

Claim the Rain: Slow It, Spread It, Sink It

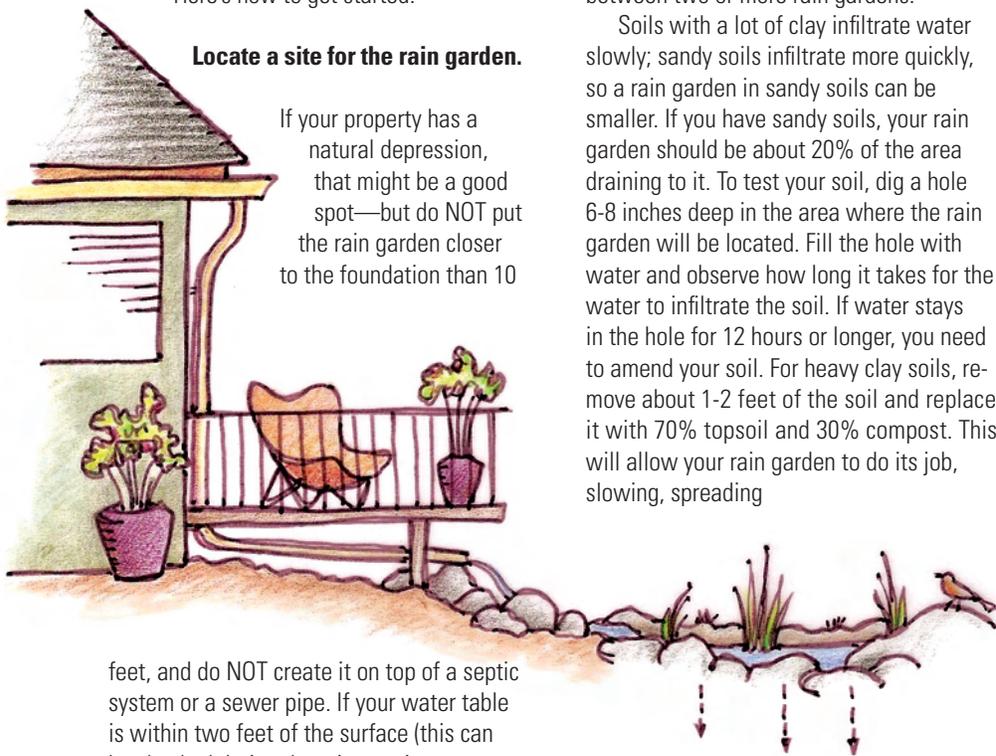
A Rain Garden "How To" For Homeowners

You can help the Estuary by creating an attractive "rain garden" in your own back or front yard. The rain garden will slow and treat polluted runoff from your roof or driveway before it ends up in the street and the nearest storm drain—and on its way into the San Francisco Bay Estuary. The plants, soil, and mulch in your rain garden will help filter out pollutants—fertilizers, pesticides, oil, and heavy metals—that wash off of your lawn, roof, driveway or patio in the rain. Rain gardens slow "peak flows" during heavy storms, flows that are changing the shape of our creeks, causing them to become steeper and deeper. Rain gardens can even help prevent localized flooding and keep storm drains from being overwhelmed during heavy storms.

Here's how to get started.

Locate a site for the rain garden.

If your property has a natural depression, that might be a good spot—but do NOT put the rain garden closer to the foundation than 10



feet, and do NOT create it on top of a septic system or a sewer pipe. If your water table is within two feet of the surface (this can be checked during the winter rainy season by digging down two feet to see if there is evidence of water in the wettest part of the season), a rain garden may not provide enough infiltration to be worthwhile. Sites

with steep slopes (over 10%) may not be suitable for rain gardens.

Figure out how large your rain garden should be (see box on page 4), and amend your soil if necessary.

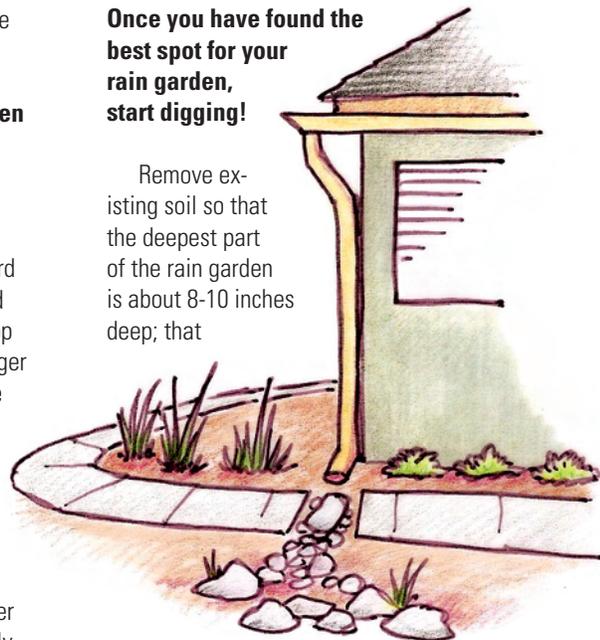
Consider the area that will drain to your garden, including roofs or other hard surfaces—driveways, patios, etc.—and the amount of land between your rooftop downspout and the rain garden. The larger the area of roof or hard surface, and the slower rainwater infiltrates your soil, the more rain garden needed. If you calculate that your rain garden needs to be greater than 300 square feet, divide your drainage area between two or more rain gardens.

Soils with a lot of clay infiltrate water slowly; sandy soils infiltrate more quickly, so a rain garden in sandy soils can be smaller. If you have sandy soils, your rain garden should be about 20% of the area draining to it. To test your soil, dig a hole 6-8 inches deep in the area where the rain garden will be located. Fill the hole with water and observe how long it takes for the water to infiltrate the soil. If water stays in the hole for 12 hours or longer, you need to amend your soil. For heavy clay soils, remove about 1-2 feet of the soil and replace it with 70% topsoil and 30% compost. This will allow your rain garden to do its job, slowing, spreading

and sinking the rain/runoff. To find soil amendment products, look in your yellow pages directories (or on-line) for "soil products" listings—or check with your local nursery.

Once you have found the best spot for your rain garden, start digging!

Remove existing soil so that the deepest part of the rain garden is about 8-10 inches deep; that



soil can be used to create a small berm on the downhill side of the garden to keep the water in the garden—it should not be more than 12 inches high and it should not be higher than the uphill edge of the rain garden. Mix 2-4 inches of compost into the soil of the rain garden.

The bottom of the rain garden should be as level as possible. Your rain garden should hold no more than 6 inches of water and should fully drain within 12 hours.

Create a shallow swale or use a corrugated rain pipe to carry water from your downspout to the rain garden if necessary.

Rain from your rooftop can be directed into a rain garden, where the water will filter down into the soil instead of running off into the street (left).

You can redirect your downspout from taking rain into the street by sending it onto a "splash" pad and into a small rain garden (above).

Select your plants—and plant!

Plant a native grass or groundcover border around the edges of the rain garden to slow down the water running off into it. Plant the berm as well. Select native



A rain garden at El Cerrito City Hall sends rain from the roof into plants and the soil. The garden includes sedges, vine maples, and other natives.



plants that do well in both wet and drought conditions—see list in box for some suggestions. These plants will also provide habitat for birds, butterflies, and bees.

Maintain your rain garden.

Cover your rain garden with at least 3 inches of mulch—heavier mulch (such as shredded bark or wood chips) will stay in place better. In order to prevent rot, do not place mulch in immediate contact with plant material. Weed your garden by hand and replenish mulch as needed. As your garden grows, there will be less need for mulch and weeding. If you use the correct plants, the garden should be relatively low maintenance and self-sustaining.

A small rain garden in the city of Portland. Photo courtesy of Portland Sustainable Stormwater Division.



PLANTS SUITABLE FOR RAIN GARDENS IN THE BAY AREA (to see what these plants look like, check out www.calflora.org)

Trees

Acer circinatum, vine maple (small tree)
Acer macrophyllum, big leaf maple
Acer negundo, box elder
Aesculus californica, California buckeye
Alnus oregano, red alder
Alnus rhombifolia, white alder
Fraxinus latifolia, Oregon ash
Juglans hindsii, California black walnut
Platanus racemosa, sycamore
Populus fremontii, Fremont cottonwood
Populus trichocarpa, black cottonwood
Umbellularia Californica, California bay

Shrubs

Calycanthus occidentalis, spice bush
Cornus stolonifera, dogwood
Crataegus douglasii, hawthorn
Dirca occidentalis, leatherwood
Ribes sanguineum, red flowering currant
Ribes speciosum, gooseberry
Rosa californica, California wild rose
Rubus parviflorus, thimbleberry
Rubus spectabilis, salmon berry
Rubus ursinus, California blackberry
Symphoricarpos rivularis, snowberry
Aralia californica, elk clover
Blechnum spicant, deer fern
Corylus cornuta, hazelnut
Myrica californica, wax-myrtle
Rhamnus purshiana, cascara
Rhododendron occidentale, western azalea
Sambucus callicarpa, red elderberry
Sambucus cerulea, blue elderberry

Ferns and lower-growing plants

Athrium felix-femina, lady fern
Dicentra formosa, bleeding heart
Iris douglasiana, Douglas iris
Lonicera hispidula, honeysuckle
Mimulus cardinalis, scarlet monkeyflower
Physocarpus capitatus, ninebark
Epipactis gigantea, stream orchid
Heracleum lanatum, cow parsnip
Heuchera micrantha, alum root
Lonicera involucrata, twinberry
Polypodium californicum, polypody fern
Polystichum munitum, sword fern
Scrophularia californica, bee plant
Woodwardia fimbriata, chain fern

Rushes, reeds, sedges

Carex nudata, California black-flowering sedge
Equisetum arvense, common horsetail
Juncus patens, California gray rush

Vines

Aristolochia californica, pipevine
Vitis californica, wild grape



Thimbleberry flower



Twinberry (*Lonicera involucrata*)



Native dogwood



Elk clover



A drought-tolerant native currant (*Ribes sanguineum*) provides habitat for birds, butterflies, and bees—and will also be happy in your rain garden.

Measure Your Local Drainage Area and Water Volume

Find the area draining to your rain garden. Measure the area of impervious surface (pavement, walks, roof, etc) and multiply by one inch of rainfall. Take the landscaped and/or lawn areas and multiply by ½ inch of rain. This will give you the volume of water in cubic feet.

ELEMENT

Impervious area
multiply
Landscaped/Lawn area
...multiply

RESULT

Measurement

Square Feet
x 1" of rainfall
Square Feet
x .5" rainfall

Volume of Water in cubic feet

Size Your Rain Garden

Size your rain garden to contain the volume of runoff to a maximum depth of 6 inches. To determine the depth, take the average area, add the area at the top of the slope into the rain garden and bottom of the rain garden and divide by 2.

ADD Average Area
ADD Top of Slope
ADD Bottom of Rain Garden

..... **RESULT**

Square Feet
Square Feet
Square Feet
Divide by 2
Square Feet of Garden

The area of the rain garden should be approximately 5 to 10 percent of the area draining to it. Sizing information courtesy of California Green Solutions: www.californiagreensolutions.com/cgi-bin/gt/tpl.h,content+3182



Calycanthus flower

Sources used in this fact sheet:

www.cleanwatercampaign.com
www.californiagreensolutions.com
www.native-raingarden.com/californiatreesandshrubs.html
San Francisco Bay Regional Water Quality Control Board (native riparian plant list)

If you live in Sacramento County, please see <http://www.msa.saccounty.net/sactostormwater/RFL/raingardens/raingardens.asp> for a great guide to creating a river-friendly rain garden.

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El Cerrito photos: Lisa Owens Viani



A vine maple shows its fall colors.



Black-headed grosbeak in dogwood.



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