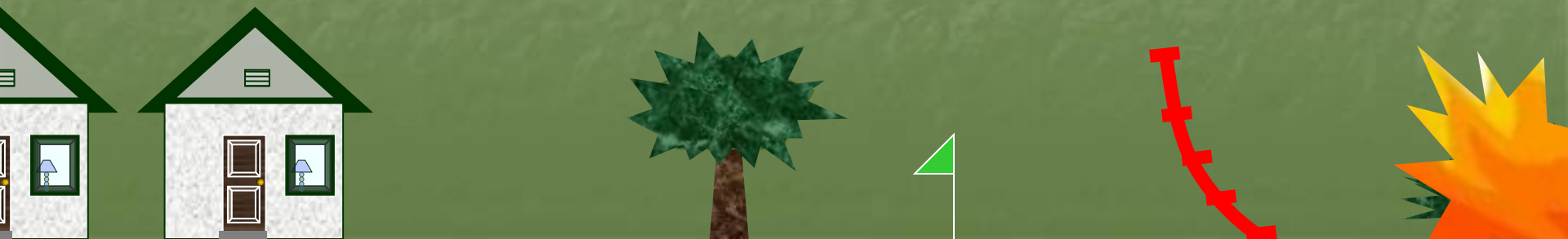
San Diego Natural History Museum
Your Nature Connection
The City of San Diego · State of California · Semper Vigilans
U.S. Fish & Wildlife Service
David Reed Landscape Architects
Kay Stewart Landscape Architect
2171 India Street, Suite A
San Diego, California 92101
California Chaparral Institute
...the voice of the chaparral
FIREWISE 2000, Inc.
Schmidt Design Group, Inc.
Home and Community Site Design, Defensible/Survivable Space and Fuel Management

First Steps

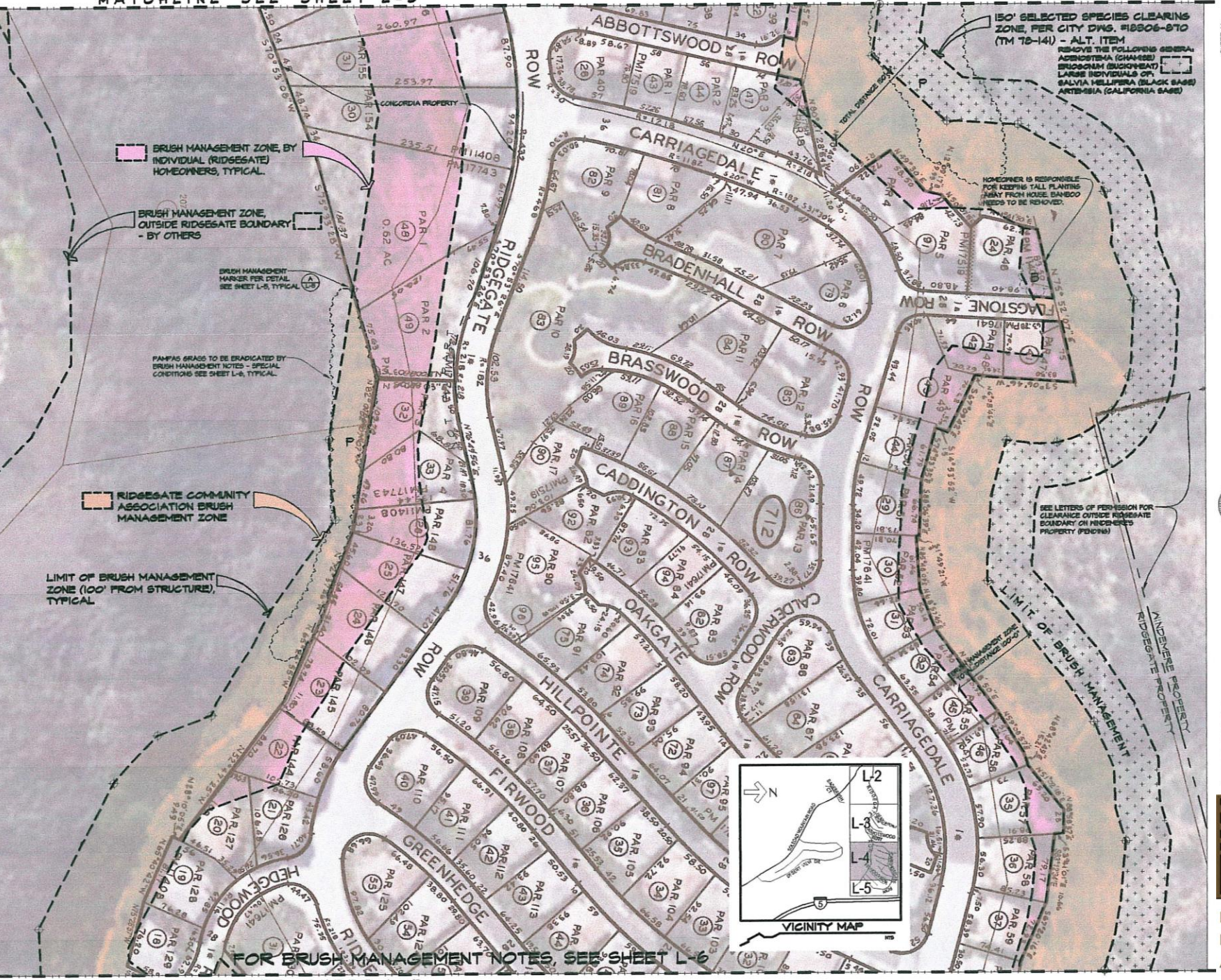
- Code research
- Contact local fire marshal
- Reconcile requirements from different stakeholders:
  - Homeowners
  - Local fire jurisdiction
  - Multiple Species Conservation Program
  - Insurance, HOA and others

Large-scale Community Planning

- Buffers
  - Irrigated Green Belts
  - Roads
  - Golf course



MATCHLINE SEE SHEET L-3



FOR BRUSH MANAGEMENT NOTES, SEE SHEET L-6

MATCHLINE SEE SHEET L-5

SHEET No. L-4 OF 6

BRUSH MANAGEMENT

JOB NO.: 0460 DRAWN BY: AS/

DATE: AUGUST 02, 2004 CHECKED BY: DWR

REVISIONS

GRAPHIC SCALE

SCALE: 1"=40'

NAGEMENT
ATE
NITY ASSOCIATION

DAVID REED LANDSCAPE ARCHITECTS

DAVID REED LANDSCAPE ARCHITECTS

Golf course built between homes and wildlands would provide better protection

Image from Google Earth

Large-scale Community Planning

- Access
  - Two ways in, two ways out
  - Adequate width for two emergency vehicles

Inappropriate planting too close to road!

Fire Access

Width =

Roadways are wide enough (minimum of 24 feet) to accommodate multiple fire engines.

Access

Inappropriate landscaping too close to the roadway!

Access concerns?

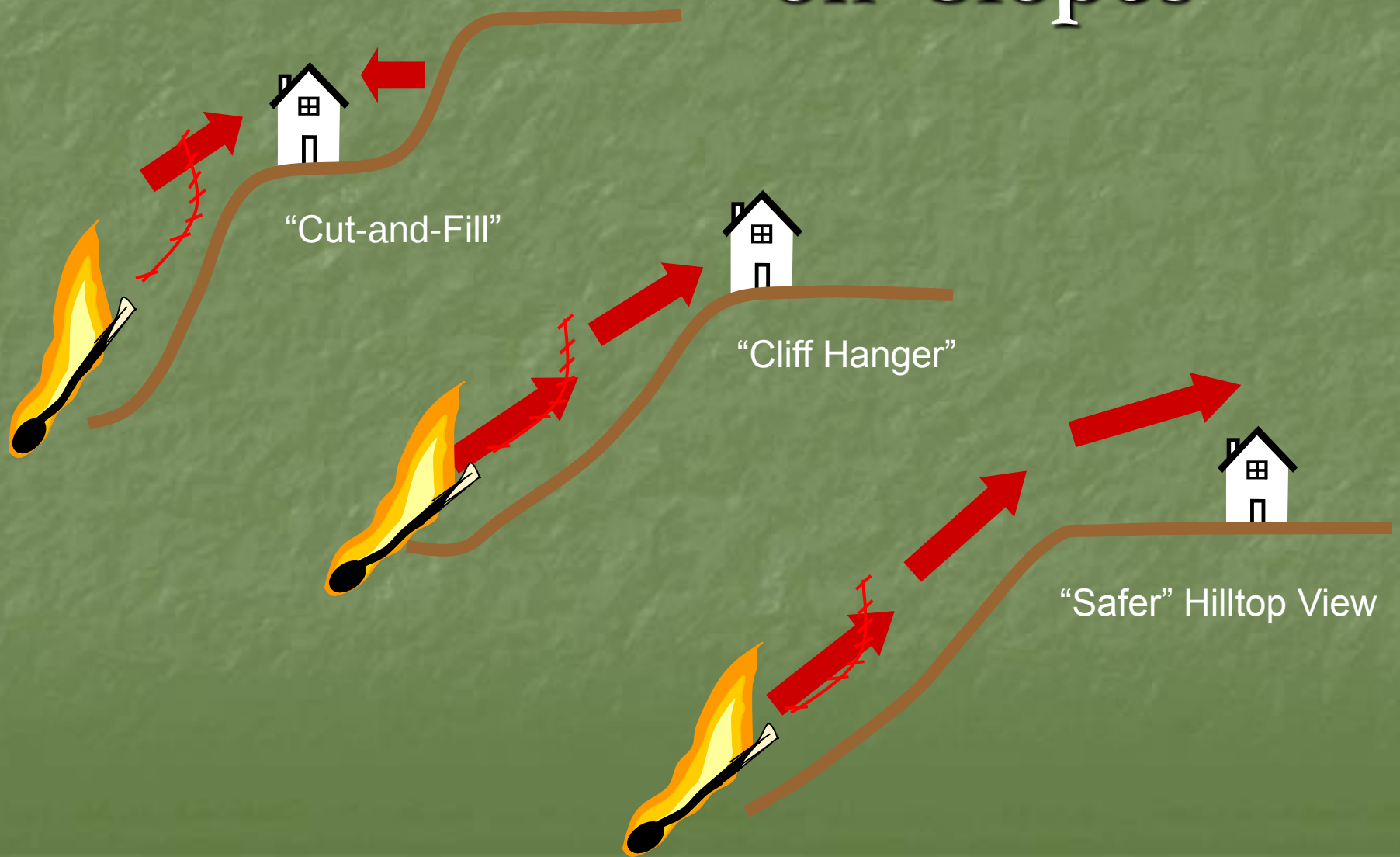
Site Location

- Canyon rim?
- In the middle of development?

Embers can still reach homes away from the edge of a sub-division!

Once a fire resistant home begins burning, any structure closer than 16’ is subject to the intense radiant heat given off by the burning home

Structure Position on Slopes



Setbacks

15' for single story structures

30' for two story structures

Help your home protect itself! Set-back from top of slope, makes a difference!

Set-backs also allow mitigation to be contained within property boundary and not on public land!

Case Study

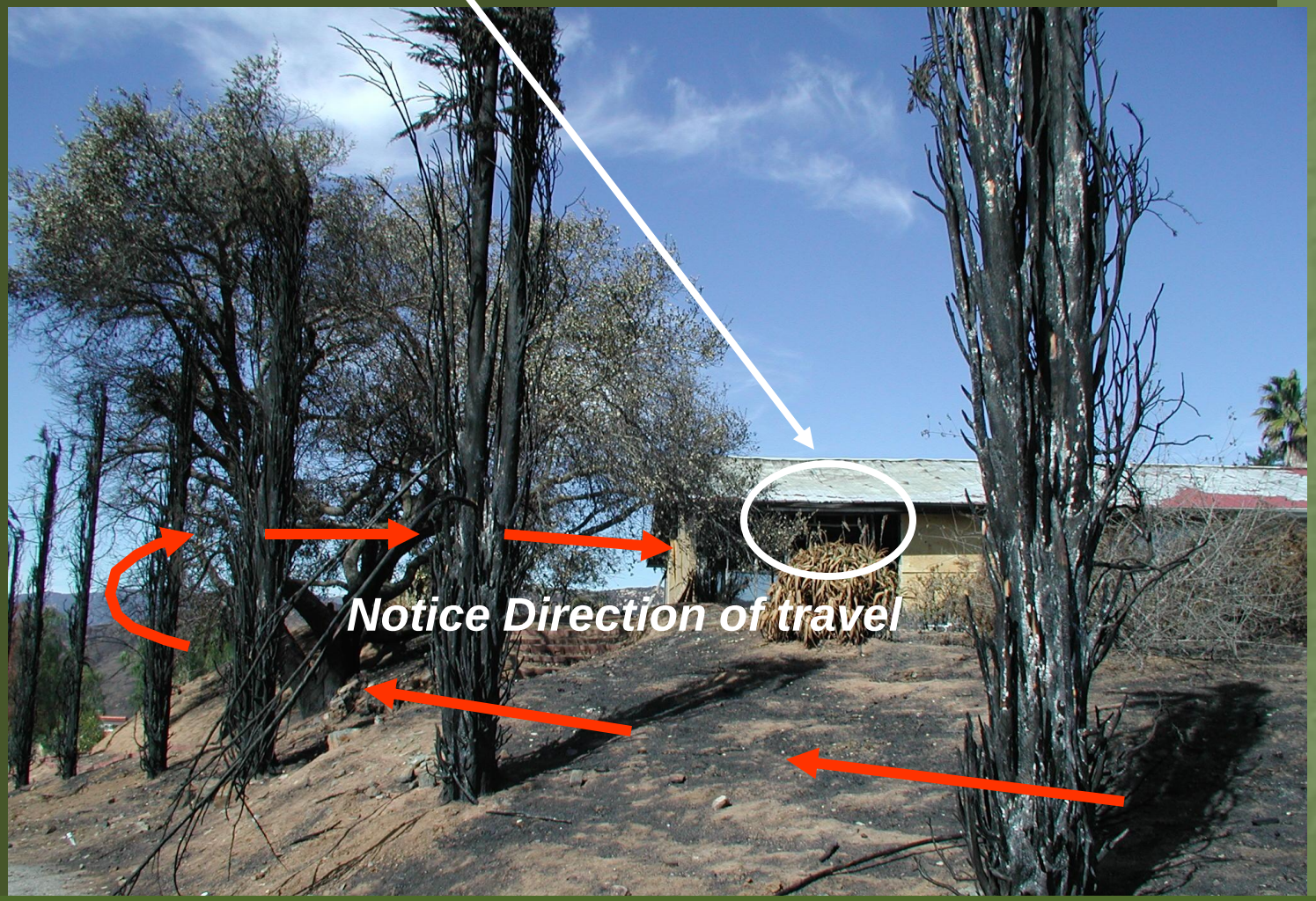
This structure met all Ignition-Resistant Materials construction requirements:

- Boxed eaves
- Fire sprinklers
- Dual-pane/tempered windows
- Class-A roofing

but still burned.

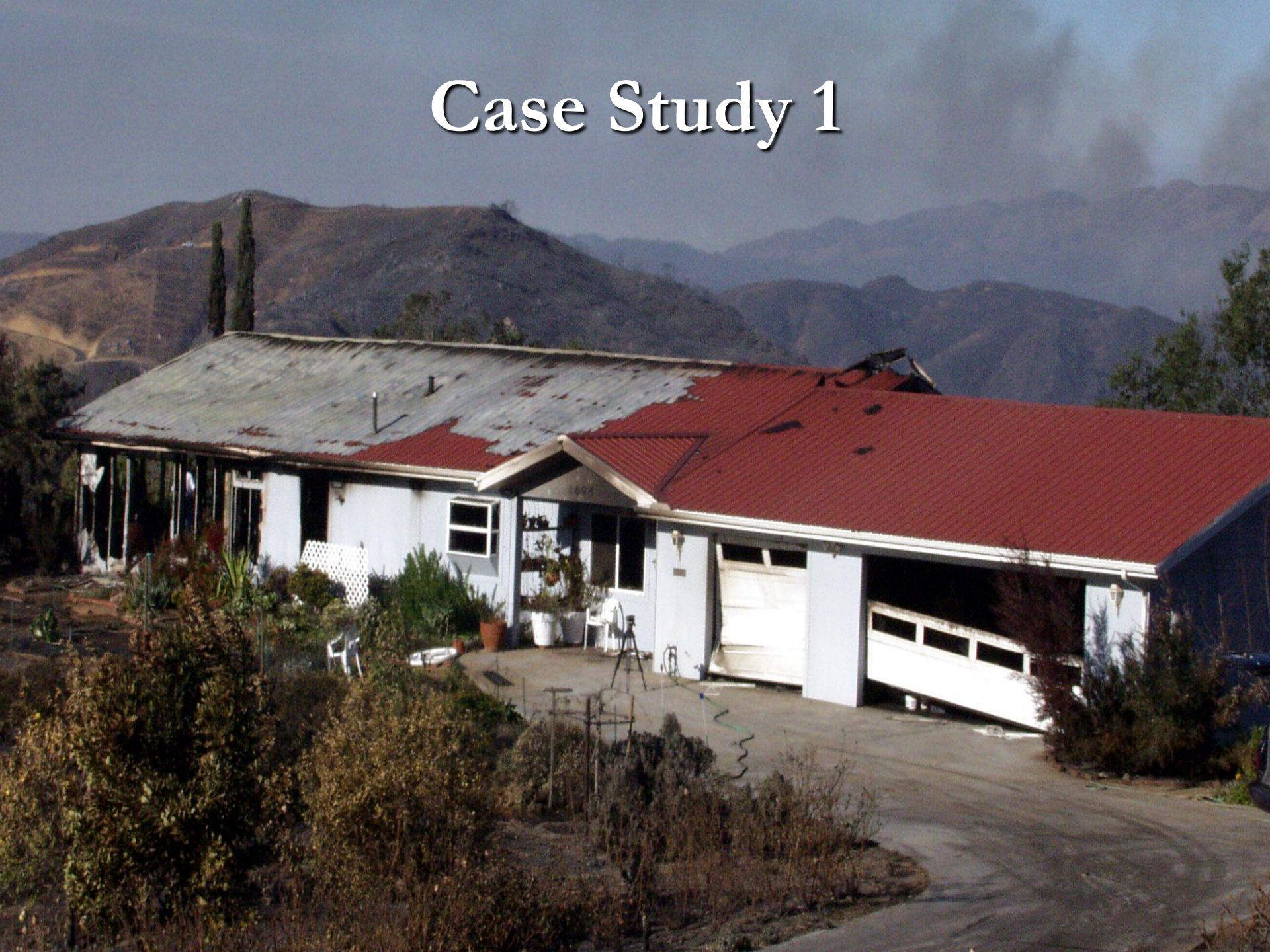
Why?

Case Study 1



Landscaping consisting of highly volatile cypress placed too close to the structure and open window.

Case Study 1



Case Study 2

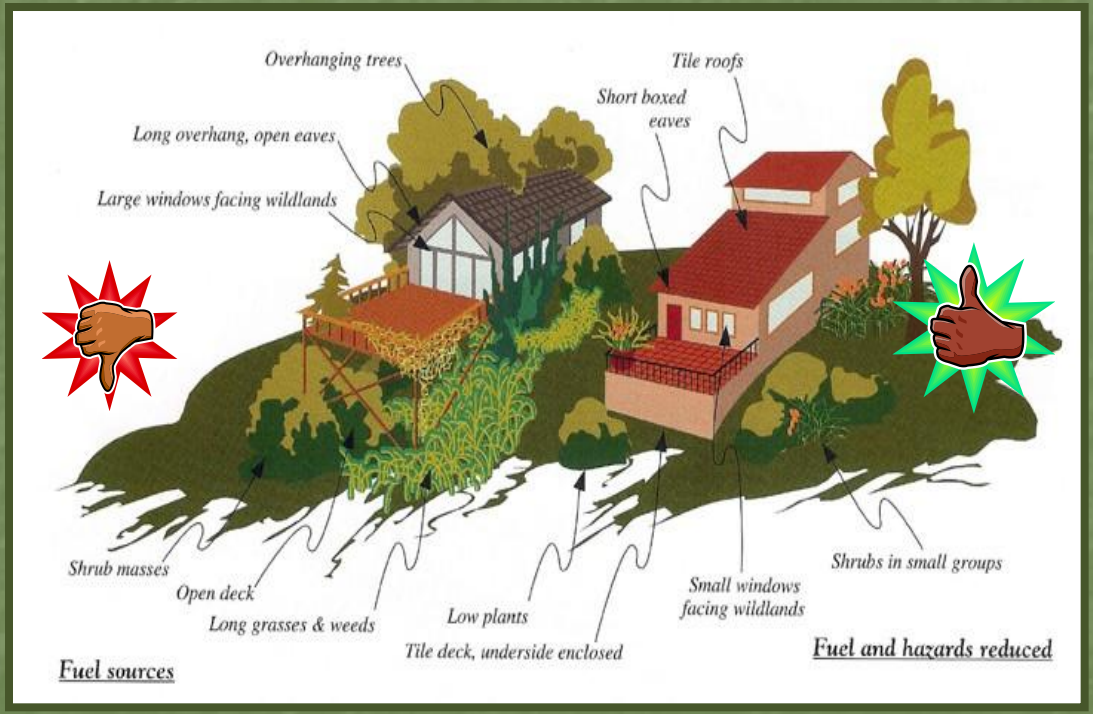
Case Study 2

6 plants underneath the deck were less than 4 feet away.

The plant was identified as rosemary.

Fire-resistant balconies with no exposed wood can help. Appropriate landscaping gives them a better chance.

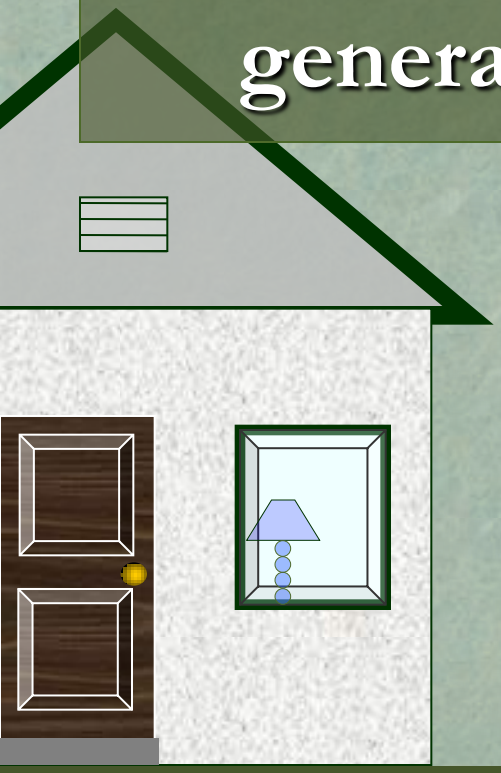
Landscaping
A System Approach

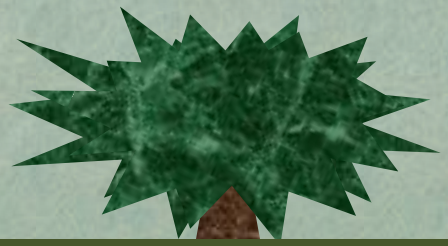


- ✓Defensible space
- ✓Planting arrangement
- ✓Fire resistive plants
- ✓Irrigated plants
- ✓Long-term maintenance
- ✓Habitat protection
- ✓Erosion Control
- ✓Water conservation

Defensible/Survivable Space

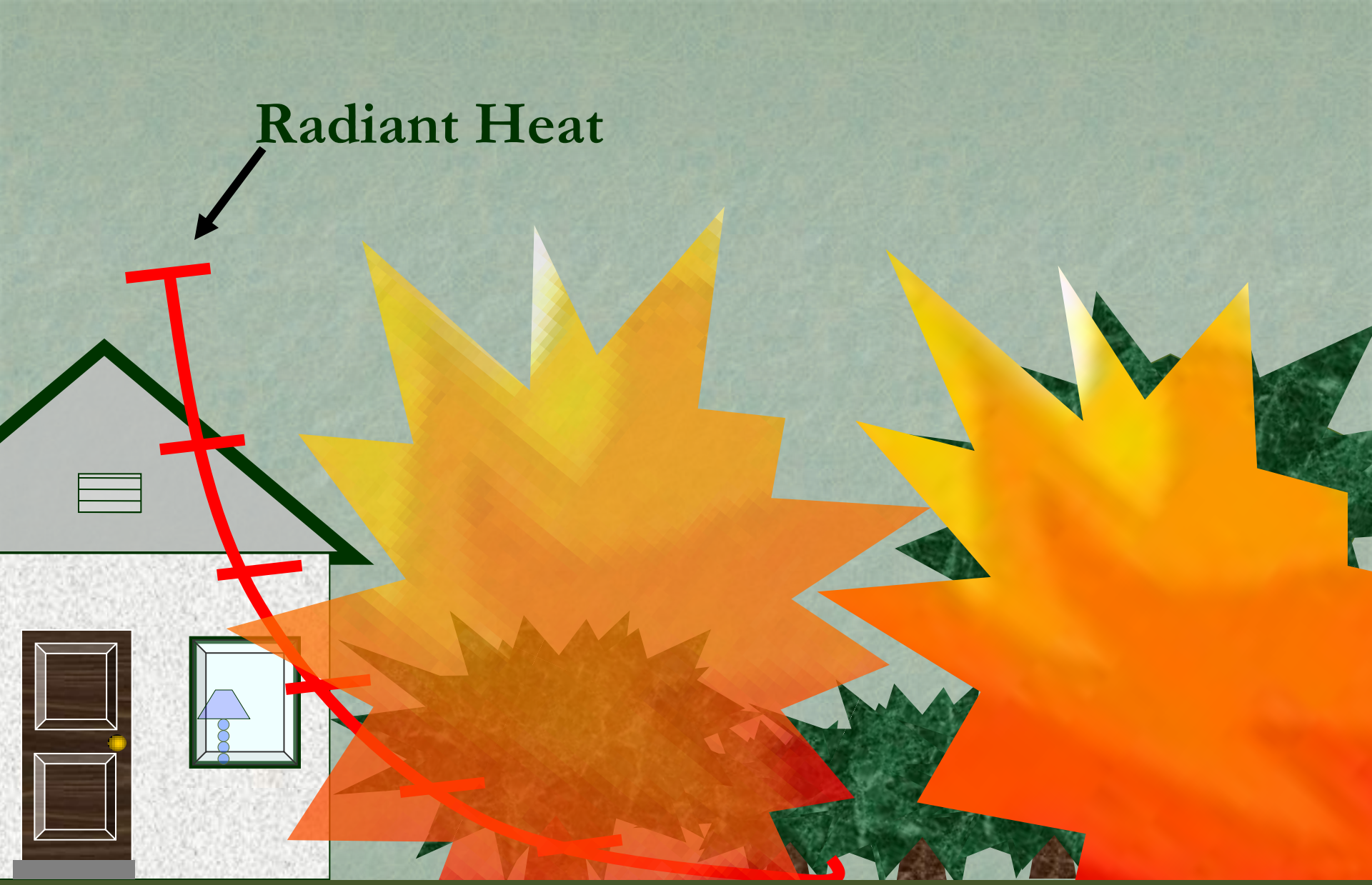
- Requirements differ by jurisdiction – Check with local fire marshall – generally agreed at 100 feet

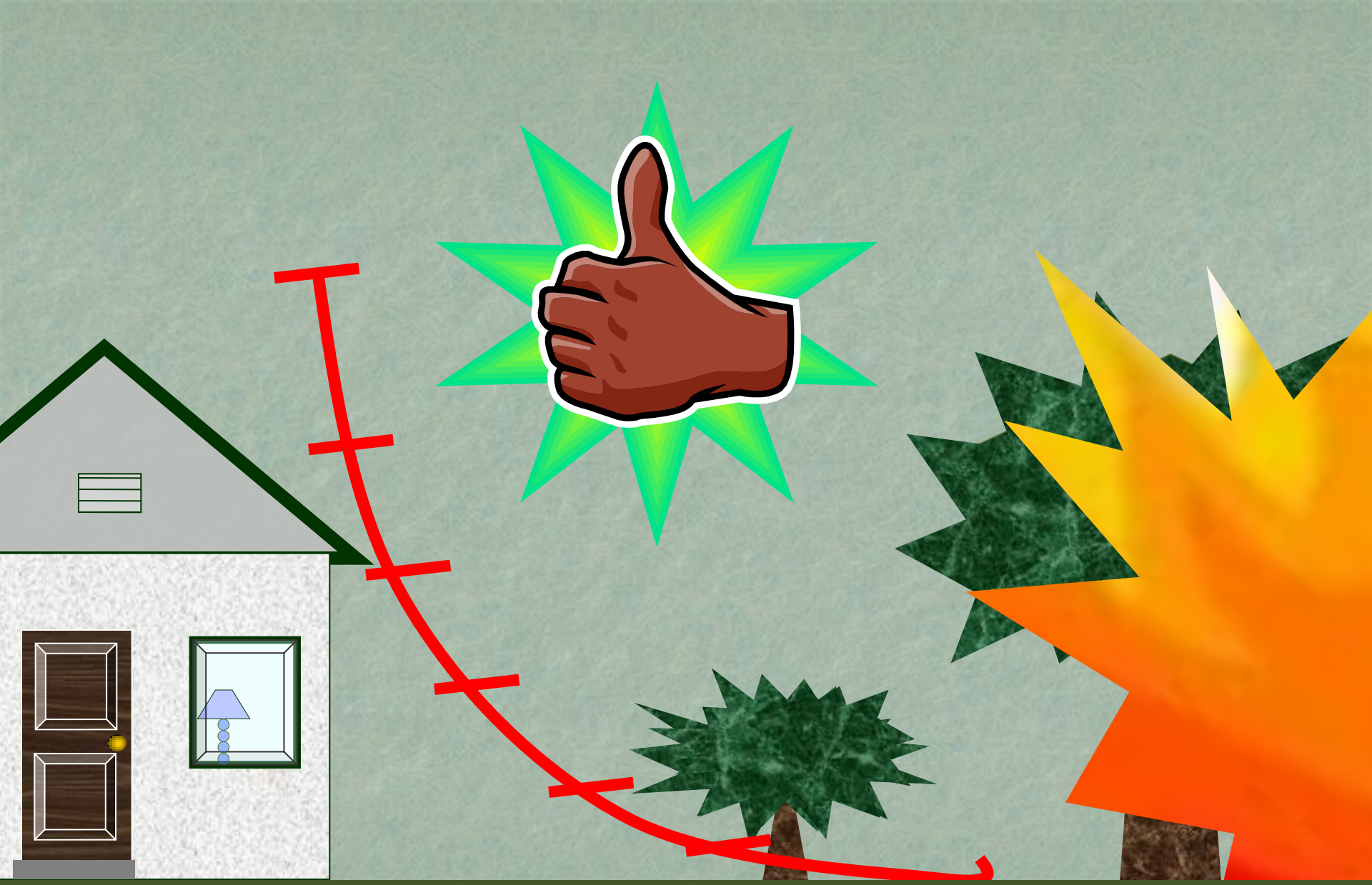




Defensible/Survivable Space

- Goals:
  - Reduce flame length and keep those flames from touching structure
  - Reduce radiant heat that the structure is exposed to
  - Allow emergency personnel room to maneuver, if present
  - Reduce adverse effects on native habitats


Radiant Heat



BRUSH MANAGEMENT NOTES

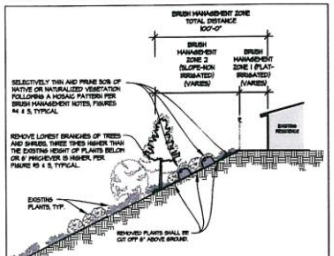
1. BRUSH MANAGEMENT IS REQUIRED IN ALL ZONES FOR THE TYPES OF DEVELOPMENT LISTED BELOW, WHEN THEY ARE ADJACENT TO ANY HIGHLY FLAMMABLE AREA OF NATIVE OR NATURALIZED VEGETATION THAT IS GREATER THAN 10 ACRES, AS MAPPED BY THE CITY OF SAN DIEGO, OR ADJACENT TO ANY AREA OF NATIVE OR NATURALIZED VEGETATION THAT IS GREATER THAN 50 ACRES. HOWEVER, WITHIN THE COASTAL OVERLAY ZONE, BRUSH MANAGEMENT IS REQUIRED FOR ALL COASTAL DEVELOPMENT WITHIN THE MHPA AND/OR ADJACENT TO STEEP HILLSIDES CONTAINING SENSITIVE BIOLOGICAL RESOURCES.
   A) NEW STRUCTURES

   B) ADDITIONS TO STRUCTURES

   C) SUBDIVISIONS THAT CREATE LOTS WHERE NEW STRUCTURES COULD BE LOCATED

   D) EXISTING STRUCTURES

2. BRUSH MANAGEMENT ZONES. WHERE BRUSH MANAGEMENT IS REQUIRED, A COMPREHENSIVE PROGRAM SHALL BE IMPLEMENTED THAT REDUCES FIRE HAZARDS AROUND STRUCTURES BY PROVIDING AN EFFECTIVE FIRE BREAK BETWEEN ALL STRUCTURES AND CONTIGUOUS AREAS OF FLAMMABLE VEGETATION. THIS FIRE BREAK SHALL CONSIST OF TWO DISTINCT BRUSH MANAGEMENT AREAS CALLED "ZONE ONE" AND "ZONE TWO" AS SHOWN IN THE BRUSH MANAGEMENT ZONES DIAGRAM BELOW.



BRUSH MANAGEMENT ZONES

A) BRUSH MANAGEMENT ZONE ONE (THE AREA ADJACENT TO STRUCTURE), SHALL BE LEAST FLAMMABLE, AND SHALL CONSIST OF PAVEMENT AND PERMANENTLY IRRIGATED ORNAMENTAL PLANTING. BRUSH MANAGEMENT ZONE ONE SHALL NOT BE ALLOWED ON SLOPES WITH A GRADIENT GREATER THAN 4:1 (4 HORIZONTAL FEET TO 1 VERTICAL FOOT) UNLESS THE PROPERTY THAT RECEIVED TENTATIVE MAP APPROVAL BEFORE NOVEMBER 15, 1989. HOWEVER, WITHIN THE COASTAL OVERLAY ZONE COASTAL DEVELOPMENT SHALL BE SUBJECT TO THE ENCROACHMENT LIMITATIONS SET FORTH IN SECTION 143.0142(A)(4) OF THE ENVIRONMENTALLY SENSITIVE LANDS REGULATIONS.

B) BRUSH MANAGEMENT ZONE TWO IS THE AREA BETWEEN ZONE ONE AND ANY AREA OF NATIVE OR NATURALIZED VEGETATION AND SHALL CONSIST OF THINNED, NATIVE OR NATURALIZED VEGETATION.

3. WHERE BRUSH MANAGEMENT IS REQUIRED BY THIS SECTION, THE WIDTH OF ZONE ONE AND ZONE TWO SHALL MEET THAT SHOWN IN DIAGRAM ABOVE. BOTH ZONE ONE AND ZONE TWO SHALL BE PROVIDED ON THE SUBJECT PROPERTY UNLESS A RECORDED EASEMENT IS GRANTED BY AN ADJACENT PROPERTY OWNER TO THE OWNER OF THE SUBJECT PROPERTY TO ESTABLISH AND MAINTAIN THE REQUIRED BRUSH MANAGEMENT ZONE(S) ON THE ADJACENT PROPERTY IN PERPETUITY.

ZONE ONE REQUIREMENTS

1. THE REQUIRED ZONE ONE WIDTH SHALL BE PROVIDED BETWEEN FLAMMABLE VEGETATION AND ANY STRUCTURE AND SHALL BE MEASURED FROM THE EXTERIOR OF THE STRUCTURE TO THE VEGETATION.

2. ZONE ONE SHALL CONTAIN NO HABITABLE STRUCTURES, STRUCTURES THAT ARE DIRECTLY ATTACHED TO HABITABLE STRUCTURES, OR OTHER COMBUSTIBLE CONSTRUCTION THAT PROVIDES A MEANS FOR TRANSMITTING FIRE TO THE HABITABLE STRUCTURES. **STRUCTURES SUCH AS FENCES, WALLS, AND NON-HABITABLE GAZEBOS THAT ARE LOCATED WITHIN BRUSH MANAGEMENT ZONE ONE SHALL BE OF NON-COMBUSTIBLE CONSTRUCTION. WOOD FENCES, DECKS AND OTHER FLAMMABLE STRUCTURES AND MATERIALS SHOULD BE REMOVED.**

3. PLANTS WITHIN ZONE ONE SHALL BE PRIMARILY LOW-GROWING AND LESS THAN 4 FEET IN HEIGHT WITH THE EXCEPTION OF TREES. PLANTS SHALL BE LOW-FUEL AND FIRE-RESISTIVE.

4. TREES WITHIN ZONE ONE SHALL BE LOCATED AWAY FROM STRUCTURES TO MINIMUM DISTANCE OF 10 FEET AS MEASURED FROM THE STRUCTURES TO THE DRIP LINE OF THE TREE AT MATURITY IN ACCORDANCE WITH THE LANDSCAPE STANDARDS OF THE LAND DEVELOPMENT MANUAL.

5. PERMANENT IRRIGATION IS REQUIRED FOR ALL PLANTING AREAS WITHIN ZONE ONE EXCEPT AS FOLLOWS:
   A) NO MORE THAN 10% NATIVE AND NATURALIZED SPECIES SHOULD BE RETAINED.

6. ZONE ONE IRRIGATION OVERSPRAY AND RUNOFF SHALL NOT BE ALLOWED INTO ADJACENT AREAS OF NATIVE OR NATURALIZED VEGETATION.

7. ZONE ONE SHALL BE MAINTAINED ON A REGULAR BASIS BY PRUNING AND THINNING PLANTS, CONTROLLING WEEDS, AND MAINTAINING IRRIGATION SYSTEMS.

ZONE TWO REQUIREMENTS

1. THE REQUIRED ZONE TWO WIDTH SHALL BE PROVIDED BETWEEN ZONE ONE AND THE UNDISTURBED, FLAMMABLE VEGETATION, AND SHALL BE MEASURED FROM THE EDGE OF ZONE ONE TO THE EDGE OF UNDISTURBED VEGETATION.

2. NO STRUCTURES SHALL BE CONSTRUCTED IN ZONE TWO.

3. WITHIN ZONE TWO, 50 PERCENT OF THE PLANTS OVER 18 INCHES IN HEIGHT SHALL BE CUT AND CLEARED TO A HEIGHT OF 6 INCHES.

4. WITHIN ZONE TWO, ALL PLANTS REMAINING AFTER 50 PERCENT ARE CUT AND CLEARED SHALL BE PRUNED TO REDUCE FUEL LOADING IN ACCORDANCE WITH THE LANDSCAPE STANDARDS IN THE LAND DEVELOPMENT MANUAL.

5. THE FOLLOWING STANDARDS SHALL BE USED WHERE ZONE TWO AREA IS PROPOSED TO BE PLANTED WITH NEW PLANT MATERIAL INSTEAD OF CLEARING EXISTING NATIVE OR NATURALIZED VEGETATION:

A) ALL NEW PLANT MATERIAL FOR ZONE TWO SHALL BE NATIVE OR NATURALIZED, LOW-FUEL, AND FIRE-RESISTIVE. INSIDE THE MHPA, NO NON-NATIVE PLANT MATERIAL MAY BE PLANTED IN ZONE TWO.

B) NEW PLANTS SHALL BE LOW-GROWING WITH A MAXIMUM HEIGHT AT MATURITY OF 2 FEET. SINGLE SPECIMENS OF FIRE-RESISTANT NATIVE TREES MAY EXCEED THIS LIMITATION IF THEY ARE LOCATED TO REDUCE THE CHANCE OF TRANSMITTING FIRE FROM NATIVE OR NATURALIZED VEGETATION TO HABITABLE STRUCTURES.

C) **ALL NEW ZONE TWO PLANTINGS SHALL BE TEMPORARILY IRRIGATED UNTIL ESTABLISHED.** PERMANENT IRRIGATION IS NOT ALLOWED IN ZONE TWO. ONLY LOW-FLOW, LOW-GALLONAGE SPRAY HEADS MAY BE USED IN ZONE TWO. OVERSPRAY AND RUNOFF FROM THE IRRIGATION SHALL NOT DRIFT OR FLOW INTO ADJACENT AREAS OF NATIVE OR NATURALIZED VEGETATION.

D) WHERE ZONE TWO IS BEING REVEGETATED AS A REQUIREMENT, REVEGETATION SHALL COMPLY WITH THE SPACING STANDARDS IN THE LAND DEVELOPMENT MANUAL. FIFTY PERCENT OF THE PLANTING AREA SHALL BE PLANTED WITH MATERIAL THAT DOES NOT GROW TALLER THAN 24 INCHES. THE REMAINING PLANTING AREA MAY BE PLANTED WITH TALLER MATERIAL, BUT THIS MATERIAL SHALL BE MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS FOR EXISTING PLANT MATERIAL IN ZONE TWO.

E) ZONE TWO SHALL BE MAINTAINED ON A REGULAR BASIS BY PRUNING AND THINNING PLANTS, CONTROLLING WEEDS, AND MAINTAINING ANY TEMPORARY IRRIGATION SYSTEM.

THINNING AND PRUNING

1. CONTRACTOR TO PRUNE, THIN, AND CLEAR BRUSH AND DEAD WOOD IN ZONES 2 PER THESE DRAWINGS (ESPECIALLY FIGURES 3, 4, 5, 6). THIS INCLUDES ALL WORK ATTENDANT TO THE CONTRACT, INCLUDING, BUT NOT LIMITED TO, HAULING AND CLEANUP.

2. LISTED IN ORDER OF PRIORITY FOR BRUSH MANAGEMENT ARE THE FOLLOWING: A. REMOVAL OF DEAD WOOD. B. PRUNING OR CLEARING OF EXOTIC SPECIES AND EUCALYPTUS. C. PRUNING AND THINNING. PRUNING AND THINNING SHOULD BE DONE PER THE ATTACHED PRUNING DIAGRAM OR AS SPECIALLY NOTED ON THESE PLANS.

3. CONTRACTOR TO MEET WITH LANDSCAPE ARCHITECT ON SITE BEFORE STARTING WORK TO REVIEW PRIORITIES, PRUNING METHODS, GUIDELINES, ETC.

4. SPECIAL CARE SHALL BE TAKEN IN THESE BRUSH MANAGEMENT AREAS NOT TO DISTURB ANY OBVIOUS WILDLIFE HABIT, INCLUDING, BUT NOT LIMITED TO, BIRD NESTS.

5. WHILE CLEARING AND THINNING IS NOT REQUIRED ON SLOPES THAT ARE PLANTED AND IRRIGATED WITH TRADITIONAL LANDSCAPE PLANTINGS, DEAD WOOD SHALL BE REMOVED FROM THESE ZONE 1 AREAS WHERE THEY OCCUR ON THE PROPERTY.

6. CONTRACTOR TO SUBMIT CERTIFICATES OF INSURANCE TO OWNER OR OWNER'S AGENT IN ADVANCE OF STARTING WORK.

TWO KEY FACTORS IN CREATING A FIRE SAFE LANDSCAPE ARE PROVIDING FUEL DISCONTINUITY BY THE SEPARATION OF THE FLAMMABLE PLANT COVER (THINNING) AND REDUCTION IN FUEL LOAD BY CUTTING OUT DEAD AND EXCESS GROWTH OF CHAPARRAL PLANTS (PRUNING). WHENEVER POSSIBLE, A PERSON KNOWLEDGEABLE ABOUT THE USE AND MAINTENANCE OF NATIVE PLANTS SHOULD BE CONSULTED TO OVERSEE THE SELECTION, THINNING AND PRUNING OF THESE PLANTS.

CONTRACTOR TO PERFORM BRUSH MANAGEMENT DUTIES USING THESE TECHNIQUES:

THINNING: THIS FIRST STEP REQUIRES IDENTIFICATION OF THE CHAPARRAL SPECIES AND FAMILIARITY WITH THEIR VARIOUS CHARACTERISTICS SUCH AS ROOTING DEPTH, FUEL LOADS, FLAMMABILITY, AS WELL AS HABITAT AND AESTHETIC VALUE. ALL NATIVE VEGETATION THAT IS NOT TO BE REMOVED DURING THE INITIAL THINNING SHOULD BE NOTED OR FLAGGED. THE PLANTS WHICH ARE NOT TO BE SAVED SHOULD BE CUT OFF SEVERAL INCHES ABOVE THE GROUND WITHOUT PULLING OUT THE ROOTS (NO GRUBBING). CERTAIN NATIVE PLANTS WHICH IN THE WILD ARE FOUND AS HIGHLY FLAMMABLE SHRUBS CAN BE CUT BACK TO THE ROOT CROWN. AS SPROUTING AND REGROWTH OCCUR THESE PLANTS CAN BE MAINTAINED AS LOW MOUNDS OF SUCCULENT FLOWERING SHRUBS IF PROPERLY PRUNED. EXAMPLES INCLUDE ARTEMISIA CALIFORNICA (CALIFORNIA SAGEBRUSH) SALVIA MELLIFERA (BLACK SAGE), ADENOSTOMA FASCICULATUM (CHEMISE) AND ERIOGONUM FASCICULATUM (BUCKWHEAT).

PERMANENT ERADICATION WHERE APPROPRIATE CAN BE ACCOMPLISHED BY TREATING THE STUMPS WITH HERBICIDES. WHEN USING HERBICIDES EXCEPT AS SPECIALLY NOTED HEREIN, FOLLOW THESE SUGGESTIONS:

A) SELECT AN HERBICIDE THAT DOES NOT AFFECT THE REMAINING PLANTS.

B) AVOID OVERSPRAY.

C) TREAT A SMALL TEST AREA FIRST.

D) DO NOT USE PRE-EMERGENT HERBICIDES. (EXCEPT WHERE SPECIALLY INSTRUCTED OR ALLOWED)

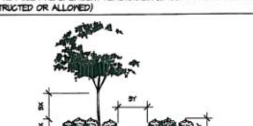


FIGURE 3

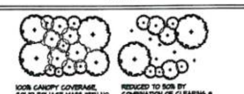
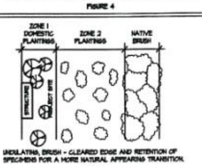


FIGURE 4



UNDULATING, BRUSH - CLEARED EDGE AND RETENTION OF SPECIMENS FOR A MORE NATURAL APPEARING TRANSITION.

FIGURE 5

PRUNING EXISTING VEGETATION

FIGURE 6

THE REMAINING PLANTS SHOULD MAINTAIN THE ALLOWABLE COVERAGE, MASSING AND SPACING REQUIRED. THE FOLLOWING FIGURES ILLUSTRATE THE IDEA OF COVERAGE, MASSING AND SPACING (FIGURES 3,4,5,6).

PRUNING: AFTER THINNING OF THE CHAPARRAL, THE FUEL LOAD SHOULD BE FURTHER REDUCED BY PRUNING THE NATIVE PLANTS THAT HAVE NOT BEEN REMOVED. WHILE PRUNING INDIVIDUAL PLANTS IS NOT FEASIBLE IN COASTAL SAGE SCRUB, IT IS VERY EFFECTIVE FOR MANY HARD CHAPARRAL SPECIES, SUCH AS CEANOTHUS (MOUNTAIN LILAC), HETEROMELES (TOYON), RHUS (LEMONADE BERRY, SUGARBUSH), AND RHAMNUS (COFFEEBERRY, REDBERRY). THESE PLANTS CAN BE SHAPED INTO ATTRACTIVE, FIRE SAFE SPECIMENS BY PRUNING DEAD AND EXCESSIVELY TWIGGY GROWTH. FIGURE 6 ILLUSTRATES PRUNING OF NATIVE SHRUBS.

NOTE THAT THE LIMBS TOUCHING THE GROUNDCOVER HAVE BEEN REMOVED, AND THAT A LARGE VOLUME OF MATERIAL HAS BEEN TAKEN FROM THE CANOPY. THE LIMBS THAT REMAIN SHOULD BE THOSE WITH YOUNG, VIGOROUS SHOOTS.

BRUSH CONVERSION

REDUCING THE FUEL LOAD OF THE CHAPARRAL CAN BE ACCOMPLISHED BY CONVERTING ALL OR PART OF THE EXISTING NATIVE VEGETATION TO LOW VOLUME PLANTS. BRUSH CONVERSION SHOULD NOT BE ATTEMPTED ON SLOPES STEEPER THAN (2:1) UNLESS APPROPRIATE SOILS ENGINEERING PRACTICES SUCH AS TERRACING, CONCRETE BENCH AND DOWN DRAINS ARE USED OR UNLESS THE SLOPE IS SHORT (LESS THAN 25' VERTICAL).

WHEN IMPLEMENTING BRUSH CONVERSION CONSIDER THE FOLLOWING GUIDELINES:

A. THE VOLUME OF FUEL CAN BE REDUCED BY REMOVING DEAD MATERIAL, TRIMMING BACK LOWER LARGE BRANCHES, AND THINNING OF CROWDED PLANTS.

B. WHEN REMOVING EXISTING CHAPARRAL DO NOT BREAK THE SOIL SURFACE BY PULLING OUT THE ROOTS (GRUBBING).
THIS GREATLY INCREASES THE AMOUNT OF SOIL EROSION, EVEN IN DRY WEATHER.

C. WHEN REMOVED, NATIVE SHRUBS SHOULD BE REPLACED WITH DEEP ROOTING, DROUGHT TOLERANT, LOW FUEL VOLUME PLANTS. ROOT DECAY BEGINS RAPIDLY WHEN PLANTS DIE AND PLANTING OF SHALLOW ROOTED SPECIES CANNOT ANCHOR THE SOIL TO THE PARENT MATERIAL. GENERALLY, CHAPARRAL CANNOT BE MIXED EFFECTIVELY WITH PLANTS REQUIRING IRRIGATION. SATISFYING THE WATER NEEDS OF PLANTS WHICH ARE NOT DROUGHT RESISTANT WILL KILL THE CHAPARRAL.

D. DO NOT REMOVE PLANTS OVER MORE AREA THAN CAN BE SAFELY REPLANTED AND COVERED WITH LOW FUEL PLANTS THE SAME SEASON. REMOVAL OF NATIVE VEGETATION CAN CREATE TEMPORARY SLOPE INSTABILITY IN THAT AREA. EROSION DURING BRUSH CONVERSION CAN BE SEVERE EVEN ON MODERATELY STEEP SLOPES OF 25% (4:1).

E. AVOID MONOCULTURES, I.E. PLANTINGS OF SINGLE SPECIES.
A MIXTURE OF SPECIES WILL PERFORM BETTER OVERALL WHEN SITE CONDITIONS ARE VARIED. MIXED PLANTINGS ARE ALSO MORE VISUALLY COMPATIBLE WITH THE EXISTING CHAPARRAL.

F. WHEN PLANTING TREES AND LARGE SHRUBS ANTICIPATE THEIR MATURE HEIGHT AND SPREAD AND SPACE ACCORDINGLY. THE CANOPIES OF LARGE PLANTS IN BRUSH MANAGEMENT ZONES SHOULD NOT FORM A CONTINUOUS PLANTING MASS CAPABLE OF RAPIDLY TRANSMITTING FIRE.

G. MINIMIZE WALKING AND MAINTENANCE ACTIVITY ON STEEP SLOPES SINCE THIS PROMOTES EROSION. EXCESSIVE TRAFFIC CAUSES SOIL TO BECOME COMPACTED THEREBY DECREASING THE SOILS WATER ABSORBING CAPABILITY AND INCREASING THE AMOUNT OF RUNOFF.

MAINTENANCE

REGULAR INSPECTIONS AND LANDSCAPE MAINTENANCE IS NECESSARY TO MINIMIZE THE POTENTIAL DAMAGE OR LOSS OF PROPERTY FROM BRUSH FIRES AND OTHER NATURAL HAZARDS SUCH AS EROSION AND SLOPE FAILURES. BECAUSE EACH PROPERTY IS UNIQUE, ESTABLISHING A PRECISE MAINTENANCE SCHEDULE IS NOT FEASIBLE. HOWEVER, FOR EFFECTIVE FIRE AND WATERSHED MANAGEMENT, PROPERTY OWNERS SHOULD EXPECT TO PROVIDE MAINTENANCE ACCORDING TO EACH BRUSH MANAGEMENT ZONE.

ZONE 1: YEAR-ROUND MAINTENANCE.
ZONE 2: REGULAR INSPECTIONS, PERIODIC MAINTENANCE, ANNUAL, PRE-FIRE SEASON REVIEW.

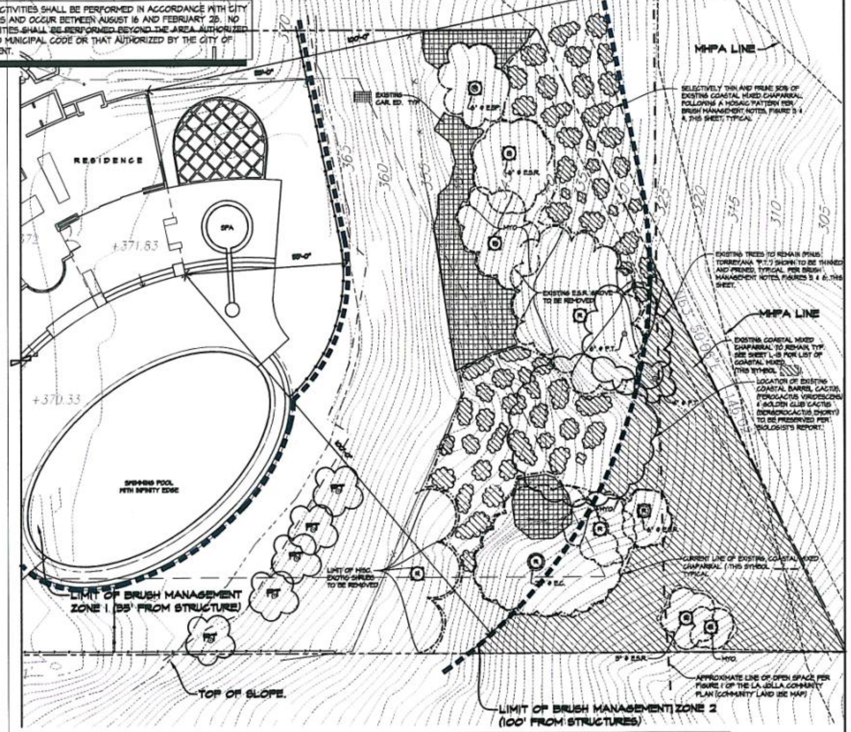
BRUSH MANAGEMENT ZONE 1

THIS IS THE MOST CRITICAL AREA FOR FIRE AND WATERSHED SAFETY. ALL ORNAMENTAL PLANTINGS SHOULD BE KEPT WELL WATERED AND ALL IRRIGATION WATER SHOULD DRAIN TOWARD THE STREET. RAIN GUTTERS AND DRAINAGE PIPES SHOULD BE CLEANED REGULARLY AND ALL LEAVES REMOVED FROM THE ROOF BEFORE THE FIRE SEASON BEGINS. ALL PLANTING, PARTICULARLY NON-IRRIGATED NATIVES AND LARGE TREES SHOULD BE REGULARLY PRUNED TO ELIMINATE DEAD FUELS, TO REDUCE EXCESSIVE FUEL AND TO PROVIDE ADEQUATE SPACE BETWEEN PLANTS AND STRUCTURES.

BRUSH MANAGEMENT ZONE 2

PERIODIC MAINTENANCE IN THIS ZONE SHOULD INCLUDE REMOVAL OF DEAD WOODY PLANTS, ERADICATION OF WEEDY SPECIES AND ON-GOING PRUNING AND THINNING OF TREES AND SHRUBS. REMOVAL OF WEEDS SHOULD NOT BE DONE WITH HAND TOOLS SUCH AS HOES, AS THIS REMOVES VALUABLE SOIL. THE USE OF WEED TRIMMERS OR OTHER TOOLS WHICH RETAIN SHORT STUBBLE THAT PROTECTS THE SOIL IS RECOMMENDED. NATIVE SHRUBS SHOULD BE PRUNED IN THE SUMMER AFTER THE MAJOR PLANT GROWTH OCCURS. WELL PRUNED HEALTHY SHRUBS SHOULD TYPICALLY REQUIRE SEVERAL YEARS TO BUILD UP EXCESSIVE LIVE AND DEAD FUEL. ON SLOPES ALL DRAINAGE DEVICES MUST BE KEPT CLEAR. REINSPECT AFTER EACH MAJOR STORM SINCE MINOR SOIL SLIPS CAN BLOCK DRAINS. VARIOUS GROUNDCOVERS (E.G. IVY) SHOULD BE PERIODICALLY SHEARED AND THATCH REMOVED. (FROM GRASSES AND SOME ICE PLANTS). DISEASED AND DEAD WOOD SHOULD BE PRUNED FROM TREES. FERTILIZING TREES AND SHRUBS IS NOT TYPICALLY RECOMMENDED AS THIS MAY STIMULATE EXCESSIVE GROWTH. HOWEVER, A LIGHT APPLICATION OF BALANCED FERTILIZER MAY BE BENEFICIAL IN PRODUCING NEW GROWTH WHEN SEVERELY PRUNING OLD SHRUBS AND WOODY GROUNDCOVERS.

ALL BRUSH MANAGEMENT ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH CITY OF SAN DIEGO REGULATIONS AND OCCUR BETWEEN AUGUST 16 AND FEBRUARY 28. NO BRUSH MANAGEMENT ACTIVITIES SHALL BE PERFORMED BEYOND THE AREA AUTHORIZED BY THE CITY OF SAN DIEGO MUNICIPAL CODE OR THAT AUTHORIZED BY THE CITY OF SAN DIEGO FIRE DEPARTMENT.



NOTE: REMOVE EXISTING EXOTICS AS SHOWN, TYPICAL. REVEGETATE ALL REMAINING UNPLANTED AREAS IN BRUSH MANAGEMENT ZONE 2 W/ SEED MIX, SEE SHEET 15.

LEGEND

- LIMITS OF EXISTING COASTAL MIXED CHAPARRAL.
- EXISTING TREE AND SHRUBS TO BE REMOVED, TYP.
- THINNED AND PRUNED EXISTING COASTAL MIXED CHAPARRAL, PER BRUSH MANAGEMENT NOTES, THIS SHEET, TYPICAL.
- EXISTING TREES TO REMAIN SHOWN TO BE THINNED AND PRUNED, TYPICAL. PER BRUSH MANAGEMENT NOTES, FIGURES 5 & 6, THIS SHEET.
- EXISTING COASTAL MIXED CHAPARRAL TO REMAIN, (OUT OF BRUSH MANAGEMENT ZONE 2) TYP.
- EXISTING PICKELWEED (CAR. ED.) TO REMAIN, TYPICAL.

FOR EXISTING PLANTING LIST, SEE SHEET 15.

GENERAL NOTES

1. All landscape and irrigation shall conform to the standards of the City-Wide Landscape Regulations and the City of San Diego Landscape Standards and all other landscape related and applicable City and Regional standards as of the approved date of these plans.

2. An irrigation system shall be provided as required for proper irrigation, development and maintenance of the vegetation. The design of the system shall provide adequate support for the vegetation selected.

3. Maintenance: All required landscape areas shall be maintained free of debris and litter and all plant material shall be maintained in a healthy growing condition. Diseased or dead plant material shall be satisfactorily treated or replaced per the conditions of the permit. Maintenance shall be the responsibility of the applicants, Jenny and Hertzel Soumekh.

MAINTENANCE NOTES

Landscape maintenance shall be performed on all improved areas of the site, per the criteria of the City of San Diego Landscape Standards, section 3.6 which is as follows as well as the requirements of the Maintenance manual & specifications of David Reed, Landscape Architects.

3.6 MAINTENANCE CRITERIA

3.6-1 Trees shall be watered deeply, but infrequently, to promote deeper rooting, and shall be fertilized as required by sound horticultural practices.

3.6-2 Plants shall be pruned in accordance with professional trimming standards to maintain their intended shapes and sizes, and to insure the health of the specimen and the safety of the public.

3.6-3 Tree guys and stake ties shall be inspected and adjusted periodically, and removed when necessary, to insure that they are adequately surrounding the tree without girdling trunks or branches.

3.6-4 Plants shall be pruned to avoid blocking walks, passageways and sight distance views for vehicular traffic.

3.6-5 Dead plants shall be replaced, damaged branches shall be removed, and overgrown areas shall be thinned by the selective removal of unnecessary plants.

3.6-6 Shrubs and vines used for screening trash enclosures and service areas shall be pruned to maximize screening while allowing access to the storage/service areas.

3.6-7 Shrubs, trees, and vines used to meet the "Remaining Yard Residential Buffering" requirement or for screening adjacent properties shall be kept pruned so they do not interfere with pedestrian traffic and do not encroach excessively onto the adjacent property.

BRUSH MANAGEMENT PLAN

0 5 10 20
SCALE: 1"=10'-0"

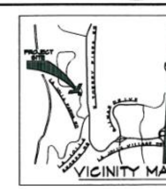
NORTH

SOUMEKH RESIDENCE

HERTZEL & JENNY SOUMEKH
9566 LA JOLLA FARMS ROAD LA JOLLA, CA 92037

DAVID REED
LANDSCAPE
ARCHITECTS

2171 INDIA STREET, SUITE A
SAN DIEGO, CALIFORNIA 92101
(619) 239-2300
www.drsdla.com



PREPARED BY:	
NAME:	DAVID REED LANDSCAPE ARCHITECTS
ADDRESS:	2171 INDIA STREET, SUITE A SAN DIEGO, CA 92101
PHONE:	(619) 239-2300
PROJECT ADDRESS:	9566 LA JOLLA FARMS ROAD LA JOLLA, CA 92037
PROJECT NAME:	SOUMEKH RESIDENCE
SHEET TITLE:	BRUSH MANAGEMENT PLAN AND NOTES

REVISION 14:	
REVISION 13:	
REVISION 12:	
REVISION 11:	
REVISION 10:	
REVISION 9:	
REVISION 8:	
REVISION 7:	
REVISION 6:	
REVISION 5:	
REVISION 4:	DECEMBER 6, 2005
REVISION 3:	OCTOBER 11, 2005
REVISION 2:	JULY 29, 2005
REVISION 1:	MAY 25, 2005
ORIGINAL DATE:	DECEMBER 10, 2004
SHEET	14 OF 15
DEP#:	

LICENSED LANDSCAPE ARCHITECT DAVID REED STATE OF CALIFORNIA 4-30-07 12-06-05

TIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH CITY
AND OCCUR BETWEEN AUGUST 16 AND FEBRUARY 28. NO
ES SHALL BE PERFORMED BEYOND THE AREA AUTHORIZED
MUNICIPAL CODE OR THAT AUTHORIZED BY THE CITY OF
T.

100'

100'

MHPA LINE

SELECTIVELY THIN AND PRUNE 50% OF EXISTING COASTAL MIXED CHAPARRAL FOLLOWING A MOSAIC PATTERN PER BRUSH MANAGEMENT NOTES, FIGURE 3 & 4, THIS SHEET, TYPICAL

EXISTING CAR. ED. TYP.

RESIDENCE

SPA

+371.83

+370.33

SWIMMING POOL WITH INFINITY EDGE

EXISTING TREES TO REMAIN (PINUS TORREYANA 'P.T.') SHOWN TO BE THINNED AND PRUNED, TYPICAL, PER BRUSH MANAGEMENT NOTES, FIGURES 3 & 6, THIS SHEET.

EXISTING E.S.R. GROVE TO BE REMOVED

MHPA LINE

EXISTING COASTAL MIXED CHAPARRAL TO REMAIN, TYP. SEE SHEET L-13 FOR LIST OF COASTAL MIXED. (THIS SYMBOL)

LOCATION OF EXISTING COASTAL BARREL CACTUS, (FEROCACTUS VIRIDESCENS) & GOLDEN CLUB CACTUS (BERGEROCACTUS EMORYI) TO BE PRESERVED PER BIOLOGIST'S REPORT.

LIMIT OF MISC. EXOTIC SHRUBS TO BE REMOVED

CURRENT LINE OF EXISTING COASTAL MIXED CHAPARRAL. (THIS SYMBOL) TYPICAL

LIMIT OF BRUSH MANAGEMENT ZONE 1 (35' FROM STRUCTURE)

TOP OF SLOPE.

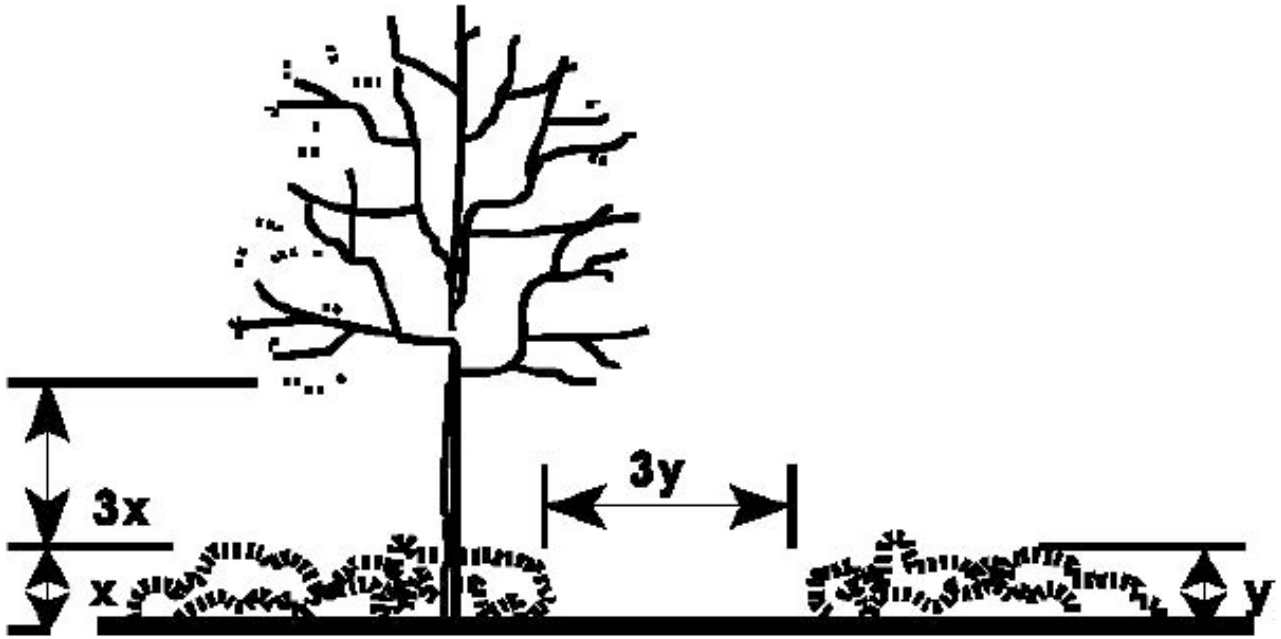
APPROXIMATE LINE OF OPEN SPACE PER FIGURE 1 OF THE LA JOLLA COMMUNITY PLAN (COMMUNITY LAND USE MAP)

LIMIT OF BRUSH MANAGEMENT ZONE 2 (100' FROM STRUCTURES)

DAVID REED
LANDSCAPE
ARCHITECTS

NOTE: REMOVE EXISTING EXOTICS AS SHOWN, TYPICAL

Defensible/Survivable Space



Dimensions recommended by the City of San Diego

Plan layout so plants are well-spaced for their *width* and *height*

Defensible/ Survivable Space

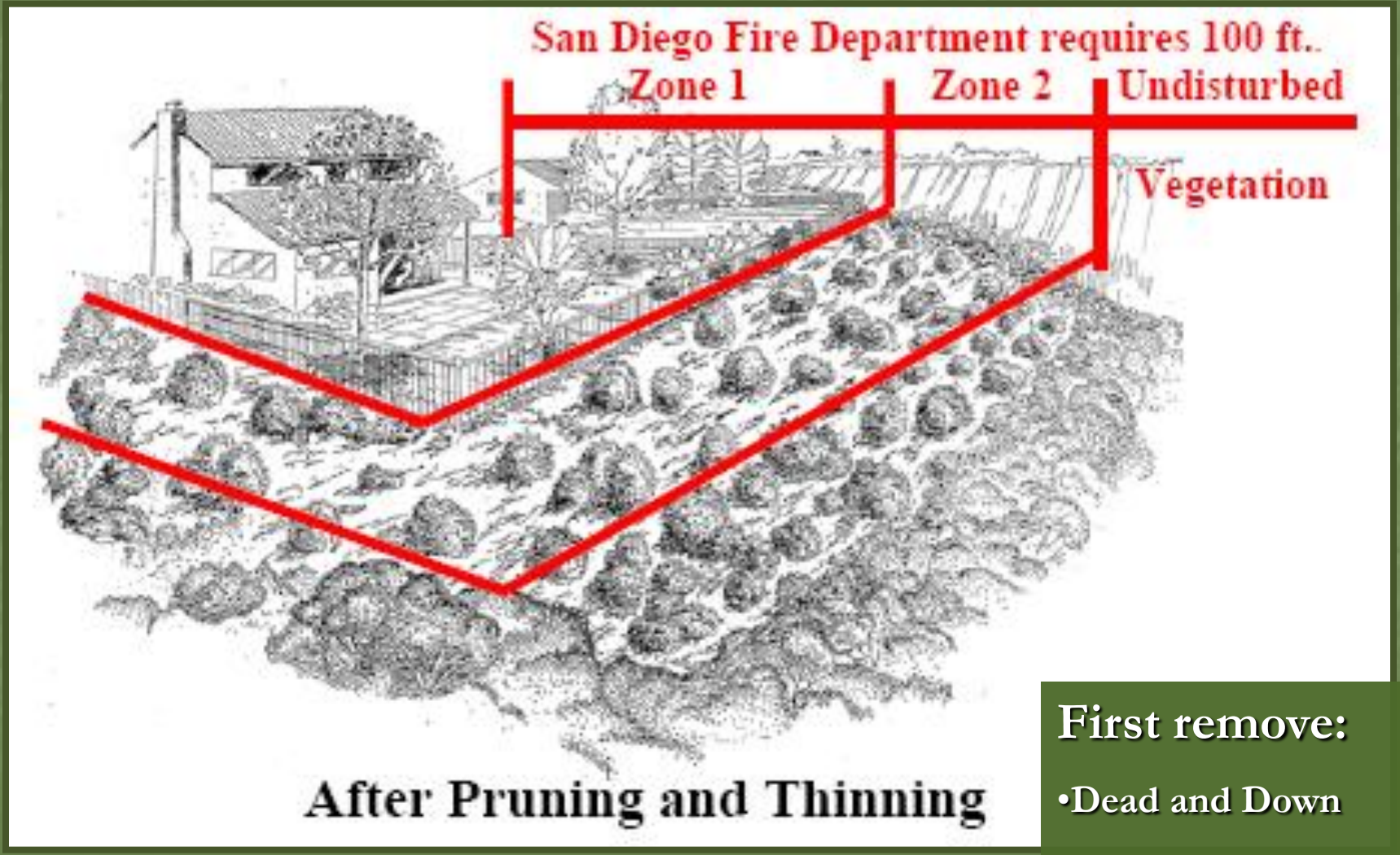
Landscaping can easily become ladder fuels for the fire

Maintain ladder fuels by trimming low hanging tree limbs 6 -10 feet from the ground level

Defensible/Survivable Space

Before Brush Management

Defensible/Survivable Space



First remove:

- Dead and Down
- Highly flammable species

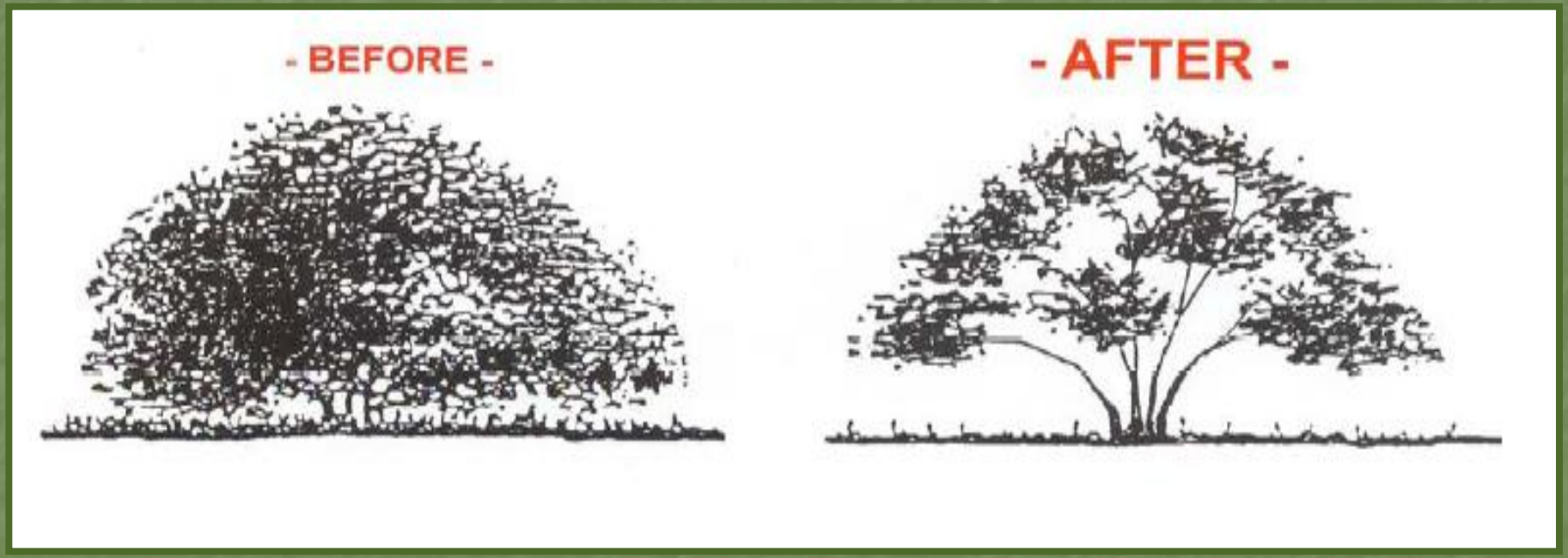
After Brush Management
Before Brush Management
7 11:18PM

Before Brush Management

After Brush Management

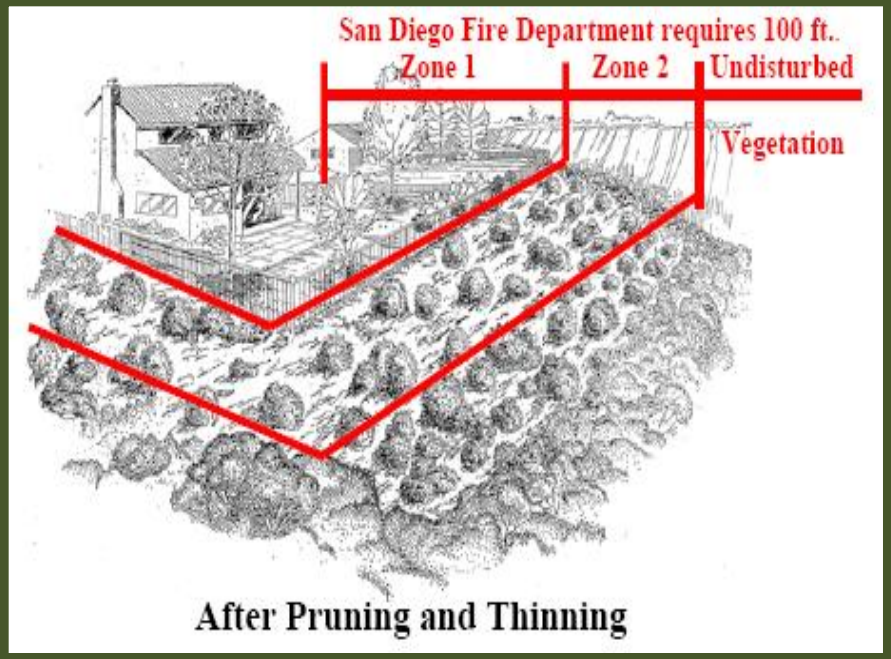
Defensible/Survivable Space

- Is a well-maintained landscape, NOT cleared to mineral soil



>50% of soil should have living plant canopy

Defensible/Survivable Space



Thinning while keeping canopy intact:

- Resists invasion from weedy, flashy fuels
- Prevents Erosion

Other considerations when altering landscape

- Protected species
  - Federal, state regulations can restrict clearing in their habitat
  - US Fish & Wildlife Service and Calif. Dept. of Fish & Game should be contacted prior to projects

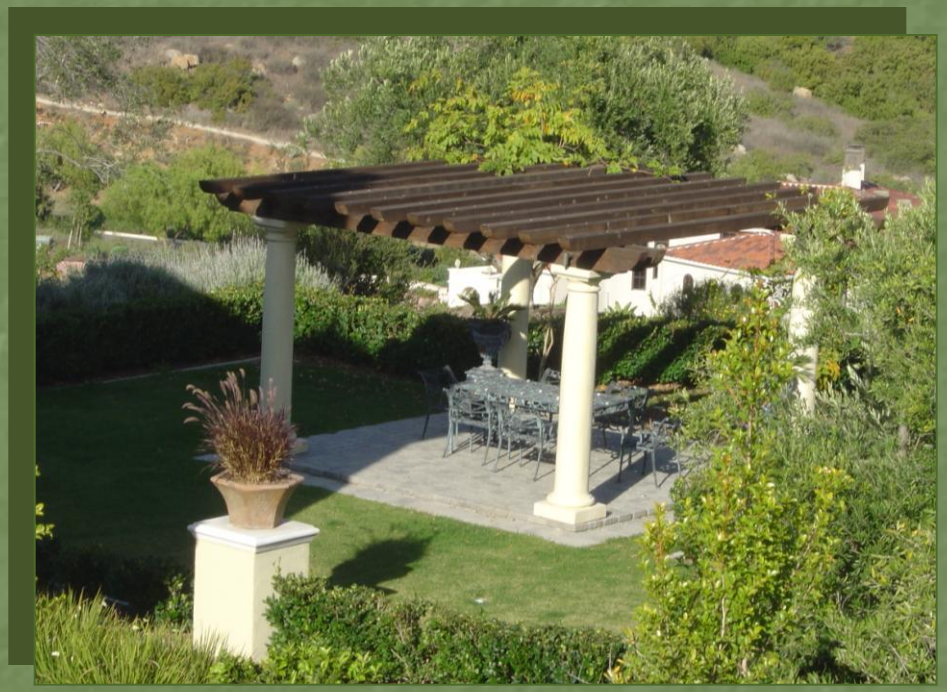
Defensible/Survivable Space

Includes not only the planted landscape but the built landscape as well:

- Gazebos
- Fabric Awnings
- Small-dimension lumber structures
- Woodpiles, etc.

Defensible/Survivable Space

- Choose less-flammable materials
- Well Placed masonry walls can create heat barriers
- Outdoor flammable materials should be screened from house by distance or non-flammable barriers



Defensible/Survivable Space

Wood fences can carry fire right to the structure!

Use non-flammable materials for the last five feet of fence attached to the structure

Plant Selection

- Plant lists:
  - Aesthetics, fire safety, local soil and climate conditions, native habitat and water conservation requirements make it difficult to develop a comprehensive plant list; most agencies are moving away from plant lists.
  - Invasive plant lists are useful for determining what NOT to plant.

Plant Selection

- Invasive plant species
  - Harm native plant and animal communities
  - Tend to put out more growth, dry up earlier and be MORE of a fire hazard

Native species like Coast Live Oak:

• Are often drought resistant

•Are less likely to degrade adjacent natural resources

Plant Selection

- Water
  - Choose plants that require less watering to maintain healthy leaf moisture; they have the lowest maintenance costs
  - Limit plants that need frequent water; they will dry out and die if deprived, creating a high fire risk

Plant Selection

- Long-term, cost-sustainable maintenance
  - Smaller, slower growing trees and shrubs reduce pruning needed over time
  - Pruning should be done in a way as to not promote flush of new growth
  - Litter production: Fire hazard increases as leaf and bark litter accumulates

Maintenance: Irrigation & Pruning

- Correct irrigation in Zone 1 for needs of different species and
- Thinning and healthy spaced native shrubs in Zone 2 keep plants from igniting when fire front passes over.

Maintenance: Irrigation & Pruning

- Irrigate Zone 1 as needed by species for good health.

- Low water species may need ¼ the water of thirsty species for good health.

- If dieback occurs, remove fuel and adjust irrigation.

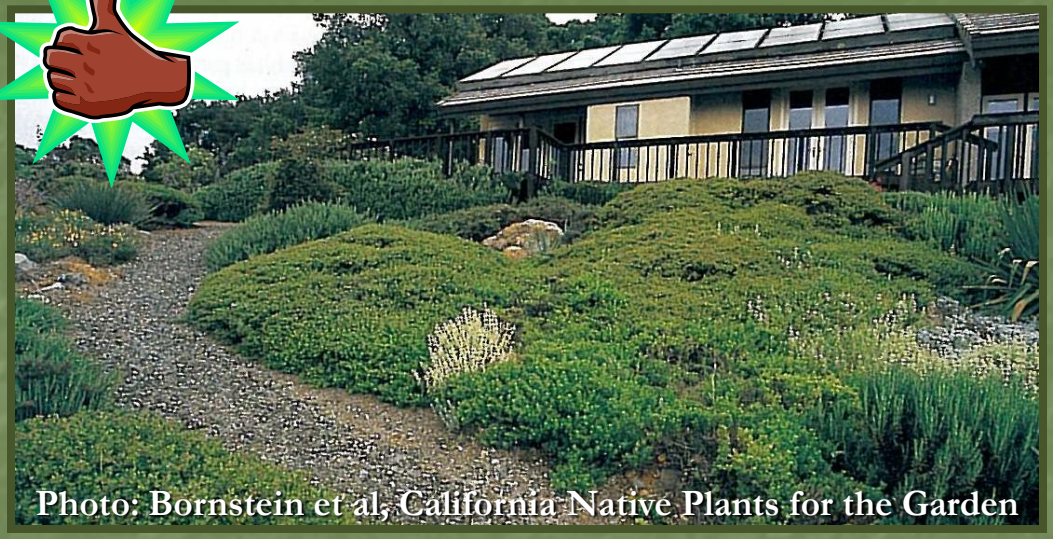
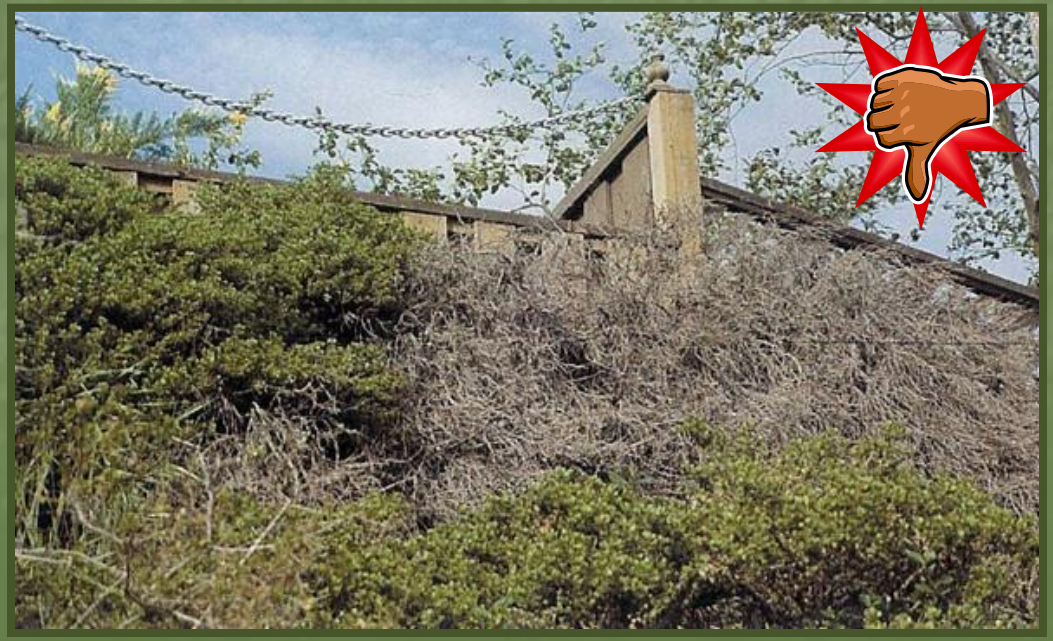
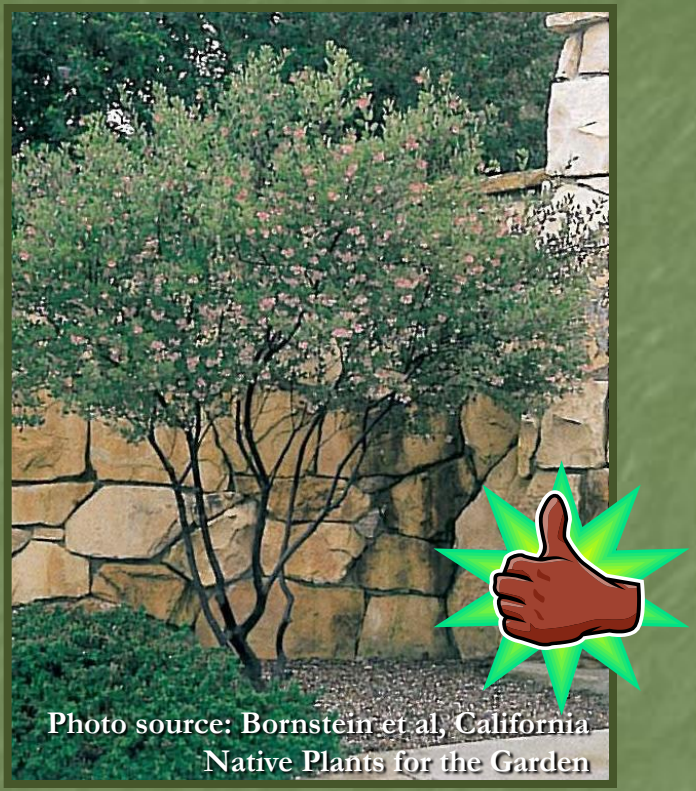


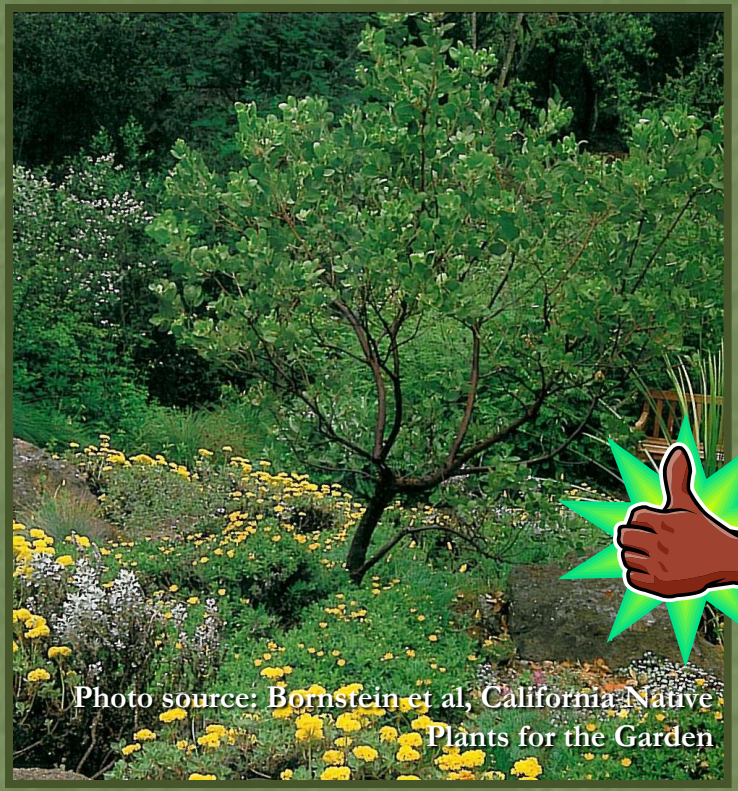
Photo: Bornstein et al, California Native Plants for the Garden



Coyote Brush well maintained (above) and poorly maintained (below).

Maintenance: Pruning





Hand-pruning to inside branches reduces growth, and so reduces cost to maintain with less fuel (preferred).

VS.

Hedging and shearing, which results in weak, fast growth and more fuel.

Maintenance: Weed management

- Low-water native and Mediterranean plants with mulch keep weeds from growing.

- Weeds that do grow should be weed-whipped before July.

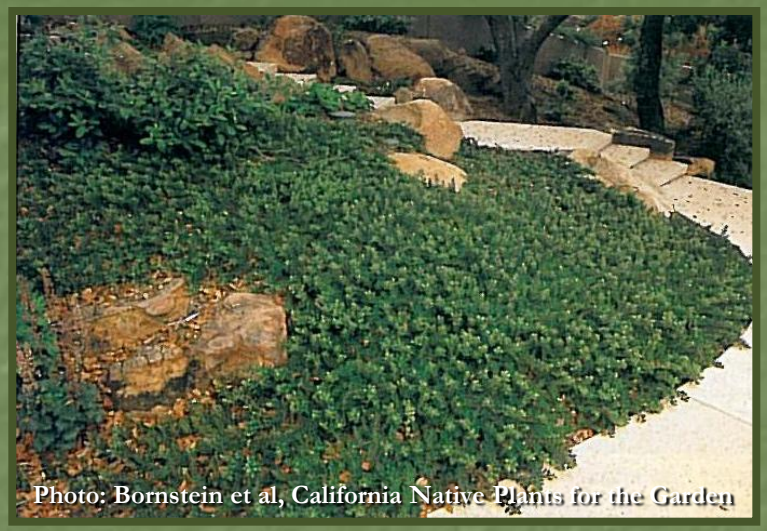


Photo: Bornstein et al, California Native Plants for the Garden

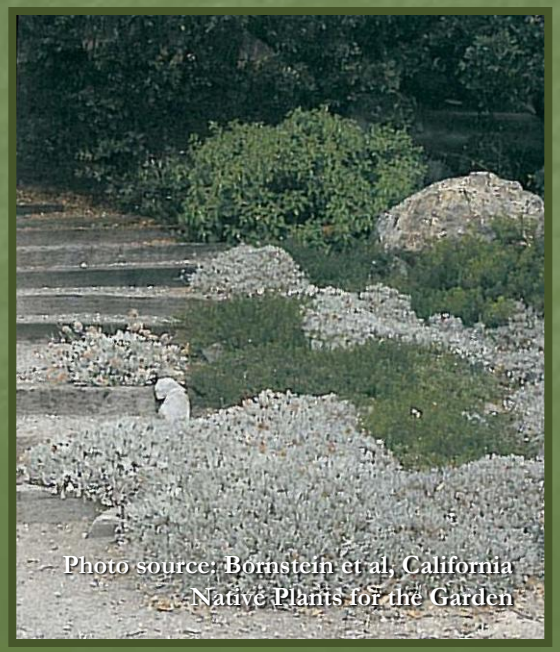


Photo source: Bornstein et al, California Native Plants for the Garden

Maintenance

Every year reduce fuel by:

- Correct irrigation
- Hand pruning
- Weed whipping
- Mulch

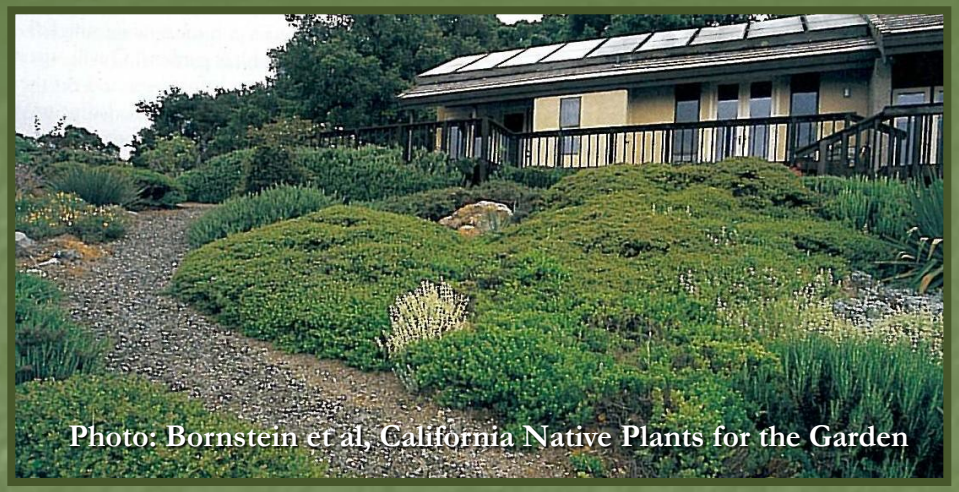


Photo: Bornstein et al, California Native Plants for the Garden

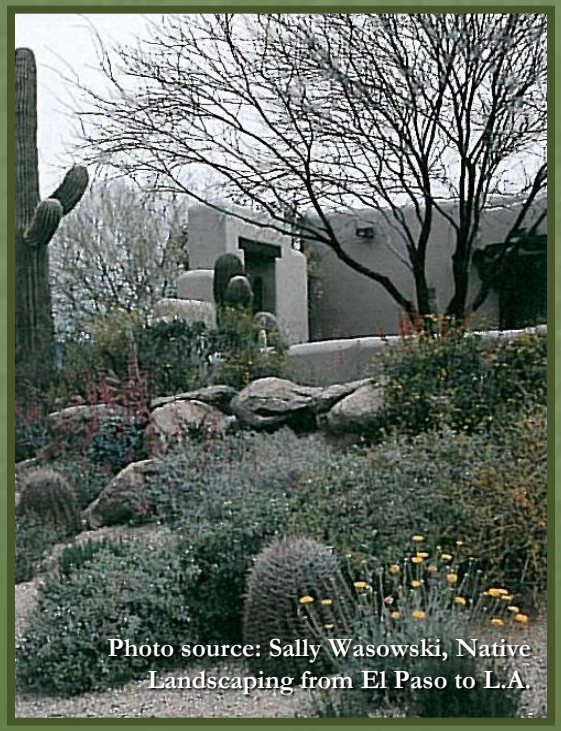


Photo source: Sally Wasowski, Native Landscaping from El Paso to L.A.

San Diego Natural History Museum
Your Nature Connection
The City of San Diego · State of California · Semper Vigilans
U.S. Fish & Wildlife Service
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...the voice of the chaparral
FIREWISE 2000, Inc.
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Home and Community Site Design, Defensible/Survivable Space and Fuel Management