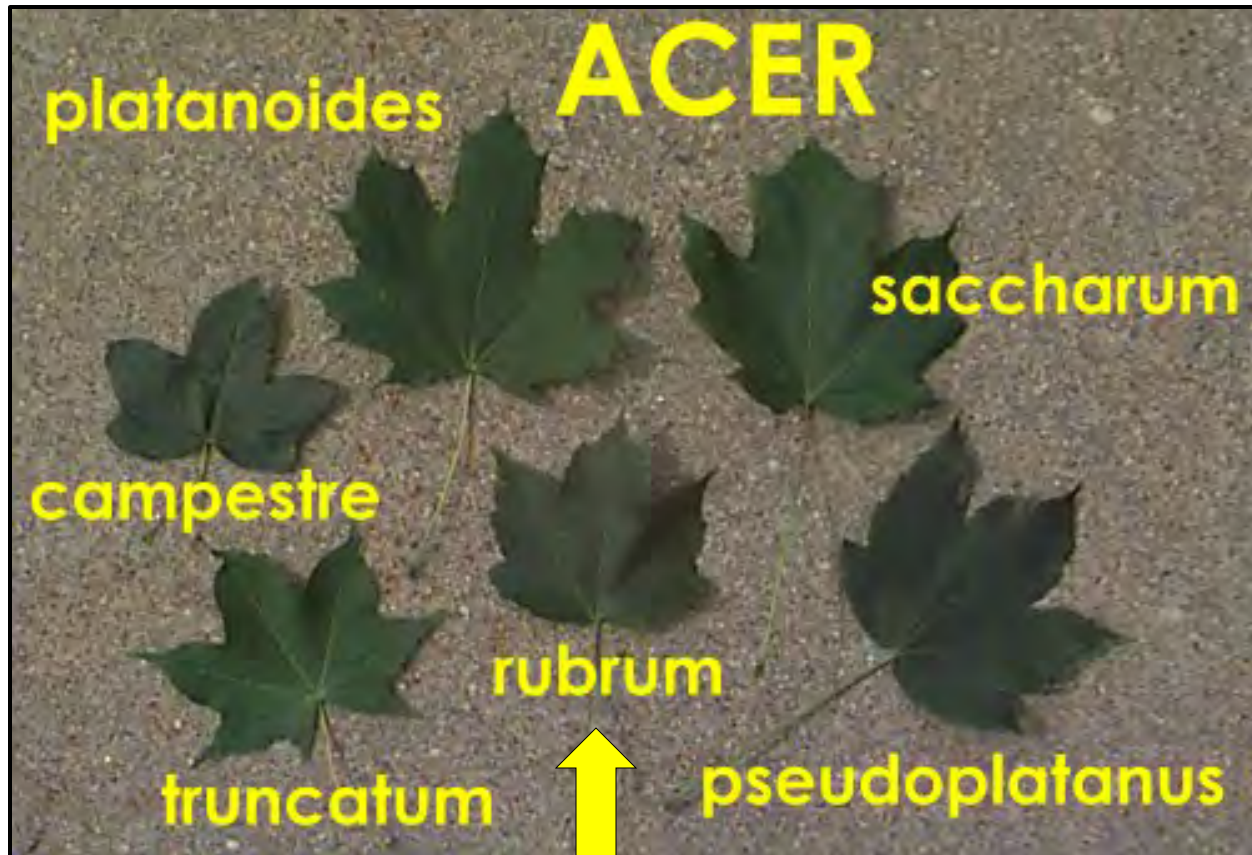


Section 1
Woody Plants:
Trees & Shrubs

Acer spp.
Leaf comparison of **native** & invasive trees

INVASIVE!



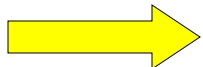
Native



Native



Native



Native



INVASIVE!



Acer spp.
Native trees



Fruits of sugar maple (Acer saccharum)



Fruits of red maple (Acer rubrum)

Acer ginnala – Amur Maple

Potentially invasive tree



Photo: Stacy Leicht, IPANE



Photo: Virginia Tech Dendrology Program

Acer platanoides – Norway Maple

Invasive tree



Flowers with young leaves. Photo: Les Mehrhoff, IPANE



Fruits. Photo: Virginia Tech Dendrology Program



Photo: Les Mehrhoff, IPANE



The leaf petioles secrete a milky sap.
Photo: Les Mehrhoff, IPANE

Acer pseudoplatanus – Sycamore Maple

Potentially invasive tree



Photo: Virginia Tech Dendrology Program



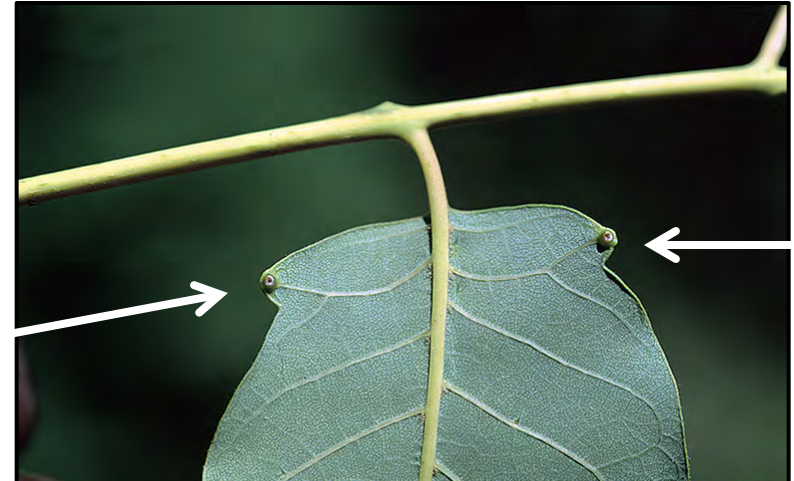
Photo: Stacy Leicht, IPANE

Ailanthus altissima – Tree-of-heaven

Invasive tree



A patch of tree-of-heaven. Photo: Les Mehrhoff, IPANE



Leaf underside showing basal glands.
Photo: James H Miller, USDA Forest Service, Bugwood.org



Flowers. Photo: Les Mehrhoff, IPANE, Bugwood.org



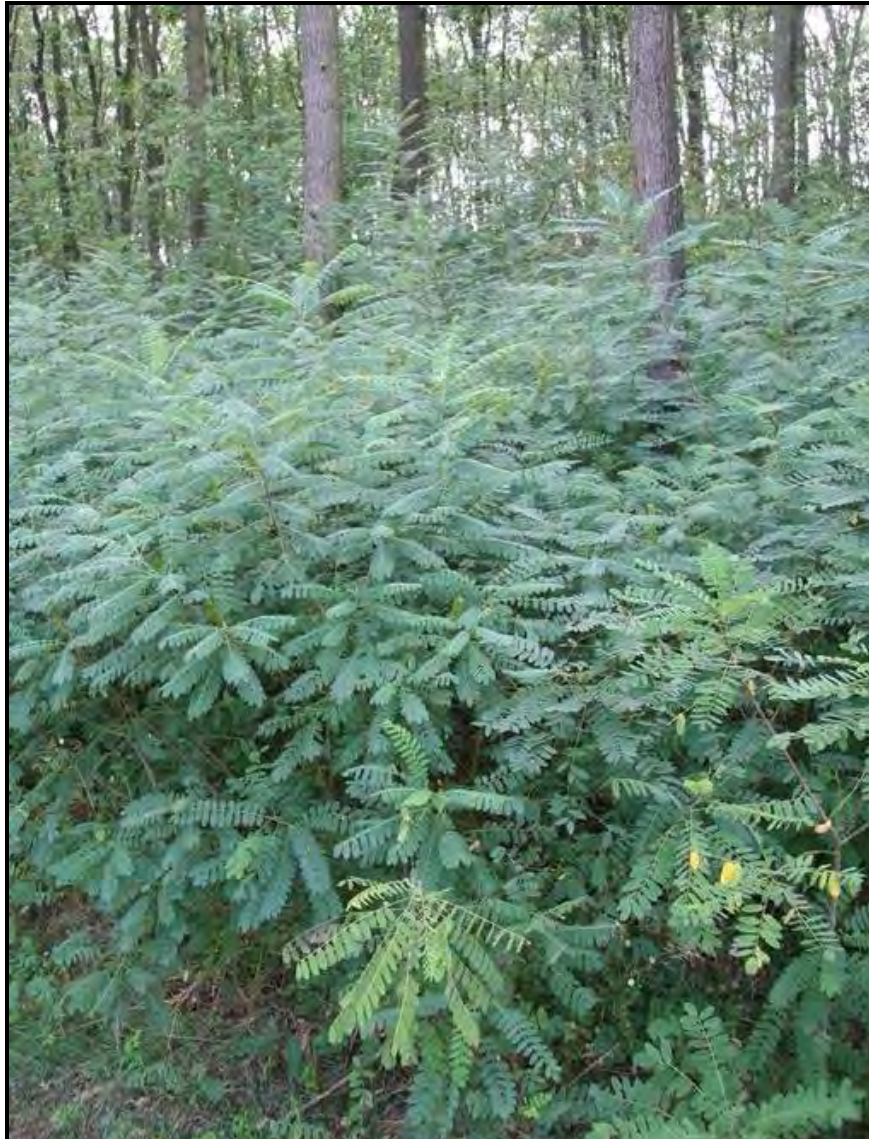
Leaflets. Photo: Les Mehrhoff, IPANE

Ailanthus altissima – Tree-of-heaven
Invasive tree



Amorpha fruticosa – False Indigo

Potentially invasive shrub



False indigo infestation.

Photo: Robert Vidéki, Doronicum Kft., Bugwood.org



False indigo has fragrant purple flowers.

Photo: R.W. Smith, www.wildflower.org

Amorpha fruticosa – False Indigo

Potentially invasive shrub



False indigo foliage and flowers. Photo: Les Mehrhoff, IPANE



Fruits. Photos: Les Mehrhoff, IPANE

Berberis thunbergii – Japanese Barberry

Invasive shrub



Seedlings from purple cultivars may be purple or green.

Photo: Les Mehrhoff, IPANE



Flowers (left) and fruits (right). Photos: Les Mehrhoff, IPANE



Japanese barberry invasion. Photo: Donna Ellis, UConn

Berberis vulgaris – Common Barberry

Invasive shrub



Flower clusters. Photo: Les Mehrhoff, IPANE



Fruit clusters. Photo: Les Mehrhoff, IPANE



Top: *Berberis vulgaris*. Middle: hybrid. Bottom: *Berberis thunbergii*.
Photo: Les Mehrhoff, IPANE



Note serrated leaf margins. Photo: Stacy Leicht, IPANE

Elaeagnus angustifolia – Russian Olive

Potentially invasive shrub



Flowers. Photo: Les Mehrhoff, IPANE



Mature fruits. Photo: Barry Rice, Bugwood.org



Immature fruits.

Photo: John M. Randall, The Nature Conservancy, Bugwood.org

Elaeagnus umbellata – Autumn Olive

Invasive shrub



Left: Flowers. Middle: Close-up of stem with brown lenticels. Photos: Les Mehrhoff, IPANE.
Right: Some branches have sharp thorns. Photo: Nicole Gabelman, UConn



Autumn olive invasion. Photo: Les Mehrhoff, IPANE

Elaeagnus umbellata – Autumn Olive
Invasive shrub



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Leaves are dull green with silvery undersides. Photo: James H. Miller, USDA Forest Service, Bugwood.org

Elaeagnus umbellata – Autumn Olive
Invasive shrub



Autumn olive produces high numbers of fruits. Photo: Les Mehrhoff, IPANE

Comparison

Elaeagnus umbellata vs. *Elaeagnus angustifolia*

Autumn Olive vs. Russian Olive

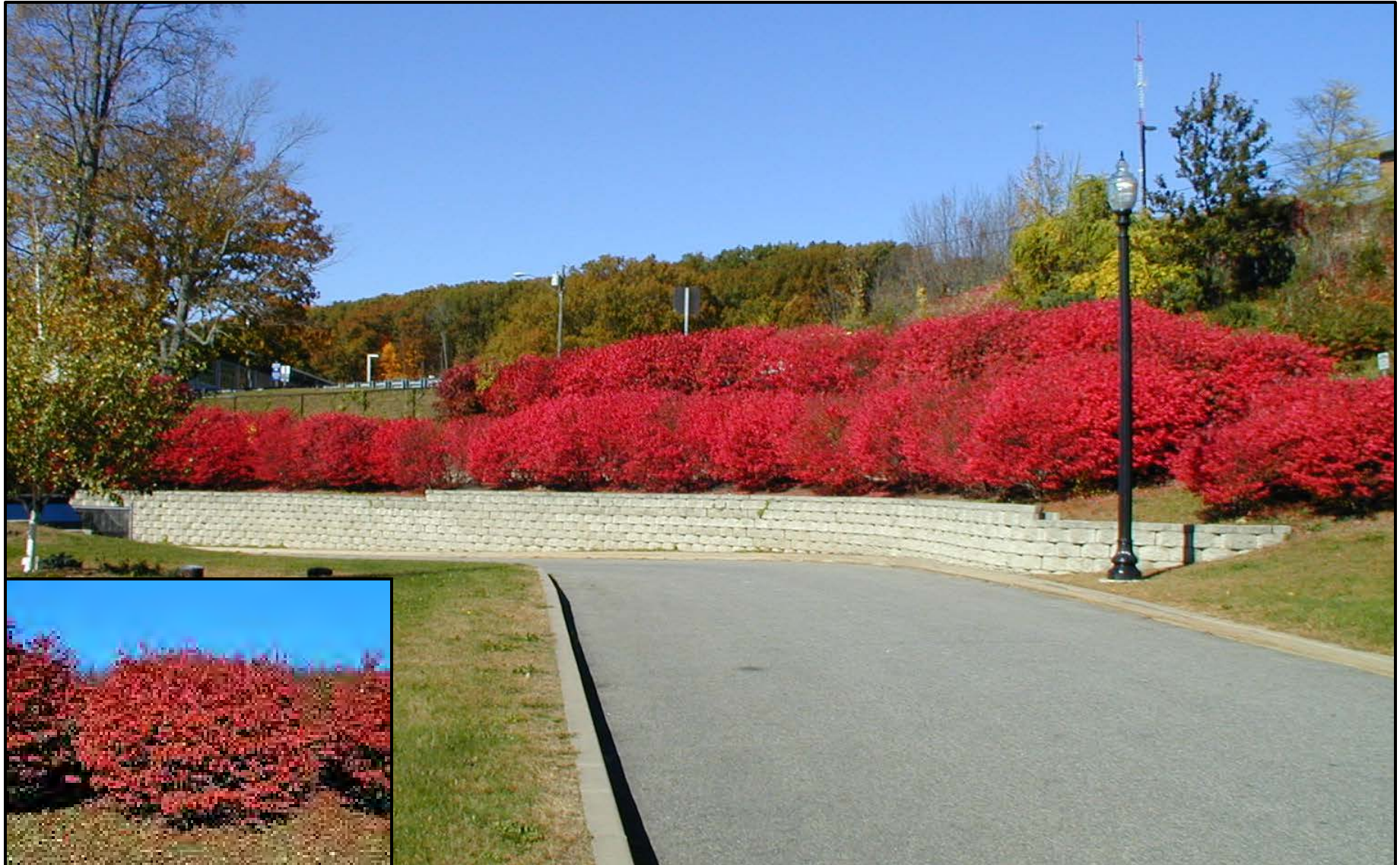
Autumn olive traits:

- **Flowers:** white to pale yellow
- **Leaves:** oval to lanceolate; glabrescent top surface
- **Fruits:** red, succulent with metallic flecks

Russian olive traits:

- **Flowers:** yellow
- **Leaves:** narrow/lanceolate; hairy on all surfaces
- **Fruits:** white to red, mealy with silver scales

Euonymus alatus – Winged Euonymus (Burning Bush) Invasive shrub



A planting of winged euonymus in Storrs, CT. Photos: Donna Ellis, UConn

Euonymus alatus – Winged Euonymus (Burning Bush) Invasive shrub



Foliage changes to a bright scarlet in the fall.
Photo: Les Merhoffs, IPANE.

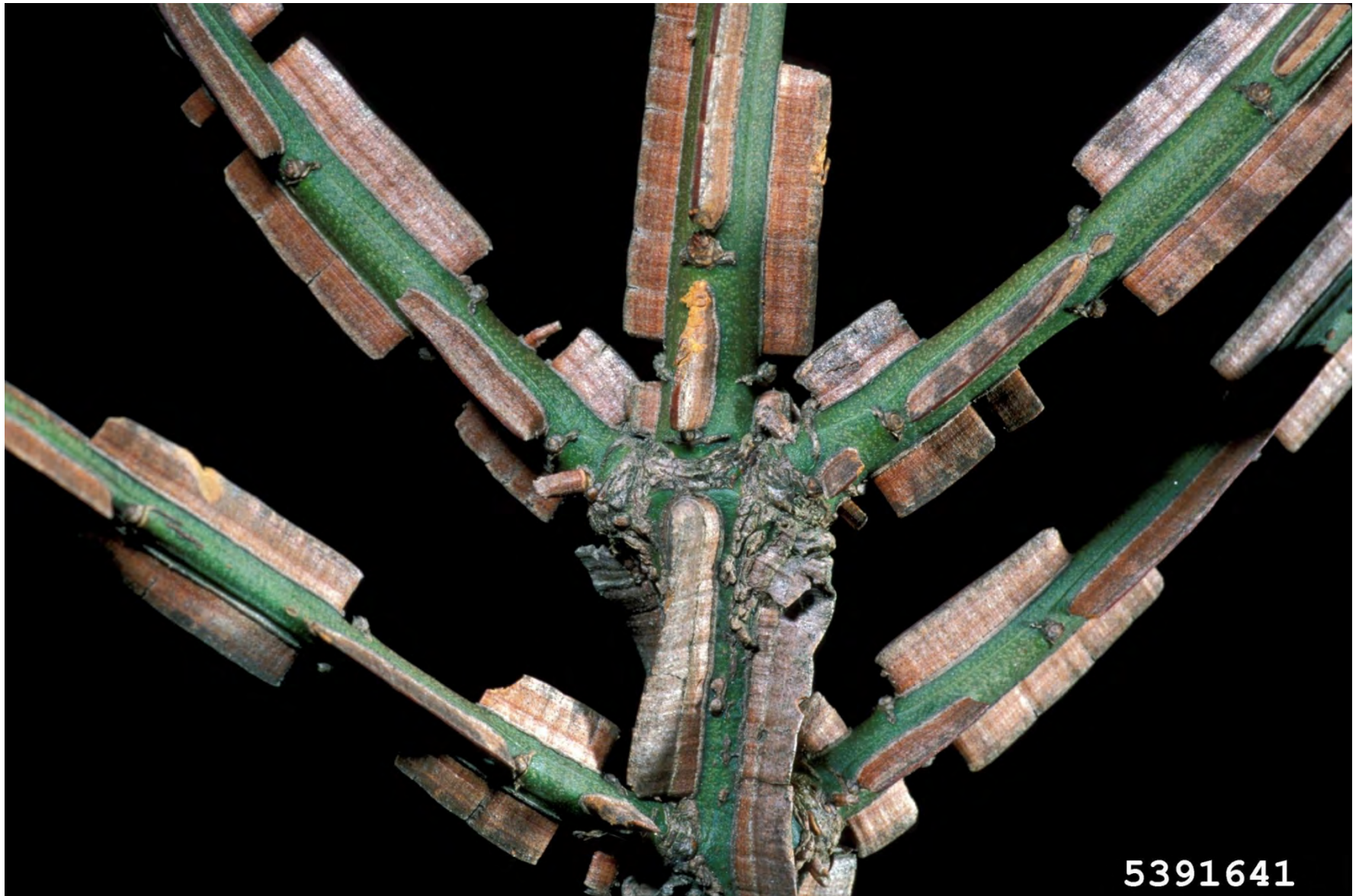


Red-purple ovary walls split open to reveal seeds
encased in a red-orange fruit.
Photo: Nicole Gabelman, UConn



Winged euonymus is a problematic invader in forest understories.
Photo: Les Merhoffs, IPANE

Euonymus alatus – Winged Euonymus (Burning Bush)
Invasive shrub



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Close-up showing corky protrusions along stems. Photo: Barry Rice, sarracenia.com, Bugwood.org

Frangula alnus – Glossy Buckthorn
Invasive shrub



Rhamnus cathartica – Common Buckthorn
Invasive shrub



Left: Note fruits and leaf venation. Right: Branches end in a single thorn. Photos: Les Mehrhoff, IPANE

Rhamnus cathartica – Common Buckthorn

Invasive shrub



Common buckthorn foliage. Photo: Donna Ellis, UConn



Invasion of common buckthorn.
Photo: John M. Randall, The Nature Conservancy, Bugwood.org

Frangula alnus –
Glossy Buckthorn



*Glossy buckthorn flowers. Top photo: Les Mehrhoff, IPANE.
Bottom photo: Rob Routledge, Sault College, Bugwood.org*

Rhamnus cathartica –
Common Buckthorn



*Common buckthorn flowers. Top photo: Les Mehrhoff, IPANE.
Bottom photo: Rob Routledge, Sault College, Bugwood.org*

Comparison

Frangula alnus vs. *Rhamnus cathartica* Glossy Buckthorn vs. Common Buckthorn

Glossy buckthorn traits:

- **Leaves:** glossy; oblong to elliptical; alternate
- **Leaf venation:** five or more pairs of veins that run parallel from the midrib; smooth or wavy along margins
- **Flowers:** greenish-yellow with five petals
- **Fruits:** ripen from red to purple-black fruit with two to three seeds
- **Twigs:** thornless

Common buckthorn traits:

- **Leaves:** dull green; oblong; opposite
- **Leaf venation:** three to four pairs of veins which curve toward the tip from the mid-vein; tiny teeth along margins
- **Flowers:** greenish-yellow with four petals
- **Fruits:** black fruit with three to four seeds
- **Twigs:** spike-like thorns at the tips

Ligustrum spp. – Privets

Potentially invasive shrubs



L. obtusifolium infestation. Photo: Les Mehrhoff, IPANE



L. vulgare (left) and *L. obtusifolium* (right) flowers are yellow to white.
Left photo: Nava Tabak, IPANE, Bugwood.org. Right photo: Les Mehrhoff, IPANE



L. vulgare has opposite leaves.
Photo: Les Mehrhoff, IPANE



L. obtusifolium (left) and *L. ovalifolium* (right) fruits are dark blue to black.
Photos: Les Mehrhoff, IPANE

Lonicera morrowii – Morrow's Honeysuckle

Invasive shrub



Top: *L. morrowii* flowers. Bottom: *L. morrowii* fruits.
Top photo: Les Mehrhoff, IPANE. Bottom photo: Donna Ellis, UConn



L. morrowii shrub. Photo: Nicole Gabelman, UConn

Lonicera tatarica – Tatarian Honeysuckle

Potentially invasive shrub



Top: *L. tatarica* flowers. Photos: Les Mehrhoff, IPANE.
Bottom: *L. tatarica* fruits. Photo: Chris Evans, River to River CWMA, Bugwood.org

Comparison
Lonicera spp.



Rubus phoenicolasius – Wineberry

Invasive shrub



Top-left: Arching wineberry cane. Top-right: Trifoliate leaves. Bottom-right: Berry-like fruits reveal yellow cone when removed. Bottom-left: Canes are covered in red hairs and spines. Photos: Les Mehrhoff, IPANE

Section 2
Woody Plants:
Vines

Ampelopsis brevipedunculata – Porcelainberry
Invasive woody vine



Ampelopsis brevipedunculata – Porcelainberry
Invasive woody vine



Celastrus orbiculatus – Oriental (or Asiatic) Bittersweet

Invasive woody vine



Oriental bittersweet strangling a small tree.
Photo: Les Mehrhoff, IPANE



Oriental bittersweet fruits in Roxbury, CT.
Photo: Logan Senack, UConn

Celastrus orbiculatus – Oriental (or Asiatic) Bittersweet

Invasive woody vine



Oriental bittersweet produces high numbers of fruits. Photo: Les Mehrhoff, IPANE



Close-up of fruits. Photo: Nicole Gabelman, UConn

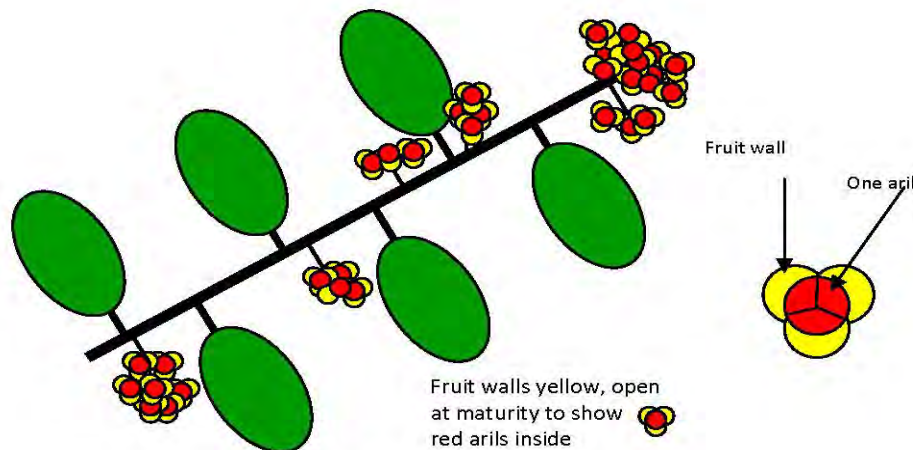


Oriental bittersweet growing in Storrs, CT.
Photo: Donna Ellis, UConn

Comparison

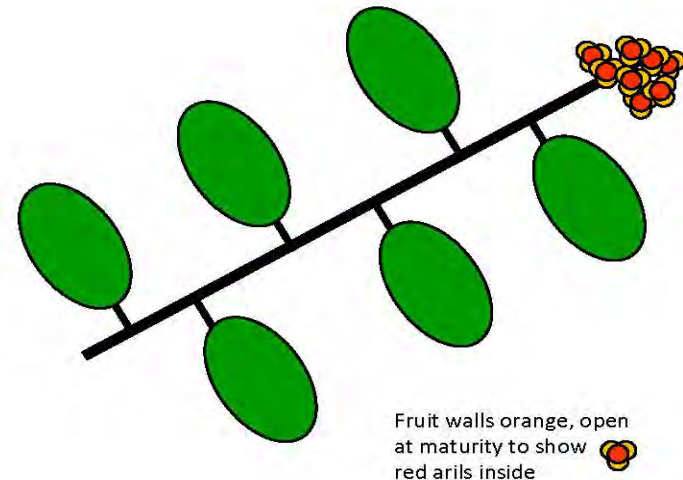
Celastrus orbiculatus vs. *Celastrus scandens* Oriental Bittersweet (invasive) vs. *American Bittersweet* (native)

Oriental bittersweet (*Celastrus orbiculatus*)



- Flowers and fruits along length of vine
- Outer fruit walls tend to be yellow

American bittersweet (*Celastrus scandens*)



- Flowers and fruits only terminally (at end of vine)
- Outer fruit walls tend to be orange

NOTE: Illustrations depict referenced traits only and are not intended as a diagnostic guide. Variation exists within species, fruit color may vary, and hybridization between species is possible. Not to scale.

Lonicera japonica – Japanese Honeysuckle

Invasive woody vine



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Leaves and flowers are opposite. Flowers are white.
Photo: Chuck Barger, University of Georgia, Bugwood.org



UGA2307154

Leaf shape varies at base of plant. Photo: James R. Allison,
Georgia Department of Natural Resources, Bugwood.org

Lonicera japonica – Japanese Honeysuckle

Invasive woody vine



Japanese honeysuckle has purple/black fruits.
Photos: Les Mehrhoff, IPANE



Japanese honeysuckle flowers.
Photo: Donna Ellis, UConn

Lonicera japonica – Japanese Honeysuckle
Invasive woody vine



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Infestation.

Photo: James R. Allison, Georgia Department of Natural Resources, Bugwood.org

Pueraria montana – Kudzu
Potentially invasive woody vine



Roadside kudzu in Greenwich, CT. Photo: Donna Ellis, UConn

Pueraria montana – Kudzu
Potentially invasive woody vine



Kudzu fruits. Photo: Donna Ellis, UConn



Kudzu flowers. Photos: Donna Ellis, UConn

Pueraria montana – Kudzu

Potentially invasive woody vine



Kudzu leaf shape variation. Left photo: Ronald F. Billings, Texas Forest Service, Bugwood.org. Middle photo: USDA Forest Service - Region 8 - Southern Archive, USDA Forest Service, Bugwood.org. Right photo: Les Mehrhoff, IPANE



The leaf undersides are hairy. Photo: Les Mehrhoff, IPANE



The petioles are covered in fine hairs. Photo: Les Mehrhoff, IPANE

Toxicodendron radicans – Poison Ivy

Native woody vine or shrub



Poison ivy has trifoliate leaves.
Photo: Donna Ellis, UConn



Leaves can have entire, toothed or lobed margins.

Top-left photo: Nicole Gabelman, UConn. Top-right photo: Joseph A. Marcus. Lady Bird Johnson Wildflower Center. Bottom-right photo: John Pickering, www.discoverlife.org.

Bottom-left photo: Steven J. Baskauf, bioimages.vanderbilt.edu.

Toxicodendron radicans – Poison Ivy

Native woody vine or shrub



Mature poison ivy vine.
Photo: Donna Ellis, UConn



Left: Flowers. Photo: Les Mehrhoff, www.discoverlife.org. Center: Immature fruits. Photo: Donna Ellis, UConn.
Right: Mature fruits. Photo: Peter Burn, www.discoverlife.org



Leaves turn yellow to red in the fall. Left photo: Michael Strickland, www.discoverlife.org.
Right photo: Carolyn Fannon, Lady Bird Johnson Wildflower Center

Toxicodendron radicans – Poison Ivy
Native woody vine or shrub



Poison ivy can grow along the ground or high into tree crowns.
Left photo: Peter Burn, www.discoverlife.org. Right photo: Bobby Hattaway, www.discoverlife.org

Section 3
Herbaceous Plants
(including Grasses & Vines)

Aegopodium podagraria – Goutweed

Invasive herbaceous plant



Goutweed infestation. Photo: Robert Vidéki, Doronicum Kft., Bugwood.org



Goutweed plants produce clusters of white flowers.
Photo: Les Mehrhoff, IPANE

Aegopodium podagraria – Goutweed

Invasive herbaceous plant



Variegated goutweed foliage.
Photo: Les Mehrhoff, IPANE



Goutweed flowers (left) and fruits (right). Photo: Les Mehrhoff, IPANE

Alliaria petiolata – Garlic Mustard
Invasive herbaceous plant



Close-up of garlic mustard rosettes.
Photo: Nicole Gabelman, UConn



Stalks with flowers.
Photo: Les Mehrhoff, IPANE

Alliaria petiolata – Garlic Mustard

Invasive herbaceous plant



Cluster of first year rosettes.
Photo: Les Mehrhoff, IPANE



Infestation of second year stalks. Photo: Les Mehrhoff, IPANE



Top: Cluster of white, four petaled flowers.
Bottom: Black seeds are produced in pods
(siliques). Photos: Les Mehrhoff, IPANE

Artemisia vulgaris – Mugwort

Invasive herbaceous plant



Mugwort growing in a garden.
Photo: Nicole Gabelman, UConn



Mugwort stand. Photo: Robert Vidéki,
Doronicum Kft., Bugwood.org

Artemisia vulgaris – Mugwort

Invasive herbaceous plant



Mugwort spreads by aggressive rhizomes (underground creeping stems).
Photo: Clay Minor, Norwalk, CT



Mugwort leaves vary from bottom to upper portion of plant (left to right). Photo: Ohio State Weed Lab Archive, The Ohio State University, Bugwood.org



Mugwort plants have aromatic foliage.
Photo: Connie Scata

Artemisia vulgaris – Mugwort

Invasive herbaceous plant



Flower clusters can produce viable seeds in CT. Photo: Ohio State Weed Lab Archive, The Ohio State University, Bugwood.org



Flower heads in spike-like cluster at stem terminal. Photo: Ohio State Weed Lab Archive, The Ohio State University, Bugwood.org



Stems become reddish and woody with maturity. Photo: Ohio State Weed Lab Archive, The Ohio State University, Bugwood.org



Undersides of leaves have soft, silvery-white hairs. Top photo: Virginia Tech, www.ppws.vt.edu. Bottom photo: Ohio State Weed Lab Archive, The Ohio State University, Bugwood.org



Arthraxon hispidus – Hairy Jointgrass

Potentially invasive grass



Low-growing creeping annual grass grows up to 1.5'.



Hairs along margins of leaf blades.
Heart-shaped bases encircle the sheath.



Flowers in spike-like racemes Sept. – Oct.

Comparison

Arthraxon hispidus vs. *Dichanthelium clandestinum*
Hairy Jointgrass (invasive) vs. Deer-tongue Grass (native)



Hairy jointgrass.

Photo credit: www.eddmaps.org/report/images/McClure's029.jpg



Deer-tongue grass.

Photo credit: J. Sulman, botany.wisc.edu/jsulman/Jsulman_plantphotos

Comparison

Arthraxon hispidus vs. *Dichanthelium clandestinum*
Hairy Jointgrass (invasive) vs. Deer-tongue Grass (native)

Hairy Jointgrass Traits:

- **Native Region:** Eastern Asia
- **Inflorescence:** Spikelet
- **Stems:** Root at nodes
- **Leaves:** Ovate to lanceolate, hairy along margins, 2 – 7 cm in length
- **Habitat:** Prefers sunny, moist conditions

Deer-tongue Grass Traits:

- **Native Region:** Eastern North America
- **Inflorescence:** Panicle
- **Stems:** Do not root at nodes
- **Leaves:** Lanceolate, mostly smooth along margins, 10 – 25 cm in length
- **Habitat:** Prefers partly sunny, moist, sandy conditions

Butomus umbellatus – Flowering Rush

Potentially invasive aquatic plant



Perennial, aquatic herb grows ~ 3' tall in water several meters deep.



Flowers in bracted umbels from summer to fall depending on water depth.



Fleshy rhizomes.



Dark brown fruits.

Cardamine impatiens – Narrowleaf Bittercress

Invasive herbaceous plant



Leaf and stem of narrowleaf bittercress. Photo: Les Mehrhoff, IPANE

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Narrowleaf bittercress fruits (siliques).
Photo: Donald Cameron, gobotany.newenglandwild.org



Narrowleaf bittercress rosette.
Photo: Les Mehrhoff, IPANE

Cardamine impatiens – Narrowleaf Bittercress

Invasive herbaceous plant



Upper leaves are more highly divided. Photo: Les Mehrhoff, IPANE



White flowers. Photos: Les Mehrhoff, IPANE



Invasion of narrowleaf bittercress. Photo: Les Mehrhoff, IPANE



Smooth stem. Photo: Les Mehrhoff, IPANE

Cynanchum louiseae – Black Swallow-wort

Invasive herbaceous vine



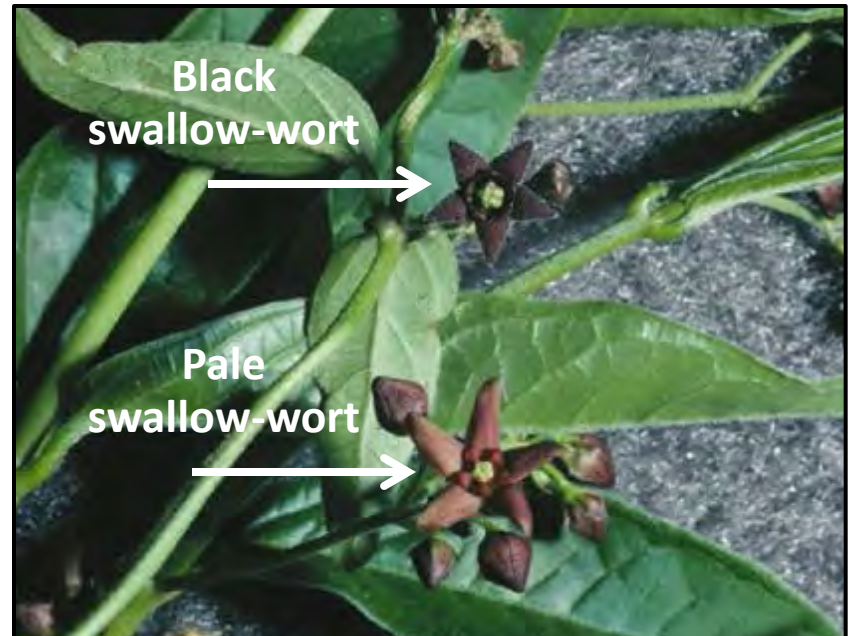
Twining growth habit. Photo: Les Mehrhoff, IPANE



Invaded field. Photo: Les Mehrhoff, IPANE



The fruits are pods (left) that produce wind dispersed seeds (right).
Photos: Les Mehrhoff, IPANE



Black
swallow-wort

Pale
swallow-wort

Comparison of flowers of black (top) and
pale (bottom) swallow-wort. Photo: Les Mehrhoff, IPANE

Cynanchum rossicum – Pale Swallow-wort
Invasive herbaceous vine

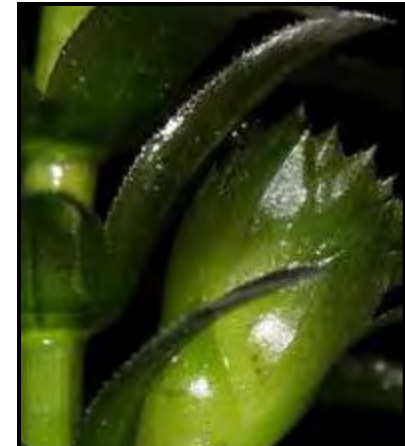


Egeria densa – Brazilian Water-weed

Potentially invasive aquatic plant



Submersed, freshwater, perennial herb that usually roots in substrate.



Leaves are arranged in whorls of 4 – 6 leaves (left) and have finely toothed margins (right).



Flowers have 3 white petals and can be seen from summer to fall.

Elsholtzia ciliata – Crested Late-summer Mint

Potentially invasive herbaceous plant



Pale blue flowers are produced on one side of the spikes.
Photos: Les Mehrhoff, IPANE



Invasion. Photo: Les Mehrhoff, IPANE



Crested late-summer mint foliage. Photo: Les Mehrhoff, IPANE



Leaves are opposite along the hairy stem. Photo: Les Mehrhoff, IPANE

Glyceria maxima – Reed Mannagrass

Potentially invasive grass



Rhizomatous perennial grows from unbranched stems to over 8' high.



Inflorescence is an open panicle appearing from June to August (left). Leaf blade mid-rib is prominent (right).



Spreads primarily by means of rhizomes.

Heracleum mantegazzianum – Giant Hogweed

Potentially invasive herbaceous plant

CAUTION: POISONOUS PLANT!



Giant hogweed can grow up to 15 feet tall.

Photos from Brooklyn, CT. Photos: Donna Ellis, UConn

Heracleum mantegazzianum – Giant Hogweed

Potentially invasive herbaceous plant

CAUTION: POISONOUS PLANT!



Giant hogweed flower



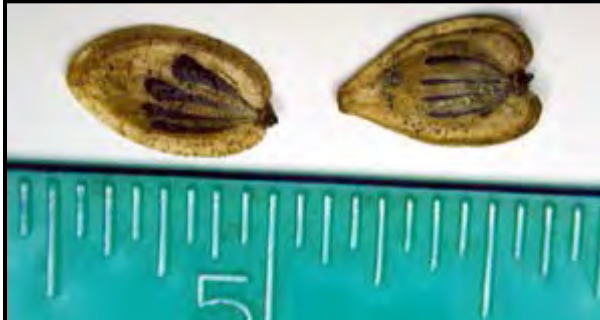
Giant hogweed foliage



Giant hogweed fruits

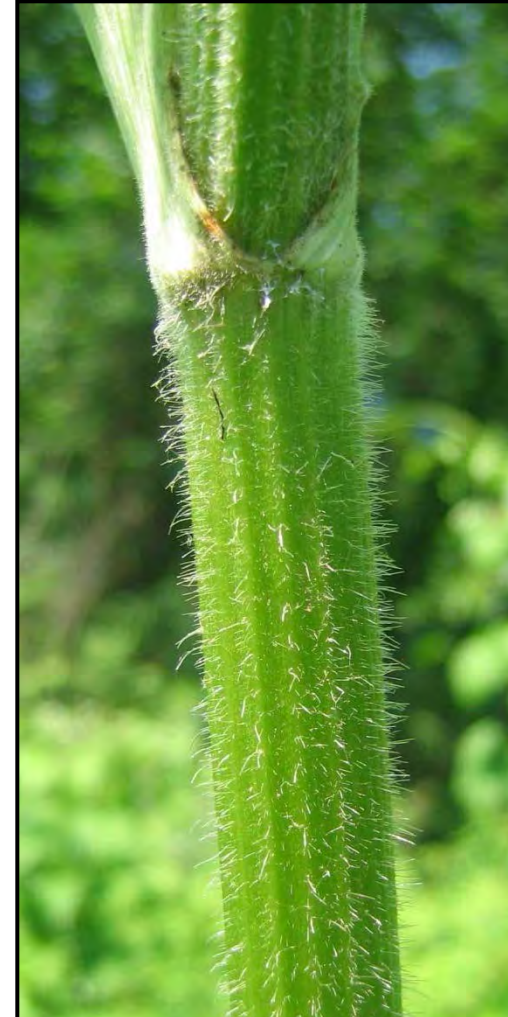
Comparison

Heracleum mantegazzianum vs. *Heracleum maximum*
Giant Hogweed (invasive) vs. Cow Parsnip (native)



Seeds of giant hogweed (left) and cow parsnip (right).
Note the heart-shaped lobes of the cow parsnip seed.

Photo: Rose Hiskes, CAES



**CAUTION:
POISONOUS
PLANT!**

Giant hogweed stem. Note bristles at nodes. *Photo:*

Donna Ellis, UConn

Giant hogweed stem (left). Cow parsnip stem (right).

Left photo: Les Mehrhoff, IPANE

Right photo: Naja Kraus, DEC-FHP, www.dot.ny.gov

Comparison

Heracleum mantegazzianum vs. *Heracleum maximum* Giant Hogweed (invasive) vs. Cow Parsnip (native)

Giant Hogweed Traits:

- **Native Region:** Eurasia
- **Flowers:** Mid-June to July, umbrella-shaped clusters up to 2.5' wide
- **Stems:** Ridged with reddish purple blotches, 2 – 4" inch diameter
- **Hairs:** Coarse, erect hairs in thick circle at base of leaf stalk
- **Leaves:** Deeply incised and up to 5' wide
- **Fruit:** Oval-shaped
- **Height:** 7 to 15 feet

Cow Parsnip Traits:

- **Native Region:** Eastern North America
- **Flowers:** Late May to June, flat-topped clusters up to 1' wide
- **Stems:** Deeply ridged, entirely green or with slightly purplish cast, 1 – 2" diameter
- **Hairs:** Fine, soft and fuzzy white hairs
- **Leaves:** Velvety appearance and between 2 – 2.5' wide
- **Fruit:** Heart-shaped
- **Height:** 5 to 8 feet

Humulus japonicus – Japanese Hop

Potentially invasive herbaceous vine



Downward pointing prickles with hairs at nodes.
Photo: Chris Evans, IL Wildlife Action Plan, Bugwood.org



Female (top) and male (bottom) flowers bloom on separate plants.
Photos: Les Mehrhoff, IPANE



Humulus japonicus – Japanese Hop

Potentially invasive herbaceous vine



Japanese hop vine. Photo: Les Mehrhoff, IPANE



Leaves have 5 – 9 lobes. Left photo: Les Mehrhoff, IPANE.
Right photo: Chris Evans, IL Wildlife Action Plan



Japanese hop invasion. Photo: Les Mehrhoff, IPANE

Hydrilla verticillata – Hydrilla Invasive aquatic plant



Submersed perennial plant with slender, branched stems up to 25'. ~ Five leaves per whorl with visibly toothed margins.



Reproduces by fragmentation, tubers (above), turions and seeds.

Impatiens glandulifera – Ornamental Jewelweed

Potentially invasive herbaceous plant



Herbaceous annual that can grow over 6' in height.



Pink to purple (sometimes white) flowers appear in summer followed by seed capsules (left). When ripened capsules are disturbed or dry up seeds are explosively released (right).



Hexagonally angled stems (left) and serrate leaf margins (right).

Iris pseudacorus – Yellow Iris

Invasive herbaceous plant



Yellow iris flower. Photo: Nancy Loewenstein, Bugwood.org



Left: Yellow iris fruits. Photo: Joseph M. DiTomaso, University of California - Davis, Bugwood.org. Right: Fruit capsule opens to reveal seeds inside. Photo: Les Mehrhoff, IPANE



Yellow iris invasion along the water edge. Photo: Joseph M. DiTomaso, University of California - Davis, Bugwood.org

Iris pseudacorus – Yellow Iris
Invasive herbaceous plant



Yellow iris is an invasive plant introduced from Europe.
Photo: Logan Senack, UConn

Iris versicolor – Blue Flag Iris
Native herbaceous plant



Blue flag iris can be planted as an alternative to yellow iris.
It is native to all of New England.
Photo: John Hixson, www.wildflower.org

Lythrum salicaria – Purple Loosestrife
Invasive herbaceous plant



Purple loosestrife invasion in Wethersfield, CT. Photo: Donna Ellis, UConn



Purple loosestrife flower.
Photo: Les Mehrhoff, IPANE

Lythrum salicaria –
Purple Loosestrife
Invasive plant



Purple loosestrife is an invasive plant introduced from Eurasia.

Photo: Les Mehrhoff, IPANE

Verbena hastata –
Blue Vervain
Native plant



Blue vervain is native to all of New England.

Photo: Thomas Barnes, plants.usda.gov

Liatris scariosa
var. novae-angliae
– Blazing Star
Native plant



Blazing star is native to all of New England except VT.

Photo: Stephen M. Young, New York Heritage Program

Microstegium vimineum – Japanese Stilt Grass
Invasive grass



An extremely dense Japanese stilt grass invasion.
Photo: Chris Evans, River to River CWMA, Bugwood.org

Microstegium vimineum – Japanese Stilt Grass

Invasive grass



Yellowish to pale purple fall color of Japanese stilt grass.
Photo: Les Mehrhoff, IPANE



Japanese stilt grass foliage.
Photo: Les Mehrhoff, IPANE



Japanese stilt grass stand along a road side.
Photo: Les Mehrhoff, IPANE



Japanese stilt grass is an annual with fibrous roots.
Photo: Les Mehrhoff, IPANE

Comparison

Microstegium vimineum vs. *Leersia virginica*
Japanese Stilt Grass (invasive) vs. **White Grass (native)**

Japanese Stilt Grass Traits:

- **Native Region:** Asia
- **Inflorescence:** Terminal spike-like branches
- **Glumes:** Present
- **Lemma:** Awns present or absent
- **Flowering Initiation:** Mid-September
- **Nodes:** Smooth
- **Roots:** Fibrous
- **Annual/Perennial:** Annual
- **Fall Color:** Yellowish to pale purple

White Grass Traits:

- **Native Region:** Eastern N. America
- **Inflorescence:** Open panicle
- **Glumes:** Absent
- **Lemma:** Awns present
- **Flowering Initiation:** Early to mid-August
- **Nodes:** Erect hairy
- **Roots:** Scaly rhizomes
- **Annual/Perennial:** Perennial
- **Fall Color:** Green to straw-colored

Comparison

Microstegium vimineum vs. *Leersia virginica* Japanese Stilt Grass (invasive) vs. White Grass (native)



Comparison of terminal spike-like branches of *Microstegium vimineum* (bottom) & open panicle of *Leersia virginica* (top).
Photo: Les Mehrhoff, IPANE



Japanese stilt grass flowers (left) & white grass flowers (right). Left photo: Chris Evans, Illinois Wildlife Action Plan. Right photo: Donald Cameron, gobotany/newenglandwild.org



Japanese stilt grass foliage (top) and white grass foliage (bottom).
Photos: Les Mehrhoff, IPANE, Discoverlife.org



Smooth Japanese stilt grass nodes (left) and hairy white grass nodes (right). Left photo: Les Mehrhoff, IPANE. Right photo: Christopher Noll, University of Wisconsin-Stevens Point

Phalaris arundinacea – Reed Canary Grass

Invasive grass



A stand of reed canary grass.
Photo: Les Mehrhoff, IPANE



Flowers are green to purple (above) and turn to beige (below) over time. Top photo: Glen Mittelhauser, gobotany.newenglandwild.org. Bottom photo: Barry Rice, sarracenia.com, Bugwood.org



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Close-up of green- purple inflorescence. Photo: Joseph M. DiTomaso, University of California - Davis, Bugwood.org

Phalaris arundinacea – Reed Canary Grass

Invasive grass



The transparent ligule distinguishes reed canary grass from native grasses. Photo: Caleb Slemmons, University of Wisconsin, Stevens Point, Bugwood.org



Reed canary grass can grow more than 6 feet tall. Photo: Jamie Nielsen, University of Alaska Fairbanks, Cooperative Extension Service, Bugwood.org



Stems are hairless.
Photo: Rob Routledge, Sault College, Bugwood.org



Reed canary grass spreads aggressively through underground rhizomes.
Photo: Les Mehrhoff, IPANE



Variegated forms of reed canary grass can spread from gardens.
Photo: John M. Randall, The Nature Conservancy, Bugwood.org

Persicaria perfoliata – Mile-a-minute Vine
Invasive herbaceous vine



A dense mile-a-minute invasion in Fairfield, CT.



Mile-a-minute fruits in Bristol, CT.

Comparison

Persicaria perfoliata vs. *Polygonum arifolium* & *Polygonum sagittatum* Mile-a-minute Vine vs. Native Tearthumbs



Mile-a-minute vine has (1) triangular leaves, (2) curved barbs, and (3) ocrea (saucer shaped leaves that encircle the stem at the nodes)

Left & bottom-right photos: Logan Senack , UConn
Top-right photo: Donna Ellis, UConn



Halberd-leaved tearthumb (*Polygonum arifolium*)



Arrow-leaved tearthumb (*Polygonum sagittatum*)

Comparison

Persicaria perfoliata vs. *Vitis* spp. & *Calystegia sepium*

Mile-a-minute Vine vs. Grape spp. & Hedge Bindweed



Mile-a-minute leaves.
Photo: Les Mehrhoff, IPANE



Grape leaf close-up (*Vitis* spp.).
Photo: Logan Senack, UConn



Hedge bindweed (*Calystegia sepium*).
Photo: Janet Novak © 2001, CT Botanical Society

Comparison

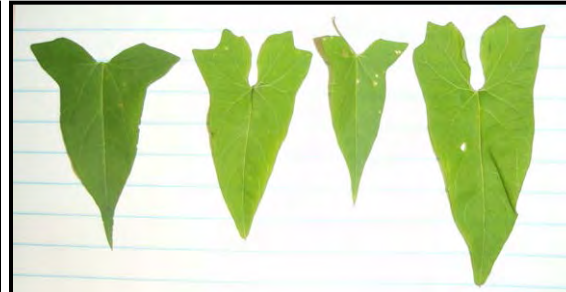
Persicaria perfoliata vs. *Calystegia sepium* Mile-a-minute Vine vs. Hedge Bindweed (native)



Triangular leaves with pointed tips and angular, heart-shaped base.
Photo: Donna Ellis, UConn



Intertwining leaves. Photo:
Nicole Gabelman, UConn



Leaf shape comparison.

Left: Hedge bindweed. Photo: Logan Senack, UConn.
Right: Mile-a-minute. Photo: Todd Mervosh, CAES



Hedge bindweed forming a dense patch of vines in Danbury, CT. Photo: Donna Ellis, UConn

Comparison
Persicaria perfoliata vs. *Convolvulus arvensis*
Mile-a-minute Vine vs. Field Bindweed



Mile-a-minute leaf.
Photo: Todd Mervosh, CAES



Leaf comparison of field bindweed (left) and hedge bindweed (right). Photo: Ohio State Weed Lab Archive, Weedimages.org



Field bindweed. Photo: Donna Ellis, UConn



Field bindweed foliage and flower.
Photo: Pedro Tenorio-Lezama, Weedimages.org

Comparison

Persicaria perfoliata vs. *Fallopia scandens* & *Fallopia convolvulus*
Mile-a-minute Vine vs. **Climbing False Buckwheat** & Black Bindweed



Close-up of native climbing false buckwheat leaf.
Photo: Nicole Gabelman, UConn



Black bindweed plant. Photo: Lynn Sosnoskie, University of Georgia, Weedimages.org



Native climbing false buckwheat flowers and winged fruits.
Photo: Logan Senack, UConn



Black bindweed flowers.
Photo: Richard Old, Bugwood.org

Phragmites australis – Phragmites (Common Reed)

Invasive grass



Phragmites incursion. Photo: Donna Ellis, UConn



Phragmites spreads by runners and rhizomes.
Photo: Les Mehrhoff, IPANE



Left: Phragmites inflorescence. Right: Phragmites stem.
Photos: Les Mehrhoff, IPANE

Phragmites australis – Phragmites (Common Reed)
Invasive grass



Phragmites australis – Phragmites (Common Reed)
Invasive grass



Phragmites invasion. Photo: Les Mehrhoff, IPANE

Polygonum cuspidatum – Japanese Knotweed
Invasive herbaceous plant



Top left: Close up of Japanese knotweed inflorescence. Top right: Fruits. Photos: Les Mehrhoff, IPANE.
Center: A dense Japanese knotweed incursion. Photo: Donna Ellis, UConn

Polygonum cuspidatum – Japanese Knotweed
Invasive herbaceous plant



Japanese knotweed along the road side. Photo: Donna Ellis, UConn

Polygonum cuspidatum – Japanese Knotweed

Invasive herbaceous plant



Stand of Japanese knotweed. Photo: James H. Miller, USDA Forest Service, Bugwood.org



Top: Nodes are swollen along stem. Bottom: Stems are hollow and reddish brown in color.
Photos: Les Mehrhoff, IPANE



Japanese knotweed leaf shape.
Photo: Steve Manning, Invasive Plant Control, Bugwood.org



Leaves are alternate.
Photo: Donna Ellis, UConn

Senecio jacobaea – Tansy Ragwort

Potentially invasive herbaceous plant



Biennial with first year rosette (inset) and second year stalk up to 3'.



Leaves are alternate with oblong/web-shaped lobed and dentate margins.



Numerous yellow flower heads with 12-15 rays appear July – Oct. (left). Fruits are light brown achenes (right).

Section 4
Mechanical and Physical Control:
Tools for Invasive Plant Removal

Hand-pulling, Digging, Mowing, and Cutting



Hand-pulling privet. Photo: James H. Miller, USDA Forest Service, Bugwood.org



Professor and student dig out plant. Photo: University of Vermont, UVM.edu

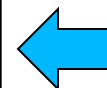


Loppers for vine cutting. Photo: Erin Griffin, Bugwood.org



A mower cuts down invasive Phragmites. Photo: Rachel Carson National Wildlife Refuge in Maine, U.S. Fish & Wildlife Service

Tools to Remove Invasive Trees & Shrubs



Left: Fiskars UpRoot® Weed & Root Remover.

Photo: www.homedepot.com.

Middle: Uprooter. Photo: www.theuprooter.com

Right: Pullerbear Tree and Root Puller. Photo: www.pullerbear.com

Using the Extractigator. Photos: www.extractigator.com

Flame Weeding

(using a propane torch)



*Jane Seymour (DEEP) conducts a safety check.
Photo: Chris Bunce*



Propane torch. Photo: Charlotte Pyle, USDA NRCS

Safety and use training is required before operating this device!

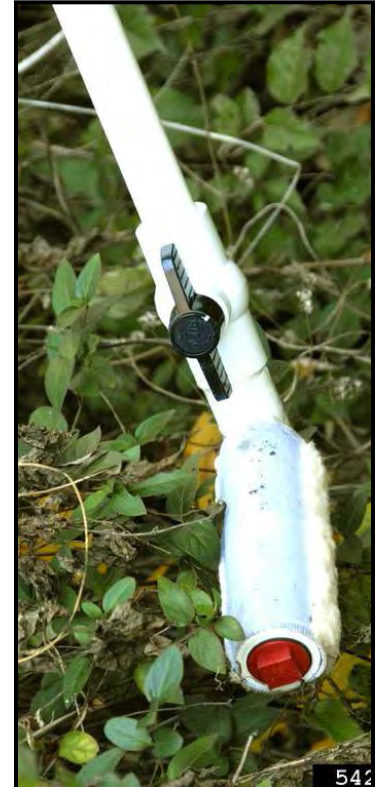
Foliar Spray – Herbicides



High-volume foliar spray. Photo: Steven T. Manning, Invasive Plant Control, Bugwood.org



*Spraying to control invasive plants.
Photo: Chris Mattrick, New England Wild Flower Society*



*Foliar wick applicator.
Photo: Steve Manning, Invasive Plant Control, Bugwood.org*

Always follow all directions, including safety instructions, listed on the herbicide label.

Cut-and-paint Herbicide Method



Paintbrush used to apply herbicide to freshly cut stump. Photo: Jeff Schalau, University of Arizona College of Agriculture & Life Sciences



Top: Chainsaw used to cut stump low for treating. Bottom-left: Treat circumference of large stump. Bottom-right: Treat entire top of small stump. Photos: James H. Miller, USDA Forest Service, Bugwood.org

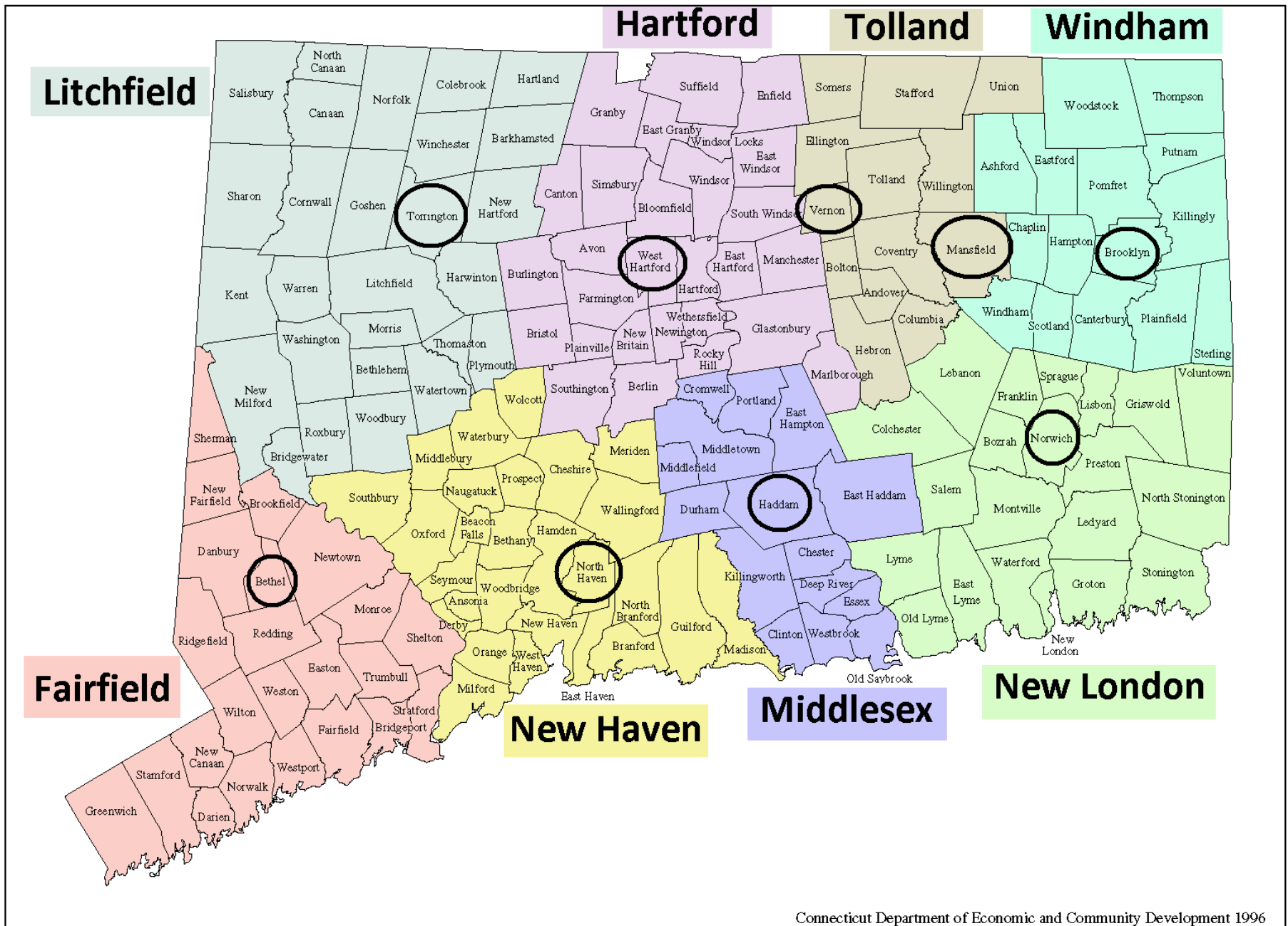
Always follow all directions, including safety instructions, listed on the herbicide label.

Section 5

Maps:

- *Connecticut Counties*
- *Connecticut Towns*
- *Distribution of Mile-a-minute Vine*
- *Distribution of Giant Hogweed*
- *Distribution of Purple Loosestrife Biological Control Beetles*
- *UConn Extension Centers*

UConn Extension Center Locations



UConn Extension Center Addresses

Fairfield County:

67 Stony Hill Road

Bethel, CT 06801

P: (203) 207-8440

F: (860) 207-3273

Hartford County:

1800 Asylum Avenue

West Hartford, CT 06117

P: (860) 570-9010

F: (860) 570-9008

Litchfield County:

843 University Drive

Torrington, CT 06790

P: (860) 626-6240

F: (860) 626-8849

Middlesex County:

1066 Saybrook Road

P.O. Box 70

Hadam, CT 06438

P: (860) 345-4511

F: (860) 345-3357

New Haven County:

305 Skiff Street

North Haven, CT 06473

P: (203) 407-3161

F: (203) 407-3176

New London County:

562 New London

Turnpike

Norwich, CT 06360

P: (860) 887-1608

F: (860) 886-1164

Tolland County:

24 Hyde Road

Vernon, CT 06066

P: (860) 875-3331

F: (860) 875-0220

Windham County:

139 Wolf Den Road

Brooklyn, CT 06234

P: (860) 774-9600

F: (860) 774-9480

Statewide: Home and Garden Education Center, Ratcliffe Hicks Building, Room 4

1380 Storrs Road Unit 4115, Storrs, CT 06269

P: (860) 486-6271 or toll free in CT at (877) 486-6271

F: (860) 486-6338