

RAIN GARDEN HANDBOOK

for the San Juan Islands

A Local Guide to
Design, Installation
and Maintenance

Puget Sound
Starts Here



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2014

**A Local Guide to Design,
Installation and Maintenance**

*When we work
together, small actions
make a difference.*

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This handbook was produced by the Stewardship Network of the San Juans.

For a copy, please contact the
San Juan Islands Conservation District
at 360-378-6621 or sanjuanislandscd.org

This handbook, which focuses on the San Juan Islands, is a companion to the more detailed

**RAIN GARDEN HANDBOOK
FOR WESTERN WASHINGTON**

fortress.wa.gov/ecy/publications/publications/1310027.pdf



The Stewardship Network of the San Juans (stewardshipsanjuans.org) is a coalition of private and public conservation-based organizations that promotes a stewardship ethic in the San Juan Islands to ensure a healthy, thriving ecosystem.

ECO Net

PugetSoundPartnership
LEADING PUGET SOUND RECOVERY

The Stewardship Network is also one of 12 local ECO (*Education, Communication and Outreach*) Networks in Western Washington working together to restore and protect the Puget Sound and Salish Sea ecosystem.

Puget Sound Starts Here

Puget Sound Starts Here is a partnership of Washington State cities, counties, state and federal agencies, nonprofit groups and local organizations dedicated to improving water quality and aquatic habitat in waterways that flow into Puget Sound, Hood Canal and the Strait of Juan de Fuca.



In the Pacific Northwest, rain is as predictable as daffodils in spring. One way to take advantage of this overabundance naturally is to build a rain garden. Not only is it an easy-to-maintain kaleidoscope of plants and flowers, it is also an effective way to utilize excess water, provide wildlife habitat,

reduce flooding and erosion and protect our marine environment from its greatest threat:

POLLUTED STORMWATER

WHY IS STORMWATER A THREAT?

When rain falls on hard surfaces such as rooftops, patios, driveways, lawns and streets, it collects with nowhere to go but downhill. Along the way, this “stormwater” accumulates toxins and contaminants such as oil, pesticides, pet waste and heavy metals. Loaded with pollutants, it may stream into the nearest storm drain, surface pathway or drainage ditch to its final destination: our wetlands, estuaries, ponds, streams, creeks, lakes, bays and, ultimately, the Salish Sea.

HOW CAN A RAIN GARDEN HELP?

When properly placed, this bowl-shaped garden filled with deep-rooted plants and grasses will capture runoff, absorb the water like a sponge and naturally filter pollutants as it seeps slowly into the soil. This also helps recharge groundwater and restore the natural water cycle.



Did you know?

Stormwater is the leading contributor to water quality pollution.

Did you know?

Salmon are very sensitive to road and highway stormwater runoff, and studies have shown high levels of mortality from untreated stormwater. However, if runoff is filtered through a rain garden, survivability greatly increases.

Did you know?

Even a fraction of an inch of rain that is allowed to flow off hard surfaces unimpeded can collect from many properties to overwhelm drainage systems and cause overflow damage such as erosion.



Before an underground pipe was installed to direct water from a driveway to this rain garden, the property was inundated with water. A wispy bed of sedge and cotton grass is pleasing as well as functional, as the plants naturally absorb runoff and filter pollutants.



WHAT'S UNDER YOUR FEET?

Rain gardens work well in many different soil conditions.

The best soils for rain gardens have a quick infiltration rate and drain well. To improve site drainage, you will need to amend your soil with compost and most likely some sand. Knowing how much of each depends on what kind of soil you have initially.

To correctly identify your soil type and drainage capacity, choose one of these options:

Conduct a simple soil drainage test to evaluate the soil texture (*the amount of sand, silt and clay in the soil*) and determine the drainage rate (*the amount of time it takes water to soak into the ground*).

SOIL DRAINAGE TEST

- Dig test hole
- Evaluate soil texture
- Determine desired ponding depth
- Fill hole with water and observe drainage rate

For detailed instructions, see pages 15-16 of the *Rain Garden Handbook for Western Washington*.

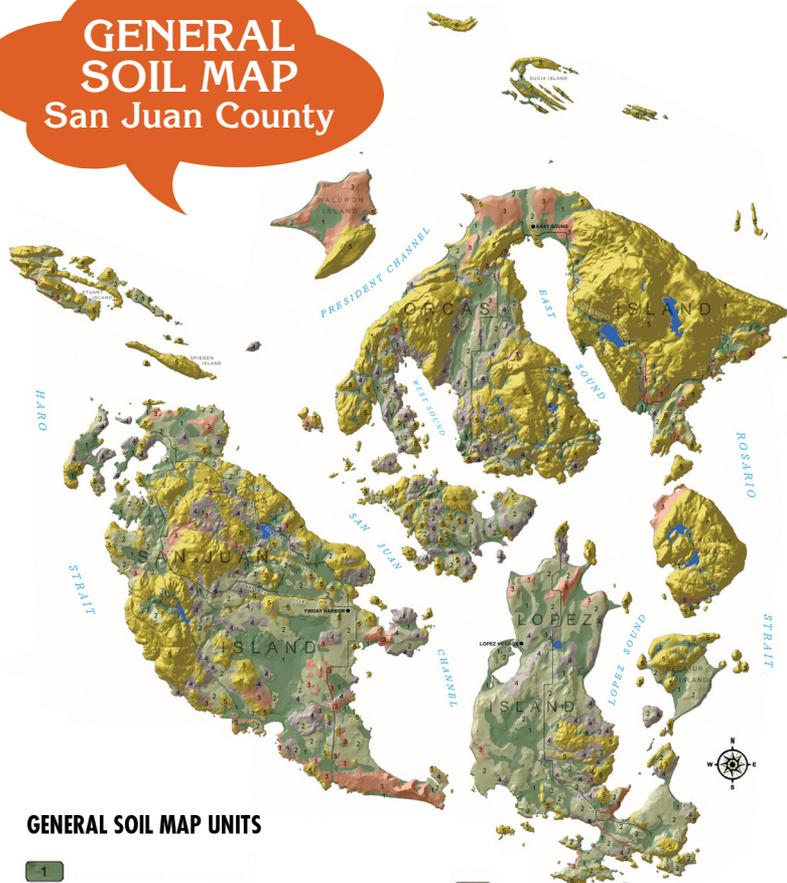
To learn more about soil types on your property, go to: websoilsurvey.sc.egov.usda.gov/app/homepage.htm

This Web Soil Survey offers an in-depth look using local soil maps and data. Using the interactive tools, you can identify finer levels of soil types by entering your address and zooming in to the exact location.

Most suited to identifying soil on large pieces of property, this survey is also a good way to learn about your soil in general. To most accurately identify what's under your feet, conduct the drainage test above.

When you look at this map of the San Juan Islands, you will see a jigsaw puzzle of the many soil varieties created by glaciers. Walk 500 yards in either direction on your property, and you may be standing on different soil. Only in the lowlands do large areas of the same type usually exist.

GENERAL SOIL MAP San Juan County



GENERAL SOIL MAP UNITS

1

Soils in Valleys of Glacial Drift Plains—19% of county
Ranges from poorly drained to somewhat poorly drained

2

Soils on Glacial Drift Plains—20% of county
Ranges from somewhat poorly drained to moderately well-drained

3

Soils on Hills of Glacial Drift Plains—7% of county
Somewhat excessively drained

4

Soils on Glacial Drift Plains and Hills—9% of county
Ranges from somewhat poorly drained to moderately well-drained

5

Soils on Hills and Mountains—45% of county
Well-drained

Water

ADDING AMENDMENTS

Once you have determined your soil composition and drainage capacity, you can add the necessary amendments. Find detailed instructions on pages 32-35 of the *Rain Garden Handbook for Western Washington*.



A CLOSER LOOK AT SOIL SOLUTIONS

If you have high-quality soil low in clay content that drains well:

Excavate the top layer to the desired ponding depth, plus three inches, and then amend your soil by adding three inches of quality compost as the top layer. Well-composted yard and food waste is best; avoid manure and mushroom compost, or predominately woody material. Then, till to a depth of 6 to 8 inches.

If you have soil that drains moderately well:

Excavate the soil, mix in about 35% compost (see above) and replace the soil to the recommended height.

If you have poor-quality soil high in clay content that doesn't drain well:

Excavate and replace your soil with a pre-engineered soil mix, or make your own with about 60% clean sand and 40% compost. Then, mulch the top with wood chips or shredded bark. Avoid beauty bark, which is too fine.

Every site has unique features. To select the best location for your rain garden, note what happens during a heavy rainfall.

1. *Where does excess water collect?*
2. *Where does it go?*

Place your garden between the source of the runoff, such as your roof downspout, patio or driveway, and the runoff destination, such as lower areas, creeks or drains.



This sunny rain garden catches water that flows down a moderate slope from the roof. A rocky area is designed to direct any overflow.

Avoid placement less than 10 feet from a building foundation or 100 feet from a potable water well, or near underground utilities, septic drainfields or large tree roots.

Do not place a rain garden near a steep slope, where ground saturation could cause erosion or landslides. If your slope is greater than 10%, consult a professional.

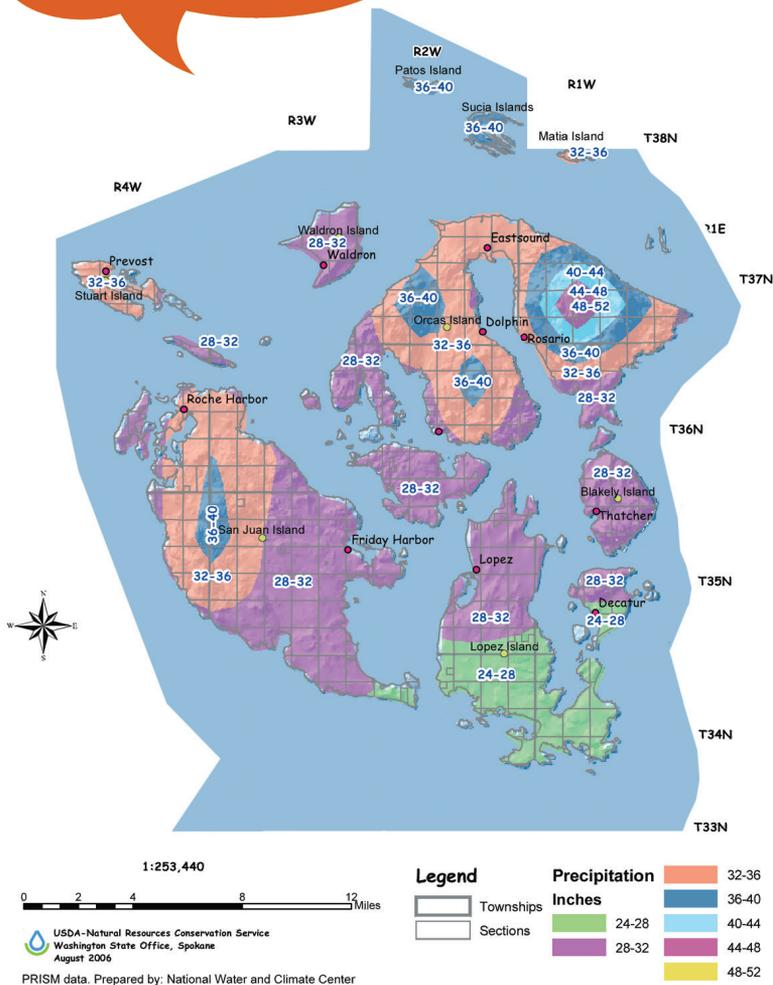
HOW BIG SHOULD YOUR GARDEN BE?

To figure the size of your garden, answer these questions:

- ***How much rainfall does your site receive?***
For a good estimate, take a look at the precipitation map on the next page.
- ***How well does your soil drain?***
Use the information you discovered using one of the methods listed on page 3.
- ***How much area is draining to the rain garden?***
Measure the square footage of all impervious surfaces, including your rooftop, driveway, lawn and patio.
- ***How much water will the garden hold?***
In other words, what is the maximum depth that water will pond in your rain garden?
Most gardens are sized to hold 6 to 12 inches of water.
- ***How much space do you have available?***
As you look at your property, consider different shapes: a rectangle, oval or kidney.

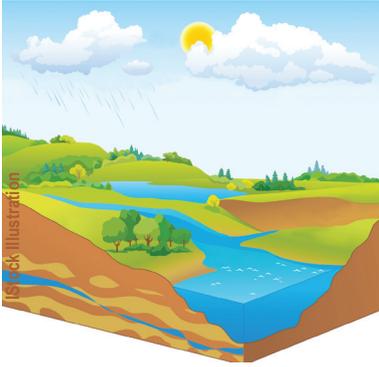
Once you've collected this information, see the chart on page 21 of the *Rain Garden Handbook of Western Washington* to calculate the size of your garden.

SJ County PRECIPITATION MAP



How much rain falls on your property? As you can see from this map, precipitation varies throughout the islands. Northeastern Orcas Island receives nearly twice that of Lopez Island and the southern part of San Juan Island, which encounter drier days in the Olympic Rain Shadow.

GUIDING WATER FLOW



Determining how water will be routed to your rain garden is especially critical after a heavy rain. This can be accomplished through an underground pipe, an open, landscaped area filled with rocks or plants or along a rock-lined ditch.

If your garden is on a slope, create a berm along the lower side to stop water flow, minimize soil erosion and elevate plant roots to increase survival during extended wet periods.

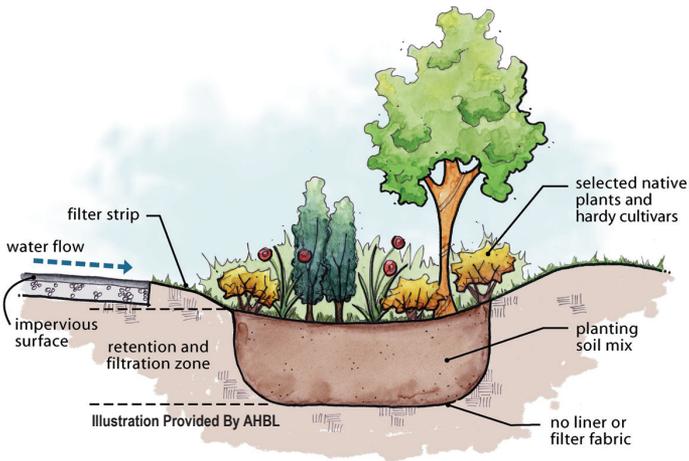
When managing water flow, keep in mind that rain garden plants need to tolerate high water loads as well as periods of drought. While the wettest center of the rain garden is ideal



for plants such as sedges and blueberries, the side slopes, perimeter and berm are well suited to plants with drier requirements, such as rugosa rose, high bush cranberry and elderberry.



Even the smallest rain garden is effective. A downspout capturing rain from the roof of Ray's Pharmacy on Orcas Island spills into a simple watering trough. The filtered rainwater empties out the bottom and flows a short distance to a drain.



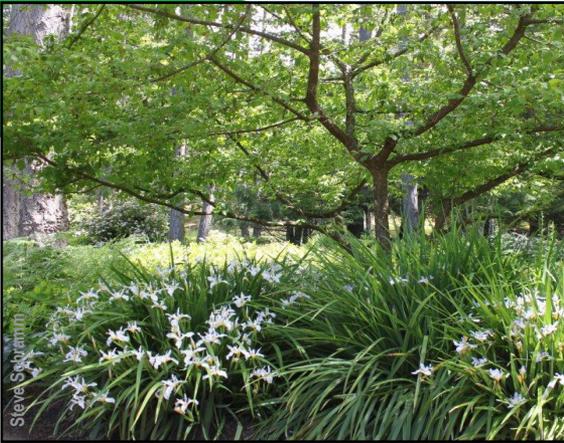
This cross section shows how a rain garden is constructed. Water flowing off of hard surfaces such as rooftops or driveways is routed to this depressed area. Here, the polluted runoff temporarily ponds while it seeps slowly through the plant roots and soil, naturally filtering out impurities.

CHOOSING RAIN GARDEN PLANTS

When it's time for plant design, first determine how much sun and rain your property receives (see the precipitation chart on page 8). Remember that islands are home to unique ecosystems that include many microclimates, so what's true for Mt. Dallas or Turtleback Mountain may not be true for the lowlands of Lopez or waterfront properties.

For an easy-to-use guide to native and non-native plant species and varieties suitable for rain gardens, see the resources listed on page 14, including:

Appendix A of the *Rain Garden Handbook for Western Washington* Plant section at raingarden.wsu.edu.



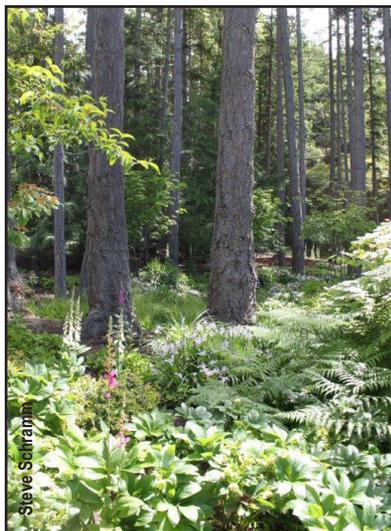
A rain garden doesn't have to be just a little patch of plants. Nestle it into your surrounding landscape and create a fringe environment that will attract birds and butterflies. Above, Pacific Coast irises and a Cornelian cherry dogwood thrive around the perimeter of a concealed rain garden planted with fine-leaved sedges.

GOING NATIVE AND DEER-FREE

There are many lovely native plants that are well suited to a rain garden.

Begin with the natural beauty that already exists on your property.

Native plants are ideal for island rain gardens because they are hardy and easy to maintain, soak up water and have deep roots that help break up hard soil. They are also typically well adapted to our local climate, and less prone to disease and pests.



Above, foxglove mingles with native salal, serviceberry and Douglas fir in this natural rain garden.



While a deer-resistant plant on these islands may be an oxymoron, be optimistic and use varieties that are least likely to be munched (see the garden above). Or, play it safe and build a deer fence.

MULCHING FOR EASY MAINTENANCE

After planting, spread two to three inches of shredded or chipped wood mulch through your rain garden to reduce weeds, keep the soil moist and prevent erosion.



To ensure success, follow these tips:

- ➔ Water deeply during the dry season for the first two to three years until the plants establish healthy root systems. After that, you will probably need to water only during long periods of drought.
- ➔ Weed about three to four times annually during the first couple of years and thereafter as needed.
- ➔ Remove any litter or debris to reduce sediment and keep the water moving freely.
- ➔ If you have a berm around the garden, add and compact soil if it begins to settle.
- ➔ Add mulch or plants in bare spots as needed.
- ➔ Watch for erosion where water may be entering the garden too rapidly.

RAIN GARDEN RESOURCES

Rain Garden Handbook for Western Washington, A Guide for Design, Maintenance and Installation, June 2013, WSU Extension. You can access the handbook online at fortress.wa.gov/ecy/publications/publications/1310027.pdf. Extensive plant list, sample plans and detailed instructions.

Puget Sound Rain Gardens web page, raingarden.wsu.edu, Washington State University County Extension Office in Snohomish County. Plant list, sample plans and video.

San Juan Islands Conservation District, sanjuanislandscd.org, 378-6621. Technical expertise on how to build a rain garden, workshops, plant advice and soil analysis.

Washington Native Plant Society, wnps.org, 206-527-3210 or 1-888-288-8022. Source for native plant information.

Washington State University County Extension Office on San Juan Island, sanjuan.wsu.edu/mastergardeners, 378-4414. Information on soil testing, gardening and plants, contact for master gardeners on all San Juan Islands.

Puget Sound Partnership—Stormwater & Low Impact Development (LID), psp.wa.gov/stormwater.php.

12,000 Rain Gardens in Puget Sound, 12000raingardens.org. A campaign to protect Puget Sound by installing 12,000 rain gardens in the Seattle/Puget Sound region by 2016.

DESIGN . INSTALLATION . MAINTENANCE

The following landscape designers have installed rain gardens throughout the San Juan Islands. This list is only a starting point. Ask your neighbors who helped them design their gardens.

Steve Schramm, Island Gardens Company, San Juan Island, 860 Guard St, Friday Harbor, islandgardenscompany.com, 378-5161

Robin Kucklick, Kucklick Landscape Design & Service, Orcas Island, 394 Buckhorn Rd, Eastsound, 376-2501

Roger Ellison, Thornbush Landscape & Design, San Juan Island, thornbushlandscape.com, 370-5795

Nathan Hodges, nathanhodges.net, Lopez Island, 3042 Center Road, 360-468-3492

Chuck and Marguerite Greening, Greening and Greening, Orcas Island, 4971 Orcas Rd, greeningandgreening.com, 376-5363

RAIN GARDEN SUPPLIES

Local Retailers	Plants	Mulch	Sand	Rocks	Compost
Browne's Home Center <i>San Juan</i>	Large Variety	Bark Mulch, Bag	Washed Sand, Bag	Mexican Pebbles, Bag	
Island Concrete Products <i>San Juan</i>			Clean Sand, Bulk	Pea Gravel, Concrete Rock, Bulk	
Cattle Point Rock & Topsoil <i>San Juan</i>		SJ Island Hardwood Chips & Grind, Bulk	Native Sand, Bulk	River Rock, Bulk	Cedar Grove Compost, Bulk
Mike Carlson Enterprises <i>San Juan</i>		Skagit Garden Mulch, Bulk	Can Order Clean Sand, Bulk	Boulders	Green Compost, Bulk, Large Orders Only
Sea Island Sand & Gravel <i>Orcas</i>		Medium Fir Bark, Bulk	Clean Sand, Bulk	Large Variety, Bulk	
San Juan Sanitation Co. <i>Orcas</i>		Variety of Fir Bark, Bulk			Compost Blend, Vegetable Compost, Bulk
Island Hardware & Supply, Inc. <i>Orcas</i>		Bark Mulch, Bag	Washed Sand, Bag & Bulk		
Driftwood Flowers & Nursery <i>Orcas</i>	Large Variety				
Lopez Sand & Gravel <i>Lopez</i>		Double/Single Ground Wood Chips, Bulk	Clean Sand, Bulk	Large Variety, Bulk	
Sunset Builders Supply <i>Lopez</i>	Large Variety	Medium & Fine Bark, Bag	All-Purpose Sand, Bag	River Rock, Bag	NuLife Compost, Bag

The above businesses carry supplies needed to create a successful rain garden.

ORDERING INFO

CONTACT INFO

16

Pre-mixed	Day of	In Advance	Phone	Address
Premium Soils, Bag	Available	1 Week Advance Recommended for Special Plants	378-1041	860 Mullis St Friday Harbor
	Available		378-5878	66 Wally Way Friday Harbor
Cedar Grove, Bulk	Available		378-6300	993 Cattle Pt. Rd Friday Harbor
Island Screened Topsoil; Skagit Garden Mulch Mixed w/ Topsoil		1 Week Advance Recommended	378-4579	2164 W. Valley Rd Friday Harbor
Screened Dirt, Bulk		Call 1-2 Days in Advance	376-4215	340 Gravel Pit Rd Eastsound
Enhanced Soil Blend, Bulk	Available Self-Serve Small Amounts	Call in Advance for Hours & Large Orders	376-JUNK	279 Gravel Pit Rd Eastsound
		1 Week Advance Recommended	376-4200	21 W. Beach Rd Eastsound
			376-6801	536 Market St Eastsound
	Available	1 Week Advance Recommended for Special Orders	468-2320	618 Channel Rd Lopez
NuLife, Bag	Available	1-2 Weeks for Large Plant Orders	468-2241	4194 Center Rd Lopez

Please note that this is not an exclusive list, and that products may vary.

ACKNOWLEDGMENTS

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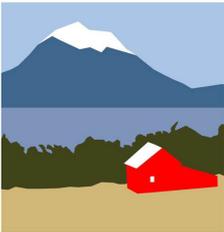
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