Conservation

Fuel Management

Prepared by RisingLeaf Restoration Consulting
Sponsored by Carmel Valley Association

Disclaimer:

This handbook is prepared by RisingLeaf Restoration Consulting based on information from professional sources, including fire department officials.

This conservation-based approach is provided so that the fuel management can be done in concert with ecosystem needs.

Preparing your home and surrounding land for wildland fire will help firefighters do their job.

However, given the nature of wildland fires, there are no guarantees that a wildland fire will not affect your home.

CARMEL VALLEY ASSOCIATION

Preserving, protecting and defending the natural beauty, resources and rural character Carmel Valley.

Carmel Valley Association.org

Conservation Fuel Management
is a collaborative community endeavor.

Conservation Fuel Management

Best Management Practices for Defensible Space

Supports Healthy Habitats for All

Work from your home out.
Maintenance of clear 0-5 foot zone is critical.
Harden your home for ember resistance.
Avoid wholesale clearing of native plants. (saves money)
Avoid bare earth expanses larger than 15 square feet.
Plants aid in ember and erosion control.

For protection of nesting birds, trim native plants only as needed in late fall/early winter, before February.
Maintain shrub height to 2.5 feet. Remove deadwood.
Create a mosaic with spaces between plants.

Preserve islands of mature native habitat, including poison oak outside of the 30' defensible space.
Poison oak is valuable habitat for wildlife. Tend plants to remove ladder fuels, deadwood, and encourage fresh green growth.

Preserve diversity of native plants under oaks by thinning and pruning understory only as needed to keep plants 2.5 feet high beyond the 30' zone. **No wholesale removal.**

Prune coast live oaks in late August to October to avoid oak tree pathogens and in support of nesting birds.

Prune only branches 3" or less in diameter to achieve 6-8 foot ground clearance.

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Avoid lion tail and canopy pruning. Such cutting stresses trees and removes essential habitat and food potential for birds. Form follows function.

Preserve a 3″ layer of mulch of oak tree leaves. Mulch protects roots, soil, microbes, and long term health of trees. Aids in water infiltration in ground.

When pruning and trimming and thinning, look for bird nests in trees, bushes and ground. Avoid disturbing such habitat.

Remove weeds annually in late winter and spring before they go to seed: including, but not limited to, non-native grasses, genista, non-native thistles, poison hemlock, yellow mustard, yellow star thistle.

Remove pampass grass, fountain grass, Mexican feather grass, Harding grass, jubata grass, bamboo, juniper, Italian cypress, Pride of Madera, cape ivy, English ivy, periwinkle, iceplant, St John's Wort (not a complete list)*

Remove genista* and other broom* plants wherever you find them on your land, even if it is beyond the 100′ foot defensible space.

*See resource list on back page for invasive plant identification.

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Best Times to do Fuel Management
to protect biodiversity and
health of plants, animals, and habitats

	J	F	M	A	M	J	J	A	S	O	N	D
Trimming, Pruning Thinning Native Habitats	Y								Y	Y	Y	Y
Oak Tree pruning									Y	Y		
Pine Tree pruning	Y										Y	Y
Madrone Pruning	Y											Y
Grass pulling/ cutting before seed set and heat				Y	Y	Y						
Genista removal	Y	Y	Y	Y	Y						Y	Y
Invasive thistle, poison hemlock, yellow mustard removal	Y	Y	Y	Y	Y							

Bird Nesting Season is February through August: Birds nest in the trees, bushes and grass/ground. As grass cutting is done in Spring, please be attentive to bird nesting!
Additionally, while birds tend to nest in native plants, please be attentive to their presence as you remove invasive plants.

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Best Fuel Management Practices
to protect biodiversity and
health of plants, animals, and habitats

No wholesale brush removal, especially on steep slopes.
Thin, Trim, Prune instead.

Shaded fuel break: maintain islands of understory plants no higher than 2.5 feet high. No wholesale removal of understory plants.

Remove Genista* by the root before it goes to seed, generally by June, depending on how hot/dry the winter/spring has been. Use a Weed Wrench. Available to purchase online or can be borrowed through Carmel Valley Association.

Remove invasive thistles*, poison hemlock*, yellow mustard* before they set seed, generally by end of May depending on the heat of Spring.

*See resource list on back page for invasive plant identification.

Genista spreading on hillsides
across from Folktale Winery

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Remove genista wherever you find it!

Genista spreading across native plant hillside
Wherever it is growing,
it is an ecological and fire hazard
to all living in Carmel Valley and beyond.

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SANTA LUCIA CONSERVANCY

Conservation Fuel Management
Before and After Examples Best Management Practices
Santa Lucia Conservancy/Carol Rice
Photos used with permission

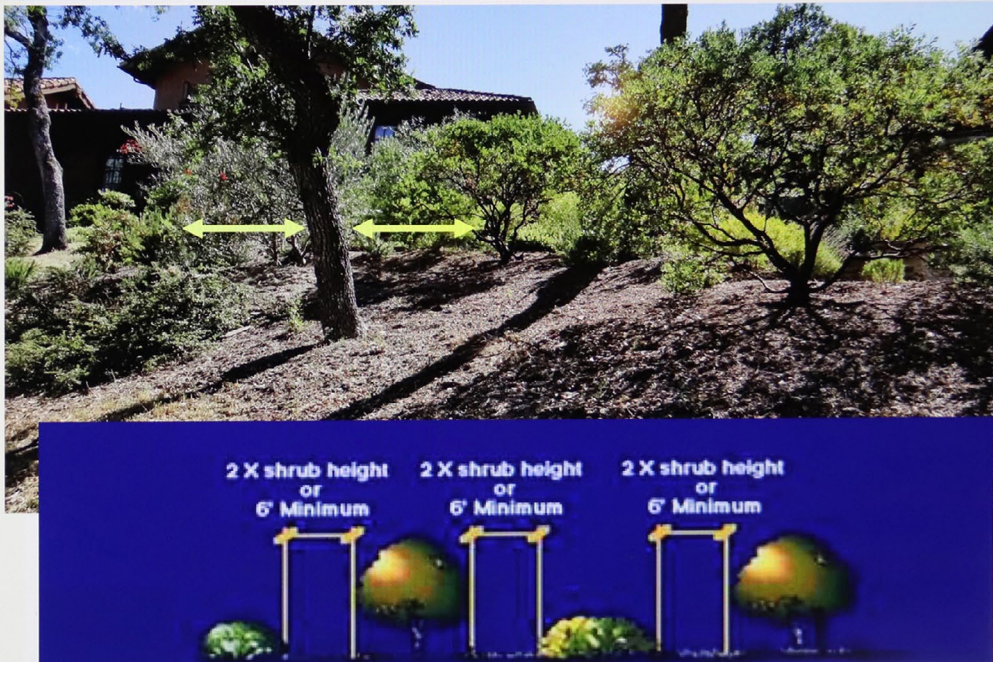
Chaparral Fuel Management Standard

Standard achieved through spacing

Standard achieved through plant pruning

Oak/Shrub Woodland Fuel Management Standard

- Remove ladder fuels
- More common in new Fuel Management Plans
- Also common where oaks are young



SANTA LUCIA CONSERVANCY

For additional graphics on plant spacing for fuel maintenance, refer to resource list in back of this booklet.

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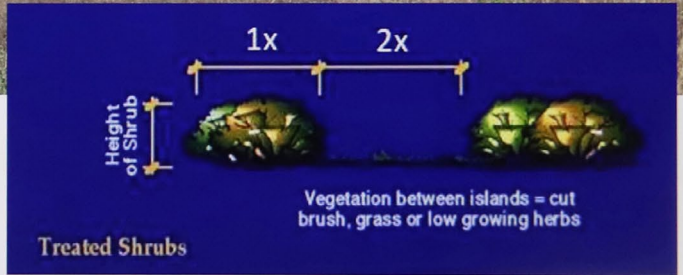
Chaparral Fuel Management Standard (cont'd)

Manzanitas

Shrub Spacing

- Reduces fuel volume, fire intensity
- Maintains shrub cover
- Maximum patch size and space between patches are linked to shrub height



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Before and After Examples of Best Management Practices

RisingLeaf Restoration Consulting

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Before and After Examples of Best Management Practices

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Shaded fuel break = low growing understory
3″ oak leaf mulch (but not near home)

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No large expanses of bare soil.
Can cause erosion.
Acts as bowling alley for embers to reach home.

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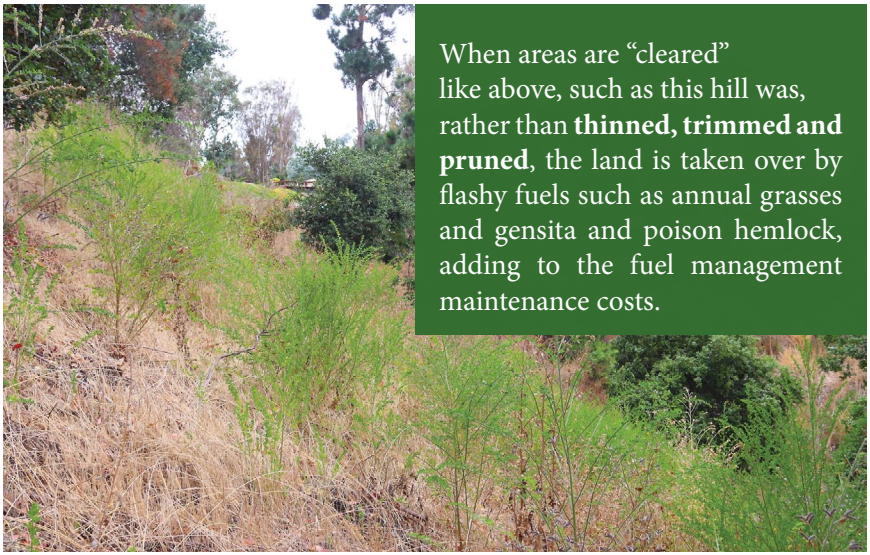

When areas are “cleared” like above, such as this hill was, rather than **thinned, trimmed and pruned**, the land is taken over by flashy fuels such as annual grasses and gensita and poison hemlock, adding to the fuel management maintenance costs.

Conservation Fuel Management

Remove genista wherever you find it!

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Genista growing at dripline of oak trees.
Wherever it is growing,
it is an ecological and fire hazard
to all living in Carmel Valley and beyond.

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Eucalyptus is a high fire hazard and detroys native habitats

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This hillside is the east side of a development in the hills near Mid Carmel Valley. Wind blows every afternoon to the north where the homes are. The fire and environmental hazard will only become increasingly worse as the trees continue to grow.

This hillside is the south side of the same neighborhood as above. There are even more eucalyptus amongst the homes. The cummulative effect of all these eucalyptus has the potential to create a very unsafe situation for this neighborhood and for other neighborhoods beyond.

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From the FireSafe Council/Monterey County
Community Wildfire Protection Plan
November 2010 v2,
Updated 6-3-2019

6.3.6 Exotic/Invasive Plant Removal

Removal of non-native and invasive plants from the WUI will help reduce the presence of undesirable species and enhance thinning efforts aimed at reducing overall biomass levels. Typical undesirable exotic species may include, but are not limited to:

Palm trees (various species)
Eucalyptus trees (Eucalyptus spp.)
Pepper trees (Schinus spp.)
Fennel (Foeniculum vulgare)
Mustard (Brassica spp.)
French broom (Genista monspessulana)
Poison hemlock (Conium maculatum)
Thistle (various species: Italian, Bull, Yellow star, Milk, Russian)
Harding grass (Phalaris aquatica)
Jubata grass (Cortaderia jubata) similar to Pampas grass
Pampas grass (Cortaderia selbana)
Cape ivy (Delairea odorata)

Additional hazardous plants:
Pride of Madera
Juniper
Italian cypress: known by firefighters as “Roman candles” for their extremely flammable nature and very tall flames.

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Information gathered from various professional sources including fire department officials.

Prepared by RisingLeaf Restoration Consulting, 831-624-9467

Website resources

Excellent in-depth recommendations on before and after fuel maintenance drawings for different habitat types:
http://cal-sisters.com/resources/
https://www.youtube.com/watch?v=_YUYqymM-Os

https://firesafemarin.org/create-a-fire-smart-yard/

https://firesafemarin.org/articles/videos/the-compatibility-of-fire-prevention-and-protection-of-biodiversity/

https://ebcnps.org/news/fire-resilient-landscaping-with-native-plants-2021-09/

https://www.cnps.org/flora-magazine/fire-resistant-landscaping-23654

Invasive and native plant information
https://www.cal-ipc.org/plants/impact/
https://slconservancy.org/explore-and-discover/field-guides-and-check-lists/
Monterey County Wildflowers by Rod M. Yeager M.D. and Michael Mitchell
https://www.cnps.org/ (CA Native Plant Society)

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