

Invasive Plants In Your Backyard!

A Guide to Their Identification and Control



Do you know what plants are growing in your yard? *Chances are very good that along with your favorite flowers and shrubs, there are non-native invasives on your property.*

Non-native invasives are aggressive exotic plants introduced intentionally for their ornamental value, or accidentally by hitchhiking with people or products.



Invasive Morrow's honeysuckle (S. Leicht, University of Connecticut, bugwood.org)

They thrive in our growing conditions, and with no natural enemies have nothing to check their rapid spread.

The environmental costs of invasives are great – they crowd out native vegetation and reduce biological diversity, can change how entire ecosystems function, and pose a threat to endangered species.

Several organizations in Connecticut are hard at work preventing the spread of invasives, including the Invasive Plant Council, the Invasive Plant Working Group, and the Invasive Plant Atlas of New England. They maintain an official list of invasive and potentially invasive plants, promote invasives eradication, and have helped establish legislation restricting the sale of invasives.

Should I be concerned about invasives on my property?

Invasive plants can be a major nuisance right in your own backyard. They can kill your favorite trees, show up in your gardens, and overrun your lawn. And, because it can be costly to remove them, they can even lower the value of your property. What's more, invasive plants can escape to nearby parks, open spaces and natural areas.

What should I do if there are invasives on my property?

If you find invasive plants on your property they should be removed before the infestation worsens. Keep in mind that tangles or thickets of invasives may serve as bird nesting areas, so the best time to remove these is late fall/winter.

Replacing non-native invasives in your yard with native plant species makes a lot of sense. There are many excellent native alternatives to choose from. Select ones that are right for the conditions in your yard and they will flourish! By planting natives you will promote local biodiversity, provide native wildlife with sources of food and cover, and create a beautiful, healthy green space.

Photo on cover from bugwood.org (unless noted), clockwise from top left: *Oriental Bittersweet* and *Burning Bush*, J.H. Miller, USDA Forest Service; *Garlic Mustard*, G. Miller, OR DOA; *Common Reed*, N. Tabak, University of Connecticut, IPANE; *Japanese Honeysuckle*, S. Leicht, University of Connecticut, IPANE; *Purple Loosestrife*, L.J. Mehrhoff, University of Connecticut, IPANE; *Japanese Barberry*, Brian Chandler, imaginationarium.org/sano/pics/b02937megi.jpg.

How can I control invasives on my property?

The number one rule of invasive plant control is DO NOT PLANT THEM in the first place! While this may seem obvious, some invasives in this guide can still be purchased. Second, it is critical to take action as soon as you detect invasive plants. Once invasives are established they can be extremely difficult to remove.

There are three basic approaches that can be used to control invasive plants: mechanical, chemical and biological. The best strategy will depend on the type of invasive and the extent of the infestation.

Mechanical controls, including pulling, digging, cutting, mowing and shading, should be used as a first line of defense. They are excellent for new or small infestations, cause minimal environmental impact, and for the most part only require basic gardening tools.

In general, plants are cut or mowed to ground level, then the roots are dug up. Be sure to bag all plant material and put it in the trash as many invasives can regrow from pieces and parts. In areas with direct sunlight, black plastic can be anchored over the cut plants to prevent resprouting and help kill the roots.

For best results, leave the plastic in place for 4 to 6 weeks while the weather is hot. Invasives that spread by seed are best cut, pulled, mowed or shaded during flowering or before seeds are set.

Chemical control entails the use of herbicides applied to foliage, cut stumps, or basal bark. Herbicides can be very effective, but it is essential to apply them as directed. It is also very important to inform yourself about the potential health and environmental risks of herbicides prior to their use. In some cases applying herbicides can require a permit, for example if used over or near water.



Clearing invasive Japanese knotweed
(T. Heutte, USDA Forest Service, bugwood.org)



Purple loosestrife has escaped from gardens into natural areas all over the Northeast

(L.J. Mehrhoff, University of Connecticut, IPANE)

Biological control, or the use of natural enemies, may be the best choice in the future. For now, however, there are few biocontrol options available. Currently (as of 2009), purple loosestrife is one of the only invasives with a viable biocontrol.

For more info on control visit the "Publications" page at www.hort.uconn.edu/cipwg and look for the "Invasive Plant Management Guide"

BURNING BUSH

Euonymus alatus



Native Alternatives

Arrowwood • Bayberry •
Chokeberry • Gray Dogwood •
Highbush Blueberry • Smooth
Sumac • Winged Sumac •
Witchhazel (fall blooming)

Photos: top - oregonstate.edu/dept/ldplants;
mid - L.J. Mehrhoff, IPANE; bottom - L.J. Mehrhoff,
University of Connecticut, bugwood.org.

Deciduous Shrub

Fruits: August to January

Burning bush, also known as winged euonymus, is a deciduous shrub that has been planted widely in landscapes and along roadways for its bright red fall color. Spreading occurs when wildlife eat its fruits, resulting in the dispersal of seeds to new areas. It tolerates a wide variety of soil and moisture conditions, and grows in sun or shade.

IDENTIFICATION

- Large shrub, 5 to 10 feet tall
- Corky, wing-like ridges on stems
- Opposite, oval to tear-drop shaped finely toothed leaves
- Bright red fall foliage
- Showy red-purple fruits split open to reveal bright red-orange fleshy seeds

MECHANICAL CONTROL

Pull or dig young plants, making sure to remove the entire root. Large plants can be cut at ground level but will resprout from the base, so repeated cutting is necessary.

CHEMICAL CONTROL

Spray foliage of small plants with either glyphosate or triclopyr. For larger plants apply glyphosate or triclopyr to freshly cut stumps.

JAPANESE BARBERRY

Berberis thunbergii

Deciduous Shrub

Flowers: April to May

Fruits: Late Summer

Japanese barberry is a spiny shrub with a dense twiggy form. It is dispersed to new areas by birds who eat the bright red fruits. Tolerant of a broad range of soil moisture and light conditions, it grows in various habitats, from open fields to shaded woodlands to wetlands.

IDENTIFICATION

- Small shrub, 2 to 5 feet tall
- Thin, single thorns on stems
- Alternate, teardrop shaped leaves that develop before trees leaf out
- Pale yellow flowers in clusters on the underside of branches
- Bright red berries that often persist into winter

MECHANICAL CONTROL

Hand pull seedlings and dig larger plants. Roots are shallow so infestations are fairly easy to control by physical removal.

CHEMICAL CONTROL

Only use herbicides if mechanical removal is not possible. In early spring spray foliage with triclopyr, or from mid-summer to fall use either triclopyr or glyphosate. For larger plants, apply either triclopyr or glyphosate to freshly cut stumps.



Native Alternatives

Bayberry • Inkberry • New Jersey Tea • Silky Dogwood • Summersweet • Smooth Hydrangea • Winterberry

Photos from bugwood.org: top/bottom - L.J. Mehrhoff, University of Connecticut; mid - J.H. Miller, USDA Forest Service.

MULTIFLORA ROSE

Rosa multiflora



Native Alternatives

Chokeberry • Highbush
Blueberry • Raspberry (Red,
Black or Thimbleberry) •
Summersweet • Swamp Rose •
Virginia Rose • Winterberry

Photos from bugwood.org: top/mid - J.H. Miller, USDA Forest Service; bottom - C. Evens, River to River CWMA.

Deciduous Shrub

Flowers: May to June

Fruits: September to October

Multiflora rose is a thorny shrub that can both climb like a vine and form dense thickets. It spreads by root suckering and tip layering, and when wildlife disperse seeds after eating the fruit. It is often found growing in old fields, along roads, on streambanks, and in forest gaps.

IDENTIFICATION

- Shrub with long, slender arching branches and sharp, curved thorns
- Compound leaves composed of oval to lance-shaped leaflets
- Feathery, deeply fringed stipule at base of each leaf (bottom photo)
- Clusters of fragrant white flowers
- Small, smooth, reddish rosehips persist into early winter

MECHANICAL CONTROL

Hand pull small plants, or dig and pull large plants removing all of the roots since fragments can resprout. Repeated mowing can also control growth, but will probably not result in eradication.

CHEMICAL CONTROL

Spray foliage with triclopyr before and during flowering, or use glyphosate after flowering. Apply glyphosate or triclopyr to cut stems anytime, although herbicides are more effective in the fall when nutrients are being sent to the roots.

AUTUMN OLIVE

Elaeagnus umbellata

Deciduous Shrub or Tree

Flowers: April to May

Fruits: September to November

Autumn olive is a fast growing woody shrub or tree that produces abundant, fleshy fruits. It disperses to new areas after wildlife eat the seed-filled fruits. Tolerant of shade, and preferring dry conditions over wet, it often grows in disturbed areas, clearings, open fields, and forest margins.

IDENTIFICATION

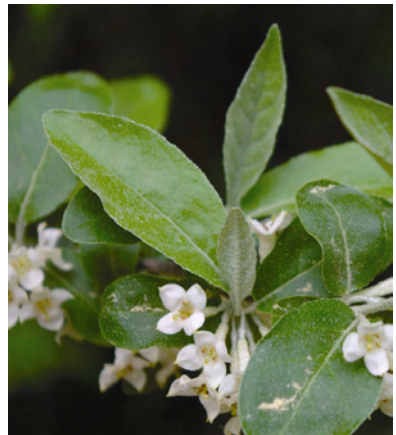
- Large shrub or small tree, to 20 feet tall
- Alternate, oval dark gray-green leaves with silvery scales underneath
- Fragrant, cream to light yellow flowers
- Fall fruits start brown then turn a dark red speckled with small silver dots

MECHANICAL CONTROL

Pull or dig young plants, making sure to remove the entire root. Cut larger plants at ground level when in flower to prevent seed production. Plants will resprout from the base, so repeated cutting is necessary.

CHEMICAL CONTROL

For small plants spray foliage with either glyphosate or triclopyr. For larger plants apply glyphosate or triclopyr to freshly cut stumps, or girdle tree with an axe and apply herbicide to the cut area. Herbicides may be most effective when used late in the growing season.



Native Alternatives

- American Cranberrybush
- Bayberry
- Beach Plum
- Chokeberry
- Inkberry
- Winterberry

Photos from bugwood.org: top - Pennsylvania DCNR, Forestry Archive; mid - N. Lowenstein, Auburn University; bottom - C. Evens, River to River CWMA.

TREE OF HEAVEN

Ailanthus altissima



Native Alternatives
Eastern Redbud • Flowering
Dogwood • Shadblow • Smooth
Sumac • Staghorn Sumac

Photos from bugwood.org: top - P. Wray, Iowa State University; mid - L.J. Mehrhoff, University of Connecticut. Bottom photo - US Forest Service, www.fs.fed.us.

Deciduous Tree

Flowers: June to July

Fruits: Fall

Tree of Heaven is a rapidly growing tree that spreads by wind dispersed seeds and root suckering. Because it tolerates poor soils and pollution it was planted in urban areas. It is now mostly found in open sites, disturbed areas and forest edges.

IDENTIFICATION

- Tree, up to 80 feet tall
- Large, alternate compound leaves have pointed leaflets with a single notched tooth at the base
- Smooth stems with pale gray bark
- Large clusters of yellow flowers
- Red-brown seeds with papery wings are retained through fall into winter
- Unpleasant odor when the leaves, flowers or stems are crushed

MECHANICAL CONTROL

Hand pull young plants when the soil is wet or cut larger plants repeatedly at ground level to exhaust root reserves. To prevent seed production, cut plants before or while they are in flower.

CHEMICAL CONTROL

Spray foliage with triclopyr or glyphosate, or treat fresh cut stumps or basal bark with triclopyr. Applying herbicides late in the growing season when nutrients are being sent to the roots is most effective.

ORIENTAL BITTERSWEET

Celastrus orbiculatus

Deciduous Vine

Fruits: Late Summer to Early Fall

Oriental bittersweet, also known as Asiatic bittersweet, is an aggressive vine that can quickly smother other vegetation. It has twining stems that strangle shrub and tree limbs, and its weight can cause uprooting and toppling. Spreading occurs by root suckering, and when birds eat the very distinctive red fruits. It is shade tolerant, can grow in a variety of habitats, and is quick to invade any newly disturbed area.

IDENTIFICATION

- Woody twining vine
- Alternate, nearly round, finely toothed glossy leaves that spiral evenly around the stem
- Fruits have a conspicuous yellow casing that opens to reveal a bright red fleshy interior
- Roots are orange colored

MECHANICAL CONTROL

Pull small plants including the entire root system. Cut larger vines close to the ground every couple of weeks to prevent resprouting and to deplete the root system.

CHEMICAL CONTROL

For low, dense patches cut all vegetation to ground level, allow to regrow, then spray foliage with triclopyr. For taller patches treat fresh cut stumps with either triclopyr or glyphosate in late summer.



Native Alternatives

- Trumpet Honeysuckle
- Fox Grape
- Virginia Creeper
- Virgin's Bower

Photos from bugwood.org; top - L.J. Mehrhoff, University of Connecticut; mid - C. Evens, River to River CWMA; bottom - N. Lowenstein, Auburn University.

JAPANESE KNOTWEED

Polygonum cuspidatum



Native Alternatives

Boneset • Buttonbush •
Elderberry • Pussy Willow •
Silky Willow • Spicebush

Perennial Herb

Flowers: Late Summer

Japanese knotweed is a shrub-like, upright herbaceous perennial. It forms dense stands that spread vegetatively from long, stout rhizomes, and produces winged fruits that carry seeds to new areas. Though fairly tolerant of most soil and light conditions, it is often found in wet and sunny locations such as wetlands, roadsides and streambanks.

IDENTIFICATION

- Hollow, bamboo-like stems, up to 10 feet tall
- Alternate, large, oval leaves with square bases and pointed tips
- Small green-white flower clusters
- Plants turn brown and die back with the onset of frost

MECHANICAL CONTROL

Pull or dig small plants removing all shoots, roots and rhizomes. For larger infestations, cut plants repeatedly (three times per year) at ground level to starve roots and rhizomes.

CHEMICAL CONTROL

Cut stems two inches above ground level and apply glyphosate, or cut and allow plants to begin regrowing before spraying foliage with glyphosate. Herbicides are most effective in late summer or early fall when plants are sending nutrients to the roots and rhizomes.

PURPLE LOOSESTRIFE

Lythrum salicaria

Perennial Herb

Flowers: July to October

Purple loosestrife is an erect, multi-stem perennial herb. It spreads vegetatively from aggressive rhizomes and produces copious seeds (up to 300,000 per stalk!). While it prefers full sun and organic soil, it tolerates a wide range of conditions. Dense stands are found in swamps and marshes, on streambanks and lakeshores, in stormwater ponds and roadside ditches.

IDENTIFICATION

- Square, woody stem, 1.5 to 5 feet tall
- Opposite, narrow, lance-shaped leaves with a heart-shaped clasping base
- Telltale purple-pink flower spikes

MECHANICAL CONTROL

Hand pull or dig small infestations before seed set. Be sure to remove and dispose of the entire taproot and all broken stems, since they can resprout.

CHEMICAL CONTROL

Apply glyphosate* to foliage after peak bloom (August) or to cut stems in late summer/early fall. Repeat treatments will likely be necessary. *A state permit is required to use herbicides in aquatic habitats (over/near water).

BIOLOGICAL CONTROL

Leaf-eating Galerucella beetles can help control large infestations but generally do not result in eradication (for more info go to www.hort.uconn.edu/ipm).



Native Alternatives

Beebalm • Blue Giant Hyssop •
Purple Coneflower • Joe-pye
Weed • Swamp Milkweed

Photos from bugwood.org: top - J. D. Byrd, Mississippi State University; mid - N.E. Rees, USDA ARS; bottom - S. Dewey, Utah State University.

GARLIC MUSTARD

Alliaria petiolata



Native Alternatives
Creeping Phlox • Foam Flower •
Lady Fern • Wild Ginger

Photos from bugwood.org: top - C. Evans, River to River CWMA; mid - T. Heutte, USDA Forest Service; bottom - L.J. Mehrhoff, University of Connecticut.

Biennial Herb

Flowers: April to June

Garlic mustard is a cool season biennial herb that starts growing before trees leaf out, then dies back to dry, pale brown stalks by mid-summer. Each plant can produce a large number of long-lived seeds that are able to take advantage of newly disturbed areas. It tolerates partial shade and prefers moist, well-drained soils. Dense invasions are often found along upland and floodplain forest edges, streamsides, trail edges and roadsides.

IDENTIFICATION

- First year plant is a low growing rosette of heart-shaped, coarsely toothed leaves
- Second year plant is upright, 1 to 3 feet tall, with alternate, strongly toothed triangular leaves
- Cluster of small, white four-petal flowers on second year plants
- Leaves and stems give off an odor of garlic when crushed

MECHANICAL CONTROL

Hand pull small infestations when the soil is moist and before plants have set seed, or cut larger infestations at ground level when flowering begins.

CHEMICAL CONTROL

Apply glyphosate to heavy infestations prior to flowering in the spring.

COMMON REED

Phragmites australis

Perennial Grass

Flowers: July to September

Common reed is a perennial grass that forms remarkably dense stands, spreading through aggressive rhizomes and by wind or water dispersed seeds. It thrives in sunny, moist habitats and grows in fresh or brackish water. Most prevalent in disturbed or polluted soils, it is often found along roadsides, lakeshores and riverbanks, as well as in wetlands and coastal marshes.

IDENTIFICATION

- A stout perennial grass that can easily grow to 12 feet tall
- Long, lance-shaped, gray-green leaves
- Purple-brown plume-like flowers
- Stalks and plumes turn tan in the fall and remain throughout the winter

MECHANICAL CONTROL

Cut, pull or mow at the end of July, and dispose of all shoots and root material. Repeat annually until control is achieved. Heavy black plastic placed over cut stalks may help kill plants in full sun.

CHEMICAL CONTROL

Apply glyphosate* to foliage or cut stems once plants have flowered. Follow-up treatments will likely be necessary for this method to be successful.

*A state permit is required to use herbicides in aquatic habitats (over/near water).



Native Alternatives

Big Bluestem • Broom Sedge •
Pussy Willow • Smooth
Cordgrass • Switchgrass

Photos from bugwood.org: mid - L.J. Mehrhoff, University of Connecticut; bottom - J.M. Randall, The Nature Conservancy. Top photo: CRCCD.

OTHER NOTABLE INVASIVES

Trees

Black Locust
Norway Maple

Shrubs

California, Border &
European Privet
Common & Glossy
Buckthorn
Exotic Honeysuckles

Vines

Japanese Honeysuckle
Mile-a-Minute Vine

Herbaceous Perennials

Dame's Rocket
Giant Hogweed
Goutweed (Bishop's Weed)
Japanese Stilt Grass
Spotted Knapweed



Invasive Norway maple
(L.J. Mehrhoff, U Conn, IPANE)

USE OF HERBICIDES TO CONTROL INVASIVES

Two herbicides used commonly to control invasives, glyphosate and triclopyr, are recommended in this guide. Keep in mind that herbicides can pose a human and environmental health risk. If you choose to use them, always take care.

Use herbicides wisely: read the entire label; follow the mixing and application instructions; wear protective gear and clothing; and keep people and pets out of the application area.

Glyphosate is a non-selective, broad spectrum herbicide that is most effective late in the growing season. It is sold under several brand names (Accord®, Rodeo®, Roundup Pro®) and in different concentrations. Rodeo® is made for use in or near water, and requires a permit from the CT Department of Environmental Protection (for info call the Pesticide Program at 860-424-3369).

Triclopyr is a selective herbicide that will not harm grasses or conifers. When used to control woody plants it is most effective early in the growing season. It is sold as Garlon® and Release® for woody plants, and as Weed-B-Gone®, Brush-B-Gone® and Turflon® for broadleaf weeds.

If you use herbicides to control invasives be sure to follow the guidelines on when to use them (time of year), methods of application, and the appropriate dilution for each species.



Spraying potentially invasive giant hogweed
(T. English, USDA APHIS PPO, bugwood.org)

For information on specific requirements, restrictions and recommendations for the use of herbicides visit the CT Department of Agriculture website at www.ct.gov/doag.

Please note: mention of a specific product in this publication is not an endorsement.

RESOURCES

For more information on non-native invasives:

CT Invasive Plant Working Group (CIPWG): www.hort.uconn.edu/cipwg

CT Natural Resources Conservation Service: www.ct.nrcs.usda.gov/plants.html

Invasive.org: www.invasive.org/index.cfm

Invasive Plant Atlas of New England (IPANE): nbii-nin.ciesin.columbia.edu/ipane

US Forest Service Invasive Species Program: www.fs.fed.us/invasivespecies

Weeds Gone Wild: www.nps.gov/plants/alien

WeedUS: www.invasive.org/weedus

For information on aquatic invasives:

CT Agricultural Experiment Station Invasive Aquatic Plant Program:
www.ct.gov/caes, click on “*Invasive Aquatic Plants*” (left side bar navigation link)

For information on native alternatives:

PlantWise: www.wildflower.org/alternatives

“Native Alternatives for Invasive Ornamental Plant Species” brochure:
www.ct.gov/caes, click on “*Publications*” (top line navigation link)

DEFINITIONS

Alternate...leaves in an alternating or ascending spiral pattern on the stem

Opposite...leaves in pairs on opposite sides of the stem

Compound...leaves that are divided into separate leaflets, each with its own stalk

Rhizome...an underground stem that produces new roots and shoots

Tip layering...buried stem tips that form new roots

Suckering...a new shoot rising from a basal or subterranean stem or root

Deciduous...a plant that loses foliage at the end of the growing season

Biennial...plants that live two years

Perennial...plants that live three years or longer

Herbaceous...a plant lacking a permanent woody stem

Leaf shape...definitions online at en.wikipedia.org/wiki/Leaf_shape



Alternate

Opposite

Compound

(from www.okplanttrees.org/okplantid/guides/leaves.html)

A number of references were used to develop this guide. In particular we would like to acknowledge the following sources: CIPWG, Invasive.org, IPANE, PlantWise, US Forest Service, Virginia DCR, Weeds Gone Wild.

This guide was developed to help landowners identify and control non-native invasive plants in their yards. Invasive plants thrive outside their natural range, threatening the health of our native plant and animal communities. Controlling invasives is a challenge, but the benefits are great! By replacing invasives with natives your yard will be naturally beautiful and a place for you – and native wildlife – to enjoy year-round.



Photos (left to right): *California Privet*, L.J. Mehrhoff, University of Connecticut, bugwood.org; *Spotted Knapweed*, J. Cardina, The Ohio State University, bugwood.org; *Common Buckthorn*, L.J. Mehrhoff, University of Connecticut, IPANE; *Mile-a-Minute Vine*, L.J. Mehrhoff, University of Connecticut, bugwood.org.

Why Invasives are Invasive

- 1 They are quick to establish, especially in disturbed areas
- 2 They grow very rapidly once established
- 3 They are long flowering and produce many seeds and fruits
- 4 They spread very effectively to new areas
- 5 They are aggressive competitors, free of the enemies that keep them in check in their natural range



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Connecticut River Coastal Conservation District, Inc.
deKoven House Community Center, 27 Washington Street, Middletown, CT 06457
Ph. 860-346-3282 • FAX 860-346-3284 • www.conservect.org/ctrivercoastal