/LMDefault.aspx>;
- f. Calibrate application equipment according to recommendations before each seasonal use and with each major chemical and site change;
- g. Replace worn nozzle tips, cracked hoses, and faulty gauges on spray equipment;
- h. Maintain herbicide application records in accordance with USDA Agricultural Marketing Service's Pesticide Record-keeping Program and state-specific requirements;
- i. Develop an emergency response plan for individuals exposed to chemicals, including telephone numbers and addresses of emergency treatment centers and the telephone number for the nearest poison control center. The National Pesticide Information Center (NPIC) telephone number in Corvallis, Oregon, may also be given for non-emergency information: 1-800-858-7384, Monday to Friday, 6:30 a.m. to 4:30 p.m. Pacific Time. The national Chemical Transportation Emergency Center (CHEMTRAC) telephone number is: 1-800-424-9300.

SUPPORTING DATA AND DOCUMENTATION

The following is a list of the minimum data and documentation to be recorded in the case file:

1. Location of the practice on the conservation plan map;
2. Assistance notes. The notes shall include dates of site visits, name or initials of the person who made the visit, specifics as to alternatives discussed, decisions made, and by whom;
3. For chemical treatment, WIN-PST risk assessment and documentation of mitigation practices. The website for the WIN-PST, Windows Pesticide Screening Tool is located at:
<http://www.wsi.nrcs.usda.gov/products/W2Q/pest/winpst31.html>
4. Completed IR worksheet, and copy of the appropriate fact sheet(s) or other specifications and management plans.

REFERENCES

1. Johnson, Quintin, Mark VanGessel, Richard W. Taylor. 2015. *Pasture and Hay Weed Management Guide*. University of Delaware, Cooperative Extension.
<https://s3.amazonaws.com/udextension/ag/files/2015/01/PHWeedguide.pdf>
2. Peischel, A. and D.D. Henry, Jr., 2006. *Targeted Grazing: A Natural Approach to Vegetation Management and Landscape Enhancement*. American Sheep Industry Association.
3. USDA, Natural Resources Conservation Service. *Conservation Practice Standards*. Delaware Field Office Technical Guide, Section IV.
4. USDA, Natural Resources Conservation Service. 2005. *Prescribed Grazing with Goats*. Conservation Practice Information Sheet, NRCS, Missouri.
http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_010401.pdf
5. Virginia Cooperative Extension. 2015. *Pest Management Guide*. Virginia Tech, Pub. No. 456- 016 and 456-017.
<http://pubs.ext.vt.edu/456/456-018/456-018.html>