

Your community preserves habitat for important native plants and animals. By habitat, we mean homes; food, water, and places with space to live. The habitat is managed as part of a **biological conservation easement**, a legal agreement that permanently limits its use.

Many conservation easements include a waterway or wetland because plants and animals need clean, fresh water, the most limited resource in our dry Southern California climate. A waterway (also called watercourse, arroyo, wash) conveys a flowing creek, stream, or river, which provides drinking water for local and migrating wildlife.

Not all of our waterways have visible flowing water year-round. Some creeks and streams continue to flow underground, while others flow for a short time after a storm (ephemeral). The small, and often dry washes are important to wildlife because they provide habitat and their periodic flows drain into larger waterways. It's essential that people do not degrade the quality of any water that reaches local waterways.

Water supports an abundance of vegetation and a variety of life, or *biodiversity*. Streamside vegetation, along dry or flowing waterways, is referred to as *riparian*. **Native** riparian plants provide **native** animals with suitable food, shelter, nesting sites and escape-cover from predators.

Help Your Wild Next-Door Neighbors

The purpose of this publication is to help homeowners become *habitat-friendly* neighbors for nearby habitat lands. The *Resources Directory*, inserted inside this booklet, provides helpful websites and contact information for agencies, organizations, gardens, and native plant nurseries.

Unfortunately, our modern-day lifestyles have negative impacts on the environment around us. Human activity in, or near waterways can damage the capacity of the habitat to support some kinds of plant and animal life, especially species that do not adapt to urban/suburban conditions. Here are some ways to prevent and reduce negative impacts and help restore habitat to healthy conditions.

Reduce Impacts on Native Wildlife

Prevent light, noise, and activity in, and adjacent to wetlands.

- If you wish to observe wildlife, please watch from afar, especially during the breeding and nesting season, from March to September. Most wild animals are naturally fearful of human contact. Human activity near a nest or den may frighten adult animals away from young and jeopardize their survival.
- When visiting natural areas, disturb as little as possible. Avoid walking or riding in a stream course or on channel banks. Heavy foot traffic, horses, and off-road vehicles may cause channel banks to collapse, accelerating erosion and increasing water-born sediment and turbidity.
- Help control entry into habitat areas. Close unessential roadways to prevent access for illegal dumping, trespass, and off-road vehicle use.
- Leave nothing behind.
- Focus necessary lighting downward and inward toward your home, yard, and buildings.
- To report poaching or polluting call CalTIP, Californians Turn In Poachers and Polluters, a confidential secret witness program. The toll free telephone number operates 24 hours a day, 7 days a week. (See the *Resources Directory* insert for contact information.)

Diana Ruiz



USDA Natural Resources Conservation Service

Do not allow pets to roam in habitat land where they will disturb and hunt native wildlife. Keep pets on a leash and droppings out of waterways. Cats and dogs stress or kill wildlife and prevent natural ecosystems from supporting their own predators, such as hawks, coyotes, foxes, and bobcats. Conversely, domesticated animals face hazards in wild areas. Pets may be attacked by predators, such as coyotes and rattlesnakes, or may contract disease, fleas, and ticks.

Do not release unwanted animals into the wild. Abandoned cats, dogs, birds, reptiles and fish can have significant impacts on populations of native species, either through disease, predation or competition for food and space.



Brown-headed Cowbird

- Exotic invaders crowd out native species both on land and in water. Do not place fish, frogs, crayfish, turtles, or aquatic plants into creeks, streams or lakes. Some non-native species are not only able to survive, but also reproduce explosively due to a lack of natural predators. For

example, the brown-headed cowbird is overwhelming riparian habitats. The cowbird lays its eggs in another bird's nest to the detriment of the host's young.

- Pets are usually unable to survive in wildlands. They starve to death or are eaten. If you cannot find a home for a pet, contact animal control, your local animal shelter, or the Humane Society.



The endangered Least Bell's Vireo is threatened by the Brown-headed Cowbird.

Respect and protect wild animals by keeping them wild. In some instances, being a good neighbor means protecting your living area by excluding certain kinds of wildlife, mainly mammals. The *human habitat* includes home sites, buildings, yards, gardens, and regularly used outdoor areas. Install fencing around the human habitat portion of your property and secure enclosures to protect children, pets, and farm animals.

- Do not take small animals, such as tortoises, tadpoles, frogs, snakes, birds, lizards or eggs from the wild. Never attempt to "adopt" or domesticate a wild animal.
- Discourage dangerous predators from penetrating human habitat areas. Install fencing that will exclude predators. Place sensors that trigger sprinklers and lights to deter predators and mammals from entering areas of human activity.
- Prevent mammals from living in and near your home by closing entries, filling holes, and removing brush, junk, and woodpiles near buildings.
- Don't feed human food to wildlife. Do not leave pet food outside. Prevent garbage from becoming a food source for wild mammals by sealing trash can lids. If you compost, use closed-containers or turn piles regularly. Compost plant material only; meat scraps should not be mixed in a compost pile.



For more information, contact the California Department of Fish and Game. (See the *Resources Directory* insert for contact information.)

Reduce Impacts on Native Plants

Remove invasive, non-native plants from home landscaping and adjacent habitat lands, especially those that quickly spread through waterways, displacing important native species.

DO NOT PLANT

Giant reed
Salt Cedar
Tree of Heaven
Red apple, heartleaf iceplant
Fountain grass (yellow)
Castor bean
Periwinkle
Peruvian (Calif.) pepper tree
Brazilian pepper tree
Mexican fan palm
Sweet fennel
Pampas grass/Jubata grass
Common iceplant
Myoporum species

Arundo donax
Tamarix chinensis
Ailanthus altissima
Aptenia cordifolia
Pennisetum setaceum
Ricinus communis
Vinca major
Schinus molle
Schinus terebinthifolius
Washingtonia robusta
Foeniculum vulgare
Cortaderia jubata/selloana
Mesembryanthemum crystallinum



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Invasive Giant Reed (*Arundo donax*) is being removed from Temescal Creek.

Contact your local Resource Conservation District for help identifying invasive species and for removal of exotic weeds from waterways. Visit the California Invasive Plant Council web site for suggested plants to replace invasives. (See the *Resources Directory* insert for contact information.)

Protect Water Quality

Make sure that the water that flows off your property is clean.

- Prevent trash, debris, and waste of any kind from washing off homesites and streets into gutters, storm drains, and dry washes. These drainage-ways empty into streams that flow to the Santa Ana River, and ultimately, the ocean.
- Evaluate the flow of runoff over your property. Place manure, barnyard bedding, and debris in areas where water does not pool or flow, or reuse the waste as fertilizer or mulch. Check with your local municipality for ordinances concerning the disposal of manure and bedding.
- Use care when applying fertilizers, pesticides, and herbicides on your property. Read labels "before you buy and before you apply" for directions, application rates, and disposal. Apply the correct amount at the proper time, for example, not during plant dormancy.



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Praying mantis



Ladybird beetle



Lacewing

Photos by Greg Balmer

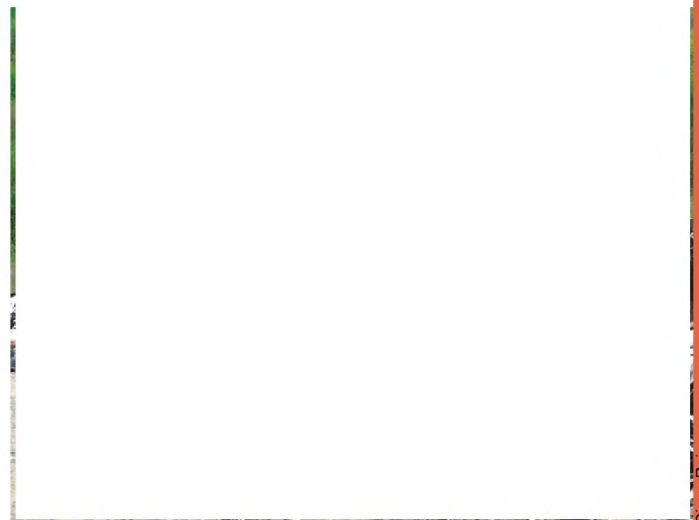
- Reduce or eliminate the use of pesticides by using “beneficial insects” (ladybugs, praying mantids, lacewings, etc.) If you must use a pesticide, use one with a *least-toxic* rating, such as insecticidal soaps, horticultural oils, pyrethrin-based insecticides, and insect growth regulators.
- Control erosion to prevent sediment from entering runoff.
- If you have a septic system, inspect and maintain it. Poorly placed and neglected septic systems contaminate groundwater and streams.

Pollutants that flow from residential and urban areas contaminate surface water and the water that percolates into underground water basins (aquifers). Much of our local water supply is pumped from underground aquifers, so keeping runoff clean is essential.

To report any non-emergency crime, such as dumping, please call your City Police or County Sheriff Departments. To report illegal grading or dumping in waterways, contact your City or County Code Enforcement Department. (See the *Resources Directory* insert for contact numbers.)

Dispose of waste in its proper place.

- Read product labels, and dispose of household hazardous wastes (oil based paints, pesticides, antifreeze, motor oil, batteries, fluorescent bulbs, etc.) in prescribed ways and at designated disposal sites or community collection events, not on the ground or in a storm drain inlet. Whenever possible, reduce the use of hazardous materials in and around your home. Call the *Only Rain Down the Storm Drain* program for disposal dates and locations. (See the *Resources Directory* insert for contact numbers.) You can also recycle automotive fluids, tires, and batteries at car repair businesses.
- Dispose of trash at sanitary landfills.
- Compost yard and other organic wastes.



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Better yet:
Reduce,
Reuse,
Recycle.

Provide Space for Habitat, Fire, and Flood Protection



Robert Caliva

Siting Homes Near Waterways

If you are building next to a waterway, leave a buffer between the waterway and your *human habitat* area of graded pads, structures, and ornamental landscaping. *Wildlife habitat* land includes areas beyond buildings, yards, and defensible space (fire safety zones), generally to be left undisturbed for wildlife. A buffer between the human habitat and a waterway provides space for habitat, flood waters, and for wildlife escape during high water.

The buffer or “setback” distance will vary according to site conditions, however a minimum 100-foot setback from the **top edge** of a waterway, not from the water itself, is recommended. This allows space for creek/stream meander and high water flows. The banks of creeks and streams “meander”, which means they are constantly “wandering” or relocating. Meander naturally occurs when flows cause erosion of channel banks and deposition of sediment.

As land is converted to urban uses, the volume of flow in waterways increases. Impervious surfaces from streets, roofs, and parking lots increase the amount of runoff, erosion and pollutants that degrade water quality.



Frank Heyming

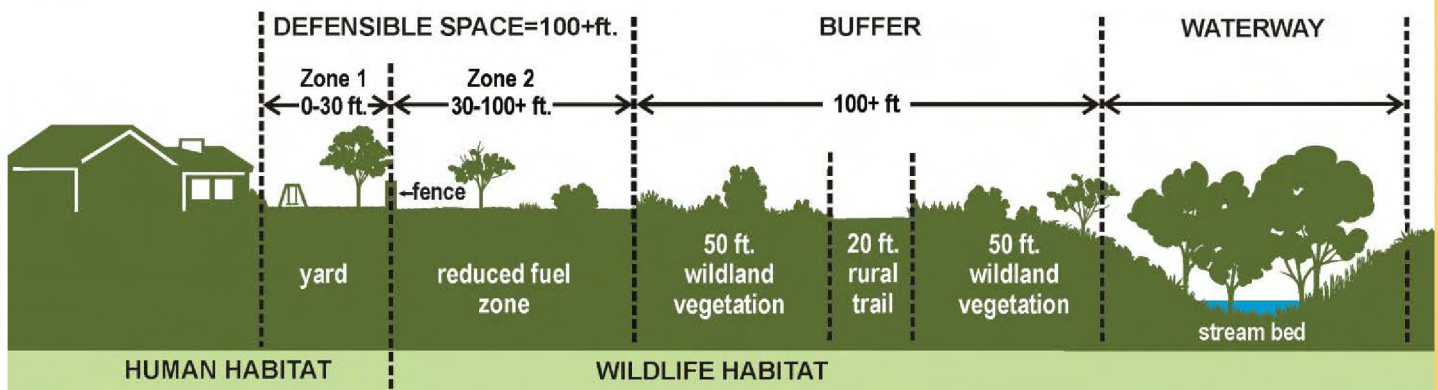
A house pad fills an important tributary to an waterway.

Many people are not aware of the vulnerability of natural ecosystems, nor are they aware that it is illegal to grade or alter a waterway without an assessment and permits from resource agencies and municipalities. If you propose an activity that will impact a stream, river, or lake, the California Department of Fish and Game (DFG) requires completion of a Streambed Alteration Agreement. Depending on the activity you are proposing, you may need to obtain a permit, agreement, or other authorization from one or more government agencies. Notify DFG, U.S. Army Corps of Engineers, and the Santa Ana Regional Water Quality Control Board during early planning, prior to beginning a project that will:

- use material from a streambed;
- divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake;
- result in the disposal or deposition of debris, waste, or other natural material where it can pass into any river, stream, or lake.

A Streambed Alteration Agreement is also required for streams that flow intermittently, such as dry washes and waterways with subsurface flow.

It is essential that landowners do not confine, or encroach on waterways. Keep buildings, septic systems, horses, livestock, fencing, agricultural and ornamental plantings out of waterways and away from channel banks.



When building homes in fire-prone areas, avoid ridge tops and canyons. Set buildings back from the edge of steep slopes. Create a minimum distance of 100-feet of *defensible space*, a managed area around a home, where the amount of fuel (dead plants, dry leaves, wood) has been reduced. Consult with your local fire department or the California Department of Forestry and Fire Protection for fire safety and weed abatement information. (Please see *Resources Directory* insert).

Habitat-friendly Yards

Landscape with Locals. Not just any California native plant is suitable for landscapes near habitat lands. Local native plants are the safest because they have unique characteristics that have helped them survive in their specific environments. Gardening with local flora helps maintain the *genetic integrity* of local plants and ecosystems. It helps maintain regional variation in vegetation and wildlife.

Why is regional variation important? If plants from other areas crossbreed with local natives, scientists fear that local populations would lose some of the unique characteristics that are important for success in this region. Their genetic material would no longer be unique and regionally identifiable. Plant interbreeding could reduce biological diversity, *biodiversity*, in the gene pool. There are important interactions between native plants, microorganisms, and the animals that use them, some of which are critical to the reproduction and survival of native plants and animals.



Create habitat in your yard for urban-adapted wildlife. Even if you live in the heart of a city, consider gardening for urban-adapted wildlife by providing a reliable water source and **local** native plants that provide food, shelter, and nesting sites. Each small patch of yard provides a stepping-stone of habitat from wildlands across the city. A patchwork of *habitat-yards* creates an urban ecosystem that more closely mimics our predevelopment, native landscape. When linked together, those patches cumulatively support biodiversity. To host a variety of native birds and butterflies in your yard, select plants that flower and fruit at different times of the year. Prune trees and shrubs in fall and early winter, rather than spring, to avoid destroying bird nests.

Benefits of landscaping with local native plants:

- Most native plants are drought tolerant, so they require less water.
- Natives rarely require fertilizers.
- Patches of habitat support urban-adapted wildlife, such as birds, bats and insects that help pollinate plants.
- Natives rarely require pesticides. Native plants provide their own natural pest control by attracting beneficial insects that prey on troublesome bugs.
- Local natives help preserve *genetic diversity* and the integrity of local ecosystems.

Water-wise Landscapes Conserve Water

Reduce water-use by replacing unnecessary lawn areas with native or drought-tolerant plants and with hardscape (hard surfaces), such as walkways and patios of concrete, brick, stone, decomposed granite, and permeable paving. For places where you do need a lawn, such as play areas, plant a low water-use turf variety.

When selecting a plant, find out:

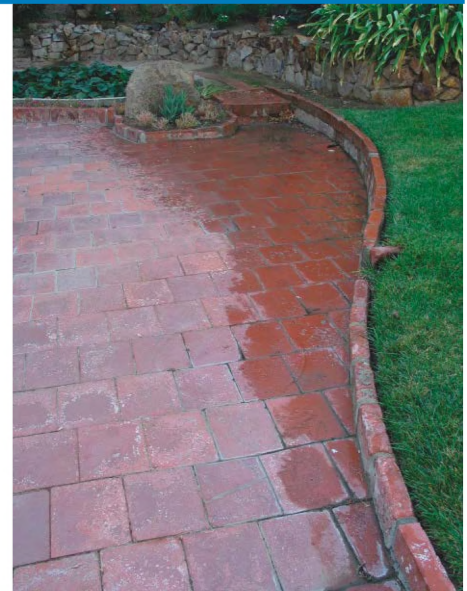
- Is it water-thirsty or drought-tolerant?
- When is its growing season; when will it need water?

Most* local native plants are dormant or slow-growing during the hot, dry summers; their growth occurs during our rainy season. Once established, many survive with rainfall alone. This is the opposite for non-native, ornamental landscapes that grow slowly, or not at all during winter, but require irrigation throughout the summer.

- Group plants with similar watering needs together, and install water-saving irrigation systems (drip, micro-sprayers) to apply the correct amount for each *hydro-zone* or plant grouping. Trees require deep irrigation and may need separate irrigation lines.
- Readjust your irrigation schedule for season and weather conditions. Turn off automatic systems when it's raining. Don't run sprinklers when the wind is blowing. Water deeply and only when needed. Water plants in the early morning or evening. Adjust irrigation systems to water soil, not concrete and pavement.
- Apply mulch (bark, compost, sawdust, gravel) to reduce evaporation from the soil surface and to control weeds.

For information about conserving water in landscapes and using native and drought tolerant plants, refer to plant databases, such as the one at beWaterwise.com. The website will also help you create a customized watering schedule for your yard. (See the *Resources Directory* insert for booklist and websites.)

*Not all native plants are dormant during summer: local riparian plants are the exception. They need water year round, as they are suited for waterways. Streamside vegetation, along dry or flowing waterways, is referred to as riparian.



Diana Ruiz

Fire-wise Landscaping

Create a minimum distance of 100 ft. of *defensible space*, a landscape that deprives fire of fuel. Use fire-resistant plants and remove plants that are highly volatile.

Zone 1: Lean, Clean and Green

Zone 1 is from 0-30 ft. out from buildings. (See diagram on prior page.)

Grow plants that are small or succulent, such as irrigated lawns or ground covers and low growing, high-moisture shrubs. If you use native plants, use those that can be trimmed back during the dry season or that stay small with little trimming. Native plants that tolerate summer watering (see native plant lists) should be kept well hydrated.*

- Keep plants well hydrated to help them resist fire. Well-trimmed and watered plants are less likely to ignite than desiccated plants that have a buildup of dry stems and leaves.
- Fire needs fuel to burn, so remove any unnecessary plant materials. Prune dead wood and clean the landscape of dead plants, dry leaves, dry brush, firewood, and combustibles.
- Strategically place hard surfaces in your landscape, such as concrete, brick, or stone patios, driveways, pools, walls, and non-flammable decks, to interrupt the spread of fire to buildings.

Zone 2: Reduced Fuel

Create the reduced fuel zone beginning 30 ft. from buildings and extending 100 ft. or more, depending on steepness of slope and type/density of vegetation.

- Selectively remove large shrubby plants and dense groupings. Thin overcrowded plants. Mow grasses and weedy vegetation while they are green.
- Carefully remove excess plants without disturbing the soil; mow instead of disc, to prevent erosion and invasion of non-native plants.
- In chaparral plant communities, after thinning, reduce old, woody growth by cutting plants to their bases every few years, during the summer dormancy. Young plant tissues have higher moisture content and are less flammable. The heavy pruning eliminates mature, highly flammable vegetation but maintains root systems to protect the soil from erosion.
- Low branches and plants growing under trees create “ladders” for fire to climb. Eliminate ladder fuels, plants that serve as a link between grass and treetops. Prune the lower branches from the lower 1/3 of trees and shrubs. For trees or shrubs taller than 18 feet, prune the lower branches 6 feet above the ground. Remove dead leaves, twigs, and branches.
- In general, remove shrubs that are growing below trees, unless there is a space between the top of the shrub to the lowest branch of the tree that is three times the height of the shrub.

Remove plants that ignite easily and burn hot, such as those with volatile oils (sages) and those that accumulate fine woody branches or many small, dry leaves (chamise). In Zone 1, remove highly volatile plants (partial list below). In Zone 2, remove or widely space volatile plant types, including:

Chamise, *Adenostoma fasciculata*
Brittlebrush, *Encelia farinosa*
California buckwheat, *Eriogonum fasciculatum*
White sage, *Salvia apiana*
Some Eucalyptus and Acacia

Black sage, *Salvia mellifera*
Woolly blue curls, *Trichostema lanatum*
Mountain blue curls, *Trichostema parishii*
Red Shank, *Adenostoma sparsifolium*
All Pine, Cypress, Juniper, and Cedar species.

*For best results with native plants, water on overcast days during summer and fall.

Create Space Between Plants

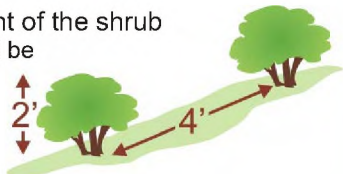
Shrubs

From edge of one shrub to the edge of the next.

Flat to mild slope

(0% to 20% slope)

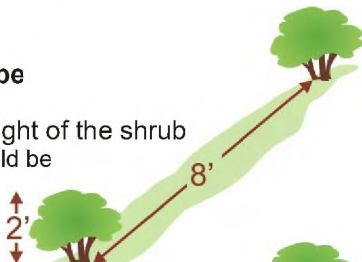
Two times (2x) the height of the shrub
(Two shrubs 2' high should be spaced 4' apart)



Mild to moderate slope

(20% to 40% slope)

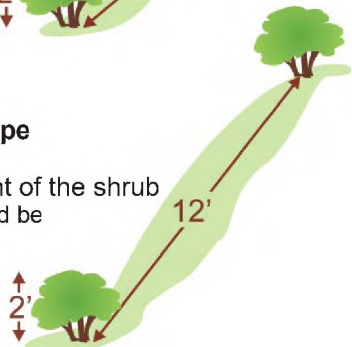
Four times (4x) the height of the shrub
(Two shrubs 2' high should be spaced 8' apart)



Moderate to steep slope

(greater than 40% slope)

Six times (6x) the height of the shrub
(Two shrubs 2' high should be spaced 12' apart)

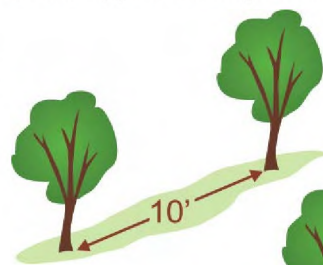


Trees

From edge of one tree canopy to the edge of the next.

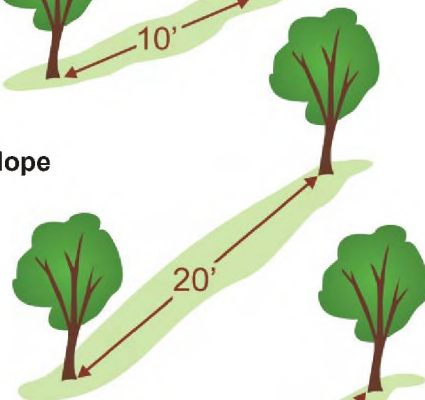
Flat to mild slope

(0% to 20% slope)



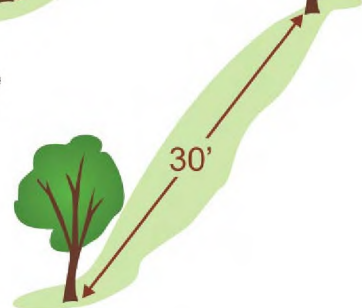
Mild to moderate slope

(20% to 40% slope)



Moderate to steep slope

(greater than 40% slope)



Horizontal clearance information from the California Department of Forestry and Fire Protection.

Prevent erosion and stabilize eroding areas.

If you have exposed soil surfaces, cover with mulch, and landscape as soon as possible. (Plants break the impact of falling rain, and their roots hold soil in place.) Eroding soil becomes sediment in runoff water, which pollutes waterways. Disturbed soil also encourages the growth of non-native weed species.

Retain thinned, deep-rooted native plants to anchor the soil and maintain slope stability. Generally, tall plants have deep, broad root systems. A goal of fire-wise landscaping is to maximize rooting depth while minimizing fuel volume.



Diana Ruiz

For site-specific advice, contact your local Resource Conservation District (RCD) or the USDA Natural Resources Conservation Service (NRCS). For recommendations of native grasses for erosion control, contact the California Native Grasslands Society. (See the *Resources Directory* insert for contact information.)

Native Plants for Defensible Space Landscaping in the Inland Empire

If you prefer to create a landscape of native, low water-use plants, use these lists to design a yard that is fire-wise. Maintenance is essential; dead and dry plant material must be removed during dry, summer dormancy. Some native plants cannot tolerate irrigation during their summer dormancy, so may die if watered too frequently. Some need only infrequent, deep watering to remain hydrated during the dry summer and fall. The low-growing, low-fuel volume plants are suitable for Zone 1 (0-30 ft.) and beyond. Larger shrubs and trees, for Zone 2 (30-100+ ft.), must be widely spaced (see diagram on previous page).

Shrubs for Zone 2

Shrubs that need or tolerate water during summer.

Carpenteria, *Carpenteria californica*
Western redbud, *Cercis occidentalis*
Toyon, *Heteromeles arbutifolia*
Nevin's barberry, *Mahonia nevinii*
Coffeeberry, *Rhamnus californica*
Golden current, *Ribes aureum*.
California wild rose, *Rosa californica*
Western bridalwreath, *Spiraea douglasii*
Squawbush, *Rhus trilobata*



UDSA-NRCS PLANTS Database

Coffeeberry

Shrubs that do not usually tolerate water during summer.

Low shrubs

Bladder pod, *Isomeris arborea*
Bush monkeyflower, *Mimulus aurantiacus*
Chaparral honeysuckle, *Lonicera subspicata*
Hollyleaf redberry, *Rhamnus illicifolia*
Redberry, *Rhamnus crocea*
Yellow bush-penstemon, *Keckiella antirrhinoides*



Paul Aigner

Yellow bush-penstemon

Tall, deep-rooted shrubs that stay green during summer.

Bigberry manzanita, *Arctostaphylos glauca*
Thick-leaved lilac, *Ceanothus crassifolius*
Buck brush, *Ceanothus cuneatus*
Hairy California lilac, *Ceanothus oliganthus*
Mountain mahogany, *Cercocarpus betuloides*
Laurel sumac, *Malosma laurina*
Scrub oak, *Quercus berberidifolia*
Sugarbush, *Rhus ovata*
Lemonade berry, *Rhus integrifolia*
California Flannel bush, *Fremontodendron californicum*



Arlee M. Montalvo

Sugarbush

Trees for Zone 2

Trees that tolerate occasional water during summer.

Catalina cherry, *Prunus illicifolia* ssp. *Lyonii*
Coast live oak, *Quercus agrifolia*
Valley oak, *Quercus lobata*
Engelman oak, *Quercus engelmannii*

Trees that need water during summer.

Big leaf maple, *Acer macrophyllum*
White alder, *Alnus rhombifolia*
So. California walnut, *Juglans californica*
California sycamore, *Platanus racemosa*
California black oak, *Quercus kelloggii*
Canyon live oak, *Quercus chrysolepis*
Willows: *Salix laevigata*, *S. gooddingii*
California bay laurel, *Umbellularia californica*



J. S. Peterson @ USDA-NRCS

Big leaf maple

Perennial herbs that tolerate or need water during summer

Yarrow, *Achillea millefolium*
 Columbine, *Aquilegia formosa*
 Douglas iris, *Iris douglasiana*
 Deer grass, *Muhlenbergia rigens*
 Calif. blue-eyed grass, *Sisyrinchium bellum*
 Meadow rue, *Thalictrum fendleri* var. *polycarpum*
 Yerba mansa, *Anemopsis californica*
 Coral bells, *Heuchera* ssp.
 Common monkey flower, *Mimulus guttatus*
 Scarlet bugler, *Penstemon centranthifolius*
 California goldenrod, *Solidago californica*
 Hedge nettle, *Stachys bullata*
 Slender sedge, *Carex praegracilis*
 Narrow-leaved milkweed, *Asclepias fascicularis*



Narrow-leaved milkweed

Succulents, Ground Covers, and Low Shrubs

Keep hydrated; if needed, water monthly during summer.

San Diego sedge, *Carex spissa*
 Wild lilac, *Ceanothus griseus* 'horizontalis'
 California fuchsia, *Epilobium canum* = *Zauschneria*
 Golden yarrow, *Eriophyllum confertiflorum*
 Lance-leaved live-forever, *Dudleya lanceolata*
 Chalk dudleya, *Dudleya pulverulenta*
 Parry's nolina, *Nolina parryi*
 Creeping sage, *Salvia sonomensis*
 Creeping snowberry, *Symphoricarpos mollis*
 Chaparral yucca, *Yucca whipplei* = *Hesperoyucca whipplei*
 Valley cholla, *Opuntia parryi*
 Coastal prickly pear, *Opuntia littoralis*



Chaparral yucca

Annuals or summer-dormant perennials

No need for water during summer. There is little, if any, plant material above ground to burn.

California poppy, *Eschscholzia californica*
 Larkspurs, delphinium, *Delphinium parryi*, *D. cardinale*
 Wild Canterbury-bell, *Phacelia minor*
 California figwort, *Scrophularia californica*
 Baby blue eyes, *Nemophila menziesii*
 Royal penstemon, *Penstemon spectabilis*
 Lupine, *Lupinus* species (*L. bicolor*, *L. succulentus*,
L. truncatus, *L. sparsiflorus*)



Baby blue eyes

Habitat Land Stewards

If you live near conservation easement land or a waterway, there are ways that you can help. Be observant of activities that might be harmful to your nearby habitat lands, or form a *habitat-watch* group in your neighborhood. Like a neighborhood-watch, property owners help look out for neighborhood habitat and waterways, report illegal activity, and help educate neighbors about human impacts. For help forming a *habitat-watch* group, contact your local Resource Conservation District or the Riverside Land Conservancy.



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