



Natural Resources Conservation Service
CONSERVATION PRACTICE STANDARD
TREE-SHRUB SITE PREPARATION

CODE 490

(ac)

DEFINITION

Treatment of sites to enhance the success of natural or artificial regeneration of desired trees and/or shrubs.

PURPOSE

This practice is used to accomplish one or more of the following purposes:

- Manage soil conditions, naturally available water, and seasonally high water to favor tree and shrub establishment, survival, and growth
- Modify the habitat of weeds, pests, and diseases to reduce pressure on naturally or artificially regenerated trees and shrubs
- Facilitate the establishment, survival, and growth of tree and shrub species

CONDITIONS WHERE PRACTICE APPLIES

On all lands suited to growing woody plants where current site conditions are not suitable for the natural or artificial establishment of desired trees and shrubs.

CRITERIA

General Criteria

- Use manual, mechanical or chemical methods either alone or in combination to alter woody residue, vegetation, ground cover, soil, or microsite conditions to prepare the site for planting, seeding, or natural regeneration of desired tree and shrub species. Where herbicides will be used, evaluate and interpret risks using the Windows Pesticide Screening Tool (WIN-PST) or other approved tools or guides, or use NRCS Conservation Practice Standard (CPS) Pest Management Conservation System (Code 595).
- Expose mineral soil as needed to achieve the desired distribution of plants to be established by seed for tree and shrub species that require mineral soil for germination and establishment.
- Determine method(s), intensity, and timing of site preparation activities depending on topography, and on soil and site conditions. Schedule silviculture and site preparation activities so they are completed at the optimal time prior to the commencement of planting or seeding activities, or to the initiation of natural regeneration.
- Leave woody residue in place to provide soil protection and wildlife habitat, retain soil moisture and organic matter, and protect the soil surface from temperature extremes—except where it will pose a fire hazard, increase the risk of pest damage, or interfere with management activities. Refer to NRCS CPS Woody Residue Treatment (Code 384) for criteria on the treatment, modification, placement and arrangement of woody residues.

- On soils prone to compaction or rut formation, use low ground-pressure equipment or nonmechanized site preparation methods. When preparing compacted cropland or pasture sites for tree planting, chisel, rip, and/or subsoil to mitigate compacted soil layers, as needed. Use criteria in NRCS CPS Deep Tillage (Code 324).
- Retain desirable surface and canopy cover to protect soil and site conditions. Alternatively use NRCS CPS Cover Crop (Code 340) or Critical Area Planting (Code 342) and/or other measures as needed to control erosion, runoff, and displacement from typical rainfall events.
- Do not use wheeled and tracked equipment on slopes where operability causes safety concerns or adverse impacts on soil conditions. Perform ground-disturbing site preparation activities on the contour where feasible. Restrict the use of wheeled and tracked equipment to periods when the soil is unsaturated. Use designated trails or establish a trail system as appropriate and feasible. Use NRCS CPS Forest Trails and Landings (Code 655).
- Mitigate site preparation activities near wetlands, water bodies, and in or near riparian areas to reduce negative water quality impacts.
- Follow State's best management practices for water quality.

Additional Criteria for Reducing Habitat for Harmful Pests and Diseases of Woody Plants

- Remove vegetation infected with transmittable disease (e.g., ROD infected ohia and certain root rots). Consult a the PIA State Forester or a professional forester to aid in identifying sanitation measures.
- Treat slash and woody debris so that it does not create habitat for, or harbor, harmful levels of pests. Refer to criteria in NRCS CPS Woody Residue Treatment (Code 384).
- Clean equipment and gear before and after site preparation activities where risk of spread and potential impact from invasive species or harmful pathogens is likely.

Additional Criteria for Ponding, Flooding, and Seasonally High Water

- On sites where a seasonal excess of surface water restricts the establishment or regeneration of desired and adapted trees or shrubs, use temporary water management techniques as allowable by regulation, laws, and policy as needed.
- Where temporary water management is used, limit the depth, spacing, and number of channels to the minimum amount needed to remove excess surface water for tree/shrub establishment or regeneration.
- Temporary water management channels must empty into areas where runoff will be diffused and filtered by vegetation and soils before reaching a natural water body.
- Apply water management activities, including spoil placement, in compliance with the Clean Water Act, Food Security Act, and NRCS Wetland Compliance.

CONSIDERATIONS

To reduce problems associated with insects in logging debris and the reestablishment of undesirable species, consider doing site preparation within one year after logging, followed promptly by planting or natural regeneration.

To reduce negative impacts on wildlife species and their habitat, consider the timing and extent of site preparation to minimize actions that disturb wildlife activities.

Particulates, dust, and other air pollutants generated by site preparation may have negative effects on air quality. Consider proximity to populated areas, roads, and visually sensitive areas when planning the method and timing of site preparation activities.

Where site preparation requires treatment of competing vegetation, consider alternatives to chemical treatments such as girdling, thermal applications, mulching, or solarization. Use other emerging technologies when effective and available.

Consider the need for multiple control treatments on especially pervasive weeds. Refer to criteria and repeat treatment allowances for NRCS CPS Brush Management (Code 314) and/or CPS Herbaceous Weed Treatment (Code 315) for identified pervasive weeds in the Pacific Islands.

Consider removal and disposal of woody residue from plant species that readily re-sprout from lopped stems or regenerate from material left on site when traditional treatments are unavailable or ineffective at causing mortality of residues.

When excessively large quantities of woody residue is expected, consider the need for a temporary trail and landing system to move and consolidate excess material. Refer to criteria in NRCS CPS Forest Trails and Landings (Code 655).

When evaluating treatment methods, consider site limitations such as steep slopes, hidden gullies and tree holes, cobble and boulders embedded in soil, recent or young lava flows, seasonal waterways and other access issues that may be challenging or prohibitive to certain types of equipment or present safety concerns for work crews.

Protect from or minimize damage to desirable vegetation that will remain in place.

PLANS AND SPECIFICATIONS

Prepare plans and specifications for site preparation in accordance with this standard. Clearly describe the requirements for applying the practice to achieve its intended purpose. As a minimum, include the following in the implementation requirements document:

- Maps, drawings, and narratives, showing areas to be treated, and showing details of the layout of site preparation activities relative to streams, wetlands, or water bodies, underground or overhead utilities, existing access or other infrastructure, etc., as applicable.
- Description of existing land use and vegetative cover.
- Description of site preparation methods to be used and application dates.
- Description of mitigations for compaction, erosion, soil organic matter removal, and any other anticipated site impacts.
- State whether site preparation is for natural or artificial regeneration. If artificial, provide the planned date for tree planting, timed appropriately relative to site preparation.
- Details on undesirable plant species to be treated and control methods to be used.
- Description of contingency plans in case of flooding or other disturbances that impact implementation schedules or mitigations.
- References to other conservation practice specifications, if applicable.

OPERATION AND MAINTENANCE

Operation

Site preparation operations will comply with all local, State, and Federal laws and ordinances, and with State's forestry best management practices for water quality.

For site preparation using herbicides, the operator will develop a safety 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 nonemergency 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.

- 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 herbicides 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.
- Calibrate application equipment according to recommendations before each seasonal use and with each major chemical and site change.
- Replace worn nozzle tips, cracked hoses, and faulty gauges on spray equipment.
- Herbicide application records shall be kept in accordance with USDA Agricultural Marketing Service's Pesticide Recordkeeping Program and State-specific requirements.

Determine the success of the practice by evaluating post-treatment conditions and verifying that they are suitable for the establishment of desired trees and shrubs.

Maintenance

Following initial application, some regrowth, sprouting, or reoccurrence of undesirable plants may be expected. Spot treatment of individual plants or areas needing retreatment should be completed as needed while woody vegetation is small and can be most successfully treated, during the lifespan of this practice. This includes maintaining erosion control measures as necessary and controlling access by vehicles, wildlife, or livestock, to support successful establishment of this practice.

REFERENCES

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