

Fuel Management Standards for the Santa Lucia Preserve

Updated September 2018


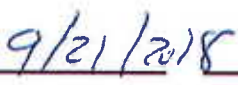

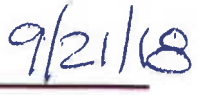
Prepared by

Carol Rice, Wildland Resource Management

Fuel Management Standards for the Santa Lucia Preserve

*Prepared by
Carol Rice, Wildland Resource Management*

This plan has been approved for use on The Santa Lucia Preserve by:

			
Michael Urquides	Date	Christina Fischer	Date
Monterey County Regional Fire District		Santa Lucia Conservancy	
Carmel, California		Carmel, California	

Fuel Management Standards for the Santa Lucia Preserve

A. Introduction

a. Background

The Santa Lucia Preserve is a ~300 home planned residential community integrated into a ~20,000 acre landscape, with 18,000 acres of land permanently protected and managed as privately-owned wild natural lands. The Santa Lucia Preserve (Preserve) community includes private landowners, recreational clubs providing facilities including a golf course and recreational trails, and three organizations which support the community and help manage the land:

- the Santa Lucia Preserve Community Services District (CSD) which manages the community's transportation and utility infrastructure,
- the Santa Lucia Preserve Association (SLPA), which represents landowners and supports landowners through the administration of the Design Review Board and Resident Services, and
- the Santa Lucia Conservancy (Conservancy), a non-profit organization which owns and/or holds easements on the 18,000 acres of natural lands and is dedicated to the preservation and stewardship of the Preserve's natural resources.

This unique conservation community serves as a model of integrated residential development along the urban-wildland interface between the communities of the Monterey Peninsula to the north, Carmel Valley to the east, Big Sur to the west and the Ventana Wilderness and Los Padres National Forest to the south.

The Conservancy works closely with Monterey County Regional Fire District (Regional Fire District), Cal Fire, the CSD, other local fire experts and conservation professionals to periodically update Fuel Management Standards for the Santa Lucia Preserve (Preserve FMS). These standards are designed to meet or exceed fuel management requirements of state and regional fire jurisdictions, while sustaining watershed integrity, ecological health and the natural beauty of the land.

In 2016, the Soberanes Fire ignited just 5 miles west of Preserve boundaries and remained uncontrolled for over three months, testing the firefighting resources of the State of California and the Regional Fire District, as well as the fire preparedness and response of The Preserve. In the wake of this event, which was successfully controlled on the Preserve with no homes or infrastructure lost, the Conservancy initiated an effort to review and revise the 2013 Standards to include relevant new information and experience resulting from the Soberanes as well as recent catastrophic fires elsewhere in the state. Future review and updates will occur as needed, for example in the event that the State of California issues new guidelines or requirements for fuel management in the Wildland-Urban Interface (WUI).

b. Purpose and Content

The purpose of this document is to establish updated standards for the implementation of vegetation management for defensible space around homes, and safe access/egress along driveways and roads within the Santa Lucia Preserve. These standards meet the requirements of California Public Resources Code

4291, included by reference as **Exhibit A**. The Preserve FMS provide broad standards that guide the development and implementation of Lot-Specific Fuel Management Plans (Lot-Specific Plans) which are prepared for each private Lot on The Preserve. These standards are intended to support robust fire safety for Preserve homes and other structures while maintaining the natural and aesthetic values of the Santa Lucia Preserve and minimizing impacts to watershed functions, sensitive habitat and wildlife. By applying these standards consistently throughout the Preserve, we intend to achieve a more fire-resistant and defensible community while also sustaining a healthy and fire-resilient natural landscape. The intended audiences include Preserve land managers, insurance carriers, residential design teams, resource agencies, fuel management consultants, Conservancy staff, and Preserve staff and landowners.

Wildfire is a natural process upon which several highly-valued habitat types depend, including redwood forest. However, in the absence of a natural fire regime and in response to changes in local climate conditions and ecological health (such as forest pathogens and woody weeds), fire risk and behavior is changing throughout the American West. Increased focus on preparing for, as well as preventing, wildfire is essential for the health and safety of both human and natural communities.

Vegetation management is only one of several critical strategies for reducing fire risk in The Preserve. Others include home and infrastructure design location and placement, landscaping, fire response systems, and other elements of community design. The Preserve takes an integrated approach to fire safety that robustly meets and often exceeds State standards.

The objective of the California Building Code (CBC) within the Wildland-Urban Interface Fire Area is to establish minimum standards for materials and material assemblies and provide a reasonable level of exterior wildfire exposure protection for new home construction. The use of ignition resistant materials and design to resist the intrusion of flame or burning embers projected by a vegetation fire (wildfire exposure) will prove to be the most prudent effort within the Preserve to try and mitigate the losses resulting from wildland fires.

An additional protective measure is maintaining defensible space around structures. Defensible space is created by continually maintaining the natural vegetation and landscaping around homes and other structures, with three specific objectives:

- (1) preventing flame lengths from exceeding a height of 2 feet within 30 feet of structures,
- (2) reducing a fire's ability to climb into the tree canopy, and
- (3) providing safe egress by residents and ingress by emergency personnel.

To further ensure community safety as well to sustain the natural character, ecological health and property values of the Preserve, these activities are conducted in a manner that also meets the following goals:

- (1) avoiding erosion and the destabilization of slopes and natural drainages,
- (2) preserving trees to provide habitat, screening, slope stability and/or fuel management benefits,
- (3) protecting water quality, watershed health and groundwater recharge, and
- (4) promoting economic and ecological sustainability by focusing fuel management on the most effective and appropriate areas and minimizing unnecessary vegetation removal.

Native vegetation can be retained around structures as part of a robust fuel management plan, provided appropriate treatments are applied, consistent with the Preserve FMS and lot-specific recommendations. Mowing grass reduces its capacity to carry fire, limits the spread of a fire, and reduces the flame lengths.

Reducing shrub height and creating shrub groupings lessens the fuel volume and continuity, reduces fire intensity, and slows the spread of fire. Preserving mature trees provides shade and can reduce shrub and perennial weed expansion, while pruning lower tree branches and removing shrubs, weed stalks and vines under trees prevents fire from spreading into the tree canopy where firebrands are produced and distributed. Preventing or removing dense stands of woody weeds such as French broom is an essential part of fuel management in all treatment areas. The Conservancy has prepared separate weed management guidelines that support and reinforce these Fuel Management Standards. A copy is available on the Conservancy's website: www.slconservancy.org.

The vegetation treatment recommendations in this document are organized within Fuel Management Zones, delineated by factors such as existing vegetation types, distance from structures, and site topography. Within each Fuel Management Zone, treatments are designed to achieve sufficient defensible space utilizing the best current fire safety and vegetation management practices, consistent with the California Board of Forestry and Fire Protection's Strategic Plan for California (revised in 2016), current State fuel management standards, conservation easements and local, state and federal regulations.

Throughout this document, four land-use designations are used: **Homelands**, which consist of the designated building envelope for each residential Lot; **Openlands**, which represent the areas of residential Lots outside the Homeland and legally protected by conservation easements managed by the Conservancy; **Wildlands**, which are natural lands owned by the Conservancy, and **Rancholands** which are owned by the Ranch Club, Golf Club and/or Community Services District (see Exhibit B). Throughout all four of these designations within the Preserve, steep slopes and specific areas of particular archeological or ecological value may occur, and are also protected by conservation easements jointly held by the County of Monterey and the Conservancy. The Conservancy is available to assist all landowners in identifying boundary locations, such as between Homelands and Openlands, protected areas and ownership information for adjacent lands.

Within the Homelands of each Lot, landowners have broad latitude to implement fuel management treatments consistent with the approved Lot-Specific Plan and DRB-approved Landscaping Plan.

Fuel Management in Openlands is a collaborative process through the development and implementation of the Lot-Specific Plan. Vegetation management in Wildlands requires close coordination with the Conservancy to protect sensitive resources. While standard treatment distances may extend outside a landowner's property, this document does not authorize landowners to take fuel management actions outside their property without the prior written approval of the neighboring landowner and the Conservancy. The Conservancy will assist landowners in identifying and contacting neighboring landowners when such circumstances arise.

c. Roles and Responsibilities

Specific roles related to the creation and implementation of fuel management plans are as follows:

1. **Landowners** are solely responsible for creating defensible space for their homes, through implementation of a Lot-Specific Plan.

Prior to construction: landowners encouraged to mow grass and manage shrubs within the Homeland boundaries without prior approval by the Conservancy. Consult with the Conservancy regarding locations of Homeland Boundaries if no longer marked. Removal of trees within a Homeland is regulated by the County and requires Conservancy and DRB approval, even if recommended by an insurance agent or other expert.

During and after home construction: Landowners shall initiate implementation of the approved Lot-Specific Plan treatments immediately prior to the beginning of construction activities. Treatments should be completed prior to approval of the Framing Inspection.

2. **The Santa Lucia Preserve Association (SLPA)** represents the private landowners of The Preserve and is responsible for implementing CC&Rs referred to as the Declarations of Protective Restrictions for the Homelands and Openlands of the Santa Lucia Preserve, which establish standards for home design, landscaping and vegetation management including implementation of Lot-Specific Plans. The SLPA administers the Design Review Board as noted below.

The Design Review Board (DRB) is a committee of design professionals overseen by the SLPA which provides guidance and approval for the design of all residential structures, landscaping, and associated development, in accordance with Article III, Section 2 of The Declaration. The DRB consists of three (3) members and reviews and either approves or disapproves of proposals and/or plans and specifications for the construction, exterior additions, landscape, or changes and alterations within the Santa Lucia Preserve. The DRB makes recommendations during Design Review to coordinate the Lot-Specific Plan with screening plans, landscape plans, view shed protection and the placement of structures within the Homeland. The DRB requires a FMP prior to Final DRB approval.

3. **The Santa Lucia Conservancy (Conservancy)** works with regional experts to update and approve the use of these Preserve-Wide Fuel Management Standards (Preserve FMS) periodically. The Conservancy reviews and approves each Lot-Specific Plan for consistency with the Preserve FMS. Conservancy staff members are available to provide support and guidance in landowners' efforts to plan and implement fuel management activities as provided in Lot-Specific Plans.
4. **The Santa Lucia Preserve Community Services District (CSD)** contributes to the development of the Preserve FMS and implements it along roadsides per the Roadside Fuel Management Plan and in proximity to community/utility infrastructure. The CSD's fuel management activities along roads and utilities are governed by the Roadside Fuel Management Plan. The CSD also provides guidance and mowing services for interested landowners through Resident Services.
5. **Monterey County Regional Fire District (MCRFD)** reviews, contributes to and approves the Preserve FMS and receives a copy of each fully executed Lot-Specific Plans, described below. The MCRFD will perform annual site inspections to ensure implementation of and compliance with the Lot-Specific Plans, and may be accompanied by Preserve staff.

d. Lot-Specific Fuel Management Plans (Structures and Driveways)

Landowners are encouraged to mow grasslands and manage weeds within the Homelands of their unbuilt Lots on an annual basis, as this enhances access during future design and construction activities and may provide other benefits. No Conservancy approval is required for this activity, provided it occurs only within the designated Homeland. Fuel management in the Openlands requires Conservancy approval, and typically begins during home construction.

Once construction of a home begins, all fuel management must be conducted under the guidance of a Conservancy-approved Lot-Specific Fuel Management Plan. It is the landowner's responsibility to engage a qualified consultant with expertise in wildlands fuel management to draft a Lot-Specific Fuel Management Plan. Beginning this process early in the design phase is highly encouraged. Once drafted, the landowner's consultant shall submit it to the Conservancy for approval prior to receiving Final Design approval. Qualifying criteria for consultants are provided in Exhibit D.

Initial Fire Risk Assessment and Design Considerations.

1. An Initial Fire Risk Assessment is required as part of the Preliminary Design Review packet, to allow landowners and design teams to understand and incorporate lot-specific risk factors and considerations and ensure structure design and siting is responsive to lot-specific fire hazards and constraints. This Assessment shall include:
 - a. A brief description of the existing lot-specific fire hazards due to natural factors such as unique topography, prevailing winds, and existing vegetation conditions, as well as anthropogenic factors such as nearby roads or structures.
 - b. A brief description of the existing or proposed infrastructure and uses on the subject Lot, including structures, landscaping, driveways, roads, equestrian facilities and previous vegetation modifications, if any.
 - c. A set of maps accurately depicting predicted flame lengths within the fuel management treatment areas which covers the entire Lot and portions of adjacent Lots as needed to place the fire risk of structures in context with adjacent environmental conditions. Maps shall be produced that depict the pre-treatment conditions of the property and adjacent ownerships as needed to understand fire risk factors of the Lot.
2. The use of ignition-resistant materials and design in structures will help resist the intrusion of flame or burning embers projected by a vegetation fire, and is a critical element of a coordinated approach within the Preserve to avoid and/or mitigate losses resulting from wildland fires.

Lot-Specific Fuel Management Plan. Prior to receiving occupancy approval, an approved Lot-Specific Fuel Management Plan (Lot-Specific Plan) must be completed and approved by the Conservancy. As described below, each Lot-Specific Plan must include the following seven elements:

1. A description of the existing lot-specific fire hazards due to natural factors such as unique topography, prevailing winds, and existing vegetation conditions, as well as anthropogenic factors such as nearby roads or structures.
2. A description of the existing/approved infrastructure and uses on the subject Lot, including structures, landscaping, driveways, roads, equestrian facilities and previous vegetation modifications, if any.
3. A set of maps accurately depicting predicted flame lengths within the fuel management treatment areas which covers the entire Lot and portions of adjacent lots as needed to place the fire risk of structures in context with adjacent environmental conditions. Maps shall be produced for both pre-treatment and anticipated post-treatment conditions.

4. A map depicting the fuel management area on an aerial-photo base-map which details the locations of the lot-specific fuel management zones in a manner that illustrates the locations of different vegetation treatments required in the plan. Protected habitat areas within the Openlands that fall within or immediately proximate to the fuel management zone, including wetlands, rare plants or archeological sites shall also be depicted on this map. Consultants shall request this information from the Conservancy.
5. A list of lot-specific treatment requirements within each fuel management zone.
6. A list of lot-specific recommendations for implementing treatments, including sufficient information to provide clear instructions to contractors performing the fuel management work.
7. Photos that document fuel types present on the Lot and current vegetation condition, as well as images needed to support specific treatment recommendations (for example, depicting sensitive habitat to be retained).

In some cases, Lot-Specific Plans will identify sensitive resource areas which require special treatment and will need to be marked prior to implementation year. The Conservancy will provide assistance with this process.

Each Lot-Specific Plan shall be considered current for five years, unless significant changes to the site occur (such as a heavy weed infestation or significant die-back of trees or woody shrubs).

When a plan update is needed, it is the responsibility of the landowner to engage a qualified consultant to update the Lot-Specific Plan. Landowners are encouraged to ask their consultant to contact the Conservancy prior to initiating the development or update of the Lot-Specific Plan to receive updated information or requirements, if any. Each update must be submitted for approval by the Santa Lucia Conservancy prior to fuel management treatments, other than Homeland mowing on unbuilt Lots.

e. Certification Protocol for Lot-Specific Fuel Management Plans

- a) For each property, the landowner is responsible for hiring a qualified fuel management consultant who will assess the fire risk of the property and make recommendations compliant with these standards. Contact the Conservancy for a current list of approved fire consultants.
- b) The landowner's consultant conducts a site visit to survey the property and assess the fire concerns of the specific landscape, take pictures to document landscape, vegetation, and existing structures. Any recommendations by the fire expert that differ from the general recommendations of these standards must be clearly identified in the report with justification for any deviation from these standards.
- c) The consultant prepares draft Lot-Specific Plan and submits the draft to the Conservancy and the Landowner for review. Parties offer feedback for revision. Fire consultant prepares final draft.
- d) Landowner provides a final review and signature, then returns the document to the Conservancy for signature.
- e) The Conservancy keeps each fully executed Lot-Specific Fuel Management Plan on file, and provides a copy to the Monterey Regional Fire District, the landowner and the DRB administrator.
- f) Future reviews and updates of the Lot-Specific Plan are initiated by the landowner and completed every five years.

Roadside Fuel Management Plan (Roads and Utilities)

Roadside fuel management is conducted solely by the CSD, consistent with the prescriptions included in these Preserve FMS. The Preserve-Wide Roadside Fuel Management Plan is reviewed by a qualified wildland fuel management consultant or fire ecologist every 5 years and approved by the CSD and the Conservancy.

B. Best Management Practices for Fuel Management

The Santa Lucia Preserve is a unique conservation community spanning 20,000 acres of diverse and highly scenic natural lands. Implementing best management practices that support community safety and the health and beauty of the land is central to the vision and values of The Preserve. This document incorporates expert recommendations that are intended to meet or exceed California State standards while minimizing the environmental impacts of fuel management treatments potentially associated with creating sufficient defensible space and providing safe access and egress. The Santa Lucia Conservancy is available to consult with both private and club landowners' fuel management staff and/or contractors regarding specific suggestions to improve final results and to ensure the following best management practices:

1. **Conduct treatments in the appropriate season.** Treatment scheduling must be planned for times of the year which maximize effectiveness and minimize environmental impacts.
 - Trees should be pruned between November and April to avoid attracting pathogens. Pruning and limbing of oak trees in May through October is strongly discouraged.
 - Grasslands should be mowed in late spring /early summer as grasses begin to dry, as determined through consultation with the Conservancy and CSD. Mowing after June increases wildfire ignition risks, may promote the spread of noxious weeds that increase fuel loads over time, and is strongly discouraged. Mowing outside of fuel management areas is permitted only under a habitat management plan approved by the Conservancy to prevent impacts to sensitive resources, including perennial native grasses that promote fire-resilience.
 - Timing of mowing affects the species composition in subsequent years; too frequent mowing or mowing at inappropriate times of year changes species composition to nonnative grasses and forbs, and increases fire hazard. Mowing too early in the fire season can result in regrowth of fire fuels, which may lead to additional mowing being required. This should be avoided if possible to reduce impacts to desirable native plants and wildlife.
 - In areas where desirable wildflowers, native grasses, or protected species are present, special timing and/or frequency of mowing may be identified in the Lot-Specific Plan. Desirable annual wildflowers should not be mowed until after they have set seed, provided doing so does not compromise fire safety.
 - Mowing within 15 feet of driveways and 30 feet of a structure, or to the Homeland Boundary, whichever is greater, may occur as needed to maintain a grass height of 4 inches during fire season.
 - Openlands mowing in Fuel Management Zones beyond these areas should occur not more than once every 60 days and, between February 1 and August 31, shall be conducted in consultation with the Conservancy to protect ground-nesting birds.

- Mowing must not occur when conditions are hot, dry, and or windy. Prior to mowing in such conditions, landowners and contractors are strongly encouraged to contact the Community Services District for guidance on the advisability and timing of mowing. Once 'Fire Season' is declared, in no case shall mowing or mechanical brush clearing occur after 10am.
2. **Native vegetation** shall be retained to the greatest extent possible while still achieving sufficient defensible space and safe access to protect watershed functions and scenic values. Conversion of existing native habitat types to new habitat types is only permitted in the Openlands in conjunction with a multi-year habitat restoration plan approved by the Conservancy. Shaded roadways shall be preserved through limbing of trees to a height of 15 feet, taking care to retain healthy branches over that height and managing ladder fuels as provided in these Standards.
 3. **Poison oak** located within 30 feet of any structures may be removed from the Openlands without Conservancy approval as part of standard fuel management practices.
 4. **Vegetation disposal** must be conducted in a manner that does not impact the natural vegetation, spread invasive weeds or increase flammability. Woody plant material can be composted within the Homeland of a site or removed to an approved offsite location. In no case may unprocessed plant material be left in the Homelands or Openlands, other than mowed grasses and annual forbes, which can remain in place.
 5. **Bare soil** encourages woody weed invasion and should be minimized outside of the 'non-combustible zone,' with care taken to ensure no single bare patch will be larger than 15 square feet in Openlands areas. On slopes greater than 15% or as may be required by the Conservancy, weed-free rice straw, and/or a seed mix approved by the Santa Lucia Conservancy, is to be broadcast by hand on exposed soil patches and raked into the soil within 72 hours (if during the wet season), or by October 15 (if during the dry season).
 6. **Use of vehicles in Openlands** shall be limited to the area necessary for treatment. If necessary for removal of vegetation debris, haul routes must be pre-approved by the Conservancy before work commences, and impacted areas must be restored to natural conditions by the contractor upon completion of the project. New road development or compaction of soils associated with removal of cleared vegetation is not permitted. All clearing and hauling activities must ensure the ground is protected from erosion, rainfall runoff is dispersed, and appropriate native vegetation is restored.
 7. **Large dead material** located within a fuel management zone may be removed or relocated as recommended by a Lot-Specific Plan. Dead limbs larger than 8 inches in diameter, in the Fuel Management Zones within the Openlands, should only remain onsite if isolated from branches smaller than 4 inches in diameter, if not under a tree canopy, or if moved at least 100 feet from the structure. Large woody material by itself does not ignite readily and does not produce long flames. Retaining these features in open areas serves a beneficial purpose of retaining soil moisture and supports important wildlife, including native pollinators. Once dead logs become rotted through and friable, they should be removed or scattered in the general area to avoid a concentration of lighter fuels.
 8. **Invasive weeds** shall be removed from the Homelands and Openlands of each Lot as part of annual vegetation management. Noxious weeds which act as a ladder fuel or have the potential to intensify fire behavior such as French broom, yellow star thistle, and poison hemlock should be targeted for eradication from the property. The Santa Lucia Conservancy can advise on removal techniques, including mowing, hand removal and the use of herbicide (which must be applied by a qualified

licensed applicator). **All vegetation management in Openlands not detailed in an approved Lot-Specific Plan requires prior Conservancy approval.**

9. Roadside mowing within 15 feet of pavement and 30 feet of a structure may occur as needed to maintain a height of 4 inches. Mowing beyond this area should occur not more than once every 60 days and, between February 1 to August 31, shall be conducted in consultation with the Conservancy to protect ground-nesting birds.

C. Fuel Management Zones

The Preserve supports a diversity of plant communities, topographic relief and microclimates. The development of Lot-Specific Plans ensures that these elements are addressed in the creation of defensible space for each home and safe access/egress. The following vegetation treatments are required within the Fuel Management Zones described in this section, as required, to create sufficient defensible space. Fuel treatments for areas in proximity to all structures include the Non-combustible Zone, the Landscaping Zone, and the Driveway Zone. The type(s) of plant communities present in and around each residential Lot influences the management actions required. For the purposes of this section, ‘fuel management zones’ are categorized according to proximity to structures and the presence of six general plant community types: grasslands, oak savanna, chaparral, coastal scrub, oak-shrub woodlands and oak woodlands, as noted below.

In circumstances where slope, vegetation cover, building materials of existing homes, or other circumstances beyond the control of the landowner are called out in the Lot-Specific Plan, the width of the relevant Fuel Management Zone may be expanded to address increased risk factors. In such cases, strategies other than vegetation removal should also be considered and incorporated to the extent feasible.

	Fuel Management Zone:	Zone Area:
1	Non-Combustible Zone	5 feet from structures
2	Landscaping Zone	entire landscaped area
3	Driveway Zone	15 to 30 feet from pavement
4	Grassland Zone	30 feet from structures
5	Oak Savanna	150 feet from structures
6	Chaparral Zone	200 feet from structures
7	Coastal Scrub Zone	200 feet from structures
8	Oak Woodland Zone	150 feet from structures
9	Oak/Shrub Woodland	200 feet from structures

1. Non-Combustible Zone – to a distance of 5 feet from structures

A non-combustible zone should be maintained within in a 5 foot buffer around structures.

Hardscape surfaces (such as patios, gravel, and bare soil), and landscape materials (such as lawn and succulent herbaceous plants) are examples of non-combustible surfaces. Wood mulch is not considered non-combustible. Landscape architects are encouraged to make liberal use hardscaping

within 5 feet of structures. Care should be taken in the design phase to ensure there is adequate room within the Homeland for such treatments.

2. Landscaping Zone – within entire landscaped area

Approved landscaping must be designed and maintained to minimize flammability. All landscaping occurs within the Homeland area.

Ornamental landscaping often results in large amounts of shrubby flammable vegetation being planted near structures. Many commonly used landscape plants, such as conifers, flammable woody shrubs, and tall ornamental grasses, should be avoided because they may create a fire threat to a home that would otherwise be fire safe. All plant material that is removed from the landscaping must be composted within the Homeland or removed from the Preserve and disposed of properly. In no case can material from the Landscaping Zone be left in the Openlands, and must be processed if it will remain in the Homeland.

The spacing between landscaping plants and volume of landscaping biomass should mimic the Oak Woodland Zone, and landscape areas should be maintained according to the recommendations in the Oak Woodland Zone (see below).

3. Driveway Zone – 15 to 30 feet from edge of driveway pavement

Safe ingress and egress must be maintained along the driveway.

The Driveway Zone is important to allow for safe passage and to provide a location where firefighter resources can travel and engage in fire response. The treatments required correspond to vegetation type.

- a. Grassland, and the understory of all Oak Savanna, and Oak Woodland vegetation should be mowed within 15 feet from the pavement edges, according to the recommendations in the Grassland Zone.
- b. All Chaparral, Coastal Scrub, and Oak/Shrub Woodland vegetation should be treated to 30 feet from the pavement edge, according to their respective recommendations.
- c. All tree branches extending over driveway surfaces should be pruned to ensure 15 of vertical clearance. Whenever possible, healthy overhanging branches higher than 15 feet should be left in place to shade driveway areas and thereby reduce weed and understory growth. Each Lot has accessibility to a fire hydrant located within 1,000 feet of a residence, and a hammerhead or other safe turnaround for fire equipment access as detailed in the Santa Lucia Preserve Design Guidelines. Vegetation around these facilities must be maintained as needed to ensure visibility and access, vegetation must be cleared three feet around fire hydrant.

4. Grassland Fuel Management Zone, to a distance of 30 feet from structures

Grassland zones must be mowed at least once annually in late spring or early summer.

Because grasslands dry and become flammable at the start of every summer, grassland areas will need annual attention, typically by mowing prior to the beginning of each summer. By mowing in late spring, native grasses and wildflowers are retained and may contribute in a lower-hazard condition.

Woody weed species such as French broom, poison hemlock and thistles must be completely removed annually.

- a. Within 30 feet from structures, all annual grassland areas should be mowed in early summer to maintain a minimum height of 4 inches during the summer.
- b. To promote native perennial grasses and wildflower stands which are less flammable and require less water, it is best to avoid mowing more frequently than 60 days. Ideal mowing time is shortly after they have set seed, and may require a delayed mowing schedule in wetter years to maintain their density. Consult with the Conservancy staff as needed.
- c. Trees growing within the Grassland Zone should be treated according to the recommendations made in the Oak Savanna Zone.
- d. Coyote bush, and a number of other shrub species, growing within the grassland zone, may be removed to maintain open herbaceous grasslands as part of an approved Lot-Specific Plan

5. Oak Savanna Zone – to a distance of 150 feet from structures

Grass under trees must be mowed annually, and small-diameter lower tree branches must be pruned.

Oak savannas consist of scattered oaks growing within a grassy understory, and both trees and grass should be maintained to provide a vertical separation between the ground and the tree canopy. According to fire behavior predictions, many areas of oak savanna are expected to produce flame lengths less than 4 feet before treatment. Mowing grass under and around trees reduces fire intensity and rate of spread of fire to an acceptable level, and diminishes the possibility that fire can climb into tree canopy. Pruning the small lower tree branches, as noted below, will reduce the possibility fire can spread into the tree crowns. Woody weed species such as French broom, poison hemlock and thistles must be completely removed annually.

Prescriptions for grass mowing:

- a. Within 30 feet of structures, all grassland areas should be mowed in early summer to a height of four inches, according to the recommendations in the Grassland Zone.
- b. Within 100 feet of structures, all grass growing under trees, out to 6 feet beyond the driplines of trees, should be mowed in early summer to a height of four inches.
- c. Within 30-100 feet of structures (depending on slope and other factors), grass growing in the open, away from trees, does not need to be mowed.

Prescriptions for removing dead wood on the ground:

- a. Throughout the Fuel Management Zones, removal all dead branches on the ground smaller than 6 inch diameter.
- b. Large dead material located within the fuel management zone may be removed or relocated as recommended by a Lot-Specific Plan. Dead logs larger than 8 inches in diameter, in the Fuel Management Zones within the Openlands, should remain on the site if isolated from dead material that is smaller than 4 inches in diameter, if not under a tree canopy, or if moved at least 100 feet from the structure. Large woody material by itself does not ignite readily and does not produce

long flames. Retaining these features in open areas serves a beneficial purpose of retaining soil moisture and supports important wildlife, including native pollinators. Once dead logs become rotted through and friable, they should be removed or scattered in the general area to avoid a concentration of lighter fuels.

Prescriptions for tree pruning:

- a. All branches, living or dead, less than 3 inches diameter in width and less than either 8 feet from the ground or three times the height of any understory shrubs whichever is greater, shall be removed (Figure 1).
- b. Living branches that are greater than 3 inches in diameter but lower than 8 feet in height can be retained, provided that the area within the drip-line of trees is maintained. Oaks with live limbs resting on the ground need not be removed, but all ground debris around and beneath the limbs must be removed to reduce fire risk.
- c. Dead limbs less than 8 feet in height shall be removed.
- d. In landscaped areas, healthy tree branches less than 3 inches in diameter or 8 inches diameter if split or diseased, should be removed to provide vertical clearance of 3 times the height of the understory plants, or 8 feet above understory plants, whichever is greater.
- e. For trees shorter than 24 inches in height, remove lower 1/3 of branches smaller than 3 inches in diameter, or alternatively, treat as a shrub grouping.
- f. Once initial pruning is accomplished, tree pruning is likely to be needed infrequently, on an interval of about once every 3 to 5 years.
- g. Do not thin or prune the tree canopy, as this will promote more understory shrub growth as well as lower parts of the tree, and will result in increased risk that fire will spread to the tree canopy.
- h. Sometimes small trees may need to be cut to the ground in order to achieve the separation of the ground level from the tree canopy, or because mowing equipment cannot avoid the small trees. In all circumstances, removal of seedlings and saplings of black oak, valley oak, or blue oak in the Openlands requires prior approval from the Santa Lucia Conservancy.

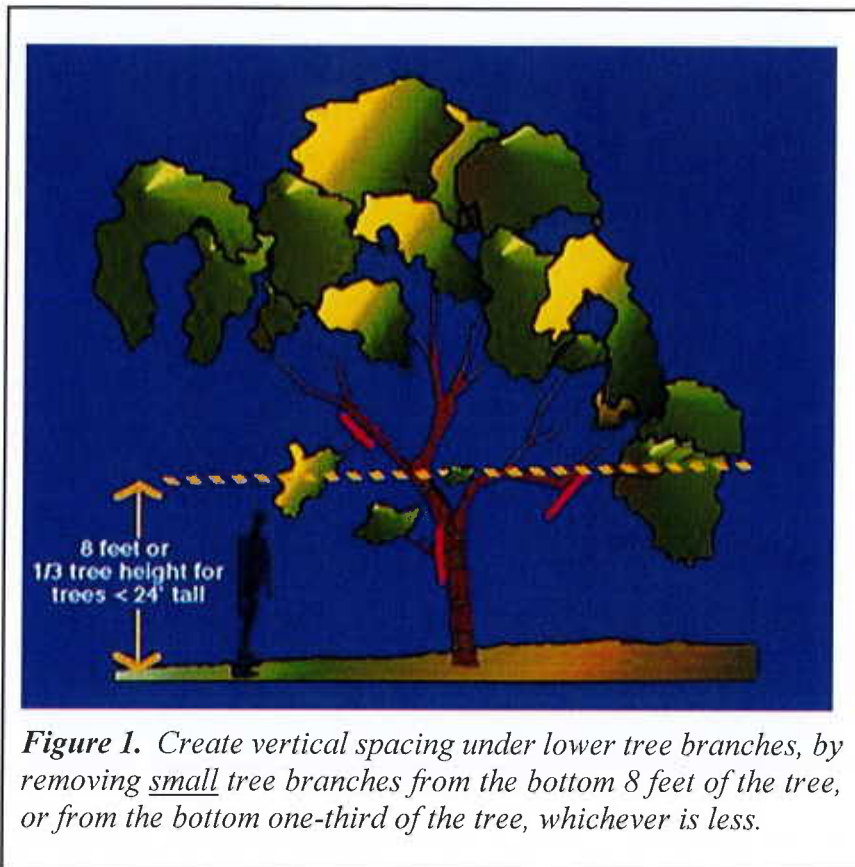


Figure 1. Create vertical spacing under lower tree branches, by removing small tree branches from the bottom 8 feet of the tree, or from the bottom one-third of the tree, whichever is less.

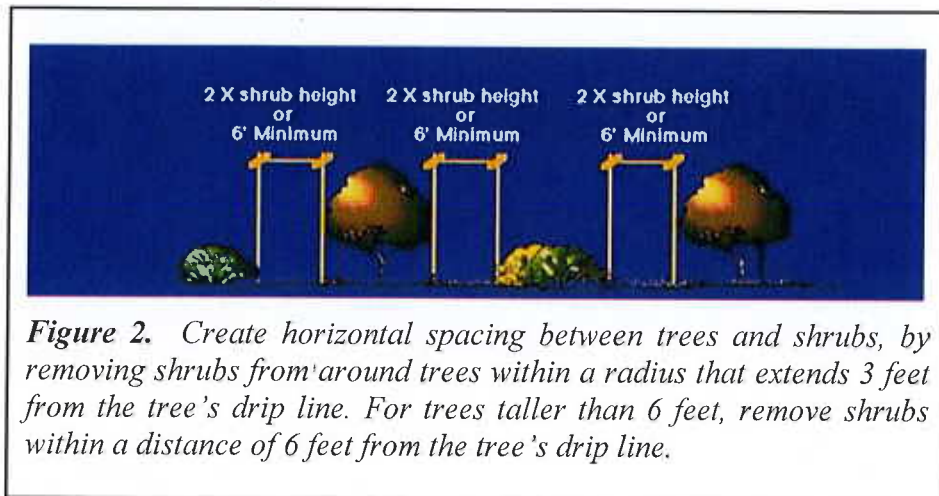
6. Chaparral Zone – to a distance of 200 feet

All shrubs within chaparral must be thinned or mowed within 200 feet of structures.

Chaparral composed of broad-leaved shrubs and bushes that form dense thickets, is an important habitat type on the Santa Lucia Preserve. This habitat type burns with great intensity and it poses a high fire hazard to adjacent structures. When mowed or burned woody shrubs in this habitat type re-sprout from the root system and require regular treatment to manage fire risk. In this vegetation type, defensible space is created by maintaining well-spaced chaparral shrubs that are short-stature, with succulent young vegetation, and no dead branches. Shrubs should not be allowed to grow above 2.5 ft height (usually 5 years or less) before being re-treated.

- a. Shrubs within 200 feet of structures should be mowed, or cut, at ground level. Site topography and vegetation will determine whether the treatments can be “feathered” at the edges, and whether it can be conducted with machinery or by hand crews.
- b. All healthy trees within the 200-foot Chaparral Zone should be retained. As trees increase within the chaparral, they provide a long-term reduction in shrub cover and fire hazard.
- c. Trees growing within chaparral should be encouraged by removing shrubs from within a zone around the tree (Figure 2):
 - When the tree is shorter than 6 feet high, all shrubs should be removed from within a distance of 3 feet from the tree’s drip line.

- When a tree is taller than 6 feet high, all shrubs should be removed from within a distance of 6 feet from the tree's drip line.



7. Coastal Scrub Zone – to a distance of 200 feet

All shrubs within coastal scrub must be thinned or mowed within 200 feet of structures.

Like chaparral, coastal scrub is an important habitat type on the Santa Lucia Preserve. Coastal scrub is comprised of a diverse mixture of native shrub species including coyote bush, native sage, blackberry, coffeeberry, and poison oak. Like most chaparral shrubs on the Santa Lucia Preserve, shrub species growing within coastal scrub habitat will stump-sprout vigorously when mowed or burned, so coastal scrub zones will need to be retreated on a regular basis.

- In open areas away from trees, within 200 feet of structures, change the pattern into discontinuous groups of shorter, younger, more succulent shrubs and ensure the distance between groups of shrubs is at least 2 times the height of the shrub patch (see Figure 3).
- In coyote brush dominated stands, if other shrub species are present, retain them at the expense of coyote brush. Retain less-flammable desirable shrubs, such as ceanothus, currant, coffeeberry, native rose, and sticky monkey flower.
- It is not necessary to eliminate coyote brush within the fuel management zone. Instead, change the pattern into discontinuous groups of shorter, younger, more succulent shrubs. If native bunch grasses are present, consult with the Conservancy regarding restoring grassland conditions through permanent removal of encroaching brush species.
- Remove all dead branches from less-flammable desirable shrubs, such as ceanothus, currant, coffeeberry, native rose, and sticky monkey flower.
- All healthy trees within the 200-foot Coastal Scrub Zone should be retained. As trees increase within the chaparral, they provide a long-term reduction in shrub cover and fire hazard.
- Trees growing within coastal scrub zones should be encouraged by removing shrubs from within an area around the tree as shown below (Figure 2, above):

- When the tree is shorter than 6 feet high, all shrubs should be removed from within a distance of 3 feet from the tree's drip line.
- When a tree is taller than 6 feet high, all shrubs should be removed from within a distance of 6 feet from tree crown edge.

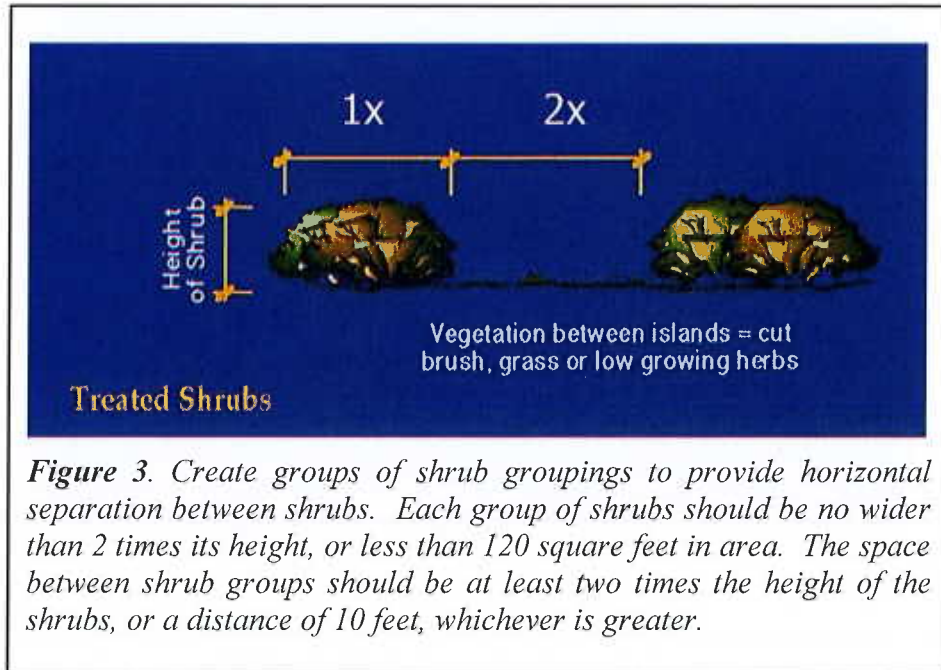


Figure 3. Create groups of shrub groupings to provide horizontal separation between shrubs. Each group of shrubs should be no wider than 2 times its height, or less than 120 square feet in area. The space between shrub groups should be at least two times the height of the shrubs, or a distance of 10 feet, whichever is greater.

8. Oak Woodland Zone – to a distance of 150 feet

Understory plants must be kept short, and small lower tree branches must be removed.

The understory of oak woodland habitat includes shade tolerant shrubs and grasslands. The goal of this standard is to maintain an existing oak woodland with a short-statured understory of herbaceous plants and shrubs, and a tree canopy at least 8 feet above the ground. An initial treatment will be required to prune smaller branches of trees up to 8 feet above the ground and to reduce density and stature of understory shrubs. After the initial treatment, annual maintenance will be needed to cut back shrub sprouts in order to maintain a maximum height of 2.5 feet.

Prescriptions for understory maintenance:

- Within 30 feet from structures, at the beginning of each summer, ensure that the herbaceous understory is maintained at a maximum height of 4 inches.
- Understory vegetation should not be completely removed. Instead, selectively remove flammable species like coyote bush, and prune-back and remove dead branches from less-flammable desirable species such as coffeeberry, currant and wild rose.
- Native understory shrubs are to be kept free of dead branches and no more than 2.5 feet in height.

- d. Leaf litter depth should be kept to no greater than 4 inches.

Prescriptions for tree pruning:

- a. All branches, living or dead, less than 3 inches diameter in width and less than either 8 feet from the ground or three times the height of any understory shrubs whichever is greater, shall be removed (Figure 1).
- b. Living branches that are greater than 3 inches in diameter but lower than 8 feet in height can be retained, provided that the area within the drip-line of trees is maintained. Oaks with live limbs resting on the ground need not be removed, but all ground debris around and beneath the limbs must be removed to reduce fire risk.
- c. Dead limbs less than 8 feet in height shall be removed.
- d. In landscaped areas, healthy tree branches less than 3 inches in diameter or 8 inches diameter if split or diseased, should be removed to provide vertical clearance of 3 times the height of the understory plants, or 8 feet above understory plants, whichever is greater.
- e. For trees shorter than 24 inches in height, remove lower 1/3 of branches smaller than 3 inches in diameter, or alternatively, treat as a shrub grouping.
- f. Once initial pruning is accomplished, tree pruning is likely to be needed infrequently, on an interval of about once every 3 to 5 years.
- g. Do not thin or prune the tree canopy, as this will promote more understory shrub growth as well as lower parts of the tree, and will result in increased risk that fire will spread to the tree canopy.
- h. Sometimes small trees may need to be cut to the ground in order to achieve the separation of the ground level from the tree canopy, or because mowing equipment cannot avoid the small trees. **In all circumstances, removal of seedlings and saplings of black oak, valley oak, or blue oak in the Openlands requires prior approval from the Santa Lucia Conservancy.**

9. Oak-Shrub Woodland Zone – to a distance of 150 feet

Understory plants must be kept short, and small lower tree branches must be removed.

The goal of the following treatment is to facilitate the conversion from a transitional woodland / shrubland vegetation type, into a more fire-safe oak woodland with an understory consisting of grass, herb or other low-growing fire-resistant plants. Native understory shrubs are acceptable, if maintained to a maximum height of 2.5 feet, and if kept free of dead branches. Once the conversion has been made to a stable oak woodland, little vegetation treatment will be necessary other than the normal treatments for the Oak Woodland Zone. Woody non-native weeds such as French broom should be vigorously suppressed.

Prescriptions for understory maintenance:

- a. Understory vegetation should not be completely removed. Instead, selectively remove all French broom and flammable native species like coyote bush, and prune-back and remove dead branches from less-flammable desirable species such as coffee berry and wild rose.

- b. Within 30 feet of structures, at the end of each spring mow grass according to the Grassland Zone.
- c. Remove chamise, a highly flammable dense-growing native (*Adenostoma fasciculatum*), under tree canopies. Where chamise is found outside of tree canopies, mow chamise at ground level, or create shrub groupings, according the recommendations in the Coastal Scrub Zone. If other shrub species are present with the chamise, retain them at the expense of the chamise.

Prescriptions for tree pruning:

- a. All branches, living or dead, less than 3 inches diameter in width and less than either 8 feet from the ground or three times the height of any understory shrubs whichever is greater, shall be removed (Figure 1).
- b. Living branches that are greater than 3 inches in diameter but lower than 8 feet in height can be retained, provided that the area within the drip-line of trees is maintained Oaks with live limbs resting on the ground need not be removed, but all ground debris around and beneath the limbs must be removed to reduce fire risk.
- c. Dead limbs less than 8 feet in height shall be removed.
- d. In landscaped areas, healthy tree branches less than 3 inches in diameter or 8 inches diameter if split or diseased, should be removed to provide vertical clearance of 3 times the height of the understory plants, or 8 feet above understory plants, whichever is greater.
- e. For trees shorter than 24 inches in height, remove lower 1/3 of branches smaller than 3 inches in diameter, or alternatively, treat as a shrub grouping.
- f. Once initial pruning is accomplished, tree pruning is likely to be needed infrequently, on an interval of about once every 3 to 5 years.
- g. Do not thin or prune the tree canopy, as this will promote more understory shrub growth as well as lower parts of the tree, and will result in increased risk that fire will spread to the tree canopy.
- h. Sometimes small trees may need to be cut to the ground in order to achieve the separation of the ground level from the tree canopy, or because mowing equipment cannot avoid the small trees. **In all circumstances, removal of seedlings and saplings of black oak, valley oak, or blue oak in the Openlands requires prior approval from the Santa Lucia Conservancy.**