

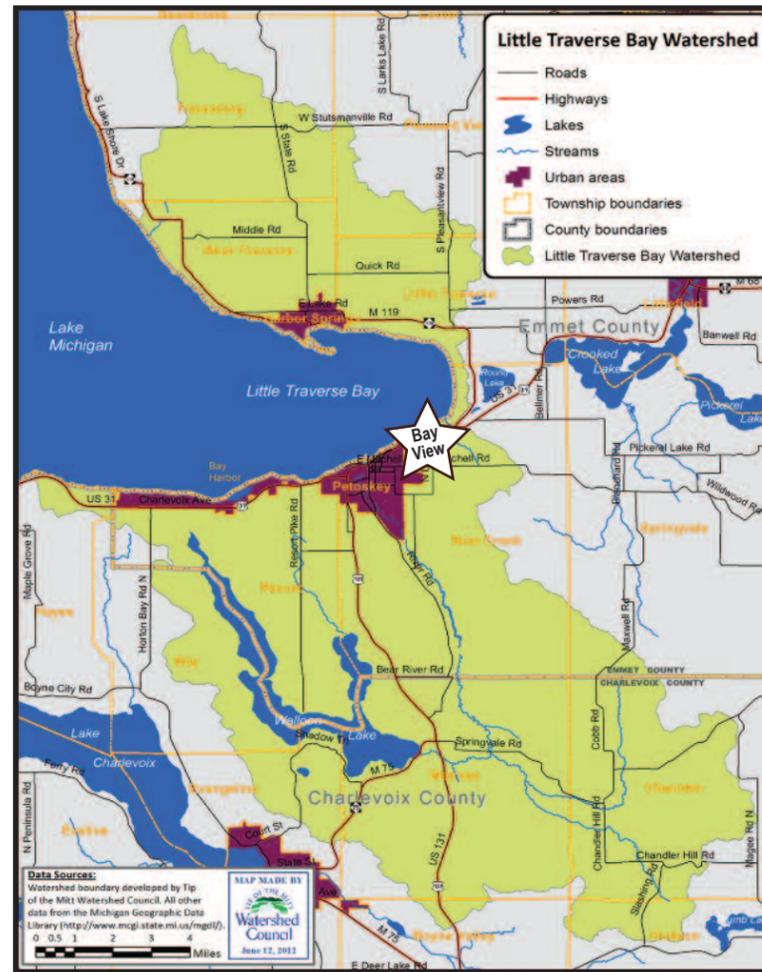
What is Stormwater?

Stormwater runoff is generated when precipitation from rain and snowmelt flows over land or impervious surfaces (paved streets, parking lots, and building rooftops) and does not soak into the ground. Stormwater accumulates debris, chemicals, sediment, nutrients and other pollutants that adversely affect water quality of nearby lakes, streams and wetlands. This is known as nonpoint source pollution. In Northern Michigan, the two most prevalent nonpoint source pollutants are sediments and nutrients.

Don't Storm Sewers Treat Stormwater?

Yes and no. First of all, storm sewers are typically separate from waste water or sanitary sewers. In more developed areas, like cities and towns, residential and commercial waste water is conveyed through sanitary sewers to waste water facilities where it is treated to meet water quality standards before it is discharged. On the other hand, stormwater is usually conveyed through an underground system of pipes and then discharged, without treatment, to a nearby lake or stream. In some cases, storm drains and inlets have integrated treatment devices, such as sumps, which allow for some settling and collection of sediments, or oil/gas chambers, which separate out oils and gas from the rest of the stormwater. Most storm sewers, however, do not include these types of devices due to expense, required maintenance and difficulty with retrofitting existing structures.

Rain gardens are a great way to alleviate the burden on storm sewers, recharge ground water, prevent flooding, reduce nonpoint source pollution, protect water quality, provide habitat and keep our lakes, streams, and wetlands healthy!



What is the Bay View Association Rain Garden Initiative?

Tip of the Mitt Watershed Council, in partnership with Bay View Association, is encouraging Bay View Association residents to install rain gardens to help reduce local stormwater impacts. As part of the Watershed Council's Little Traverse Bay Stormwater Management Initiative project (supported with funding through the Environmental Protection Agency's Great Lakes Restoration Initiative), The Bay View Association Rain Garden Initiative will provide reimbursement to 25 Bay View residents who install a rain garden as part of the Initiative.

For more information regarding the Bay View Association Rain Garden Initiative, contact Tip of the Mitt Watershed Council.



426 Bay Street • Petoskey, MI 49770
231-347-1181 • Fax: (231) 347-5928
www.watershedcouncil.org

Bay View Association
of The United Methodist Church



Cleaner Water for Tomorrow



BAY VIEW ASSOCIATION
**Rain Garden
Initiative**

A Great Lakes Restoration Initiative (GLRI) Project

What is a Rain Garden?

On the surface, a rain garden looks like an attractive garden. It may support habitat for birds and butterflies, be a formal landscape amenity or be incorporated into a larger garden as a border or as an entry feature. What makes it a rain garden is in how it gets its water and what happens to that water once it arrives in the garden.

into the ground) basin where stormwater is filtered and absorbed. As just one example of an on-site stormwater best management practice (BMP), they are most practical in the residential setting. They help put in practice the stormwater principle of...

A rain garden is a small bioretention ("bio" referring to the use of plants and "retention" because stormwater is temporarily stored before it soaks

Slow It Down, Spread It Out, and Soak It In

What Plants are Best for Rain Gardens?

Many plant species are suitable for rain gardens; however, native plants are best. Here in Northern Michigan, native plants are considered those species that occurred here prior to European settlement.

Native plants have several characteristics that make them appealing as garden and landscaping plants:

- They are naturally adapted to the soils and weather conditions of the area, so they need little care once they've become established.
- They provide food and cover for wildlife.
- They improve the quality of the environment by slowing stormwater runoff, preventing erosion, and enriching the soil.

Native plants can be used for every type of environment, from dry and sunny to soggy and shady. With their variety of colors, heights, foliage, and bloom times, they can add beauty and interest to any landscape.

Below is a sampling of the possible recommended species of plants you can use in a rain garden. Please note that other site factors, such as sunlight, should be considered when selecting plants.

What's the Best Location for a Rain Garden?

Rain gardens can be planted in either sun or shade, or somewhere in between. Locate them at least 10 feet away from any building to protect the foundation and never on top of a septic system. You will want to make sure the site has good drainage, too. Don't be tempted to put the rain garden in a part of the yard where water already ponds because the goal of a rain garden is to encourage infiltration, and soggy areas indicate where infiltration is slow.

How Big Should My Rain Garden Be?

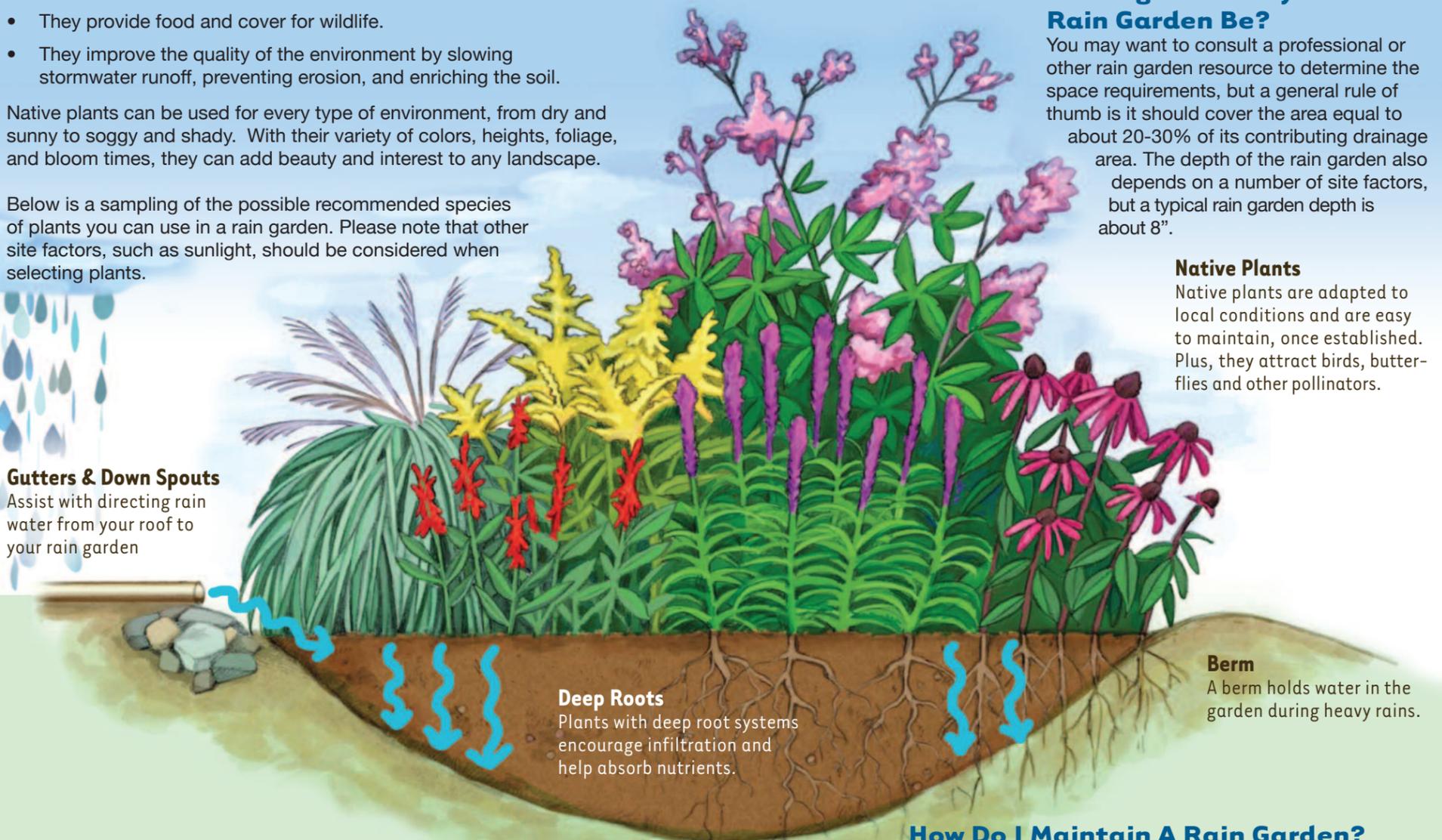
You may want to consult a professional or other rain garden resource to determine the space requirements, but a general rule of thumb is it should cover the area equal to about 20-30% of its contributing drainage area. The depth of the rain garden also depends on a number of site factors, but a typical rain garden depth is about 8".

Native Plants

Native plants are adapted to local conditions and are easy to maintain, once established. Plus, they attract birds, butterflies and other pollinators.

Gutters & Down Spouts

Assist with directing rain water from your roof to your rain garden



Deep Roots
Plants with deep root systems encourage infiltration and help absorb nutrients.

Berm
A berm holds water in the garden during heavy rains.

Northern Michigan Native Plants

For information on where to buy Michigan native plants, refer to the **Michigan Native Plant Producers Association (www.mnppa.org)** whose 12 independently owned nurseries are dedicated to providing nursery-grown native plants and seed from Michigan genotypes (genetic sources).

Best for Wetter Conditions



Cinnamon Fern
Osmunda cinnamomea



Blue Flag Iris
Iris versicolor



Green-Headed Coneflower
Rudbeckia laciniata



Joe-pye Weed
Eupatorium maculatum



Golden Ragwort
Senecio aureus



Meadowsweet
Spiraea alba



Monkey Flower
Mimulus ringens



Swamp Milkweed
Asclepias incarnata



Giant St. John's Wort
Hypericum ascyron



False Sunflower
Heliopsis helianthoides

Best for Drier Conditions



Little Blue Stem
Schizachyrium scoparium



Butterfly Weed
Asclepias tuberosa



Sand Coreopsis
Coreopsis lanceolata



Switch Grass
Panicum virgatum



Beardtongue
Penstemon digitalis



Hoary Vervain
Verberna stricta



Western Sunflower
Helianthus occidentalis



Wild Lupine
Lupinus perennis



Horse Mint
Monarda punctata



Thimbleweed
Anemone cylindrica

How Do I Maintain A Rain Garden?

Rain gardens require similar maintenance to other landscaped gardens. Most of the effort will go into the first year, when it is important to nurture the garden with regular watering, weeding, and mulching. You'll find after the first year that maintenance is limited to mostly weeding and periodic mulching. As for fertilizing needs: there are none! Refrain from applying fertilizers - your rain garden will be getting plenty of nutrients from the runoff!

Did You Know?

- One inch of rain on a 1,000 square foot roof will yield approximately 600 gallons of stormwater! In Emmet County, with an average annual rainfall of 32", over 19,000 gallons pour off the roof annually!
- Compared to a conventional lawn, a rain garden allows about 30% more water to soak into the ground.
- Studies have shown rain gardens can remove up to 90% of stormwater pollutants.
- A rain garden, if properly installed, will NOT be a breeding ground for mosquitos. Stormwater should soak into the rain garden soils within a day or two; mosquitos need standing water for at least seven days in order to reproduce.