NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

FOREST SITE PREPARATION
(Acre)
CODE 490

DEFINITION

Treating areas to encourage natural regeneration of desirable trees and shrubs or to permit artificial regeneration by planting or direct seeding.

PURPOSES

To prepare land for establishing a stand of desirable woody vegetation by controlling undesirable vegetation, removing slash and debris, or altering site conditions.

CONDITIONS WHERE PRACTICE APPLIES

In understocked areas, in areas where a land cover change to forest is desired, or in areas having undesirable vegetation that inhibits or competes with preferred woody species.

CRITERIA

The method, intensity and timing of site preparation will match the limitations of the site, safety, and equipment and the requirements of the regeneration species.

An appropriate site preparation method will be chosen to protect any desirable vegetation in understocked areas.

Remaining slash and debris shall not create habitat for or harbor harmful levels of pests.

Remaining slash and debris shall not hinder needed equipment operations or create undue fire hazard.

Accelerated erosion and/or runoff from site preparation will be controlled by supporting practices.

Comply with applicable laws and regulations, including the state's Best Management Practices (BMPs).

CONSIDERATIONS

The chosen method should be cost effective and protect cultural resources, wildlife habitat, springs, seeps, wetlands and other unique areas.

Use the practice only on the better soils where topography and erosion hazard permit.

Be certain that openings are not a result of restrictive, shallow soils, or of other conditions such as wetness.

Wildlife should be recognized as a limiting factor in restocking some areas.

Eliminate fire hazard in heavy slash areas. Fell residual trees and snags that do not have a value. Where brush removal is necessary, see Brush Management – Specification 314. Old fields should be worked in the fall, or summer-fallowed where heavy sod will compete with seeding. Cultivation methods will vary with soils and topography. Competition for summer moisture by grasses and other plants should be reduced to a minimum consistent with erosion control.

Planning Considerations

Direct Seeding:

Adequate seed source must be present. If not, consider tree planting or direct seeding.

Seed crops of tree species are sporadic and good seed years can be expected about as follows:

Ponderosa pine	5-7 years
Douglas-fir	3-5 years
White fir	1-2 years
Lodgepole pine	1-2 years
Western white pine	2-4 years
Redwood	1-2 years

The quality of the seed crop will have to be determined by observation in the field.

Scarify in the early fall of a good seed year if natural reproduction is to be relied upon to secure stocking.

Site Preparation Methods:

Tractor Disking: A tractor drawn cultivator can be used to prepare the site on level ground or slopes up to 35%. This method is effective in controlling herbaceous plants and small shrubs. This method is limited by the presence of large rocks, stumps, downed logs, and large amounts of logging residue.

Tractor Piling and Burning: On level ground or slopes up to 35% with crawler tractors equipped with a blade or brush rake are used to pile woody debris after logging or fire or to clear and pile brush covered sites. Normally, the debris is piled along the contour to minimize erosion in rows about 4 to 6 feet high and at least 15 feet apart. As little soil as possible should be incorporated in the piles. After properly drying piles are burned to reduce fire hazards and to minimize habitat for rodents other small animals, which may feed upon tree seedlings. This method is effective in controlling herbaceous plants and small shrubs. This method is limited by the presence of large rocks.

Tractor Crushing and Broadcast Burning: Tractors break down the brush and shrubs by running over it or using anchor chains or cables. Most of the tops are killed, and because they are near the ground, burn almost completely. This method is limited to areas with less than 35% slopes. Steeper areas can be treated through the use of specialized devices, such as anchor chains with large rolling balls.

Mastication: The use of a mechanical piece of equipment which shreds material (brush, trees, etc) by the use of a rotary head with teeth or chains. The head is normally attached to an excavator.

Broadcast Burning: No preparatory treatment is done other than to install fire lines around the perimeter of the burn area.

Herbicide Application: Vegetation is controlled using various California State Food and Agriculture approved herbicides.

Herbicide Application and Broadcast Burning: This technique is normally used when there is a substantial amount of brush. The brush is treated, allowed to die and dry out, and then burned. The herbicide treatment kills the tops of the brush so that they will burn completely. If the species is a sprouting species resprouting may be a problem. This method is an effective means of site preparation of brushfields on steep slopes.

Scalping or Hand Scalping: The removal of litter and grass sod in circular patches where the trees are to be planted. It is applicable only where grasses and forbs are the primary competitors, or where the ground is covered with duff and litter. Grasses bordering the scalped areas usually have root systems capable of rapidly depleting the soil moisture stored in the scalped areas.

When chemicals restricted by federal, state or local authorities are used clients will have to obtain a written recommendation prepared by a state licensed Pest Control Advisor (PCA) and obtain necessary permits and prior clearance from the County Agricultural Commissioner before the application of the herbicide.

Clients will have to obtain permits and prior clearance from the California Department of Forestry and Fire Protection (CDF) or responsible fire district and the Air Pollution Control District prior to burning.

Water Quantity

1. Effects on the water budget, especially on runoff and ground water recharge.

2. Effects of the volume of downstream flow on environmental, social, and economic values.

3. Effects on downstream flows or aquifers that could affect other water uses or users.

Water Quality

1. Effects on erosion and the movement of sediment and soluble and sediment-attached substance that would be carried by runoff.

2. Effects on the movement of dissolved solids to ground water.

3. Effects on wetlands or water-related wildlife habitats.

4. Effects on visual quality of water resources.

Endangered Species Considerations

Determine if installation of this practice with any others proposed will have any effect on any federal or state listed Rare, Threatened or Endangered species or

their habitat. NRCS's objective is to benefit these species and others of concern or at least not have any adverse effect on a listed species.

If the Environmental Evaluation indicates the action may adversely affect a listed species or result in adverse modification of habitat of listed species which has been determined to be critical habitat, NRCS will advise the land user of the requirements of the Endangered Species Act and recommend alternative conservation treatments that avoid the adverse effects. Further assistance will be provided only if the landowner selects one of the alternative conservation treatments for installation; or at the request of the landowners, NRCS may initiate consultation with the Fish and Wildlife Service, National Marine Fisheries Service and/or California Department of Fish and Game. If the Environmental Evaluation indicates the action will not affect a listed species or result in adverse modification of critical habitat, consultation generally will not apply and usually would not be initiated. Document any special considerations for endangered species in the Practice Requirements Worksheet.

Some species are year-round residents in some streams, such as, freshwater shrimp. Other species, such as steelhead and salmon, utilize streams during various seasons. Be aware that critical periods, such as spawning, eggs in gravels, and rearing of young may preclude activities in the stream that may directly affect the stream habitat during those periods. For example there should be no disturbance of stream gravel beds that may have eggs in them. That could include any equipment in the stream or even walking in the stream or work upstream that may result in sediment depositing in the gravel beds. Document any special considerations for endangered species in the Practice Requirements Worksheet.

PLANS AND SPECIFICATIONS

Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, or other acceptable documentation.

Plans and specifications will address species; method of preparation; and protection required for seed, seedlings, or cuttings; and protection of the site.

Specifications Guide

Prepare a seedbed, which exposes sufficient mineral soil to secure a well-stocked stand. Rough disking or scarification is generally adequate. Brush competition must be eliminated.

Eliminate undesirable seed source.

Eliminate natural reproduction of undesirable species until desirable seedlings are well established.

It will probably be necessary to control rodents. Protect from grazing by livestock until seedlings are high enough so that growing tips cannot be reached.

OPERATION AND MAINTENANCE

Operation and maintenance requirements are not applicable for this practice.