



# *Gardens and Gutters*

## *A Central New Yorker's Guide to Managing Stormwater Runoff*

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### **When It Rains, It Pours**

*Central New York has experienced more than its share of severe storm events this summer and many of us have dealt with flooded basements and roads. Extended periods of wet weather can cause problems with saturated lawns and soil erosion that impacts fisheries and recreation in nearby waterbodies. Between storm events, we've had high temperatures often reaching 90 degrees or above. This edition of Gardens & Gutters provides helpful ways to protect lawns, gardens, and local water resources during periods of extended heavy precipitation.*

Heavy rain events can produce large amounts of stormwater runoff. As it flows over paved surfaces such as rooftops, parking lots, and bare soil, the runoff collects and transports pollutants including animal waste, litter, road salt, pesticides, fertilizers, oil and grease from vehicles, grass clippings, and soil from construction sites and unvegetated areas.

Stormwater travels over roads and through ditches to drainage pipes that empty into nearby streams, rivers, or lakes. Stormwater that contains phosphorus and other pollutants degrades water quality, impacts fisheries, and poses a threat to human health. Excess stormwater can also overwhelm storm drains, resulting in flood damage to homes and municipal infrastructure such as roads, bridges culverts, and sewers. The amount of stormwater runoff during a rainfall event is influenced by several factors such as the extent of

impervious surface, topography, the type and amount of vegetation, and soil type.

The goal of stormwater management is to slow the rate at which the stormwater moves and to minimize the types of pollutants it picks up along its route. The most cost effective way to manage stormwater is at the source, where the contaminants can be identified, reduced or contained. For example, the proper use and handling of fertilizers and pesticides can prevent pollutants from entering local waterways.

Listed below are additional ways to reduce stormwater runoff from your property.

Plant grasses, shrubs, and trees in areas where stormwater runoff collects and along streambanks and lake shorelines. Tree and plant roots absorb and filter polluted runoff while

## When It Rains, It Pours *continued*

reducing the threat of flooding. Vegetation also slows the flow rate of stormwater runoff so that pollutants and sediment can settle out of the water. Tree canopies slow the velocity of rainfall which protects soil and slows erosion.

Choose permeable material when designing a path, patio, or driveway. Use bricks, gravel, natural stone, or permeable pavers instead of asphalt or concrete. Permeable products allow rain to soak into the ground.

Install a rain barrel or cistern to collect and store precipitation runoff from the roof and use the water to irrigate your flower garden. A shallow, gravel-filled trench is also an effective way to divert and slow stormwater runoff, especially at the base of a slope or along a driveway or patio..

Plant a rain garden. A rain garden is a constructed vegetated area that is used to temporarily retain stormwater runoff during storm events. Plants are used to filter pollutants and the garden provides an opportunity for water to slowly filtrate through the soil.

Cover bare soil with mulch or a ground cover to reduce erosion and slow stormwater runoff. Apply mulch around garden plants and trees. Two or three inches of mulch, such as bark chips or leaves, will add nutrients to the soil and help shade out weeds in plant beds.

Only rain belongs in the drain! Don't dump any home, vehicle, or yard waste down the storm drain and clear away leaves and debris. Cover piles of soil, sand or mulch to prevent the material from being washed into storm drains, ditches or culverts.

Use lawn and garden chemicals sparingly in order

to minimize potential runoff to local water resources. Choose organic alternatives when possible and check the weather forecast to avoid applying them before a storm. Manage weeds between cracks and stone areas without the use of chemicals by applying vinegar or pour boiling water over the plants.

Try to keep your lawn at least 3" in height to minimize weed growth, reduce the need for watering, and decrease the likelihood of pests. Leave the clippings on the lawn to block weeds and retain moisture. Sweep your sidewalks and driveway rather than hosing them down.

Keep your septic system well-maintained to prevent leaks. A leaking septic system can leach harmful bacteria into storm sewer systems and local waterways. It is important to keep your system well-maintained to prevent costly repairs as well. Have your system inspected every three to five years by a trained professional.



Source: [www.proflowers.com/blog/](http://www.proflowers.com/blog/)

## What Happens to Your Garden When You Get Too Much Rain

Adapted from an article on [Preen.com](https://www.preen.com)

Drought is such a common gardening threat that it gets a lot of attention. Far less attention is paid, though, to what happens when too *much* rain comes down, as it did this summer in much of the country. Plants that wash away or that rot in soggy soil are the most immediate and obvious problems. But a handful of more subtle, lingering, and long-term problems also can follow excess wetness.

### **Injured roots:**

Some plants, such as lavender, wormwood or artemisia, lamb's ears, and carnations and other dianthus have little tolerance for wet soil and can die after just a day or two of soggy soil. Others are more flexible. Daylilies, many iris, lilyturf and mondo grass may not die, but *some* of the roots may rot, putting the plant at risk of other setbacks, such as intense heat, intense cold, or a future dry spell. Damage or plant death may not show up until months later. The long-term outcome depends on the plant, how long it was sitting in soggy soil, and whether the plant sidesteps setbacks while roots regrow. Most needled evergreens are especially vulnerable but do not turn brown and drop needles for weeks or even months.

**Disease issues:** An overabundance of moisture leads to widespread spotting, streaking, and disease-related browning of leaves, mostly caused by fungal diseases that thrive in warm, humid or wet conditions. The good news is that plants usually "grow through" most leaf diseases, although they may look bad and/or drop leaves prematurely. Don't assume a tree or shrub has died if it drops its leaves early this year or if a perennial plant has turned yellow, brown, or wilted back to the ground. Wait until next spring to see if the plants and branches push out new growth. In the meantime, rake and remove any fallen, diseased leaves in the trash, not on the compost pile. That'll remove most

disease spores that could re-infect the plant next year. If you suspect a more serious problem or have a low tolerance for damage, diagnose the specific problem (Cooperative Extension offices are helpful) and consider a fungicide or other control if it's warranted.

### **Molds and mushroom:**

Lawns are usually resilient to flooding, but they can suffer from rust, mildew, and other fungal diseases along with any other plant. Again, treatments usually aren't necessary unless the problem is severe and your tolerance is low. Wet lawns often produce assorted mushroom-like growths; damp, mulched beds may produce blob-like growths called slime mold that start out yellow-orange and turn black. Slime mold is harmless to pets and people but can be raked off if you don't like the look of it. Most lawn mushrooms are harmless, but a few are poisonous. Remove them if you're not sure, or have pets or young children who might try to sample the growths.

**Yellow leaves:** Sometimes leaves turn yellow or discolor from lack of nutrition, not disease. This often happens after a soggy spell because the microorganisms that break down root-feeding nutrients in the soil have suffocated. This problem usually corrects itself, but if you're seeing plants with poor color that were rich and green before the rain, consider a fertilizer treatment. Products containing nitrogen and iron are usually most effective.

### **Leaning trees:**

One of the worst post-soggy signs is trees that have started to lean. That's a sign that the tree is losing root support, possibly from a combination of soggy soil that rotted roots as well as the weight of water and wind on wet leaves. Call a tree professional ASAP to evaluate large leaners, and stay well away from them in the meantime, since they could fall at

## What Happens to Your Garden When It Gets Too Much Rain *continued*

any time. For small, non-hazardous leaners, it's worth trying to salvage them by pushing them back upright and staking them for up to a year.

### Relocated soil:

If you haven't already done so, check for soil that eroded or was deposited elsewhere following flooding, runoff, or heavy drainage from downspouts. A common threat is the exposure of tree and shrub roots from erosion. Recover exposed roots as soon as possible before they dry out and die. If possible, return the washed-out soil or mulch to its original spot. Otherwise, you'll have to buy and replace it. Washed-away soil and mulch can pose a problem too, especially if it's piled against the trunks of woody plants or deeply over the roots. Soil or mulch against trunks can rot the bark, while the sudden addition of 3 or more inches of soil or mulch can have the same effect on roots as planting too deeply (i.e. death from lack of oxygen).

### Lessons learned:

Heavy rains give good clues on avoiding trouble in the future. Look for depressions where water stood for days and level it out with additional soil. Look where excess, unwanted water flowed, and correct it by adding drain pipes, dry streambeds, or swales to redirect it to a more desirable area. Better yet, consider adding a rain garden to capture and drain runoff instead of letting it wash away. These can be most attractive and environmentally friendly. For downspouts that blew soil or mulch out into the yard, mitigate the force by adding a bed of stones or a splash block at the bottom. For areas with poor drainage, make note to build raised beds before planting there or plant only plants that can withstand periodic "wet feet".

### 6 Tips for When The Rain Just Won't Go Away

Adapted from: *Survival Gardens* by [Kristen Duever](#)

#### 1. Watch For Flooding

Poorly draining areas should be easy to spot. If plants are allowed to stand in water for any length of time it can lead to root rot. Find ways to drain water away from garden areas that are prone to flooding by using rock beds or even using plastic water drains.

#### 2. Examine Plants

Heavy rains and thunderstorms can cause plant damage, and extended periods of wet weather can lead to plant diseases such as powdery mildew. If only a few leaves have been damaged, remove them. Bent plants can be staked up, but if the main stem has snapped, it is likely that the plant is a loss. If wet weather has been persisting, it can lead to plant diseases caused by fungi or bacteria. These should be treated as soon as they are discovered.

#### 3. Replenish Nutrients

Rain and flooding can carry nutrients away from your vegetable plants. Replace those nutrients by adding compost or an organic fertilizer to your soil.

#### 4. Tread Lightly

Walking on waterlogged soil can lead to soil compaction. Avoid walking on wet soil as there is a chance that doing so could damage the roots of your plants.

#### 5. Don't Forget Weeds, Water, And Slugs

Some weeds can become prolific during rainy weather and can choke out your flowers and vegetables. Weeds are easiest to pull when the ground is wet. Turn over – or better yet, completely remove – any containers, wheelbarrows, etc., that can collect rainwater, as these can quickly become breeding grounds for mosquitoes and other pests. Be vigilant against slugs who love moist places to hide while they munch away on your lettuce.

#### 6: Make The Most Of It

Finally, living in a part of the country that has had more than its fair share of rain this year, take advantage of the positives and make the most of it. After all, what other choice do we have? It means that we have zucchini galore! In the worst case scenario – that being that the really cold weather starts to arrive before tomatoes and peppers ripen, at least those are crops can be picked green and allowed to ripen inside. Maybe not ideal, but still better than store-bought!

## Phosphorus and Harmful Water Algae

Phosphorus fertilizer can boost plant vigor when applied at proper rates and time. When used in excess or at the wrong time, it can get washed into lakes and streams where it harms fish and other aquatic life. New York State law limits the use of phosphorus lawn fertilizer to establishing a new lawn or on lawns where a soil test has shown that phosphorus is lacking.

Phosphorus is one of the leading causes of water pollution in New York State.

Even if you live far from a lake or stream, rain can transport phosphorus and other pollutants from your yard and garden to a waterbody as stormwater runoff. Too much phosphorus contributes to algae blooms that make the water appear green and that limit opportunities for recreation. Many waterbodies in the state cannot be used for drinking, fishing or swimming because the water quality has been negatively impacted by effects of high nutrient levels, such as phosphorus. Several lakes in our region have experienced harmful algae blooms in the past few years which are reported by local media outlets when they cause the temporary closure of recreation areas for swimming and boating, or more significantly, when it impacts public drinking water supplies.

While most algae are harmless, certain types of algae can grow quickly and form blooms, which can cover large portions of a lake's surface. Even large blooms are not necessarily harmful. However, some species of algae can produce toxins that can be harmful to people and animals that come into contact with, or drink the affected water. Blooms that produce, or have the potential to produce toxins are referred to as harmful algal blooms (HABs). HABs most often occur in nutrient-rich waters, particularly during hot, calm weather conditions

In addition to health issues, HABs cause unpleasant appearances and odors which can result in economic hardship for shoreline businesses when recreational opportunities are restricted. HABs also cause problems for fish and other aquatic organisms by reducing oxygen levels. The only way to tell the difference between HABs and non-harmful algae blooms is through a laboratory analysis. To be safe, the NYSDEC recommends that people, pets and livestock avoid contact with or drinking water from any lake or stream with an algae bloom.

**Can you tell if these algae blooms contain bacteria that's harmful to humans and animals?**

Sight alone is not enough to determine whether an algae bloom is toxic or nontoxic. If you see algae blooms in your area, notify your local health department for testing.

And remember:  
when in doubt, stay out!

**Clean Water or Green Water?**  EPA  
United States Environmental Protection Agency

<http://www2.epa.gov/nutrientpollution/harmful-algal-blooms>

## 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 29 local governments. 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  | Manlius Village        |
| Camillus Town          | Marcellus Town         |
| Camillus Village       | Marcellus Village      |
| Central Square Village | Minoa Village          |
| Cicero Town            | North Syracuse Village |
| Clay Town              | Onondaga County        |
| DeWitt Town            | Onondaga Town          |
| East Syracuse Village  | Phoenix Village        |
| Fayetteville Village   | Pompey Town            |
| Geddes Town            | Salina Town            |
| Hastings Town          | Solvay Village         |
| LaFayette Town         | Sullivan Town          |
| Liverpool Village      | Syracuse City          |
| Lysander Town          | Van Buren Town         |
| Manlius Town           |                        |

The CNY Stormwater Coalition will resume its quarterly meeting schedule soon. All meetings will be open to the public. Check the Coalition's website for the times, dates, and additional meeting details.

[www.cnyrpd.org/stormwater](http://www.cnyrpd.org/stormwater)

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.cnyrpd.org/stormwater](http://www.cnyrpd.org/stormwater)



Central New York Regional Planning & Development Board



### UP FOR A SWIM?

Grab a beach towel and head for the closest... storm drain?

That's right! Your favorite swimming hole begins right on your street. Look along the curb and find a storm drain. It's a direct connection to your local lake or stream.

Storm drains are designed to prevent flooding. Large volumes of water from heavy rains and snowmelt wash over streets and into the drains. Underground pipes transport the water rapidly into area streams, rivers and lakes.

There's a downside to storm drain efficiency. When water washes into the drains, pollutants are carried along for the ride. Litter, pet waste, dirt, fertilizers, antifreeze and motor oil are just a few examples of contaminants that enter our waterways through storm drains. No filters, no treatment.

**Be a water quality champion.  
Only rain down the drain.**

