

APPENDIX C: STANDARDS FOR HAZARDOUS FUEL REDUCTION IN NEU

Purpose/Overview

The purpose of the development, implementation and maintenance of a project such as fuel modification can be considered a fire prevention/management tool that may promote awareness, mitigation, and assist in fire suppression activities in the event of a wildland fire situation in Interface Lands. The objective is to reduce, modify, and manage fuels within designated areas that may enhance mitigation efforts in the event of a wildland fire situation. The Shaded Fuel Break is an identified key component of any project:

is a strategic location along a ridge, access road, or other location where fuels have been modified. The width of the fuel break is usually 100 to 300 feet depending on the site. This is a carefully planned thinning of dense vegetation, so fire does not easily move from the ground into the overhead tree canopy. A shaded fuel break is not the removal of all vegetation in a given area. Fire suppression resources can utilize this location to suppress wildland fires due to the modification of fuels of which may increase the probability of success during fire suppression activities. Any fuel break by itself will not stop a wildland fire.

The Shaded Fuel Break is a recommended guideline for fuel management within identified Interface Lands.

The goal is to protect human life and both public and private resources by reducing the risk and potential hazard of wildland fire by practicing management strategies that promote the preservation and restoration of natural resources and protection of cultural resources.

Objectives are mitigation of fire dangers in an effort to: Enhance public safety; Protect natural and cultural resources; Provide for recreational opportunities; Conduct cost effective maintenance of features and facilities.

In previous Fire Plans, three separate fuel reduction prescriptions were described (Defensible Space, Defensible Landscape, and Modified Shaded Fuel Break). With the adoption of the new PRC 4291 standards, NEU is recommending landowners utilize the guidelines adopted statewide. Further, we recommend landowners utilize the "Defensible Space – Reduced Fuel Zone" guidelines for areas beyond the required 100 feet. These guidelines can be downloaded from the Internet at:

http://www.bof.fire.ca.gov/pdfs/4291finalguidelines2_23_06.pdf

The three fuel reduction prescriptions described below are standards or guidelines and are being provided for guidance, they are not intended to be regulatory and are as follows:

Defensible Space (PRC 4291): Area surrounding a structure where fire protection or firebreak is made by removing all brush, flammable vegetation, or combustible growth which is located up to 100 feet from such structure or to the property line, whichever is closest. The goal is to create an area where ground based fire suppression resources, such as fire engines, can successfully defend the structure from an advancing fire.

Defensible Landscape: The area outside of the defensible space zone where additional fuel reduction is completed to enhance the protection value of the defensible space zone around a structure. Increased aesthetics and habitat values are planned for in this prescription.

Modified shaded fuel break: defined as a defensible location, where fuels have been modified, that can be used by fire suppression resources to suppress oncoming wildfires. Any fuel break by itself will NOT stop a wildfire. It is a location where the fuel has been modified to increase the probability of success for fire suppression activities. Ground resources can use the location for direct attack or firing out. Air resources can use the location for fire retardant drops. The public and fire resources can use the location for more efficient ingress and egress.

The three prescriptions are listed below. The defensible space and defensible landscape prescriptions incorporate the modified shaded fuel break prescription with a few variations. ***The only trees eligible to be removed under the following prescriptions are in the 10- inch diameter class (diameter of main stem at breast height) or smaller. All trees larger than the 10- inch diameter class will only be pruned to a height of 8 to 10 feet above the ground, not to reduce the live crown ratio of the plant to below 50%. Exceptions for defective trees and snags are noted below.***

I. Defensible Space Prescription: PRC 4291

Includes all of following:

1. Maintain around and adjacent to a building or structure a firebreak made by removing and clearing away, for a distance of not less than 100 feet on each side thereof or to the property line, whichever is nearer, all flammable vegetation or other combustible growth. This does not apply to single specimens of trees, ornamental shrubbery, or similar plants that are used as ground cover, if they do not form a means of rapidly transmitting fire from the native growth to any building or structure.
2. Remove that portion of any tree that extends within 10 feet of the outlet of any chimney or stovepipe.
3. Maintain any tree adjacent to or overhanging any building free of dead or dying wood.
4. Maintain the roof of any structure free of leaves, needles, or other dead vegetative growth.
5. Provide and maintain at all times a screen over the outlet of every chimney or stovepipe that is attached to any fireplace, stove, or other device that burns any solid or liquid fuel. The screen shall be constructed of nonflammable material with openings of not more than one-half inch in size.
6. Within 100 feet of existing structures all annual grasses are to be maintained to below 6 inches in height.
7. Except as noted in 1 above, the Modified Shaded Fuel Break prescription described below also applies.

II. Defensible Landscape Prescription:

Includes all of the following:

1. Oak trees with trunks within 3 feet of each other, essentially making one canopy, may be considered one tree in the defensible landscape areas. Prune branches off of all residual trees from 8 to 10 feet off the forest floor, not to reduce the live crown ratio below 1/2 of the height of the tree. **Adjacent trees shall be removed to create horizontal distances between residual trees from 20 feet between trunks up to 8 to 15 feet between tree crown drip lines.**
2. One clump of trees per lot or acre, where tree trunks are within 20 feet of each other, may also be retained in the defensible landscape areas providing spread of fire to or from this feature is adequately mitigated. Mitigation measures for this feature include:
 - a. Prune branches off of all residual trees from 8 to 10 feet off the forest floor, not to reduce the live crown ratio below 1/2 of the height of the tree
 - b. Trees adjacent to this feature shall be removed to create horizontal distances **between residual trees from 20 feet between trunks up to 8 to 15 feet between tree crown drip lines.** No ground fuels shall exist within the drip line of the feature.
3. Except as noted in 1 and 2 above, the Modified Shaded Fuel Break prescription described listed below also applies.

III. Modified Shaded Fuel Break Prescription:

Implementation consists of removing or pruning trees, shrubs, brush, and other vegetative growth on the project area. For site protection, all work is encouraged to be completed by use of a masticator and/or hand crews supported by chippers and/or burning. Heavy equipment with blades is not recommended for use for fuel reduction work.

1. Understory Fuels

Understory fuels over 1 foot in height are to be removed in order to develop vertical separation and low horizontal continuity of fuels. Individual plants or groups of plants up to 10 feet in canopy diameter may be retained provided there is a horizontal separation between plants of 3 to 5 times the height of the residual plants and the residual plants are not within the drip lines of an overstory tree.

For rare and endangered species concerns, elderberry trees shall not be removed or treated within the shaded fuel breaks in elevations below 3000 feet.

2. Mid-story Fuels

Only trees up to the 10-inch diameter class (at breast height (dbh)) may be removed. Exception to this size limit shall be trees that have significant defect and/or which do not have a minimum of a 16-foot saw log. Live but defective trees larger than the 10-inch diameter class providing cavities or obvious wildlife use will be retained.

Trees shall be removed to create horizontal distances between residual trees from 20 feet between trunks up to 8 to 15 feet between tree crown drip lines. Larger overstory trees (> 10 inches dbh) do count as residual trees and, in order to reduce ladder fuels, shall have vegetation within their drip lines removed. Prune

branches off of all residual trees from 8 to 10 feet off the forest floor, not to reduce the live crown ratio below 1/2 of the height of the tree.

For rare and endangered species concerns, elderberry trees shall not be removed or treated within the shaded fuel breaks below the 3000 feet elevation level.

Criteria for residual trees (< 10 inch diameter class (dbh)):

Conifers:

Leave trees that have single leaders and thrifty crowns with at least 1/3 live crown ratio.

Conifer leave tree species in descending order:

- Ponderosa pine
- Sugar pine
- Douglas fir
- White fir
- Incense cedar

Intolerant to shade species have a higher preference as leave trees because their seed will be less likely to germinate in the understory.

Snags

Snags are a conduit for fire spread during a wildfire. However, they also provide excellent wildlife habitat in their natural state. The following is the criteria of when snags shall be retained:

18 inch diameter class or larger and not more than 30 feet in height which are not capable of reaching a road or structure provided there is a separation of least 100 feet between snags.

Hardwood trees:

Leave trees that have vertical leaders and thrifty crowns with at least 1/3 live crown ratio. Retain all elderberry trees.

Hardwood leave tree species in descending order:

- Big Leaf Maple- Riparian area, less common
- Blue Oak - least leaf surface area, less volatile when burning
- Black Oak - higher leaf surface area
- Madrone - more volatile when burning
- Live Oaks - most volatile when burning, branches closest to ground.

Brush:

It is desirable to remove as much brush as possible within the shaded fuel break area. However, if individual plants or pairs of plants are desired to be left, leave plants with the following characteristics: young plants less than 5 feet tall and individual or pairs of plants that are no more that 5 feet wide. Retain all elderberry trees.

Brush: Leave species in descending order:

Toyon – Less Common
Buckeye – Less Common
Dogwood – less common
Lemmon Ceanothus - less common, less volatile
Buck brush (Wedge leaf ceanothus) - smaller brush plant, less volatile
Redbud - less common
Coffeeberry - less common
Whitethorn - lower lying plant
Deer brush - larger plant, high leaf surface area, more volatile when burning
Manzanita - larger plant, high leaf surface area, more volatile when burning
Chamise - foliage contains highest amount of flammable oils, most volatile when burning

Wetlands:

Functional wetlands will be avoided for treatment and ground operations.

Watercourse and Lake Protection Zone (WLPZ):

To provide mitigation for riparian associated species and to reduce the potential risk of habitat fragmentation, the following will apply:

Maintenance Prescriptions

Once fuels have been modified within an area, maintenance activities should be planned and implemented on a regular basis to keep the effectiveness of the original treatment. If no maintenance activities occur, the effectiveness of the original treatment will diminish every year, potentially yielding no net effect within 5 years. The necessary maintenance activities will be minimal if implemented on an annual basis.

The original prescription treatment should be followed for maintenance. Possible fuel reduction techniques to be utilized for maintenance include the following:

Hand Work: Use of hand tools by crews or individuals. This technique is labor intensive and potentially expensive (>\$1000 per acre). Impacts to soils are negligible.

Mechanical Work: Use of heavy equipment such as masticators and/or bulldozers. This technique is moderately expensive (as low as \$400 per acre) but limited by topography (to slopes less than 50%) and not appropriate for most watercourse and lake-protection zones and excessively wet soils.

Chemical Controls: Use of California registered herbicides. This is the most cost-effective technique. Implementation usually requires one or two individuals for ground application. This technique has negligible soil effects but may not be appropriate for certain areas such as riparian zones, watercourses, and areas of listed plants.

Prescribed Browsing: Use of goats in a controlled setting to browse within appropriate areas to reduce fuel levels. Browsing goats can be an effective tool to control grasses and low growing vegetation, when controlled properly, can have little impact to the environment. Costs may vary.

Prescribed Burning: The use of planned and controlled burning operations to reduce fuel levels. Control lines are established prior to burning. Burning and Air Pollution permits are required to conduct these operations. This technique varies in cost per acre depending on complexity of project. Burning is becoming more difficult to complete due to air regulations.

916.5, 936.5, 956.5 Procedures for Determining Watercourse and Lake Protection Zone Widths and Protective Measures [All Districts]

Procedures for Determining Watercourse and Lake Protection Zone Widths and Protective Measures¹								
Water Class Characteristics or Key Indicator Beneficial Use	1) Domestic supplies, including springs, on site and/or within 100 feet downstream of the operations area and/or 2) Fish always or seasonally present onsite includes habitat to sustain fish migration and spawning.		1) Fish always or seasonally present offsite within 1000 feet downstream and/or 2) Aquatic habitat for nonfish aquatic species. 3) Excludes Class III waters that are tributary to Class I waters.		No aquatic life present, watercourse showing evidence of being capable of sediment transport to Class I and II waters under normal high water flow conditions after completion of timber operations.		Man-made watercourses, usually downstream, established domestic, agricultural, hydroelectric supply or other beneficial use.	
Water Class	Class I		Class II		Class III		Class IV	
Slope Class (%)	Width Feet	Protection Measure	Width Feet	Protection Measure	Width Feet	Protection Measure	Width Feet	Protection Measure
					[see 916.4(c)] [see 936.4(c)] [see 956.4(c)]		[see 916.4(c)] [see 936.4(c)] [see 956.4(c)]	
<30	75	BDG	50	BEI	See CFH		See CFI	
30-50	100	BDG	75	BEI	See CFH		See CFI	
>50	150 ²	ADG	100 ³	BEI	See CFH		See CFI	
<p>1 – See Section 916.5(e) for letter designations application to this table. 2 – Subtract 50 feet width for cable yarding operations. 3 – Subtract 25 feet width for cable yarding operations.</p>								