

FORREST  
KEELING

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# RAIN GARDENS AND BIOSWALES

Rain gardens have increased in popularity as **working landscapes**. Bioswales are similar, but a larger scale. Both **“green solutions”** have their roots in natural wetlands and the grassy swales of farms.

Both offer a natural alternative or enhancement to sewer systems of communities. They **combine nature and science to reduce runoff volume and flow rate naturally**.

## WITH NATURE

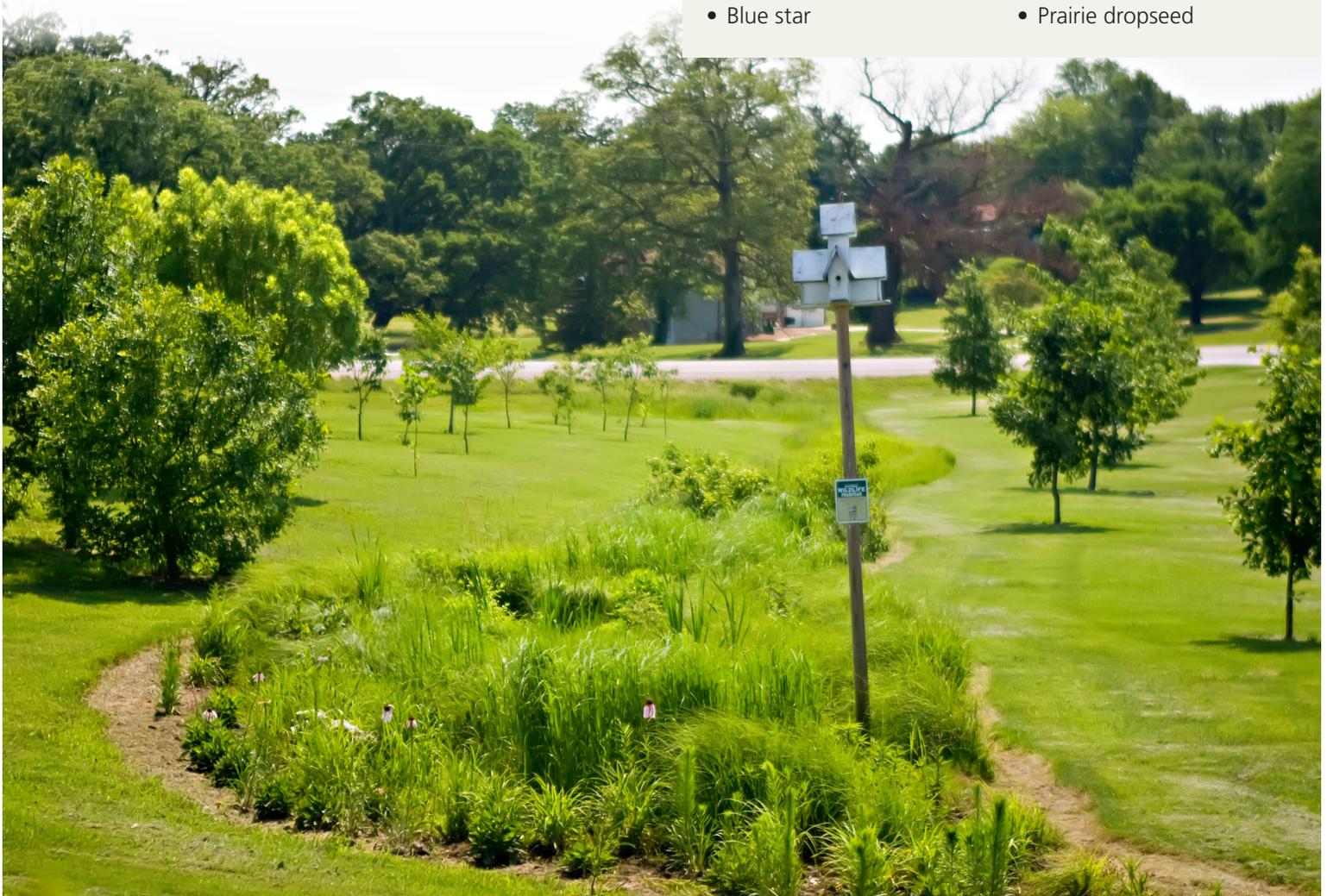
Rain gardens can be as **beautiful** as they are functional. They use deep roots of native plants to **help absorb, filter and direct stormwater**. The native plants used add **seasonal interest** and **sense of place**. As a bonus, they create **habitats** for birds, butterflies and other pollinators.

## WITH SCIENCE

These special plantings use physics to **calculate their size and shape**. Rain gardens are smaller with rounded shapes, sloped sides and flat bottom. Bigger bioswales are usually linear with a parabolic, trapezoidal or v-shape. Gravel or similar permeable materials added below the base helps **increase storage** capacity. They are often used along roadways and sidewalks or to boost drainage swales. Neither are appropriate in areas with steep or unstable slopes due to risk of erosion.

## TOP 10 RAIN GARDEN/BIOSWALE PLANTS:

- Swamp milkweed
- Blue cardinal flower
- Purple coneflower
- Rose mallow
- Blue star
- New England aster
- Tussock sedge
- Common rush
- Little bluestem
- Prairie dropseed



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During the first season, hardwood or gravel **mulch** help prevent weeds. A quick **weeding** once a month and **deadheading** will help prolong blooming. Supplemental **watering** helps keep plants blooming during the first season if it's dry. Fertilization is not necessary. A late fall cleanup encourages vigor and growth in the following year. **Cut back** perennial plants to six inches tall and remove dead vegetation. After several seasons, **divide** large clumps, if desired, and create more gardens.

*What if my soil doesn't drain well? Will I attract mosquitoes?*

If your soil is clayey, **increase the size** of your rain garden. Another option is to **amend your site's soil** (50-60% sand, 20-30% topsoil, 20-30% compost). Properly constructed and planted, the site should only hold water for a few short hours. Not enough to attract mosquitoes and allow them to propagate.

## CARE AND COSTS

Costs associated with rain gardens and bioswales **include both installation costs and annual maintenance costs**. Native grasses and plants need **less water, no fertilizer and infrequent mowing or trimming**. Vegetation should be kept taller than your design's water flow depth. In time, a large bioswale may need periodic **regrading** to remove sediment and restore the proper flow. Annual inspections help identify bare soil, erosion, sediment and debris. A maintenance guide about its design, function and proper care is key. **Signage** serves as a reminder to landscape crews. And, **education** for your public builds acceptance and duplication.

*discover the*  
**RPM DIFFERENCE**

## HOW TO BUILD A RAIN GARDEN OR BIOSWALE

### STEP 1: CHOOSE YOUR SITE

Rain gardens and bioswales should be on a **low side, 10 feet or more away** from any structures.

### STEP 2: DETERMINE THE SIZE

Determining the size is an important step in creating your rain garden or bioswale. Calculate the size of the area where rain will fall and runoff. Divide the square footage by three to capture about 1/3 of the stormwater.

For example, the runoff of a 2100 square-foot area requires a 700 square foot project. A low earth berm built from excavated soil will help hold and filter stormwater into the soil.

### STEP 3: DIG!

Your rain garden or bioswale needs to be at least **six to 12 inches deep**. The gradual side **slopes help improve collection** of rain. If there's a downspout nearby, make sure it's facing the bioswale.

### STEP 4: CHOOSE, ARRANGE and PLANT!

The fun part. Filling your site with native plants that will do the work. RPM plants give your garden a headstart. Plants also create a predictable appearance and help crowd out weeds. Your native perennials will return each year and increase.

To calculate the number of perennials planted on 18" centers, **divide your area by 2.25**. For a large rain garden or bioswale, use **native shrubs or custom-grown seedlings to save money**. Perennial wildflowers added along the edges and in between will add color punch.

The next step is to **arrange your plants**. It's simple to create your own design. Just group your plants with height, color and seasonal bloom in mind.

- **Think bold.** Moisture-loving plants grow more robustly than their dry-site counterparts. Allow for plants to fill out.
- **Remember your greens.** Native grasses, rushes and sedges provide textural contrast and year-round interest.
- **Plan for change.** Get extra zip from any garden design by planning for a change of color scheme. Spring's pastel goat's beard, phlox and blue flag can be followed by bold summer and fall hues. Think bold with coneflower, cardinal flower, blazing star and milkweeds followed by tawny grasses, asters and showy goldenrod.