

DEFENSIBLE SPACE HANDBOOK

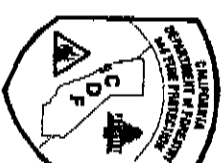


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"COOPERATIVE FIRE PROTECTION"



This "Defensible Space Handbook" has been compiled to assist the property owner and the hired worker. We hope this information will clarify all points relating to the fuel reduction of unimproved properties as set forth in EPFD Fire Ordinance 2003, Section 11 and the cleaning around structures as required by Public Resources Code 4291.

The California Department of Forestry and the Volunteers-In-Prevention have effectively asked for and gained 95% compliance of "defensible space" around structures by the implementation of Public Resources Code 4291 requiring, among other defensive measures, 30-foot clearance around structures.

To further the goal of "Defensible Space", the Ebbetts Pass Fire District and the Volunteers-In-Prevention are working toward obtaining compliance of Ebbetts Pass Fire Ordinance 2003, Section 11. This Fire Ordinance extends the "defensible space concept to the unimproved parcel within a subdivision in an effort to keep fires small and manageable by reducing the fuel load. If a major fire comes through the area, the "defensible space" created will allow for maximum protection. Because of fuel reduction on the unimproved property, the momentum of wildfire is slowed, heat intensity is not as great, flame lengths are manageable and the likelihood of fire extending into the trees is lessened. Thus, lives can be saved, homes can be protected, whole subdivisions can be spared, and our community can survive.

It is very important for maximum protection against wildfire that everyone pitch in and do all they can to minimize the risk. The assistance and support our agencies receive from the Volunteers-In-Prevention is a key element in the implementation of our "Defensible Space" programs. The property owner, along with the hired worker, are the keys to SUCCESS--the keys in making a difference between winning or losing. Your fire services have the equipment and the know-how to fight wildland fire, but the battle can't be won if YOU don't join us.

Do your part and create "DEFENSIBLE SPACE" - Help us to help you.

**EBBETTS PASS FIRE DISTRICT
AND THE
CALIFORNIA DEPARTMENT OF FORESTRY, ARNOLD DISTRICT**

DEFINITIONS

● **Cleaning** - For the purpose of this handbook, "cleaning" is defined as the removal of ALL flammable vegetation including pine needles raked and removed down to mineral soil. Example: the "cleaning" within 30 feet of a structure.

● **Conflagration** - A raging, destructive fire usually destroying many structures.

● **Defensible Space** - Areas created within the perimeter of a parcel, development, neighborhood and/or community where fuel reduction measures are implemented providing the key point of defense from fire. Some examples of defensible space are 30-foot clearance around structures, fuel reduction on unimproved properties, and fuelbreaks around subdivisions or communities.

Critical Objectives of DEFENSIBLE SPACE:

1) Fire Spread - The reduction of fuel on parcels, particularly parcels within a subdivision, could stop an escape debris fire or a structure fire from spreading to adjoining parcels.

2) Keep Fire Manageable - A fire that originates within a subdivision is less likely to become a major conflagration when there is DEFENSIBLE SPACE.

3) Structure Defense - A structure with adequate DEFENSIBLE SPACE is less likely to be overtaken by wildfire when no immediate fire personnel are available. In the first stages of a major conflagration first-in fire fighting resources are strained and may not be able to provide suppression coverage to all areas that may need it. Additional fire engines and crews come from out of the area which takes time. DEFENSIBLE SPACE that has been created around homes, on unimproved parcels, and/or around entire communities WILL make a difference!

4) Firefighter Safety - DEFENSIBLE SPACE provides an area with more personal safety for the firefighter while fighting fire and/or while trying to protect a structure.

DEFENSIBLE SPACE in the wildland/urban intermix can be compared to the first line of attack in a battle. It is here the firefighter has the best chance to stop the enemy and win the war.

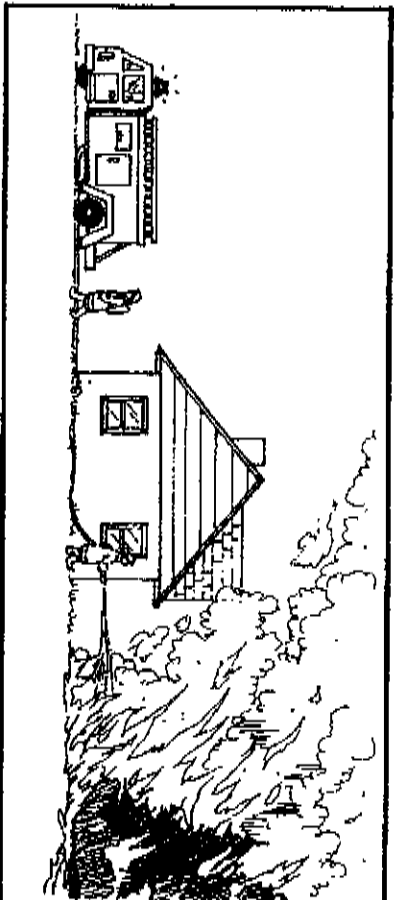
● **Duff** - The accumulation of leaves and evergreen needles, dead twigs, and pine cones which often is several inches thick on the ground.

● **Fuelbreak** - A wide strip of land where hazardous fuels have been removed (Example: areas cleared by USFS along the boundary of Lakemont Pines and Meadowmont) or replaced with less burnable fuels (Example: A greenbelt within a subdivision or even a golf course). These fuelbreaks assist in stopping an oncoming fire from entering a community or assists in stopping the progression of a fire into the wildland.

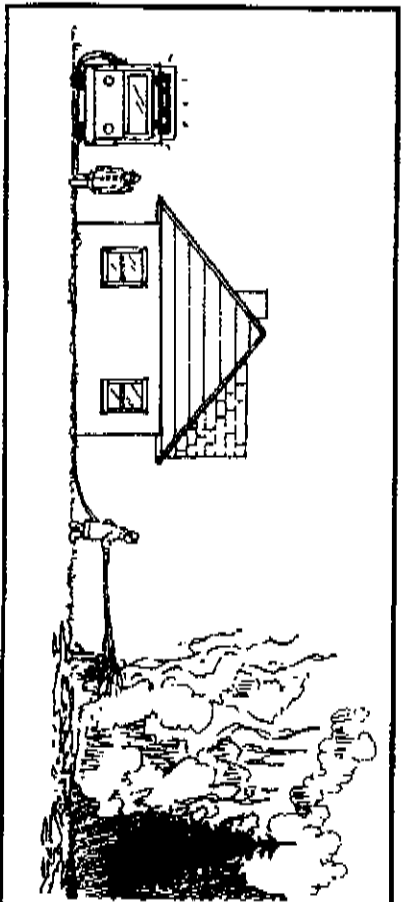
- **Fuel Reduction** - Reducing the amount or "Load" of flammable vegetation from an area.
Example: the "fuel reduction" within an unimproved parcel.
- **Wildland/Urban Intermix** - Where development and wildland fuels meet and intermix with no clearly defined separation.

GIVE US A FIGHTING CHANCE

Providing 30 foot or more of clearance around a structure and reducing the fuel load on unimproved property gives the firefighter a better chance to succeed. Imagine a wildland fire moving through heavy brush or woods toward wood-roofed, wood-sided structures. The fire is pushed by strong winds, and burning embers are starting new small fires well in advance of the main fire front. Vegetation on unimproved properties is heavy and dense with a large percentage of dead and dying material. There is vegetation surrounding the back of the structures and within 10 feet of the structure in many places. The flames burning through the vegetation reach 50 feet in height. The firefighter has little chance to succeed. No fuel reduction has been done on unimproved parcels and there is insufficient space around structures within which to defend the structures safely. The radiant heat and spotting will surely ignite the structure and prevent the firefighter from mounting an aggressive attack.



If the same situation occurs and sufficient fuel reduction has been accomplished on adjacent unimproved parcels and the structure has 30 to 100 feet of defensible space, the firefighter has a much better opportunity to succeed. The firefighter can attack the fire aggressively and safely because of the "DEFENSIBLE SPACE" created by the property owner.



KEY POINTS OF DEFENSIBLE SPACE

- Vegetation is modified in the defensible space by removal, reduction or replacement.
- The amount of time and effort involved in creating the defensible space is dependent upon size of property, type of vegetation, access, and steepness of slope.
- The amount and type of fuel to be removed or reduced is mandated by law and influenced by steepness of slope and parcel location.
- In general, all dead fuels should be removed from an improved parcel as well as from an unimproved parcel.
- Fuels such as brush growing side by side with no "breaks" between them need to have spaces created to act as "fuel breaks" to cool and slow fire.
- All ladder fuels should be removed.
- The height of surface fuels should be reduced.
- Obtain necessary permits for burning debris and comply with the regulations of that permit.
- Promptly remove all slash from the property.
- Be aware of soil erosion.
- Avoid planting junipers and other coniferous plants in the landscape.
- Research demonstrates that DEFENSIBLE SPACE (cleaning and/or reducing fuels on properties in addition to fire resistant roofs on structures) is effective in increasing the survivability of homes and resources during wildfire.

EBBETTS PASS FIRE ORDINANCE 2003

SECTION 11



Improved Properties

- 11.1** Owners of improved properties shall maintain a minimum 30 foot space, clear of combustible/flammable material, around the perimeter of all structures on said property. Clearance shall be provided according to standards set forth within Public Resources Code 4291.

Explanation: Public Resources Code 4291, implemented by the California Department of Forestry, calls for the cleaning of flammable vegetation "not less than 30 feet from a structure or to the property line, whichever is nearer." If a structure has a side or sides that are closer than 30 feet to the adjacent property line, legally that homeowner can have less than 30 foot clearance. If the homeowner desires a full 30 feet, after gaining permission from the adjacent property owner, the homeowner can rake and clean to make a full 30 feet of clearance for his own home. If the property owner refuses the homeowner permission to extend the cleaning process onto the adjacent parcel and the adjacent property owner is unwilling to even to the work himself, the homeowner can contact EPFD for assistance.

- 11.2** Owners of property, improved or unimproved, adjacent to any other improved property where structures may be built closer than 30 feet to property lines, may be asked to provide clearance of combustible/flammable material from said property which allows a total of 30 feet of clearance from the adjacent structure.
- 11.3** Owners of improved properties may be called upon to reduce fuel loading and remove dead and/or dying vegetation from areas outside the 30 foot perimeter up to their respective property line.

Explanation: This portion of the Ordinance will be implemented to help deter homeowners from piling and leaving forest debris outside the 30 foot perimeter. Also, there are many improved parcels within the District where the vegetation and forest debris is so thick and congested outside the 30 feet that the parcel creates a hazard to the surrounding area.

Unimproved Properties

11.4 OWNERS OF UNIMPROVED PROPERTIES WITHIN SUBDIVISION DEVELOPMENTS WHICH ARE IMMEDIATELY ADJACENT TO IMPROVED PROPERTIES, OR IF SUCH UNIMPROVED PROPERTY IS DEEMED TO CREATE AN UNACCEPTABLE FIRE HAZARD TO PROPERTIES NOT IMMEDIATELY ADJACENT, MAY BE CALLED UPON TO MODIFY AND/OR REDUCE FUEL LOADING, AND REMOVE DEAD AND DYING VEGETATION TO THE SATISFACTION OF THE FIRE PREVENTION BUREAU.

11.5 FUEL MODIFICATIONS AND REDUCTIONS SHALL BE DONE IN ACCORDANCE WITH THE STANDARDS OUTLINED WITHIN EBBETTS PASS FIRE DISTRICT'S DEFENSIBLE SPACE HANDBOOK.

Explanation: The intent is to call for modifications which will provide a greater margin of safety for fire suppression forces, a point of attack and a place of defense for structure protection, and increased safety for evacuating civilians in a wildfire situation. The reduction of fuel loading also affords fire suppression crews a better opportunity to control and contain wildfires in the community before such fires become major conflagrations.

PLEASE NOTE: Inspections on UNIMPROVED parcels for compliance to Ebbetts Pass Fire Ordinance 2003, Section 11.3 and 11.4 are conducted on a year around basis. Property owners of those parcels inspected that are not in compliance will receive a "Field Inspection" notice indicating the fuel reduction required on their parcel. There will be a compliance date. Non-compliance may result in a citation to appear before the Judge of Calaveras County Superior Court plus a fine.

Waste Material

11.6 Disposal of waste material caused by site development, construction, fuel modification or reduction shall be in accordance to Calaveras County Life Safety Ordinance No. 226.

STANDARDS AND DETAILS: Ebbetts Pass Fire Ordinance 2003 Fuel Modification - Section 11

The following are the Standards and Details used to gain compliance to EPPFD Fire Ordinance 2003:

1. **Cut down dead trees.** Any trees, live or dead, that have fallen into other trees, (ex: "leaners") must be dropped to the ground. **ALL** limbs must be removed from trees felled by a person or downed by nature. Properly dispose of those limbs by hauling, chipping or by burning following legally established burning restrictions. Logs can remain on the parcel, lying flat on the ground or stacked in an orderly manner (not against other trees and not near structures).
2. Remove **ALL dead tree limbs that are within 6 (six) feet of the ground.** This means that if **ANY PORTION** of the dead limb hangs within 6 (six) feet of the ground, the limb **MUST** be removed. Properly dispose of those limbs by hauling, chipping or by following legally established burning restrictions.
3. Remove **ALL dead brush.** As an example, if an entire manzanita or lilac bush is dead, **REMOVE THE ENTIRE BUSH.** If a portion of the bush is dead, you may opt to remove only the dead portion. If a few limbs are dead, removal of those dead limbs from the bush will be sufficient.
4. Remove accumulations of dead materials and/or flammable ground vegetation from underneath and within manzanita and other brush types.
5. Remove all accumulations and/or piles of dead and dying materials.
6. Remove dead and/or dying smaller trees growing under and /or within the limbs of taller healthy trees.
7. Remove dead branches and trees which are leaning into or against larger trees.
8. Cut bear clover and/or ground cover vegetation from around brush and low-growing trees. On parcels with uninterrupted low growing vegetation, create a fuel break around the perimeter of the parcel by cutting the ground vegetation from within 10 feet of the property line (s) that are adjacent to neighboring structures.
9. Cut ALL dead and/or dying grass and weeds.
10. Future management of live vegetation (i.e., regrowth of bear clover, brush, grass, etc.) is required along with the maintenance of future dead and dying vegetation.

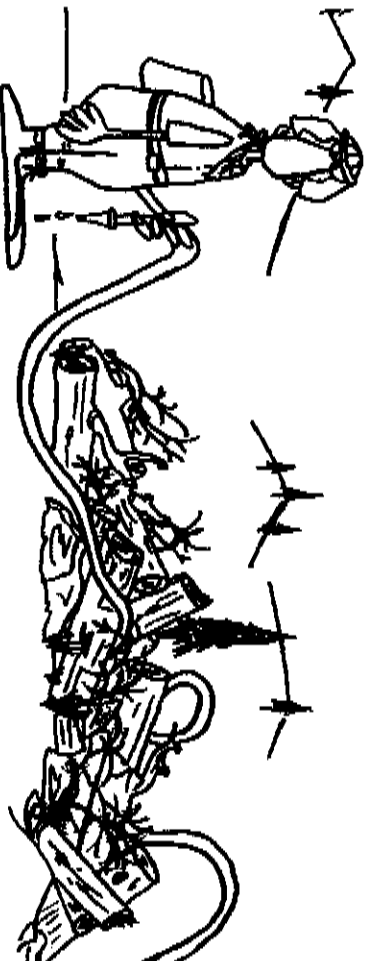
STANDARD #1 - Dead Trees

Cut down dead trees

Logs may be left on the ground in an orderly fashion, i.e. laying flat on the ground or in a neat stack. Keep log stacks at least 100 feet from structures. All limbs must be removed and disposed of properly. Contact your local forester for details about bug infested trees

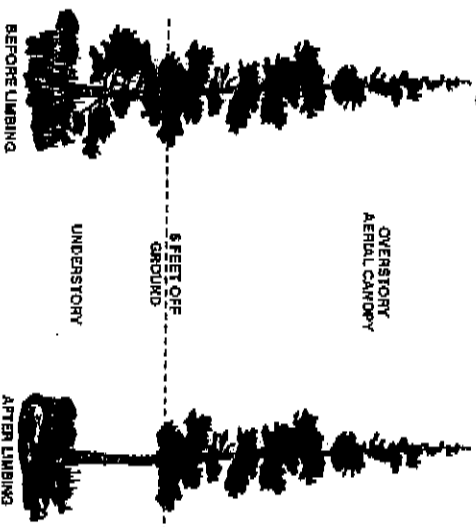


EXPLANATION: Standing dead trees, especially those with dead limbs and needles still remaining on the tree, do create a definite fire hazard and must be felled. Once on the ground, all limbs, twigs and needles must be disposed of. The logs would not promote the rapid spread of fire so they may remain on the lot as directed above. Logs laying haphazardly on a lot create a safety hazard for fire crews trying to progress through a lot while fighting fire or defending adjacent structures. Also, dead trees and/or snags can be a safety hazard, i.e. potential for dead tree to fall into power lines, into a structure or onto a roadway. **NOTE:** This type of hazard is not addressed within District ordinance.



STANDARD #2 - Dead Limbs on Trees

All dead limbs must be removed up to 6 feet above the ground and disposed of properly. Even live limbs that hang low to the ground should be removed.



EXPLANATION: The number one and primary goal of our fuel reduction program is to keep fire from going from the **GROUND** to the **CROWN** of trees. By removing the low hanging limbs from trees, the "Fire Ladder" up and into the trees has been eliminated. If any part of the limb hangs within 6 feet of the ground it needs to be removed. Just measuring up the trunk and cutting limbs below the 6 foot mark may not always be satisfactory. For example, trees growing on a hillside or slope. Because of the hillside, many of the limbs will be within 6 feet of the ground yet the limb connection to the tree is much higher than 6 feet up the trunk.

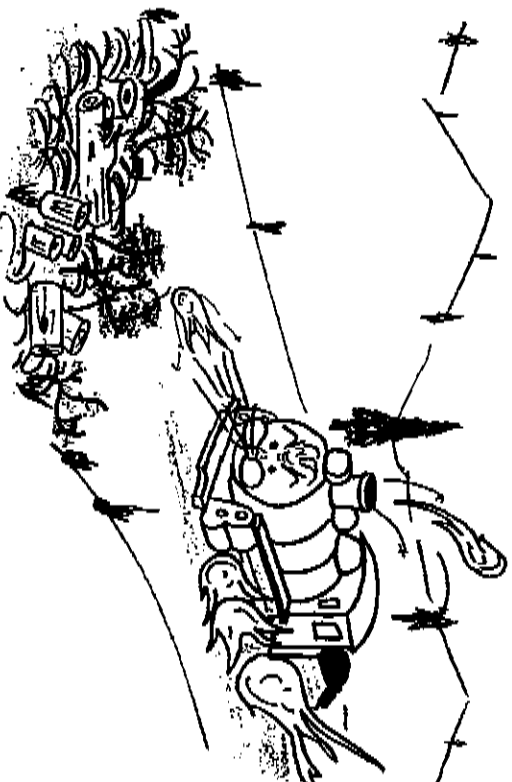


STANDARD #3 & #4 - Brush

Remove **ALL** dead brush. Thin/Space live brush, especially from within trees.

Remove accumulations of dead materials and/or flammable ground vegetation from under and within brush.

Thin Manzanita and other brush. A simple guideline is to create spaces between plants equal to their height. It is advised to crop the tops of very tall Manzanita or brush, particularly when they are located under trees. Remove heavy concentrations of dead and dying branches and heavy accumulations of pine needles and cones from within live brush. **ALL dead and/or dying brush shall be REMOVED.** Where there are large, thick stands of brush, fire breaks need to be created i.e. "islands" of brush approximately 15 to 20 feet in diameter, eliminating all other brush for approximately 15 to 20 feet around the "island". This method can be used throughout out a lot to create multiple "islands" with a "fire break" around the perimeter.



EXPLANATION: The natural oils within the native brush that grows in our area is what makes the brush so **VERY** volatile. The danger is magnified when the brush is overgrown, intertwined within itself and within the trees. On most unimproved parcels with brush present all the above is conditions exist, including dead limbs and debris making a "rats nest" of fuel just waiting for an ignition source. All these conditions are the "vehicles" from which fire becomes a locomotive, building in heat and velocity in a matter of seconds. With no "interruption" in fuel, this fire **WILL** become a major conflagration. **NOTE:** Also, consider this equation:

Fuel Height X 3 = **FLAME LENGTH**

(Ex. - Brush 6 ft. high X 3 = 18 foot flame length)

Brush removal through thinning and/or creating islands plus removing the kindling from within and underneath will help slow the progression of major wildfire and would aid in keeping a smaller fire remain just that, **SMALL.**

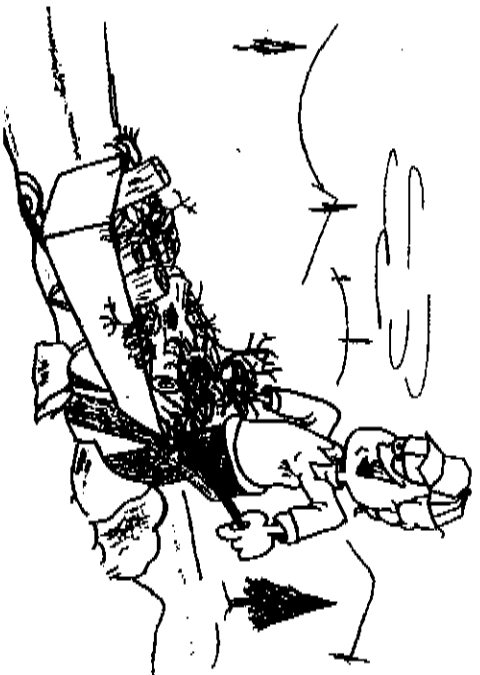
STANDARD #5 - PILES/ACCUMULATIONS

Remove all accumulations and/or piles of dead and dying materials.

Accumulations and piles of forest debris must be removed.

Accumulations of dead and/or dying forest debris must be removed. This type of debris occurs, for example, because of weather, wind or debris accumulated on lot through years of neglect - i.e., dead limbs, dead trees, typical "winter fall".

Piles of dead and/or dying forest debris must be removed. This type of debris is man-made. For example, debris piled or laying about from fuel reduction work, piles of needles or cones, piles of brush, etc.



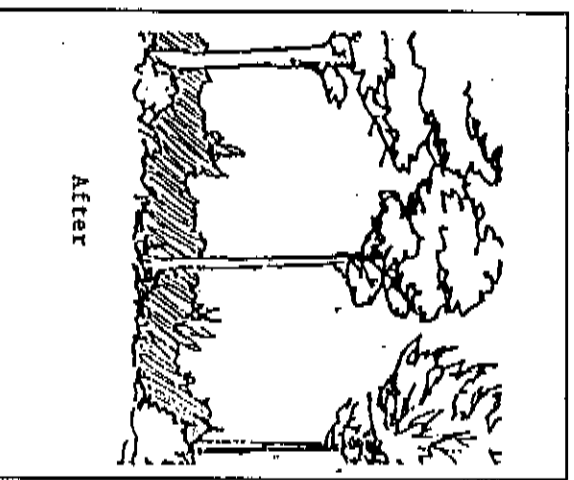
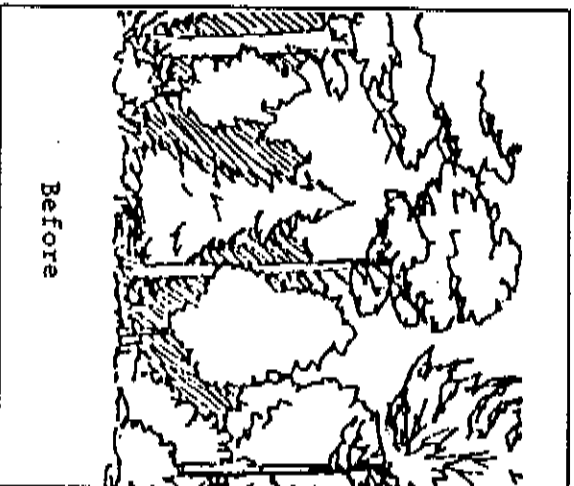
EXPLANATION: These are fuels that will carry a small, manageable fire and spread it throughout a lot and into trees very rapidly. Many of the unimproved lots within the district have been neglected for many years. The downed wood and debris becomes kindling for a fire. Limbs laying on a lot, left on downed trees, or man-made piles of forest debris and brush will create flame lengths that will carry fire into trees and brush. "Natural" accumulations of pine needles laying flat on the floor of the lot do not have to be raked and removed. This "carpet of needles" helps hold moisture in the ground and aids in stopping erosion. These assets outweigh the danger of a major fire being created simply from this "carpet" catching fire. (Remember the equation from page 10, fuel height X 3 = flame length). When the "fire ladder" has been removed throughout the lot, a fire on the floor of the lot is more manageable because the likelihood of fire spreading into the trees is much less. **NOTE:** The California Dept. of Forestry **DOES** require needles to be removed from within 30 feet of a structure to create "Defensible Space".

STANDARDS 6 & 7 - Trees/Branches

Remove dead and/or dying smaller trees growing under and/or within the limbs of taller healthy trees.

Remove dead branches and trees which are leaning into or against larger trees.

Smaller dead trees under larger live trees and dead branches/dead trees leaning into larger trees must be removed. Again, this is the primary goal of defensible space, **ELIMINATING THE FIRE LADDER.**



EXPLANATION: Smaller and/or shorter dead trees ignite quickly. If the "fire ladder" has not been eliminated, a fire within those trees will quickly "climb" the ladder of limbs and begin spreading faster and more furiously, gaining heat and momentum with every tree consumed. Even groves or groups of small LIVE GREEN trees that are growing under larger and taller trees create a serious "fire ladder" environment. Consider thinning these groves, not only for fire control, but to create a more healthy growing environment. These young trees need all the help they can get.

STANDARD #8 & #9- Ground Cover and Grass

Cut Bear Clover and/or ground cover vegetation from around brush and low-growing trees. On parcels with uninterrupted low growing vegetation, create a fuel break around the perimeter of the parcel by cutting the ground vegetation from within 10 of the property line(s) that are adjacent to neighboring structures.

Cut ALL dead and/or dying grass and weeds.

ALL flammable ground vegetation, such as bear clover, over ankle height **MUST** be cut using the following criteria:

Ground cover must be cut when:

1. Growing within 30 feet of a structure.
2. Growing under or near Manzanita or other brush
3. Growing under or near small trees or groves of small trees.

In addition to the above criteria, a "fuel break" must be established when:

1. The ground cover is growing uninterrupted on the majority of the parcel. This could be accomplished by creating islands i.e., groupings of ground cover throughout the parcel with areas cleared of ground cover between each grouping.
2. The ground cover is growing up to a property line adjacent to an improved parcel. This could be accomplished by cutting the ground cover to form a fuel break approximately 10-15 feet wide (minimum) along the property line.
3. On a steep up-hill lot, the ground cover is growing up to the upper most property line. This could be accomplished by cutting the ground cover to form a fuel break approximately 10-15 feet wide (minimum) along the property line.

All grass and weeds should be cut by July 1. **NOTE:** Grass cut in early spring has the potential to regrow and require a second cutting. Cut grass may remain laying flat on the ground.

EXPLANATION: Most of the native ground vegetation, such as bear clover, is very volatile and very much a heat generator. These ground covers, when ignited, have been known to produce extreme flame lengths (depending on conditions and on the height of the fuel). Large open areas, away from property lines and structures, without brush or trees, containing this type of ground vegetation are not of grave concern. The "fuel break" concepts as described above are good solutions to the hazard. Creating a "fuel break" (eliminating fuel in chosen areas) will help cool and stop the momentum of a wildland fire.

Cutting ground cover can be accomplished, for example, with a "weed whip" type power trimmer and/or (if possible) a lawn mower. **NOTE: BE EXTREMELY CAUTIOUS WITH METAL BLADES!** Metal blades can cause sparks and possible fire when rocks are in the area. Further caution is advised when weather is hot, dry and/or windy.

Yes, this ground cover will regrow and will need future maintenance. The lower growing, young bear clover IS less flammable (less oily) than the gray-green, taller, older growth that is usually well over ankle height. We DISCOURAGE the permanent removal (i.e. herbicide or tractor grading) of these ground covers since their root structure helps eliminate soil erosion and helps retain much needed moisture in the earth below for all the surrounding vegetation, including trees.

Each spring the grass and weeds on unimproved parcels must be cut. This should be accomplished by July 1. Please note that cutting grass and weeds prior to July 1 is OK especially when grass is dead, but re-growth is likely because of spring rains and more than one cutting may be necessary. Leaving the cut grass laying on the parcel is acceptable. Yes, it is flammable, but like pine needles, laying flat on the ground (not in piles) flame lengths and intensity would be minimal.

