

Salmon Creek Water Conservation Program

Conservation Strategy No.3:
Low Water Gardening
for Rural Coastal
California
Communities





Overview

Many residents and businesses in California's rural coastal communities depend upon water from local sources such as streams, springs and shallow wells. These local sources usually feed into streams that are important habitat for aquatic species, some of which are threatened or endangered, such as the salmonids of Sonoma County's Salmon Creek Watershed.

During the summer months, many of these supply sources suffer from low water flows due to lack of rain and the use of water pumped from streams. Low water flows can jeopardize habitat for listed species. Low Water Gardening, which minimizes the need for summer irrigation, will help improve the local aquatic habitats that these species depend upon to survive. Low Water Gardening coupled with the development of alternate water supplies such as roofwater or graywater, provides maximum benefit to aquatic habitat.

Target community

Low Water Gardening is ideal for residential and commercial water users with gardens and landscapes in rural coastal communities, either on community water systems or a private supply.

Potential effect

These gardening practices can result in an enhanced supply of water during the critical months in the life-cycle of many aquatic species. The 2003 study by the Pacific Institute, *Waste Not Want Not: the Potential for Urban Water Conservation in California*, reports that in coastal California approximately 30% of all residential water use is outdoors. The Pacific Institute study finds that implementing the principles of Low Water Gardening will result in a 25-40% reduction in outdoor water use. If turf-dominated landscapes are converted to Low Water Gardening landscapes, there will be even greater savings.

Additional benefits from these practices include reduced use of chemical pesticides and fertilizers, increased groundwater recharge, reduced run-off from irrigation, and increased soil health. Low Water Gardening principles may also support greater diversity of plant species, beneficial insects, birds and mammals, as well as producing vegetation that requires less pruning, generating less garden waste.

Implementation

Low Water Gardening principles begin with the first decisions made in designing a garden or landscape. All decisions about planting, watering, feeding and changing a garden are influenced by the principles of Low Water Gardening.

Here are some guidelines for practicing Low Water Gardening in coastal California, including design and installation practices, maintenance practices, and methods for bringing these principles to existing landscapes or gardens.



Low Water Gardening: Design and Installation

- Wherever possible, preserve existing native vegetation during garden design and installation.
- Preserve topsoil on the site even if it means stockpiling the h before grading and reintroducing after grading. Once lost, nutrient-rich topsoil can take decades to rebuild.
- For ornamental plantings, choose drought-resistant natives or Mediterranean species, with an emphasis on California natives that thrive naturally in the region. The University of California Cooperative Extension has compiled a list of the native landscaping plants by region, with their water use requirements: the Water Use Classification of Landscape Species (WUCOLS) at: <http://www.water.ca.gov/wateruseefficiency/docs/wucols00.pdf>
- Do not plant invasive species. Check the California Invasive Plant Council's web site for a comprehensive list of these pests: <http://www.cal-ipc.org/>
- Plan to install new plants or landscapes in the fall after the first rains. This maximizes root growth and increases long-term plant viability.
- Choose small size (4") plants for perennials or groundcovers. Select no larger than 5 gallon plants for trees. Starting small maximizes root development into parent soil, and usually produces a more vigorous mature plant.
- Space plants far enough apart so there is an adequate soil reservoir for each plant. Base the distance between plants on the mature size of the species. This allows mature plants to use more of the water stored in the soil and require less irrigation.
- Choose plant varieties that will mature to a size that does not require severe pruning, allowing each plant to have its natural form without a lot of pruning. This will result in healthier and more beautiful plants.
- Use organic compost as a top-dressing to all new plants. Mulch all bare soil areas with at least 4" of organic top-dressing. This organic layer feeds the soil and soil organisms as it breaks down.
- Consider using the "sheet mulching" method when planting. Place a layer of cardboard, newspaper or other organic porous product over soil and then top dress with a mulch such as wood chips or straw. See how sheet mulching is done at: http://www.agroforestry.net/pubs/Sheet_Mulching.html
- Group plants with like water needs together so they can be watered (or not watered) according to their thirst.
- Do not install turf lawns which need mowing and fertilizing to maintain their appearance. Instead consider a natural meadow that requires less water and can go dormant in the summer, or a porous hardscape, such as decomposed granite, for paths or a patio.
- If all or part of the garden will require summer irrigation, use drip irrigation for these areas. Install a separate irrigation valve for each degree of sun exposure or water requirement so plants can be watered according to their needs.
- If an automatic irrigation controller is used, consider installing a "smart controller" that changes the irrigation schedule as the weather changes. For a list of these controllers visit the Irrigation Association page at: <http://www.irrigation.org/swat/industry/ia-tested.asp>



Low Water Gardening: Maintenance Practices

- Cover all bare soil areas at all times with a minimum of a 4" layer of compost, leaves, woodchips or any other organic matter. This will reduce the need to water, increase infiltration, feed the soil, improve soil structure and discourage weeds. To avoid root rot and other problems, don't pile mulch around tree trunks or the crowns of shrubs and perennials.
- Use organic compost liberally as top-dressing to supply nutrients and improve soil structure.
- Keep any organic matter that is generated in the garden right where it was generated: in the garden. Fallen leaves can be used as mulch under trees. Weeds and trimmings from herbaceous plants can be composted for top-dressing.
- Remove weeds to reduce competition for the water stored in the soil, leaving it for the desired plants.
- Know the natural shape and size of each plant and allow it to grow into its natural form. Use selective pruning techniques to remove damaged or diseased limbs and branches. Minimize other pruning.
- If there is a turf lawn, leave grass clippings on the lawn after mowing. This practice known as "grass-cycling" adds nutrients and organic matter to the soil and reduces thatch build-up. Find out more about this practice at: <http://www.calrecycle.ca.gov/Organics/GrassCycling/>
- Avoid synthetic fertilizers, herbicides and other pesticides. For natural alternatives to pesticides visit: <http://www.pesticide.org/factsheets.html#alternatives> and <http://www.ipm.ucdavis.edu/>
- If summer watering is used, water only when needed. Observe the plants and soil to determine the garden's water needs.
- If an automatic irrigation controller is used, adjust it at least every two weeks as the weather and seasons change. If a "smart controller" is used, check the watering schedule to confirm that the schedule adjustments are following the weather pattern.
- Find out more about irrigation water use and weather conditions throughout our state by visiting the California Irrigation Management Information Systems (CIMIS) information site to locate the CIMIS station closest to your community: <http://www.cimis.water.ca.gov/cimis/info.jsp>
- If an irrigation system is used, run the system at least monthly and observe each valve circuit in operation. Drip irrigation is low-pressure so leaks are not always evident. It is important to walk each drip line to make sure emitters are in place, lines are not cut or damaged, and that fittings have not come apart.



Low Water Gardening Practices for Existing or Mature Landscapes

- When working with an existing garden, identify the plants and evaluate whether their placement in the landscape is appropriate. Make sure each plant has the space to mature and an adequate soil reservoir to maintain vigor. Removing some plants can often "free up" air, light, and soil resources for other plants, resulting in a healthier landscape.
- As the garden matures, evaluate whether the planting density is correct for the form of the species and the region in which it is growing. Groundcover shrubs may become shaded by mature trees, and tree canopies may be competing for space.
- In understory areas, strive for a mixture of planted and unplanted space to allow trees adequate water from rainfall or irrigation. Always use a generous layer of mulch in both unplanted and planted areas.

Tools

Web sites:

The *Water Use Classification of Landscape Species* (WUCOLS) published by the University of California Cooperative Extension is at: <http://www.water.ca.gov/wateruseefficiency/docs/wucols00.pdf>

For natural solutions to pest problems visit these two sites: <http://www.ipm.ucdavis.edu/> and <http://www.pesticide.org/factsheets.html#alternatives>

For weather station location and information about irrigation water use and weather conditions throughout our state visit the California Irrigation Management Information Systems (CIMIS) information site: <http://www.cimis.water.ca.gov/cimis/info.jsp>

For information on "grasscycling" visit: <http://www.calrecycle.ca.gov/Organics/GrassCycling/>

For information on sheet mulching visit: http://www.agroforestry.net/pubs/Sheet_Mulching.html

The California Invasive Plant Council's web site has a comprehensive list of these pests: <http://www.cal-ipc.org/>

Books:

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

Bossard, Carla, John Randall and Marc Hoshovsky, *Invasive Plants of California Wildlands*, University of California Press, 2000.

Francis, Mark and Reimann, Andreas, *The California Landscape Garden: Ecology, Culture, and Design*, University of California Press, 1999

Keator, Glenn and Middlebrook, Alrie, *Designing California Native Gardens: the Plant Community Approach to Artful, Ecological Gardens*, University of California Press, 2007

Harlow, Nora and Jakob Kristin (editors), *Wild Lilies, Irises, and Grasses: Gardening with California Monocots*, University of California Press, 2003

Lowry, Judith Larner, *Gardening with a Wild Heart: Restoring California's Native Landscapes at Home*, University of California Press, 1999.

Schmidt, Marjorie G., *Growing California Native Plants*, University of California Press, 1980.



This conservation strategy was produced by Virginia Porter Consulting and Kathleen Kraft for the Salmon Creek Water Conservation Program (SCWCP). The SCWCP is a multi-year, multi-stakeholder effort focused on developing alternative water supply solutions that support human needs while protecting and restoring instream flows for fish and wildlife.