Rain Gardens

What is a rain garden?

A "rain garden" is a man-made depression in the ground that is used as a landscape tool to improve water quality. The rain garden forms a "bioretention area" by collecting water runoff and storing it, permitting it be filtered and slowly absorbed by the soil. The bioretention concept is based on the hydrologic function of forest habitat, in which the forest produces a spongy litter layer that soaks up water and allows it to slowly penetrate the soil layer. The site for the rain garden should be placed strategically to intercept water runoff.

A nutrient removal or "filtering" process takes place as the water comes in contact with the soil and the roots of the trees, shrubs and vegetation. This process accounts for the improved water quality. The first flush of rain water is ponded in the depression of the rain garden, and contains the highest concentration of materials washed off impervious surfaces such as roofs, roads, and parking lots.

Who Should Create A Rain Garden?

Rain gardens are suitable for any land use situation, residential, commercial and industrial. A rain garden should be placed so that impervious surfaces will drain into the depression area. Its purpose is to minimize the volume and improve the quality of water entering conventional storm drains and nearby streams.

Grass buffer strip

A grass buffer strip slows water as it enters the rain garden and its surface filters particulates from the runoff.

Ponding area

The depression area stores the water, provides for evaporation, and allows the particulate material, not filtered by the grass buffer, to settle to the bottom. The ponding area should have a depth of 6 inches, sufficient to provide adequate water storage, but should not pond in excess of four days (to avoid mosquito and other insect breeding).

Components of a rain garden

Mulch/Organic Layer

This material provides for the decomposition of organic material, and also plays an important role in the removal of metals. Shredded hardwood mulch is the preferred choice, since it allows for maximum surface area for binding and resists flotation/washout.

Planting Soil

Organic matter in the form of leaf mulch (20%) blended into a sandy soil (50%) with and about 30% top soil. The planting soil mixture provides a source of water and nutrients for the plants to sustain growth. Clay particles adsorb heavy metals, hydrocarbons and other pollutants.

Plant Selection

A planting plan design should include species that tolerate extremes. There will be periods of water inundation and very dry periods. Most riparian plant species will do well in rain gardens. The choice of species should include plants that mimic forest habitat and have an aesthetic landscape value such as flowers, berries, interesting leaves or bark. Groundcovers, perennials shrubs and trees should be incorporated into the planting design.

Site Considerations

Each site should be considered unique. Microclimates (light, temperature and wind), and the size of the drainage area will influence the size of the rain garden and plant selection process. Software is being developed for sizing the gardens.

The shape of the garden is not as important as the area available for bioretention. The size of the bioretention area should be 5% to 7% of the drainage areas multiplied by the crop "c" coefficient (the ground cover type). For example, a 3/10 acre drainage area would use a rain garden of about 600 square feet, or 15 x 40 feet.