RESILIENT LANDSCAPING: Gardening in the Defensible Space Zone

Garden as if life depends on it!

For the Healdsburg Community

Hosted By:
FireSafe Sonoma

Sponsored By:
The Office of
Supervisor Gore

Presented By:
Resilient Landscapes Coalition

Funded By: County of Sonoma

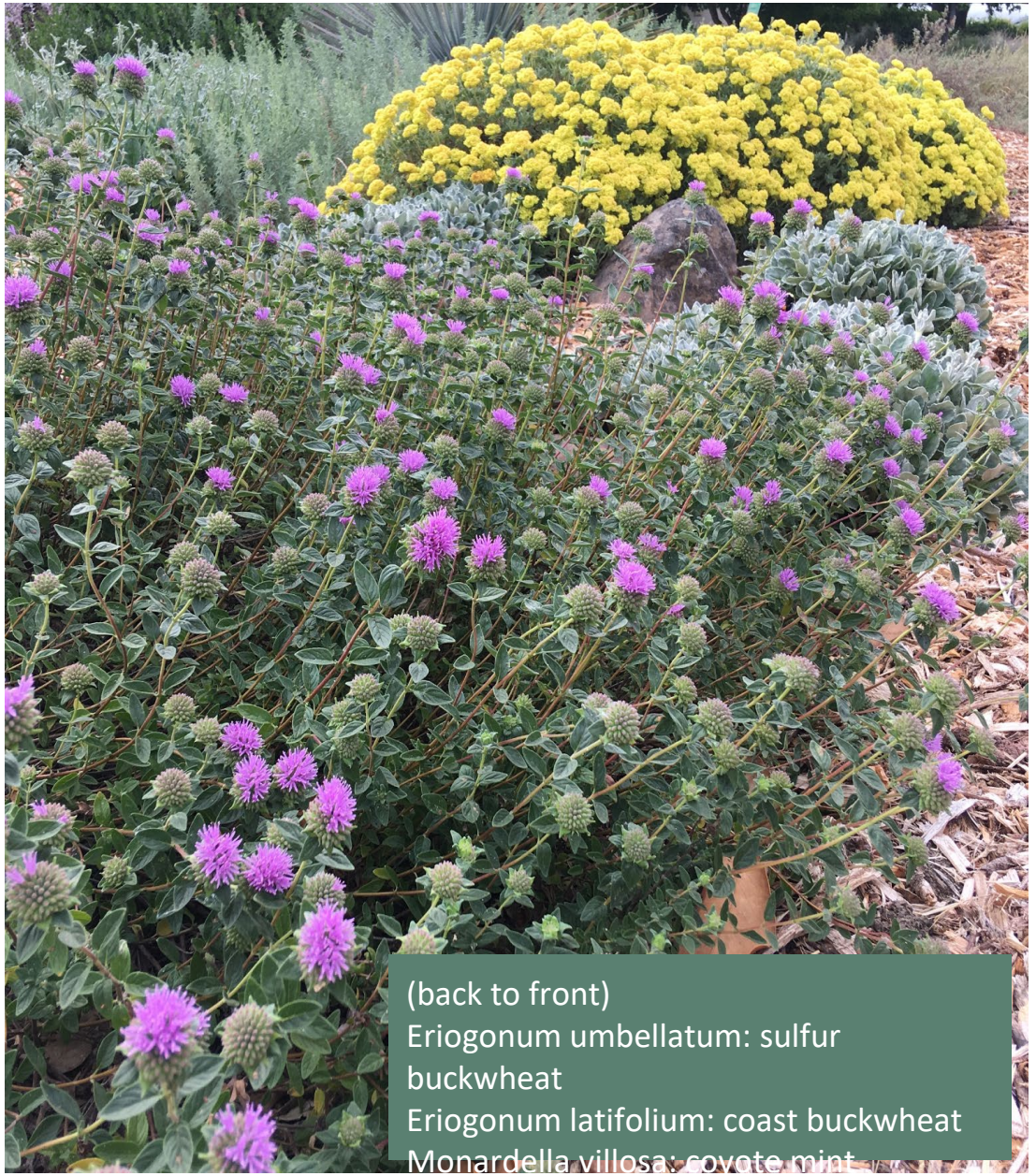
June 28, 2022

Resilient
a. capable of withstanding shock without permanent damage or rupture
b. tending to recover from or adjust easily to misfortune or change

THIS IS A WEBINAR:
YOU DO NOT HAVE AUDIO OR VIDEO ACTIVATED

THIS WEBINAR IS BEING RECORDED

QUESTIONS: WILL BE TAKEN FROM THE Q&A BOX ONLY



(back to front)
Eriogonum umbellatum: sulfur buckwheat
Eriogonum latifolium: coast buckwheat
Monardella villosa: coyote mint

Resilient Landscapes Coalition

Our Team:

- Fire Safe Sonoma *firesafesonoma.org*
  - **Roberta MacIntyre**
  - **Marika Ramsden**
- Habitat Corridor Project *habitatcorridorproject.org*
  - **April Owens**
- Sonoma Ecology Center *sonomaecologycenter.org*
  - **Ellie Insley**
  - **Jon Kanagy**
- UC Master Gardener Program, Sonoma County sonomamg.ucanr.edu
  - **Mimi Enright**
  - **Jennifer Roberts**

In Partnership with:

- County of Sonoma Fire Prevention Division
- CAL FIRE & Local Fire Departments

More info at: **SonomaResilientLandscapes.com**

Outline

- **Fire Context; Ecology & Sustainability**

  Jon Kanagy (25 minutes)

- **Design and Maintenance Principles**

  Mimi Enright (25 minutes)

- **Landscape Design and Planting Examples**

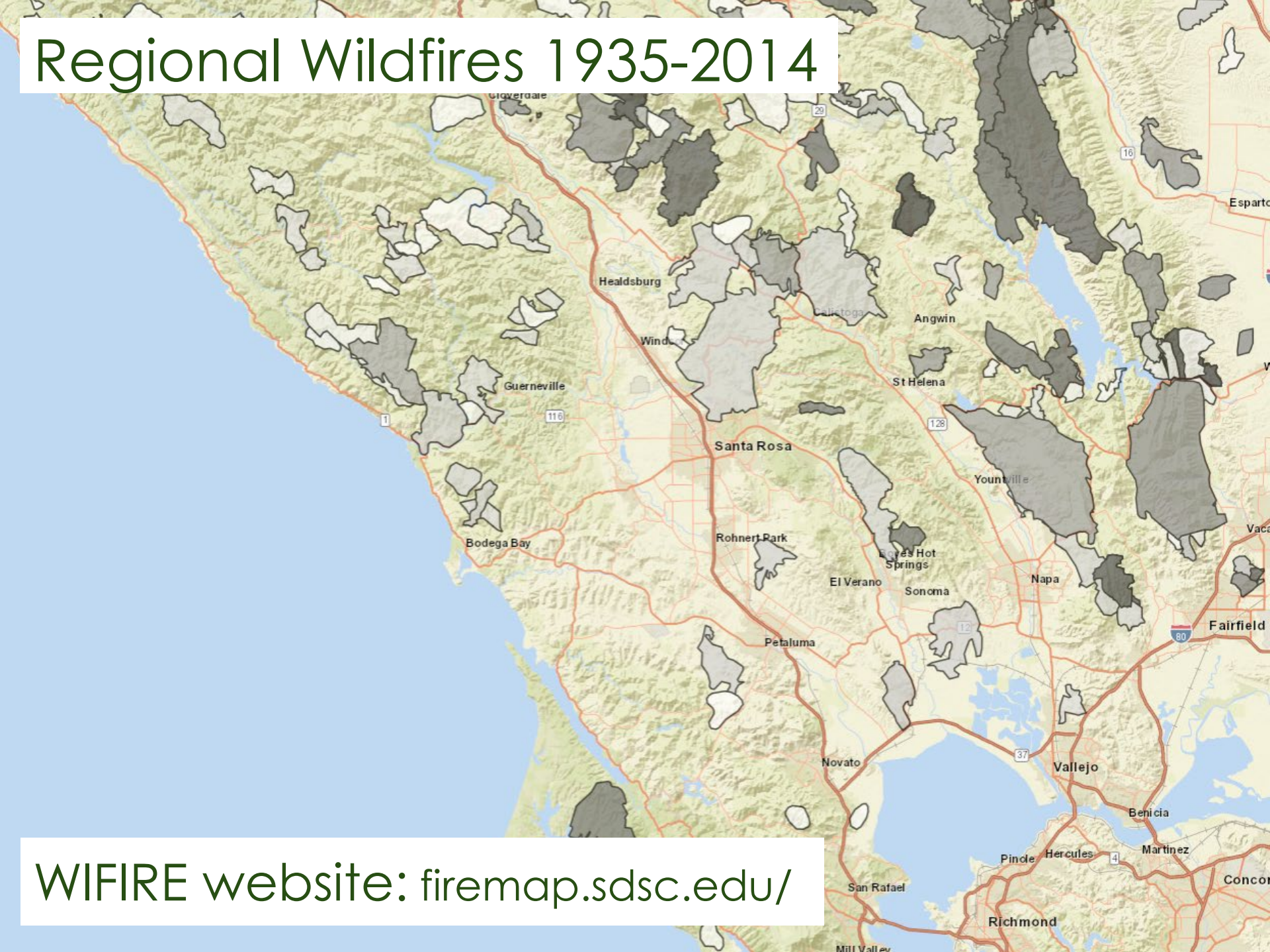
  April Owens (25 minutes)

? **Questions & Conversation** (30 minutes)

Defensible Space that is Beautiful, Sustainable, and Biodiverse

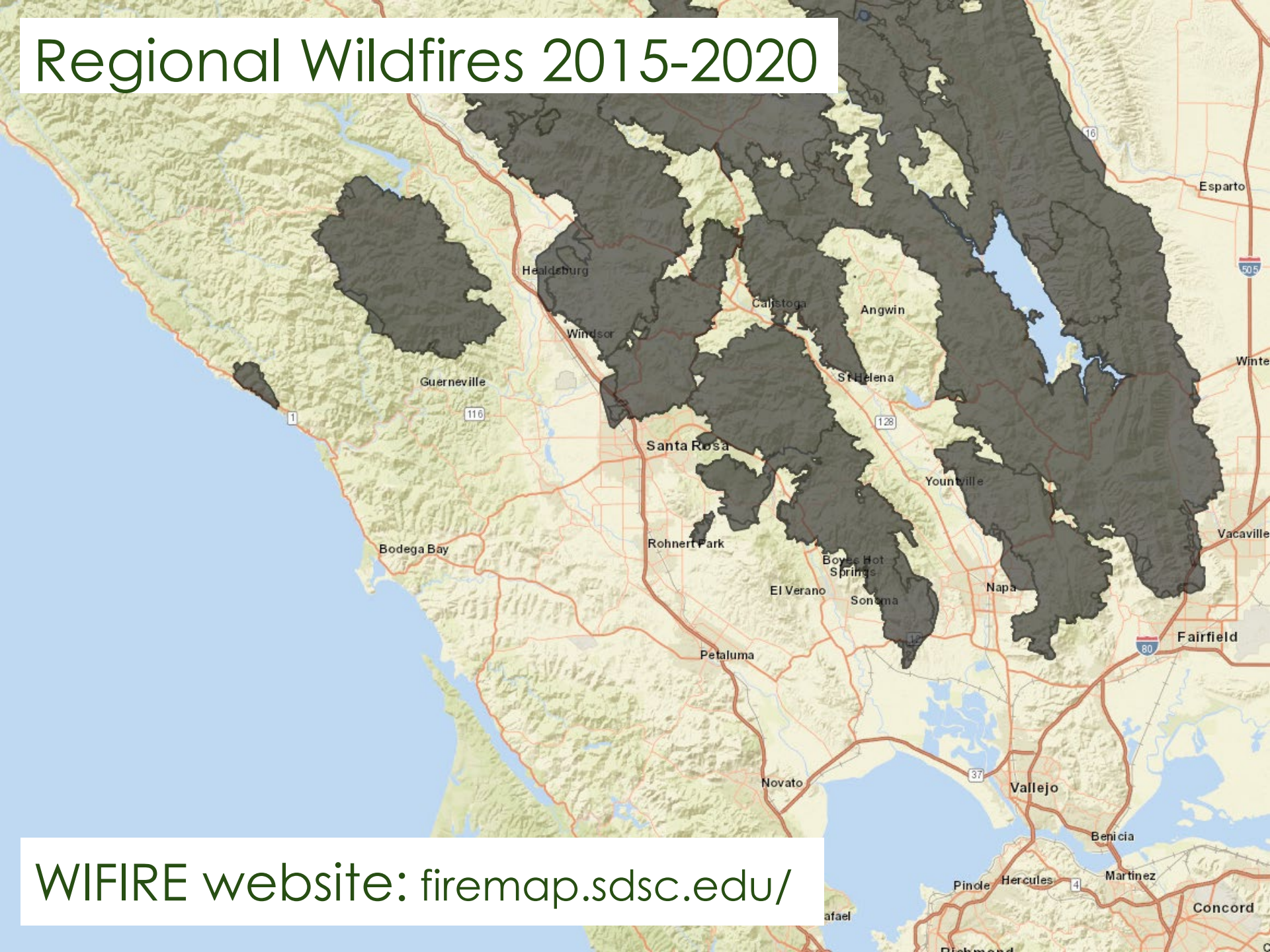
“The myth of the moonscape”

Regional Wildfires 1935-2014



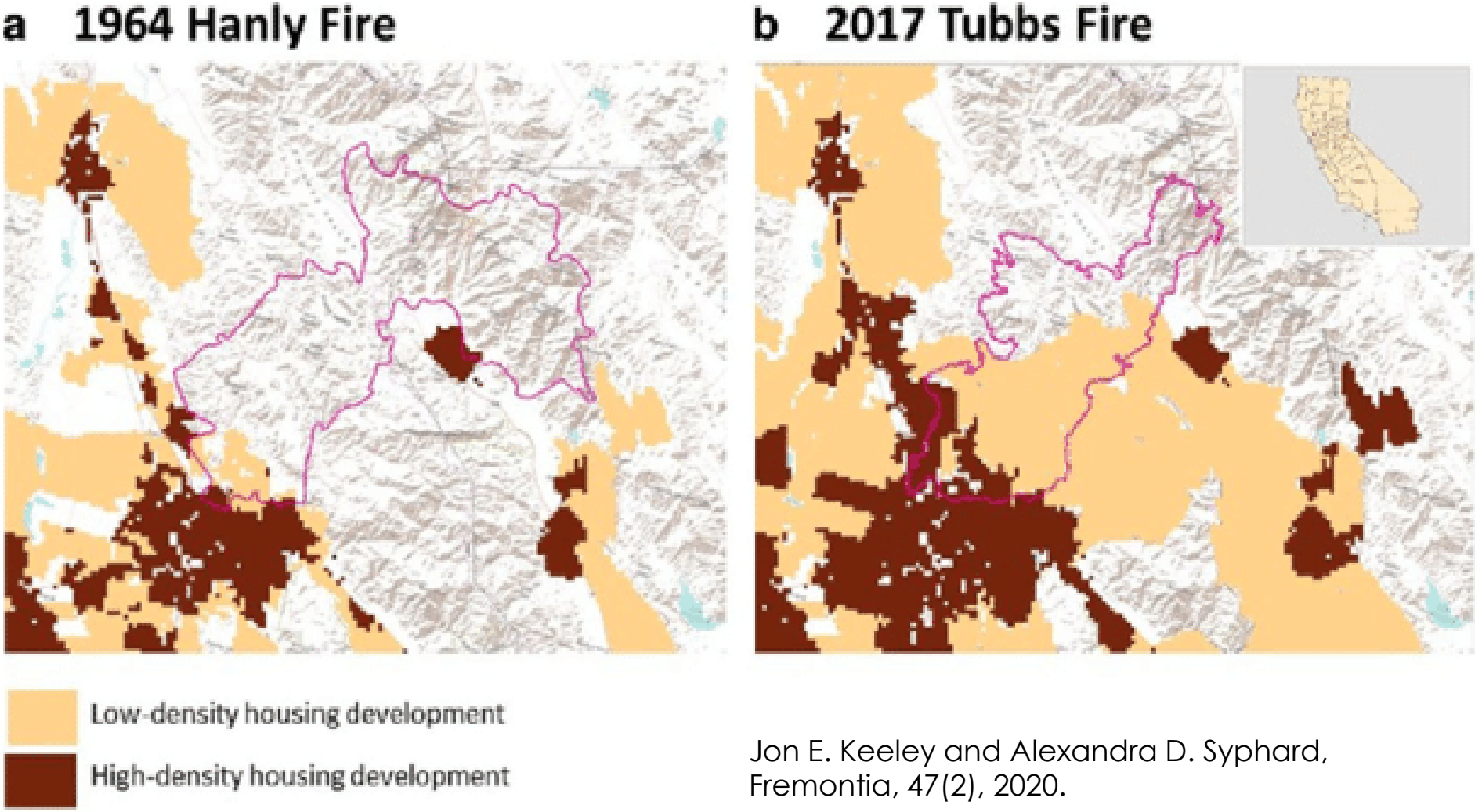
WIFIRE website: firemap.sdsc.edu/

Regional Wildfires 2015-2020



WIFIRE website: firemap.sdsc.edu/

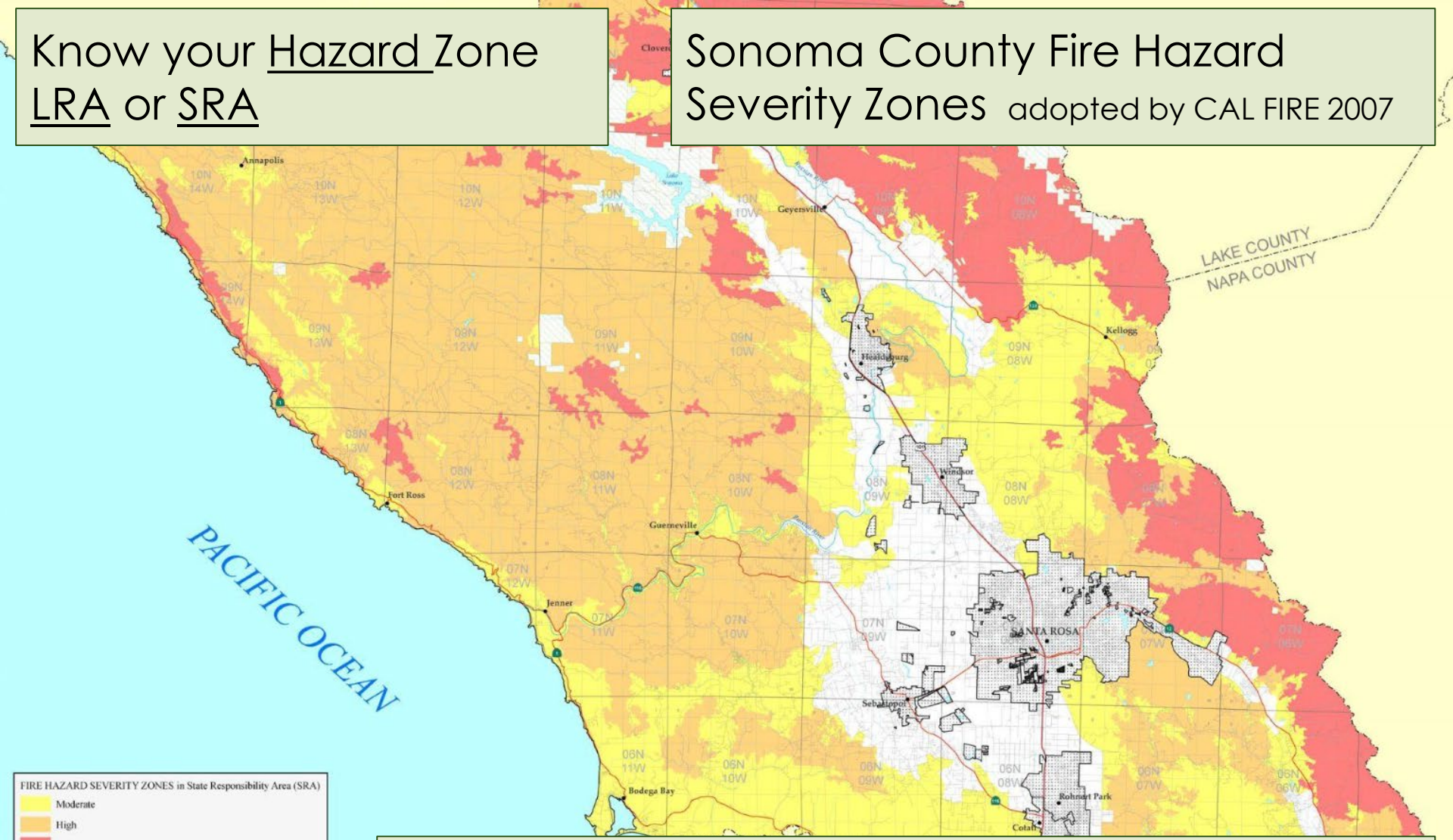
Wildland Urban Interface



Jon E. Keeley and Alexandra D. Syphard, Fremontia, 47(2), 2020.

Know your Hazard Zone LRA or SRA

Sonoma County Fire Hazard Severity Zones adopted by CAL FIRE 2007



FIRE HAZARD SEVERITY ZONES in State Responsibility Area (SRA)
- Moderate
- High
- Very High

FIRE PROTECTION RESPONSIBILITY
- Federal Responsibility Area (FRA)
- Local Responsibility Area (LRA) - Unincorporated
- Local Responsibility Area (LRA) - Incorporated

Public Resources Code 4201-4204 direct the California Department of Forestry and Fire Protection (CAL FIRE) to map fire hazard within State Responsibility Areas (SRA), based on relevant factors such as fuels, terrain, and weather. These statutes were passed after significant wildland-urban interface fires; consequently these hazards are described according to their potential for causing ignitions to buildings. These zones referred to as Fire Hazard Severity Zones(FHSZ), provide the basis for application of various mitigation strategies to reduce risks to buildings associated with wildland fires. The zones also relate to the requirements for building codes designed to reduce the ignition potential to buildings in the wildland-urban interface zones.

These maps have been created by CAL FIRE's Fire and Resource Assessment Program (FRAP) using data and models describing development patterns, estimated fire behavior characteristics based on potential fuels over a 30-50 year time horizon, and expected burn probabilities to quantify the likelihood and nature of vegetation fire exposure to new construction. Details on the project and specific modeling methodology can be found at http://frap.cdf.ca.gov/projects/hazard/methods.htm.

The version of the map shown here represents the official "Maps of Fire Hazard Severity Zones in the State Responsibility Area of California" as required by Public Resources Code 4201-4204 and entitled in the California Code of Regulation, Title 14, Section 1280 Fire Hazard Severity Zones, and as adopted by CAL FIRE on November 7, 2007.

An interactive system for viewing map data is hosted by the UC Center for Fire at http://firecenter.berkeley.edu/frap/

Questions can be directed to David Sapsis, at 916.445.5369, dave.sapsis@fire.ca.gov.

Defensible Space Regulations:

- State Public Resources Code 4291 (SRA)
- Local Ordinances: Sonoma County Ordinance Chapter 13A; City of Healdsburg
- Additional requirements in **High and Very High Fire Hazard Severity Zones**

Assessment of Risk

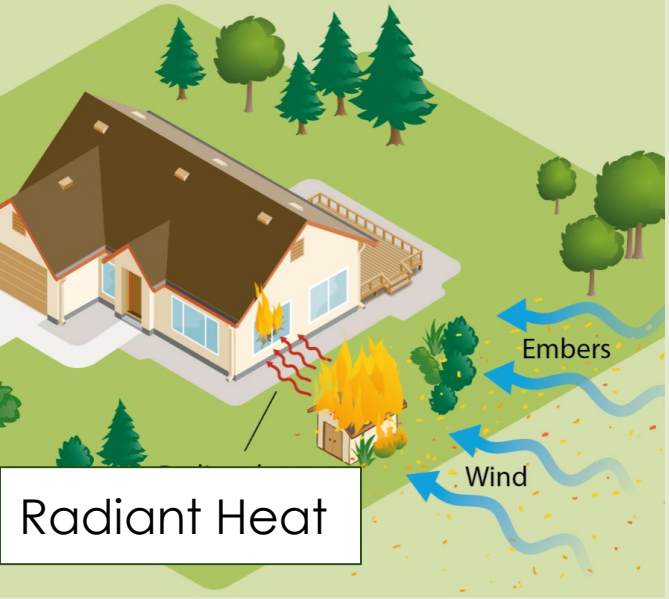
Ask yourself:

- What are the vegetation patterns in the broader landscape around my community, and how do they contribute to potential fuels?
- What are the resources and conditions in my neighborhood?
- What are the conditions on my own property, including the topography? Has the house been assessed? Have home hardening practices been completed? If so, what steps should be taken working out into the landscape?
- What is my own personal perspective on risk? How will I balance risk and other factors such as sustainability, aesthetics, and home improvement costs?

- Public Resources Code (PRC) 4291
  - "The amount of fuel modification necessary shall consider the flammability of the structure as affected by building material, building standards, location, and type of vegetation."

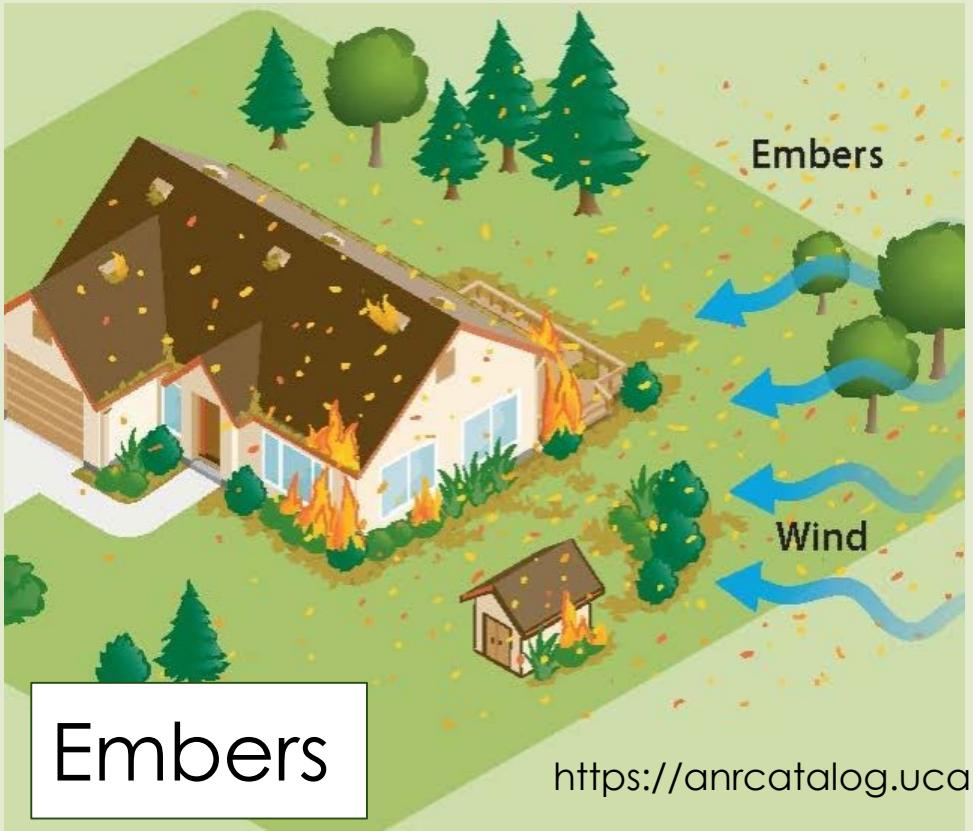
- Each individual must assess their own personal risk and tolerance, but:
- Your risk decisions intersect with those of your neighbors!

Three types of Fire Exposure



Radiant Heat

Direct Flame Contact



Embers

https://anrcatalog.ucanr.edu/pdf/8695.pdf

The greatest cause of structure ignition

Your house <u>may</u> be the greatest fire threat to your neighbors!

Ecology and Sustainability in the Defensible Space Zone:

Taking Care of **All** our Neighbors

- We have an important role in protecting homes, habitat, …
- "For the first time in history…gardeners have become important players in the management of our nation's wildlife." - Douglas Tallamy

Defensible Space:
Ecosystem Services

- Shade (air conditioning)
- Aesthetics
- Enrich soil and hold it in place
- Clean & manage stormwater (slow it, spread it, sink it, store it)
- Sequester carbon
- Support birds and other pollinators (biodiversity)

Defensible Space: Supporting Biodiversity

Biodiversity: the web of life above and below ground, is declining alarmingly.

Defensible Space:

Supporting Biodiversity: Biodiversity = Redundancy

- Choose native species, at least 70%-80% - native pollinators prefer them
- Plant islands for bird and butterfly food and shelter
- Use integrated pest management
- Provide a water source

Defensible Space:

Supporting Biodiversity

- Keep all plants healthy (appropriate **mulch** and irrigation)
- A healthy plant is also more fire resistant.
- Oak trees have highest food productivity (acorns, caterpillars)
- Leaf litter supports insects, birds, microorganisms and roots

Defensible Space: Supporting Sustainability

- Avoid over-clearing to protect soil, streams, and fish, and reduce flammable invasive plants

Defensible Space:

Supporting Biodiversity

- Timing of vegetation management is important
- Birds nest March-August
- Trim and prune Sept-February (when most plants are dormant)

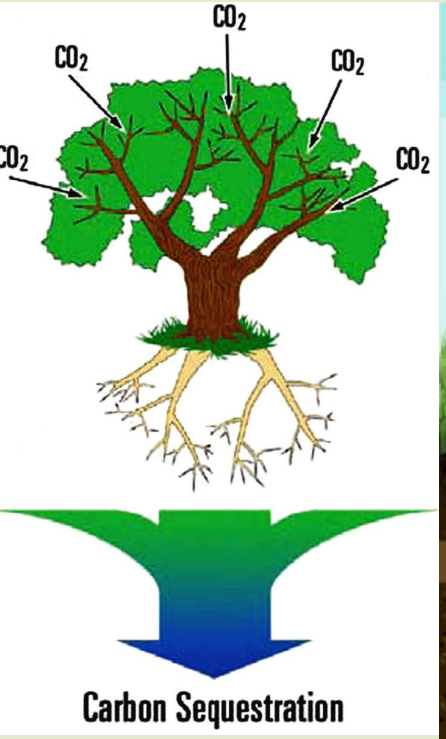
Defensible Space:

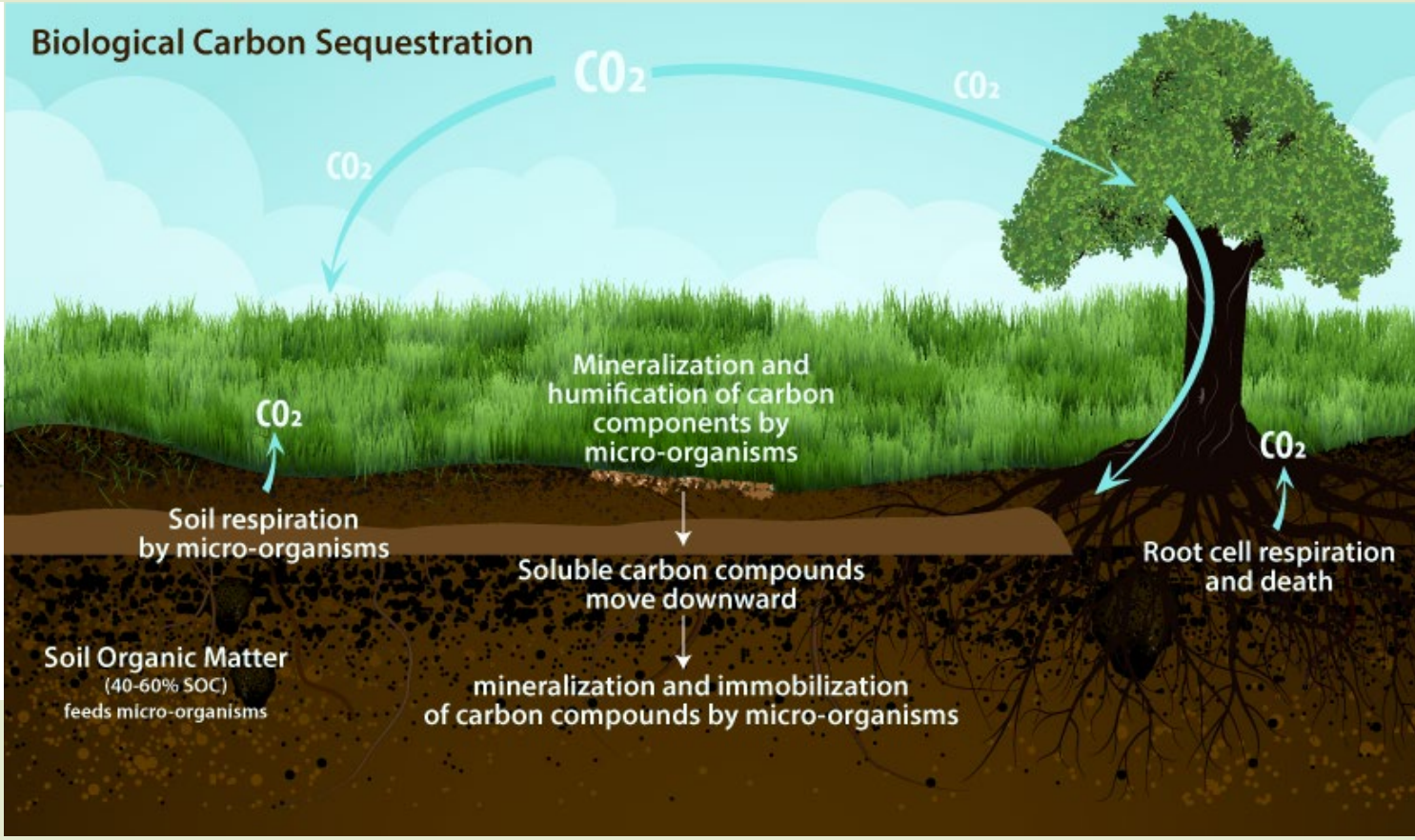
Supporting Sustainability

- Enrich soil and hold it in place
- Carbon sequestration
- Encourage water to infiltrate
- Protect water quality

Defensible Space: Sequestering Carbon

- Healthy soil sequesters more carbon, retains moisture and supports a healthier, more fire resistant landscape





Defensible Space: Nurturing soil

Soil is a complex network that includes plant roots, insects, fungi, and organic matter supplied by fallen leaves and organic mulch.

- Retain and incorporate organic matter
- keep soil covered with plants, mulch, and leaf litter where appropriate
- avoid synthetic fertilizers

Defensible Space: Clean and manage water

Keep water on your property: slow it, spread it, sink it, store it!

Credit: April Owens Design

Find resources at:
dailyacts.org/savewater

We encourage you to become more intimate with your garden and your wildlife neighbors, while reducing fire risk and enhancing biodiversity.

It is worth the time & effort!

RESILIENT LANDSCAPES

University of California
Agriculture and Natural Resources

UCCE Master Gardener Program
Sonoma County

Creating a Firewise & Sustainable Landscape

- Basic Principles
- Recommendations by Defensible Space Zone
- Maintenance & Mulch
- Recap

Homeowner action is key.

- There is no such thing as a fireproof home, especially in extreme conditions, but you can reduce your risk.
- Increasingly, there is more fire than there are firefighters.

YOUR WORK will be the most effective defense for your home.

Sacramento Bee image from Kincade Fire (no copyright infringement intended)

Fire and Fuels

Fuel + Oxygen + Heat = Fire

Fuel + Weather + Topography= Fire Behavior

Fuel is… anything that will burn

- Vegetation (trees, woody shrubs, perennials)
- Landscape mulch
- Fencing, roofing, decks
- Lawn furniture
- Arbors, trellises, planter boxes

Our Basic Principles for Creating a Firewise & Sustainable Landscape

- All plants in your landscape should be selected & placed carefully and should be regularly maintained & hydrated
- Design for ease of maintenance!
- Each home and landscape is unique and must be considered individually
- Do what is required by law
- Use science to inform your decisions – most of this information is science based but research is ongoing

Fire-wise Landscape Design & Maintenance Basics

Remove ALL dead or dying plants and branches and remove ladder fuels

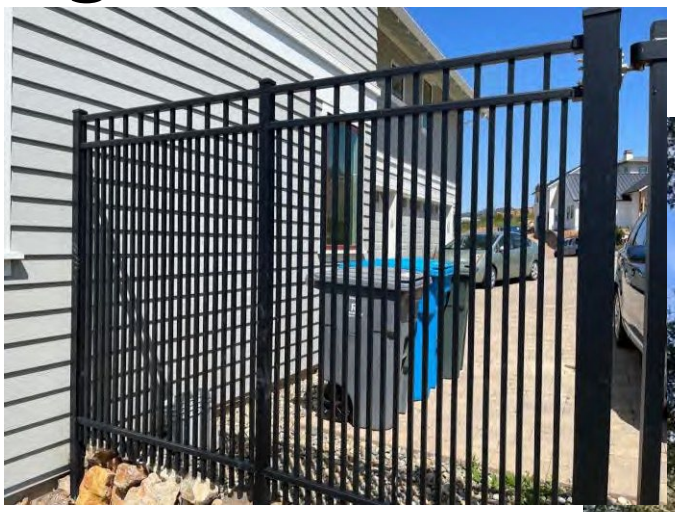
Create islands of plantings with non-combustible paths between to interrupt the path of fire

Avoid planting or mulching close to structures

Prune tree limbs up at least 6' (or 1/3 of tree height) from ground

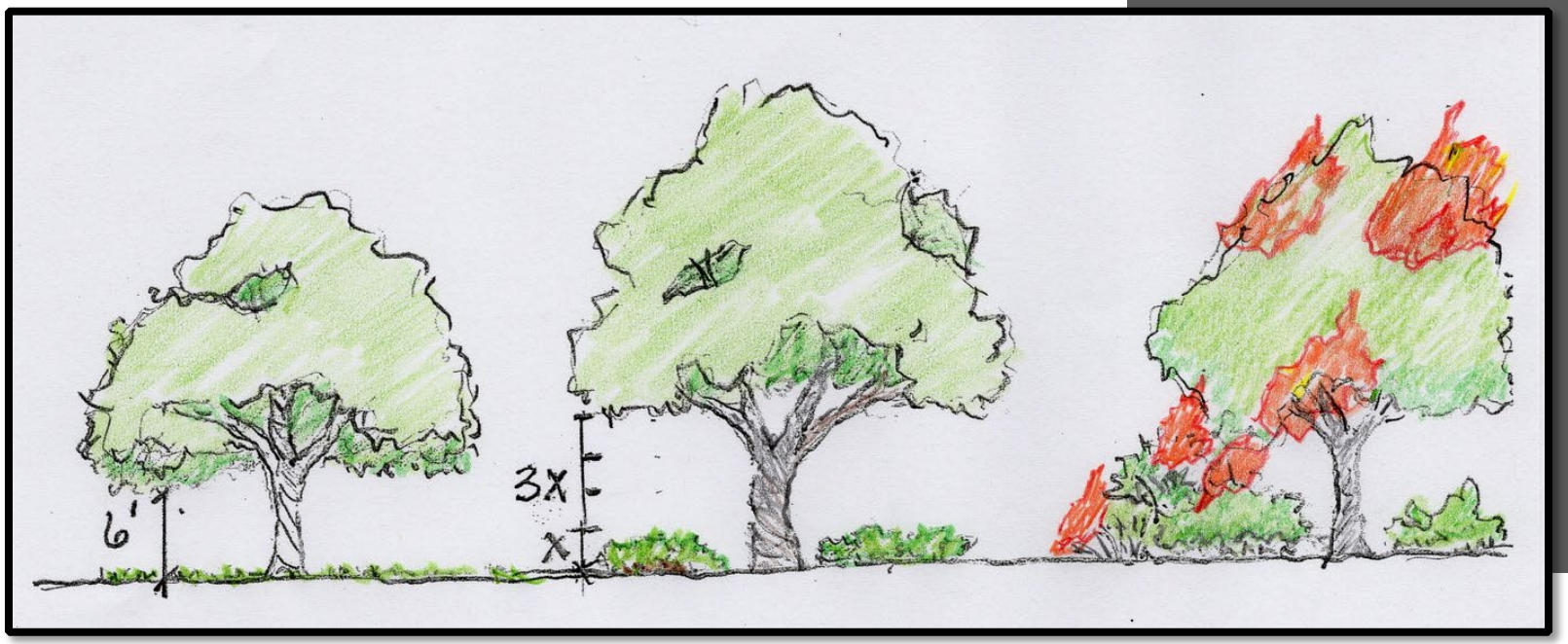
Gates & Fencing

- Consider alternatives to wood fences such as concrete or rock walls or metal fences
- Wire mesh fencing can reduce fuel mass while preserving views
- Gates made from organic material should not attach to the house



Eliminate Ladder Fuels

- Allow 3 times the height of the shrub to the lowest tree limb
- Keep fire from moving from ground into trees
- Limb up all trees at least 6’ or 1/3 height of tree

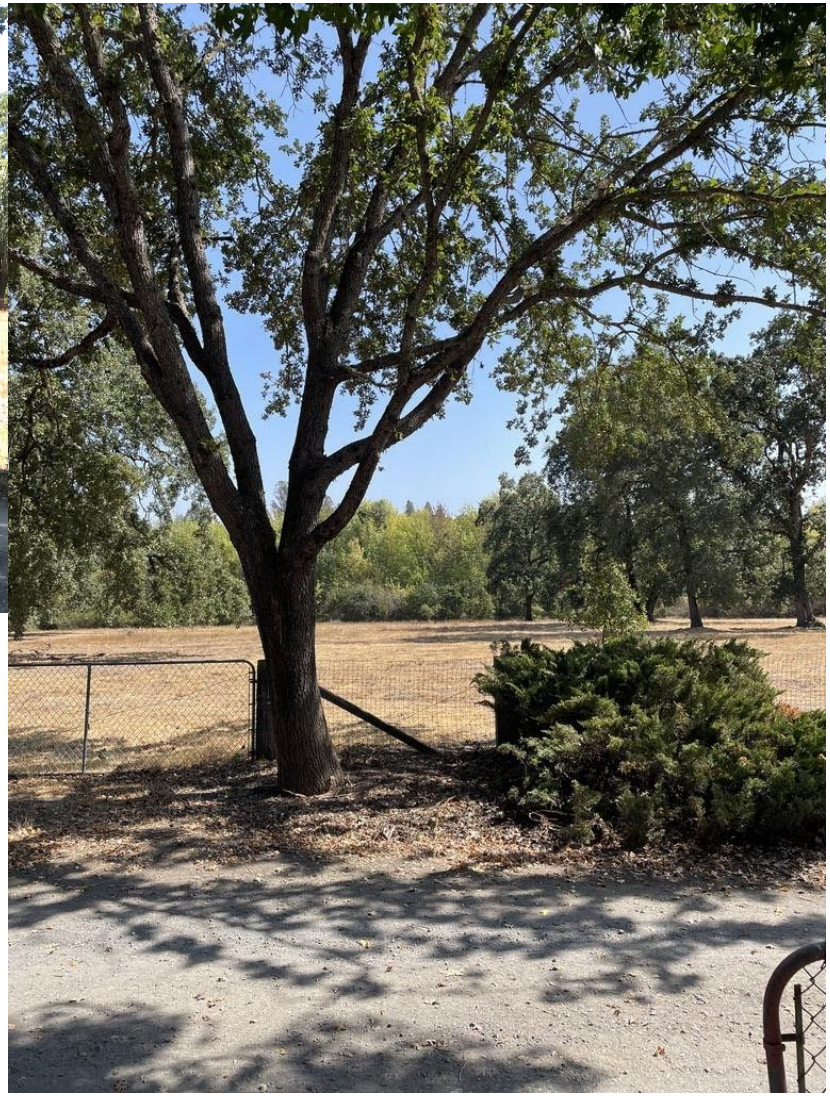


drawing courtesy of Ellie Insley

Firewise Plant Selection Considerations

- **How large** will this plant grow? (affects placement, fuel load & maintenance, PG&E lines)
- **Will it thrive** where it will be planted? (affects health & vigor and flammability)
- Will it require more **maintenance** than can be provided now or in the future? (affects fuel load)
- Is it **invasive**? (affects fuel load over wide areas)
- Consider how a plant changes over it's **lifespan** (affects fuel load)

← Ladder Fuels: Before



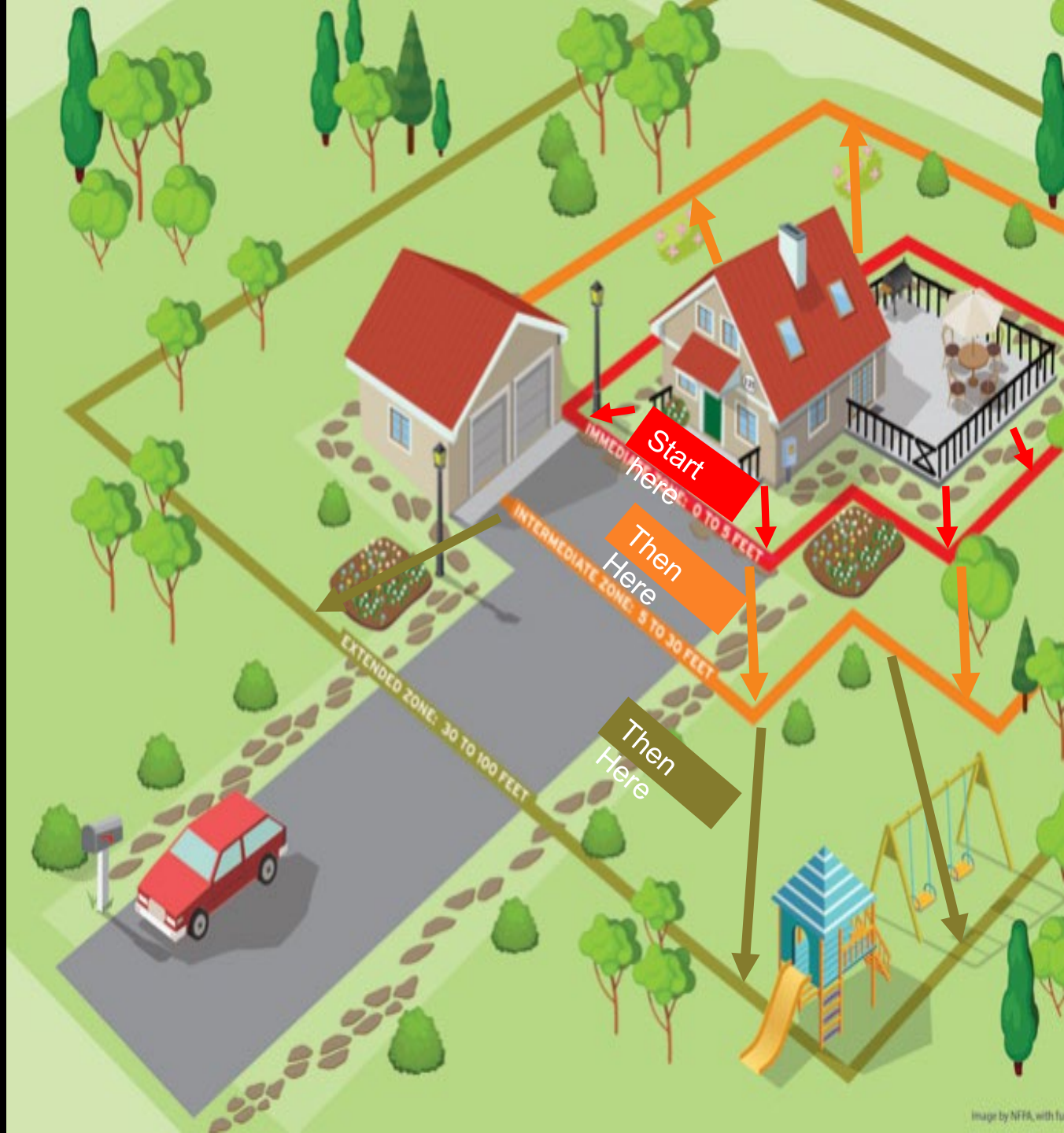
Ladder Fuels: After →

Photos courtesy of Ellis Insley

Where to not to plant

- 0-5’ out from the house
- Under vents and eaves
- In front of windows or combustible siding
- Under or near decks
- Inside corners

Start at the house and work out!



Zone Zero - 0-5’: Ember defense zone

- Optimally **no** combustible materials in this zone!
- Minimize/remove planting here especially:
  - Under vents and eaves
  - In front of windows or combustible siding
  - Under or near decks

Photos & garden design: April Owens

Zone 0 - 0-5’: Ember defense zone maintenance

- Regularly remove dead/dry plant material
- Remove any dead branches & limb up existing tree limbs to 6’ from ground or 1/3 tree height

Zone 0: 0’-5’ Ember defense zone

- Roof litter maintenance critical!
  - Maintain tree limbs 6’ above roof
- County Code mandates cutting tree limbs 10’ from stove pipe or chimney outlet
  - MAINTAIN YEAR ROUND!

Photo by Mimi Enright

Zone 1 - 5-30′ Home defense zone

- Plant in "islands" separated by non-combustible pathways
- Use smaller shrubs and groundcovers (to 3′) & herbaceous perennials
- Trees are OK if they're green & free of dead plant material

Photo & garden design April Owens

Zone 1 - 5’-30’ Home defense zone

Low growing, mostly perennial

Low fuel = Well Maintained

Great place for hardscape close to house

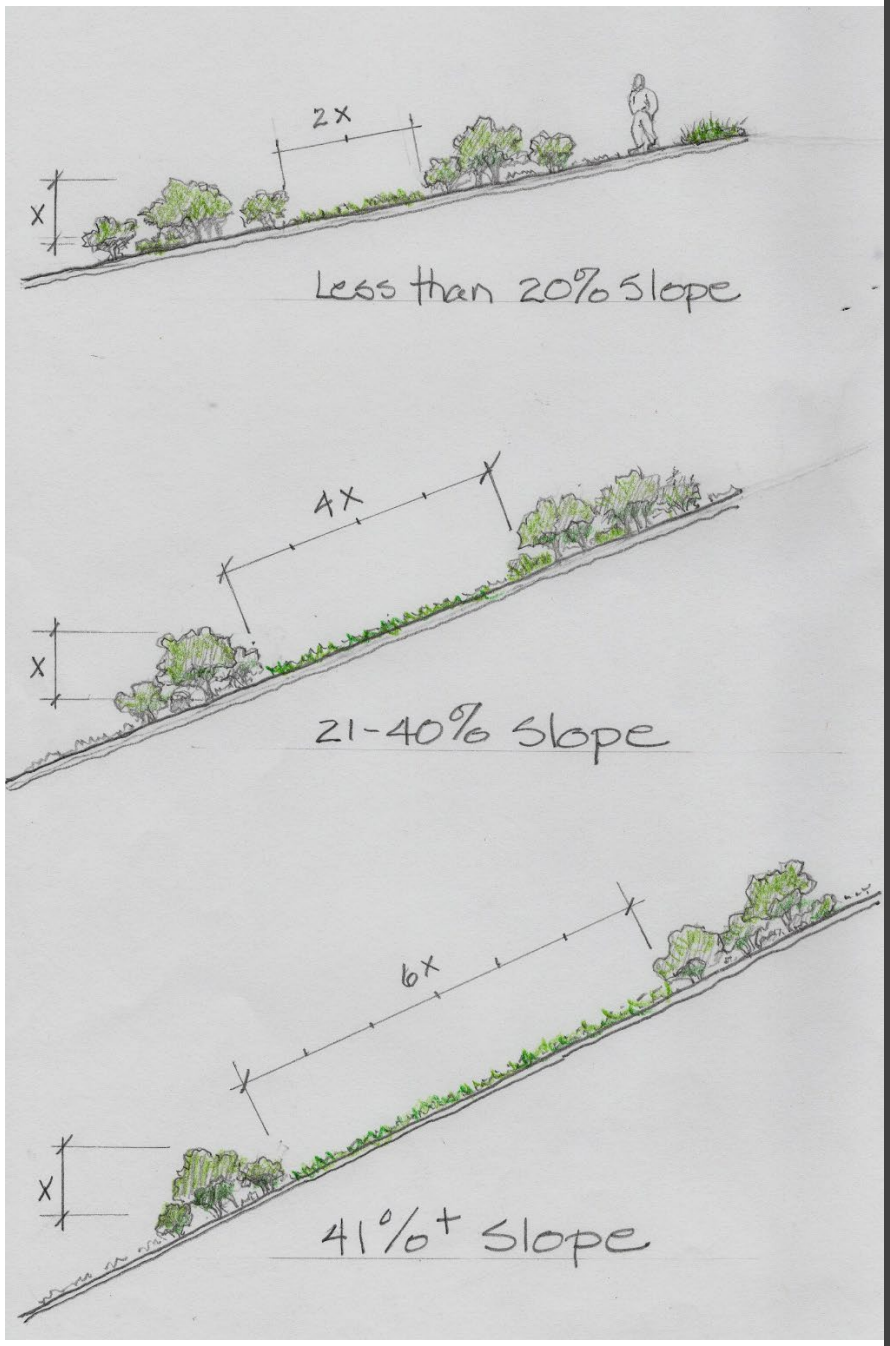
Make sure you can access all plants for maintenance

Photo courtesy of Clio Tarazi

Zone 2 - 30’–100’ : reduced fuel zone

- Regularly remove dead plant material
- Keep annual grasses mowed to 4”
- 4-5’ wide walkways can help separate planting areas & act as fire breaks

Suggested Spacing Guidelines (within 100' of buildings)



Graphic courtesy of Ellie Insley

Ideal Spacing Guidelines (within 100’ of buildings)

0% to 20% slope

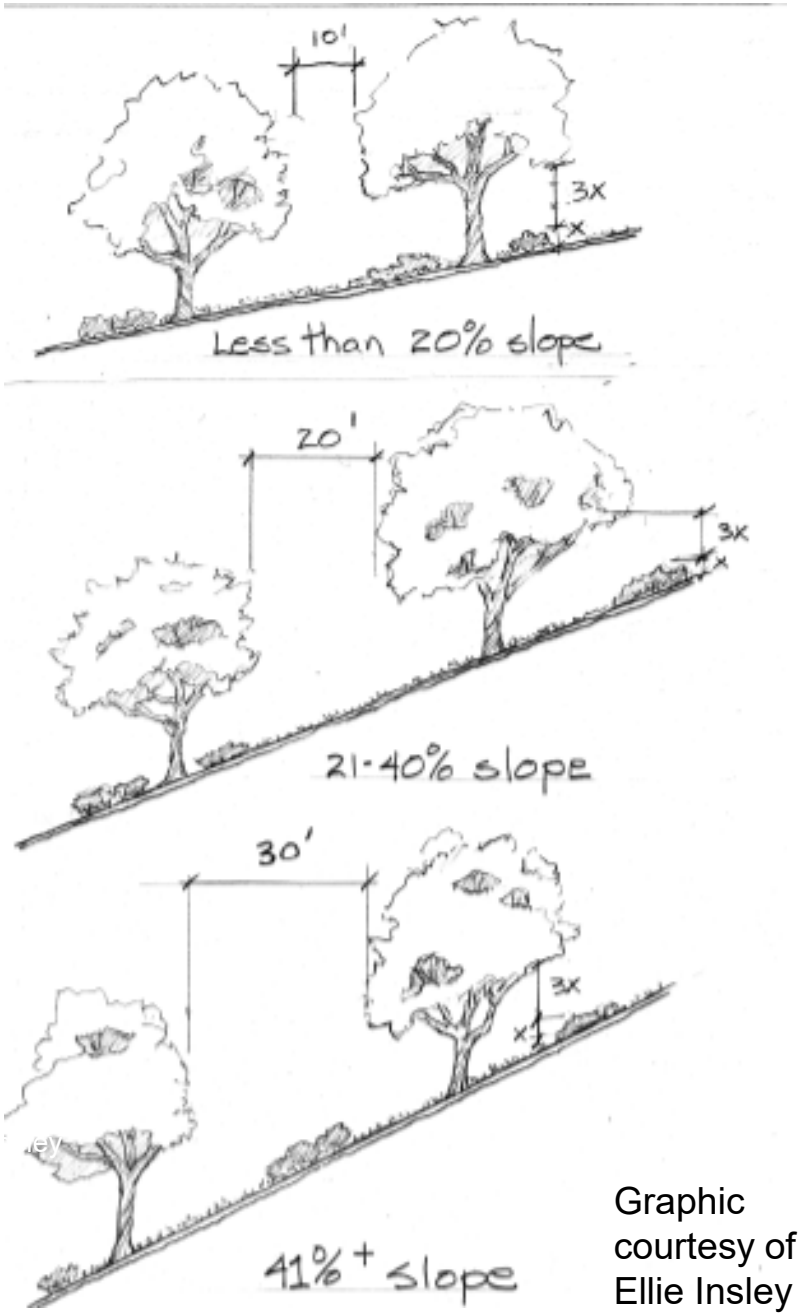
- Trees spaced 10’ apart
- Shrub separated by a space 2 times the height

21% to 40% slope

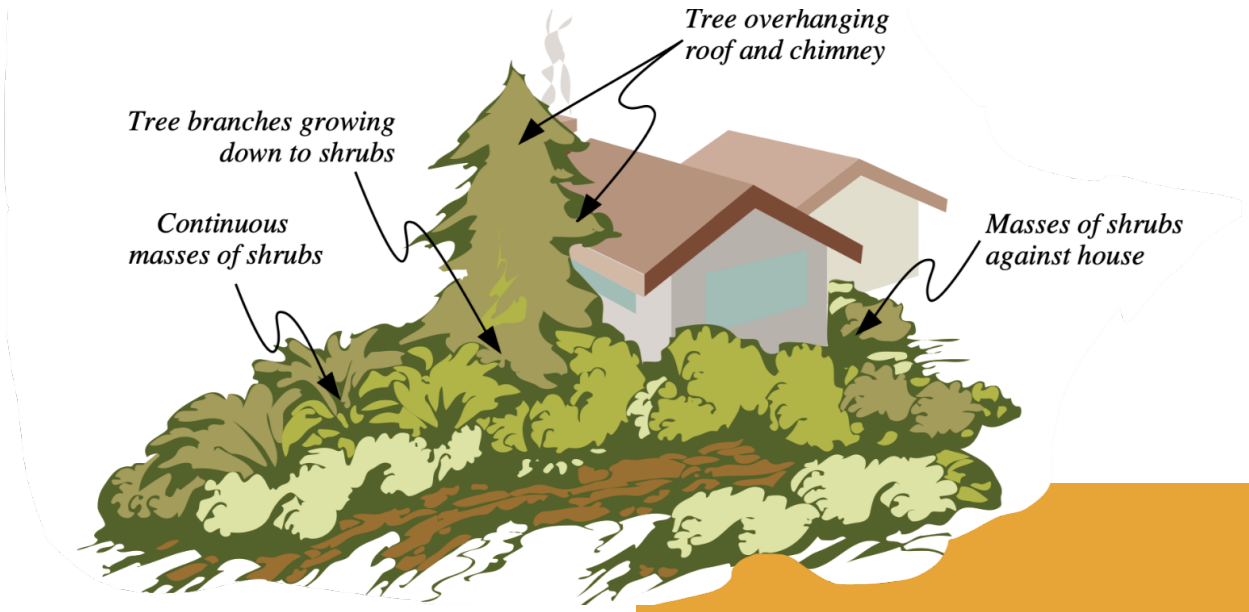
- Trees spaced 20’ apart
- Shrubs separated by a space 4 times the height

41% slope or more

- Trees spaced 30’ apart
- Shrubs separated by a space 6 times the height

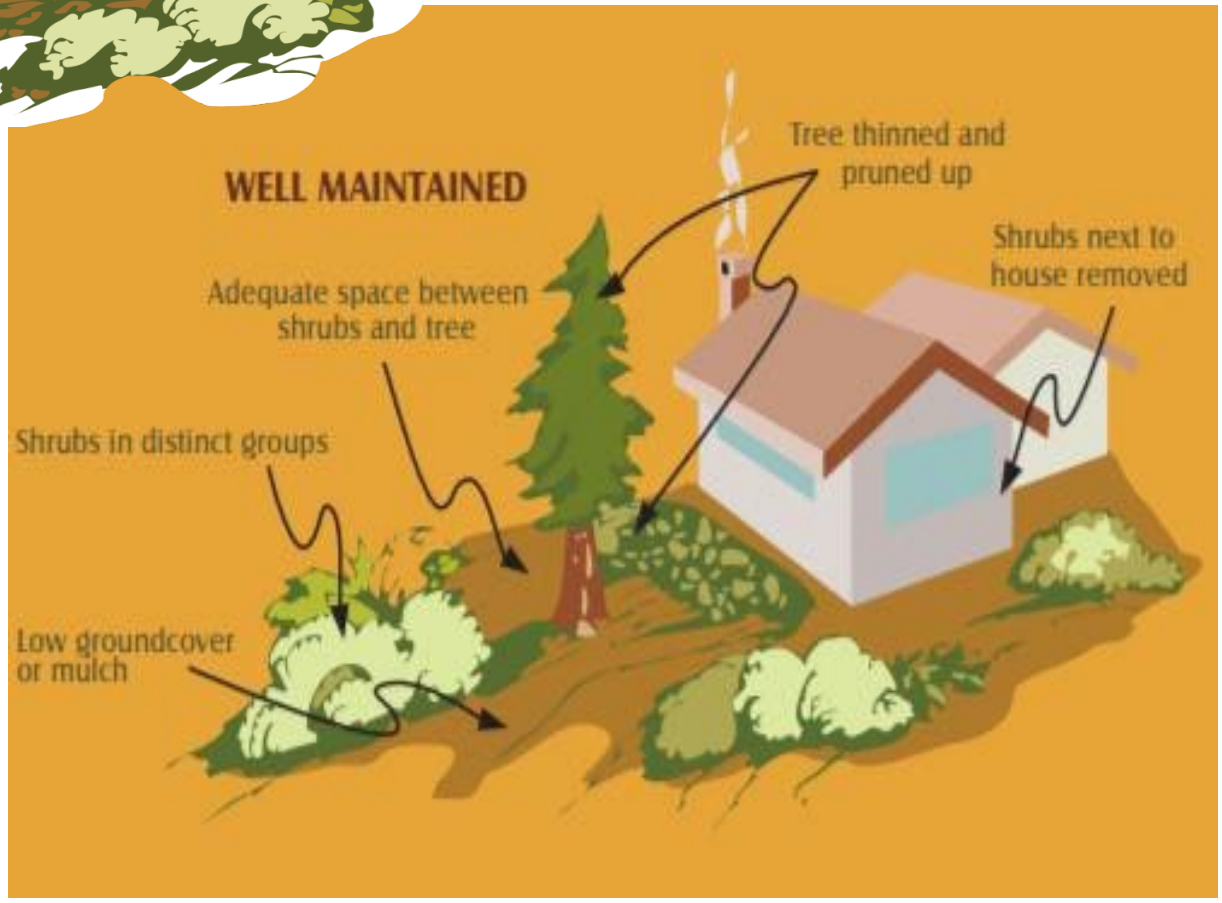


Graphic courtesy of Ellie Insley



Before

After



Access Zone

- Maintain vegetation on both sides of roads & driveway – 10’ from road edge and 15’ vertically
- Maintain 12’ of unobstructed pavement for passage of vehicles

Neighborhood Considerations

- Start with your house & defensible space zones. Then talk with your neighbors! Work together to develop a fuel reduction plan for the entire neighborhood.
- Watch for maintenance needed -- debris accumulating on a neighbor's roof, uncovered woodpiles, unmown tall weeds.
- What is total volume of vegetation in area? Any ladder fuels?

Shaded fuel break

- Control fire behavior by reducing ladder fuels
- Open the canopy
- Maintain ground fuels
- Facilitates fire suppression (ground and air attack)

Work with your neighbors!

Photo: Mimi Enright

Ongoing Maintenance

- Remove dead plants & dead branches from trees and shrubs
- Remove vines from trees & shrubs

Annually before fire season:

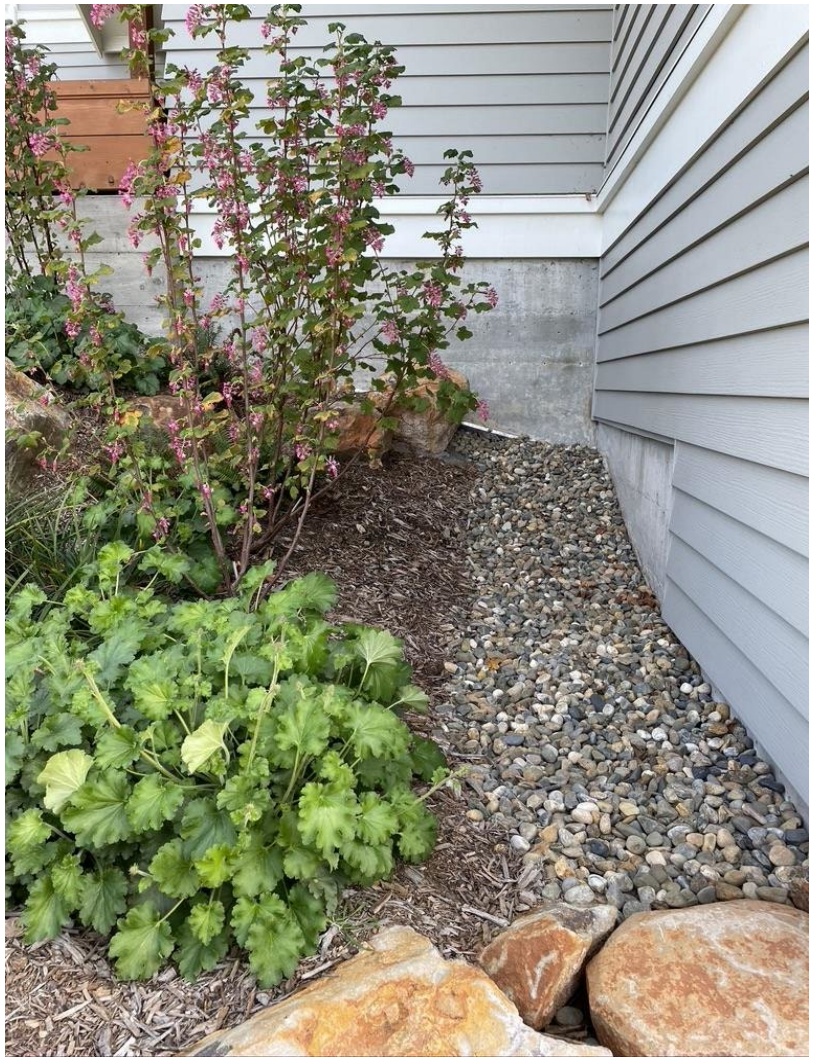
- Mow annual grasses & weeds to 4" tall or less
- Cut back woody perennials & shrubs as needed
- Thin overgrown vegetation
- Consider timing of plant removals/cutbacks based on wildlife cycles
- Move woodpiles to 30+ feet from buildings, or cover with fire resistant tarps and clear surrounding vegetation

Every few years as needed:

- Thin & reduce tree canopies to remove twiggy growth, maintain separation between trees & reduce overall fuel load
- Keep lowest branches of trees pruned up at least 6’ from ground
- Cut back groundcovers & vines to remove build up of dry stems & dead leaves
- Cut back shrubs to renew

Mulch

No organic mulch in the 0-5’ zone



Mulch

Separate mulched areas (2-3" deep) with non-combustible materials where possible, especially in 5-30'

Photo: Mimi Enright

Photo: Clio Tarazi

Mulch

Large sized composted arbor mulch are the best options in 30-100’ zone (NO “gorilla hair”)

Image courtesy of Fire Safe Marin

Defensible Space Zone Design Recap

- 0-5’ zone from house: No organic materials if possible. Use inorganic materials such as gravel or stepping stones.
- 5-30’ zone from house: Plant in “islands” with materials such as low herbaceous perennials, grasses or succulents, and specimen (or individual) shrub or tree are optimal.
- 30-100’ zone from house: Same basic principles as the 5-30’ zone, but you can include shrub and tree groupings in widely spaced groups separated by areas that break up the spread of wildfire.

Resilient Landscaping

Ongoing maintenance is essential!

- Remove dead or dying branches from trees and shrubs regularly
- Prune out any dead material from the interior of shrubs if possible
- Remove any ladder fuels – prioritize removing any shrubs planted directly under trees

More Resources

For more resources go to the UC Master Gardener Program of Sonoma County web page: http://sonomamg.ucanr.edu/

Or send an email to our Information desk at **mgsonoma@ucanr.edu**

California Resilient Landscapes - Healdsburg and Surrounding Areas

Biodiverse, Water Saving, Fire-wise and Beautiful

April Owens, Executive Director

habitat corridor project

HabitatCorridorProject.org
Demonstration gardens: Sebastopol,

Resilient Landscapes

My Design Ethic:

Honor the sense of place and plant community to the site

Keep water on site and conserve it

Think about where landscape materials come from

Use at least 80% California Native + 20% Favorite Low Water Plants = Biodiversity. (I usually cheat and use 100% natives.)

Favorite non-native, annuals and high water use plants go in containers.

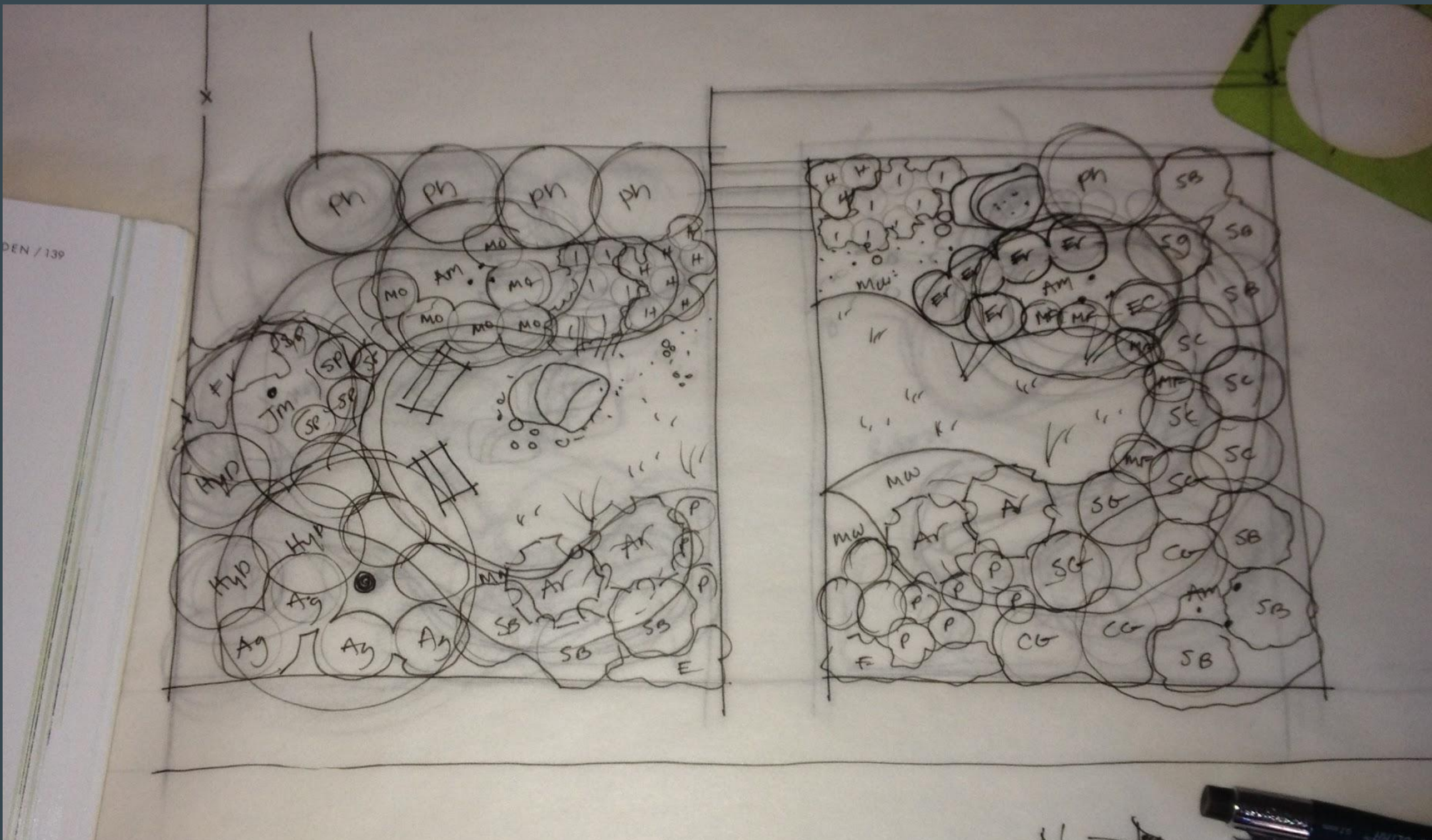
Resilient landscapes consider drought, fire, development and biodiversity as they are designed.

Start where you live. Sonoma County has a unique sense of place.

Plant Communities to consider:

- Oak Woodland
- Mixed Evergreen Forest
- Chaparral
- Grasslands
- Riparian

Sustainability and Design



Why use California Native Plants?

Biodiversity and the Food Web

Sustainable

Resilient

Adapted

Beautiful

Flash Discussion - Why use natives in your garden? Add to chat.

1*) Keeps local* ***insect and animal populations thriving***
2) Reduces need for water
3) Bringing in other species potentially spreads exotic diseases
4) Beauty: blooming season matches our climate
Plus using natives gives another ***fun aspect/challenge*** *to gardening as a hobby. It also helps* ***start conversations*** *with neighbors and visitors about why native plants are important/awesome (especially if you have or "native plants live here" sign!) -- so it's an* ***education opportunity****.*
-Kerry

Habitat*. The more native gardens the more habitat.*

With the articles lately about bird populations crashing, planting natives is a positive way people can take action

Low maintenance*. It's adapted to our local climate. Also capable of year round interest.* ***6 of my native plant species are blooming right now***

-Michelle Very subjective but I also feel that natives **just look good together; when well chosen, they complement each other just like in nature.**

-Judith

I love natives for their quiet beauty, the way they fit in and give one a sense of place. Ours is a world class flora has so much richness to offer.

Insects being the ***currency in our ecological bank account,*** *being the basis of the food chain. How native insects depend on native plants. How native birds depend on insects, especially caterpillars to raise their chicks. How plants defend themselves from chewing insects and how long it takes for the insects to evolve to be able to eat foliage. He suggested* *70% native plants in the landscape to support native wildlife. Another reason to grow native plants!*

For years it was always about drought tolerance, but there is so much more. The habitat angle gives the gardener a very important reason to at least include some native plants in your garden.

-California Flora Nursery

Design 0’-5’

Decorative Rock and Boulders

Permeable Hardscape

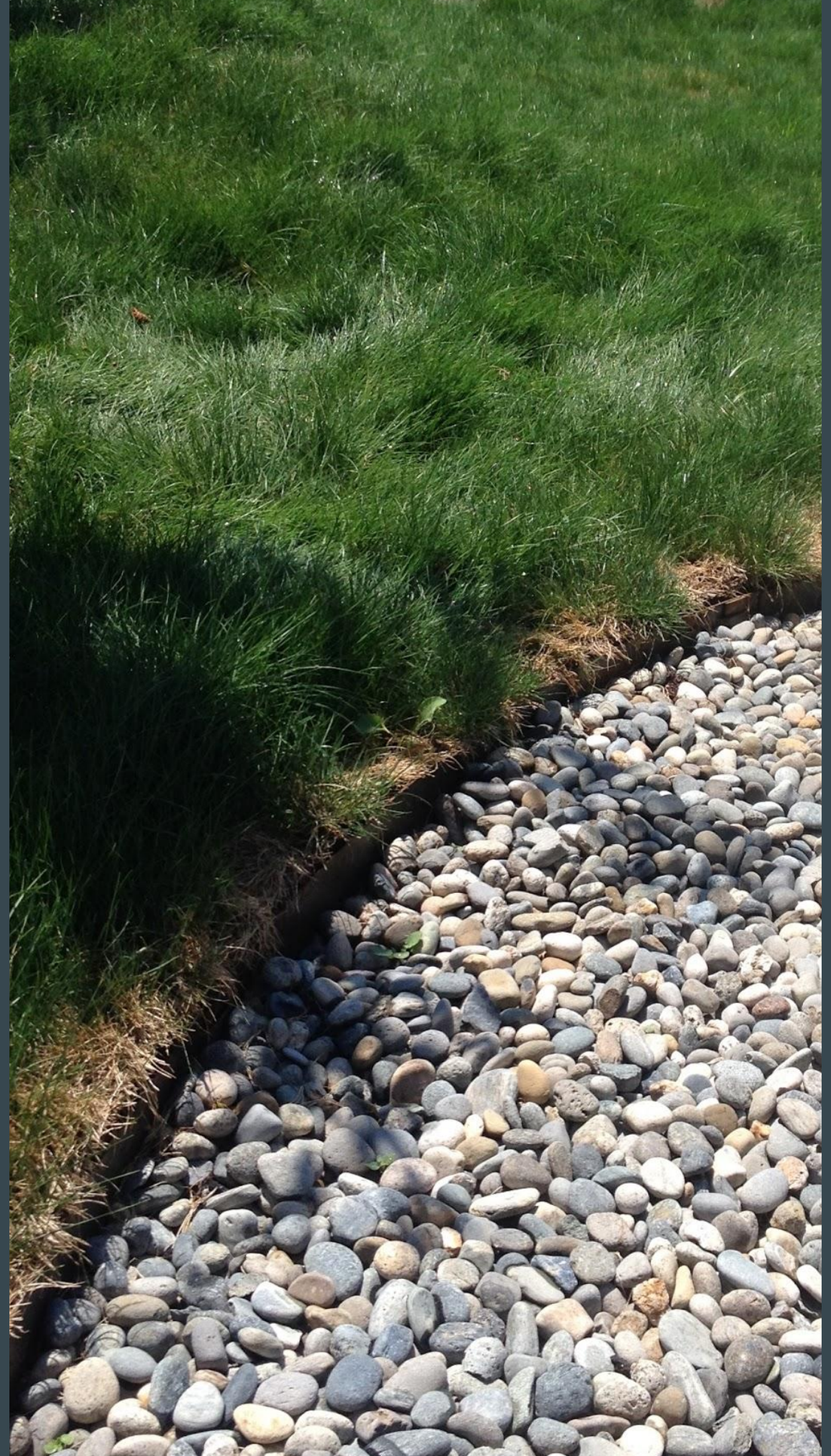
Fountains for Bee’s, Birds and Butterflies - Shallow Boulder

Containers

Design 0’-5’

“No-Mow” or Bentgrass Turf and Trinity Pebbles with Steel Edging

Source of turf: Delta Bluegrass



Crushed Rock Patio and Non-flamable Containers with Annuals or Artwork

Permeable and Re-Used Hardscape

Sawcut Concrete

Design 0’-5’

Existing Old Growth Trees

- Energy Savings
- Deciduous Trees - Maintenance In Fire Season

Design 5’-30’

Swales and Water Gardens

Create Mounds

Mass Plants in Islands With Space Between (approx 75 SF with 4’ of non flammable materials like paths between)

Well hydrated and maintained plants.

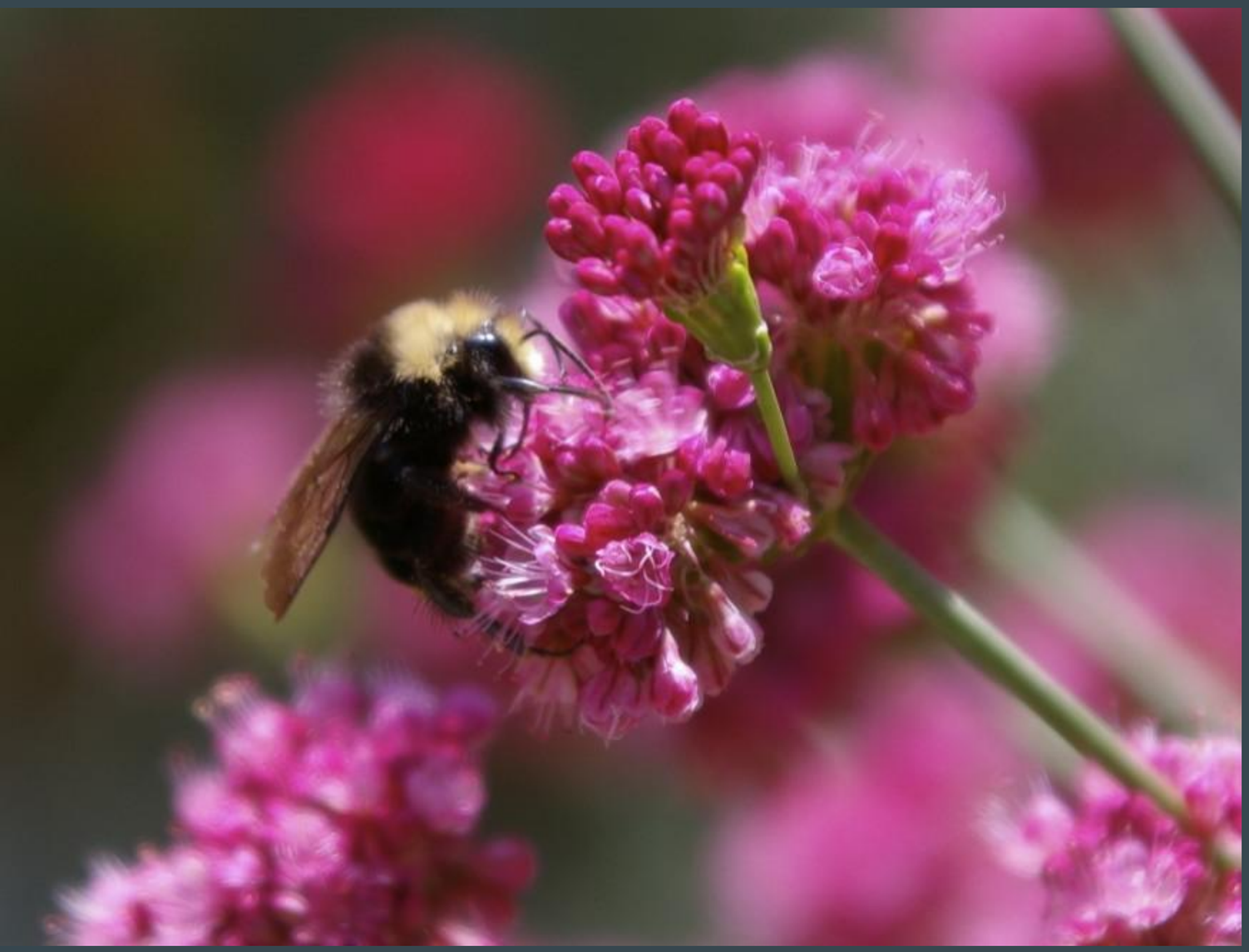
Paths as Separation of Islands

Flagstone Pavers and California Fescue

Paths as Separation of Islands

Inexpensive Drain Rock and Fieldstone Walls

Eriogonum ‘Warriner Lyttle’(Groundcover Buckwheat)



Buckwheats (Eriogonum sp)

Big Habitat Value!

Groundcover to Large Shrub

Leave Seed Heads for Fall Color

Mass Well Maintained Plants

California fuchsia and Gum Plant

Sages (Salvia spp.)

Larger Species May be Shorter Lived with Extra Water

Like to be Cut to Ground Periodically

Great Group of Shrubs and Groundcovers - Full of Habitat

Leave Seed Heads on as Long as Possible for Birds

Sonoma Sage (Salvia sonomensis)

Water in the Garden

Rain Garden and Swales (easy just a low place in the garden to catch water

Rain Garden and Swales (easy just a low place in the garden to catch water)

Plant Hydration

Well-Hydrated + Soil Health

Irrigation
- Hunter MP Rotators
- Drip - on a grid

Tip: In dry season : overhead sprinklers - deep soak, clean off leaves - hydrate mulch.

Design 30’-100’

More Habitat - More California native shrubs. Maintenance, maintenance, maintenance.

Heteromeles arbutifolia (Toyon)

Fremontodendron californica (Flannel Bush)

Ceanothus spp (California Lilac)

California Native Shrubs -Coffeeberry (Frangula californica)

California Native Shrubs - Manzanita (Arctostaphylos sp)

Design 30’-100’ - Shaded Fuel Break

Community Protection

Tips for Successful Habitat Planting

Many Types of Flowers

Large Groupings - Pollinator Targets

Flowering at Different Times

Plants that Provide Both Nectar

and Pollen Sources

Salvia spathacea (Hummingbird Sage)

Use YOUR area's plant community.

Check out Calscape.org to find out more.

And Back to Why. I thank you for participating in this workshop.

Leave it better. Become a part of the change. Every garden makes a difference.

THANK YOU

WE WILL SEND OUT :

AN EMAIL WITH THE VIDEO RECORDING AND POWERPOINT SLIDES

A POST WORKSHOP SURVEY
PLEASE PARTICIPATE TO HELP IMPROVE OUR PROGRAM

RESILIENT LANDSCAPES COALITION

- Fire Safe Sonoma
- Habitat Corridor Project
- Sonoma Ecology Center
- UCCE Master Gardener Program of Sonoma County

Epilobium canum (California fuchsia)

https://www.sonomaresilientlandscapes.com