



William T. Kemper Center for Home Gardening

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Rain Gardens

A rain garden is a specifically designed, depressed landscape used to manage and cleanse storm water. The depressed garden collects, filters, and absorbs rainwater into the soil. Rain gardens require little maintenance and little or no fertilizers or pesticides and provide aesthetic views. They are also good bird and insect habitats.

Rain gardens provide an environmentally sound way of handling runoff. They fill with storm water from roofs and lawns and allow it to penetrate into the ground, recharging groundwater, rather than run off into storm drains. Plant roots also aid in the breakdown of toxins and increase the soil capacity to hold water by creating a system of channels for rain to soak.

Planning for a rain garden

The rain garden depth is determined by the slope of the lawn. To determine the slope of your lawn follow the directions in [Rain Gardens A How-to Manual for Homeowners](#). For 4% slope or less, construct a 3 to 5 inch deep rain garden. For a 5 and 7% slope, construct a 6 to 7 inch deep rain garden. For an 8 to 12% slope, construct an 8 inch deep rain garden.

Determine the roof and lawn area that will drain into the rain garden and add them together to determine the full volume of water your rain garden needs to accommodate. Also, determine the soil type of your lawn. Is it sand, silt or clay? Rain gardens composed of clay soil must be larger than those of sand and silt types. No water should remain standing in the garden after about 2 days.

Again, consult the tables in [Rain Gardens A How-to Manual for Homeowners](#) to calculate surface area and soil type adjustment. Surface areas from 180 to 400 square feet are optimum for a residential rain garden. Determine the width desired for your rain garden then divide the surface area by the width to obtain the length.

Precautions

Do not excavate or plant near rights of way, underground service lines or utilities, including drainage ditches in front of your home, near a leach field or drinking water well. Never plant a rain garden over the septic system or areas with private wiring.

Before digging consult the Community Services section in the front of your phone book and look under "Utilities". Call to have your property checked and marked for underground gas lines.

Locate the gardens at least 20 feet from any building or other structure.

Creating the rain garden

Outline the rain garden boundaries by laying a garden hose on the ground or spraying the outline with nontoxic soccer field paint (figure 1). Strip the sod (figure 2) and remove (figure 3).



When digging the garden to its calculated depth, push the soil into a ridge (berm) (figure 4 - ridge location marked in white) around the three sides of the garden that will hold the storm water. The berm height should be level with the uphill part of the rain garden so the perimeter will be a uniform height. Dig the garden a few inches deeper than calculated if you wish to add compost. Berms are unnecessary for gardens on level ground. Use a 2 x 4 board with a carpenter's level to assist in making the bottom of the rain garden level. Work in any soil amendments if needed and rake before planting.

Planting the rain garden

Position the plants in the garden (figure 5) and plant. The completed rain garden (figure 6).



Figure 5

Figure 6

Native plants are always good choices as they are more pest resistant, typically need less water and fertilizer, and are well adapted to regional weather patterns, soil types and ecosystems surviving droughts, deluges and winters.

To obtain native plant species be sure to purchase from certified and inspected native plant specialty nurseries. Do not remove plants from the wild.

Take into account the height and flower color when selecting species. Mix together plants that bloom at different times during the growing season. Group 3 to 7 different plants 12 inches apart or lay a grid pattern with soccer field paint or with string. Place the potted plants in the grid squares. Plant so the crown is level and lay down 2 inches of mulch. Keep the plants well watered until they are established.

Plants in the Kemper Center Rain Garden

Center Plants

Blue star (*Amsonia* 'Blue Ice')
Blue star (*Amsonia hubrichtii*)
Dwarf blue star (*Amsonia tabernaemontana* 'Short Stack')
Yellow wild indigo (*Baptisia sphaerocarpa*)
Sedge (*Carex* 'Ice Dance')
Tickseed (*Coreopsis* 'Jethro Tull')
Purple coneflower (*Echinacea purpurea* 'Vintage Wine')
Cranesbill (*Geranium* 'Gerwat' ROZANNE)
Gaura (*Gaura lindheimeri* 'Siskiyou Pink')
Fountain grass (*Pennisetum alopecuroides* 'Piglet')
Hardy hibiscus (*Hibiscus* 'Fantasia')
Common rush (*Juncus effusus*)
Kalimeris (*Kalimeris incisa* 'Blue Star')
Prairie blazing star (*Liatris pycnostachya*)
Blue cardinal flower (*Lobelia siphilitica*)
Wild bergamot (*Monarda fistulosa*)
Indian physic (*Porteranthus trifoliata*)

Obedient plant (*Physostegia virginiana* 'Miss Manners')
Black-eyed Susan (*Rudbeckia fulgida* 'City Garden')
Missouri coneflower (*Rudbeckia missouriensis*)
Sage (*Salvia nemorosa* 'Sensation Rose')
Downy skullcap (*Scutellaria incana*)
Skyblue aster (*Symphyotrichum oolentangiense*)

Edge Plants

Yarrow (*Achillea millefolium* 'Red Beauty')
Butterfly weed (*Asclepias tuberosa*)
Smooth aster (*Symphyotrichum laeve*)
Tussock sedge (*Carex stricta*)
Red valerian (*Centranthus ruber* var. *coccineus*)
Cheddar pink (*Dianthus* 'Feuerhexe' FIREWITCH)
Rattlesnake-master (*Eryngium yuccifolium*)
Gaura (*Gaura lindheimeri* 'Siskiyou Pink')
Coral bells (*Heuchera* 'Purple Petticoats')
Coral bells (*Heuchera* 'Rave On')
Eastern beebalm (*Monarda bradburiana*)
Nepeta (*Nepeta subsessilis* 'Candy Cat')
Missouri evening primrose (*Oenothera macrocarpa*)
Betony (*Stachys officinalis* 'Hummelo')

Some Other Recommended Plants for Rain Gardens

Trees

River birch (*Betula nigra*)
Hackberry (*Celtis occidentalis*)
American linden (*Tilia americana*)
Black willow (*Salix nigra*)
American sycamore (*Platanus occidentalis*)
Black gum (*Nyssa sylvatica*)
Black maple (*Acer saccharum* subsp. *nigrum*)
American hornbeam (*Carpinus caroliniana*)
Pawpaw (*Asimina triloba*)
Eastern redbud (*Cercis canadensis*)
Shingle oak (*Quercus imbricaria*)
Swamp white oak (*Quercus bicolor*)
Bald cypress (*Taxodium distichum* var. *distichum*)
Pond cypress (*Taxodium distichum* var. *imbicatum*)

Shrubs

Bladdernut (*Staphylea trifolia*)
Buttonbush (*Cephalanthus occidentalis*)
Ninebark (*Physocarpus opulifolius*)
Spicebush (*Lindera benzoin*)
American elder blackberry (*Sambucus canadensis*)
Fragrant sumac (*Rhus aromatica*)
Red buckeye (*Aesculus pavia*)

Ozark witchhazel (*Hamamelis vernalis*)
Eastern wahoo (*Euonymus atropurpureus*)
Sweet pepperbush (*Clethra alnifolia*)
Winterberry (*Ilex verticillata*)
Corkwood (*Leitneria floridana*)
Oakleaf hydrangea (*Hydrangea quercifolia*)

Herbaceous Perennials

Butterfly milkweed (*Asclepias tuberosa*)
False aster (*Boltonia asteroides*)
White turtlehead (*Chelone glabra*)
Turtlehead (*Chelone obliqua*)
Queen of the Prairie (*Filipendula rubra*)
Rose Mallow (*Hibiscus laevis*)
Rose Mallow (*Hibiscus lasiocarpus*)
Copper iris (*Iris fulva*)
Southern Blue Flag (*Iris virginica* var. *shrevei*)
Cardinal flower (*Lobelia cardinalis*)
Blue cardinal flower (*Lobelia siphilitica*)
Allegheny monkey flower (*Mimulus ringens*)
Rattlesnake master (*Eryngium yuccifolium*)
Beard tongue (*Penstemon digitalis*)
Slender Mountain Mint (*Pycnanthemum tenuifolium*)
Cutleaf coneflower (*Rudbeckia laciniata*)
Western ironweed (*Vernonia baldwinii*)
Culver's root (*Veronicastrum virginicum*)
Golden Alexander (*Zizia aurea*)
Jack-in-the-pulpit (*Arisaema triphyllum*)
Obedient plant (*Physostegia virginiana*)
New England aster (*Aster novae-angliae*)
Northern water plantain (*Alisma triviale*)
Purple coneflower (*Echinacea purpurea*)
American Agave (*Manfreda virginica*)
Columbine (*Aquilegia canadensis*)
Siberian iris (*Iris siberica*)
Tussock Sedge (*Carex stricta*)
Wild bergamot (*Monarda fistulosa*)

For more information, read the reference publications listed below.

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