CROSS POLLINATION

Halton Master Gardeners Monthly Newsletter
AUGUST 2022 | VOL. 15 ISSUE 7

In this issue:

Halton Region Master Gardeners

Turtleheads - Bring some turtles to your rain garden or pond area

Chelone glabra

By Kirsten McCarthy, Halton Master Gardener

When I was researching plants to add to my newly created rain garden this summer, all the common natives came to the top of my list: swamp milkweed *(Asclepias incarnata) and* joe pye weed (*Eutrochium purpureum)* to name a few. It wasn't until I started researching late blooming native plants that I saw "turtlehead" (*Chelone glabra*) appear in my search, and I'm so glad it did! I'll definitely be adding this more uncommon but beautiful native plant to my rain garden.

Cultural Requirements

This uniquely shaped native is a stiffly erect, clump-forming, leafy-stemmed, perennial which typically grows 2-3' tall and occurs in moist woods, swampy areas and along streams. Turtleheads prefer full sun, tolerate shady conditions, and have flowers that are hooded like a snapdragon with two-lipped white flowers with a tinge of pink that appear in tight, spike-like terminal racemes that bloom from late summer into autumn. This perennial has coarsely-toothed, lance-shaped, dark green leaves and spreads slowly over time from short rhizomes. The dark green foliage emerges in spring and remains attractive through the growing season. The opposite, often shiny leaves have a heavily toothed edge. Depending on the species, the broad to narrow leaves may have a tapering or rounded base with or without a petiole.

Turtlehead in bloom - Janet Mackey

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TURTLEHEADS (CONT'D)

The leaves are dark green and heavily toothed. Image: Fritz Flohr Reynolds, Flickr CC-BY-SA 2.0

Medicinal benefits to bumblebees

Leif Richardson, a Dartmouth researcher discovered that bumblebees carrying an intestinal parasite (*Crithidia bombi*) may 'self-medicate' by seeking out turtlehead nectar. The nectar contains iridoid glycosides, a compound that can knock out the parasite from the bumblebees. As for the benefit to the plant? Richardson found that flowers with high iridoid glycosides spread their pollen more widely. So in nature, the turtlehead plants that make nectar higher in these compounds may get a boost from pollinators.

The flowers, which are attractive to insects such as this bumblebee (L), are tubular in shape (R). Image: University of Wisconsin-Madison

Wildlife Benefits

White turtlehead has value to wildlife, particularly insects. The nectar is consumed by bumblebees, which are large enough to force open the tops of the flower.

White turtlehead is also the primary host plant and larval food source for the Baltimore Checkerspot butterfly. Baltimore Checkerspots lay their eggs (in groups of 100-700) on the leaves in early summer. When the eggs hatch in three weeks time, the larvae feed communally in a silken nest until early August, then remain quiescent until October, when they descend to the ground and construct hibernating webs of leaves and other debris. After overwintering, they begin feeding again in the spring and pupate in May, often switching to non-host plants if they run out of turtlehead.

Checkerspot butterfly. Photo: Matt Perry

Propagation of Chelone spp.

Right after collection, remove the seed from the pulp and then sow immediately outdoors. If sowing in containers, keep moist until germination the following spring. The seed will go dormant for many years if allowed to dry out. ✽

Learn More!

- Turtlehead, Chelone spp. - Wisconsin Horticulture
- Turtlehead - The Genus Chelone - Dave's Garden
- Beautiful Flower, Strange Name - The Laidback Gardener

AUGUST GARDEN 'TO-DO' LIST

by Claudette Sims, Halton Master Gardener

- ☐ **Perennials –** Cut back any tired looking perennials & remove yellowed or dying stems & leaves or flowers, e.g., lavender, penstemon. Remove seed heads to control spread of aggressive self-sowing perennials or to save for winter sowing. Seed heads can also be left to feed birds in the late summer & fall.
- ☐ **Annuals** – Pinch back old flower heads to keep plants producing flowers.
- ☐ **Amaryllis** – stop watering mid-August to allow them to go dormant.
- ☐ **Strawberries** – August is a good time to renovate your strawberry beds.
- ☐ **Veggies –** Water during dry or hot weather to reduce plant stress. Remove diseased & damaged leaves/fruit. Do not over fertilize tomatoes as it can contribute to blossom end rot. As you pull out 'old' plantings such as bolted lettuce, add new plantings like chard, radishes, carrots, kale, spinach, turnips, beets, basil. Identify pests troubling your veggie garden to take effective action. Harvest vegetables and berries regularly so that the plants keep producing.
- ☐ **Veg Seeds** – Start saving seeds for next year, e.g., dill, fennel, lettuce, your earliest ripe tomato.
- ☐ **Earwigs** – make traps using paper tubes to keep earwig populations under control. Scatter them in problems areas and shake earwigs into a pail of soapy water. Tuna cans can also be used. Learn more here.

"When planning your garden, aim for a variety of plants that flower from early spring to late fall. Biodiverse plantings that include shrubs and trees are the most beneficial."

- ☐ **Lawn –** Check your local municipality for watering restrictions (Halton). Yellow (dormant) lawns should bounce back in the fall when there is more rain. More info about dormant grass here. Later in the month, over-seed with drought resistant grass, e.g. perennial rye grass or red fescue, then top dress with fine compost.
- ☐ **Water –** Avoid watering in the hottest part of the day, Water any spring planted trees & plants regularly, & existing trees less frequently, but deeply to the root zone. Water the base of plants, not the foliage, or use soaker hoses.
- ☐ **Powdery mildew** – Remove the worst affected leaves/stems. A simple spray of water on leaves during the day may reduce disease. Research indicates that a milk & water spray can also be effective.
- ☐ **Weeds** – Every weed pulled now is a thousand weeds you won't have to deal with later! Removing flowers before they go to seed will greatly reduce the seed bank in the soil for next year. Don't add flowers or seeds to compost.

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Native Plants Blooming in August

Culver's Root | Smooth Ironweed | Cardinal Flower | Boneset | Woodland Sunflower

LICHEN THE 'FUN-GUYS': PART III
MOSSES, LIVERWORTS & HORNWORTS

By Kathleen Terry, Halton Master Gardener

This series has been about organisms that grow on other things.

Why write about the little things? My hope is that in learning about these life forms you will gain an understanding and appreciation of their environmental significance. To see them as something to value rather than something to escort out of your gardens. To understand that, except in rare circumstances, they are not the cause of damage, but simply an indication of a natural process.

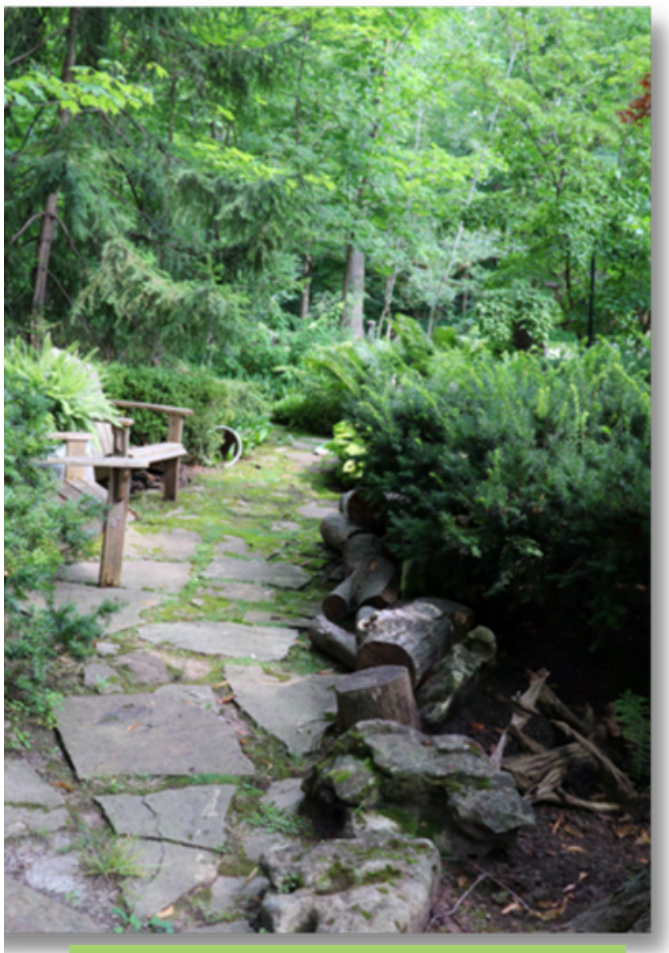
They are corner pieces of a really big puzzle, and with the current interest in fostering environmentally beneficial gardens, these elements can be a subtle aspect of naturalized areas in our gardens. I hope you agree that it can be worthwhile to take some time to take notice of, and learn about, the growing of things that we haven't planted but that are an important part of the grand scheme of living things.

The first two subjects were fungi and lichen. Not plants, they are not capable of photosynthesis, and they cannot live independently. Their lives depend on a mutualistic relationship with other organisms.

Mosses, liverworts, and hornworts however are classified as plants, and can live almost anywhere without having to find a partner for sustenance. These three are currently classified in the plant division Bryophyta. Unlike most plants, they do not have roots but rather small hairlike structures called rhizoids that anchor them to rocks, wood, soil - actually just about anything. They are non vascular plants meaning that they do not have vascular tissue (xylem and phloem). They take in water and nutrients directly through their leaves, and this is what distinguishes them from other land plants and why we find them in damp areas.

How are Bryophyta similar to fungi and lichens?

They are all ancient organisms and have survived through drastic climatic changes. Amongst them they have thousands of species and can be found on every continent and in almost every ecosystem; all three are an integral part of the ecosystem. As with lichens, bryophytes can reproduce by fragmentation as well as sexually reproducing by spores. Also like lichens, they appear unchanged through the seasons, and can photosynthesize year round.



Moss growing between stones in my friend's backyard. Photo Kath Terry

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LICHEN THE FUN-GUYS - PART III (CONT'D)

Why are such tiny things interesting, useful, and important?

Bryophytes are extraordinarily resilient. Some estimates date them back farther than 400 million years. They are believed to be the closest remaining link between land and aquatic plants. Paleobotanists have found moss fossils in British Columbia that date back 45 million years. These fossils closely resemble moss living today. Massive Mastodons in southern Ontario munched on moss 4 million years ago. In Ontario the endangered Spotted Turtle (*Clemmys guttata*) uses sphagnum moss as winter protection.
Nuthatches use moss and lichen to cover the seeds they have hidden in crevices, and black capped chickadees use moss as nesting material.

Photos of Liverworts (Above) and Moss (below)

Chickadees use moss as nesting material.

Spotted turtles use moss as winter protection.

Moss is one of nature's first responders. It is among the first plant colonizers of a disturbed area, acting like a sponge by soaking up rainwater quickly and releasing it slowly. This is particularly helpful in areas devastated by fire, or other disturbances. It can stabilize the soil surface and assist in water retention to help establish and sustain other emerging plant life. It can also assist in water filtration, release nutrients and oxygen back into the ecosystem, mediate soil temperature, and provide shelter to insects like springtails that feed on detritus and microbes - themselves part of the food chain. These plants can photosynthesize in extreme conditions, from -15C up to +40C. Even when they have become dehydrated they can bounce back. Liverworts have a larger lobate, ribbonlike leaf area, and like mosses, they play a significant role in nutrient recycling, oxygenating, forming seed beds for larger plants, and are habitat for insects and microorganisms. Hornworts, usually seen as a flattish lobed wrinkly green sheet, send up elongated hornlike structures which are the spore producing bodies.They also are pioneers in disturbed areas, stabilize soil, and play a role in nutrient recycling.

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LICHEN THE FUN-GUYS - PART III (CONT'D)

Right Place, Right Plant

Although usually found in the wild, these growing things can sometimes appear, as if magically, in our gardens. While they are not themselves a problem, their appearance is an indication of circumstances that suit them.

I hope that I have been able to illustrate that they are an integral part of our ecosystem and can be encouraged to grow in our gardens, around ponds, in rain gardens, and otherwise plain pathways where they can make for an interesting, and useful, dimension. They are attractive year round, pest resistant, disease resistant, and do not require fertilizers or pesticides. ✽

Moss happily growing on a tree in the Dundas Valley in December - Photo J. Mackey

Learn More:

- 7 interesting things about moss
- Nature Moments: The Odd Thing About Mosses
- Wild Species: Moss
- Moss - The Canadian Encyclopedia
- Mosses of Ontario - iNaturalist
- The Magical World of Mosses: Bryophytes offer beauty, environmental benefits

GARDEN VISITORS OR GARDEN PESTS? PART 1: RABBITS

By Liza Drozdov, Halton Master Gardener

Look at this face. You may think it's cute. Think again. In some gardens bunnies are welcome visitors while in others they are considered unstoppable ravenous creatures. Look past the long, soft ears and the beautiful, fluffy tail and you may see a creature that many believe is responsible for the worst plant damage in the garden. Yes, we're talking about *the Rabbit*.

Eastern cottontail rabbit is commonly found in southern Ontario

For many gardeners, rabbits are among the most problematic pests thanks to their voracious, indiscriminate appetites, adaptability to urban, suburban/rural environments, and prolific breeding. If conditions are good, rabbits can have three or even four litters a year--with four or five babies in each. Two rabbits can become 22 in just one year, so you can imagine the devastation they may cause in your garden. And while it may seem all 22 are in your yard, it is likely your neighbours have seen them too. Our fenced backyards offer some protection to rabbits along with a good supply of food. Rabbit populations often shift through the growing season and from year to year due to predation and collisions with cars. By the time you're working to discourage them in your garden, the numbers of rabbits may have already declined.

The most common species of rabbit in Ontario is *Sylvilagus floridanus*, the eastern cottontail. Rabbits are often mistakenly grouped with rodents, but they belong to a family of animals called Leporidae because of an extra pair of incisors and other skeletal features. It's a prey species, fair game for nearly all predators from coyotes to cats. So naturally rabbits are nervous, high strung, and always alert. They appear to sleep with their eyes open but actually have a third eyelid structure called the nictitating membrane which is not visible to the human eye. This translucent eyelid closes while a rabbit is sleeping. Their main defences are the ability to see predators within a radius of nearly 360 degrees, incredible speed, and crepuscular behaviour. Being active around dawn or dusk when the light is dim makes it more difficult for predators to spot them. As well, many predators are less active at twilight. Red-tailed hawks, great horned owls, foxes, coyotes, weasels, and minks are some of their main predators.

Eastern cottontails nest in shallow depression in areas with longer grass.

If you're out at dawn or dusk you'll often see groups of wild rabbits munching on grass lawns. It forms the basis of their diet, so rabbits need to eat a lot of it to survive. They're always hungry and might not be able to get the nutrients they require from turf grass alone so they'll also eat whatever other fresh flora they can find. They'll always select young shoots and leaves over older material so seedlings and new growth are especially vulnerable to rabbit predation.

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GARDEN VISITORS OR GARDEN PESTS? (CONT'D)

Unlike more sensible herbivores, rabbits don't hibernate so winter is a very difficult time for them. If rabbits can't find green grass or leaves, they'll eat twiggy growth, buds, conifer needles and, in a bad winter, they'll also chew bark on trees. The trees can become girdled where the bark has been eaten all the way around the trunk—and the young growth is removed as high as a rabbit can stand on its hind legs. You'll recognize rabbit pruning by the sharp, clean cut—it's almost as if done by a pair of secateurs. But the results of rabbit pruning are seldom aesthetic.

'Pruning' by rabbits is noticeable because of the sharp, clean cuts.

Eastern cottontails don't live in underground burrows. They nest in shallow depressions in grass, which makes them vulnerable to lawnmowers as well as predators. You should check your yard for rabbit nests before mowing, especially if you've let the grass grow long. Nobody wants to run over a nest of baby rabbits. Baby rabbits leave the nest when they're chipmunk-sized, at about three weeks of age. If you see one with its eyes open, ears erect, and able to hop, it is safe to be on its own despite its small size.

While the Eastern cottontail is not in decline in our region of southern Ontario, it is listed as a species of 'greatest conservation need' in Washington D.C. Another species, the New England cottontail, is in severe decline with less than 1000 remaining. Remember also that rabbits are an essential part of our ecosystem as both prey and seed dispersers. With large-scale farming and expanding urban areas, the habitat they require is in decline throughout our region. Consider allowing some growth of plants along the perimeter of your garden for rabbits to browse, and leaving small saplings to sprout over winter. If you have some beautiful leafy greens growing, fence them off while nurturing dandelions, goldenrods and violets to emerge nearby. Just as hedgerows have disappeared from farmland, the 'middle-layer' of vegetation including brambles and shrubs is not always included in the landscape. Consider adding native roses (*Rosa carolina* - Pasture Rose), dogwoods (*Cornus racemosa* - Grey Dogwood) and Viburnums (*Viburnum lentago* - Nannyberry) that will provide cover and an escape route from predators.

New England cottontail (above) now numbers less than 1000. Consider leaving areas around the perimeter of your garden for rabbits to browse.

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GARDEN VISITORS OR GARDEN PESTS? (CONT'D)

Finally, perhaps we need to reconsider our use of the label "pest" when speaking about these garden visitors, remembering that we're caretakers of our gardens only for a short period of time. Plants are part of a habitat and a source of food whether we plan it that way or not. A humane solution is to grow and plant more than you need, allowing the visiting critters to take their share. The concepts of Integrated Pest Management (IPM) provide us many options that can make drastic action unnecessary.

Further Reading:

- An Informed Approach to Animal 'Pests' in the Garden
- Gardening with Rabbits - The Humane Gardener
- What to do about Wild Rabbits

Integrated Pest Management - IPM 'The Basics'

What is Integrated Pest Management/IPM:

IPM *is an* ***ecosystem-based strategy*** *that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pest control measures are selected and applied in a manner that minimizes risks to human health, beneficial and nontarget organisms, and the environment.*

https://www2.ipm.ucanr.edu/What-is-IPM/

Physical Barriers are highly effective in preventing rabbits from browsing on plants

What are the basic components of IPM?

- **Identify pests**, their hosts and beneficial organisms before taking action. *(ie. is it really a rabbit causing the problem?)*
- **Establish monitoring guidelines** for each pest species. *(ie., perhaps some plant loss/damage is acceptable.)*
- **Establish an action threshold** for the pest. *(Perhaps the rabbits are just active currently and will move on.)*
- **Evaluate and implement control tactics**. *Consider creating physical barriers to prevent them chewing bark OR adding fencing (mechanical/physical); encourage predators or scatter plastic snakes - (biological), remove brush, tall plants near your vegetable garden and ornamental plants so that they have less shelter to approach the garden OR plant a trap crop such as a row of lettuce for the rabbits outside your garden (cultural), use repellants (chemical)*
- **Monitor, evaluate and document** the results.

Q&A

By Hariette Henry, Halton Master Gardener

> My Echinacea purpurea has unusual deformities and odd colouring. The flower petals at the base of the cone are curling and have taken on a greenish/yellow tone. I've also noticed that some of the leaves on the plant are stunted. I have since heard that coneflower can be afflicted with a serious disease called aster yellows (AY). Could this be the problem with my plant and what should I do about it?

There is definitely something affecting your coneflower plant. These plants typically have very few problems. Occasionally they can be bothered by fungal diseases which are best avoided by providing good air circulation. There are a few pests that can be trouble such as Japanese beetles, aphids, and leafhoppers, but for the most part they experience few issues.

You mention aster yellows (AY) as potentially being responsible for the symptoms of your plant. AY affects plants by causing abnormalities in plant growth and development. It is a chronic, systemic plant disease caused by several bacteria called phytoplasma. Phytoplasma spreads from plant to plant by leafhoppers which are sucking insects that feed on coneflowers. The AY phytoplasma affects over 700 species of plants worldwide, primarily in the aster family. Symptoms include yellowing and stunting of leaves, sparse foliage, virescence of flowers (green pigment), sterility, phyllody (green spoon-shaped rays and/or rosettes of leafy growth on the cones), and general decline. The phytoplasmas multiply in the roots over winter so symptoms worsen every year. If your plant is affected, sanitation is the best remedy. As soon as possible—all parts of the plant, including the roots—should be destroyed and placed in the garbage, not the compost pile.

The other problem that exhibits similar symptoms to aster yellows are coneflower rosette mites.

Figure 1: shows yellowing of entire plant as in AY (Phytoplasma Disease), Joe Boggs, OSU Extension

Figure 2: Distorted flower heads caused by eriophyid mites, Missouri Botanical Garden.

Q & A (cont'd)

These mites are extremely tiny creatures that feed deep within plant tissues, sucking out plant juices and transferring toxins to their host. This causes fuzzy, rosette-like tufts of stunted and distorted flower parts to sprout from the tops or sides of the cones. The damage caused by rosette mites is nasty looking and can seriously reduce seed production and thus re-seeding. Sanitation is key to managing the mite. Cutting off and destroying flower heads deformed by mite activity will reduce mite populations. Coneflower rosette mite typically affects the flowers of the plant only.

In looking at your photos and considering the description you provided, I don't believe that this is a case of coneflower rosette eriophyid mite. You don't appear to have the densely packed, rough looking growth that usually appears on the top and sides of the cones. It is possible, though, that your plant may have a developing case of aster yellows. AY flower heads can be tufted and deformed and portions, or all, of the flowers can stay green. Your plant does not have yellowed leaves but does have some stunted and deformed leaf growth. The difference in symptoms between the two diseases lies in the pattern across the plant. AY produces symptoms throughout the plant, on foliage as well as flowers, and mite damage is limited to flower structures.

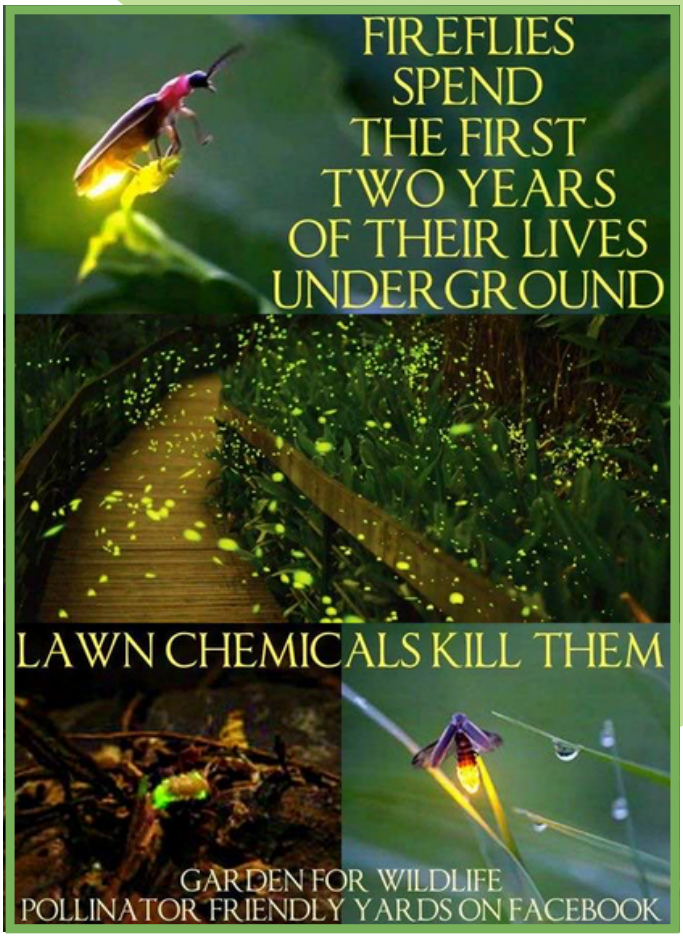
The only way to have a sure diagnosis is to have the plant tested. The University of Guelph provides this service, and instructions on how to access it can be found at the following link, U of Guelph. If you are not in a position to have the plant tested you might want to remove the plant including the roots and dispose of it in the garbage as a precautionary measure. ✽

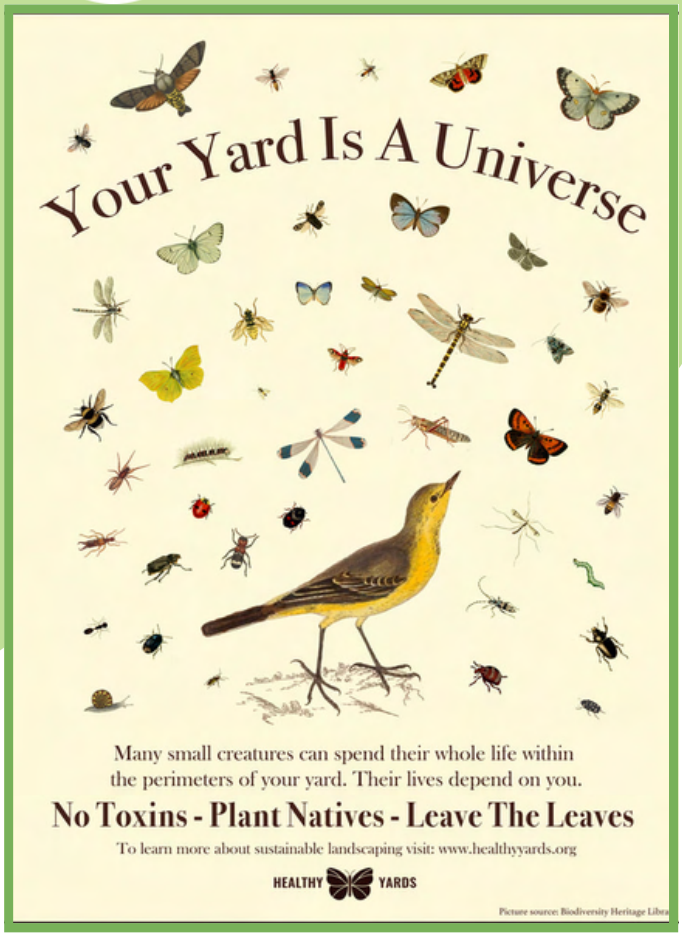
Figure 3: Shows symptoms of green pigment in flowers. Figure 4: shows stunted and distorted growth of leaves in questioner photos.

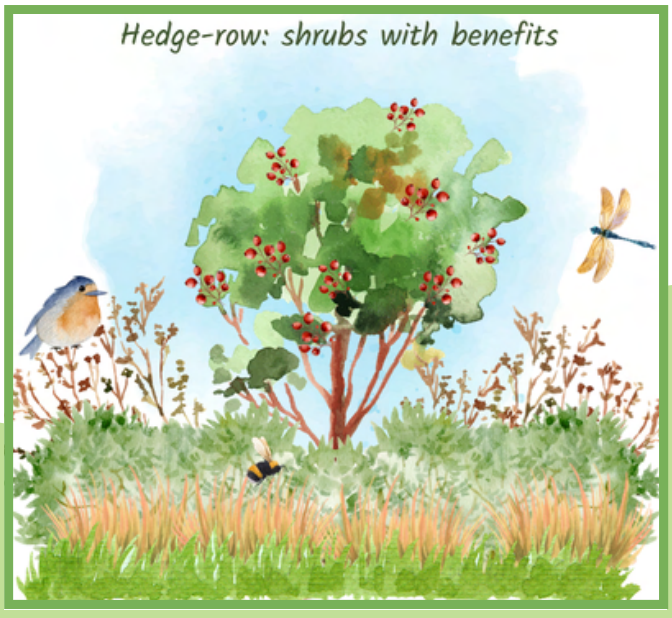
Take a Closer Look!

- Aster Yellows on Coneflower
- Coneflower Cleanup
- Missouri Botanical Garden, Eriophyid Mites
- Missouri Botanical garden Aster Yellows
- Home, Yard & Garden Pest, U of Illinois Extension

GARDEN INSPIRATION!







Images from HEALTHY YARDS Facebook Group

What's Growing On?

Register to attend the garden open house in Milton.

We're here to answer your garden questions!

Send us an email. It's what we do best!

- Do you have a passion for gardening and sharing your knowledge? Learn more about joining us.
- Interested in attending a meeting? Contact us at: Halton Master Gardeners

Check our Calendar of Events for more information on what's happening in your area.

Visit Urquhart Butterfly Garden and while you're there, take some pictures and enter the photo contest. Learn more about UBG's free workshops and nature walks.

In-Person Advice Clinics are Back!

Halton Master Gardeners will be answering your garden questions in person!

Ottawa Street Farmers Market

9:00 am to Noon

Saturdays throughout the summer until Aug. 27th

Dundas Farmers Market

Thursday, August 11th and 25th

3:00 pm to 7:00 pm

Halton Master Gardeners Elisa Bernier and Allyn Walsh at the Dundas Farners Market

What's Growing On ?

Canadian Rose Society

Rose Judging School

Six Saturdays via Zoom in
September 2022
January and April 2023

Registration deadline is
August 31, 2022

Learn how to be a CRS member
here

Conservation Halton

Events run August 13 to 19

Learn more here

Farmers' Markets in Halton

Support local growers and eat fresh!

Check locations here

HAMILTON & DISTRICT CHRYSANTHEMUM & DAHLIA SOCIETY 1944

Garden Tour
Saturday, August 27
1- 4:00 pm
Learn more here

Year of the Garden
Année du jardin
2022

Enjoy 100 garden moments
that date back to 1867!

Garden Moments OF CANADA

Royal Botanical Gardens

Where People, Plants and Nature
Cultivate Unforgettable Experiences

- Many special events on now
- Explore gardens and trails
- Dine in the gardens

About Our Newsletter

Cross Pollination is published monthly from February to December and is written and prepared by our dedicated volunteers. Halton Master Gardeners are experienced gardeners who have studied horticulture extensively and continue to upgrade their skills through technical training. We strive to provide science-based, sustainable gardening information to the general public. The information in our newsletter has been verified by our volunteers to the best of our abilities, but given the scope of horticulture and science some concepts may not reflect current knowledge. Your donations support our work!