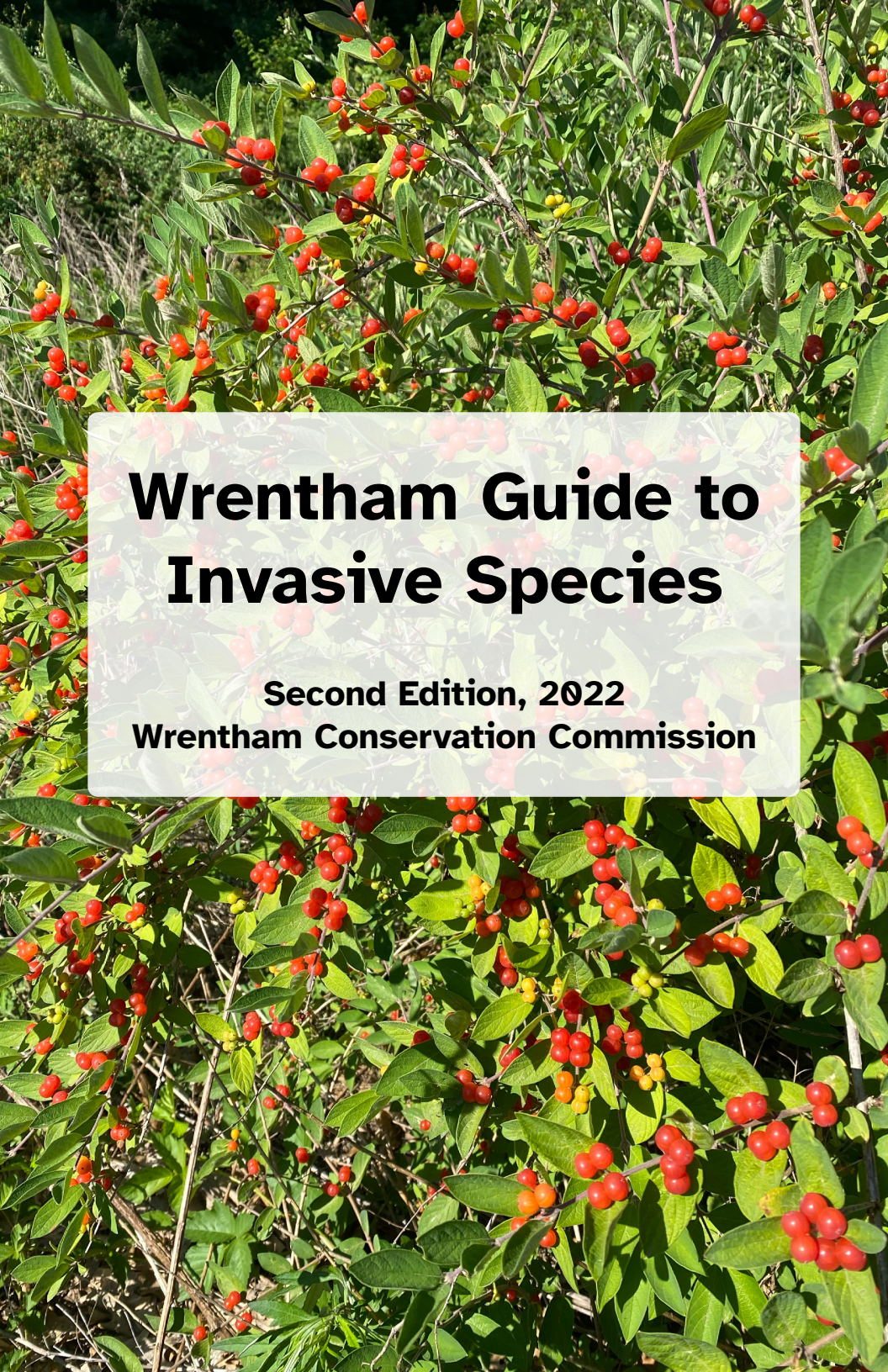

Wrentham Guide to Invasive Species

Second Edition, 2022
Wrentham Conservation Commission

WRENTHAM GUIDE TO INVASIVE SPECIES
Second Edition, 2022
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This book was funded by a grant from the William H. Sweatt Trust Fund.

William H. Sweatt established the trust fund in the 1930s for the Town of Wrentham. The fund annually awards the interest generated by its invested principal to support “luxuries” not provided by town taxes. Over the years the Sweatt Trust Fund has funded many open space and recreation projects such as the former ski hill in the 1970s, several projects at the athletic fields, and the enhancement of conservation areas.

The State of Vermont graciously permitted the Wrentham Conservation Commission to “reimagine and recreate” its invasive species’ fact sheets asking only that we provide credit to the Vermont Department of Forests, Parks & Recreation and to The Nature Conservancy.

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The Nature Conservancy - www.nature.org

The Second Edition of the Wrentham Guide to Invasive Species is available in portable document format (PDF) at www.wrentham.gov/government/boards_committees/conservation_commission.

Contents

Autumn Olive

© Chris Evans/River to River CWMA

Autumn olive is a sun-loving shrub that invades Wrentham's open woodlands and fields. This plant is easy to identify in the fall when the red berries are most colorful.

Identification

silvery-white scales


© James H. Miller/USDA

red, silver speckled berries

© Pennsylvania Dept. of Conservation and Natural Resources

nitrogen fixing root nodules

© Leslie J. Mehrhoff/IPANE

The Problem

- Autumn olive (*Elaeagnus umbellata*) is a prolific fruit producer. Single shrubs have been observed to bear up to 80 lbs. of fruit per growing season.
- Due to its large size, Autumn olive interferes with natural succession by creating dense shade that prohibits native plants from growing.
- The nitrogen-fixing capabilities of this species can interfere with the nitrogen cycle of native communities.

© Chris Evans/River to River CWMA

- Autumn olive was historically planted along roadsides and in abandoned fields as an ornamental and wildlife food plant, this characteristic makes Autumn olive an aggressive and competitive threat in open communities.

Autumn Olive

Removal

MECHANICAL REMOVAL:

Hand pull: Any time of year when the ground is soft, especially after a rain, hand pull small plants by the base of the stem. Be sure to pull up the entire root system. Hang from a branch to prevent re-rooting. For larger plants, use a Weed Wrench™. Monitor the area every year for new seedlings

Cut stump: Repeated pruning of established plants to ground level without subsequent herbicide application is NOT effective for autumn olive control. Each re-growth results in a thicker stem base and denser branches.

CHEMICAL REMOVAL:

Cut stump: Cut the plant four inches above the ground. Use a drip bottle to apply a 18-21% glyphosate solution to the stump within one hour of cutting. This is best done in late summer through winter when plants are transporting resources to their root systems.

Low volume foliar spray: This method is used for dense populations and best left to a contractor. During the summer months, July to August, spray a 2% glyphosate solution on the entire leaf surface of the plant. To avoid drift to native plants, spray only on calm days.

Non-invasive Alternatives


© Phyllis Weyland

russet buffaloberry
Shepherdia canadensis


© S&A. Wasowski

winterberry
Ilex verticillata


© S&A. Wasowski

red chokeberry
Photinia pyrifolia

Japanese Barberry

© Leslie Mehrhoff/IPANE

Identification

spatula-shaped leaves / red fruit

© John Randall/The Nature Conservancy

yellow flowers hanging below stem

© Leslie Mehrhoff/IPANE

single spine at each leaf base

© Candice Black/The Nature Conservancy

Japanese barberry invades Wrentham's forests and fields. The plants are easy to see in the fall when their red berries are most colorful.

The Problem

- Japanese barberry (*Berberis thunbergif*) can quickly colonize a forest. Birds and small mammals feast on the fruits and drop them, starting new populations. The plants also reproduce vegetatively. Individual stems reach toward the ground and "layer" developing new plants.
- It can grow so thickly in woodlands that few native shrub and tree seedlings or herbaceous plants survive.
- Barberry infestations can lead to increases in rates of Lyme disease. Ticks like to hang out on the tips of shrubs, waiting for mammals to pass by. Mice populations - an alternate host for Lyme disease - thrive in the thorny Barberry stands.
- Japanese barberry is sold in different ornamental varieties such as 'Aura' with gold leaves or 'Crimson Pygmy' with purple leaves. Though these cultivars look different from the green-leaved Japanese barberry that is found in forests, studies show that these ornamental varieties are all capable of producing offspring with green leaves.

Japanese Barberry

Removal

MECHANICAL REMOVAL:

Hand pull: Any time of year when the ground is soft, especially after a rain, hand pull small plants by the base of the stem. Be sure to pull up the entire root system. Hang from a branch to prevent re-rooting. For larger plants, use a Weed Wrench™. Monitor the area every year for new seedlings.

Cut stump: Cut plants back in the fall or winter. Wrap a few layers of burlap or thick plastic over the stump and tie tightly with twine of rope. Check covered stumps periodically and cut back any new growth.

CHEMICAL REMOVAL:

Cut stump: Cut the plant four inches above the ground. Use a drip bottle to apply a 18-21% glyphosate solution to the stump within one hour of cutting. This is best done in late summer through winter when plants are transporting resources to their root systems.

Low volume foliar spray: This method is used for dense populations and best left to a contractor. During the summer months, July to August, spray a 2% glyphosate solution on the entire leaf surface of the plant. To avoid drift to native plants, spray only on calm days.

Non-invasive Alternatives

© S&A. Wasowski, TWC

winterberry
Ilex verticillata

© Iowa State University Exten

fothergilla
Fothergilla major

© S&A. Wasowski, TWC

smokebush
Cotinus obovatus

Bittersweet

© Stacey Leicht/IPANE

Identification

light green, alternate leaves that spiral around stem

© John Randall/The Nature Conservancy

fruit: yellow outer cover with inner red flesh / woody stem

© Leslie Mehrhoff/IPANE

Asiatic bittersweet invades Wrentham's forests and fields. It is easy to see in the fall when its red and yellow fruit lines its vines.

The Problem

- Asiatic bittersweet (*Celastrus orbiculatus*) chokes out native plants by smothering them with its dense foliage and strangling stems and trunks.
- Its berries are an attractive food to birds late in the fall. Results of research suggests that seed can remain in the birds' stomachs for weeks, allowing seeds to be "deposited" far away from the original infestation.
- Asiatic bittersweet also reproduces readily by spreading underground roots, making it very difficult to eradicate by digging.

Asiatic bittersweet →
Celastrus orbiculatus
(invasive)

Flowers and fruits are scattered along the entire stem.

© IPANE

American bittersweet →
Celastrus scandens
(native)

Flowers and fruits are found at the terminal end of each stem.

© IPANE

Bittersweet

Removal

MECHANICAL REMOVAL:

For small plants: Hand pull entire plants, including all roots and runners. Place everything into a plastic bag for disposal.

For large plants: Cut climbing or trailing vines close to root collar. Repeat every two weeks.

DO NOT COMPOST THIS PLANT! Plant fragments can re-sprout.

CHEMICAL REMOVAL:

Foliar spray: This method is best used for dense populations. In the fall, when native plants are losing their leaves, spray a 2% glyphosate or triclopyr solution on the entire leaf surface of the plant. To avoid drift to native plants, spray on calm days.

Cut stump: Cut plant four inches from ground in fall. Treat stumps with a triclopyr herbicide. Glyphosate-based products are not strong enough for this plant.

Non-invasive Alternatives

© Joseph A. Marcus/Lady Bird Johnson Wildflower Center

trumpet vine
Campsis radicans

© Joseph A. Marcus/Lady Bird Johnson Wildflower Center

Virginia creeper
Parthenocissus quinquefolia

© Joseph A. Marcus/Lady Bird Johnson Wildflower Center

trumpet honeysuckle
Lonicera sempervirens

© Native Plant Nursery/nativeplant.com

American bittersweet
Celastrus scandens

Black Swallow-Wort

© Leslie Mehrhoff/IPANE

Identification

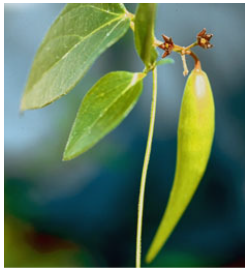
opposite dark green leaves / twining vine

© Elizabeth Czarapata

dark purple flowers

© Stephen Darbyshire

closed seed pod



open seed pod

© Richard A. Casagrande © Leslie Mehrhoff/IPANE

Black swallow-wort invades Wrentham's fields and roadsides. The plants are easier to see in late summer when dying plants turn golden yellow.

The Problem

- Black swallow-wort (*Vincetoxicum nigrum*) can colonize two ways, wind borne seeds which can travel for miles or by rhizomes (underground stems) that sprout into new plant clumps and form extensive patches.
- These extensive patches of swallow-wort grow over other, often native, vegetation, blocking light and creating tangled thickets.

© Wisconsin DNR

- Since this plant is a member of the milkweed family, Monarch butterflies often lay their eggs on swallow-wort seed pods. But swallow-wort is poisonous to monarchs and its larvae die either when they feed or by starving to death.
- Old field habitats of goldenrod and grasses can be replaced almost exclusively by swallow-wort, completely changing their physical structure, possibly affecting nesting birds in the process.

Black Swallow-Wort

Removal

MECHANICAL REMOVAL:

Fruits can be manually removed and carried off-site to prevent seed dispersal, but this practice is time-consuming and must be continued until no more pods are produced and the plants reach the end of the growing season. It is more effective to remove the entire plant by mowing or pulling as it takes the plants a long time to recover and they often cannot do so in time to produce more seeds that season. Mowing is best for preventing seed production.

However, mowing presents the same rapid re-sprouting problem as manual pulling. Mowing frequently (one to two visits per season) just as the pods are beginning to form is ideal to prevent seed production.

Digging root crowns is more effective than hand pulling alone. The stem tends to break easily above the root crown if pulled while the root crown itself is held tenaciously in place by the fibrous root system and can readily resprout if the stems are cut or broken. If the root crown is pulled up, it must be removed from the site and/or destroyed because broken root crowns tossed on the ground have been observed to re-grow.

CHEMICAL REMOVAL:

Foliar spray treatments are shown to be superior to cut-stem treatments. Herbicide choice for foliar spray treatments will depend on site conditions. In degraded patches with little desirable vegetation, glyphosate may be preferred. At sites with desirable grasses that should be conserved, triclopyr ester would be the herbicide of choice. Follow up treatments will be required. In situations where spraying is impractical, cut-stem applications with follow up treatments should be effective. Repeated follow-up herbicide treatments are necessary for effective control. These herbicides should be applied when plants are actively growing, after flowering has begun. Only when the plants flower will they be large enough to receive sufficient spray on the exposed leaf surface to deliver a killing dose to the roots.

Burning Bush

© Daniel Dietz/The Nature Conservancy

Identification

yellow flower

© Leslie Mehrhoff/IPANE

red fruit

© Leslie Mehrhoff/IPANE

winged stem

© Leslie Mehrhoff/IPANE

red fall foliage

© Barry Rice/The Nature Conservancy

finely toothed, opposite leaves

© The Nature Conservancy

Burning bush invades Wrentham's forests and fields. It is easy to see in the fall when its leaves turn bright red.

© Barry Rice/The Nature Conservancy

The Problem

- Burning bush seeds prolifically, which means that it can force out other plants, especially herbaceous and native woody plant species.
- Birds are attracted to its reddish-orange seed and spread it freely.
- Once established, these plants will form a dense thicket capable of outcompeting almost any native plant.
- Hundreds of seedlings are often found below the parent plant in what is termed a "seed shadow."

Burning Bush

Removal

MECHANICAL REMOVAL:

Hand pull: Any time of year when the ground is soft, especially after a rain, hand pull small plants by the base of the stem. Be sure to pull up the entire root system. Hang from a branch to prevent re-rooting. For larger plants, use a Weed Wrench™. Continue to monitor the area every year for new seedlings.

Cut stump: Cut plants back in the fall or winter. Wrap a few layers of burlap or thick plastic over the stump and tie tightly with twine or rope. Check covered stumps periodically and cut back any new growth.

CHEMICAL REMOVAL:

Cut stump: Cut the plant four inches above the ground. Use a drip bottle to apply a 18-21% glyphosate solution to the stump within one hour of cutting. This is best done in late summer through winter when plants are transporting resources to their root systems.

Low volume foliar spray: This method is used for dense populations and best left to a contractor. In the fall when native plants are losing their leaves, spray a 2% glyphosate solution on the entire leaf surface of the plant. To avoid drift to native plants, spray on calm days.

Non-invasive Alternatives

© Albert A. Vick Jr./Lady Bird Johnson Wildflower

highbush blueberry
Vaccinium corymbosum

© Albert F.W.Vick/Lady Bird Johnson Wildflower Center

witch-hazel
Hamamelis virginiana

© Stefan Bloodworth/Lady Bird Johnson Wildflower

red chokeberry
Aronia arbutifolia

© Iowa State University Extension

fothergilla
Fothergilla major

Bush Honeysuckle

© Leslie Mehrhoff/IPANE

Identification

thin-petaled flowers

© John Randall/The Nature Conservancy

red fall berries / opposite oval leaves

© John Randall/The Nature Conservancy

hollow stem pith

© Gary Fewless/University of Wisconsin-Green Bay

Bush honeysuckle invades Wrentham's forests and fields. It is easy to see in May and June when its yellow, white or pink flowers are in bloom.

The Problem

- When songbirds build nests in non-native honeysuckle they suffer a higher predation rate than when their nests are built in native shrubs such as arrowwood (*Viburnum dentatum*). This is because honeysuckle stems are sturdier and closer to the ground - raccoons, skunks and other predators can easily scramble up the stems.

© James Leupoll/USF&WS

- Forest regeneration is severely affected by honeysuckle infestations. The shrubs form dense colonies in the understory, outcompeting native shrubs and trees.
- Sunlight can no longer reach the forest floor, reducing the diversity and abundance of native wildflower and fern populations.

Bush Honeysuckle

Removal

MECHANICAL REMOVAL:

Hand pull: Any time of year when the ground is soft, especially after a rain, hand pull small plants by the base of the stem. Be sure to pull up the entire root system. Hang from a branch to prevent re-rooting. For larger plants, use a Weed Wrench™. Continue to monitor the area every year for new seedlings.

Cut stump: Cut plants back in the fall or winter. Wrap a few layers of burlap or thick plastic over the stump and tie tightly with twine or rope. Check covered stumps periodically and cut back any new growth.

CHEMICAL REMOVAL:

Cut stump: Cut the plant four inches above the ground. Use a drip bottle to apply a 18-21% glyphosate solution to the stump within one hour of cutting This is best done in late summer through winter when plants are transporting resources to their root systems.

Low volume foliar spray: This method is used for dense populations and best left to a contractor. In the fall, when native plants are losing their leaves, spray a 2% glyphosate or triclopyr solution on the entire leaf surface of the plant. To avoid drift to native plants, spray only on calm days.

Non-invasive Alternatives

© Mrs. W.D. Barnsford/Lady Bird Johnson Wildflower Center

ninebark
Physocarpus opulifolius

© John Randall/The Nature Conservancy

winterberry
Ilex verticillata

© David G. Smith/delawarewildflower.org

black chokeberry
Aronia melanocarpa

© Albert F.W. Vick, Jr./Lady Bird Johnson Wildflower Center

Virginia rose
Rosa virginiana

Japanese Knotweed

© Leslie Mehrhoff/IPANE

Identification

new growth looks like red asparagus stalks

© Leslie Mehrhoff/IPANE

lacy white flowers trailing down stem / rounded, heart shaped leaves

© John Randall/The Nature Conservancy

Japanese knotweed invades the roadsides and banks of Wrentham's streams and lakes. It is easy to see in August when its white flowers bloom.

© John Randall/The Nature Conservancy

The Problem

- Although bees are attracted to knotweed flowers, the plant is untouched by most native insects. As knotweed populations replace native trees, shrubs, grasses and sedges, native insect populations are reduced. Insect populations are a primary food sources for fish, birds, and mammals.
- River shores that are populated by native vegetation are less susceptible to erosion. A combination of native plants has a more complex root structure and can retain soil.
- Knotweed can re-sprout from a small piece of the rhizome (root) or stem. New colonies are easily established on rivers or from contaminated soils used for road repair or construction projects.

Japanese Knotweed

Removal

MECHANICAL REMOVAL:

Cut stalks at least once per month throughout the growing season. Use a scythe, loppers or even a lawn mower, depending upon the ground surface you are working on. Repeat cuts for five years. Do not replant until the knotweed is under control and the plants are much smaller and have lost their vigor. Replant with good sized natives.

CHEMICAL REMOVAL:

For small infestations: Cut stalks of knotweed in late June. Cut again after August 1st and drip a 18-25% glyphosate herbicide* solution into the stems. An injector gun can also be used for application.

For larger infestations: Cut the plants back in June. In late summer, when other populations are flowering, use a low-volume foliar spray of 3-8% glyphosate. Spray only on non-windy days and in patches that are absent of native species. Any time you are near water, use aquatic formulations. The following year, spot-treat remaining plants.

Knotweed Management Tips

- Have a strong will! Knotweed is notoriously difficult to remove.
- Small parts of the rhizome (root) or stalk can resprout and start new colonies.
- Small patches can be successfully eradicated, but it takes years of persistent effort.
- Organize a group of volunteers that can work together on larger patches.
- When possible, bag cut plants. Let rot in the bag for a year before disposing of the bags in a landfill.
- If bagging is not possible, pull plants into a pile and cover with a tarp to rot.
- When working near a body of water, pull back cut plants above the flood lines.

DO NOT COMPOST THIS PLANT!
Plant fragments can resprout.

Multiflora Rose

© Jill M Swearingen, USDI National Park Service

Multiflora rose invades Wrentham's roadsides, forests and fields. The plants are easy to see in early summer when their fragrant white to pink flowers appear.

Identification

fringed stipules

© Leslie J. Mehrhoff/ IPANE

red fruits (rose hips)

© James H Miller/ USDA Forest Service

The Problem

- Multiflora rose (*Rosa multiflora*) can form impenetrable thickets that exclude native plant species.
- Birds eat its fruits and disperse its seeds which are still viable after passing through a bird's digestive tract.
- Arching canes that reach the ground can take root and form new plants.
- This plant has a wide tolerance of soil, moisture, and light conditions. It has the ability to thrive in dense woods, open fields, prairies, pastures, and is readily found along stream banks and roadsides.
- Seed bank can remain viable for 10-20 years creating the need for a long-term management plan.

Multiflora Rose

Removal

MECHANICAL REMOVAL:

Young plants can be pulled by hand.

Frequent, repeated cutting or mowing at the rate of three to six times per growing season, for two to four years, has been shown to be effective in achieving high mortality of multiflora rose.

In high quality natural communities, cutting of individual plants is preferred to site mowing to minimize habitat disturbance.

CHEMICAL REMOVAL:

Cut stump: Cut the plant four inches above the ground. Use a drip bottle to apply an 18-21% glyphosate solution to the stump within one hour of cutting. This is best done in late summer through winter when plants are transporting resources to their root systems.

Low volume foliar spray: This method is used for dense populations and best left to a contractor. Thoroughly wet all leaves with an herbicide in water with a surfactant as follows:

While in bloom: Escort at 1 ounce per acre (0.2 dry ounces per 3-gallon mix).

Aug-Oct: Arsenal AC at 1% solution (4 oz per 3-gallon mix) or Escort at 1 oz per acre (0.2 dry oz per 3-gallon mix).

May-Oct: repeated applications of a glyphosate herbicide as a 2% solution in water (8 oz per 3-gallon mix), a less effective treatment that has no soil activity to damage surrounding plants. In order to avoid drift to native plants spray only on calm days.

Non-invasive Alternatives

© S&A. Wasowski, TWC

climbing prairie rose
Rosa setigera

© S&A. Wasowski, TWC

chokecherry
Prunus virginiana

© S&A. Wasowski, TWC

purple-flowering raspberry
Rubus odoratus

Garlic Mustard

© IPANE

Garlic mustard invades Wrentham's forests and wet meadows. This plant is easy to see in April and May when its white flowers are blooming.

© Emily Boedecker/The Nature Conservancy

Identification

new growth with leaves low to ground and no tall stalk

© Daniel Dietz/The Nature Conservancy

delicate white flowers / heart-shaped, toothed leaves of older plants

© Leslie Mehrhoff/IPANE

The Problem

- Garlic mustard spreads its seeds in the wind.
- It emerges earlier in the spring than many native plants. As a result, it blocks native plants' sunlight and outcompetes them for moisture and vital nutrients.
- Its roots release chemicals that alter the underground network of fungi that connect nutrients between native plants, inhibiting the growth of important species such as trees.

Garlic Mustard

Removal

MECHANICAL REMOVAL:

Hand pull plants in the spring before they flower. Pull slowly, grasping plants at the stem base. Make sure you remove the "S"-shaped tap root. Put all plant parts into a plastic bag to decompose.

CHEMICAL REMOVAL:

A glyphosate herbicide such as Round-Up® or Rodeo®, can be sprayed on remaining green leaves in the late fall when all other plants are dormant.

Non-invasive Alternatives

© Stefan Bloodworth/Lady Bird Johnson Wildflower Center

blue phlox
Phlox divaricata

© Mrs. W.D. Bransford/Lady Bird Johnson Wildflower Center

white boneset
Eupatorium perfoliatum

© Mrs. W.D. Bransford/Lady Bird Johnson Wildflower Center

Canada anemone
Anemone canadensis

© Stefan Bloodworth/Lady Bird Johnson Wildflower Center

foam flower
Tiarella cordifolia

Safe Chemical Application

Develop an Integrated Plant Management approach

Use chemical control as only ONE piece of your prevention and management strategy.

The label found on the herbicide container is the law

It indicates the concentrations to use, what protective clothing to wear, how to apply the product, and what environmental and human health hazards are associated with the chemical.

Aquatic formulations within 10 feet of water

You need a permit to apply herbicides in wetlands. You cannot apply herbicides within 100 feet of a well-head. Contact MA DEP at 617-292-5500 for more information.

Hire a contractor to manage large infestations

A good contractor will have the knowledge to help create an effective management plan. For a list of certified contractors, contact the MA Department of Agriculture at 617-626-1700.

You need to be certified to apply herbicides on land that you do not own.

Resources

Additional Invasive Species

To learn more about additional invasive species found in Wrentham that are worthy of removal, such as **Black Locust**, **Common Buckthorn**, and **Tree of Heaven**, please visit:

Mass Audubon – Invasive Plants
https://www.massaudubon.org/learn/nature-wildlife/invasive-plants

Massachusetts Invasive Plants Advisory Group
https://www.massnrc.org/mipag/invasive.htm

Vermont Invasives
http://vtinvasives.org/

Center for Invasives Species and Ecosystem Health
https://www.invasive.org/gist/

Where to Buy Native Plants

Blue Stem Natives, Norwell, MA
https://www.bluestemnatives.com/

Garden in the Woods Nursery Native Plant Trust, Framingham, MA
https://www.nativeplanttrust.org/visit/garden-woods/

Grow Native, Waltham, MA (annual plant sale in June)
https://www.grownativemass.org/

Nasami Farm Nursery Native Plant Trust, Whatley, MA
https://www.nativeplanttrust.org/for-your-garden/nasami-farm/

Prickly Ed's Cactus Patch, Barrington, RI
https://pricklyeds.com/

Tufts Pollinator Initiative (annual plant sale in June)
https://sites.tufts.edu/pollinators/

Oakhaven Sanctuary, N. Reading, MA
https://www.facebook.com/people/Oakhaven-Sanctuary/100069720394436/
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