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

Salvia (pink, purple, white)

Sedum ‘Autumn Joy’

**ANNUALS (2022)**

Cosmos ‘Sonata Mix’

Golden Shrimp Plant *Pachystachys lutea*

Gomphrena ‘Fireworks’

Lantana Bandana series

Mexican Sunflower *Tithonia* ‘Fiesta del Sol’

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

Library Plant List 7.13.22
**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.

- **Height:** 2-3 feet  
- **Light Requirement:** Full sun  

- **Deer resistant**  

- **Attracts:** Butterflies, pollinators

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**Cosmos Sonata Mix**

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

- **Height:** 20-24 inches  
- **Light Requirement:** 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**

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**Rudbeckia  ‘Denver Daisy’  Black-eyed Susan**

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**
**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

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**Verbena EnduraScape ‘Pink Fizz’**

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

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**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

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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
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.

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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.

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Photo Credits: Page 1: Background Photo - Cheryl Bonkowski, American Lady Butterfly - Lauren Hull; Bee - Mark Brinegar; Hummingbird - Saija Lehtonen Page 2: Tiger Swallowtail - Linda Matteo
# Pollinator Friendly Plants

## Perennials

<table>
<thead>
<tr>
<th>Plant</th>
<th>Plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anise hyssop aka Blue Giant Hyssop</td>
<td>Agastache foeniculum</td>
</tr>
<tr>
<td>Black-eyed Susan/Brown-eyed Susan</td>
<td>Rudbeckia hirta /Rudbeckia tribola</td>
</tr>
<tr>
<td>Cardinal Flower</td>
<td>Lobelia cardinalis</td>
</tr>
<tr>
<td>Catmint</td>
<td>Nepeta spp. – consider ‘Walker’s Low’</td>
</tr>
<tr>
<td>Dutchman’s Breeches</td>
<td>Dicentra cucullaria</td>
</tr>
<tr>
<td>False Sunflower</td>
<td>Helienium autumnale</td>
</tr>
<tr>
<td>Gayfeather/Blazing Star</td>
<td>Liatris spicata</td>
</tr>
<tr>
<td>Goldenrod</td>
<td>Solidago spp. consider S. flexicaulis or S. nemoralis</td>
</tr>
<tr>
<td>Joe-Pye Weed</td>
<td>Eutrochium maculatum/Eutrochium purpureum</td>
</tr>
<tr>
<td>Milkweed</td>
<td>Common milkweed (A. syriaca), Butterflyweed (A. tuberosa), Swamp milkweed (A. incarnata)</td>
</tr>
<tr>
<td>N. Y. Aster/New England Aster</td>
<td>Symphyotrichum novi-belgii/S. Novi-angliae</td>
</tr>
<tr>
<td>Purple coneflower</td>
<td>Echinacea purpurea - Choose simple flower forms</td>
</tr>
<tr>
<td>Threadleaf Coreopsis/Lanceleaf Coreopsis</td>
<td>Coreopsis verticillata/Coreopsis lanceolata</td>
</tr>
<tr>
<td>Wild Bergamot</td>
<td>Monarda fistulosa</td>
</tr>
<tr>
<td>Wild Geranium</td>
<td>Geranium maculatum - consider ‘Rozanne’</td>
</tr>
</tbody>
</table>

## Annuals

<table>
<thead>
<tr>
<th>Plant</th>
<th>Plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cosmos (single)</td>
<td>Cosmos spp. - consider C. atrosanguineus, C. bipinnatus, C. sulfurens</td>
</tr>
<tr>
<td>Moss rose/portulaca</td>
<td>Portulaca grandiflora</td>
</tr>
<tr>
<td>Salvas</td>
<td>Salvia spp. - consider S. splendens, S. patens-gentian, S. elegans</td>
</tr>
<tr>
<td>Sunflowers</td>
<td>Helianthus annuus - consider ‘Lemon Queen’</td>
</tr>
<tr>
<td>Sweet alyssum</td>
<td>Lobularia maritima</td>
</tr>
<tr>
<td>Zinnia</td>
<td>Zinnia spp. – consider any single petal variety</td>
</tr>
</tbody>
</table>

## Trees and Shrubs

<table>
<thead>
<tr>
<th>Plant</th>
<th>Plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blueberry</td>
<td>Vaccinium spp. High-bush (V. corymbosum) &amp; low-bush (V. angustifolium) varieties</td>
</tr>
<tr>
<td>Cherries/Plums</td>
<td>Prunus spp. Choose single flowered varieties such as P. serotina (black cherry), P. Americana (wild plum), P.virginiana (chokecherry)</td>
</tr>
<tr>
<td>Oaks</td>
<td>Quercus spp. Consider black oak, white oak, red oak, pin oak</td>
</tr>
<tr>
<td>Redbud</td>
<td>Cercis spp. Avoid red and purple leafed species.</td>
</tr>
<tr>
<td>Willows</td>
<td>Salix spp. Consider black willow, meadow willow, peachleaf willow, prairie willow, sageleaf willow, pussy willow (S. discolor).</td>
</tr>
</tbody>
</table>

## Herbs

<table>
<thead>
<tr>
<th>Plant</th>
<th>Plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dill</td>
<td>Antheum graveolens</td>
</tr>
<tr>
<td>Parsley</td>
<td>Petroselinum crispum</td>
</tr>
<tr>
<td>Sage</td>
<td>Salvia officinalis</td>
</tr>
<tr>
<td>Rosemary</td>
<td>Salvia rosmarinus (Rosemarinus officinalis)</td>
</tr>
<tr>
<td>Borage</td>
<td>Borago officinalis</td>
</tr>
<tr>
<td>Lavender</td>
<td>Lavendula spp.</td>
</tr>
</tbody>
</table>

*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 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 NY14757
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,
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

Helping You Put Knowledge to Work

Cornell Cooperative Extension is an employer and educator recognized for valuing AA/EEO, Protected Veterans, and Individuals with Disabilities and provides equal program and employment opportunities.

21 South Grove Street • East Aurora, NY 14052 • (716) 652-5400
Plant List for Pollinators By: Lyn Chimera

Bloodroot - *Sanguinaria Canadensis*

Snowdrops - *Galanthus*

Virginia Bluebells - *Mertensia virginica*

Lentil 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 goldenrods.

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

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

**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)
- Pennsylvanian Sedge (sun-shade)
- Bottlebrush Grass (partial shade)
- Canada Wild Rye

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

**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 1/4-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:

- Seeds from a plant
- Berries
- Nectar
- Foliage/Twigs
- Fruits
- Sap
- Pollen
- Suet
- Bird Feeder
- Squirrel Feeder
- Hummingbird Feeder
- Butterfly Feeder
- Nuts

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

- Birdbath
- Lake
- Stream
- Seasonal Pool
- Ocean
- Spring
- River
- Butterfly Puddling Area
- Rain Garden
- Water Garden/Pond

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

- Wooded Area
- Bramble Patch
- Ground Cover
- Rock Pile or Wall
- Cave
- Roosting Box
- Evergreens
- Brush or Log Pile
- Burrow
- Meadow or Prairie
- Dense Shrubs/Thicket
- Water Garden or Pond

**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:

- Mature Trees
- Meadow or Prairie
- Nesting Box
- Wetland
- Cave
- Burrow
- Dead Trees or Snags
- Dense Shrubs/Thicket
- Water Garden/Pond
- Host Plants for Caterpillars

**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:

- **Soil and Water Conservation:**
  - Riparian Buffer
  - Capture Rain Water from Roof
  - Xeriscape (water-wise landscaping)
  - Drip or Soaker Hose for Irrigation
  - Limit Water Use
  - Reduce Water Use
  - Use Mulch
  - Rain Garden

- **Controlling Exotic Species:**
  - Practice Integrated Pest Management
  - Remove Non-Native Plants and Animals
  - Use Native Plants
  - Reduce Lawn Areas

- **Organic Practices:**
  - Eliminate Chemical Pesticides
  - Eliminate Chemical Fertilizers
  - 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.
- 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!
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

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

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 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 mosquitoes 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

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

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

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

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: Brachonidae, 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.

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 interconnected 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
Figure 6. Sixteen components of wildlife habitat.
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 1/2 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.

Helping You Put Knowledge to Work

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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

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.

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.

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Smart Gardening: Smart lawn alternatives to protect pollinators

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

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**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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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.

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.

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](http://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](http://www.wildflower.org/collections).
- Learn about beneficial landscaping at EPA’s Green Communities website at [www.epa.gov/greenkit/landscap.htm](http://www.epa.gov/greenkit/landscap.htm).

Visit [www.nwf.org/gardenforwildlife](http://www.nwf.org/gardenforwildlife) for more information.

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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 $55 billion in damages and treatment each year.

- 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.

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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: nyimapinvasives.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 “hitch-hikers” 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.
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.nyimapinvasives.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 milkyweed-like, slender and tapered, 1.3 to 3 inches long. Threatens forests and grasslands and outcompetes native vegetation.

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.

GOATSBEARD (Galactea 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.

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.

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.

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.

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.

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.

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 when ripens into scarlet berries. Threatens woodlands and grasslands. Often mistaken for native American Bittersweet.

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

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.

Additional Resources:

Photos Front: Top - Japanese barberry; Middle - common buckthorn ID - berries and leaf; Bottom (left to right) - brushcutter, weed wren, 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.

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.
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 (*Lingustrum 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.
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 then 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.