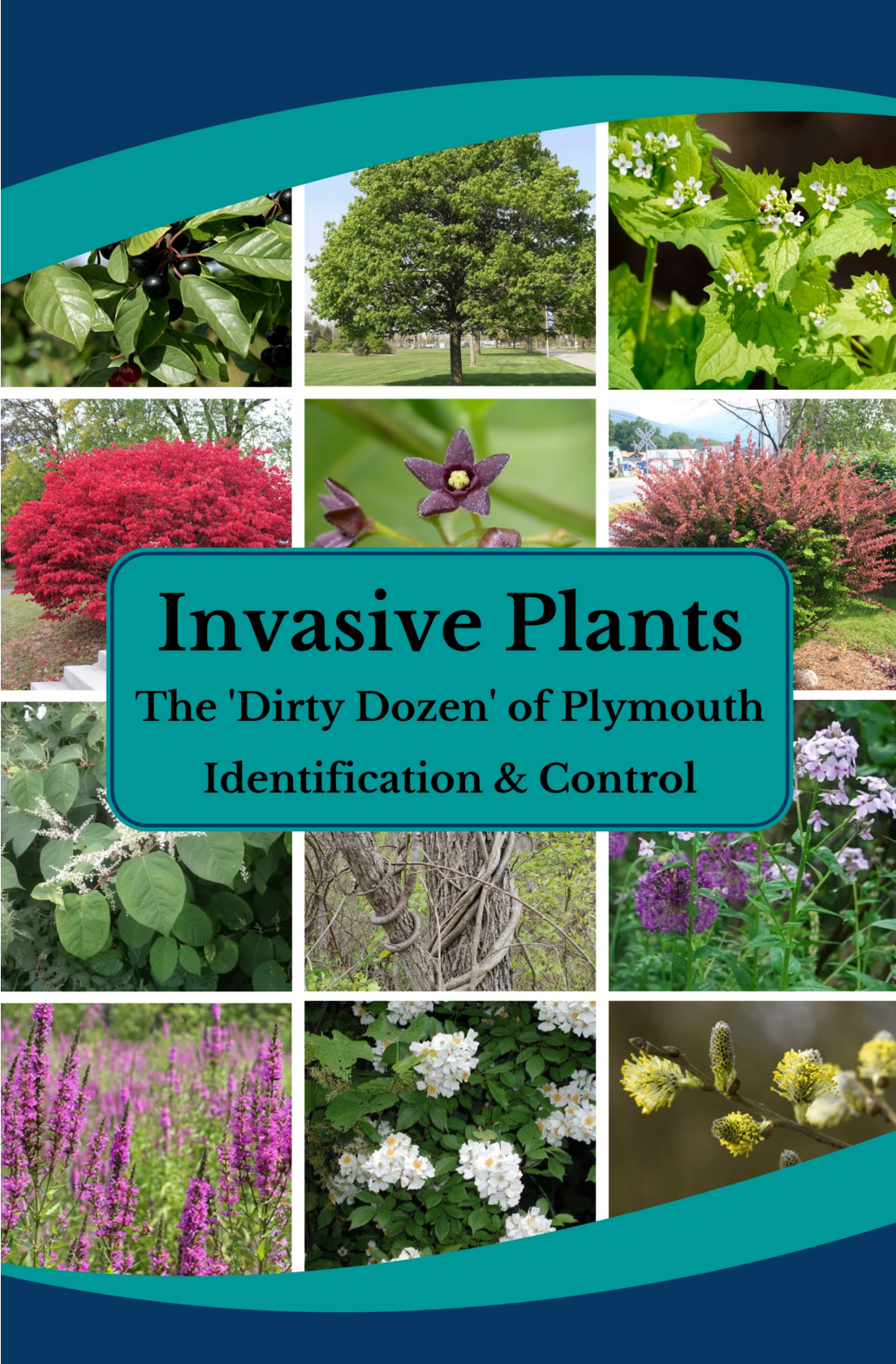

Invasive Plants

The 'Dirty Dozen' of Plymouth

Identification & Control

Why are native plants important?

Here in Plymouth, Massachusetts, we are fortunate to live in a globally rare eco-region, the Atlantic Coastal Pine Barrens. The plants native to our area have evolved with local wildlife and they are essential to a healthy ecosystem, providing food and shelter to many species. Native plant communities also preserve biodiversity, critical to climate resilience.

To encourage native plants, we can identify areas that still have existing native plants and "release" them by clearing away nearby non-native invasive plants. Mulch well after disturbing the soil to minimize invasive resprouting. When purchasing plants opt for native straight species over cultivars or exotic plants. Adding native plants to fill in where non-native plants were removed helps prevent recolonization by invasive plants.

Left: Planting native Sumac in a newly cleared forest edge area.

Right: A Monarch caterpillar on Milkweed. Monarch butterflies exclusively lay eggs on milkweed species. Without those plants, there are no Monarchs.

Native Pollinators are a Critcal Part of Our Wildlife

Our native pollinators are one of many essential players in a healthy ecosystem. Native plants rely on pollinators to reproduce, and the plants provide nectar and pollen as a reward. Many species of pollinators are in decline due to habitat loss and rampant pesticide use. Native plantings are one important way to restore ecosystem functionality — crucial in the face of the climate crisis.

Resources

Local organizations such as the Southeast Massachusetts Pine Barrens Alliance and the Native Plant Trust are great resources for native plant landscaping. Visit SEMPBA at www.pinebarrensalliance.org, scroll down to 'Native Plants Recommended', and the Native Plant Trust is at www.nativeplanttrust.org.

Why are invasive plants a problem?

Invasive plants are introduced, non-native species that spread aggressively and alter all types of ecosystems, including forests, meadows and wetlands, as well as personal properties. Many introduced plants become “naturalized” and get along with native plants, but invasive species form thuggish monocultures that are inhospitable to native plants. This disrupts a natural balance of flora and fauna that took thousands of years to achieve.

The environmental impacts and economic costs due to invasive plants are substantial. Massachusetts was one of the first states to prohibit the sale, transport, and propagation of certain plant species determined to be invasive. These plants also may not be purchased out-of-state and transported into MA. A list of plant species designated as invasive can be found at:

https://www.mass.gov/service-details/invasive-plants

There are hundreds of invasive species, but the “Dirty Dozen” invasive plants profiled in this brochure are plants that are present in Plymouth, and that pose a threat to our properties, our beaches, and our forests. They are here, they are easy to identify, relatively easy to remove, and can actually be eradicated.

Invasive plants are a threat because they:

- Grow rapidly and spread quickly.
- Thrive under most conditions and are projected to do even better in a warming climate.
- May leaf out first in spring and/or drop leaves late in fall, out-competing our native plants.
- Lack the natural checks on their population that are found in their native habitat.

Japanese Knotweed taking over

JOIN THE WATCH!

This brochure is intended as a start to help community members understand the challenges posed by invasive plants, and provide resources and guidance for identification and removal.

- Watch your step! Invasive plant seeds can travel to new locations on shoes, clothing, and recreational equipment.
- Keep your eyes open! Download free apps such as ‘Seek’, ‘iNaturalist’ or ‘Google Lens’ to help identify plant species. If in doubt, ASK!
- Be on the lookout for volunteer workdays and local updates.

What can we do?

Tips As You Get Started

- Identify what may be problematic at your site or home property.
- Early detection and removal is most effective, so starting ASAP is optimal.
- Pick your battles — containment may be the best option.
- Removal can take time — check worked sites for regrowth for a few years.
- Network. There are people out there to help.
- Education & outreach. Learn more *and* help get the word out!

We are looking to train citizen scientists who can identify the invasive non-native plants on your property and suggest how to remove them.

Some Fundamentals to Remember

- Repeated cutting after a plant has leafed out will weaken it.
- Cutting off flower heads and stripping off berries will interfere with seed production and impede seed dispersal.
- Remember to dispose of mature seeds/berries with care. Collect in black plastic and "cook" in the sun or burn the pulled plants. Compost young plants before seeds develop.
- Due to their impact on the environment, consider herbicides as a last resort. Herbicides, by MA law, must be applied by someone licensed by the state, unless applied by a private property owner on their own property.

NOTE! Any invasive species control, including chemical, within 100-ft of any **wetland** or within 200-ft from **rivers or streams**, requires review and approval by the Plymouth Conservation Commission. Please contact 508-322-3322 for more information.

Our "Dirty Dozen" Invasive Plants

On the next 8 pages you will find photographs and descriptions of the following "Dirty Dozen" non-native invasive plants that are present and spreading in and around Plymouth, along with removal tips.

There are <u>many</u> invasive species not mentioned in this publication, as well as many "species of concern" which are not yet formally listed as invasive or that are not yet fully established in the area. For the most updated list of invasive plants, visit the Massachusetts Invasive Plants Advisory Group (MIPAG) website:

https://www.massnrc.org/mipag/invasive.htm

If you have a question, please contact the Plymouth Department of Marine and Environmental Affairs, 508-747-1620 x10127.

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Acer platanoides —- **Norway Maple**

Popular street tree planted heavily in the 50's and 60's. Grows large. Early, broad leaves secrete milky sap if stem is broken. Yellow foliage in very late fall distinguishes it from native Red Maple and Sugar Maple. Outcompetes native plants and quickly forms monocultures when it seeds along roads or in our forests, shading out & eradicating native plants. Easy to pull up completely when young.

Alliaria petiolata —- **Garlic Mustard**

Common biennial invader of gardens and wild areas. Develops many thousands of seeds and spreads wildly.
Spicy, garlicky smell when bruised.
The plant is allelopathic—the roots release a chemical that impedes the health and growth of surrounding plants.
Pulls up very easily; best pulled before seeds form in late May.
Photos of spring seedlings and flowers.

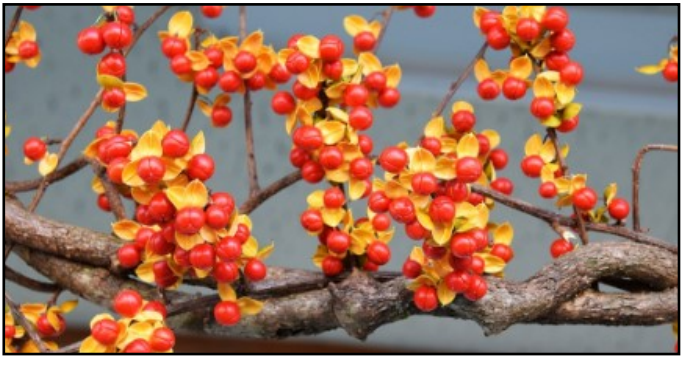
Invasive Plants, Page 2 of 8

Berberis thunbergii —- **Barberry**

Prickly shrub with red or green foliage that reseeds heavily and can become thickets if not detected early and removed. These shrubs are also common tick habitat. Young plants very easy to pull before too much branching has occurred. Roots are distinctly yellow.

Celastrus orbiculatus —- **Asian Bittersweet**

Aggressive climbing vine can reach 60', covering and choking anything in its path. Seeds and orange rootlets build in soil, and can be dormant for years. Roots sprout prolifically. Seeds are spread by birds and humans— do NOT use seedheads for holiday decoration. Young vines pull easily. Larger vines can be cut at the base, the vines can be left hanging in trees, and will rot away in a few years.
Roots are bright orange.



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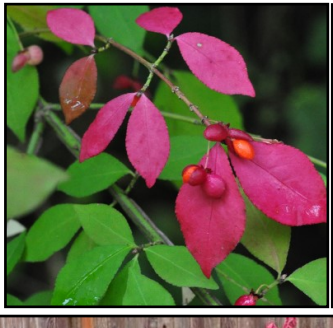
Cynachum louiseae —- **Black Swallow-wort**

Vining member of the milkweed family with pods that release seed parachutes to the wind. Monarch butterflies lay their eggs on the plant but the caterpillars do not survive—this plant is deadly to them.
Remove entire plant and root by digging, do not leave pods behind or compost. Dispose of pods in trash.

Euonymus alatus —- **Dwarf Winged Euonymus**



Formerly a popular landscape shrub, as it will grow virtually anywhere. Stems are green with corky “wings” giving it one of its’ common names, Winged Euonymus.
This plant has prolific seed generation in the Fall.
The seed bank builds slowly in the soil, then plants burst forth when soil is disturbed.
In Fall, shrub has brilliant red foliage, hence the most recognized common name: Burning Bush.
Easy to recognize and easy to pull when young.

Fallopia japonica —- **Japanese Knotweed**

Japanese Knotweed is a tough, invasive member of the Rhubarb family. The process for controlling Knotweed will generally require several years of treatment, monitoring, and re-treatment as necessary to eliminate this invasive. And please note, management of Japanese Knotweed *requires* herbicide treatments, something we generally recommend against. The following Knotweed control protocol was developed by UMass.

Year 1 – Our management program starts as our growing season gets underway. In late May to early June, mow or weed-whack the stand of Knotweed down to the ground to reduce the photosynthetic elements of the plant and deplete its store of carbohydrates. This also brings down the height of the plants for herbicide treatment later in the summer, making it easier to apply the herbicide product. Please note — You can compost any of the above ground growth without fear of spreading the plant.

With herbicide effectivity, timing is everything. In later summer when the plant is just about to flower or IS flowering, this is the optimal timing to treat the stand of Knotweed with a foliar application of the herbicide Glyphosate. If we do these two things – cut down the plant in early summer to weaken it, then spray it with Glyphosate during the flowering period – we usually see a 95% control of this invasive from the first year of treatment.

In the Fall, re-apply the herbicide to any regrowth to take advantage of the 'going into dormancy' nature of the plant, as it readies itself for winter senescence and works to return carbohydrates to the roots for winter storage. This timing brings more herbicide to the heart of the plant.

Invasive Plants, Page 5 of 8

Year 2 – Monitor the area for new Knotweed growth. Mulching the area after treatment can help avoid other non-native invasives from sowing into the area you are working. If there is new Knotweed growth, cut it down in early summer, as was done in Year 1, and treat with the herbicide Gyphosate during the flowering period in late summer. Another fall application of Glyphosate on any regrowth can be helpful.

Year 3 – If there is any regrowth, repeat management protocol as in Year 2. If there is no regrowth of the Knotweed by early summer, jump to Year 4.

Year 4 – Assuming you have no new growth of Knotweed, replant the area.

Year 5 and beyond – Continue to monitor for Knotweed and other invasives. If you see Knotweed sprouting, engage **EDRR**: "Early Detection and Rapid Response." Respond immediately and remove the emerging plants, or treat them with the appropriate herbicide to keep the area free of this troublesome nonnative invasive.

Stands of Fallopia/Japanese Knotweed, can grow to be >10' tall. Roots can grow 6' deep and can send out rhizomes 65' from the mother plant. There is also a Giant Knotweed (Reynoutria sachalinensis) that grows to 17', but we have no known stands in Plymouth.

Frangula alnus —- **Glossy Buckthorn**

Small tree with shiny leaves and white dots (lenticels) on bark. Fruits are a laxative with negative food value for wildlife. Buckthorn grows everywhere: fields, woods, wetlands and roadsides. Remove the entire plant (roots!) because regrowth is harder to eradicate. Common Buckthorn resembles Glossy, but with notched leaf edges instead of smooth, and shaggier bark.

Hesperis matronalis —- **Dame's Rocket**

Dame's Rocket or Sweet Rocket is a biennial or short-lived perennial. This plant crowds native species and outgrows them. Flowers can be white, violet, pink, rose. Plant can be in flower and seed at the same time—seed pods look like long whips.

Prolific reseeders, they will grow in shade or sun, dry conditions and wet. If plant is in seed destroy it, do <u>not</u> try to compost. Very easy to recognize when in flower, and pulls up easily.

Lythrum salicaria —- **Purple Loosestrife**

Yes, it's pretty when blooming, but it is a nightmare in the landscape. Purple Loosestrife occurs throughout the state in both upland and wetland habitats. Growing in full sun to partial shade, it can quickly form dense stands that dominate and exclude native vegetation, and can overtake wetlands. One mature plant can produce 2.5 *million* seeds that can remain viable for decades. Mature plants are fairly easy to pull. Compost unless they are setting seed — then bag, solarize, and throw away.

Rosa multiflora —- **Multiflora Rose**

This is the Rose you do NOT want. Like many of our invasives, this was a plant recommended for wildlife back when we didn't know better.
Hardy climber can reach heights over 15' and grow over 10' wide. Lots of thorns. Prefers sun; often takes over old fields. Repeated mowing or cutting is recommended, as well as pulling young plants.
Help prevent additional distribution— do NOT use seedheads as decorations.

Invasive Plants, Page 8 of 8

Salix atrocinerea — **Gray Willow**
Salix cinerea — **Rusty Willow**

These two invasive Willows look a lot alike, and they are prevalent in much of Plymouth. With a shrub-like multi-stemmed form, they can grow over 35' in height.

In early Spring catkins bloom (they look like loose 'pussy willows') and then set seed.

Preferring to grow on pond shores where their roots stay wet, these large shrubs form dense stands and out-compete our native Willows.

Best control is removal, but large root masses often preclude this. Cut down to 6" and treat cut stump with a systemic herbicide. Watch for re-sprouting and re-cut and re-treat.

Note — As with all invasives, plants within 100' of a wetland or 200' from a running brook, stream or river are under Conservation jurisdiction and require approval before anything can be done.

Also note — Herbicides must be applied by licensed individuals.

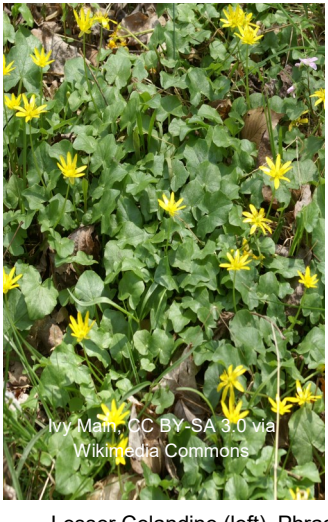
Yet More Invasive Plants

There are a variety of invasive species not mentioned in this publication, as well as many “species of concern” which are not yet formally listed as invasive or are not yet fully established in the area, but are ‘likely invasive.’ For the most updated list of invasive plants, visit the Massachusetts Invasive Plants Advisory Group (MIPAG) website.

The following are just a few of the additional nuisance plants that are found in Plymouth:

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org, CC BY-SA 3.0 via Wikimedia Commons

Wall Lettuce (left) is likely invasive. Creeping Jenny (center) and Mile-a-Minute vine (right) are invasive.



Ivy Main, CC BY-SA 3.0 via Wikimedia Commons

Lesser Celandine (left), Phragmites (center), and Porcelain Berry (right) are all listed as invasive.

Resources for Native Plants

To learn more about native (indigenous) plants for Plymouth, we recommend the following resources:

Southeastern Massachusetts Pine Barrens Alliance
Exceptional list of native plants growing here before European settlement.
www.pinebarrensalliance.org/native-plant-guide-plymouth-county-ma/

Grow Native Massachusetts
Listing of nurseries and seed sources for plants native to Massachusetts.
https://grownativemass.org/Great-Resources/nurseries-seed

Native Plant Trust
Source of great information and where native plants can be purchased.
https://www.nativeplanttrust.org/for-your-garden/buy-native-plants/

Following are nurseries that offer native plants. Try to choose plants that are native to Massachusetts, as those evolved with our indigenous wildlife and they provide optimal nutrition and habitat.

Bluestem Natives — 376 Washington Street, Norwell (rear of lot)

Crystal Lake Nursery — 252 Summer Street, Plymouth

Morrison's Home & Garden — 90 Long Pond Road, Plymouth

New England Wetland Plants — 14 Pearl Lane, South Hadley

Spencer's Gardens & Nursery — 171 Clay Pond Road, Bourne

Sylvan Nursery — 1028 Horseneck Road, Westport

Wyman's Nursery — 141 Spring Street, Hanson

Plymouth's "Dirty Dozen" is a collaboration of:

- Plymouth Department of Marine and Environmental Affairs
  508-747-1620 x10127
- Plymouth Office of the Town Manager—
  Climate Resiliency and Sustainability Planning
  508 747-1620 x10245
- Sustainable Plymouth
  sustainableplymouth@gmail.com
- Plymouth Open Space Committee
  508-322-3374
- Plymouth residents Andrea Dickinson & Love Albrecht Howard

Sustainable Plymouth

PLYMOUTH OPEN SPACE

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