

Grand Island Memorial Library – 2022 Plant List

The gardens of the Grand Island Memorial Library are maintained
by the Cinderella Isle Garden Club.

SHRUBS

Boxwood

Summersweet 'Crystalina' *Clethra alnifolia*

Chokeberry Low Scape Mound *Aronia melanocarpa*

Shrubby Cinquefoil 'Happy Face Yellow' *Potentilla fruticosa*

Coralberry *Symphoricarpos orbiculatus*

Hydrangea 'Vanilla Strawberry'

Hydrangea 'Limelight'

Virginia Sweetspire 'Fizzy Mizzy' *Itea virginica*

Lilac 'Miss Kim'

Potentilla 'Happy Face Yellow'

Spirea

Viburnum, Doublefile *Viburnum plicatum f. tomentosum 'Mariesii'*,

Weigela

PERENNIALS

Aster

Baptisia, False Indigo *Baptisia*

Beardtongue *Penstemon*

Blazing Star, Gayfeather *Liatris spicata*

Cranesbill, Hardy Geranium *Geranium macrorrhizum*

Cardinal Flower 'Starship Rose' *Lobelia*

Coral Bells *Heuchera*

Daylily

Daylily 'Stella d'Oro'

Delphinium 'Jenny's Blue Pearl'

Eastern Prickly Pear

False Sunflower *Heliopsis helianthoides*

Hosta

Lady's Mantle *Alchimilla mollis*

Perennials, continued

Blazing Star		<i>Liatris spicata</i>
Salvia	(pink, purple, white)	
Sedum	'Autumn Joy'	

ANNUALS (2022)

Cosmos	'Sonata Mix'	
Golden Shrimp Plant		<i>Pachystachys lutea</i>
Gomphrena	'Fireworks'	
Lantana	Bandana series	
Mexican Sunflower	'Fiesta del Sol'	<i>Tithonia</i>
Plectranthus	'Mona Lavender'	
Portulaca	'Happy Hour Peppermint'	
Rudbeckia	'Amarillo Gold'	
Rudbeckia	'Denver Daisy'	
Verbena	EnduraScape 'Pink Fizz'	
Zinnia	Profusion Cherry	
Zinnia	Zahara Double Raspberry Ripple	

A few sources for further information:

Edu sites: ex. *Gardening.cals.cornell.edu*; *extension.psu.edu* (Penn State); *msu.edu/homegardening* (Michigan State); *extension.uconn.edu* (U Connecticut)

Missouri Botanical Gardens: *Missouribotanicalgarden.org*

Buffalo-Niagaragardening.com – articles, WNY garden event calendar

Buffalo Niagara Waterkeeper – *bnwaterkeeper.org*: WNY Guide to Native Plants for your Grden

A Way to Garden: Margaret Roach, *awaytogarden.com*

DiSabato-Aust, Tracy, *The Well-Tended Perennial Garden*, Third edition

Tallamy, Doug, *Bringing Nature Home, Nature's Best Hope*

National Wildlife Federation – Pollinator Gardening, Native Plant Finder

Tithonia Fiesta Del Sol

Dwarf Mexican Sunflower

2000 AAS (All America Selections) Flower Winner

Single orange daisy flowers are easy to grow in full sun. Great butterfly plant.

2-3 feet

Full sun

Deer resistant

Attracts: Butterflies, pollinators



Cosmos Sonata Mix

Daisy-like blooms on tall stems with ferny leaves. Mix includes white, rose, pink and cherry.

20-24 inches

Full sun

Tolerates: Heat, drought, poor soil

Attracts: Butterflies, pollinators



Gomphrena 'Fireworks'

An old-fashioned cottage garden favorite with long-lasting clover-like blossoms that are hot pink tipped with bright yellow.

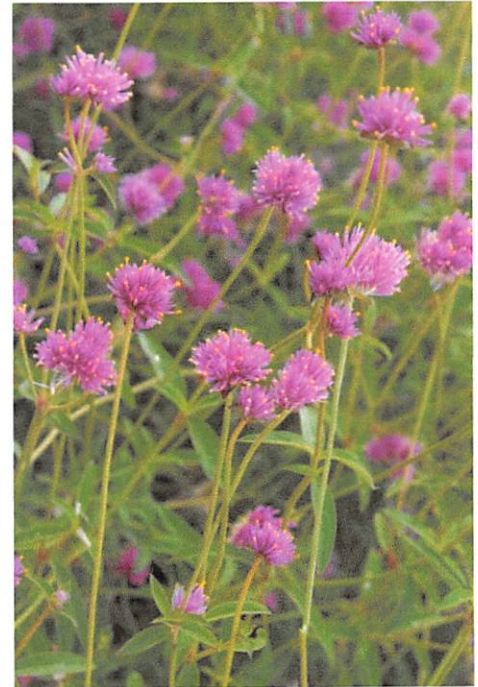
20-24 inches Full sun

Deer resistant

Attracts: Pollinators, butterflies

Use for cut flowers and dried flowers

Globe Amaranth



Lantana Bandana Series

Can spread up to 3 feet wide. Consistent bloomer. Carefree.

12-16 inches Full sun

Tolerates: Heat, drought

Deer resistant

**Attracts: bees, butterflies,
Hummingbirds**



Portulaca **Happy Hour™ Peppermint Portulaca**

Also known as *Moss Rose*, this variety produces tidy, mounded plants with double pink swirled flowers and green succulent foliage.

10 -12 inches

Full sun, hot, dry

Tolerates: Drought, poor soil

Deer resistant

Attracts: Honeybees



Rudbeckia **'Denver Daisy'**

Easy to grow. Blooms June to frost. Large golden flowers with a chocolate cone.

1 - 2 feet

Full sun

Deer resistant

Tolerates: Heat, drought, clay soil

Attracts: Birds, butterflies

Black-eyed Susan



Rudbeckia 'Amarillo Gold'

Compact plants, uniform habit. Sunshine yellow with a light green center. Strong performer right up till frost.

12-18 inches Full sun to part shade

Heat and drought tolerant

Tolerates: Deer, drought, clay soil

Attracts: birds, butterflies, pollinators



Verbena EnduraScape 'Pink Fizz'

Sun-loving, low-growing. Plant in well-drained soil. White flowers blushed with shades of pink. Blooms all summer. Good resistance to powdery mildew.

8 - 12 inches Full sun

Deer resistant

Tolerates: Drought



Plectranthus 'Mona Lavender'

Glossy leaves are green on the top sides and purple on the undersides, flower spikes are dark lavender. Can be brought inside as a houseplant in the fall. 'Mona Lavender' is the cultivar name. The plant is not a true lavender.

Height: 1-2 feet **Part Sun**

Drought tolerant
Deer resistant

**Attracts: Hummingbirds,
butterflies, small pollinators**



Golden Shrimp Plant

Pachystachys lutea

The Golden Shrimp Plant is actually an evergreen shrub that can grow up to 3-6 feet tall in tropical climates. The flower is the small white tubular protrusion from the yellow inflorescences that are made up of bracts, (modified leaves).

Part to full sun
Needs consistent moisture

Attracts: Hummingbirds



Zinnia Profusion 'Cherry'

All-America Selections (AAS) Winner 1999

Bushy plants with heavy flowering, easy to grow. Highly resistant to mildew. Excellent cut flower.

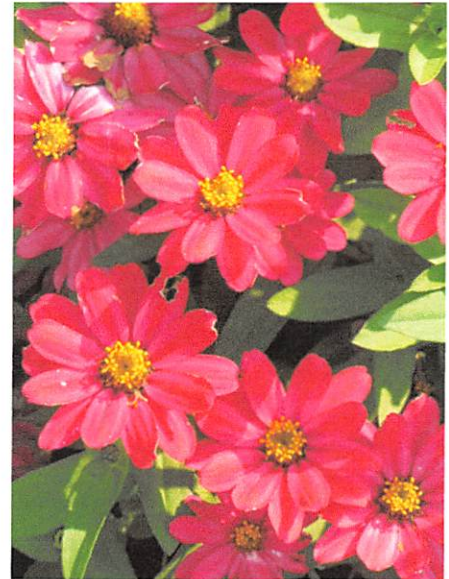
14 -18 inches

Full sun

Tolerates: Heat, drought, clay soil

Deer resistant

Attracts: Birds, butterflies



Zinnia Double Zahara™ Raspberry Ripple

Great resistance to mildew and leaf spot. Long bloomer. Blooms have dark pink stripe and lighter pink edges.

16 - 20 inches

Full sun

Tolerates: Heat, drought

Deer, rabbit resistant

Attracts: Butterflies, pollinators





**GARDEN
FOR WILDLIFE™**

Pollinator Gardening

Pollinators are animals that move from plant to plant while searching for protein-rich pollen or high-energy nectar to eat. As they go, they are dusted by pollen and move it to the next flower, fertilizing the plant and allowing it to reproduce and form seeds, berries, fruits and other plant foods that form the foundation of the food chain for other species—including humans.

Pollinators are themselves important food sources for other wildlife. Countless birds, mammals, reptiles and amphibians eat the protein and fat-rich eggs, larvae, or adult forms of pollinators, or feed them to their young. Pollinators play a critical role in the food supply for wildlife and people!

Bees are well-known pollinators, but over 100,000 invertebrates—including butterflies, moths, wasps, flies, and beetles—and over 1,000 mammals, birds, reptiles and amphibians, act as pollinators.

**MORE THAN 85% OF
FLOWERING PLANTS
REQUIRE INSECT
POLLINATION WHICH
RESULTS IN FRUITS,
NUTS AND SEEDS THAT
25% OF BIRDS RELY ON
FOR FOOD. NATIVE BEES
POLLINATE 15% OF U.S.
FRUIT, NUT, VEGETABLE
AND FIELD CROPS.**

Tips & Info

Pollinators worldwide are in decline. Habitat loss, invasive species, parasites, and pesticides are largely to blame. Here's how to help.

Pollinator Garden Tips

- 1. Plant native flowering plants in your garden.**
Get a list for your zip code at nwf.org/nativeplants.
- 2. Reduce the size of your lawn and replace with native blooming plants.**
- 3. Provide water for pollinators** by filling a shallow birdbath with gravel or creating a muddy patch in a corner of your yard.
- 4. Attract hummingbirds** by planting dense shrubs for nesting and native plants with bright red and orange tubular flowers for food. Supplement as needed with a nectar feeder.
- 5. Most native bees are solitary** and lay eggs in tiny tunnels in dead trees, fallen branches, hollow stems, or in sandy soil. Leave standing dead trees, fallen logs, and bare patches of sandy soil. You can even put out a bee house filled with nesting tubes.
- 6. Butterflies need special "host plants" as food** for their caterpillars. Monarchs, for example, rely on only one host plant, milkweed, so planting it will provide essential habitat. Find host plants for butterflies and moths native to your area at nwf.org/nativeplants.

Don't Use Pesticides

Insects are a sign of a healthy garden, and an important food source for birds. No need to spray!

Attract ladybugs, predatory wasps and other natural enemies of pests. Native plants attract these beneficial pest predators.

Hand-pick pests if you have an infestation or wash them off with a stream of water from a hose.

Use only use organic or natural pest deterrents such as soap, garlic and chili pepper.

Avoid chemical pesticides, especially neonicotinoid insecticides and "weed killers" that eliminate the pollen and nectar plants pollinators need.

Learn more at nwf.org/organicpractices



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Join the Garden for Wildlife Movement!

Join the growing movement of people making a difference for wildlife where they live, work, learn, worship, and play! Just go to nwf.org/garden.

Photo Credits: Page 1: Background Photo - Cheryl Bonkowske, American Lady Butterfly - Lauren Hult; Bee - Mark Brinegar; Hummingbird - Saija Lehtonen
Page 2: Tiger Swallowtail - Linda Matteo



Pollinator Friendly Plants

Perennials

Anise hyssop aka Blue Giant Hyssop
Black-eyed Susan/Brown-eyed Susan

Cardinal Flower
Catmint
Dutchman's Breeches
False Sunflower
Gayfeather/Blazing Star
Goldenrod
Joe-Pye Weed
Milkweed

N. Y. Aster/New England Aster
Purple coneflower
Threadleaf Coreopsis/Lanceleaf Coreopsis
Wild Bergamot
Wild Geranium

Agastache foeniculum
Rudbeckia hirta /Rudbeckia tribola
Lobelia cardinalis
Nepeta spp. – consider 'Walker's Low'
Dicentra cucullaria
Helenium autumnale
Liatris spicata
Solidago spp. consider S. flexicaulis or S. nemoralis
Eutrochium maculatum/Eutrochium purpureum
Common milkweed (A. syriaca), Butterflyweed (A. tuberosa), Swamp milkweed (A. incarnata)
Symphyotrichum novi-belgii/S. Novi-angliae
Echinacea purpurea - Choose simple flower forms
Coreopsis verticillata/Coreopsis lanceolata
Monarda fistulosa
Geranium maculatum - consider 'Rozanne'

Annuals

Cosmos (single)
Moss rose/portulaca
Salvias
Sunflowers
Sweet alyssum
Zinnia

Cosmos spp. - consider C. atrosanguineus, C. bipinnatus, C. sulfurens
Portulaca grandiflora
Salvia spp - consider S. splendens, S. patens-gentian, S. elegans
Helianthus annuus - consider 'Lemon Queen'
Lobularia maritima
Zinnia spp. – consider any single petal variety

Trees and Shrubs

Blueberry
Cherries/Plums
Oaks
Redbud
Willows

Vaccinium spp. High-bush (V. corymbosum) & low-bush (V. angustifolium) varieties
Prunus spp. Choose single flowered varieties such as P. serotina (black cherry), P. Americana (wild plum), P. virginiana (chokecherry)
Quercus spp. Consider black oak, white oak, red oak, pin oak
Cercis spp. Avoid red and purple leafed species.
Salix spp. Consider black willow, meadow willow, peachleaf willow, prairie willow, sageleaf willow, pussy willow (S. discolor).

Herbs

Dill
Parsley
Sage
Rosemary
Borage
Lavender

Anthem graveolens
Petroselinum crispum
Salvia officinalis
Salvia rosmarinus (Rosemarinus officinalis)
Borago officinalis
Lavendula spp.

There are many more options. These are just a few suggestions of plants that are readily available.

Area Native Plant Suppliers

Erie County:

Ben Brook Farm 1851 Tonawanda Creek Rd. Buffalo NY 14228 Phone: (716) 691-7553

CW Native Plant Farm 12288 Tonawanda Creek Rd. Akron NY 14001. Phone: (716) 417-2626.

Johnson's Nursery 11753 Big Tree Rd, East Aurora NY 14052 Phone: (716) 652-8969

Lessons From Nature www.lessonsfromnature.com Consulting and annual plant sale.

Lockwood's Greenhouses & Nursery 4484 Clark Street Hamburg NY 14075 Phone: (716) 649-4684

Mischler's Florist and Greenhouses 118 S. Forest Rd. Williamsville NY 14221 Phone: (716) 632-1290

Murray Brothers Nursery 4735 Transit Rd. Orchard Park NY 14127 Phone: (716) 662-3860

Turnbull Nursery Inc/Garden Center 10036 Versailles Plank Rd. North Collins NY 14111 Phone: (716) 337-2248

Urban Roots Community Garden Center 428 Rhode Island St. Buffalo NY 14213 Phone: (716) 362-8982

In or near WNY:

Amanda's Native Garden 8030 Story Rd. Dansville NY 14437. Phone: (585) 750-6288

Broccolo Tree & Lawn Care The Garden Center is located at 2755 Penfield Rd. Fairport NY 14450 Phone: (585) 424-4476

Fruition Seeds 7921 Hickory Bottom Rd. Naples NY 14512. Organic seeds, transplants, fruit trees

Hickory Hurst Farm 4803 West Lake Road, Mayville NY 14757

Ontario Seed Company LTD. P.O. Box 7 Waterloo ON, N2J 3Z6 Phone: (519) 886-0557. Ecological lawn seed mixes, cover crop, wildflower seeds.

The Plantsmen Nursery 482 Peruville Rd. (Route 34B) Groton NY 13073 Phone: (607) 533-7193

Redmont Nursery LLC Rochester-based, seasonal hours and contact, www.redmontnursery.com

Royal Fern Nursery Glasgow Rd, Fredonia, NY 14063 Phone: (585) 610-3788

Southern Tier Consulting and Nursery 2701-A Route 305 West Clarksville NY 14786 Phone: (585) 968-3120. Specializes in wetlands, offers plugs, seeds.

This list is not exhaustive. Many other nurseries carry native plants.

Check with your local Extension Office: <https://cals.cornell.edu/cornell-cooperative-extension/local-offices>

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Plant List for Pollinators By: Lyn Chimera

Bloodroot - *Sanguinaria Canadensis*

Snowdrops - *Galanthus*

Virginia Bluebells - *Mertensia virginica*

Lentin Rose - *Helleborus orientalis*

Trillium - *Trillium erectum*

Dandelion - *Taraxacum officinale*

Solomon's Seal - *Polygonatum biflorum*

False Solomon's Seal- *Smilacina racemosa*

Wood Poppy - *Stylophorum diphyllum*

Wild Geranium – *Geranium maculatum*

Geranium - *Cranesbill*

Gold Star - *Chrysogonum virginianum*

Goatsbeard - *Aruncus dioicus*

Cone Flower - *Echinacea purpurea*

Queen of the Prairie - *Filipendula rubra*

Tall Meadow Rue - *Thalictrum pubescens*

Amsonia - *Amsonia salicifolia*

Swamp Milkweed - *Asclepias incarnate*

Turtlehead - *Chelone glabra*

Windflower - *Anemone*

Cardinal Flower - *Lobelia cardinalis*

Queen Anne's Lace - *Daucus carota*

Fireworks Goldenrod - *Solidago rugosa*

Asters - *Aster novae-angliae* & *Aster novi-belgii*

Blue Wood Aster - *Symphyotrichum cordifolium*

Monkshood - *Aconitum uncinatum*

Guide to Shopping for Plants for Pollinator Gardens

Prepared by CCE Erie, Master Gardener Program Volunteers

When visiting a nursery, ask:

- Is there an area specific for native plants?

If they carry native plants, ask:

- Are the plants native to New York State?
- Did you grow them?
- If not grown at the nursery, were they grown in our zone (for WNY: zone 5 or 6a)?
- Were they grown from seed, division, cuttings or cloned? (Plants grown from seed are suggested, as sexual reproduction encourages genetic diversity.)
- Were they grown using pesticides including herbicides?
- Do you use pesticides including herbicides anywhere in the nursery? If 'yes', which ones?



Additional suggestions for sourcing plants for pollinator gardens:



- Check spring and fall plant sales from local garden clubs, native plant societies, herb societies, Master Gardeners' organizations, and farmers' markets.
- Branches of many public libraries are establishing seed "libraries". Gardeners donate seeds and you can take what you need. Check to see if your local branch has established a seed library.
- Specialized nurseries can be found using "native plant nurseries near me" through online search engines.
- If you choose to mail order, choose nurseries in the same zone or ecoregion as you. Choose plants grown under similar conditions to your area. Ask questions about pesticide use and check the reputation of the nursery before you spend money.
- Let nursery owners or plant buyers know you are interested in buying native plants.

When selecting plants, look for words like "heirloom", and simple, non-ornate flower shapes. Choose flowers labeled "cottage garden" or "old-fashioned". Choose colors like purple, blue and yellow. Consider choosing both perennials and annuals. Avoid doubles, bedding plants, anything patented or trademarked, anything with a name in "-" marks. Avoid plants with red and purple leaves. Be sure to consider especially early and late season blooming plants like crocuses and species tulips, and in the fall, asters and goldenrod.

Other tips:

- In fall, plant bulbs for early spring pollinators. Bumblebees can be active as early as late March in a warm spring and need food. Look for species crocuses and species tulips. Avoid hybrid tulips and daffodils.
- Learn to grow plants from seed using the winter sowing method. Native plants in particular do very well with this method in which seeds are sown in late winter outdoors. No grow lights or house mess!
- Don't forget about trees and shrubs, especially early bloomers like pussy willows and witch hazel. When in doubt, plant a native oak. Through food and protection, oaks support more life forms than any other tree in North America. For example, oaks support over 900 species of Lepidoptera (butterflies/moths)

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Natives to provide bugs, fruits, nuts, berries, and nectar for birds, bees, butterflies, moths

Flowers

Wild Bergamot (sun)	Milkweed (sun)
Brown-eyed Susan	Ironweed
New England Aster	Goldenrod
Eastern Columbine	Boneset
Wild Geranium (shade)	Sunflowers
Wild Ginger (groundcover, shade)	

Shrubs/Bushes

Arrowwood Viburnum	
Ninebark (sun-shade)	
Nannyberry (sun)	
Elderberry (sun)	
Highbush Blueberry (sun)	
Serviceberry (sun, can grow up to 20ft)	

Grasses

Little Bluestem (sun)	
Big Bluestem (sun)	
Pennsylvania Sedge (sun-shade)	
Bottlebrush Grass (partial shade)	
Canada Wild Rye	

Trees

White Oak	Hickories
Eastern Redbud	Cherries
American hazelnut	White Pine
River Birch	American
Hornbeam	

Natural Landscaping

- Reduce lawn – mow paths to spaces and trees
- Replace lawn with fescue or sedum and add islands of flowers and grasses
- Create rain gardens in moist areas: Joe-Pye weed, Boneset, Elderberry, Swamp milkweed
- Create a living fence of bushes and trees, use logs and rocks, to provide wildlife shelter
- Leave part of your back yard and/or side yard natural, let the wildflowers and weeds grow!
- Let leaves lay and decay in the fall for the insects and to benefit the soil

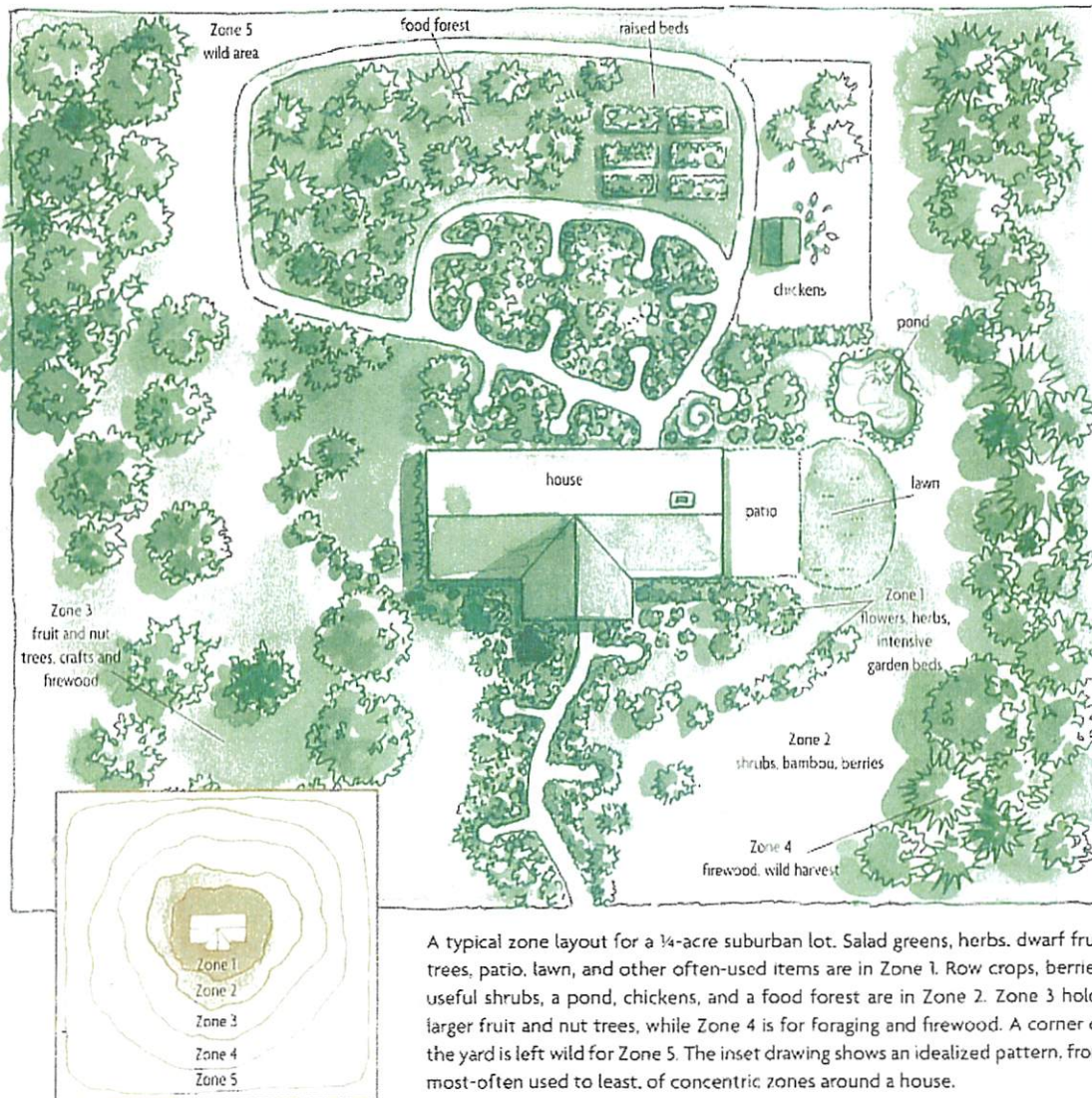
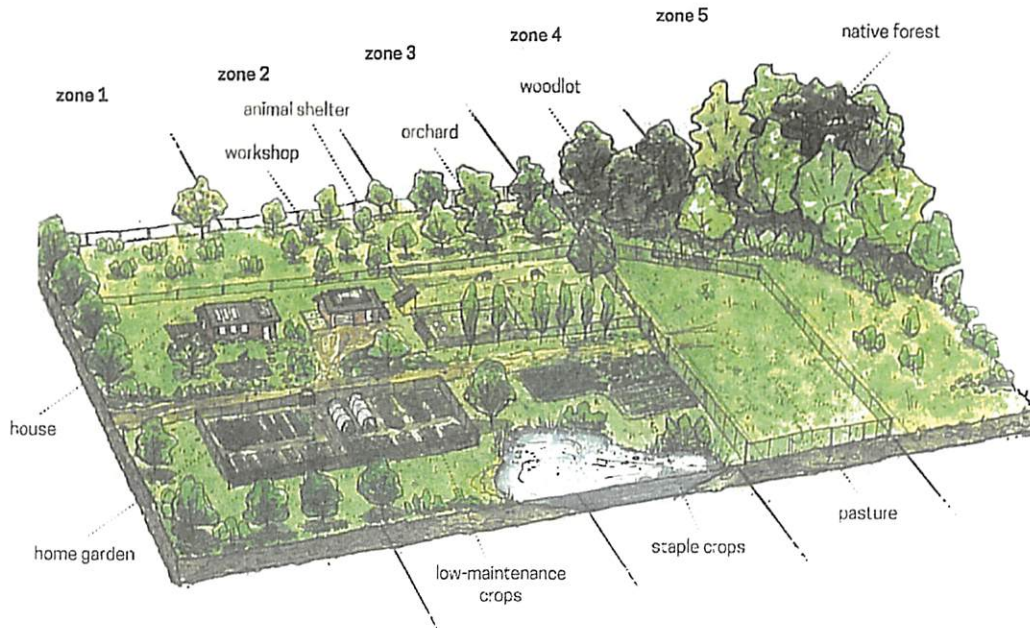


Online References:

NYS Flora Atlas
Native Plant Finder (Nat'l Wildlife Fed.)
USDA Plants Database
Lady Bird Johnson Native Plants Database
Joy of Plants—Gardening with Wildlife in Mind

Books:

Bringing Nature Home, Doug Tallamy
The Wildlife Gardener: Creating a Haven for Birds, Bees and Butterflies, Kate Bradbury
The Humane Gardener: Nurturing a Backyard Habitat for Wildlife, Nancy Lawson
The Wildlife-Friendly Vegetable Gardener, Tammi Hartung



A typical zone layout for a ¼-acre suburban lot. Salad greens, herbs, dwarf fruit trees, patio, lawn, and other often-used items are in Zone 1. Row crops, berries, useful shrubs, a pond, chickens, and a food forest are in Zone 2. Zone 3 holds larger fruit and nut trees, while Zone 4 is for foraging and firewood. A corner of the yard is left wild for Zone 5. The inset drawing shows an idealized pattern, from most-often used to least, of concentric zones around a house.



National Wildlife Federation's GARDEN FOR WILDLIFE™

Garden Certification Walk-through Checklist

It's easier than you think to create your own wildlife garden! Use this walk-through checklist to confirm you have all the elements necessary to be certified:

***Note:** this checklist is only a tool to prepare your garden, please certify online at www.nwf.org/certifiedwildlifehabitat

FOOD: Your habitat needs three of the following types of plants or supplemental feeders:

- | | | | |
|---|---------------------------------|---|---|
| <input type="checkbox"/> Seeds from a plant | <input type="checkbox"/> Fruits | <input type="checkbox"/> Bird Feeder | <input type="checkbox"/> Butterfly Feeder |
| <input type="checkbox"/> Berries | <input type="checkbox"/> Sap | <input type="checkbox"/> Squirrel Feeder | <input type="checkbox"/> Nuts |
| <input type="checkbox"/> Nectar | <input type="checkbox"/> Pollen | <input type="checkbox"/> Hummingbird Feeder | |
| <input type="checkbox"/> Foliage/Twigs | <input type="checkbox"/> Suet | | |

WATER: Your habitat needs one of the following sources to provide clean water for wildlife to drink and bathe:

- | | | | |
|-----------------------------------|--|--|--|
| <input type="checkbox"/> Birdbath | <input type="checkbox"/> Seasonal Pool | <input type="checkbox"/> River | <input type="checkbox"/> Rain Garden |
| <input type="checkbox"/> Lake | <input type="checkbox"/> Ocean | <input type="checkbox"/> Butterfly Puddling Area | <input type="checkbox"/> Water Garden/Pond |
| <input type="checkbox"/> Stream | <input type="checkbox"/> Spring | | |

COVER: Wildlife needs at least two places to find shelter from the weather and predators:

- | | | | |
|--|---------------------------------------|--|---|
| <input type="checkbox"/> Wooded Area | <input type="checkbox"/> Cave | <input type="checkbox"/> Brush or Log Pile | <input type="checkbox"/> Dense Shrubs/Thicket |
| <input type="checkbox"/> Bramble Patch | <input type="checkbox"/> Roosting Box | <input type="checkbox"/> Burrow | <input type="checkbox"/> Water Garden or Pond |
| <input type="checkbox"/> Ground Cover | <input type="checkbox"/> Evergreens | <input type="checkbox"/> Meadow or Prairie | |
| <input type="checkbox"/> Rock Pile or Wall | | | |

PLACES TO RAISE YOUNG: You need at least two places for wildlife to engage in courtship behavior, mate and then bear and raise their young:

- | | | | |
|--|----------------------------------|---|---|
| <input type="checkbox"/> Mature Trees | <input type="checkbox"/> Wetland | <input type="checkbox"/> Dead Trees or Snags | <input type="checkbox"/> Water Garden/Pond |
| <input type="checkbox"/> Meadow or Prairie | <input type="checkbox"/> Cave | <input type="checkbox"/> Dense Shrubs/Thicket | <input type="checkbox"/> Host Plants for Caterpillars |
| <input type="checkbox"/> Nesting Box | <input type="checkbox"/> Burrow | | |

SUSTAINABLE PRACTICES: You need to employ practices from at least two of the three categories below to help manage your habitat in a sustainable way- *to better help wildlife, we advocate employing one or more practices from each category:*

- | | | | |
|--|---|--|--|
| <input type="checkbox"/> Soil and Water Conservation: <ul style="list-style-type: none">• Riparian Buffer• Capture Rain Water from Roof• Xeriscape (water-wise landscaping)• Drip or Soaker Hose for Irrigation | <input type="checkbox"/> Controlling Exotic Species: <ul style="list-style-type: none">• Practice Integrated Pest Management• Remove Non-Native Plants and Animals | <input type="checkbox"/> Organic Practices: <ul style="list-style-type: none">• Eliminate Chemical Pesticides• Eliminate Chemical Fertilizers | <ul style="list-style-type: none">• Limit Water Use• Reduce Erosion• Use Mulch• Rain Garden• Use Native Plants• Reduce Lawn Areas• Compost |
|--|---|--|--|

For more information on The Habitat Projects in WNY visit
www.BRRAlliance.org



Create Your Humane Habitat!



Food Sources

- Trees (fruit, walnut, hickory, oak, spruce, pine)
- Berry bushes (elderberry, holly, blueberry)
- Shrubs (azalea, hawthorn, shrub rose, privet)
- Flowers/weeds (sunflowers, milkweed, coneflowers, sedum, goldenrod)
- Herbs (dill, parsley, chervil)
- Birdfeeders (seed, suet, hummingbird nectar)



Water Sources

- Pond/River/Stream
- Rain garden
- Birdbath
- Shallow dish
- Puddling area/dish (butterflies)



Cover

- Hardwood trees
- Evergreen trees
- Shrubs/thickets
- Ground cover/fields
- Brush/stick piles
- Rock piles
- Nest boxes/birdhouses



Sustainable Practices

- Reduce lawn
- Use native plants
- Compost
- Use mulch
- Rain barrels
- Eliminate chemical pesticides & fertilizers



Educate and Share

- Show and educate friends and neighbors - habitat visit, pictures, social media

***Humane habitats create and extend kindness and compassion
to wildlife and humans!***

Bumblebees: The Amazing Gentle Giants

CCE Erie County's Pollinator of the Year for 2022



Photo from Rawpixel, public domain

Bumblebees are large yellow and black insects in the genus *Bombus* with a noticeable buzz.

Their colonies of 50 – 500 like cozy living. They nest in cavities like dead trees and unused bird nests but prefer abandoned rodent holes because they are warm and already lined with fur.

Bumblebees are very effective pollinators. A fuzzy covering enables them to begin harvesting in early spring and continue into late fall. As they buzz, their hairs vibrate and spread more pollen. They leave a scent on each flower they pollinate as a message to other bumblebees that the flower has already been visited.

Bumblebees are generalists, harvesting from many flowers at the same time and for this reason, are one of the best pollinators for wildflowers and agriculture.

Fun facts about Bumblebees:

- ❖ They only live one year.
- ❖ Since the colony doesn't live through the winter, they don't have to store honey like honeybees.

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- ❖ New queens are hatched in the fall and survive underground over the winter to start a new colony in the spring.
- ❖ They are the only native bees in North America to live in social groups.
- ❖ Bumblebees harvest nectar for carbohydrates and pollen for protein.
- ❖ There are 225 species of Bumblebees around the world, 46 in North America and eight in NYS.
- ❖ Workers fly over a mile from their colony to get food.
- ❖ They usually carry 25% of their body weight in pollen and nectar but have been known to carry over 70%!
- ❖ Their amazing tongues are longer than those of honeybees. This gives them access to more nectar. They also taste and smell through their tongues.

Bumblebees are fun to watch and rarely sting unless provoked. Never kill a bumblebee as they are important pollinators!



Photo from Rawpixel, public domain



Beneficial Insects - Nature's Pest Control

With the ecological mistakes of humans becoming more apparent, it is reassuring to know that nature can establish certain controls that prevent some destructive insects from overpopulating the environment. We can encourage and prepare the conditions for an increase in insect predator populations. The first step is to be able to identify the beneficial insects.

Some predatory insects such as ladybird beetles and praying mantids are available for sale. Ladybird beetles purchased in the spring have likely been collected during their winter hibernation, and upon release will soon fly away, often far from their release site. Buying predatory insects for releasing in the home garden in order to control insect pests is likely to result in disappointment. It may be more useful to attempt to conserve the natural predators already present in the area.

Lady Beetles (Ladybird Beetles; Ladybugs)

Family: Coccinellidae



Adult.



Larva.

Lady beetles are small, oval, convex and often brightly colored. Most of this family are predaceous both as larvae and adults, and feed chiefly on aphids. They also eat scale insects and mealybugs. Ladybird Beetles are found frequently on vegetation where aphids are numerous. They hibernate as adults, commonly under leaves and debris in large aggregations. One of the native species is the Two-spotted Lady Beetle, which is orange-red, with one black spot on each wing cover.

A species often seen on houses in the autumn and indoors over winter is the Multicolored Asian Lady Beetle, which varies in color and number of spots.

Ground Beetles

Family: Carabidae



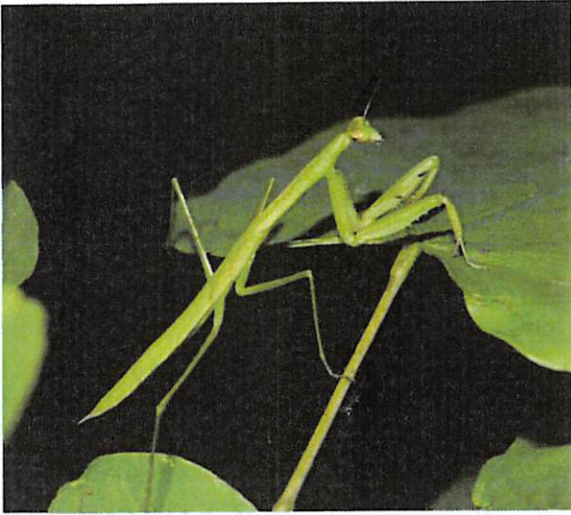
The family Carabidae (Ground Beetles) has many hundreds of species that vary in size, shape and color. Most of these insects are somewhat flattened, dark brown or black, and shiny. They may be found under stones, logs, bark, debris or running about on the ground. Most of them hide during the day and feed at night.

Nearly all are predaceous on other insects and many are beneficial by feeding on pest insects. There are also some Ground Beetles that feed on slugs and snails.

Adult.

Praying Mantids

Family: Mantidae



Nymph.



Egg case.

Adults and the immature (nymph) stages of the praying mantis look similar. These are highly predaceous insects that feed on a variety of other insects. The mantids wait to ambush their prey with the front legs in an upraised position that gives them their name.

Praying mantis egg cases may be found on tree twigs and in fields, and for some fun, you may wish to watch them hatch in your own garden next spring. Egg cases may be gathered by cutting the twig you find them on, then tying the case to a branch in your garden. The young come tumbling out of their case by the hundreds in the spring. Praying mantids are cannibalistic and will eat one another. Only a few will survive under home garden conditions.

Dragonflies

multiple Families in the Order Odonata



Adult.



Nymph.

Adult dragonflies can be seen actively hunting flying insects, but tend to be more common closer to water. The adults hunt for insect prey using their large eyes and scoop it up with their spiny legs, all while flying. Many small midges, gnats, and mosquitos are eaten, but generally not enough to fully control their populations. Sometimes larger prey are captured, such as butterflies.

The immature dragonfly stages (the nymphs) live underwater, and feed on whatever they can catch, including aquatic insects and sometimes even small fish.

Hover Flies

Family: Syrphidae



Adult.



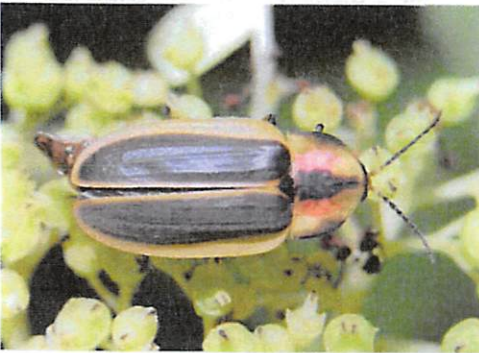
Larva, with aphids.

Hover Flies are also known as Syrphid Flies or Flower Flies. They may be brightly colored, and many resemble wasps and bees hovering over flowers. However, these flies do not sting. The larvae of most species are predaceous, feeding on aphids or the young of termites, ants, or bees.

Not all Hover Flies are beneficial: the Narcissus Bulb Fly has larvae that damage bulbs of daffodil and related garden flowers.

Lightningbugs; Fireflies

Family: Lampyridae



Adult.



Larva.

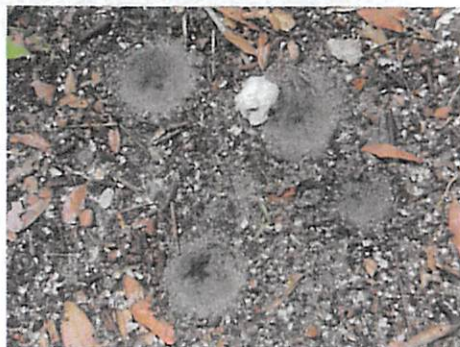
The Fireflies or Lightningbugs are neither flies nor bugs, but are beetles. During the early summer the adults fly about in the evenings and are conspicuous by their blinking yellow light. The larvae are beneficial by feeding on various smaller insects, slugs, and snails.

Antlions

Family: Myrmeliontidae



Larva.



Pits made by larvae.



Adult.

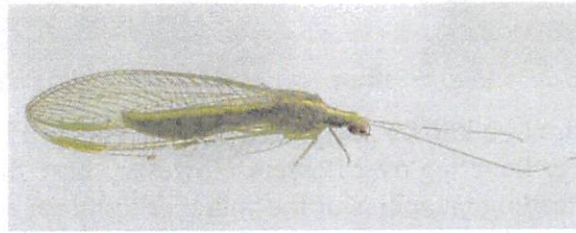
Also known as doodlebugs, antlion larvae have long sickle-shaped mouthparts which they use to grab their prey. The larva makes a pit in sandy soil and lies in wait underground at the center. When an ant stumbles in, the ant lion larva flicks sand at it until it slides down the pit into its jaws. Antlions are most common in dry sandy soils.

Lacewings

Families: Chrysopidae and Hemerobiidae



Larva, with aphids.



Adult.

Lacewing adults are about three-quarters of an inch or less in length, with delicate, gauzy, green or brown wings. Some species have jewel-like golden eyes.

The larvae are grayish brown, with sharp curved jaws that extend beyond the head. Larvae crawl along the leaf surface in search of aphids, scales, mealybugs, thrips, mites, and insect eggs. Full-grown larvae can consume 100 or more insects a day.

Parasitoid Wasps

Families: Braconidae, Ichneumonidae, and others



Braconid wasp pupae on a caterpillar.



Ichneumon wasp adult.

There are hundreds of species of parasitoid wasps that can be important in controlling populations of other insects. The most commonly noticed ones are Braconid and Ichneumonid wasps. Many other parasitoid wasp species are much smaller, only a few millimeters long.

The wasps typically have a larval stage that feeds on the inside of the host insect, and the larvae slowly devour the host, which eventually dies. Some of the wasps emerge to pupate on the outside of the host, others develop into pupae inside and emerge from the host as adults.

Prepared 1972 by Carolyn Klass & Prof. Warren T. Johnson, Dept. of Entomology, Cornell University.

Updated 2012 by Jason J. Dombroskie, Ph.D., Dept. of Entomology, Cornell University. All photographs © 2012 by J.J. Dombroskie.

<http://idl.entomology.cornell.edu>

Ecological Gardening Strategies

Practicing Permaculture Concepts Using Native Plants

Permaculture is about producing edible landscapes, mirroring the natural ecosystems in their diversity and production. Permaculture garden designs integrate all components of the ecosystem in a holistic approach to sustainable living and practice:

- Sustainable land use strategies, without wastes and pollution
- Established systems for healthy food production; each garden serves multiple purposes (aesthetics, food sources, animal resources, companion plants)
- Restoration of soil and degraded landscapes, resulting in conservation of endemic species – especially rare and endangered species
- Integration and harmony of all living things on the property – in an atmosphere of cooperation or interact in natural cycles that account for changing wind, water, sun
- Minimal consumption of energy

Restoring and Fostering Humane Habitats

- Planting and fostering native plants that provide food and cover for wildlife species in geographic area
- Focusing on pollinators: nectar and foliage plants, trees, shrubs
- Choosing plant species for birds, mammals, reptiles, insects, amphibians
- No use of herbicides, pesticides or chemical fertilizers
- Reducing lawn through creation of gardens and planting of trees
- Creating water sources: pond, rain garden, bird bath, water dishes
- Leaving seed heads on plants, fall leaves on the ground, weeds for wildlife



Each garden places us firmly within the context of all life, awakens us to the web, humbles us as we become aware of ourselves as a node in that interlinked web... When we nestle a plant into a newly dug hole, we are reaching out to bees that will gather pollen and frogs that will take shelter in a rainstorm. A garden is our grasping for the world as much as it is a giving to the world—who we are, where have we been, where we will go. A garden is the moment, now, every emotion, every bit of knowing and unknowing coalescing into a timeless equality of mind, body, and spirit. In our best moments, we are no less than a garden that serves life, not ourselves.

■ Benjamin Vogt, *A New Garden Ethic: Cultivating Defiant Compassion for an Uncertain Future*



Bringing Together the Elements for Ecological Gardening

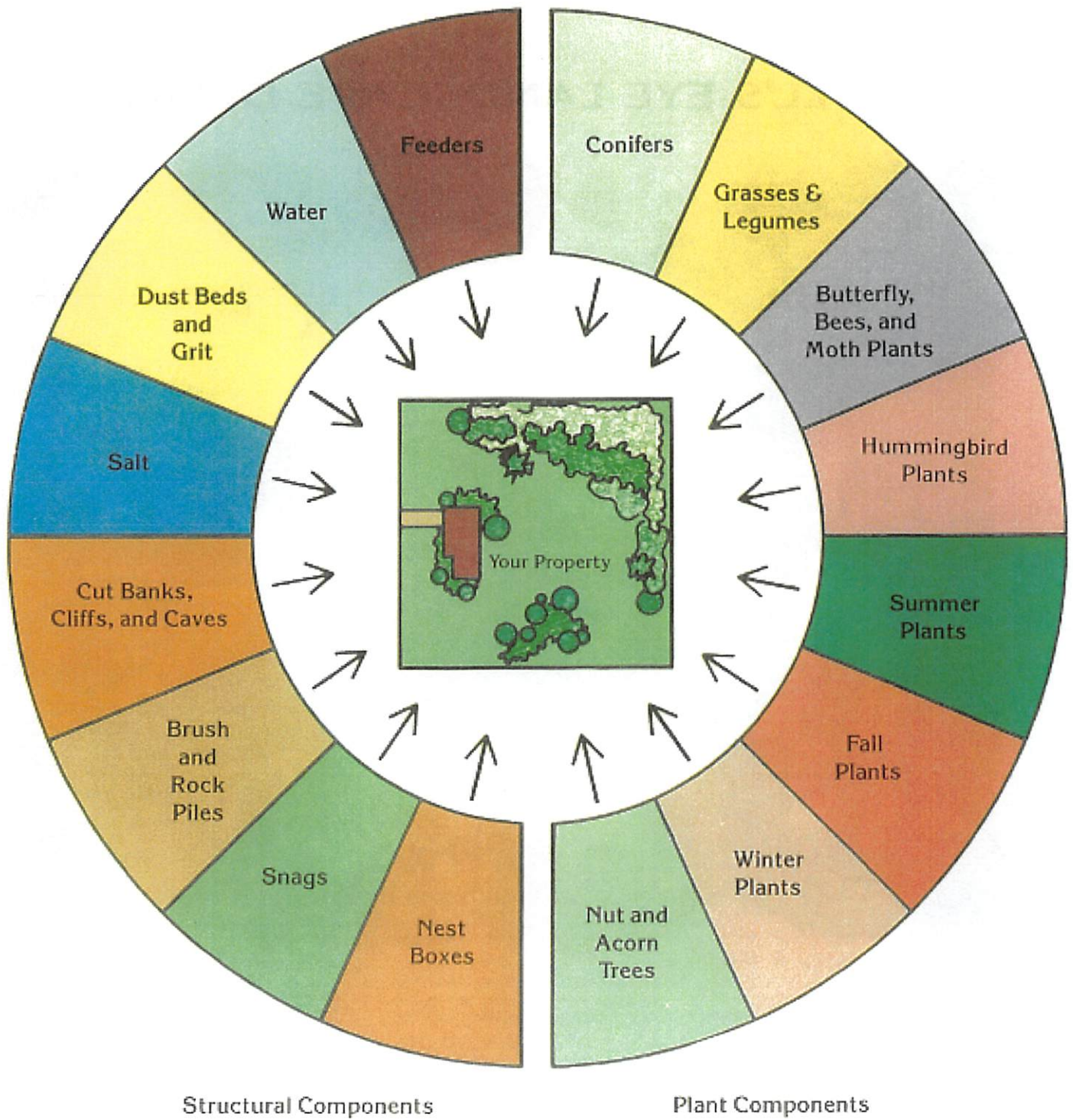


Figure 6. Sixteen components of wildlife habitat.

BULL'S-EYE LANDSCAPE DESIGN



Ten Tips for a Healthy, Pesticide-free Lawn

Garden chemicals can be harmful to humans, pets, wildlife, and waterbodies. The good news is there are many easy ways to care for your lawn that avoid putting family and neighbors at risk.

Follow these 10 tips for a healthy, pesticide-free lawn:

1. Just say no to pesticides.

Caring for your lawn without synthetic chemicals is easy and does not have to be costly. You will be satisfied with the results, especially if you are not in a big hurry to achieve that “golf course” look, or if you enjoy the pleasant naturalized color and texture variation that comes with a healthy mixture of plants. Make sure lawn products you choose are pesticide free – read the whole label – if the product says it is a hazard to humans or the environment, it is best to avoid it.



2. Check your soil.

It is hard to have a nice lawn without enough soil. Take a shovel and dig down. If you have 6 inches or more of topsoil, you are in great shape. If you have less than 4 inches, add ½ inch compost annually. Get a soil test and follow the recommendations for soil amendments such as lime, organic matter, and fertilizer. Most garden centers have basic soil test kits. Soil samples can also be sent to a soil lab such as Dairy One Cooperative, Inc. Erie County Cooperative Extension Master Gardeners can talk about sample preparation and test results.

3. Know what feeds your weeds.

Every weed tells a story about your soil. Crabgrass likes compact soil, so aerate. Cinquefoil likes poor dry soil, so add compost. Dandelions like high pH, so add lime. Use your soil test as a guide to make conditions favorable to turf and unfavorable to weeds. Many plants you might consider weeds are beneficial to your lawn. For example, clover is a legume and helps to make nitrogen available in the soil.

4. Feed your lawn only lightly.

Use slow-release fertilizers such as organic compost or organic fertilizer. Feed when weeds are not actively growing; otherwise you will be feeding annual weeds. Fall, after top growth has stopped, is the best time to feed which will promote deep root growth and produce stronger plants that out compete weeds.

5. Plant a variety of grasses.

If you have problem areas, overseed in early fall after applying a 1/2-inch layer of compost. During September grasses grow rapidly in cool fall weather and have less competition from germinating weeds. Use a mix of grasses; mixtures grow better in different sun, shade and traffic conditions.

6. Don't cut grass too short, mow high.

Set your mower to 3". Longer grass out competes weeds, better withstands drought and is more resistant to pests and diseases. Save time, money and landfill space by leaving clippings on the lawn; they will break down and fertilize the lawn.

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7. Water less often but deeply.

You may not need to water at all. If you do, water in the early morning and use a rain gauge. Apply one inch of water, no more than once a week, at a rate that water soaks into the ground and does not run off. This encourages deep grass roots, and discourages fungus and weed germination. You can cut back further in August when water may be limited and your turf grass can go dormant; it will green up again when moisture becomes available.

8. Aerate to open up the soil surface.

Over time soil under grass can become compacted and may become crowned with a layer of thatch. The soil is no longer fluffy enough for oxygen, water and nutrients to flow through it, down to the grass roots. Thatch is a buildup of living and dead grass roots and stems between the soil and green grass blades making the soil even more impervious. Thatch looks like a thick tangle of dark brown roots above the soil level. If thatch is greater than 1/2-inch, core aerate the lawn in late summer. In lawns with a thatch layer over 3/4-inch-thick you should aerate then top dress with a thin layer (1/8 to 1/4 inch) of soil or compost which adds thatch-degrading micro-organisms. Core aeration is considered the most effective aeration - a machine (a lawn aerator) with hollow tines mechanically removes plugs or "cores" of soil and [thatch](#) from a lawn. Core aeration reduces soil compaction, creating a channel through which oxygen, water, and nutrients can penetrate into the soil.

9. Eliminate grubs with nematodes.

Insecticide application to lawns for grub control is common and another reason to go pesticide free. Grub problems are rare in chemical-free lawns, possibly due to high biological activity and plant diversity in the soil. However, if you do have an outbreak with damage (more than 10 grubs per square foot), you can kill grubs with beneficial [nematodes](#) – naturally occurring microscopic worms that are not harmful to humans or pets. Nematodes (usually in powder form) are mixed into water and the solution is sprayed on the lawn. Garden centers or internet vendors can supply nematodes and application information.

10. If you use a lawn service, ask for pesticide-free lawn care.

More lawn/landscape care companies are offering natural, chemical-free methods for lawn care. Ask companies to explain their methods and check references before hiring any service.

Source: 10 Tips for a Healthy, Pesticide-free Lawn; TURI – Toxics Use Reduction Institute; UMass Lowell



This tip sheet is part of the Erie County Environmental Management Council's "Make Your Lawn a Safe Home for the Gnomes" campaign to reduce the use of pesticides in Erie County. For more information about this campaign and managing a pesticide-free landscape please visit the Healthy Lawns page at: ERIE.GOV/HEALTHYLAWNS

The Erie County Environmental Management Council is a group of volunteers appointed by the County Executive to advise county government regarding environmental issues impacting Erie County and its residents. The volunteer council members represent local municipalities, as well as other public and private agencies and organizations operating within the county dedicated to protecting our natural environment and resources.

Quick Facts

- If the product has an EPA registration number, it contains a pesticide or herbicide. Pesticides are used to kill, prevent, repel, or in some way adversely affect some living organism (the pest). Pesticides by their nature are toxic to some degree.
- Inert does not mean non-toxic. According to the EPA, many 'inert' ingredients are also [toxic](#).
- Pesticides are mixed with fertilizer in products called weed and feed.
- All pesticides persist in lawns and soil longer than the posted 24-72 hours, some as long as two years.
- Many garden centers now carry some organic products - just ask. The more demand from you, the better the selection will be.
- You can make your own compost with kitchen scraps and leaves.

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Smart Gardening: Smart lawn alternatives to protect pollinators

Rebecca Krans, Michigan State University Extension

Adapted from Abiya (Abi) Saeed and Rebecca Krans, Michigan State University Extension

Pollinators, especially bees, provide us with valuable services by pollinating plants that contribute to food production and beautify our landscape. Disturbingly, there is increasing evidence that many important pollinator species are in decline. As people develop more and more land, the amount of habitat where bees and other pollinators can nest and find flower resources (food) is shrinking. This is especially true in urban and suburban areas where farmland or natural habitats have been replaced by subdivisions and parking lots. Lawns that are aesthetically pleasing to most people create a dense, green carpet with almost nothing to offer pollinators and other beneficial organisms.

Smart gardeners can make a difference by taking steps to be thoughtful about how they maintain their lawn. Look to reduce and minimize the impact of gardening practices on bees. Lawns with a few weeds can provide food and habitat for hundreds of bee species. Your lawn can act as critical stepping stones for these beneficial insects by bridging gaps between remnants of natural habitat.

Lawn alternatives to encourage pollinators

The types of alternative lawns are only limited by your imagination. For a more grass-like lawn that requires fewer inputs, you can choose plants such as *Liriope* to replace a traditional lawn on either flat or steep areas. This hardy perennial can be mowed several times a year for a more lawn-like appearance or left alone. Other grassy perennials



Jason Gibbs, MSU Entomology

Anthidiellum notatum, the northern rotund-resin bee, on clover.

such as sedges and fescues can replace lawn in wet or dry areas that are difficult to maintain.

If you want to reduce turf areas, consider using groundcovers including creeping thyme, a low-growing plant that produces lots of flowers and requires minimal maintenance. Other groundcovers include *Ajuga*, bearberry or *Pachysandra*. Low-growing clover like white or Dutch micro-clover, is a thrifty lawn alternative which provides nectar and pollen for bees.

For a more natural look, turn your lawn into a low maintenance prairie filled with native plants of varying heights and textures. For example,



The importance of pollinators

Many of our fruit, vegetable and fiber crops require pollination by insects. These pollinators also pollinate more than 85% of the world's flowering plants and are ultimately responsible for the seeds and fruits that humans, songbirds and even black bears consume. Since learning that the number of pollinators is significantly declining, many gardeners are learning how to make positive contributions towards their conservation. Understanding habitat needs and food sources while adjusting our garden maintenance routine is a step forward in pollinator conservation.

Many of us quickly think of the honey bee as a pollinator, but over 450 species of native bees live in Michigan. Native bees come in many shapes and sizes, and are often adapted to prefer native trees, shrubs and herbaceous plants, but will also work a widely diverse garden plant palette. Although bees are the most important pollinators, there are several other groups of insects, birds, mammals and even reptiles that play their part in pollinating specific plants.

Beneficial insects also make up the world's hardest-working workforce by keeping pest insects in check. A diverse selection of native and non-native plants, judicious reduction of pesticide use and observant gardeners can form a successful strategy for preserving bees and other "good bugs" in our landscapes and gardens.



Helenium (sneeze weed), Globe thistle and *Asclepias* (milkweed) will create a diverse, colorful and eye-catching landscape all year round. You can gradually reduce the amount of turfgrass area within your current lawn and replace it with native flowerbeds or expand your ornamental plantings.

Weeds can add flowers for bees

Although dandelions are considered unsightly by some, they are a great resource for hungry pollinators. By leaving a few of these flowering plants, you will encourage visiting pollinators throughout the growing season. Research shows lawn weeds like clover and dandelion are one of the largest and most important food resources for bees in urban areas. Consider incorporating short flowering plants such as clover, micro-clover, trefoil, self-heal/heal all (*Prunella*), creeping thyme and small bulbs such as crocus.

Not all pollinators sting

Pollinators investigating flowering plants in your lawn are not likely to sting you. They are only interested in the food and habitat in your lawn and garden, and not interested in bothering you. As you look to make your yard more friendly for pollinators, remember to reduce the amount of chemicals you use in your gardens, never spray any flowering plants in bloom or bare soil, and always read and follow label directions. Reimagine (bee-imagine) your idea of a perfect lawn. Does it need to be a picture-perfect turf landscape, or a perfect paradise for you and pollinators?

A field guide, "Bees of the Great Lakes region and wildflowers to support them," is for sale at shop.msu.edu if you want to learn more.

Additional Smart Gardening tip sheets on gardening for pollinators from MSU Extension

- Know the insects that look like bees (bit.ly/SG-Wannabees)
- Smart gardening to support monarchs (bit.ly/SG-monarchs)
- Smart lawn care to protect pollinators (bit.ly/SG-beeslawns)
- Gardening for pollinators: Smart plants to support pollinators (bit.ly/SG-pollinplants)
- Invite pollinators by creating a smart habitat (bit.ly/SG-beehabitat)
- Pollination in vegetable gardens and backyard fruit (<http://bit.ly/SG-pollinating>)

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Liriope covers a sloping area.

Rebecca Finneran, MSU Extension



Ajuga forms a welcoming groundcover for pollinators.

EnLorax, Wikimedia Commons



Sedge (*Carex pensylvanica*) forms a grasslike border along a slate walkway.

Jeff Epping, Olbrich Botanical Gardens

For more information on a wide variety of Smart Gardening topics, visit www.migarden.msu.edu or call MSU's Lawn and Garden hotline at 1-888-678-3464.



Bringing Wildlife Home

Lawn Reduction

Traditional American landscaping focuses on maintaining a manicured green lawn. However, native trees, shrubs, ground cover, prairie or meadow patches, flower beds, and attractively mulched areas are better environmental choices, for people and wildlife.



A gas-powered push mower emits as much hourly pollution as 11 cars and a riding mower as much as 34 cars.

Did You Know

- Approximately 40 million U.S. acres are planted as lawn, including residential and commercial properties and golf courses. More land in the U.S. is devoted to lawns than irrigated crops like corn or wheat.
- 30-60% of urban fresh water is used for watering lawns, depending on the city.
- 67 million pounds of synthetic pesticides are used on U.S. lawns annually.
- Yard waste, mostly grass clippings, makes up 20% of municipal solid waste collected, and much of it ends up in landfills.
- Lawns have less than 10% of the water absorbing capacity of natural woodlands, which contributes to suburban flooding.

Reasons to Reduce Your Lawn and Plant Native Plants

- Save time and money that you would normally spend on mowing and fertilizing grass. Native plants require much less maintenance than turf grass.
- Areas of lawn that include only one type of plant, such as turf grass, offer little habitat value for wildlife. A variety of native plants can provide wildlife with food, cover and places to raise their young.
- Conserve water. Native plants, once established, require much less water than turf grass.
- Reduce lawn mower air pollution.
- Decrease run-off of lawn fertilizers and pesticides into local watersheds. Once established, native plants do not require fertilizers or pesticides.

Unlike many native plants, turf grasses do not provide a good source of food or habitat for most types of wildlife.

Inspiring Americans to protect wildlife for our children's future.
National Wildlife Federation · 11100 Wildlife Center Drive · Reston, VA 20190

www.nwf.org/gardenforwildlife



Alternatives to Turf Grass that Benefit Wildlife

- Many native plant species can be used as ground cover in place of turf grass.
- Install native plants, trees and shrubs, which have great habitat value for wildlife. Encourage the native plants you already have and replace exotic invasive species with native ones. You can even create a butterfly or hummingbird garden with native plants. The Lady Bird Johnson Wildflower Center has lists of recommended native plants by region and state at www.wildflower.org/collections.
- Create a water garden or pond to provide a water source for wildlife.
- Create a rock garden or use garden borders of rock or wood. Wildlife will be able to use the rocks for shelter.
- Use mulched paths. Mulch can reduce weeds and prevent erosion. Use organic mulch to improve the soil with nutrients and increase its water holding capacity.
- Plant an organic vegetable garden.

How to Reduce Your Lawn

Make a plan of how you want your yard to look. Check with your local municipality, neighborhood, or homeowners' association for regulations. Once you have decided on a small area of your yard to convert, follow these simple steps:

1. Cover turf grass with 6-10 layers of newspaper (black & white only) or brown cardboard. There is no need to remove the grass first.
2. Make sure the sections overlap one another so that grass and weeds will not come up between the cracks.
3. Wet down the newspaper or cardboard.
4. Cover the newspaper or cardboard with a thick layer of mulch or dirt (4-6 inches).
5. Allow turf grass and weeds to die back for 4-6 weeks.
6. Plant directly through the mulch and newspaper/cardboard. If you know you're going to be planting trees or shrubs, dig the holes before putting down the layers of newspaper/cardboard and then layer the newspaper/cardboard around the holes.

Resources

- The Lady Bird Johnson Wildflower Center has lists of recommended native plants by region and state at www.wildflower.org/collections.
- EPA's GreenScapes program provides ideas for cost-saving and environmentally-friendly landscaping at www.epa.gov/epawaste/conserv/rrr/greenscapes/owners.htm.
- Learn about beneficial landscaping at EPA's Green Communities website at www.epa.gov/greenkit/landscap.htm.

Visit www.nwf.org/gardenforwildlife for more information.

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Rev0309



THE INVASIVE PLANT PROBLEM

Invasive Giant Hogweed
(*Heracleum mantegazzianum*)

SOME PLANTS MAY LOOK BEAUTIFUL, but they can have a devastating effect.

Invasive plants are non-native, grow quickly and rapidly reproduce. They cause major changes to the areas where they become established. They can harm the environment, economy and even human health. Many of today's worst invasive plants arrived as ornamental additions that escaped our gardens and landscapes. If we want to keep invasive plants out of our natural areas, we need to place non-invasive plants into our gardens. The good news – and an outcome that few other areas can claim – is that within

New York State, opportunities still exist to prevent invasive plants from becoming widespread. You can help.

INVASIVE SPECIES are the number one threat to native plants and animals on protected lands.

INVASIVE PLANTS are spreading over one million acres of wildlife habitat per year in the U.S.

SCIENTISTS ESTIMATE that invasive plants cost our economy \$35 billion in damages and treatment each year.

The New York Statewide Invasive Species Program

- Protecting New York's natural and agricultural resources, human and animal health, and economy from invasive species
- Using science to educate New Yorkers on the impacts of invasive species
- Helping New Yorkers detect, prevent, and manage invasive species

For more information on invasive species and Partnerships for Regional Invasive Species Management (PRISMs) in New York visit: www.nyis.info



This publication was produced for the eight New York PRISMs by the NY Invasive Species Clearinghouse at Cornell University. This publication, the PRISMS and the Clearinghouse are supported by the New York Environmental Protection Fund through contracts with the NYS Department of Environmental Conservation.

Photos from: the Bugwood Network, Forestryimages.org, Invasive.org, the Wikimedia Commons, and the Creative Commons

PLANT WISE NY

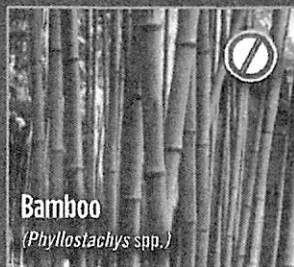
KNOW BEFORE YOU GROW

NEW YORK GARDENERS' TIPSHEET

Invasive Swallowwort
(*Cynanchum* spp.)

Native Cardinal Flower (*Lobelia cardinalis*)

DON'T PLANT



DO PLANT



HERE ARE SOME THINGS YOU CAN DO

LEARN about which invasive plants are a problem in your area. If you see invasive plants in the wild, report them to: nyimainvasives.org/report-an-invasive.

USE non-invasive plants in your garden and landscaping. A short list is provided here; more can be found in the brochure "Alternatives to Ornamental Invasive Plants - A Sustainable Solution for NYS" at www.NYIS.INFO.

WATCH out for invasive plant "hitchhikers" that might be growing in the pot of a desirable plant at the nursery.

SHARE native and non-invasive plants during plant swaps with neighbors and friends.

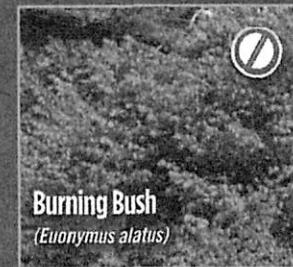
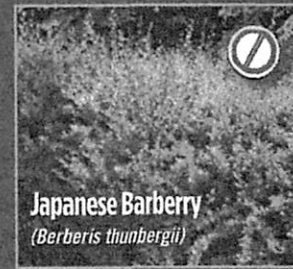
CHECK the ingredients of seed mixes and use only those that are free of invasive plants.

CONTROL invasive plants on your property using best management practices.

LEAD by example—ask your friends and neighbors to be plant wise.

GET involved with regional efforts to prevent and manage invasive species.

DON'T PLANT



DO PLANT






Keep A Lookout!

Terrestrial Invasive Species in Western New York





These species may be spreading in your area. Early Detection and Management can help prevent invasions and reduce the harmful impacts of these species. Maps show current reported distribution of species in WNY and surrounding counties.*

Not present in County
 Present in WNY PRISM County
 Present in FL-PRISM County
 *Updated November 2021








BLACK AND PALE SWALLOW-WORT



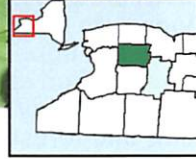







GOATSRUE



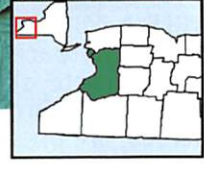
HEMLOCK WOOLLY ADELGID



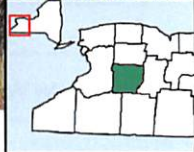
MILE-A-MINUTE



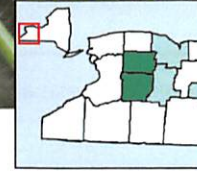
ORIENTAL BITTERSWEET



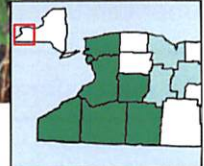
PORCELAIN BERRY

SCOTCH BROOM

SLENDER FALSE BROME

JAPANESE STILTGRASS

To report a sighting, please login to www.nyimainvasives.org



Terrestrial Priorities in Western New York

BLACK & PALE SWALLOW-WORT (*Cynanchum spp.*)

Perennial herbaceous vine that twines 3 to 8 feet high. **Leaves** are opposite, 2 to 5 inches long with a smooth margin, narrowly to broadly oval with pointed tips, dark green and shiny. **Flowers** are tiny, dark purple or maroon to pink with 5 pointed, hairless, triangular petals. **Seed pods** are milkweed-like, slender and tapered, 1.3 to 3 inches long. Threatens forests and grasslands and outcompetes native vegetation.

GOATSRUE (*Galega officinalis*)

Perennial legume that grows between 2 and 6 feet in height. **Leaves** are alternate and pinnately compound with six to ten pairs of leaflets. Each leaflet has a small hair-like appendage on its tip. **Flowers** are white to blue or purple, pea-like, arranged in terminal or axillary racemes and are present from June to October. Each flower produces a seed pod, containing 1 to 9 seeds and each plant can produce up to 15,000 pods. **Seeds** are bean-shaped with a dull yellow color. Threatens moist, disturbed areas including streambanks, ditches, pastures, forest edges and marshy areas. *Species is not yet in the WNY PRISM region, nearest location in Bradford, PA.*

HEMLOCK WOOLLY ADELGID (*Adelges tsugae*)

Small aphid-like insect. Eggs are brownish-orange and later darken. Adults are tiny (1/32 inch), oval and reddish-purple. Nymphs produce white cottony tufts which cover their bodies. White masses are 1/10 inch or more in diameter. Symptoms include needle yellowing and dieback. Limb dieback may occur within two years. Threatens hemlocks and associated habitats.

MILE-A-MINUTE (*Persicaria perfoliata*)

Annual herbaceous vine that climbs up to 15 feet. **Leaves** are alternate, shaped like a triangle with barbs on the undersides. Circular, cup-shaped leafy structures, called ocreas, are present around the stem at nodes. **Flowers** are small, white and inconspicuous. **Fruit** is a fleshy, pea-sized berry that turns from green to blue. Threatens woodlands, wetlands, open fields and riparian areas.

ORIENTAL BITTERSWEET (*Celastrus orbiculatus*)

Perennial woody vine grows to 60 feet and up to 4 inches in diameter. Bark is striated and dark brown. **Leaves** are alternate, 2-5 inches long, elliptical to circular and are light green in color. **Flowers** are small, inconspicuous, and greenish-white. **Fruit** is green or yellow then ripens into scarlet berries. Threatens woodlands and grasslands. Often mistaken for native American Bittersweet.

PORCELAIN BERRY (*Ampelopsis brevipedunculata*)

Perennial deciduous vine that can grow up to 20 feet long. **Leaves** are alternate, simple, variably shaped (from heart shaped to deeply lobed) with toothed edges, and shiny undersides with hairs only along the veins. **Flowers** are small and greenish-yellow. **Fruit** are berries in shades of white, yellow, lilac, teal or green that mature into bright blue with a white pith. Threatens streambanks and forest edges.

SCOTCH BROOM (*Cytisus scoparius*)

Perennial shrub that grows up to 10 feet. **Leaves** are small, alternately arranged, oblong and occur in groups of three. **Stems** are hairy in young plants and hairless in mature plants. **Flowers** are along the stem and yellow, small, and pea-like. **Seed pods** are blackish-brown with hairs along the seams that explode when mature. Threatens a wide range of habitats including forest edges, river banks, and fields.

SLENDER FALSE BROME (*Brachypodium sylvaticum*)

Perennial bunch grass. **Leaves** are flat, 0.2-0.5 inches wide, bright green and hairy on both sides. **Stems** and nodes have many tiny hairs. **Inflorescence** are slightly elevated above the rest of the plant with spikelets with no stalk, and flowers with long awns. **Leaves** and inflorescence are drooping. Threatens a wide variety of habitats including forests and grasslands, creates monocultures.

JAPANESE STILTGRASS (*Microstegium vimineum*)

Annual sprawling grass, 12 to 24 inches tall, resembling miniature bamboo. **Leaves** are wide, alternate, pale green, and 2-3 inches long with an off-center silver stripe of reflective hairs on the upper surface. **Inflorescence** nodding with paired spikelets, 13 inches long. Blooms late summer into early fall. Threatens riparian areas, floodplains and forests.



NEW YORK STATE
INVASIVE SPECIES
MANAGEMENT



Department of
Environmental
Conservation

For more information and management options for these and other invasive species, please visit: www.wnyprism.org

Special thanks to the Midwest Invasive Plant Network (www.MIPN.org). **PHOTO CREDITS:** Bugwood.org - Leslie J. Mehrhoff, Graves Lovell, John M. Randall, Gustavo Darrigran, Robert Videki, Lori Mroczek, Barry Rice, Lubomir Adamec; Meghan Johnstone, APIPP; Chris Evans, Illinois Wildlife Action Plan; NOAA; Department of Fisheries and Oceans Canada; Grand Valley State University; Andrea Locke, and WNY PRISM. Taxonomy based on USDA PLANTS Database (<http://plants.usda.gov>), NY Flora Atlas (www.nyflora.org), The University of Georgia Center for Invasive Species and Ecosystem Health (<http://www.bugwood.org>), Sylvan Ramsey and Wallace Kaufman, *Invasive Plants*. 2nd ed. N.p.: Stakhole, n.d. Print.

Best Management Practices:

Invasive Shrubs

Management

Manual

Manual removal is recommended for small individuals. Excessive manual removal can cause significant damage to the soil and soil plant communities. It can also lead to erosion and create disturbed ground more inviting to invasive species.

Mechanical

Mechanical methods such as cutting or mowing can reduce seed production and improve effectiveness of other treatments. However, mechanical methods alone will not lead to long-term management success. Shrubs will continue to resprout, often creating very dense infestations that become more difficult to manage.

Chemical

Herbicides, such as glyphosate and some broadleaf specific herbicides, are very effective as foliar applications. If shrubs are cut/mowed ahead of herbicide treatment, foliar applications can take place after shrubs leaf-out once again, reducing likelihood of overspray and drift.

Oil-based herbicides, such as Pathfinder II or Garlon 4, may be used as a cut-stump treatment or as a basal bark treatment. Oil-based herbicides can be used year round.

Spread Prevention

Care should be taken to limit seed dispersal by conducting management when shrubs do not have berries and avoiding movement of shrubs off-site.

Disposal

Plant material should be left on-site, if possible. Shrubs can be piled to facilitate treatment of resprouts, or can be left where they fall if future access isn't a concern. Brush piles may be burned, if allowed.

Restoration

Restoration efforts should begin after the initial infestation has been managed and may include planting of native understory species and management of overstory trees.

USE PESTICIDES WISELY: Always read the entire pesticide label carefully and follow all instructions. Pesticide regulations can vary widely between regions; please contact local authorities for additional pesticide use requirements, restrictions or recommendations. Mention of pesticide products by WNY PRISM does not constitute endorsement of any material.



Photos Front: Top - Japanese barberry; Middle - common buckthorn ID - berries and leaf; Bottom (left to right) - brushcutter, weed wrench, cut-stump herbicide treatment; Photos Back: Tift Nature Preserve restoration; Top - common buckthorn infestation pre-treatment; Bottom - mid-treatment, manual cut-stump treatments moving into the infestation.

Additional Resources:

https://extension.unh.edu/resources/files/resource000988_rep1135.pdf



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WNY PRISM

Partnering to Protect Western New York from Invasive Species

Best Management Practices: Invasive Shrubs

Invasive shrubs include common species such as bush honeysuckle (*Lonicera spp.*), Japanese and common barberry (*Berberis thunbergii* and *B. vulgaris*), privet (*Ligustrum spp.*), common buckthorn (*Rhamnus cathartica*), glossy buckthorn (*Frangula alnus*), and multi-flora rose (*Rosa multiflora*) among others. While the effectiveness of different management methods varies based on the species, by in large the Best Management Practices are similar.

Invasive shrubs grow rapidly and are prolific seed producers. They grow into dense thickets, displacing native understory plants and limiting tree regeneration. Invasive shrubs have been shown to significantly decrease insect diversity and biomass, alter soil chemistry and nutrient filtration, and have additional negative impacts on native bird species including malnutrition. Seed is spread by birds, making landscape level management of well-established species difficult.

Management

WNY PRISM recommends use of an Integrated Pest Management (IPM) strategy, an adaptive approach that involves the selection of multiple control methods and appropriate timing to match the management needs of each specific site and species. The goal is to maximize effective control and to minimize any potential negative impacts.

Management efforts should begin with an invasive species survey and site assessment. This allows for the development of a management plan and selection of appropriate removal methods. Management for most well-established species and/or infestations will require dedication over a number of years, often 3-5. Once initial control is achieved, restoration and continued monitoring and management will likely be required to maintain success.



Best Management Practices: Invasive Shrubs

Landscape to Repel Ticks Without Using Pesticides

Pesticides kill beneficial insects, like the bees and butterflies that pollinate the plants around us, and wash into waterways degrading water quality and harming aquatic life. They are also toxic to pets and people.

Instead of spraying to kill ticks, consider the following:

Rid your yard of Japanese barberry, which has been proven to harbor the white-footed mouse and the deer ticks that accompany them. The best pesticide-free method to control this invasive plant is to cut it back in March before the leaves come out and dig out the root system.

Keep play areas for pets and children mowed. Mow the part of the yard you use to discourage ticks, which prefer tall grasses or shade to protect from extreme temperature changes.

Plant native pollinator-friendly plants, such as New England aster, that will draw a healthy mix of beneficial insects and birds to your yard. Birds eat insects, including ticks. Plant lists available at Pollinator-pathway.org and Xerces.org.

Consider including these plants that repel ticks

- American beautyberry, a native plant that also provides berries for birds
- Fleabane daisies
- Mountain mint, also a wonderful source of nectar for pollinators
- Garlic, Lavender, Rosemary, Sage, Mint, dill

Put up bird and bat houses to draw insect-eating birds and bats to your yard. Bats can eat 2000 insects per day and one opossum will eat 5000 ticks per season.

Invite opossums to your yard. A single opossum eats as many as 4,000 ticks per week. [Opossums: Unsung Heroes in the Fight Against Ticks and Lyme Disease](#)

Use Tick Boxes vs Tick Tubes - A recent study confirms Tick Boxes are more effective and less harmful than Tick Tubes - [Journal of Medical Entomology](#) More information on Tick Boxes can be found here - [Tick Box Control System](#).

If you must spray, consider non-toxic botanical repellants instead of poisons. The botanical product that has been tested for its effectiveness against black-legged ticks is garlic oil (Hays and Stafford, Journal of Medical Entomology, March 30, 2015). The study concludes that garlic oil could provide a minimal-risk option for control of ticks. More information can be obtained from Mosquito Barrier which sells a garlic product that can be used for mosquitoes, ticks and other insect pests. Garlic will repel pests rather than killing them. The royal gardens in England are treated with garlic spray, despite the odor which dissipates after a day.

The best way to protect from ticks is to apply repellant to clothing before going into high grasses or woods, wear light-colored clothes, tuck pants into socks, always check yourself, your children, and your pets for ticks after you come in.

This information is courtesy of Protect Our Pollinators. For more information, visit Propollinators.org