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## Information Bulletin

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Topic:	Fuel Modification			
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Sign:		Sign: S. Diaz, DFM	7-28-2008	

The Riverside County Fire Department Fire Protection Planning Section (RCFD FPPS) will apply the following requirements for mountainous, high fire hazard areas of Riverside County. To assist in the preparation and submittal of required plans, the following minimum information shall be provided. Additional information may be required on a case-by-case basis as determined by the plan reviewer.

### Fuel Modification

Purpose: To provide information on how fuel modification is to be designed installed and maintained in order to reduce fire hazard. **Fuel modification is the process in which highly combustible native plants, invasive introduced, or ornamental plants are modified and/or totally replaced with fire resistant or drought resistant alternatives.** Fuel modification reduces the fuel load and provides homeowners and fire department personnel defensible space in which to take action.

The fuel modification guidelines in this report are based on requirements set forth for Riverside County per Public Resource Code 4291 (State Responsibility Areas) and Government Code 852 (Local Responsibility Areas).

Scope: To provide Guidelines for Vegetation Management (Fuel Modification) plans. These plans will be required, to be submitted to Riverside County Fire Department Planning and Protection, for review and approval, as part of the plans required for a permit to build.

Submittal Requirements: Fuel modification plans will be reviewed by Riverside County Fire Department Planning and Protection prior to final approval. **These plans will show the area and location of fuel modification necessary to achieve the minimum acceptable level of risk to structures from combustible vegetation. Three (3) sets of fuel modification plans will be required.** They should be prepared by a licensed landscape architect or similarly qualified design professional.

The following will be shown on each plan:

1. Specification of each zone (setback, irrigation, thinning) with a general measurement of each zone and what it vegetation it contains.
2. Identify the removal of undesired plants as noted in "Undesirable Plants Listing" portion of the Fuel Modification Notification issued by Riverside County Fire Department Planning and Protection.
3. Existing vegetation.
4. The location of access easements. The easements should be located every 1500 liner feet of fuel modification area. Access easements shall have a minimum width of 20' and shall be paved with concrete, asphalt, or interlock block. Access easements paved with "turf block" will not be accepted.
5. A plant palate. This will include a plan for all trees, shrubs, ground covering in irrigated zones.
6. Irrigation plans.
7. All building footprints. Existing and proposed buildings shall be listed.
8. The maintenance requirements and who shall be responsible for maintenance
9. All tract or project conditions.

**Definitions of Terms Used in this Report:**

- **Defensible Space-** An area around the perimeter of structures or developments, in the wildland, which are key points of defense/attack against encroaching wildfires or escaping structure fires.
- **Drought Resistance:** The ability of vegetation to survive on little water.
- **Duff:** organic matter in various stages of decomposition on the floor of the forest.
- **Fire Break:** Removal of swaths of vegetation, around housing developments to prevent a fire from spreading to structures from open land or vice versa. Fire break may also refer to natural (rock outcroppings) and man-made (roads) barriers.
- **Fire Resistant:** The ability to resist ignition.
- **Fire Retardant:** The comparison of plant species related to differences in fuel volume, inherent flammability characteristics and ease of fire spread.
- **Fuel Load:** The weight of fuels in given areas, usually expressed in tons per acre.
- **High Fire Area:** High Fire Area: As determined by the County of Riverside, HFA is any area with terrain, vegetation, or access being a contributing factor to fire occurrence and/or inhibiting firefighting efforts. These areas are defined in the State Responsibility and Local Responsibility Map areas designated by the County.
- **Horizontal Continuity:** The horizontal distribution of fuels at different levels or planes.
- **Invasive Vegetation:** Plants, that when introduced to a habitat, rapidly spread and replace the natural vegetation.
- **Litter:** The uppermost layer of loose debris from vegetation. This usually consists of slightly decomposed materials such as sticks, branches, twigs, needles and/or leaves.
- **Target Species:** Undesirable vegetation with naturally occurring characteristics that make them highly flammable. These can be physical or chemical. Physical would include large amounts of dead material retained in the plant, rough or peeling bark and the production of large amounts of litter. Chemical characteristics would include the presence of highly toxic or flammable substances such as oils, resins, wax, and pitch.
- **Vertical Continuity:** The relationship of aerial fuels to the surface fuels or fuels low to the ground.

### Qualities of Desired Plants:

It is suggested that the plants used in fuel modification zones exhibit the following qualities:

- The ability to store water in leaves or stems
- The tendency to produce limited litter
- The presence of high salt levels or similar compounds which may contribute to fire resistance
- The ability to withstand drought
- The ability to withstand severe pruning
- The absence of high levels of volatile oils or resins
- The ability to re-sprout after a fire

### Undesirable Plants:

The following is a list of plants NOT recommended in fuel modification zones per the Riverside County Fire Department.

#### Ornamental Grasses:

Green Fountain Grass- *Pennisetum Setaceum*

This plant grows in dense stands and alters native habitats. It is an extreme fire hazard.

Pampas Grass- *Cortaderia Selloana*, *Cortaderia Jubata*

This plant accumulates large amounts of litter and harbors vermin. It is a serious fire hazard.

#### Shrubs:

Broom (Bridal, French, Portuguese, Scotch, and Spanish)- *Retama Monopserma*, *Genista Monspessulana*, *Cytisus Striatus*, *Cytisus Scoparius* and *Spartium Junceum*

This plant grows rapidly, creating an extreme increase in fuel accumulation and fire danger.

**Native Shrubs/Target Fuels:** These plants contain high oils and resins and retain low moisture. They are highly flammable and emit toxic gasses when burned. It is recommended to clear this brush from around structures and not to plant these shrubs if they are not already present.

Chamise- *Adenostoma Fasciculatum*

California Sagebrush- *Artemisia Californica*

Juniper Bush- *Juniperus communis*

Common Buckwheat- *Ergonum Fasciculatum*

#### Trees:

**Palms:** Although palms are extremely prevalent in Riverside County they are considered a fire hazard when they are not pruned and maintained properly. They create dead fronds and harbor vermin.

Desert Fan Palm- *Washingtonia Filifera*

Canary Island Palm- *Phoenix Canariensis*

Mexican Fan Palm- *Washingtonia Robusta*

Italian Cypress- *Cypressus Sempervirens*

Heavy litter from this tree creates a serious fire hazard. This tree also harbors extreme vertical fire spread hazards.

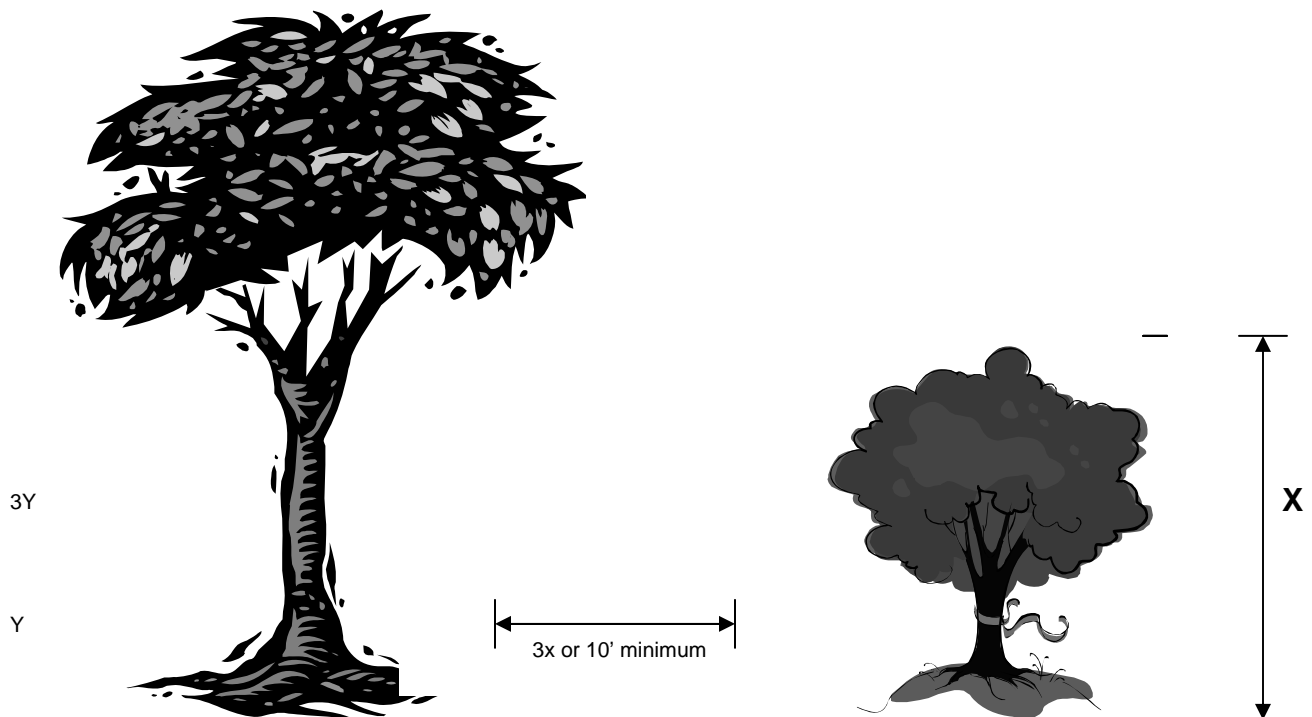
Eucalyptus (Blue Gum, Common Eucalyptus, Red Gum)- *Eucllyptus Globulus*

This tree creates abundant litter and creates a thick covering of duff. The debris is extremely flammable. Also, when ignited, the stringy bark has a potential to be carried away into unburned fuels and cause spot fires.

1. Create a defensible space around all structures. In High Fire Areas, vegetation must be modified 100'.
2. In the "Green Zone" (within 30' of any structure), plant only fire resistant and drought resistant plants.
3. Space native trees and shrubs at least 10' apart.
4. For trees taller than 18', remove lower branches within 6' of the ground.
5. Trees and tree-form shrubs should be maintained to provide clearance of three times the height of the understory plants or 10', whichever is greater (figure 1).
6. Perform routine maintenance to remove dead branches, twigs and leaves.
7. Do NOT completely remove all vegetation and leave bare ground. This may cause erosion and habitat disturbance.

Diagram for Plant Spacing:

FIGURE 1-



Resources or Additional Websites

<http://nature.berkeley.edu/~fbeall/HODefSpaceGuide.pdf>

[http://www.cnr.uidaho.edu/rx-grazing/Handbook/Chapter\\_12\\_Targeted\\_Grazing.pdf](http://www.cnr.uidaho.edu/rx-grazing/Handbook/Chapter_12_Targeted_Grazing.pdf)

<http://www.firesafecouncil.org/education/landscaping/landscaping2.html>

[http://www.owendell.com/fs\\_hazard.html](http://www.owendell.com/fs_hazard.html)

<http://www.amestruetemper.com/fire-safelandsca.html>

<http://anrcatalog.ucdavis.edu/pdf/8228.pdf>