

FIRESCAPING

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CREATING FIRE-RESISTANT PROPERTIES

The Problem

- **Megafires, firestorms and fire weather** are now more common.
- **Scientists, fire professionals and ecologists** believe the worst is still ahead.
- **The two primary reasons driving the increase in frequency and ferocity are well known:**
 1. **Warming Planet**
 2. **More People in Fire Country**



California's 20 Most Destructive Fires

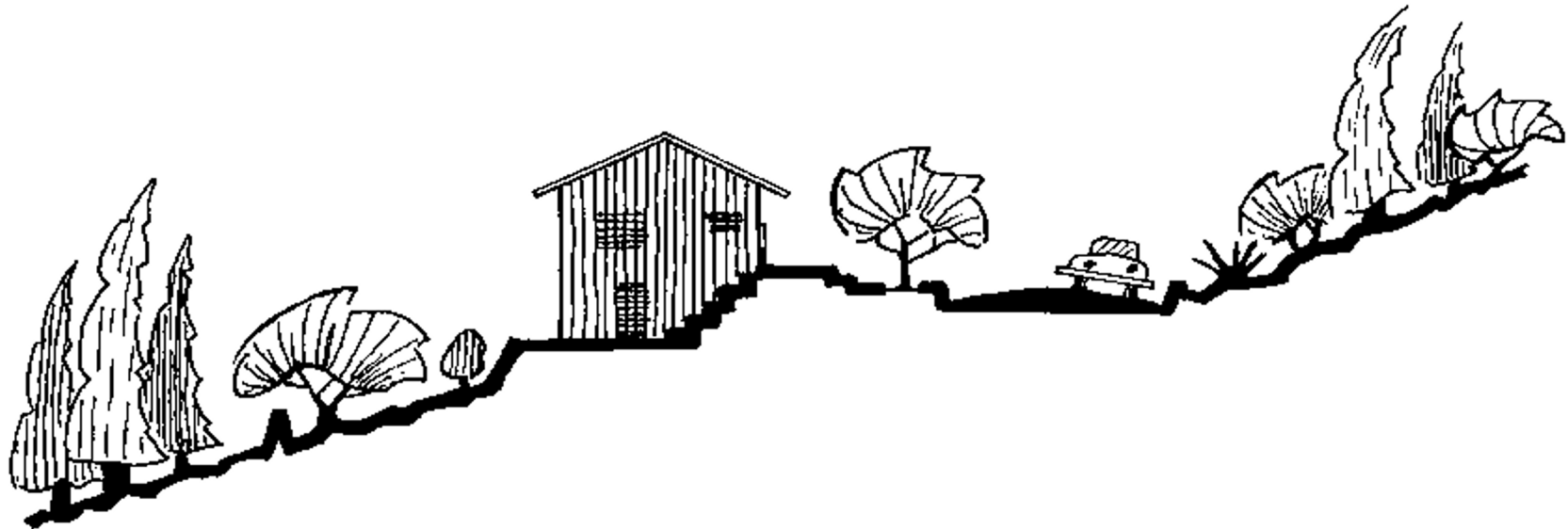
NAME	DATE	AREA	STRUCTURES	LIVES
CAMP	November 2018	Butte	18,804	86
TUBBS	October 2017	Napa/Sonoma	5,643	22
TUNNEL	October 1991	Alameda	2,900	25
CEDAR	October 2003	San Diego	2,820	15
N COMPLEX	August 2020	Plumas/Butte	2,352	15
VALLEY	September 2015	Lake, Napa, Sonoma	1,995	4
WITCH	October 2007	San Diego	1,650	2
WOOLSEY	November 2018	Ventura/Malibu	1,643	3
CARR	July 2018	Shasta/Trinity	1,604	7
LNU LIGHTNING	August 2020	Colusa thru Yolo	1,491	5
CZU LIGHTNING	August 2020	Santa Cruz/San Mateo	1,490	1
NUNS	October 2017	Sonoma	1,200	6
THOMAS	December 2017	Ventura	1,063	2
OLD	October 2003	San Bernardino	1,003	6
JONES	October 1999	Shasta	954	1
BUTTE	September 2015	Amador/Calveras	921	2
CREEK	September 2020	Fresno/Madera	856	
ATLAS	October 2017	Napa/Solano	785	6
PAINT	June 1990	Santa Barbara	641	1
FOUNTAIN	August 1992	Shasta	636	

Statistics courtesy of CalFire

What is an Effective Defense?

FIRESCAPING: The Bare Essentials

- Emergency Access
- Structures
- Defensible Space
- Landscape Features
- Plants
- Conclusion



Emergency Access



CREATING FIRE-RESISTANT PROPERTIES AND COMMUNITIES

Emergency Access: Roads

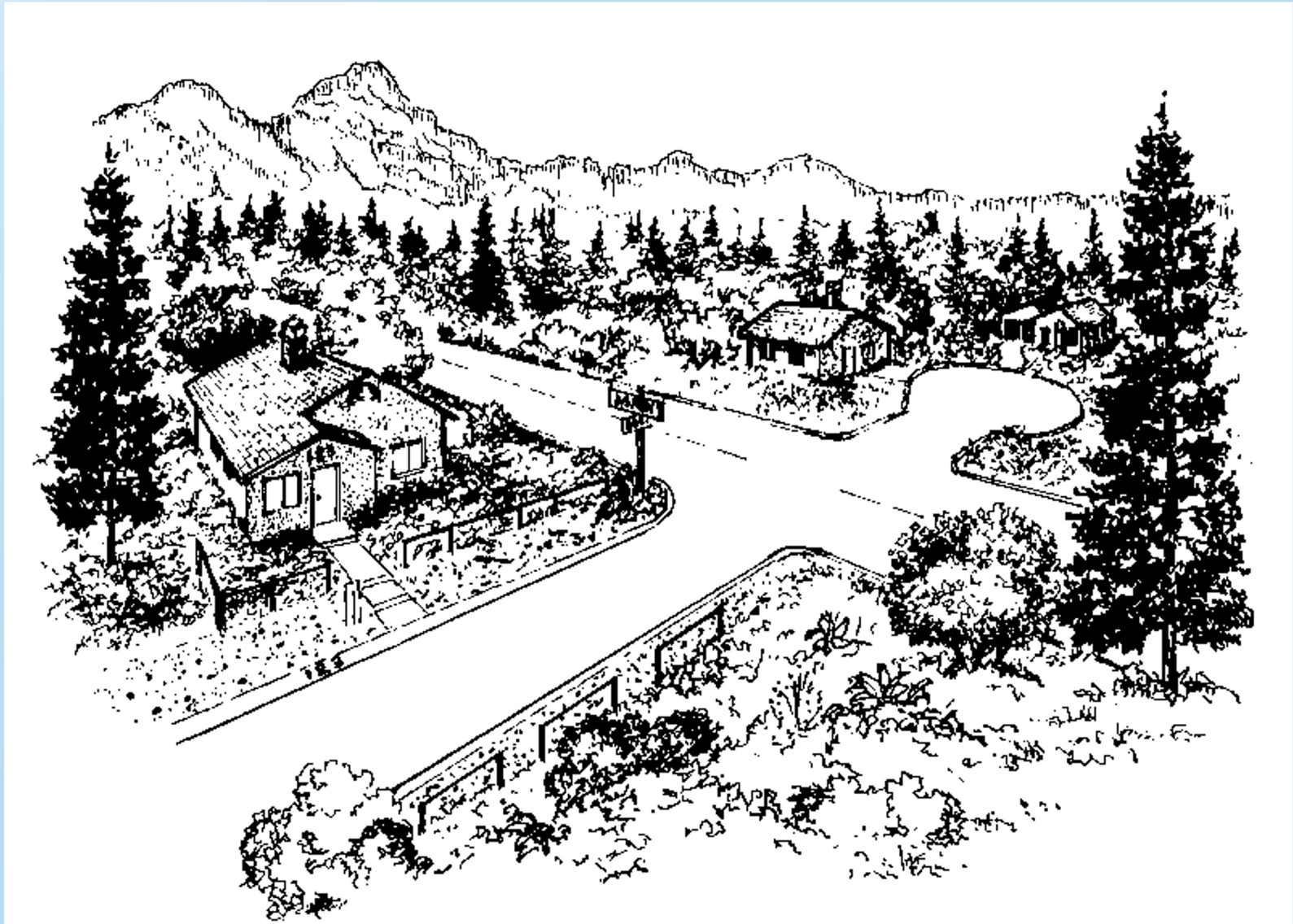
A majority of the lives lost in wildfires are due to spontaneous and unplanned evacuations.

A good road will enable both fleeing and fighting, saving lives and structures.

The importance of roads cannot be overstated—19 of the 25 people killed in the 1991 Tunnel Fire were trapped on narrow and poorly maintained roads.



Roads: Good Characteristics



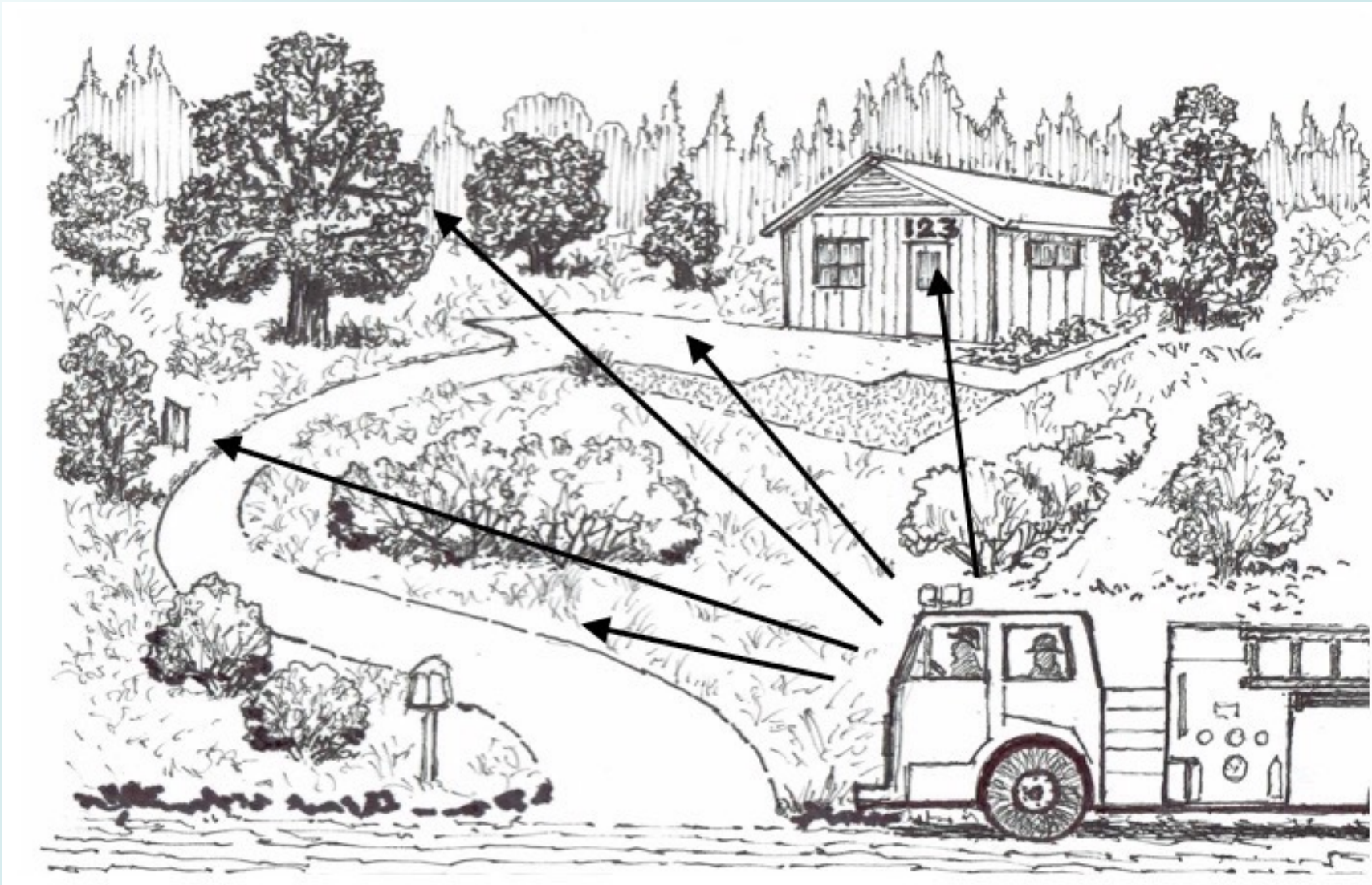
Emergency Access: Roads



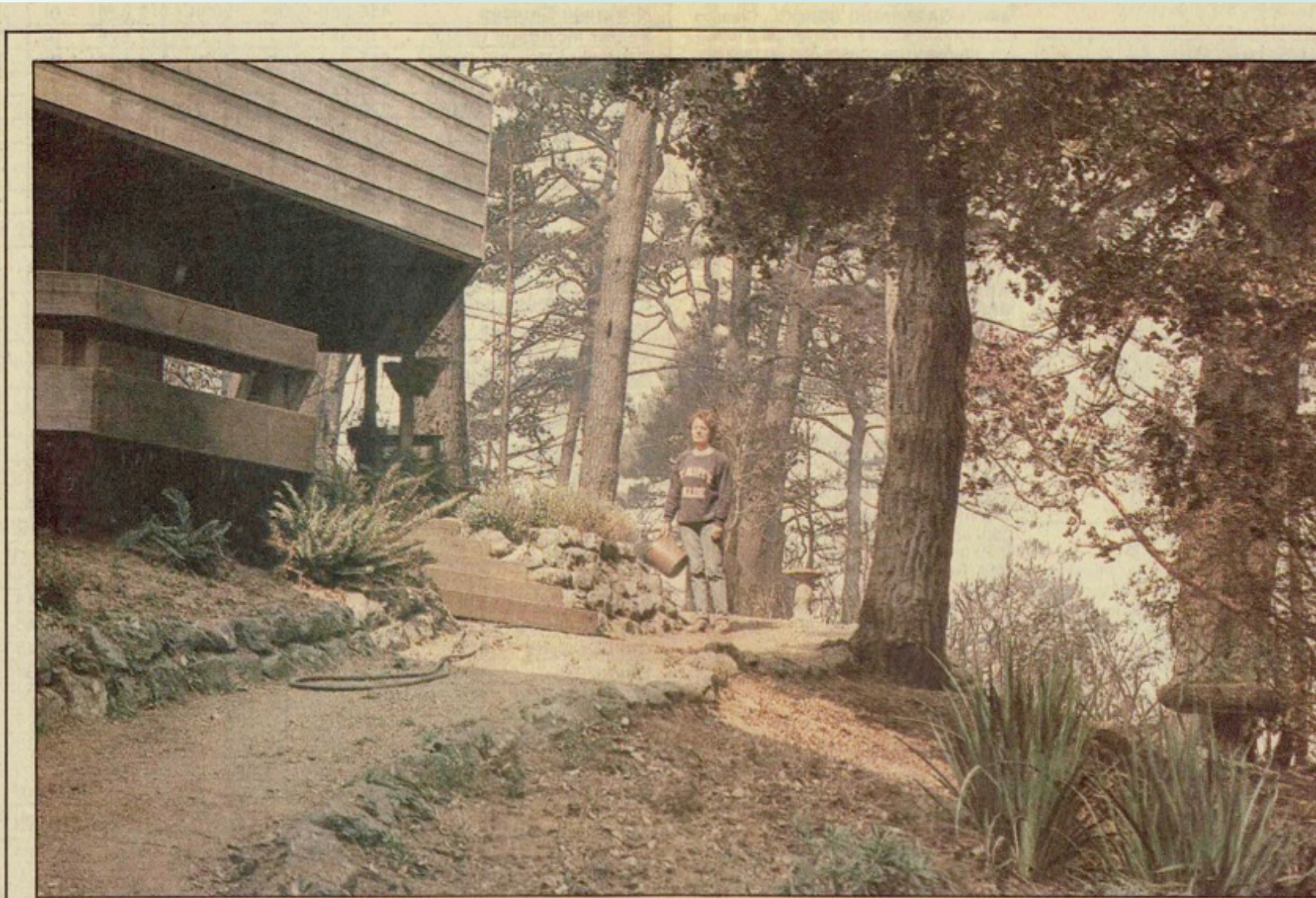
Emergency Access: Driveways



Emergency Access: Driveways



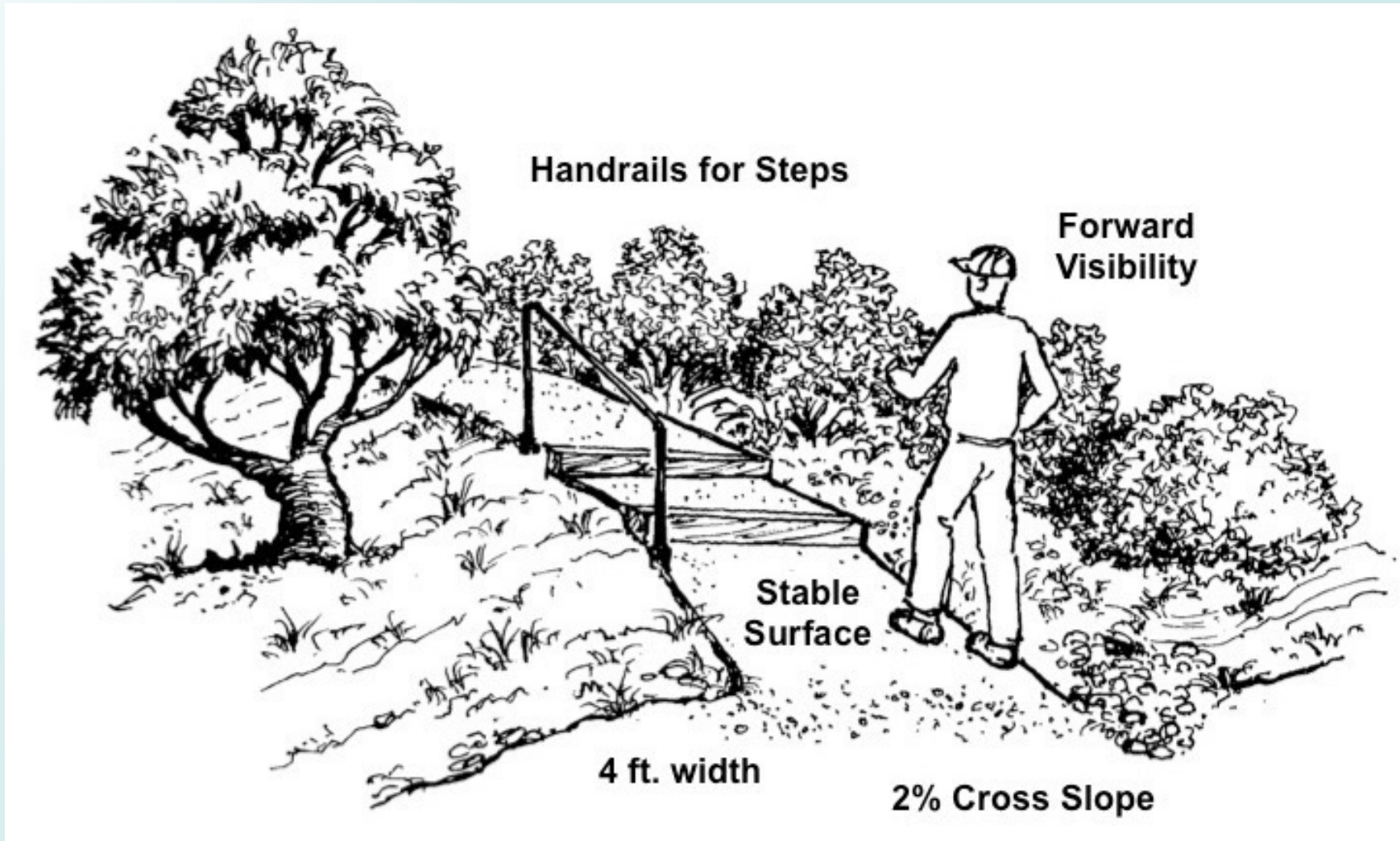
Emergency Access: Pathways



Douglas Kent phot

A HOUSE SAVED: Jean Beule stands on the grounds of her house of the wide paths that circled the structure and became

Emergency Access: Pathways



Emergency Access: Conclusion

Our First Priority

Manage the parts that you can, which includes the road in front of the property, the driveway, and paths around a structure.

- Remove flammable vegetation from 5 feet on either side of a road.
- Prune overhead vegetation to maintain at least 15 ft clearance.
- Fix or fill uplifting or depressing surfaces.
- Repair, tighten and sand and paint handrails.
- Check light bulbs in outdoor lighting.
- Maintain non-skid treatments on sloping paths.

Structures



CREATING FIRE-RESISTANT PROPERTIES AND COMMUNITIES

Structures

Woolsey Fire 2018

Firebrands are more likely to ignite a structure than direct flame contact.



Structures



Bond Fire December 2020

Structures



Defensible Space



CREATING FIRE-RESISTANT PROPERTIES AND COMMUNITIES

Defensible Space: The Zone Theory

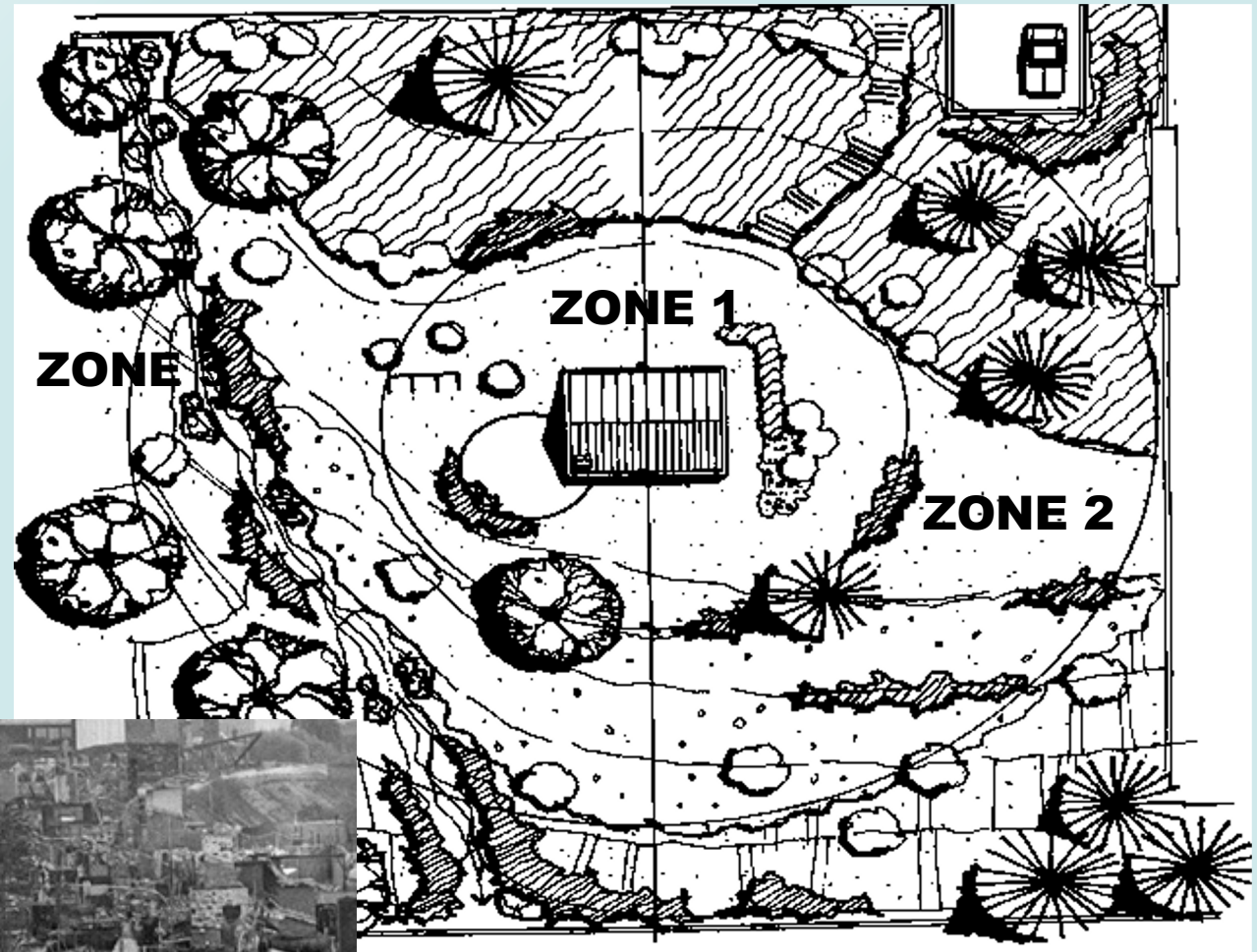


Photo by the *Los Angeles Times*. 1961.

Defensible Space: Zone 1

The Garden Zone / Defensible Space

Distance: Extends 30 ft from house or structure.

Primary Goal: Able to withstand flying embers and intense heat. Only zone that selected plants can be dependent on imports, mainly water and fertilizers.

Secondary Goal: This area has to maintain a high recreational, functional and/or economical value.



Defensible Space: The First 5 Feet

The first 5 feet of your home plays a pivotal role in its protection.

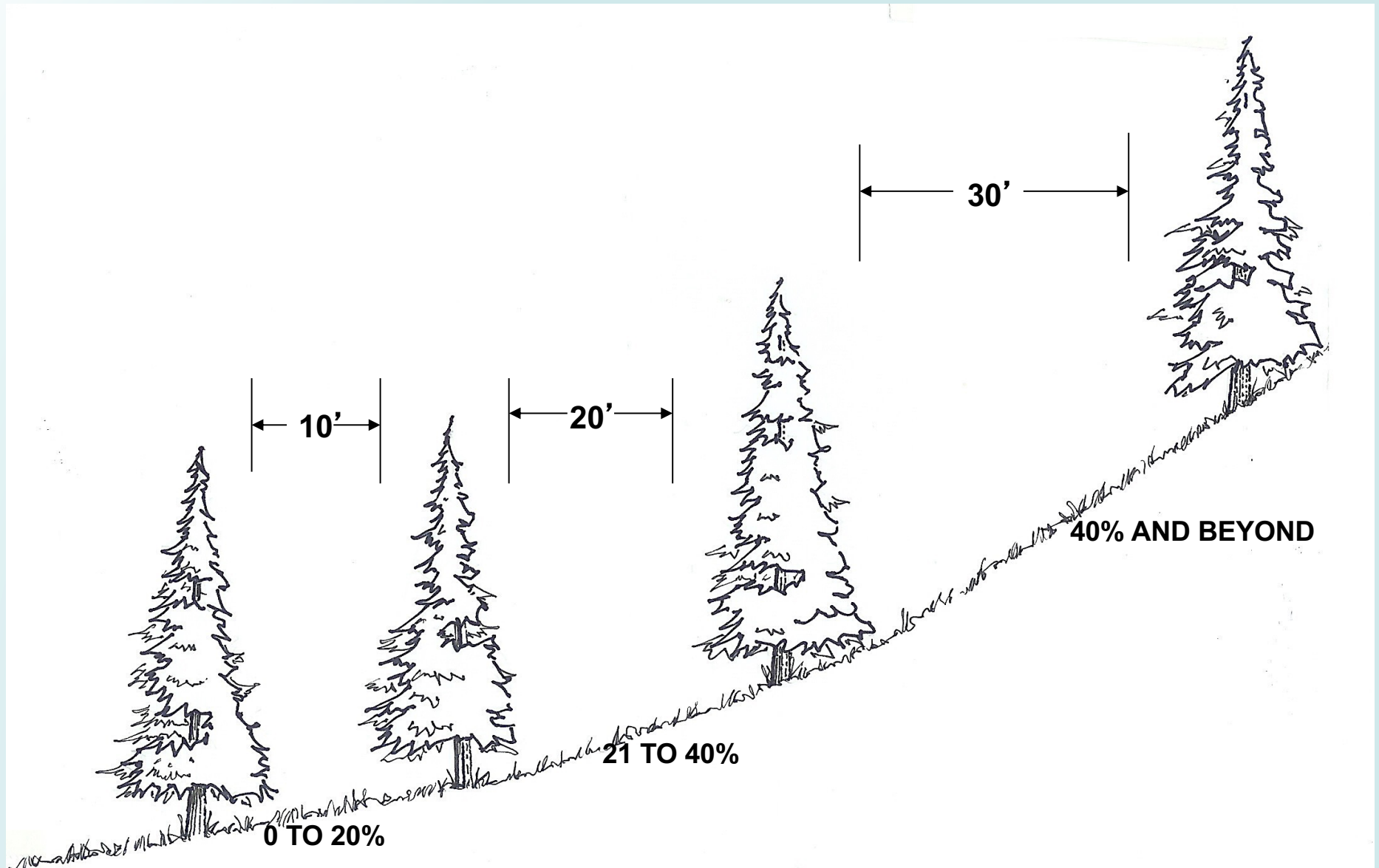
- **Avoid storage.** Compost bins, toy boxes, coat and shoe cupboards, and recycle and trash cans should be placed outside of this area.
- **Absolutely no flammable plants.** The most flammable include buckwheat, cypress, eucalyptus, juniper, and any other plant with a brittle nature and fragrance.
- **Absolutely no woody dry organic mulches.** Inorganic mulches, like river rock, are preferred. If organic mulch is needed, then use only humus, the most decomposed.
- **Avoid the use of fabrics,** which includes awnings, cushions and umbrellas.
- **Avoid erecting shading devices with the first 5 feet.** Not only will this help stop a fire from connecting to a structure, it also gives the wind and firebrands an easy exit, instead of trapping them.

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Defensible Space: The First 5 Feet



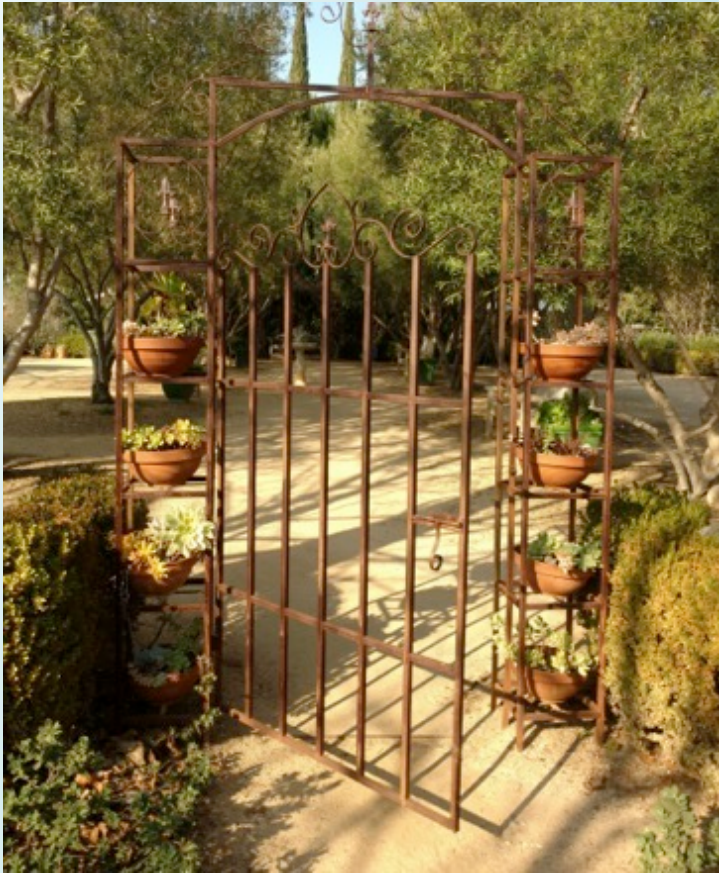
Defensible Space: Tree Spacing



Defensible Space: Tree Spacing



Defensible Space Good Examples



Defensible Space Good Examples



Defensible Space: Outlying Areas

Zone 2, which is 30 feet to 70 feet from a structure, must stop a ground fire.

Zone 3, which is from 71 feet to 100 feet from a structure, must dramatically slow a fire. Vegetation management is key in these outlying areas.



Defensible Space: Outlying Areas

- **Prune** and **remove** all dead, dying and diseased vegetation.
- **Remove** flammable vegetation and debris from around LPG tanks, outbuildings, and woodpiles.
- **Cut** all non-irrigated grasses to 4 inches.
- **Sweep** up leaves and debris.
- **Irrigate** Zone 2 plants to ensure leaf moisture.
- **Remove** flammable material and combustible ground covers at least 2 ft around the dripline of trees.
- **Maintain** distance between shrubs and trees.
- **Prevent** ground covers and vines from scrambling up fences, shade structures, shrubs, trees and utility poles.
- **Audit** irrigation systems looking specifically for any signs of erosion (rills and gullies), overspray (circular stains), or regular runoff (algae in curbs).

Defensible Space: Outlying Areas

Operating Machinery

One of the most frequent and persistent causes of wildfires is equipment use.



Defensible Space: Outlying Areas

Operating Machinery

To avoid starting a fire while working with machinery, follow these precautions:

- Put spark arresters on all exhaust ports and repair holes in existing systems and arrester.
- Check for a build-up of carbon in exhaust system and on spark plugs.
- Refuel only when the engine has cooled.
- Never lay a running or hot engine in grass or other ignitable vegetation.
- Bring a fire extinguisher to the work site.
- Avoid working past 10 am during the fire season.
- Avoid all work that involves machinery during extreme fire weather conditions, those hot, dry, windy days.

Landscape Features



CREATING FIRE-RESISTANT PROPERTIES AND COMMUNITIES

Defensible Space: Shade Structures

Huge Liability

Made from softwoods, often attached to a structure, and commonly under-maintained, shade structures contribute significant risk



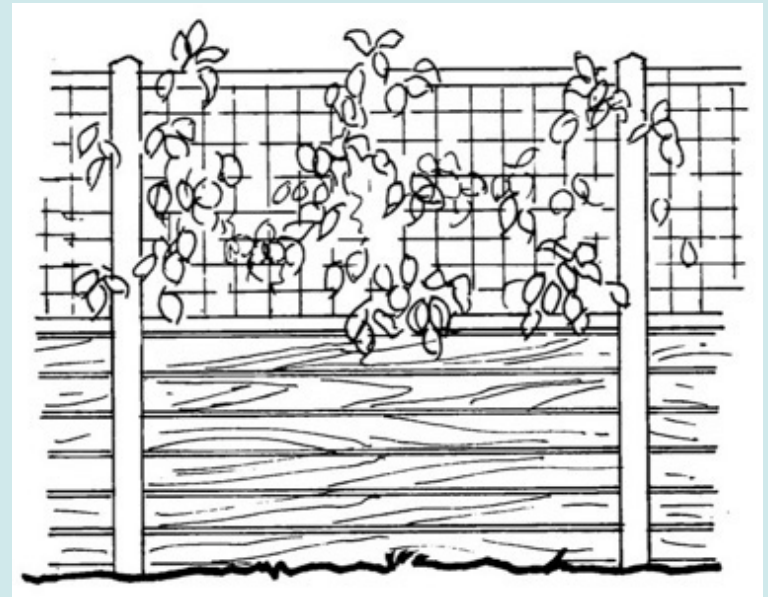
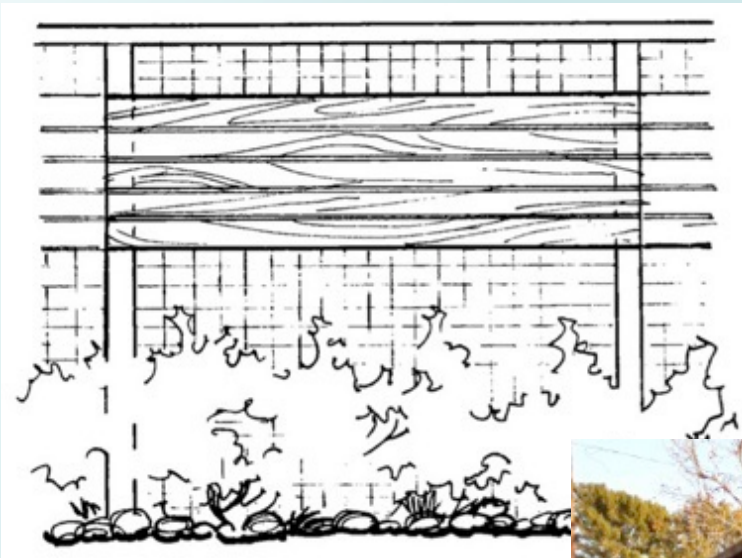
Defensible Space: Shade Structures



Defensible Space Fencing



Defensible Space Fencing



Plants



CREATING FIRE-RESISTANT PROPERTIES

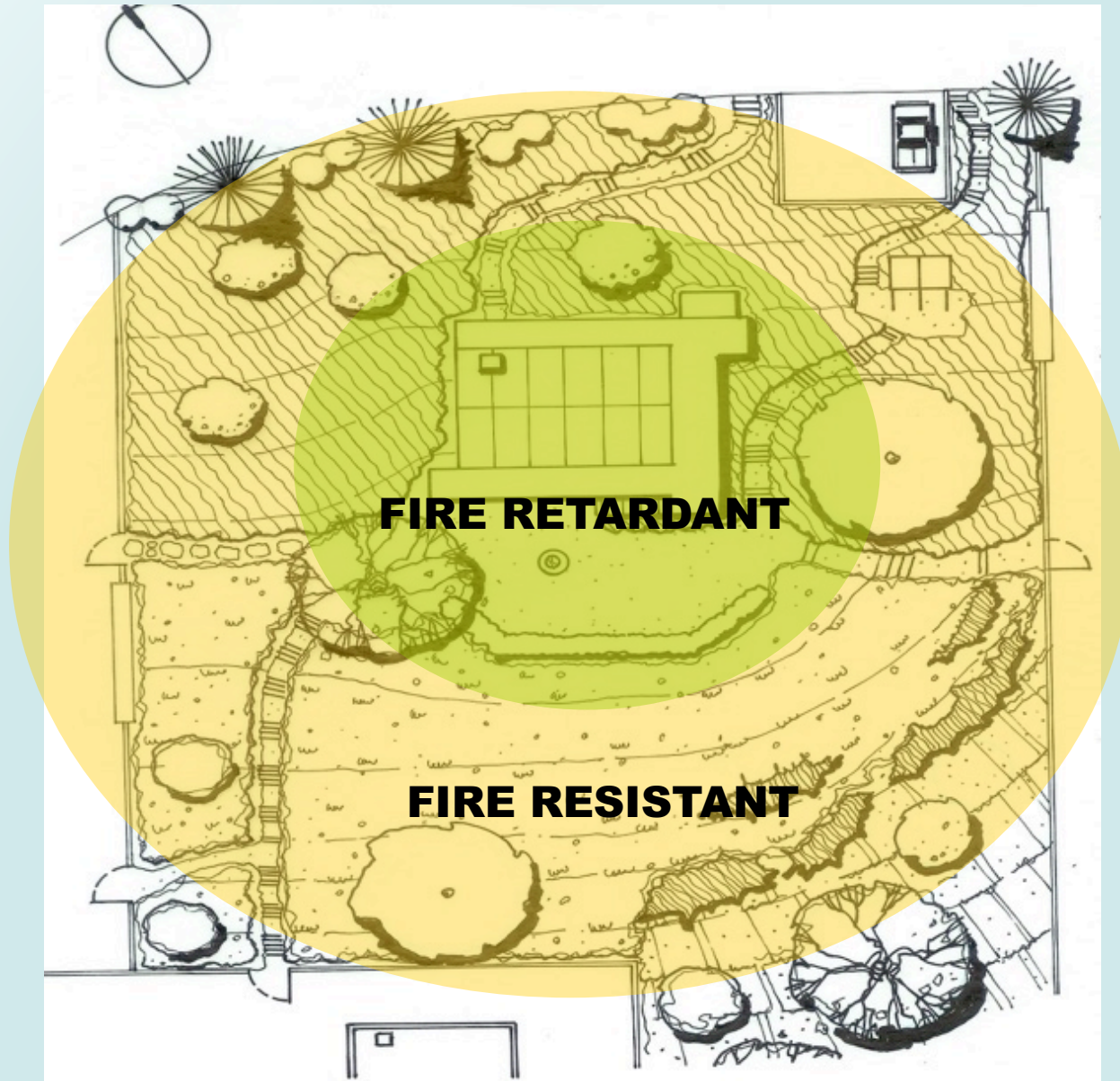
Less Flammable Plants

Knowing Traits is More Important than Lists

- Broadleaf plants
- Moist and easily bent leaves
- Thick leaves
- Low amount of litter
- Sap that looks more like water
- Plants without fragrance
- Plants with silver or gray leaves
- Plant leaves without hair



Less Flammable Plants



Less Flammable Plants

FIRE RETARDANT

Agapanthus
Cercis – Redbud
Crape Myrtle
Fescue
Flax
Gazania
Grape
Liquidambar
Philodendron
Photinia
Succulents

FIRE RESISTANT

Artemisia ‘Silver King’
Ceanothus
Cistus – Rockrose
Coast Live Oak
Cotoneaster
Lemonade Berry
Mallow
Native Verbena
Toyon
Yarrow
Yucca



Plants: The Problem with Lists

- **Too Old**
- **Diseased**
- **Injured**
- **Pest Infested**
- **Not Healthy**



Maintenance is the Fulcrum of Fire Safety

Plants: The Problem with Lists



Maintenance is the Fulcrum of Fire Safety

Plants: To Do

- Remove dead, **dying** and diseased vegetation.
- **Replace** vegetation before it becomes an economic liability and fire risk.
- Do not let your plants **dry** out.



Conclusion



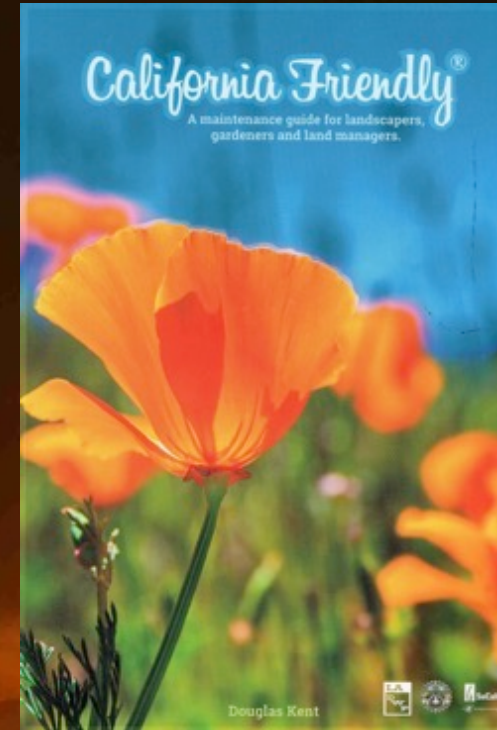
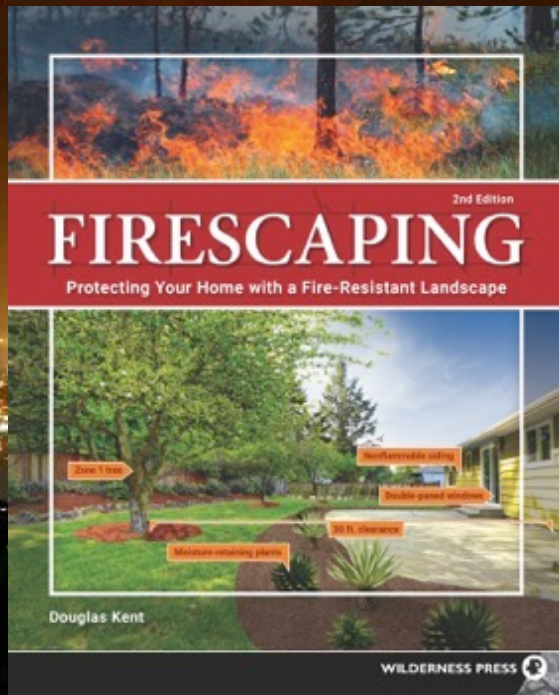
CREATING FIRE-RESISTANT PROPERTIES

Conclusion

Our Work is Divine

- **Crime:** The number and density of urban trees is correlated to rates of crime: less trees, more crime.
- **Public Safety:** Trees and shrubs along roads will slow drivers, improving pedestrian and vehicular safety.
- **Property Value:** Trees and greening will improve the aesthetics of a community and as a consequence, have a positive affect on property values.
- **Energy Conservation:** Strategically placed trees, shrubs and ground covers can reduce the energy needed to cool and heat structures by as much as 50%.
- **Revenue:** Urban vegetation can become a source of revenue for the products they generate, which includes fibers, foods, dyes, medicines, oils, ornaments, and timber.
- **Heart Health:** Landscapes can reduce a person's heart rate and blood pressure, increase feelings of security and wellbeing, and improve overall health.
- **Learning:** Vegetation has a calming effect on children and has helped improve memory retention and learning.
- **Wellbeing:** Certain types of landscapes will reduce depression and stress, and elevate people's moods.
- **Healing:** Patients with views of vegetation get discharged from hospitals sooner than those without.
- **Longevity:** On average, gardeners live 14 years longer than non-gardeners.

Question & Answer



THANK YOU!

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