



CNY STORMWATER COALITION

Gardens and Gutters

A Central New Yorker's Guide to Managing Stormwater Runoff

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Adjusting Your Garden Strategy in an Uncertain Climate

Gardening preparedness and flexibility make a lot of sense

Variable weather patterns are presenting new challenges for gardeners as they deal with the increasingly frequent and intense storm events, heat stress during the summer months, and increasing populations of plant and insect pests. Horticultural plants and field crops are impacted by unpredictable weather patterns, fluctuating warm and cold temperature extremes, and the northern spread of invasive species.

The trend towards warmer, longer summers can be enjoyable from a recreation perspective, but these weather conditions also create a challenge for traditional cool-weather vegetable plants and agricultural crops. According to Cornell University, hotter summers can cause heat stress even for warm-season favorites such as tomatoes. Statewide, the annual average temperature has risen about 2.4°F since 1970 with winter warming exceeding 4.4°F. In many areas of New York, the first leaf date is more than 8 days earlier and



the first bloom date is more than 4 days earlier than in the 1950s.

Some plants have a hard time adjusting to alternating warm and frigid periods. In some cases, the cold weather season isn't long enough for plants to thrive, and Central New York favorites such as lilac, American arborvitae, and Colorado blue spruce don't have the cool evenings they need to flourish.

Central New York is also experiencing an increase in the frequency

Continued on page 2

Inside This Issue

Adjusting Your Garden Strategy	pages 1-2
Water-Smart Landscapes	page 3
The Deer Dilemma	page 4
Canadian Geese Control	page 5
Protecting Central New York Pollinators	page 6
Take Control of Stormwater Management	page 7
CNY Stormwater Coalition Updates	page 8

Adjusting Your Garden Strategy, *continued*

and intensity of rain storm events, and longer periods of summer drought. The average annual precipitation has also increased across New York State since 1900, with year-to-year (and multiyear) variability becoming more pronounced. The distribution of precipitation is also changing. New York is now getting more precipitation in the winter and less in the summer. Between 1958 and 2010, the amount of precipitation falling during heavy downpour events increased more than 70% across the northeastern United States.

Gardeners and farmers are often faced with delayed plantings, root damage from water logged soil, and water quality contamination from stormwater runoff. Amending the soil by adding organic matter is recommended as an effective way to improve soil porosity and reduce erosion. Gardeners are encouraged to select plants that are more tolerant to moist soil or install a drainage system.

The habits of birds and insects are also changing. Pollinating bees in the northeastern US become active approximately 10 days earlier than they did in the 1880s. New York breeding bird ranges have shifted northward over the last several decades.

Many insect populations (the beneficial ones, as well as pests) tend to do better with the extended

warm periods and populations may increase because they are able to produce several generations within a growing season. Populations of some invasive species, such as the woolly adelgid that's destroying hemlock trees throughout the East, are increasing because our winters aren't cold enough to prevent their spread. Gardeners are encouraged to monitor their plants for early detection and rapid control. Some plants such as marigolds, and insects such as ladybugs provide good deterrents to garden pests.

Carbon dioxide and other potent greenhouse gases remain in the atmosphere for decades or even centuries, guaranteeing ongoing change even as we reduce emissions. Future scenarios show that NYS should anticipate a continued warming trend. Research predictions also show that New York State is likely to experience more precipitation and more variability in precipitation.

Central New York gardeners are gradually adjusting to changing weather conditions. The warmer, longer summers are a challenge for our traditional cool-weather plants, but others are benefiting from the warming trend. Peaches, melons, tomatoes, and European red wine grapes are a few examples of plants that will continue to do well in a warming climate.

To address variations in weather conditions, Cornell and other plant research facilities are experimenting with new plant varieties that will be able to adjust to the warmer temperatures and longer growing season. According to Cornell Cooperative Extension, the weather changes are creating incentives to develop new plant varieties and markets.

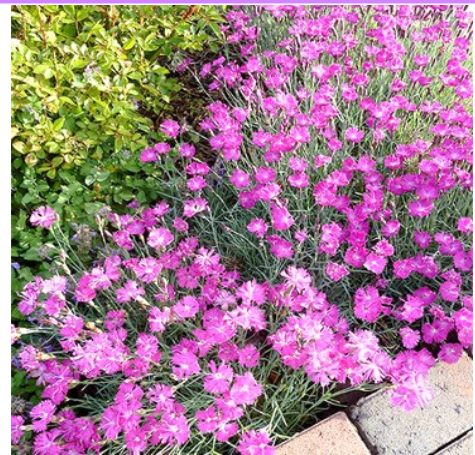
Climate statistics referenced in this article are from the NYSDEC website. For additional information on the impacts of climate change, go to <http://www.dec.ny.gov/energy/44992.html>



Water-Smart Landscapes

Keeping your yard and garden plants well-watered during the growing season can be an ongoing chore, but the following tips can help you save time and money.

- Vegetation that is planted on slopes can be difficult to manage because of the potential for soil erosion and stormwater runoff during watering or rainfall. If slopes cannot be avoided in your landscape design, install plants with deep root zones such as native ground covers and shrubs. This will stabilize the soil and reduce erosion rates. Mulch will also help to slow the rate of stormwater runoff, allowing time for pollutants to settle into the soil before flowing into local waterbodies.
- Check your garden hose or irrigation system for clogged or broken sprinkler heads and closely examine points where the sprinkler heads connect to pipes or hoses. If water pools in your garden or you have large wet areas on your lawn, you could have a leak. A leak about as small as the tip of a ballpoint pen (or 1/32nd of an inch) can waste about 6,300 gallons of water per month!
- When watering your lawn or garden, make sure to direct the sprinkler so that it applies water only to the landscape—not the driveway, house, or sidewalk.
- Timing is important when it comes to water conservation. The best time to water your plants is in the early evening. This will reduce evaporation and excess water use.
- Maintain soil health by adding organic matter and mulch. Healthy soils effectively cycle nutrients, minimize runoff, retain water, and absorb excess nutrients, sediments and pollutants. Mulch will help to reduce evaporation, inhibit weed growth, moderate soil temperature, and reduce erosion. Common types of mulches include bark chips, leaves, grass clippings, and straw. Leave a few



According to Better Homes and Gardens, Dianthus is one of the longest flowering perennials -- up to 4 weeks. Also called "pinks", Dianthus are members of the carnation family and will easily tolerate hot dry summers. After the plants have bloomed, shear off the faded flowers and stems (a couple inches from the top), and new foliage will grow.

inches of space between trunks of woody plants and organic mulches to prevent rot.

- Purchase native plants for your yard and garden because they are well-adapted to local soils and climatic conditions. They rarely require the addition of fertilizer, and tend to be more resistant to pests and diseases. Be careful if you choose to purchase non-native species. Some might be invasive, which could displace native plants and require more frequent watering.
- You can reduce water use and save money by grouping flowers and vegetables with similar watering needs. This will protect your plants from both under-watering and overwatering by addressing each zone as needed.

This article was adapted from www.epa.gov/watersense/

The Deer Dilemma

For many of us, deer can be a significant issue when managing yards and gardens. Deer feed on new seedlings as well as mature vegetative growth. The impacts of deer on gardens and agricultural crops can be seen year-round. Intensive grazing can increase the rate of soil erosion and stormwater runoff by damaging the vegetative understory and stunting new growth. Deer herds are expanding into urban environments, especially where parks and homes with large yards provide appealing habitat and abundant food. Laws that restrict hunting in urban neighborhoods can also result in increased deer populations in some areas.

Practical solutions to the inevitable deer/human conflicts are hard to find, and opinions vary quite a bit when it comes to deer management. Some believe that deer populations should be left to change naturally with no human intervention. Others believe that deer management is a necessity in urban neighborhoods with control options ranging from deterrents to hunting.

Some gardeners have tried chemical repellents and loud noises, but the success of these alternatives decreases as the deer populations increase and food becomes scarce. Several types of taste and odor repellents are available for sale at garden stores. Many people rely on homemade deer deterrents. Recipes are available at websites such as <http://www.deer-departed.com/deer-repellent-recipes.html>

The big drawback to repellents is that they need to be reapplied frequently, especially during periods of heavy rainfall. Chemical repellents may also cause plant damage and leave noxious or unpleasant residues.

Methods designed to scare the deer such as noise makers, lights, scarecrows and balloons are

typically only effective for short periods. The deer eventually become tolerant and overcome their initial fear of these devices.

Some gardeners have tried diversion plantings (specialty areas used to attract deer away from sites where they create a conflict), but evidence shows that this approach has limited merit. It may initially be effective, but will likely become less effective because deer will visit all sites with appealing food.

The NYS DEC recommends fencing as the most effective way to protect your yard and gardens. This requires a 10-foot fence and a substantial financial investment. Designs involving two rows of fence, outward slanted fences, or electric fences can provide extra security. Less expensive fencing options, however, can be sufficient in areas with low deer densities or to protect individual plants and small areas. In addition to the cost, soil types, terrain, local ordinances and aesthetics may influence what is legal and practical on your property.



Another way to reduce deer damage in your yard is by selecting plant species that are less attractive to deer. Common ornamental plants, such as yews, are a preferred treat and will require special fencing to avoid deer damage. Other plant species are less attractive to deer and will only be consumed in high deer densities.

Canadian Geese Control

The familiar and unique V-pattern of migratory Canadian geese can be a welcoming sight in the spring when they symbolize the beginning of warmer weather in Central New York.

In recent years however, flocks of nesting geese have lost their natural migratory instinct and have become year-round residents in local parks, waterways, residential areas, and golf courses. According to the NYS DEC, fields of short grass, abundant lakes and ponds, lack of natural predators, limited hunting, and supplemental feeding have created an explosion in resident goose populations.

While most people find a few geese acceptable, problems develop when local populations increase. Large geese populations can result in over-grazed lawns, accumulations of droppings in play areas and walkways, polluted stormwater runoff, and safety hazards near roads and airports.

Geese can be aggressive if people get too close, making them unwelcome visitors in parks, beaches and yards. Their biggest impacts are on human health and pollution loading to water resources. A single goose can leave behind one to two pounds of droppings every day, creating significant human health problems associated with the transmission of certain diseases. Bacteria in their feces can result in local beach closings, and farmers report crop damage once the geese settle in their fields.

Homeowner control strategies are often creative and diverse, but no single method has been found to be universally effective or socially acceptable. For example, loud noisemakers in residential areas, putting grid wires over swimming areas, or letting grass grow tall on athletic fields are not practical control strategies in urban areas.

People often enjoy feeding geese in parks and on private property, but this often contributes to

problems with over population. Supplemental feeding should be stopped as the first step in any control program. When geese depend on human handouts, they are less likely to migrate when the cold weather arrives, and year-round resident geese are more vulnerable to disease.

Dogs (when managed under strict supervision) are occasionally used in parks and schools, and controlled hunting has been a successful control method at some golf courses. Some companies sell geese deterrent products, such as water or land-based solar-powered lights that flicker. This is an intriguing, but expensive way to control local populations. Other methods include installation of grid wires or fencing, habitat modification, noise makers, repellents, destroying goose nests, and puncturing or treating eggs with corn oil to prevent the eggs from hatching.

It is important to check state and federal laws before implementing ANY geese control procedures. Canada geese are protected by Federal and State regulations. NYS DEC management programs, such as hunting seasons, bag limits and allowing additional take of geese by permit can help to control populations. In New York State, management responsibility for Canada geese is shared by the U.S. Fish and Wildlife Service (USFWS), U.S. Department of Agriculture (USDA), and the New York State DEC. It is illegal to hunt, kill, sell, purchase, or possess migratory birds or their parts (such as feathers, nests, or eggs) except as permitted by regulations adopted by USFWS and NYS DEC.

Additional information about goose management is available in "[Permit Requirements for Take of Canada Geese in New York](#)." Additional control methods for nuisance geese are provided in the DEC publication "[When Geese Become a Problem](#)".

Protecting Central New York Pollinators

Honeybees, bumblebees, and other pollinating insects are critically important to the health of New York's environment because of their role in strengthening the state's agricultural economy. New York has more than seven-million acres in agricultural production and many of the leading crops rely heavily on insect pollination. New York State is also home to more than 450 wild pollinator species that play an important role in the pollination of commercial crops and in maintaining environmental biodiversity.

During the past several years however, the loss of pollinator colonies in the state has exceeded 50%. Some commercial migratory pollinators have experienced colony losses in excess of 70%. This is coupled with losses in the native pollinator community and the habitat that sustains them.

Honeybees and other pollinators experience many forms of stress factors such as parasites and pathogens, pesticides, nutrient deficiencies, habitat loss and fragmentation, poor management practices, and the lack of genetic diversity. Of these stressors, a lot of attention has focused on a class of insecticides known as neonicotinoids. The prevalence of neonicotinoids in most agricultural and ornamental settings has become the source of much debate concerning the link between increased neonicotinoid use and pollinator decline.

Regardless of cause, the increasing trend in colony

losses observed over the last decade is cause for concern for gardening and agricultural communities in Central New York and throughout the state. In response, Governor Andrew M. Cuomo formed the New York State Pollinator Task Force in 2015. Chaired by the Commissioners of the NYS DEC and NYS Department of Agriculture and Markets, this

group has been charged with developing a plan for New York State to conserve and grow its pollinator population. The Task Force has developed actions to promote the health and recovery of pollinator populations in order to sustain New York State's agricultural economy and important natural resources.

The NYS Department of Environmental Conservation and NYS Department of

Agriculture and Markets published a report in 2016 titled, New York State Pollinator Protection Plan that provides an assessment of pollinators with recommendations to promote their health and recovery. The report encourages private industries, municipal governments and citizens to incorporate actions that benefit pollinators into everyday decision making.

Additional information is available at www.dec.ny.gov/docs/administration_pdf/nyspollinatorplan.pdf

This article was adapted from NYS DEC's "New York State Pollinator Protection Plan" (2016)



Take Control of Stormwater Management

Everyone's help is needed to protect our local water resources. When rain or snowmelt flows over land surfaces, pet waste, lawn chemicals, exposed soil, paper, plastic, leaves and other litter left on the street flow into local lakes and streams. Stormwater runoff often contains pathogens, nutrients, and toxic pollutants that can harm people, pets and wildlife. Unlike sanitary sewer systems which flow to a wastewater treatment plant, storm sewers flow directly to waterways without any treatment. Here are a few examples of stormwater impacts on people and wildlife.

- Application of pesticides, herbicides and fertilizers can flow into local waterbodies during storm events, affecting the health of people and aquatic life. Nutrients, such as phosphorus, promote the growth of algae which depletes oxygen levels in lakes and streams. Be sure to review the [New York State Nutrient Runoff](#) law regarding phosphorus fertilizer use before applying any fertilizer to your lawn. Look for the zero on the fertilizer bag and buy phosphorous-free fertilizer to protect water resources.
- Be sure to clean up after your dog and never place dog waste in storm drains because they lead directly to local waterbodies. Bacteria from animal waste, such as dogs and geese, and illicit connections to storm sewer systems can make lakes unsafe for recreation and fisheries.
- Oil and grease from cars cause odor problems and create a sheen on the water surface. These pollutants threaten human health and harm aquatic organisms.
- Sediment in stormwater runoff decreases water clarity and damages lake and stream habitat.
- Trash and other street litter damages aquatic life, introduces chemical pollution, and diminishes the beauty of our waterways.

The Master Gardener Program

The Master Gardener Program is comprised of trained volunteers that provide gardening and horticultural advice to local homeowners and community groups. The first Master Gardener program was started in Washington State in 1972 and it has spread to forty-six states and eight Canadian provinces. Volunteers complete two years (approximately 45-hours) of training to develop a thorough foundation in soil science, composting, botany, insect biology, plant diseases, Integrated Pest Management (IPM), wildlife management, and methods to cultivate vegetables, fruits, herbs, houseplants, trees and shrubs.

Master Gardeners give presentations to local groups on numerous topics such as composting, ticks, native plants and vegetable gardening. In Central New York, volunteers also set up tables at local events, including the Regional Farmer's Market and the State Fair, to answer questions from the public. In addition, Master Gardener volunteers work with seniors and youth at local schools and summer camps.

If you have a gardening question or are interested in learning more about the program contact Karen Bishop, Cornell Cooperative Extension of Onondaga County at ccemastergardener@gmail.com or at 315-424-9485. Information is also available at <http://cceonondaga.org/gardening/master-gardener-volunteers>

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

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

www.cnyrpd.org/stormwater

The CNY Stormwater Coalition is staffed and coordinated by the Central New York Regional Planning and Development Board.



Central New York Regional Planning & Development Board

Invasive Species Awareness Week July 9-15

Invasive Species Awareness Week (ISAW) is an annual education campaign coordinated by the Invasive Species Council, the NYS Invasive Species Advisory Committee, the 8 Partnership for Regional Invasive Species Management groups (PRISMs) and their partner organizations. The week-long campaign features many statewide events focused on invasive species education such as guided hikes and paddling events, educational webinars and citizen science training opportunities. For additional information, visit [DEC's Invasive Species Awareness Week web page](#).



GUARDIANS OF THE CATCH BASINS: Haley and Julian, two of our student interns are out and about mapping stormwater catch basins this summer. Knowing where pollutants enter the storm sewer system is the first step in eliminating illicit discharges when they are detected. If you see them, say "Hello!"



**SUMMER'S HERE
CENTRAL NEW YORK!**

Keep it clean and enjoy!



CNY Stormwater Coalition

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