STORMWATER COALITION

Gardens and Gutters

A Central New Yorker's Guide to Managing Stormwater Runoff

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Landscape Guidelines for Water Resource Protection

Inside This Issue

In a natural landscape such as a field or forest, the vegetation, soils, and living organisms normally filter, absorb, and use rainwater and snowmelt. Excess precipitation flows into surface streams, rivers or lakes, or filters through the soil to recharge groundwater aquifers.

This well-balanced hydrologic system is altered when urban development takes place. Impervious surfaces such as paved streets, parking lots, and rooftops replace the natural landscape and prevent water from percolating into the ground. During rain events or periods of spring snowmelt, stormwater runoff picks up and transports debris, sediment, chemicals, and other pollutants as it moves across the land surface. This runoff impacts the chemical, physical and biological properties of nearby streams, rivers, and lakes.

Individuals can make a significant impact when it comes to controlling water pollution, protecting public health, and improving the environment. This issue of *Gardens and Gutters* includes helpful garden and landscape guidelines for controlling stormwater runoff and protecting local water resources this fall and throughout the year.

The best way to control stormwater runoff is at the source. By applying best management practices (BMPs) around the home and garden, Central New Yorkers can have a significant impact on both the quality and quantity of stormwater runoff from their properties before it has a chance to adversely

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Protecting Water Resources, *continued*

impact streams, rivers and lakes. BMPs for homeowners can include simple actions such as leaving grass clippings and mulched leaves on the lawn after mowing (this adds organic matter and nutrients to the soil and reduces the need for fertilizer), or placing leaves and other yard debris into biodegradable leaf bags to prevent them from entering nearby storm drains.

Additional homeowner BMPs include diverting stormwater from roof gutters into a garden area, using porous material when constructing new sidewalks, driveways or walkways, or planting trees to reduce the amount of stormwater runoff from your property. The use of rain barrels can also reduce runoff by capturing and recycling stormwater. Simply connect the rain barrel to your gutter system and reuse the water to irrigate your garden, water your plants, or wash your car. *Refer to page 4 for tips on winterizing your rain barrel.*

Onondaga County and some towns and villages provide free rain barrels to eligible community members. In order to receive one, homeowners are asked to attend a brief instructional rain barrel workshop. A companion guide is also available to show you how to install and maintain the rain barrel. Additional information about this program is available here.

Safe Disposal of Household Hazardous Waste

Autumn is a great time of year to organize and dispose of surplus household cleaning, home improvement, and landscaping products such as paint, fertilizer, pesticides, gasoline and oil used to power lawn mowers and other garden maintenance equipment.

Be sure to follow proper procedures when disposing of any chemical waste. Improper disposal methods can introduce harmful chemicals to the storm drainage system and eventually into our surface and ground water resources. Even small amounts of chemicals from recreational, horticultural, and household activities can contribute to surface and groundwater contamination.

Never dispose of liquid or solid waste down household sinks, toilets, or storm drains. Instead, homeowners should contact their county waste authority to obtain information on proper disposal practices and scheduled hazardous waste collection events.

Never pour chemicals into a storm drain. When doing general maintenance on your car or garden machinery, note the location and avoid working in proximity to nearby road ditches and storm drains. Take care to avoid spilling gasoline or oil on the ground. If a spill does occur, apply an absorbent, such as cat litter and properly dispose of the used absorbent. Properly store all petroleum products and keep the containers sealed. Rinse paint brushes in an indoor sink - never outside where the water can reach a storm drain.

Notify local authorities if you notice a spill from a car accident or some other condition. In Onondaga County, if you suspect someone has illegally dumped contaminants such as chemicals, construction materials, paint, or petroleum products into a storm sewer, ditch or roadway, contact the Onondaga County Stormwater Pollution Hotline at 315-435-3157.

The Value of Vegetative Buffers

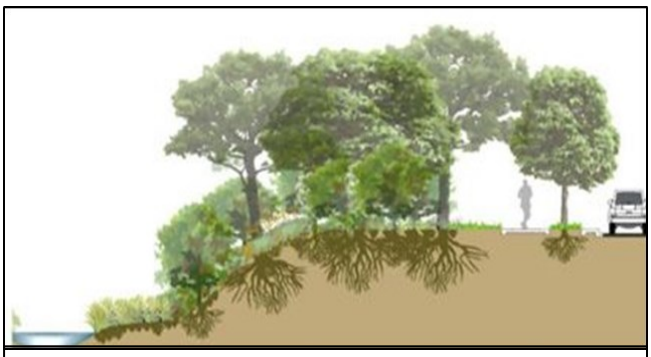
Stormwater runoff results when precipitation and snowmelt fails to infiltrate the soil surface. Instead, it flows over compacted and saturated soils, impervious surfaces such as driveways, roads, roofs, and even lawns where it can pick up and transport pollutants to nearby waterbodies. Runoff from residential neighborhoods can be a significant contributor to surface water pollution when it flows into nearby streams, rivers and lakes. Examples of pollution from lawns and gardens in residential areas include sediment, fertilizer, pesticides, litter, gasoline, oil, and pet waste.

When land is cleared for development it's necessary to remove the existing vegetation. Without this vegetation, a high percentage of the stormwater that falls on the site runs off directly into local surface waters, often carrying elevated levels of sediment with it. The increased sediment load can scour streambanks and fill lakes and rivers. Sediment damages fish spawning areas and reduces the penetration of sunlight needed for aquatic plant growth. Without the surface vegetation in place to absorb stormwater and slow the rate of runoff, flooding can occur. Stormwater runoff that contains fertilizer contributes to algae growth in lakes and streams. As the algae dies and decomposes, it robs the water of dissolved oxygen, resulting in fish kills.

A vegetative buffer is a collection of grasses, bushes or trees that are planted along property lines, lake shorelines, or streambanks. Leafy vegetation and plant roots slow the flow rate of stormwater runoff so that pollutants such as nutrients and sediment can settle out before entering a waterbody. Plants also absorb many of the pollutants dissolved in stormwater. In this way, vegetative buffers can be very effective at reducing erosion, flooding, and algae blooms caused by nutrient and sediment loading. Trees planted along streams and lakes provide shade to cool the water which is beneficial for fish. On land, vegetative buffers provide excellent habitat for birds and wildlife.

Autumn is a great time of year to design and plant a vegetative buffer. Additional information about shoreline and property line buffers is available at the Green Thumbs for Blue Water website.

Vegetation planted along a shoreline will reduce the amount of pollution (including sediment and nutrients) flowing into local waterbodies.



Roots from shoreline vegetation filter pollutants (including sediment and nutrients) and slow the flow of stormwater runoff to the waterbody. Shade provided by the vegetation cools the water temperature and provides benefits for birds and wildlife.

Information for Pet Owners

When pet waste is left on the ground, rain or melting snow transports it to local lakes and streams where it can negatively affect water quality. The waste contains fecal coliform bacteria and parasites which can spread diseases and harm human health. Dog waste also contains nitrogen and phosphorus which can harm plants and fish in local lakes and streams. In fact, dog waste has higher phosphorous concentrations than cow and swine manure. For these reasons, dog waste is cited as a major contributor of pollution in urban watersheds.

Please help to keep our local lakes and streams clean by picking up after your dog. Always remember to carry a plastic bag with you when you take your dog for a walk and use it to pick up the pet waste. Be sure to continue this practice throughout the winter months, even during snowy conditions. This will avoid the cumulative impacts to local water resources during periods of spring snowmelt. Additional information is available here.

Rain Barrel Maintenance and Winter Storage

Autumn is a good time to prepare your rain barrel for winter storage. If you have the space, unhook the rain barrel from the downspout and store it in your garage or shed. If space isn't available, you can leave the rain barrel outdoors during the winter as long as you prepare it for the elements.

First, completely drain the rain barrel to avoid freezing or cracking. Then remove the spigots, screen, and hose and store them in a place where you can find them easily in the spring. You may also want to rinse out the rain barrel in order to remove any sediment. If you are storing the rain barrel outside, turn it upside down to keep out the rain, ice and snow. If possible, weight it down or secure it to keep it from blowing away. After preparing the rain barrel for winter storage, consider redirecting the downspout so that melting snow and ice flows away from the foundation of your home. Attach another piece of down-spout if necessary.

Fall Maintenance of Swimming Pools

An average swimming pool holds 19,000 gallons of water that may contain chlorine, biocides, algaecides, and other chemicals. When swimming pool water is drained for cleaning or maintenance, these chemicals can be toxic to plants and animals in nearby lakes, streams, and wetlands. Before draining the pool, use a test kit to check the water quality. Allow the pool water to sit for several days after the last addition of chlorine or bromine or wait until the levels are below 0.1 mg/l. Do not discharge the pool water into the environment if algaecides such as copper or silver have recently been used or if the pool water appears murky. Pool discharges should be done slowly to prevent soil erosion, flooding, or damage to adjacent properties. Never discharge pool water onto paved surfaces, directly into the storm sewer system, or in areas where it can flow directly to rivers, lakes, streams, or wetlands. Additional information about swimming pool maintenance is available at the NYSDEC website.

Preparing Your Yard and Garden For Winter

Don't let cooler temperatures keep you from reaping the most benefit from your yard and garden. On cold nights when the forecast calls for frost, cover your vegetables with old sheets or light blankets to extend the life of your plants. The following additional tips will help to protect sensitive perennials, reduce the need for pesticides, and cut down on the amount of stormwater runoff.

At the end of the growing season, remove your tomato, squash, pea, and bean plants and compost them if they are disease-free. If some of the plants are diseased, discard them separately in another area of the yard. Leave the root crops such as beets, parsnips, carrots, and garlic in the ground for harvesting through the early winter. Cover them with a heavy layer of mulch and mark the rows with tall stakes so that you can find them if it snows.

Before the ground freezes, remove all the weeds and vegetative debris from the garden to eliminate overwintering sites for insects and disease. This simple action will reduce the need for pesticides the following spring. Once the garden soil is exposed, add a layer of compost (grass clippings, leaves or manure if available) and lime (if needed), and gently till the material into the soil. Consider planting a cover crop to improve soil quality, reduce erosion and stormwater runoff, and prevent weeds from overwintering. If some areas of your garden have a thick bed of weeds, cover the area with black plastic and leave it in place during the winter months in order to kill sprouting seeds.

If you're looking for a good excuse to minimize yard work this fall, just remember -- there may not be a need to fuss with leaf raking and removal. Many landscapers, horticulturalists, and homeowners now consider leaves to be a valuable resource that shouldn't go to waste! Mulching or shredding the leaves is a simple solution that can save you time and money while providing benefits to the soil and wildlife. Mulch the leaves with your lawn mower and then leave them in place to decompose. Shredding the leaves will reduce their volume and speed up the decomposition time. Up to ¾" of shredded leaves can be left in place without harming your lawn. Leaf mulch helps to retain soil moisture, thereby reducing the need for watering during dry spells. Shredded leaves that are left in place will also improve the vigor and appearance of lawns by returning organic matter and nutrients to the soil.

Be sure to keep lawn clippings and leaves away from roadways and storm drains. Without proper protection from the wind, leaves and grass can blow away and will pollute local lakes and streams with nutrients such as phosphorus and nitrogen.

Why Do Leaves Change Color?

Not all leaves turn vivid colors in the fall. Only a few of our many species of deciduous trees—notably maple, aspen, oak, and gum—produce stellar performances for our annual autumn spectacular in North America.

Several factors such as temperature, precipitation, and soil moisture contribute to fall color. The main agent is light, or actually the lack of it. The amount of daylight relates to the timing of the autumnal equinox.

As the autumn days grow shorter, the reduced light triggers chemical changes in deciduous plants, causing a corky wall to form between the twig and the leaf stalk.

This corky wall, or "abscission layer," eventually causes the leaf to drop off in the breeze. As the corky cells multiply, they seal off the vessels that supply the leaf with nutrients and water and also block the exit vessels, trapping simple sugars in the leaves. The combination of reduced light, lack of nutrients, and no water add up to the death of the pigment chlorophyll, the "green" in leaves.

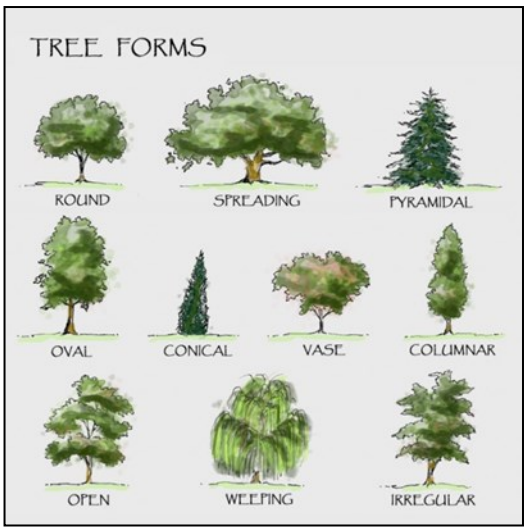
Once the green is gone, two other pigments show their bright faces. These pigments, carotene (yellow) and anthocyanin (red), exist in the leaf all summer but are masked by the chlorophyll. The browns in autumn leaves are the result of tannin, a chemical that exists in many leaves, especially oaks. Sugar trapped in autumn leaves by the abscission layer is largely responsible for the vivid color. Some additional anthocyanins are also manufactured by sunlight acting on the trapped sugar. This is why the foliage is so sparkling after several bright fall days and more pastel during rainy spells.

What conditions provide the best fall foliage? In general, a wet growing season followed by a dry autumn filled with sunny days and cool, frostless nights produces the most vibrant palette of fall colors.

Freezing temperatures and a hard frost can stop the process within the leaf and lead to poor fall color. Also, drought conditions during late summer and early fall can trigger an early "shutdown" of trees as they prepare for winter, causing leaves to fall early from trees without reaching their full color potential.

Autumn Care For Your Trees and Perennials

The trees and bushes in your yard will thrive in the spring with simple maintenance tasks that can be done this fall. Remove any broken and diseased branches but delay heavy pruning of trees and shrubs until early next spring. According to local horticulturalist Chuck Hafner, roses should be cut back in the fall to 24" and covered with a rose cone once they have lost their leaves. Further pruning can be done in the spring when they are not at risk for winter damage. Climbing roses can be covered with burlap.



Divide and replant overcrowded perennial plants and remember to apply a layer of organic matter to reduce erosion and to replenish the soil with nutrients. A layer of mulch will protect perennials from wind and cold weather during the winter months, reduce erosion, and help to retain moisture. Cover tender perennials with mulch (preferably leaves or straw) to provide insulation from harsh winds and cold temperatures. Cover your smaller perennials with a wire teepee, rose cone, or shrub protector to protect them from the weight of the snow.

Fall is a good time of year to plant spring-flowering bulbs, new trees, and shrubs because they will have time to become established before the spring growing season. Fall is also the best time to start lawn grasses from seed. Till the soil before sowing, lightly water the area each week after planting, and cover the area with mulch to prevent soil erosion.

When snow covers the ground, deer, rabbits and other hungry wildlife will want to feed on the bark and branches of trees and perennial plants. To prevent damage from browsing wildlife, cover the trunk of your perennial bushes or trees with burlap. As an additional deterrent, place wire or plastic protectors around the plant or on the tree trunk. Spray-on taste and smell repellents can also be helpful at deterring animals but, the repellents should be reapplied on a regular basis to maintain their effectiveness.

Stake your young trees to protect them from harsh winter winds. Many Central New Yorkers also protect taller evergreens such as arborvitae by wrapping the branches in burlap to avoid breakage from the weight of the snow. Wrapping tree trunks in burlap can also help to prevent bark damage during periods of bitterly cold temperatures.

Discard any fallen fruit from the base of your trees to reduce the number of deer and other unwanted pests in your yard.

Adapted from The Old Farmer's Almanac

CNY STORMWATER COALITION

The CNY Stormwater Coalition was formalized in 2011 in order to establish a regional approach for stormwater management and water resource protection. The Coalition is made up of 30 local governments and the NYS Fairgrounds. Each member operates a Municipal Separate Storm Sewer System (MS4). Through the Coalition, members are working together to meet regulatory requirements while improving water quality.

CNY STORMWATER COALITION MEMBERS

Baldwinsville Village
Camillus Town
Camillus Village
Central Square Village
Cicero Town
Clay Town
DeWitt Town
East Syracuse Village
Fayetteville Village
Geddes Town
Hastings Town
LaFayette Town
Liverpool Village
Lysander Town
Manlius Town
Manlius Village
Marcellus Town
Marcellus Village
Minoa Village
North Syracuse Village
Onondaga County
Onondaga Town
Phoenix Village
Pompey Town
Salina Town
Solvay Village
Sullivan Town
Syracuse City
Van Buren Town
NYS Fairgrounds

The CNY Stormwater Coalition meets quarterly throughout the year. All meetings are open to the public. Check the Coalition's website for the times, dates, and additional meeting details.

The CNY Stormwater Coalition is staffed and coordinated by the Central New York Regional Planning and Development Board. For additional information, visit the CNY Stormwater website www.cnyrpdb.org/stormwater

CNY STORMWATER COALITION INTERNS AT WORK

The Onondaga County Department of Water Environment Protection's annual Clean Water Fair was held on September 16. Over 350 people enjoyed tours of the treatment plant, rain barrel classes, and wildlife viewing. Two CNY Stormwater Coalition student interns distributed educational literature and showed visitors how stormwater runoff impacts water resources. The interns, Haley O'Brien and Julian Falco, are both students at the SUNY College of Environmental Science and Forestry.

CALENDAR EVENTS

Tree Pruning, Architecture & Longevity: A Practical Approach
Tuesday, October 24, 2017, 7:45 AM - 4:00 PM
The workshop will describe and demonstrate current structural pruning strategies to improve architecture on young, medium-aged, and older trees. Additional information is available here.

Brighton Neighborhood Tree Planting
Saturday, October 28, 2017, 9:30 AM - 12:00 PM
Participants will work with CCE staff to plant trees along streets throughout the community. Additional information is available here.