



# POLLINATOR PATHWAY MANAGEMENT GUIDELINES

Prepared for: The Town of Clinton

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December 20, 2021

Proposal number: 1

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## TOWN OF CLINTON CAC

### Objective

To establish pollinator-friendly habitats and food sources for bees, butterflies, hummingbirds and other pollinators on town-owned properties

### Goals

Our goal is to use pollinator-friendly land management strategies to aid in the survival of threatened pollinators and other wildlife. These guidelines will be used on the following properties:

- Francis J. Mark Park
- Town Hall, Library, Highway Department and Town Offices
- Old Masonic Hall Site
- Clinton Nature Trail

### Solution

Identifying and encouraging native plants, removing invasive plants, discouraging the use of pesticides, and planting perennials, shrubs, and trees vital to pollinator survival. Less human intervention in areas that can be left for conservation

### Project Outline

Below are some guidelines to adhere to which can be crucial for pollinator survival:

#### MOWING & LAWN CARE/MAINTENANCE

- As a general rule, mowing should be kept to the minimum necessary for safety and ease of access
- For designated sports areas, walking paths and designated lawn mowing height should be kept at 4"-6".
- Wait until first hard frost to mow meadows, or early Spring
- Mow roadside vegetation as little as is needed for sight lines, safety, and management of invasive plants. Height should be left at 8" in these areas.
- Take the "No-Mow May" challenge where no mowing takes place at all for the month of May. This allows for overwintering pollinators to be left undisturbed until temperatures warm up to a degree when they are active and no longer seeking refuge on the ground and in leaf litter.

#### INVASIVE SPECIES MANAGEMENT

- With time taken away from mowing, invasive species scouting and removal can take place focusing on Multiflora Rose, Japanese Barberry, Japanese Honeysuckle, Japanese Knotweed, Burning Bush & Bittersweet Vine
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## Common Invasive Plants



### Japanese Stiltgrass- *Microstegium vimineum*

Grass family (Poaceae)

**Size:** A delicate. Sprawling, annual grass that is 0.5-3.5 feet tall.

**Leaves:** Leaves are pale green, alternate, lance-shaped, 1-3 inches long. Asymmetrical with a shiny, off-center midrib. Upper and lower leaf surface is slightly pubescent. A silvery line runs down the center of the blade.

**Flower:** Flowering begins in September, when delicate flower stalks develop in the axils of the leaves or at the top of the stems.

**Fruit:** Is produced from late September through early October. Each plant can produce 100-1,000

seeds

**Habitat:** Most commonly an invader of forested floodplains. Also found in ditches, forest edges, fields and trails..

**Other:** Stems can root at the nodes. It is very shade tolerant and can completely displace native vegetation.

**Control:** Hand pull or mechanical cutting of plants using a mower or weed whacker on vegetative shoots



### Garlic Mustard -*Alliaria petiolata* Mustard family

(Brassicaceae)

**Size:** Herbaceous, biennial plant (needs two growing seasons to complete its growth cycle) First year plants are groups of leaves (basal rosette) which grow in the second year when they produce a 1-4 foot tall flowering stalk.

**Leaves:** First year rosettes are green, heart shaped, 1-6 inch leaves. Leaves become more triangular and strongly toothed as the plant matures.

**Flower:** Each flower has 4 small, white petals in the early Spring.

**Fruit:** Seeds are shiny black and are produced in slender green pods which turn pale brown late summer.

**Habitat:** Occurs in forest habitats, floodplains, and disturbed lands. Not tolerant of highly acidic soils.

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**Other:** Easily recognized by a garlic odor when any part of the plant is crushed. Chemicals in garlic mustard are toxic to native butterfly larvae.



**Chinese Silvergrass-Miscanthus sinensis**  
**Grass family (Poaceae)**

**Size:** Forms dense clumps that grow 3-7 feet tall.

**Leaves:** Has slender, upright or somewhat arching leaves up to 18 inches long, with silvery midribs, sharp tips and rough margins. Can be striped in appearance.

**Flower:** Flowers occur September-October and are feathery, fan-shaped, silvery to pink in color, and 2 feet long at the end of stalks.

**Fruit:** Seeds are wind dispersed.

**Habitat:** Adaptable to nutrient-poor, well-drained soil types such as roadsides and utility right-of-ways and prefers full sun.

**Other:** A potential source for bioenergy production. Similar to native switchgrass, *Panicum virgatum* which has much more narrow leaves.



**Pale Yellow Iris- *Iris pseudacorus***

**Iris Family (Iridaceae)**

**Size:** Aquatic, perennial plant which grows to 2-3 feet tall along shores in shallow water.

**Leaves:** Broad, flat, and sword like, in an alternate pattern, and reduce in size going up the stem. Leaves are mostly found at base of plant.

**Flower:** Yellow flowers 2-4 inches wide grow several per stem late spring.

**Fruit:** The fruits are 1-3 inch long capsules, which contain around 120 seeds that start out white but turn brown as they ripen.

**Habitat:** Most commonly found in wetlands. It is tolerant of drying and of some salinity and high soil acidity.

**Other:** It will sicken livestock if ingested, and its resin can cause skin irritation in humans. Without flowers, it can be distinguished from natives by flowering stems shorter

than leaves. No native irises have yellow flowers.



**Autumn Olive-*Elaeagnus umbellata* Oleaster family (Elaeagnaceae)**

**Size:** 3 - 20 foot tall shrub with thorny branches which loses its leaves in the fall. It is easily recognized by the silvery, dotted underside of the leaves.

**Leaves:** Bright green to gray green above and silver scaly beneath.

**Flower:** Small, yellowish tubular flowers are abundant and occur in clusters of 5 to 10 near the stems from February to June.

**Fruit:** Round, red, juicy fruit, finely dotted with silvery to silvery-brown scales. Each fruit contains one seed. Fruits ripen from August to November.

**Habitat:** Old fields, woodland edges, and other disturbed areas. It can form a dense shrub layer which displaces native species and closes open areas. **Other:** Drought tolerant and thrives in a



variety of conditions; capable of fixing nitrogen in its roots.



**Japanese Barberry -Berberis thunbergii**  
**Barberry family (Berberidaceae)**

**Size:** 3-6 feet in height.

**Leaves:** Leaves are 1/2 - 1 1/2 inches long. Shaped like small spoons. Color ranges from green to bluish-green to dark reddish purple. Fall off in winter.

**Flower:** Abundant pale yellow flowers in April-May along entire length of stem in clusters of two to four.

**Fruit:** Bright red berries about 1/3 inch long that mature July – October and are seen all winter. Fruit is eaten and spread by birds.

**Habitat:** Grows well in full sun to deep shade.

**Other:** Broken stems show bright yellow color inside. Has thorns. Branches are deeply grooved and brown.

**Control:** Pull or dig young plants, making sure to get the roots. Repeating cutting of large plants.



**Multiflora Rose- Rosa multiflora**  
**Rose family (Rosaceae)**

**Size:** 3-6 feet in height as a shrub but can reach 10 feet as a vine.

**Leaves:** 5-11 sharply toothed small leaves in pairs with one at the end. Base of leaves has fringed stipules.

**Flower:** Clusters of fragrant white to pinkish flowers, 1 inches wide, appear in May.

**Fruit:** Small, bright red fruits develop during the summer and remain through winter. Fruits are eaten and spread by birds.



**Habitat:** Tolerates a wide range of habitats and conditions.

**Other:** Produces an estimated one million seeds per year, which can remain in the soil for up to 20 years. Promoted for use in erosion control and as “living fences” for livestock. Native roses (*Rosa* spp.) have pink flowers and no fringed stipules.

**Control:** Hand pull or dig, removing entire root to prevent resprout. Repeated mowings during growing season for 2-4 years can be effective.



**Privets** Border privet -*Ligustrum obtusifolium*

California privet *L. ovalifolium*, Chinese privet *L. sinense* European privet *L. vulgare*

Olive family (*Oleaceae*)

**Size:** 8-20 feet tall, trunks have multiple stems with long leafy branches. Species are distinguished by presence and type of hairs on stems.

**Leaves:** Opposite, entire 1-3 inch long leaves, oval to oblong in shape.

**Flower:** Cluster at branch tips and are small, white, fragrant, and tubular with 4 petals, occur May to July.

**Fruit:** Small, bluish-black with one seed that mature late summer-fall.

**Habitat:** Thrive in floodplains, fields, disturbed forests and edges. They form dense thickets and shade out native plants.

**Other:** Can be confused with Viburnums (*Viburnum* spp.), but flowers are in upright, rounded clusters on Viburnums.

**Control:** Pull or dig young plants. Cut large plants at ground level to prevent seed production. Repeated cutting will be required.



**Wineberry -*Rubus phoenicolasius* Rose family (*Rosaceae*)**

**Size:** A multi-stemmed, spiny, small shrub, covered in small, reddish hairs. Canes can grow to 9 feet.

**Leaves:** The leaves are in groups of 3 heart-shaped, toothed leaflets. The undersides of the leaflets are silvery-white and very hairy.

**Flower:** Small, white, 5-petaled flowers develop in May-June. The sepals (the outmost part of the flower) are hairy and longer than the petals, giving



the flowers an "unopened" look.

**Fruit:** The fruit are clusters of bright red edible berries produced in early summer. The seeds are consumed and dispersed by animals.

**Habitat:** Invades open areas and edges but prefers moist habitat. Forms dense shady thickets that displace native plants and alter habitat structure.

**Other:** Native raspberries (*Rubus* spp.) do not have red, hairy stems.



**English Ivy- *Hedera helix* Ginseng family (Araliaceae)**

**Size:** Evergreen climbing vine that attaches to surfaces by root-like structure that exude a glue-like substance.

**Leaves:** Leaves are alternate, dark green, waxy, and leathery. Can range from unlobed to 3-5 lobes; typically green with whitish veins.

**Flower:** Flowers are small, greenish-yellow and occur in globe-like starburst type groups at tips of flowering stems in late summer to early fall.

**Fruit:** Fruits are black with a fleshy outer layer and stone-like seeds.

**Habitat:** Flourishes under shady to full sun conditions in soils that are fertile and moist, but it is intolerant of drought and salinity. Spreads vigorously and grows along the ground and into the canopy, can block sunlight from reaching host tree.

**Other:** Leaves and berries are toxic to humans, but birds spread the fruits.

**Control:** Pull or dig up large root masses April to July. Bag and dispose of roots and seed pods.





**Japanese Honeysuckle -Lonicera japonica Honeysuckle family (Caprifoliaceae)**

**Size:** Woody, perennial, evergreen vine that can be found either trailing or climbing to over 80 feet in length. Stems are hairy and fuzzy.

**Leaves:** Leaves are fuzzy, oval, opposite and 1-2.5 inches long. Young leaves have lobes (“arms”).

**Flower:** Showy, fragrant, tubular, whitish-pink flowers develop from April to July. The flowers turn cream-yellow as they age.

**Fruit:** Small, shiny and round, and turn black as they ripen. Each fruit contains 2-3 small brown to black seeds.

**Habitat:** Invades multiple habitats. It can form dense mats in the canopies shading everything below and can strangle small saplings.

**Other:** One of the most established invasive vines in the U.S.. It can be confused with native Trumpet Honeysuckle (Lonicera sempervirens) which has more colorful flowers only at the end of vines and a leaf that encircles the stem.

**Control:** Pull or dig young plants. Cut

large plants at ground level when in flower to prevent seed production. Repeated cutting will be required



**Japanese Knotweed- Fallopia japonica Buckwheat family Caryophyllales**

**Size:** Upright, shrubby, herbaceous, woody-appearing 3-15 feet tall

**Leaves:** Alternate, Broadly ovate and tapering at the end. 3 to 6 inches long by 2 to 4 inches wide. Somewhat triangular or heart-shaped, pointed at the tip.

**Flower:** Small greenish-white from August to September.



**Fruit:** Small winged fruit. Triangular, shiny, very small.

**Habitat:** Invades open and disturbed areas, such as fields, forest edges, stream banks, wetlands, roadsides and wetlands.

**Other:** Quickly grows into a thick tangle that will cover and outcompete other plants.

**Control:** Cut plants three times per year at ground level during growing season to starve roots and rhizomes



**Asiatic Tearthumb (Mile-A-Minute)**

**-Persicaria perfoliata**

**Buckwheat family**

**Size:** Trailing vine with delicate stems that are armed with recurved barbs.

**Leaves:** Leaves are alternate, pale green and an equilateral triangle (equal sides) 1-3 inches wide and barbed on the undersurface.

**Flower:** Very small and white and occur at nodes on the stems.

**Fruit:** Fruits occur mid-July to fall and are berry-like, deep blue and arranged in clusters at terminals. They each contain a single, hard, black seed.

**Habitat:** Invades open and disturbed areas, such as fields, forest edges, stream banks, wetlands, roadsides and wetlands.

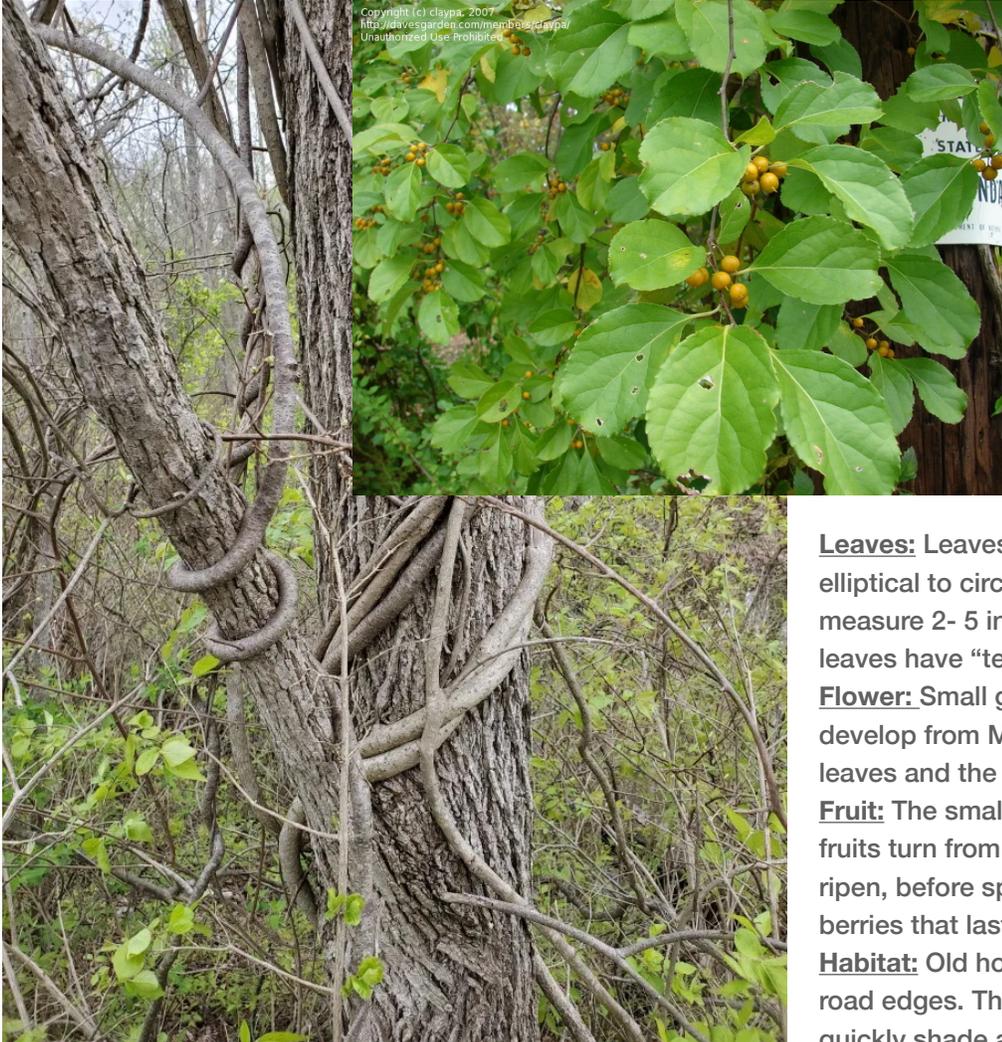
**Other:** Quickly grows into a thick tangle that will cover and kill other plants. Introduced weevils are a good control measure.

**Control:** Hand pull plants and roots before fruiting in August. Repeated mowing or weed-whacking will reduce plant reserves and prevent or decrease flowering.



**Oriental Bittersweet- *Celastrus orbiculatus***  
**Bittersweet family (Celastraceae)**

**Size:** Climbing vine that can grow to 60 feet long and 4 inches around. Bark is brown, while smooth twigs can be grey to dark brown in color.



**Leaves:** Leaves are light green, elliptical to circular in shape, and measure 2- 5 inches long; edges of leaves have “teeth.”

**Flower:** Small greenish-white flowers develop from May to June between the leaves and the stem.

**Fruit:** The small, globe-like (globose) fruits turn from green to yellow as they ripen, before splitting to reveal scarlet berries that last into winter.

**Habitat:** Old home sites, fields, and road edges. The fast growing vines can quickly shade and outcompete other plants, as well as kill large trees.

**Other:** Closely resembles American Bittersweet (*Celastrus scandens*) which has flowers and fruits at the end of the branches and narrower leaves.

**Control:** Pull small plants including roots. Cut larger vines close to the ground every 2 weeks to prevent resprouting and to deplete the root system. Properly dispose of seeds

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**Bradford/Callery Pear *Pyrus calleryana* Rose family (Rosaceae)**

**Size:** Can grow 30-50 feet tall and 20-30 feet wide. Young trees may be thorny.

**Leaves:** Deciduous leaves, alternate, simple, broad-oval to egg-shaped, 1.5-3 inches long, shiny dark green and leathery, small round-toothed edges; scarlet, mahogany, purple hues in fall.

**Flower:** Flowers in early spring before the leaves, white with 5 petals, about 1 inch across. Flowers smell like dead fish.

**Fruit:** Fruits mature in fall and are small, hard, brown, and almost woody. Produces many seeds that are spread by birds and spreads through cuttings.

**Habitat:** Grows best in full sun but will tolerate some shading and drought. **Other:** Form dense

thickets that push out other plants that can't tolerate the deep shade. Looks like native serviceberries and other trees in the Rose family. Foul-smelling flowers/leathery leaves are good ID keys.

**Control:** Pull seedlings when soil is moist and dig out larger plants with roots. Cut down large trees, grind stumps or girdle tree in Spring



**Norway Maple- *Acer platanoides* Maple family (Sapindaceae)**

**Size:** Broad, deciduous (drops leaves at the end of growing season) tree growing up to 90 feet in height.

**Leaves:** Leaves are paired, dark green, and palmate (shaped like a hand). Broader across than from base to tip.

**Flower:** Bright yellow-green flowers in spring.

**Fruit:** Fruits mature during summer into paired winged "samaras" (aka helicopters).

**Habitat:** Planted on farms and in towns for shade. It has moved into forests where it prevents natives from growing.

**Other:** Distinguished by milky white sap, yellow fall foliage, and samara wings that are straight out. Native sugar maple (*Acer saccharum*) does not have milky sap.

**Control:** Pull seedlings when soil is moist and dig out larger plants with roots. Cut down large trees and grind stumps or girdle tree in Spring



**Tree of Heaven- Ailanthus altissima Quassia family (Simaroubaceae)**

**Size:** Can reach 70 feet tall.

Wood is soft and creamy white to light brown in color; twigs are smooth and pale grey to light brown.

**Leaves:** Leaves are alternate, 1-4 feet long, compound with 11-25 smaller leaflets, each with one to several glandular teeth near the base. Broken leaves smell like burnt peanut butter.

**Flower:** Large, showy clusters of small yellowish-green flowers produced during June.

**Fruit:** Fruits are flat, twisted, single-seeded samaras produced in summer.

**Habitat:** Adaptable to wide range of soil types and conditions, grows best in full sun and is tolerant of drought. By the use of chemicals, it can also prevent the growth of other plants.

**Other:** Called stinking sumac. Bark has pale vertical lines different from native sumacs which have narrow horizontal markings.

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**Winged Burning Bush- *Euonymus alatus***

**Family Celastraceae**

**Size:** a deciduous shrub, up to 20 ft. (6.1 m) in height, which invades forests throughout the eastern United States. Two to four corky ridges often form along the length of young stems, though they may not appear in shaded areas or closed canopies.

**Leaves:** The opposite, dark green leaves are < 2 in. (5 cm) long, smooth, rounded and taper at the tips. The leaves turn a bright crimson to purplish color in the fall.

**Flower:** The flowers are inconspicuous, are greenish yellow and have four petals. Flowers develop from late April to June and lay flat against the leaves.

**Fruit:** The fruit which appears from September to October are reddish capsules that split to reveal orange fleshy seeds.

**Habitat:** *Euonymus alatus* can invade not only a variety of disturbed habitats including forest edges, old fields, and roadsides but also in undisturbed forests. Birds and other wildlife eat and disperse the fruit. Once established, it can form dense thickets, displacing native vegetation.

**Control:** Pull or dig small plants, making sure to remove the entire root. Large plants can be cut at ground level but repeated cutting will be necessary

## INVASIVE SPECIES REFERENCES AND RESOURCES

- Pollinator Pathway Northeast <https://www.pollinator-pathway.org/invasives>
  - Invasive Plant Atlas of the United States. <https://www.invasiveplantatlas.org/index.cfm>
  - Regional Effort on Invasive Species and Climate Change (RISCC) Management By University of Massachusetts Amherst <https://necasc.umass.edu/projects/regional-effort-invasive-species-and-climate-change-riscc-management>
  - “Mistaken Identity: Invasive plants and their native look-alikes” by Matthew Sarver et. al. [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs144p2\\_02\\_4329.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_02_4329.pdf)
  - Bay Backpack- Invasive Species Resources [http://baybackpack.com/schoolyard\\_projects/project/identifying\\_making\\_invasive\\_species](http://baybackpack.com/schoolyard_projects/project/identifying_making_invasive_species)
  - Center for Invasive Species: <http://bugwood.org/> and <http://invasive.org/> great for websites, publications, and images.
  - Maryland Invasive Species Council <http://mdinvasives.org/> relevant invasive species to Maryland and resources for educators.
  - Maryland Wildlife and Heritage Service
    - <http://dnr.maryland.gov/Invasives/Pages/terminology.aspx> provides definitions of invasive and native species and other terminology.
    - <http://dnr.maryland.gov/Invasives/Pages/default.aspx> home page for information on invasive species in Maryland.
    - [http://dnr.maryland.gov/wildlife/Pages/plants\\_wildlife/Invasives/inintro.aspx](http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/Invasives/inintro.aspx) provides list of common invasive species in Maryland.
    - <https://dnr.maryland.gov/Wildlife/Pages/Education/home.aspx> provides education resources like aquatic invasive species trunk and ID resources.
  - Plant Invaders of Mid-Atlantic Natural Areas, 4th ed. <https://www.invasive.org/alien/pubs/midatlantic/midatlantic.pdf>
- Larry Hogan, Governor Jeannie Haddaway-Riccio, Secretary Wildlife and Heritage Service  
[dnr.maryland.gov/wildlife](http://dnr.maryland.gov/wildlife)
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- Methods of Removal

### Calendar for Non-chemical Management of Top 10 Connecticut Invasive Plants

Adapted from the CT Invasive Plant Management Calendar created by Emmett Varricchio and members of the Connecticut Invasive Plant Working Group (CIPWG)

	January	February	March	April	May	June	July	August	September	October	November	December
<b>Japanese Knotweed</b> ( <i>Polygonum cuspidatum</i> )					■	■	■	■	■	■		
<b>Oriental Bittersweet</b> ( <i>Celastrus orbiculatus</i> )					■	■	■	■	■	■	■	■
<b>Japanese Barberry</b> ( <i>Berberis thunbergii</i> )			■	■	■	■	■	■	■	■	■	■
<b>Multiflora Rose</b> ( <i>Rosa multiflora</i> )				■	■	■	■	■	■	■	■	■
<b>Mugwort</b> ( <i>Artemisia vulgaris</i> )				■	■	■	■	■	■	■	■	■
<b>Garlic Mustard</b> ( <i>Alliaria petiolata</i> )			■	■	■	■	■	■	■	■	■	■
<b>Autumn Olive</b> ( <i>Elaeagnus umbellata</i> )			■	■	■	■	■	■	■	■	■	■
<b>Common Reed</b> ( <i>Phragmites australis</i> )				■	■	■	■	■	■	■	■	■
<b>Mile-a-Minute</b> ( <i>Persicaria perfoliata</i> )				■	■	■	■	■	■	■		
<b>Swallow-wort</b> ( <i>Cynanchum louiseae</i> )				■	■	■	■	■				

Flowering Period ■ Mechanical Cut ■ Pull ■ Mow ■ Dig ■

Pollinator-Pathway.org 3/2020