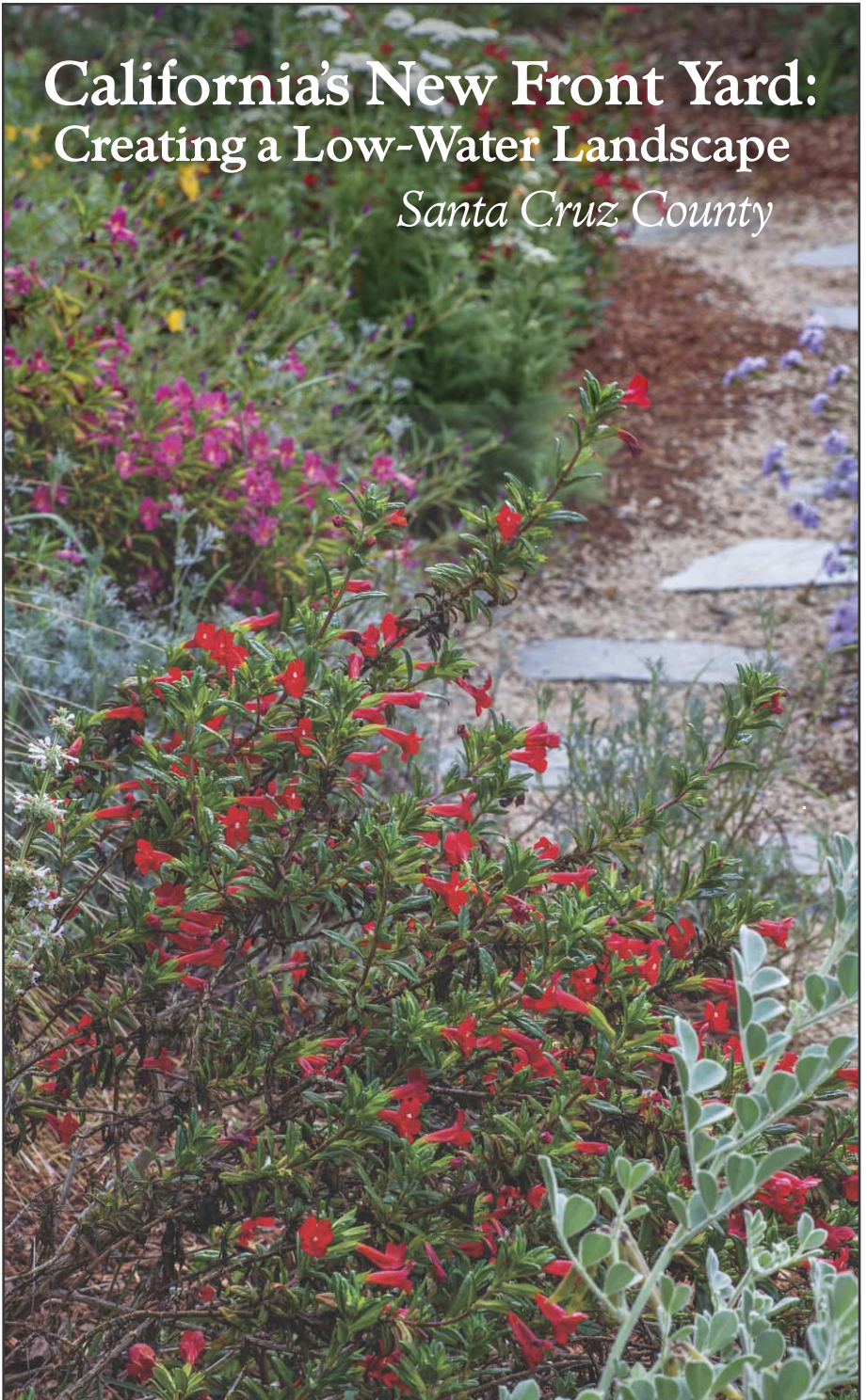


California's New Front Yard: Creating a Low-Water Landscape

Santa Cruz County





Santa Cruz County is a wonderfully diverse and rich area to live and work and is fortunate to have a Mediterranean climate. Mornings can include coastal fog that burns off throughout the day. The winters are mild, green and full of rain. Summers are warm, dry and there is usually a coastal breeze. Diverse natural vegetation provides plenty of garden and landscape inspiration. Santa Cruz county plant communities range from fog influenced coastal prairie, scrub and redwood forest to dry, warm chaparral hillsides, foothill woodlands and mixed evergreen forest in the Santa Cruz mountains.

With lower precipitation in recent years, we now realize the limits to our fresh water. Reducing water use in our landscapes is a principal way to combat water shortages. Does this mean that our yards and outdoor public spaces will be dead and brown? Certainly not! This booklet can help you find and achieve a number of satisfying landscape alternatives.

Replacing lawns and other high-water use landscapes with native and drought-tolerant plants is a design approach that can produce both strikingly beautiful and ecologically beneficial results. Naturally adapted to long, dry summers and cool, wet winters, these plants include a range of colorful grasses, flowering plants, shrubs, and trees that are native to California and the world's Mediterranean regions. Many of these plants need only manual or drip ("micro") irrigation because of their low-water requirements, resulting in a substantial water savings compared to what is required by the traditional lawn.

Inside:

- 2 Landscape Alternatives
- 3 Site Inventory, Design, and Planning
- 4 Plant Selection and Installation
- 5 Lawn Removal Methods
- 6 Watering and Long-term Care
- 7 Plant List for Santa Cruz County
- 9 Suggested Resources

Landscape Alternatives

Homeowners and landscape managers have a range of landscape choices when considering a reduced lawn or no lawn at all. Several of these styles have been recently described and illustrated in *Reimagining the California Lawn: Water-conserving Plants, Practices, and Designs* (Bornstein et al. 2011):

- A *greensward* is a sweep of grasses or sedges that serves as a garden path or opening that can be walked upon.
- A *meadow* is an area of informally mixed grasses, sedges, rushes, and forbs.
- A *Mediterranean chaparral* garden offers colorful, low-water perennials, shrubs, and trees that are native to regions around the world with a Mediterranean climate.
- A *rock garden* celebrates California's geology by arranging rocks with plants tucked in amongst them.
- A *succulent garden* draws upon the striking colors and diverse forms of succulent plants.
- A *carpet and tapestry garden* uses single sweeps and mixed combinations of low-profile plants.
- A *kitchen garden* of herbs, vegetables, and fruits, can be designed to have year-round visual appeal.

Native California Grasses and Forbs for the Low-Water Landscape

Most California native grasses are ideal in the low-water landscape as they evolved to survive long periods with no moisture by tapping the deep moisture in the soil. Native grasses are low-maintenance and can fit in many garden designs, thanks to these attributes:

- They can be left unmowed for long periods, or can be kept short for a lawn look.
- Their inflorescences (or seed stalks) can be left to catch the light of the setting sun and wave in the wind, or can be trimmed for a more tailored look.
- They naturally turn a straw or gold color as they go dormant, but can maintain some green foliage depending on the species.
- There are many different species and varieties, which can be used separately or together to create different effects.

Natural California native grasslands also include forbs, which are herbaceous flowering plants. California native forbs are ideal for the low-water landscape as they exhibit great variation in size, shape, color, bloom period, life cycle, and maintenance requirements. They have the added benefit of attracting and supporting native pollinators and beneficial insects.



Design, Installation, and Maintenance of a Low-Water Landscape

1. Site Inventory, Design, and Planning

Converting to a low-water landscape requires careful planning and design to achieve the functional, aesthetic, and maintenance goals you desire in both the short- and long-term.

- Evaluate your site, and note such factors as drainage patterns, soil types, slopes, areas of sun and shade, building locations, and adjacent land uses. Use this information to inform the layout of your space and the selection of plants and hardscape elements.
- Sketch a landscape concept plan with the types of spaces you want, noting their functions, and the areas of access and circulation.
- Before identifying planting locations, determine locations of hardscape features, such as paths, patios, and decks. Hardscape areas require no water to maintain, and selecting permeable materials such as porous pavers and gravel will allow rainwater to infiltrate the ground.
- Consider which of these you want in your landscape: greensward, meadow, habitat garden, kitchen garden, rock garden, succulent garden, play space, seating area, or rain garden.
- Consider the aesthetic and style you desire. For example, do you want a formal vs. informal appearance or a modern vs. naturalistic style.
- Consider maintenance requirements for your landscape, including how much watering, pruning, trimming, raking, and weeding will be required long-term.



2. Plant Selection

Select your plant palette by considering these ideas:

- Optimal low-water plants are typically those that are native to your region and that naturally grow in the conditions of your space.
- Low-water plants also include those that are not native but are adapted to a Mediterranean climate.
- Avoid plants that are considered invasive weeds. These species can be found on the California Invasive Plant Council website (www.cal-ipc.org) and the Plant Right website (www.plantright.org).
- Keep in mind that plants differ in the following ways: their appearance in different seasons, their maintenance requirements, and whether they attract wildlife and pollinators, such as hummingbirds, butterflies, and bees.

Locate your plants in the landscape after considering these steps:

- Identify the placement of trees and shrubs first, since they will be the largest plant material and will provide the overarching structure.
- Anticipate how large the trees and shrubs will grow, and make sure to allow enough room for the plants to grow into maturity.
- Select grass and forb species for a greensward, meadow, or other low-water garden by considering these factors:



Sun or shade? Select plants suited for the levels of sun and shade in your landscape.

Annual or perennial? Consider the life cycles of your plants. Annual plants are more suitable for seasonal colorful accents, and perennials are more suitable for the long-term foundation of your garden and landscape.

Warm-season or cool-season? Warm-season grasses actively grow in warmer months and can go dormant in cooler months, and cool-season grasses actively grow in cooler months and can go dormant in warmer months. Many California native bunchgrasses are cool-season grasses.

Spreading (rhizomatous) grass or bunchgrass? Spreading grasses, sedges and forbs creep laterally as their rhizomes, or underground stems, send out new roots and shoots. These grasses are good candidates for greenswards and swales. Bunchgrasses grow in clumps, rather than spreading or forming a mat, and are commonly used in meadow gardens and as ornamentals.

3. Lawn Removal Methods

The types of grasses and weeds in your lawn can help determine the best lawn removal method (Bornstein et al. 2011), as well as the amount of time you allow for this task. Before choosing a method, you should research the species you wish to remove. Some hardier species, like bermuda grass, require more aggressive methods and will return if not removed properly. Some of the most popular lawn removal methods include the following:

- **Sheet Mulching:** Sheet mulching involves smothering your lawn with organic material, such as cardboard, compost, mulch, or a combination of these. The organic layers suppress weed growth and enrich the soil as they break down.
- **Mechanical Removal:** Remove lawn areas mechanically with a sod cutter, rototiller, or tractor with a tiller attachment. This option works quickly but may not be effective for areas with heavy weed infestations, since the weed seeds remain in the soil.
- **Solarization:** Solarization involves trapping the heat of the sun under a layer of clear plastic sheeting. This method kills nearly everything in the upper few inches of the soil. Solarization is effective in hot areas of California but not as effective in cooler, coastal climates.
- **Herbicides are sometimes needed for problem weeds:** You may choose to apply herbicide to plants like bermuda grass and kikuyu grass, which have persistent underground stems (rhizomes). The lowest toxicity herbicide should be used according to the label instructions.

Not interested in eliminating your lawn? Then consider keeping lawn in areas that have specific functions, such as recreation, seating, and picnicking. The best areas for lawn removal are those that occur in small strips and patches, on steep slopes, and under trees.





4. Watering and Long-term Care

Maintenance and watering requirements of a low-water landscape vary depending on the type of landscape and the plants selected. Even native and drought-tolerant plants may require some water during the first few years after installation to establish and thrive.

Several strategies can reduce and minimize the use of potable water for landscape irrigation:

- If you have sufficient roof area for catchment and space for tank storage, consider harvesting rainwater from your roof during the winter and saving the water in tanks where it can be used for irrigation during the summer.
- Store and use “gray water,” which is untreated water from clothes washers, showers, bathtubs, bathroom sinks, and laundry tubs. Your water district will likely have current guidance on using gray water to irrigate the yard.
- If you want to install an irrigation system, consider a high-efficiency system that includes a “smart” controller with rain sensors that automatically adapt to local weather conditions.
- Minimize sprinkler and spray irrigation systems when possible to limit overspray and evapotranspiration of irrigation water. Instead, use a drip or bubbler irrigation system, especially for trees and shrubs.

Other maintenance considerations include pruning, trimming, raking, grass clipping, weeding, and pest control.

Some common best practices for maintenance include the following:

- Locate plants far enough away from pathways, roads, buildings, and other plants so that pruning and trimming are minimized.
- Produce mulch and compost from plant debris and grass clippings.
- Regularly apply organic mulch and top-dress landscape areas with compost or non-synthetic fertilizers to add nutrients to soil and suppress weeds.
- Use organic and integrated pest management (IPM) techniques to avoid the use of pesticides and noxious chemicals.

Plant List for Santa Cruz County *

The following plants represent various species and types of plants suitable for a low-water landscape. All except one are California native plants that are either indigenous or adaptable to the Monterey Bay climate.

Unless otherwise noted, the following plants generally take full sun, especially in coastal conditions. All have limited water needs but require sufficient irrigation to establish during the first year. Supplemental irrigation may be required, or desirable, depending on the site and location.

Lawn Alternatives

Bouteloua gracilis (blue grama): A warm season, perennial, native grass; drought-tolerant; full sun; good for grazing; mow to 3 inches or attractive unmowed; water (summer) every 2–4 weeks; do not over-irrigate or over-fertilize. *Source: plants.usda.gov*

Carex praegracilis (slender sedge): Lawn substitute in sun or light shade; tolerates some foot traffic; keep natural or trim occasionally; drought-resistant; water every 1–4 weeks depending on exposure.

Carex pansa (Pacific dune sedge): Lawn substitute or unmowed meadow; full sun to partial shade; flowers in early spring; partial shade to full sun or full shade; water every 1–4 weeks depending on exposure.

Festuca rubra ‘Molate’ (Molate fescue): Meadow plant with gray-green foliage 12–18 inches with flowers up to 3 feet; more drought tolerant than many other red fescues; water every 1–4 weeks depending on exposure.

UC Verde buffalo grass: UC Verde was developed by the University of California and has a high heat tolerance; uses ¼ inch of water per week; grows 4–8 inches; resistant to most turf insects; spreads quickly and repairs itself. *Source: Various online suppliers. Also see:*

http://cesacramento.ucanr.edu/Pomology/Turf_Demonstration_Project

Native Meadow and Flowering Perennials

Achillea millefolium (yarrow): Usually white-flowered. ‘Island pink’ is a Channel Island form. Attracts butterflies and beneficial insects; used as cut flowers. Blooms in spring, summer, fall; remove old flower stalks; divide when clumps become crowded; occasional water.

Asclepias speciosa (showy milkweed): Large, velvety foliage; 2–3 feet; dormant in winter; full sun; larval host plant for monarch butterfly. Showy pink/white blooms in summer. Water deeply first summer, leave alone after.

Epilobium canum (California fuchsia): Bright red blossoms attractive to hummingbirds; 1–3 feet high; blooms from August to late fall. Many are good spreaders.

Festuca californica (California fescue): Tolerates summer drought and various soil types, long lived; has graceful, gray-green leaves and airy flowers that mature to a golden yellow color.

Muhlenbergia rigens (deerglass): Makes a low informal screen; needs almost no maintenance; remove old leaves at any time; adds texture and movement to the garden.

*Plant information sources unless otherwise noted: CalFlora Nursery (www.calfloranursery.com), Las Pilitas Nursery (www.laspilitas.com), Sunset Western Garden Book, and UC Davis “Arboretum Allstars” (www.arboretum.ucdavis.edu).

Penstemon heterophyllus 'Margarita BOP' (Santa Margarita foothill penstemon): Flowers are golden yellow as buds, bright blue as blooms, then change to purple-pink; unlike many California native penstemons, it thrives in garden conditions.

Salvia spathacea (hummingbird sage): Fragrant leaves; drought-tolerant; sun or partial shade; attracts hummingbirds. Pink-purple blooms in winter and spring; remove old stalks at end of season; water deeply every 2–4 weeks.

Sisyrinchium bellum (blue eyed grass): Up to one-foot tall perennial with blue flowers blooming between January and June.

Groundcovers

Arctostaphylos uva-ursi (bearberry): There are a number of varieties available of this sturdy low-growing evergreen groundcover. Dark green foliage, with pink flowers and showy red berries.

Arctostaphylos 'Sunset': Monterey Bay manzanita hybrid with bronze red new growth. Grows to 4–5 feet high by 6' wide, but can be kept trimmed to 2 feet. Needs little to no water when established along the coast.

Baccharis pilularis 'Twin Peaks' (dwarf coyote brush): Highly reliable 2–3-foot-high groundcover shrub requiring little to no water once established along coast.

Ceanothus griseus var. *horizontalis* 'Yankee point' (creeping blueblossom): This fast-growing, hearty groundcover reaches 2 to 3 feet tall and spreads 8 to 12 or more feet wide. Plants have dark green leaves and bright blue flower clusters in winter through early spring.

Ribes viburnifolium (evergreen currant): Shade-tolerant; shiny and fragrant foliage all year; attracts hummingbirds and beneficial insects. Colorful blooms in spring; little to no pruning; water deeply once or twice a month.

Shrubs

Arctostaphylos pajaroenis: Native to central Monterey Bay area. 'Paradise' selection has dark red bark; pink to white flowers. Low to no irrigation along coast once established. Will grow to 6 feet but can be kept pruned to 3'.

Ceanothus rigidus 'Snowball' (white Monterey lilac): White flower clusters in spring; can grow to 3–5 feet tall and wide; likes roots kept cool under rock or mulch.

Ribes aureum (golden currant): Flowers have a light, spicy fragrance; good choice for planting under native oaks; attracts butterflies and beneficial insects.

Salvia apiana (California white sage): Spring flowers attract pollinating bees; leaves contain fragrant oils. One of many flowering coastal sage plants available for landscaping.

Trees

Ceanothus thyrsiflorus (California lilac): Tolerates some summer irrigation; makes a good screen or small garden tree. Purple blooms in fall and winter; little to no pruning.

Heteromeles arbutifolia (toyon or Christmas berry): Tough, attractive shrub that can grow into small tree over time. Covered with red berries in December. No water required once established.

Myrica californica (wax myrtle): Attractive light green foliage. Grows to 15 feet; wind tolerant. Benefits from occasional water and an occasional rinsing of foliage over summer.

Suggested Resources

Books

The American Meadow Garden, John Greenlee, Timber Press, 2009.

Attracting Native Pollinators: Protecting North America's Bees and Butterflies, The Xerces Society, Storey Publishing, 2011.

Bringing Nature Home: How You Can Sustain Wildlife with Native Plants, Douglas W. Tallamy, Timber Press, 2009.

California Native Plants for the Garden, Carol Bornstein, David Fross, and Bart O'Brien, Cachuma Press, 2005.

Designing California Native Gardens, Glenn Keator, Arlie Middlebrook, and Phyllis M. Faber. University of California Press, 2007.

The New American Front Yard: Kiss Your Grass Goodbye! Sarah Carolyn Sutton, Tendril Press, 2011.

Plants and Landscapes for Summer-Dry Climates of the San Francisco Bay Region, East Bay Municipal Utilities District, 2004.

Reimagining the California Lawn: Water-Conserving Plants, Practices, and Designs, Carol Bornstein, David Fross, and Bart O'Brien, Cachuma Press, 2011.

Professionals

American Society of Landscape Architects, Northern California Chapter: www.aslancc.org

Association of Professional Landscape Designers: www.apldca.org

California Landscape Contractors Association: www.clca.org

Websites

"Arboretum All-Stars," UC Davis: www.arboretum.ucdavis.edu/arboretum_all_stars.aspx

Bay Friendly Landscaping & Gardening Coalition. Promotes sustainable landscaping and gardening practices in the San Francisco Bay Area: www.bayfriendlycoalition.org

Calflora. A database for distribution and habitat information for California native plants. Photos posted for each species as well as links to nursery availability and other resources specific to that species: www.calflora.org

California Center for Urban Horticulture. Promotes water-conserving, pest- and disease-resistant home gardens; creates environmentally sound public landscapes and parks; and produces better plant materials for sustainable urban landscapes: www.ccu.h.ucdavis.edu

California Native Grasslands Association. Educates and advocates for the preservation and restoration of California's native grasses and grassland ecosystems through workshops, programs, and publications: www.cnga.org

California Native Plant Link Exchange. A database of California native plants that lists nurseries and seed suppliers who carry these species and horticultural information on these species: www.cnplx.info

California Native Plant Society. Conserves California native plants and their natural habitats and increases understanding, appreciation, and horticultural use of native plants: www.cnps.org. CNPS also has a "Gardening Program" website with resources on using native plants in gardens: www.cnps.org/cnps/grownative/

Cooperative Extension, Master Gardeners of Monterey Bay. Trained volunteers who provide University of California-approved horticulture information to home gardeners in Santa Cruz, Monterey, and San Benito Counties: <http://mbmg.ucanr.edu/>

Plant Right. Dedicated to ensuring that invasive plants are not introduced into California through the nursery industry. Suggested alternatives to invasive plants are posted on website: www.plantright.org

Pollinator Partnership. Works to protect the health of managed and native pollinating animals vital to the North American ecosystems and agriculture: www.pollinator.org

Save Our Water. Sponsored by Association of California Water Agencies and California Department of Water Resources:
www.saveourh2o.org

Slow it. Spread it. Sink it! — A Homeowner's Guide to Greening Stormwater Runoff. Santa Cruz Resource Conservation District:
<http://www.rcdsantacruz.org/publications>

Turf Demonstration Project, Sacramento County UC Cooperative Extension:
<http://cesacramento.ucanr.edu/Pomology/> and from the list of links in the left margin, click on *Turf Demonstration Project* then select *Native Grass Turf*, *Native Grass Meadow*, or *Our Findings* for more information.

UCSC Arboretum. Educational and event listings centered on the arboretum's extensive plant collections and research and teaching about plant conservation: arboretum.ucsc.edu

Water-Smart Gardening in Santa Cruz County. A great resource for information about gardening with water-wise plants:
<http://www.santacruz.watersavingplants.com/>

Water Use Classification of Landscape Species (WUCOLS IV). A database of water use for a wide range of landscaping plants by region. Developed by the UC Cooperative Extension:
<http://ucanr.edu/sites/WUCOLS/>

Water Saving Tips from the Water Conservation Coalition of Santa Cruz County. Calendar, practical tips, and sample landscape designs for wise water use in the landscape:
<http://watersavingtips.org/>

Nurseries and Seed Suppliers

Capitol Wholesale Nursery, San Jose, CA. Retail and wholesale; nursery.
www.capitolwholesalenursery.com

Central Coast Wilds, Santa Cruz, CA. Retail and wholesale; nursery and seed.
<http://www.centralcoastwilds.com/>

Cornflower Farms, Elk Grove, CA. Retail and wholesale; must place order prior to picking up. www.cornflowerfarms.com

Floral Native Nursery, Chico, CA. Retail and wholesale; nursery and seed.
www.floralnativenursery.com

Gold Rush Nursery, Soquel, CA. Retail and wholesale; nursery; by appointment.
www.goldrushnursery.com

Growing Grounds Farm, San Luis Obispo, CA. Wholesale; nursery. growinggroundsfarm.org

Hedgerow Farms, Winters, CA. Retail and wholesale; nursery and seed; must place order prior to pick-up. www.hedgerowfarms.com

Larner Seeds, Bolinas, CA. Retail, online store; nursery and seed; limited hours.
www.larnerseeds.com

Las Pilitas Nursery, Santa Margarita, CA. Retail; nursery; online. www.laspilitas.com

Native Revival Nursery, Aptos, CA. Retail and wholesale; nursery. www.nativerevival.com

Native Sons, Arroyo Grande, CA. Wholesale; nursery. www.nativeson.com

Oaktown Native Plant Nursery, Berkeley, CA. Retail and wholesale; open to public Thursday through Saturday. oaktownnativenursery.info

Pacific Coast Seed, Livermore, CA. Wholesale, online store; seed. www.pcseed.com

Payless Nursery, San Jose, CA. Retail; nursery. www.paylesshardwareandrockery.com

Rana Creek Wholesale Nursery, Carmel Valley, CA. Wholesale and retail; nursery and seed; retail by appointment. ranacreeknursery.com

Seedhunt, Freedom, CA. Retail online; seed. www.seedhunt.com

Sierra Azul Nursery and Gardens, Watsonville, CA. Retail; nursery. www.sierraazul.com

Suncrest Nurseries, Watsonville, CA. Wholesale; nursery. suncrestnurseries.com

The Watershed Nursery, Richmond, CA. Wholesale and retail; nursery.
www.thewatershednursery.com

UC Santa Cruz Arboretum. Retail; nursery.
www.arboretum.ucsc.edu/shop

This booklet is a publication of the California Native Grasslands Association (CNGA), produced in partnership with the California Department of Water Resources. For additional copies, email admin@cnga.org

For more information on CNGA's programs and events or to become a member, visit www.cnga.org



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The mission of the California Native Grasslands Association is to promote, preserve, and restore the diversity of California's native grasses and grassland ecosystems through education, advocacy, research, and stewardship.



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The Department of Water Resources works to manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments.

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