Section 1
Woody Plants:
Trees & Shrubs
Acer spp.
Leaf comparison of native & invasive trees

Leaf comparison of several Acer species.
Photo: USDA PLANTS database

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

The leaf petioles secrete a milky sap.
Photo: Les Mehrhoff, IPANE
Acer pseudoplatanus – Sycamore Maple
Potentially invasive tree

Photo: Stacy Leicht, IPANE

Photo: Virginia Tech Dendrology Program
*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

Tree-of-heaven in Haddam, CT. Photo: Donna Ellis, UConn
Amorpha fruticosa – False Indigo
Potentially invasive shrub

False indigo infestation.
Photo: Robert Vidéki, Doronicum Kft., Bugwood.org

False indigo has fragrant purple flowers.
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

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**

<table>
<thead>
<tr>
<th>Autumn olive traits:</th>
<th>Russian olive traits:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flowers</strong>: white to pale yellow</td>
<td><strong>Flowers</strong>: yellow</td>
</tr>
<tr>
<td><strong>Leaves</strong>: oval to lanceolate; glabrescent top surface</td>
<td><strong>Leaves</strong>: narrow/lanceolate; hairy on all surfaces</td>
</tr>
<tr>
<td><strong>Fruits</strong>: red, succulent with metallic flecks</td>
<td><strong>Fruits</strong>: white to red, mealy with silver scales</td>
</tr>
</tbody>
</table>
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

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

Foliage changes to a bright scarlet in the fall.
Photo: Les Merhoff, 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 Merhoff, IPANE.
Euonymus alatus – Winged Euonymus (Burning Bush)
Invasive shrub

Close-up showing corky protrusions along stems. Photo: Barry Rice, sarracenia.com, Bugwood.org
Frangula alnus – Glossy Buckthorn
Invasive shrub

Photos: Les Mehrhoff, IPANE
*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

<table>
<thead>
<tr>
<th><strong>Glossy buckthorn traits:</strong></th>
<th><strong>Common buckthorn traits:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Leaves:</strong> gloss; oblong to elliptical; alternate</td>
<td><strong>Leaves:</strong> dull green; oblong; opposite</td>
</tr>
<tr>
<td><strong>Leaf venation:</strong> five or more pairs of veins that run parallel from the midrib; smooth or wavy along margins</td>
<td><strong>Leaf venation:</strong> three to four pairs of veins which curve toward the tip from the mid-vein; tiny teeth along margins</td>
</tr>
<tr>
<td><strong>Flowers:</strong> greenish-yellow with five petals</td>
<td><strong>Flowers:</strong> greenish-yellow with four petals</td>
</tr>
<tr>
<td><strong>Fruits:</strong> ripen from red to purple-black fruit with two to three seeds</td>
<td><strong>Fruits:</strong> black fruit with three to four seeds</td>
</tr>
<tr>
<td><strong>Twigs:</strong> thornless</td>
<td><strong>Twigs:</strong> spike-like thorns at the tips</td>
</tr>
</tbody>
</table>

**Ligustrum spp. – Privets**

Potentially invasive shrubs

- *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. obtusifolium* (left) and *L. ovalifolium* (right) fruits are dark blue to black.
  - Photos: 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 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.

Left: *Lonicera morrowii*, Center: *L. x bella*, Right: *L. tatarica*
Rubus phoenicolasius – Wineberry
Invasive shrub

Section 2
Woody Plants:
Vines
Ampelopsis brevipedunculata – Porcelainberry
Invasive woody vine

Porcelainberry in Fairfield, CT. Photo: Logan Senack, UConn
Ampelopsis brevipedunculata – Porcelainberry
Invasive woody vine

Porcelainberry leaves and fruits. Note variation in leaf shape. Left photo: Les Mehrhoff, IPANE. Right photo: James Miller, USDA Forest Service, Bugwood.org
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

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

Close-up of fruits. Photo: Nicole Gabelman, 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

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

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

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

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

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

Middle photo: USDA Forest Service - Region 8 - Southern Archive, USDA Forest Service, Bugwood.org. Right 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.
**Toxicodendron radicans** – Poison Ivy
Native woody vine or shrub


Mature poison ivy vine. Photo: Donna Ellis, UConn

Toxicodendron radicans – Poison Ivy
Native woody vine or shrub

Poison ivy can grow along the ground or high into tree crowns.
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.

Photos: Les Mehrhoff, IPANE, Bugwood.org
Comparison

*Arthraxon hispidus* vs. *Dichanthelium clandestinum*

Hairy Jointgrass (invasive) vs. Deer-tongue Grass (native)
## Comparison

### Arthraxon hispidus vs. Dichanthelium clandestinum

Hairy Jointgrass (invasive) vs. Deer-tongue Grass (native)

<table>
<thead>
<tr>
<th>Hairy Jointgrass Traits:</th>
<th>Deer-tongue Grass Traits:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Native Region</strong>: Eastern Asia</td>
<td><strong>Native Region</strong>: Eastern North America</td>
</tr>
<tr>
<td><strong>Inflorescence</strong>: Spikelet</td>
<td><strong>Inflorescence</strong>: Panicle</td>
</tr>
<tr>
<td><strong>Stems</strong>: Root at nodes</td>
<td><strong>Stems</strong>: Do not root at nodes</td>
</tr>
<tr>
<td><strong>Leaves</strong>: Ovate to lanceolate, hairy along margins, 2 – 7 cm in length</td>
<td><strong>Leaves</strong>: Lanceolate, mostly smooth along margins, 10 – 25 cm in length</td>
</tr>
<tr>
<td><strong>Habitat</strong>: Prefers sunny, moist conditions</td>
<td><strong>Habitat</strong>: Prefers partly sunny, moist, sandy conditions</td>
</tr>
</tbody>
</table>

**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.

Photos: Les Mehrhoff, IPANE, Bugwood.org
Cardamine impatiens – Narrowleaf Bittercress
Invasive herbaceous plant

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

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

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.

Left photo: Graves Lovell, AL DCNR, Bugwood.org. Top middle and bottom right photos: Les Mehrhoff, IPANE. Top right photo: Robert Vidéki, Doronicum Kft., Bugwood.org
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.

Photos: Les Mehrhoff, IPANE, Bugwood.org
*Heracleum mantegazzianum* – Giant Hogweed
Potentially invasive herbaceous 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

Photos: Les Mehrhoff, IPANE, Bugwood.org
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*

Giant hogweed stem. Note bristles at nodes.

*Photo: Donna Ellis, UConn*

CAUTION: POISONOUS PLANT!

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

Left photo: Les Mehrhoff, IPANE
Right photo: Naja Kraus, DEC-FHP, www.dot.ny.gov
### Comparison

<table>
<thead>
<tr>
<th>Giant Hogweed Traits:</th>
<th>Cow Parsnip Traits:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Native Region</strong>: Eurasia</td>
<td><strong>Native Region</strong>: Eastern North America</td>
</tr>
<tr>
<td><strong>Flowers</strong>: Mid-June to July, umbrella-shaped clusters up to 2.5’ wide</td>
<td><strong>Flowers</strong>: Late May to June, flat-topped clusters up to 1’ wide</td>
</tr>
<tr>
<td><strong>Stems</strong>: Ridged with reddish purple blotches, 2 – 4” inch diameter</td>
<td><strong>Stems</strong>: Deeply ridged, entirely green or with slightly purplish cast, 1 – 2” diameter</td>
</tr>
<tr>
<td><strong>Hairs</strong>: Coarse, erect hairs in thick circle at base of leaf stalk</td>
<td><strong>Hairs</strong>: Fine, soft and fuzzy white hairs</td>
</tr>
<tr>
<td><strong>Leaves</strong>: Deeply incised and up to 5’ wide</td>
<td><strong>Leaves</strong>: Velvety appearance and between 2 – 2.5’ wide</td>
</tr>
<tr>
<td><strong>Fruit</strong>: Oval-shaped</td>
<td><strong>Fruit</strong>: Heart-shaped</td>
</tr>
<tr>
<td><strong>Height</strong>: 7 to 15 feet</td>
<td><strong>Height</strong>: 5 to 8 feet</td>
</tr>
</tbody>
</table>

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

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

Photo inset: Tim Krynak, Cleveland Metroparks, Bugwood.org. All other photos: Les Mehrhoff, IPANE, Bugwood.org
**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).

Left photo: Caleb Slemmons, National Ecological Observatory Network, Bugwood.org. All other photos: Les Mehrhoff, IPANE, Bugwood.org
*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

*Iris versicolor* – Blue Flag Iris
Native herbaceous plant

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

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)
**Phalaris arundinacea** – Reed Canary Grass
Invasive grass

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

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.

Photos: Logan Senack, UConn
Comparison

*Persicaria perfoliata* vs. *Polygonum arifolium* & *Polygonum sagittatum*

**Mile-a-minute Vine vs. Native Tearthumbs**

*Halberd-leaved tearthumb* (*Polygonum arifolium*)

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

*Arrow-leaved tearthumb* (*Polygonum sagittatum*)

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

Persicaria perfoliata vs. Vitis spp. & Calystegia sepium
Mile-a-minute Vine vs. Grape spp. & Hedge Bindweed
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 foliage and flower. Photo: Pedro Tenorio-Lezama, Weedimages.org

Field bindweed. Photo: Donna Ellis, UConn
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

Photos: Donna Ellis, UConn
Phragmites australis – Phragmites (Common Reed)
Invasive grass

Phragmites invasion. Photo: Les Mehrhoff, IPANE
Polygonum cuspidatum – Japanese Knotweed
Invasive herbaceous plant

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.

Left photos: Joseph M. DiTomaso, University of California - Davis, Bugwood.org. All other photos: Les Mehrhoff, IPANE, Bugwood.org
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
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

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
<table>
<thead>
<tr>
<th>County</th>
<th>Address</th>
<th>Phone</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fairfield County</td>
<td>67 Stony Hill Road, Bethel, CT 06801</td>
<td>(203) 207-8440</td>
<td>(860) 207-3273</td>
</tr>
<tr>
<td>Hartford County</td>
<td>1800 Asylum Avenue, West Hartford, CT 06117</td>
<td>(860) 570-9010</td>
<td>(860) 570-9008</td>
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<tr>
<td>Litchfield County</td>
<td>843 University Drive, Torrington, CT 06790</td>
<td>(860) 626-6240</td>
<td>(860) 626-8849</td>
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<tr>
<td>Middlesex County</td>
<td>1066 Saybrook Road, Hadaam, CT 06438</td>
<td>(860) 345-4511</td>
<td>(860) 345-3357</td>
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<tr>
<td>New Haven County</td>
<td>305 Skiff Street, North Haven, CT 06473</td>
<td>(203) 407-3161</td>
<td>(860) 407-3176</td>
</tr>
<tr>
<td>New London County</td>
<td>562 New London Turnpike, Norwich, CT 06360</td>
<td>(860) 887-1608</td>
<td>(860) 886-1164</td>
</tr>
<tr>
<td>Tolland County</td>
<td>24 Hyde Road, Vernon, CT 06066</td>
<td>(860) 875-3331</td>
<td>(860) 875-0220</td>
</tr>
<tr>
<td>Windham County</td>
<td>139 Wolf Den Road, Brooklyn, CT 06234</td>
<td>(860) 774-9600</td>
<td>(860) 774-9480</td>
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<tr>
<td>Statewide</td>
<td>Home and Garden Education Center, Ratcliffe Hicks Building, Room 4, 1380 Storrs Road Unit 4115, Storrs, CT 06269</td>
<td>(860) 486-6271</td>
<td>(860) 486-6338</td>
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