

# Considerations Surrounding WUI Management: How To Meet The Goldilocks Challenge

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**Danny Fry**, Natural Communities Coalition

**Jon Keeley**, USGS

# Outline

- Introduction and Background
- Challenges
- Solutions





# Introduction and Background

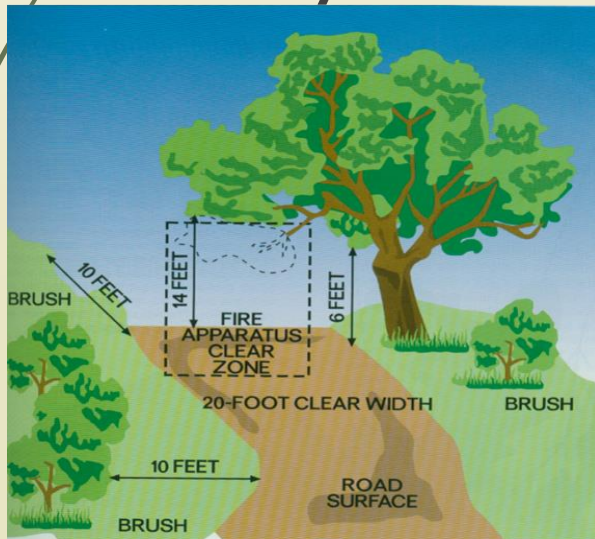
- ▶ Fire behavior of shrub ecosystems
- ▶ Placement and design of assets in threatening locations
- ▶ Treatment required by law
- ▶ Impacts to ecosystems
- ▶ Terminology is faulty
  - ▶ “Clearance” vs. “Management”





# Introduction and Background

- What does clearance mean?
- Prescriptions of Fuel Treatments
- Compliance with Fire Codes and Federal/State Regulations
- Fire Safety



**HAZARDOUS VEGETATION INSPECTION NOTICE**

Date: \_\_\_\_\_ Fire Company: \_\_\_\_\_ Fire Station Telephone: \_\_\_\_\_  
Occupancy Class: \_\_\_\_\_ Fire Station Fax: \_\_\_\_\_  
Inspector: \_\_\_\_\_ / \_\_\_\_\_ Signature Verification of correction by: \_\_\_\_\_ Mail \_\_\_\_\_ Re-inspection \_\_\_\_\_ Fax \_\_\_\_\_  
Date Completed: \_\_\_\_\_

1. Clearance of Brush and Combustible Growth:

a. Clear and remove all flammable vegetation or combustible located \_\_\_\_\_ 30 feet around any structure or \_\_\_\_\_ 50 feet around any structure in extra hazard areas. (This includes ornamental plants and trees known to be flammable, including, but not limited to: Acacia, Cedar, Cypress, Eucalyptus, Juniper, Pine and Pampas Grass. Exception: Ornamental plants and trees that are individually planted, or cultivated ground cover such as green grass, ivy, succulents, or similar plants, spaced and maintained in such a manner that they do not form a means of transmitting fire from native growth to the structure.) PMC 14.29.040 Section C.

b. Clear, cut back, thin out, trim up and remove flammable vegetation or combustible growth for a distance of \_\_\_\_\_ 100 feet around any structure or \_\_\_\_\_ 200 feet around any structure in extra hazard areas so as to create a firebreak. This section shall not apply to single specimens of either native or ornamental trees, shrubs or ground covers provided they are cut back, thinned out, trimmed up and spaced so as to provide an adequate firebreak and do not form a fuel ladder to any structure. PMC 14.29.040 - Section A

c. **Roadways:** Clear and remove all flammable or combustible growth for a minimum of 10 feet on each side of every roadway whether public or private. PMC 14.29.040 Section J

2. Fire access roads, driveways and turnarounds shall be maintained in accordance with the Fire Code. Fire access roads shall have an unobstructed vertical clearance of 13 feet, 6 inches. Trees overhanging Fire access roads shall be maintained to provide adequate vertical clearance.

3. Remove that portion of any tree that extends within 10 feet of the outlet of any chimney. PMC 14.29.040 Section E

4. Trees over 6 feet in height which are located within 30 feet of any building or structure, or within 10 feet from the nearest curb of any highway, street, alley or driveway, whether publicly or privately owned, shall be maintained such that no leafy foliage, twigs or branches are within 3 feet of the ground. The foregoing shall not apply to the living branches of evergreen trees. PMC Section 14.29.040 - Section D

5. A vertical clearance of 5 feet shall be maintained between the roof surface of any building or structure and any foliage, limb or branch of any tree or other foliage which overhangs the roof of such building or structure. PMC 14.29.040 Section G

6. Maintain the roof of any structure free of leaves, needles or other dead vegetative growth. PMC 14.29.040 Section F

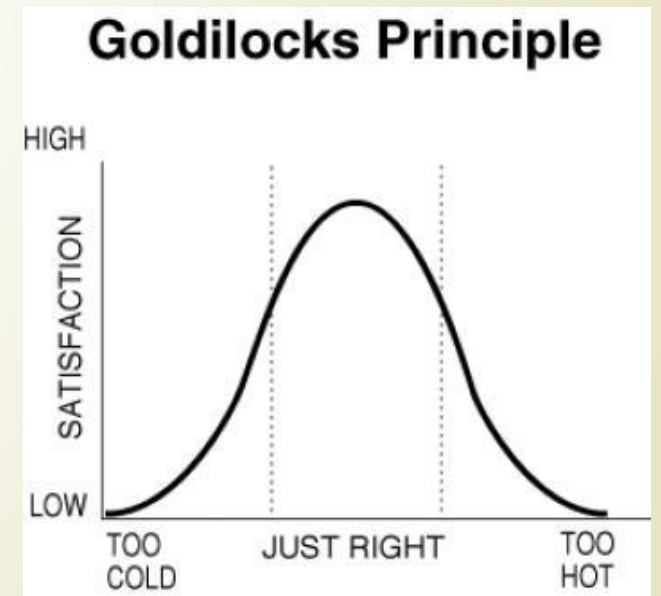
Clearance Instructions: \_\_\_\_\_



# Goldilocks Challenge

- ▶ Finding the “just right” treatment
  - ▶ Not too much left to be ineffective in changing fire behavior
  - ▶ Not too much taken to be devoid of ecosystem functions
- ▶ Promote Shift in Perception of Fuel Modification Zones
  - ▶ Not Too wide
  - ▶ Not Too Little Left
  - ▶ Not “Clearance”, but “Treatment”

~~**CLEARANCE!**  
**EVERYTHING**  
**MUST GO!**~~





# Shifting the Fuel Modification Paradigm

- **Fine-Tuning Treatments**



Uncertain effectiveness  
for fire safety



Uncertain habitat value,  
potential erosion issue

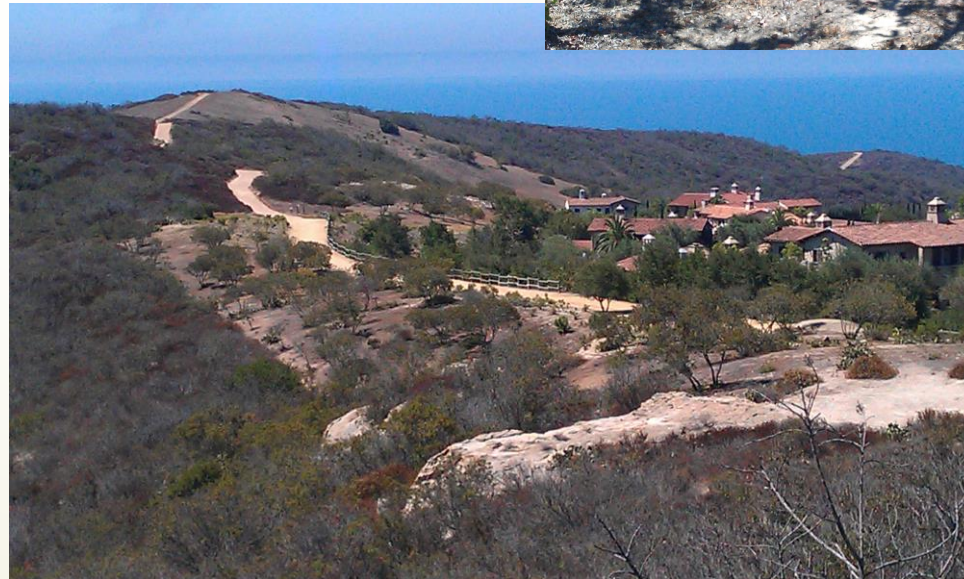


Uncertain effectiveness ,  
uncertain habitat value,  
potential erosion issue



# Making Fuel Unavailable to Fire, but Available for Habitat

- ▶ Make fuel “unavailable” through spatial distribution
- ▶ Vertical discontinuity
  - ▶ Limits torching
  - ▶ Limits ember production
- ▶ Horizontal discontinuity
  - ▶ Limits fire spread rate





# Making Fuel Unavailable to Fire, but Available for Habitat

- Increase Moisture,  
Decrease flammability
  - Less ignitable, acts as  
heat sink
- Methods to increase  
Moisture
  - Irrigation
  - Choice of plants
  - Removal of dead  
material





# Fuel Modification: Shrub Groupings



Natural clumpiness



Manufactured clumpiness



# Defensible Space Projects

## Example #1

How to comply with defensible space guidelines

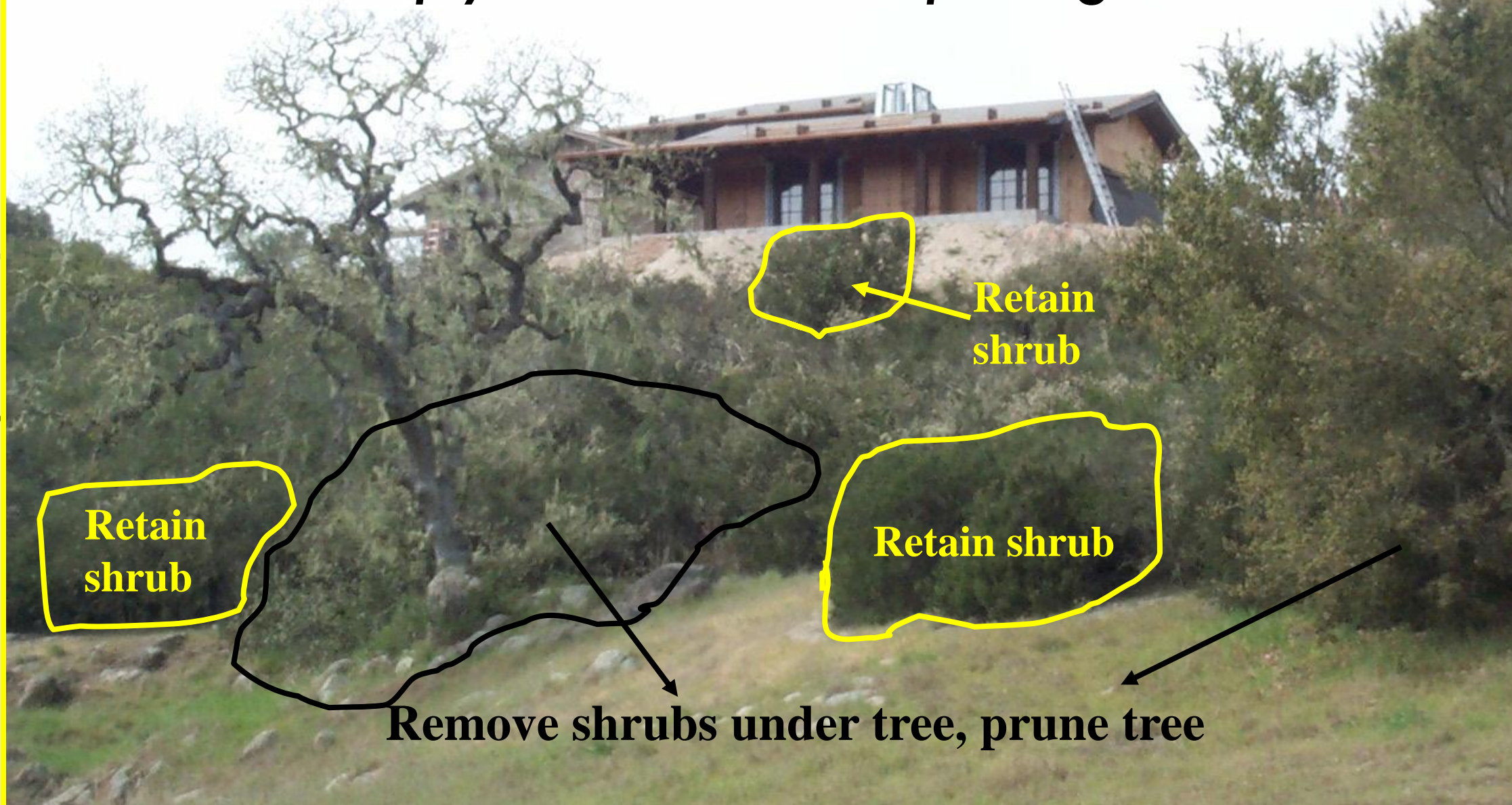
Remove brush from around tree canopy, then prune tree





## Example #2

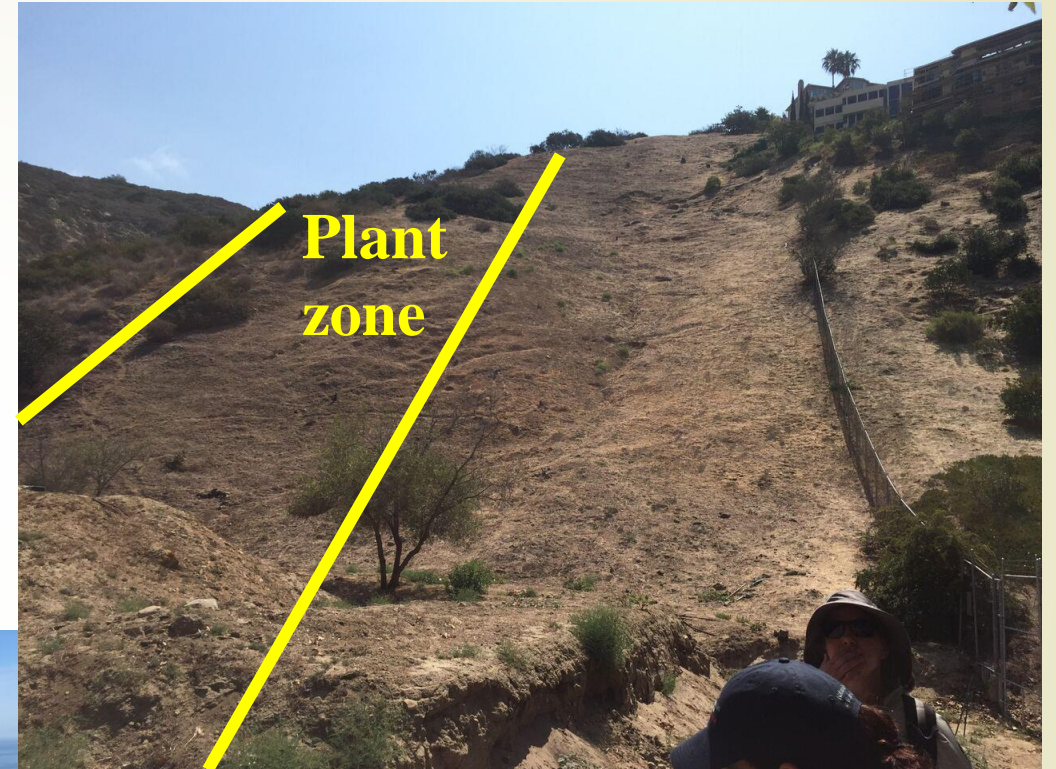
### How to comply with defensible space guidelines





# Fuel Modification: Restoration

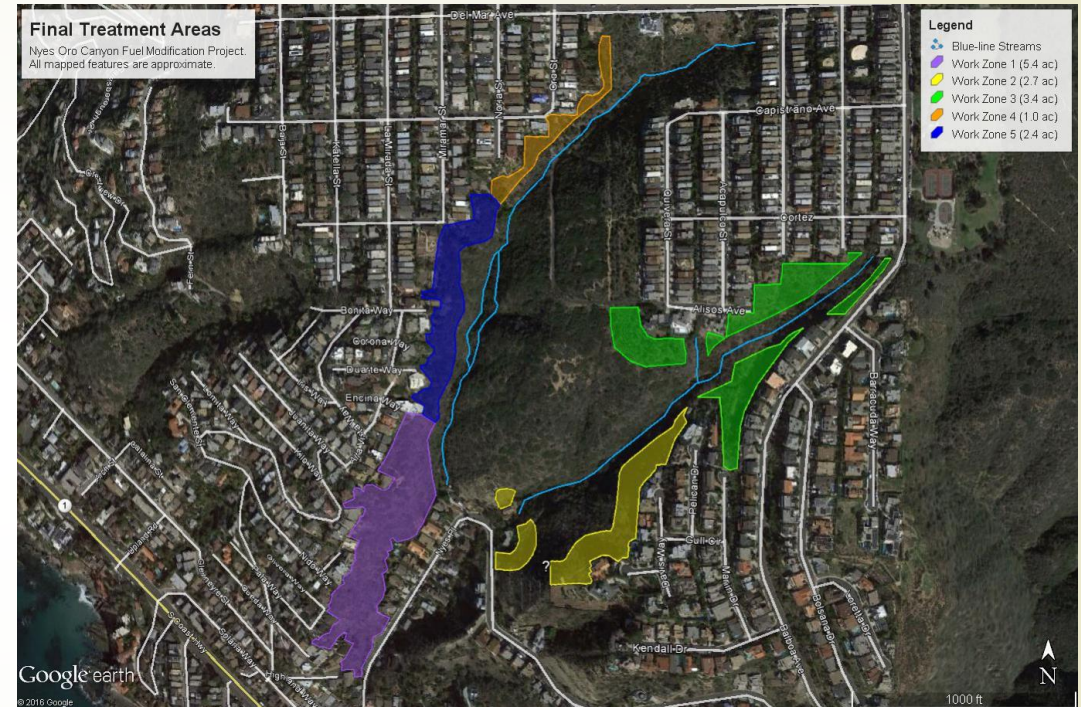
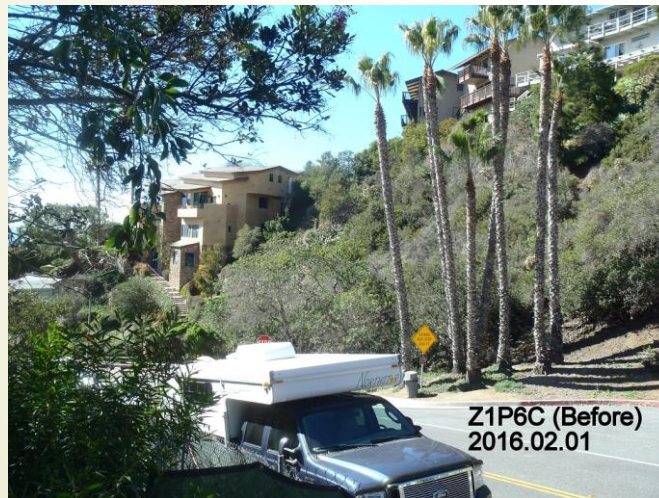
- ▶ Shrub groupings
  - ▶ Low Fuel Volume
  - ▶ High Foliar Moisture
  - ▶ Low Height





# Case Study: Laguna Beach

- Preparation
  - Rare spp. survey
- Community Outreach
- Contractor
  - Training
  - Consistency





# Case Study: Laguna Beach

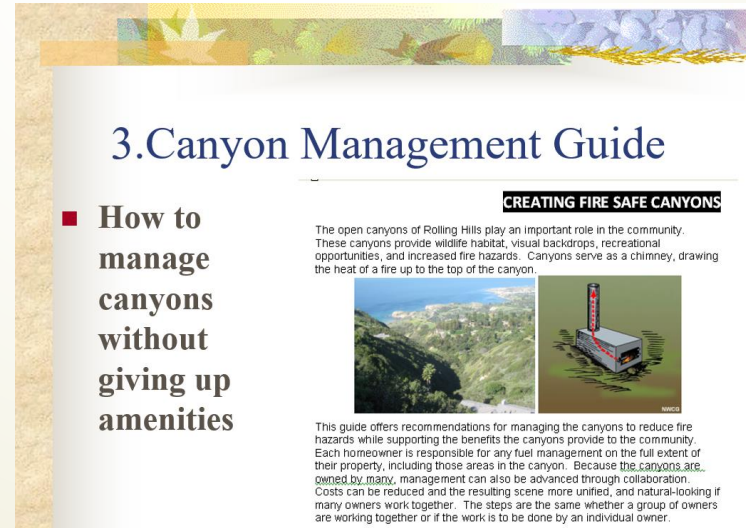
- ▶ Focus on invasive spp. first
- ▶ Then Dead and Down (not dormant)
- ▶ Shrub/Canopy Cover Retention
- ▶ Long-term maintenance





# How to Effect Change

- ▶ Communication- Clearance
- ▶ Code, Guidelines, Inspection forms
- ▶ Review Documents (Plans)- update language
- ▶ Contracts specifications
  - ▶ Disincentives to removing too much
    - ▶ Penalties
    - ▶ Future contracts





**3. Canyon Management Guide**

**CREATING FIRE SAFE CANYONS**

**How to manage canyons without giving up amenities**

The open canyons of Rolling Hills play an important role in the community. These canyons provide wildlife habitat, visual backdrops, recreational opportunities, and increased fire hazards. Canyons serve as a chimney, drawing the heat of a fire up to the top of the canyon.



This guide offers recommendations for managing the canyons to reduce fire hazards while supporting the benefits the canyons provide to the community. Each homeowner is responsible for any fuel management on the full extent of their property, including those areas in the canyon. Because the canyons are owned by many, management can also be advanced through collaboration. Costs can be reduced and the resulting scene more unified, and natural-looking if many owners work together. The steps are the same whether a group of owners are working together or if the work is to be done by an individual owner.



County of Orange  
Central/Coastal NCCP/HCP  
Nature Reserve of Orange County  
[www.NatureReserveOC.org](http://www.NatureReserveOC.org)

**AUGUST 2013**

ORANGE COUNTY FIRE AUTHORITY  
Planning & Development Services Section  
1 Fire Authority Road, Building A, Irvine, CA 92602 714-773-6100 [www.ocfa.org](http://www.ocfa.org)

## Vegetation Management Guideline

### Technical Design for New Construction Fuel Modification Plans and Maintenance Program



**Guideline C-05**

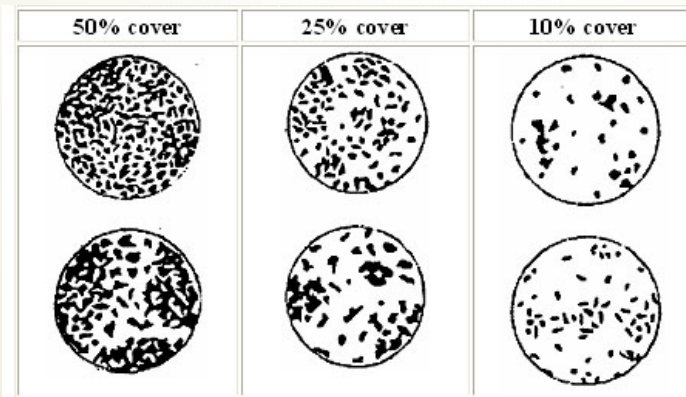
Date: January 1, 2014

Serving the Cities of: Aliso Viejo • Brea • Buena Park • Cypress • Dana Point • Irvine • Laguna Hills • Laguna Niguel • Laguna Woods • Lake Forest • La Habra • Los Alamitos • Mission Viejo • Placentia • Rancho Santa Margarita • Santa Ana • San Clemente • San Juan Capistrano • Seal Beach • Orange • Tustin • Villa Park • Westminster • Yorba Linda and Unincorporated Areas of Orange County

# How to Effect Change

## ► Treatment Prescriptions

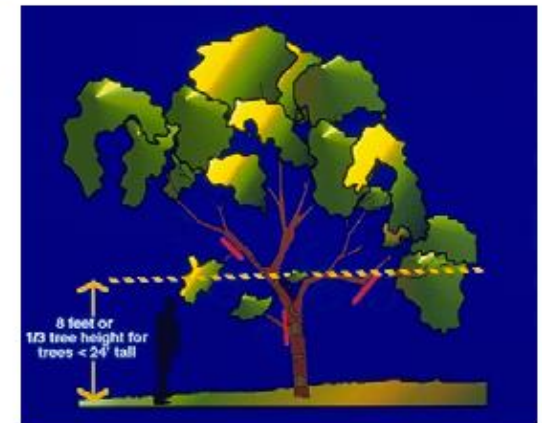
- Measure what is left, not what is taken
- Include more best management practices



### Practices to Follow, Regardless of Strategy

1. Provide for less fire hazard closer to structures – leave more vegetation further away
2. Remove exotics first (mustard, castorbean, volunteer Aleppo pine and pepper trees)
3. Then focus on more flammable native species
4. Protect the unusual & distinctive plant species and remove the common species
5. Retain groundcover
  - ✂ Leave grass stubble up to 4" tall
  - ✂ Distribute natural leaf litter or mulch evenly up to 2 inches
  - ✂ Smaller patches better than big patches
  - ✂ Orient bare patches horizontal to the slope

*Prune branches to a height of 8 ft above the ground. In young trees, prune branches on the lower one-third of the height of the tree. Do not disturb or thin the tree canopy. This promotes growth in the understory, which is more easily ignited.*



Create spaces between shrubs and trees



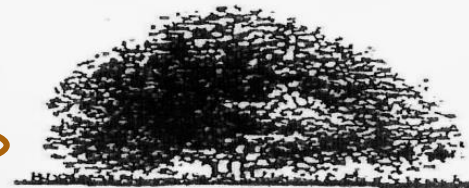
# Defensible Space Guidelines

## ► Prescriptions of Fuel Treatments (contd)

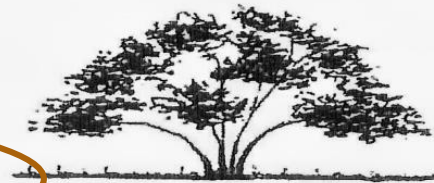
### **BRUSH PRUNING (ZONE 2)**

When doing thinning and pruning use the following guidelines:

1. Remove dead or dying material, trim back lower large branches, and thin crowded plants so that 50 percent of material in the retained plants is removed.
2. Plants which are not to be saved, should be cut off at six inches above the ground.
3. The lowest branches of trees and large shrubs should be three times higher than the height of the vegetation below the plant, or six feet, whichever is higher.
4. Minimize walking and maintenance activities on steep slopes since this promotes erosion and causes soil to become compacted and increases the amount of runoff.



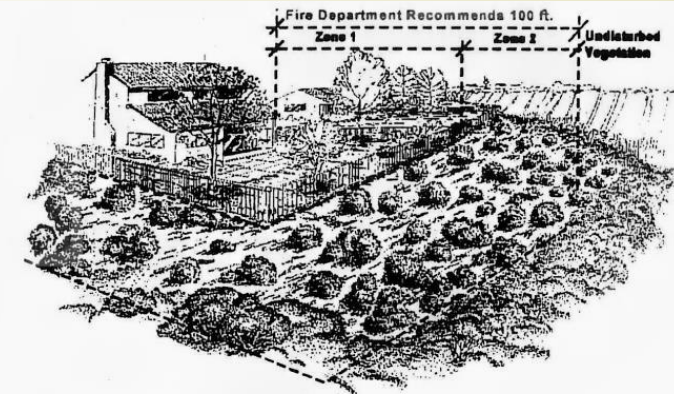
Before



After



Before Brush Management



After Pruning and Thinning

*From: CAL FIRE guidelines for providing defensible space*



# How to Effect Change

- ▶ Training
  - ▶ Fire Dept
  - ▶ Contractors
  - ▶ Residents



*City of Rolling Hills* INCORPORATED JANUARY 24, 1957

NO. 2 PORTUGUESE BEND ROAD  
ROLLING HILLS, CA 90274  
(310) 377-1521  
FAX (310) 377-7288

**Fire Department Presentation:**

**BRUSH & CANYON CLEARING  
DO's and DON'Ts for CONTRACTORS**



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## DIABLO FIRESAFE COUNCIL 2011 Defensible Space Workshop for Contractors and Landscape Designers

Every few years, the Diablo Fire Safe Council, in partnership with local fire agencies, offers a one-day training aimed at arborists landscape contractors and designers. The morning covers wildfire basics, local fire history and suppression strategies.

For further description see the flyers from our 2011 training for the [Contractors](#) or the [Professional Designers](#). To find out when the next workshop is scheduled, or to arrange for a similar training for your group of professionals, contact Cheryl Miller Executive Coordinator.

Important features of creating defensible space, fuel management techniques and working in environmentally sensitive areas build on that foundation. Explanation of the local regulations are followed-up with a group exercise to wrap up the morning joint session.

After a box lunch of networking the participants choose from one of two break-out sessions:

- Supervised hands-on field work OR,
- Design charette focusing on creating design plans

Read more about our successful [2010 training](#).



## 4. Best Practices for Fuel Management

### BEST PRACTICES FOR FUEL REDUCTION

This guide is one of a series of 5 that describe the steps recommended to create and maintain fire resistant vegetation in the City of Rolling Hills. Please also refer to the:

- How to Get the Work Done
- Creating Fire Safe Canyons
- Making and Keeping a Fire Safe Home Site
- Choosing Fuel Treatment Methods



# Good Examples



- Moved treatments to treed area
- Uses rock outcrops



# Good examples

- ▶ Reduced Fuel Volume
- ▶ Shade Retention
- ▶ Managed Species



▶ Not too much  
▶ Not too little  
▶ **JUST RIGHT!**

