



New York-New Jersey Trail Conference

Invasives Strike Force

PLANT GUIDE

2012

Revised from the first edition developed in partnership with Rutgers University.

IDENTIFYING INVASIVE SPECIES ON THE TRAIL

STEP ONE: Figure out

- A) what kind of plant you have (tree, shrub, vine or herb), and
- B) how the leaves and branches are arranged:

A. TYPE OF PLANT:

Is the plant

A **tree** → a single woody stem?

A **shrub** → several woody stems coming from the same base?

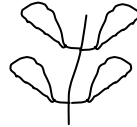
An **herb** → no woody stem?

A **vine** → woody or herbaceous, but clambering over or twining around another plant for support?

B. LEAF AND BRANCH ARRANGEMENT:

Are the leaves and branches (if woody)

OPPOSITE each other?

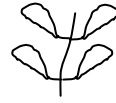


ALTERNATE from each other?



STEP TWO:

- a. Go to the correct pages (color-coded, with an ALT or OPP symbol in the upper right-hand corner).
- b. Look at the pictures, if necessary to narrow down choices
- c. Compare the 'what to look for' characteristics with a specimen of your unknown plant
- d. Check the 'Look-alikes' characteristics to eliminate other plants

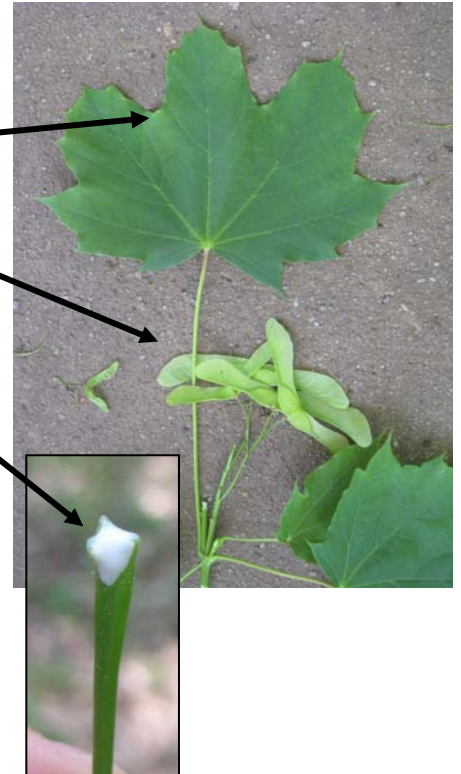


TREE
opposite
ACPL

NORWAY MAPLE
ACPL *Acer platanoides*

What to look for:

- * **Large (4-7") leaves, with wide indents**
- * **Deciduous tree, up to 50-60 feet high**
- * **Fruits: large, wings are spread at 180° ('noses')**
- * **MILKY SAP (torn leaf or leaf petiole)**
- * **Casts dense shade**
- * **Bark: dark brown, strongly ridged**



Look-alikes:

SUGAR MAPLE (*Acer saccharinum*)

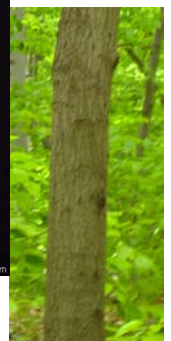
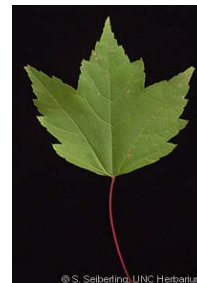
- x Leaves similar, but sharper indentation, smaller, light green
- x No milky sap from torn leaves or stems
- x Fruits: small, wings down-pointing
- x Bark smoothish, variable

RED MAPLE (*Acer rubrum*)

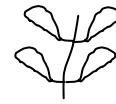
- x Smaller, 3 pointed leaves with toothed margins
- x Fruits: small, angled wings
- x Bark: smooth to rough, light gray, not ridged
- x No milky sap



Sugar Maple



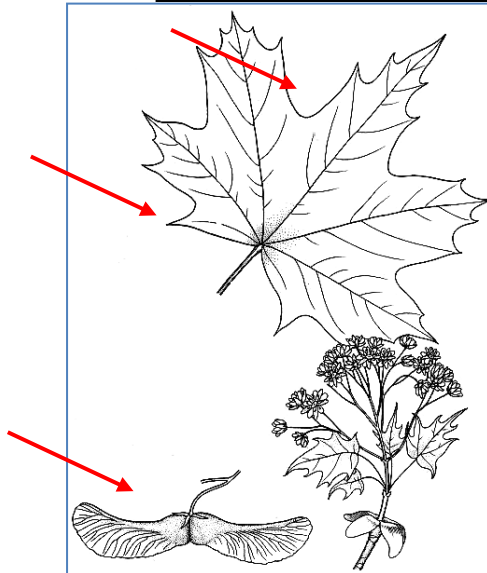
Red maple



TREE
opposite
ACPL

Additional images – Norway maple identification:

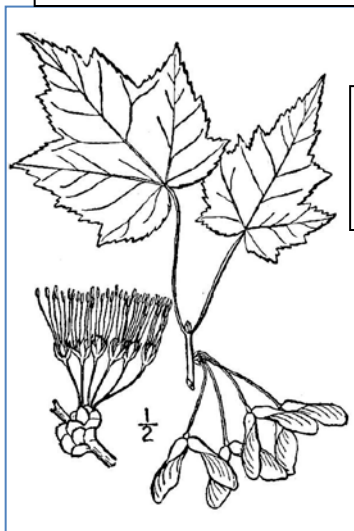
Norway maple (exotic)



Leaf: note large size, broad sinus (indent) between the 5 lobes, Down-pointing lower lobe

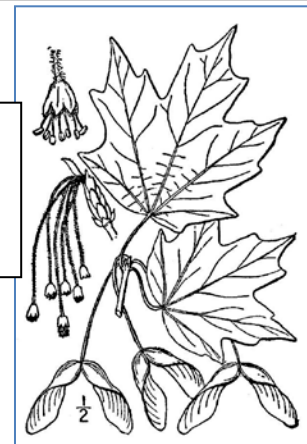
Seed (samara) – note wings are in line with each other

Red maple (native)



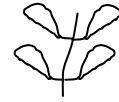
Leaf: note much smaller size, appears more 3-lobed, edges of leaf have tiny serrations

Sugar maple (native)



Leaf: note smaller size, narrow sinus (indent) between the 3 main lobes, fewer, longer points, but none are down-pointing

Fruit (samara) for both Red and Sugar – note wings are at an acute angle to each other; much smaller than Norway fruit



**TREE
opposite
ACPL**



Norway maple bark



Red maple bark



Norway maple leaves & seeds



Sugar maple leaves



TREE
alternate
AIAL

TREE-OF-HEAVEN or AILANTHUS
AIAL - *Ailanthus altissima*

What to look for:

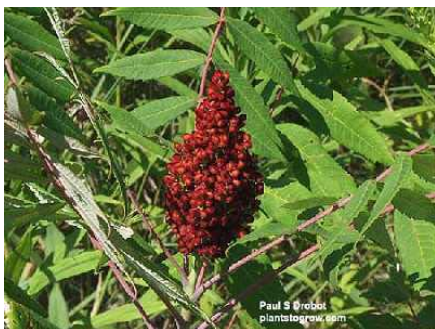
- * Long, compound leaves – each leaf is made up 12-35 dark green, shiny leaflets
- * each leaflet is 3-5 inches long, on a short stalk
- * the lower leaflets have a small pointed lobe at the base (“thumb”)
- * Strong, unpleasant smell from the leaves & twigs (like rancid peanut butter)
- * Smooth grey bark
- * Clusters of flowers or winged fruits at the tips of branches
- * Usually in high-light environments
- * May form thickets of sprouts that look like a shrub clump
- * Pith looks like peanut butter



Look-Alikes

SUMACS (*Rhus species*)

- x Leaflets have serrated edges
- x True shrubs (many stems from one root base)
- x Pyramidal clusters of hairy red berries at branch ends
- x Only found growing in the open
- x Stems may be very hairy



ASH (*Fraxinus pensylvanica*)

- x Opposite braches– not alternate
- x Fewer (5-13) leaflets per leaf
- x Very ridged bark on larger trees

WALNUT (*Juglans nigra*)

- x Similar long leaves with 15-23 leaflets
- x Leaflets attached directly to stem
- x Smell not unpleasant
- x Dark brown, furrowed bark
- x Large walnuts (hard round fruits)
- x No lobe at base of leaflet
- x Chambered pith



Walnut bark



WALNUT

Additional images – Ailanthus identification



**TREE
alternate
AIAL**

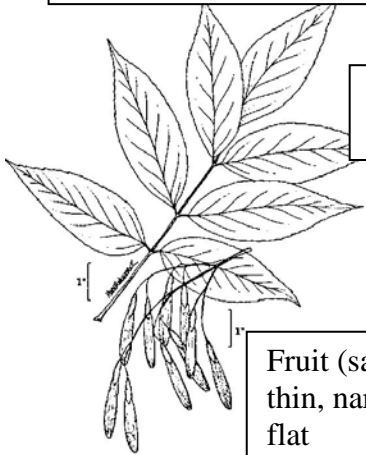


One leaf (many leaflets) – note glands (projections) at based of each leaflet



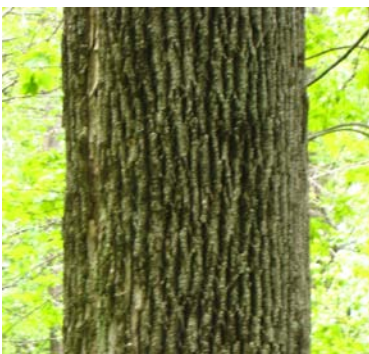
Bark: smooth and grey

Ash - native



One leaf – note fewer number of leaflets, no glands

Fruit (samara) – thin, narrow & flat

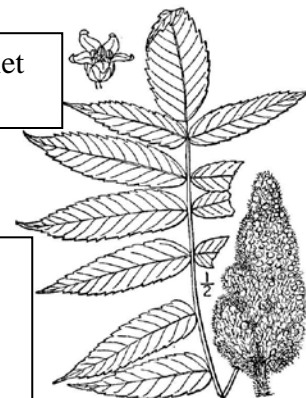


Ash bark – dark, strongly ridged

Sumac - native

One leaf – each leaflet is serrated; no lobes

Fruit - a cluster of small red berries at the top of the branches





TREE
alternate
ELUM

AUTUMN OLIVE
ELUM – *Elaeagnus umbellata*

WHAT TO LOOK FOR:

- ★ Small tree or large shrub
- ★ Simple leaves with silvery dots (scales) especially on the underside
- ★ Young twigs also have silvery scales
- ★ Fragrant cream-colored flowers in May/June
- ★ Edges of leaves undulate giving a wavy look
- ★ Fruit is a red berry with silvery scales



Often looks light mint green in color from a distance



Look- alikes:

Russian olive (*E. angustifolia*) – also an invasive but uncommon in our area (Report any occurrences!)

Looks very similar except has:

- x **yellow fruit**
- x **thinner leaves.**

No native look-alikes in our area.



SHRUB
alternate
BETH

JAPANESE BARBERRY
BETH – *Berberis thunbergii*

WHAT TO LOOK FOR:

- ★ Several to many stems from root base
- ★ Small, thin straight thorns at each leaf-cluster– **BEWARE!!!**
- ★ Leaves small, spoon-shaped, rounded at the tip
- ★ Leaves in clusters of 2-3 along the stems
- ★ Long stems bend over, may root where they touch the ground
- ★ May have small red berries (last year's) dangling along the stem



Clustered small leaves along the branches, each leaf shaped like a spoon



Single plant – note arching branches



Single plant – note arching branches



Dense thicket

No native species is similar



SHRUB
alternate
ROMU

MULTIFLORA ROSE
ROMU - *Rosa multiflora*

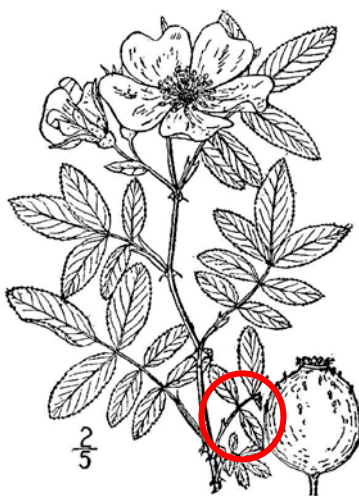
What to look for:

- * Long, arching branches with thick, down- curved thorns **BEWARE!!**
- * Leaves divided into 5-10 pairs of small, serrate leaflets
- * STIPULES (leaf-like structure at the base of the leaf stem) are broad and fringed
- * **White, fragrant flower clusters, red fruits at the ends of branches**



Native look-alikes: native wild roses

- x Stipules narrow or broad, but no fringes
- x Bristles or straight thorns, not down-curved
- x Straight stems or running along the ground, not forming large bushes with thick arching branches



Carolina rose
 X narrow stipules
 – not fringed,
 X dense straight prickles - not thorns,
 X pink single flowers



Virginia rose
 X flat, square stipules – not fringed,
 X prickles- not thorns,
 X pink single flowers



**SHRUB
alternate
ROMU**

More images of ROMU (*Rosa multiflora*)



Virginia rose



Carolina
(pasture) rose



WINEBERRY
RUPH – *Rubus phoenicolasius*



SHRUB
alternate
RUPH

What to look for:

- ★ **Very dense hairs (prickles) on the stem**
- ★ **Leaves divided into three separate leaflets, the terminal one largest**
- ★ **Leaflets coarsely serrate, fuzzy**
- ★ **Lower surface of the leaflets appear white, from dense short hairs**
- ★ **Long arching stems**
- ★ **Forms dense thickets**



Mature stems look red from a distance



White underside of leaves

Native look-alikes

- x Several native blackberries and raspberries look similar
- x NONE have dense hairs on the stem
- x Blackberries – leaves are divided into 3-5 leaflets; larger leaves always in 5 parts, straight prickles
- x Red raspberries – leaves are in 3s, stems have sparse prickles & bristles
- x Black raspberries – leaves in 3x, stout straight prickles



Rubus allegheniensis
 - Blackberry



Rubus idaeus
 Red raspberry



SHRUB
alternate
RUPH

Additional pictures of wineberry and native look-alikes

Wineberry plants, appearance of a leafy branch



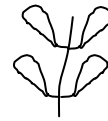
Rubus allegheniensis
Common Blackberry
Usually 5 leaflets, stem
ridged, not hairy, leaf green
beneath



Rubus idaeus
Red raspberry
Prickly brown stem
not hairy



Rubus occidentalis
Black raspberry
Note whitened stems

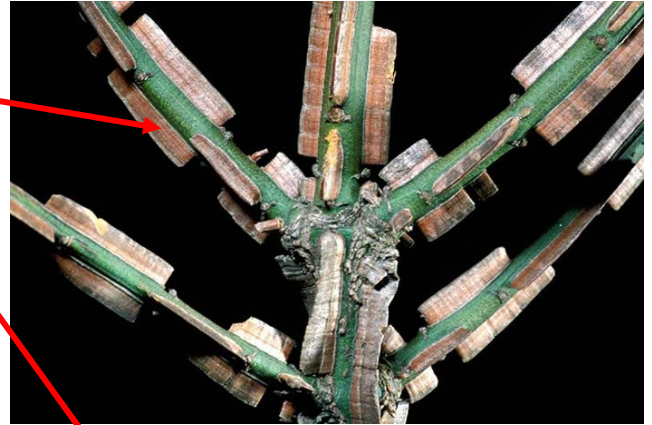


SHRUB
opposite
EUAL

WINGED EUONYMUS or BURNING BUSH
EUAL – *Euonymus alatus*

What to look for:

- ★ **CORKY 'WINGS'** along the **mature stems**
- ★ **Simple leaves with fine serrations**
- ★ **Leaves on very short stems**
- ★ **Very small yellow flowers**
- ★ **Large, bushy, multi-stemmed shrub**
- ★ **Turns bright red in fall**



Stem with opposite simple leaves



A dense stand of euonymus

No native species of shrub has corky wings on the stems

- x Native highbush blueberry - similar leaves but they are alternately arranged, leaves smaller

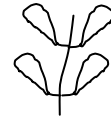


A whole plant

0016050

BUSH HONEYSUCKLES

LONI – *Lonicera morrowii/tartarica/maacki/bella*



SHRUB
opposite
LONI

What to look for:

- ★ Simple oval or egg-shaped leaves, Opposite branching
- ★ Leaves on very short stems
- ★ Flowers in pairs, fragrant white, yellow, pink or rarely red tubular with 5 lobed petals
- ★ Large, bushy, multi-stemmed shrub
- ★ Berries in pairs, red (sometimes orange), juicy
- ★ Older stems have tan or grey shreddy bark
- ★ Hollow pith



Non-native look-alikes:

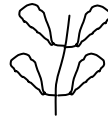
Privets (*Ligustrum spp.*) – have opposite branching and simple oval leaves however branches are straight, bark is smooth and leaves are thicker and smaller (less than 3" long) than honeysuckle



Native look-alikes:

Native honeysuckles (*Lonicera dioica*, *Diervilla lonicera*)

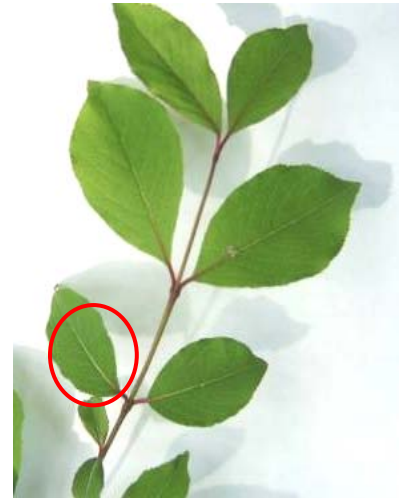
- x Look very similar to the invasive honeysuckles but are uncommon
- x All have solid pith



SHRUB
opposite
LONI

Blackhaw (*Viburnum prunifolium*)

- x Small tree with scaly bark
- x Leaves are opposite and simple but have a white mid-vein and minute tothing on edge
- x Fruit is black





VINE
alternate
CEOR

ORIENTAL BITTERSWEET
CEOR - *Celastrus orbiculatus*

What to look for:

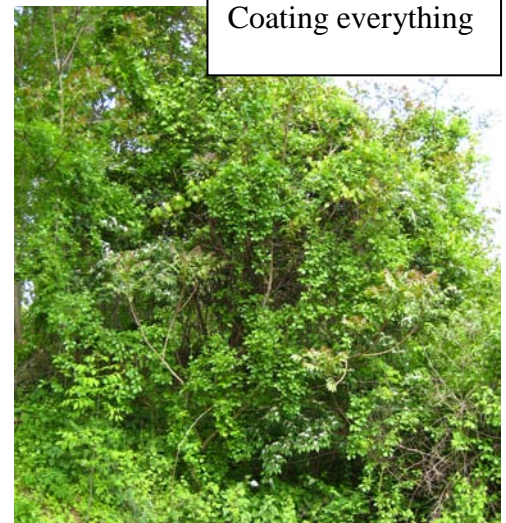
- ★ Vine twines around tree trunks & each other
- ★ Shiny, round yellow-green leaves with wavy, serrated edges, leaves feel waxy
- ★ Stems can be several inches thick; grey, pitted bark
- ★ Forms very dense blanketing growths, especially in well-lit areas
- ★ Growing tip “periscopes”
- ★ In fall: abundant red & orange berries
- ★ Orange root and inner bark



leaves



Twining stems



Coating everything

Native vines

- x Poison ivy: leaves divided into 3 leaflets; hairy stems climb but do not twine
- x Grape vines: large, lobed leaves; has tendrils at the leaf bases that twine, but the main stem does not twine
- x Virginia creeper: 5-part leaves, clambers but does not twine



VINE
alternate
CEOR

Additional pictures of Celastrus and native vines



berries

Native vines:

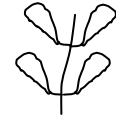
Poison ivy: 3-part leaves
and hairy non-twining stems



Wild grapes –
note tendrils



Virginia creeper: 5-part leaves,
doesn't twine

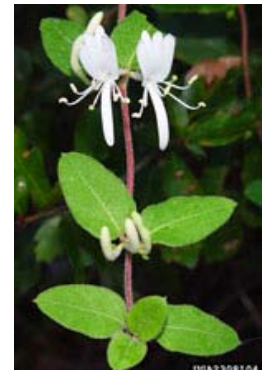


VINE
opposite
LOJA

JAPANESE HONEYSUCKLE
LOJA – *Lonicera japonica*

What to look for:

- ★ Woody vine mostly running on the ground
- ★ “String with bow-ties”
- ★ Opposite small leaves usually simple, smooth-edged, but may also be lobed
- ★ Leaves slightly hairy
- ★ Can clamber over everything, twines around to climb
- ★ May have yellow & white flowers

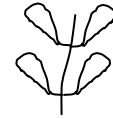


Native look-alike:

Native honeysuckle vine (*Lonicera sempervirens*) is uncommon. It has small orange trumpet-shaped flowers, flowers are not fragrant and the terminal leaflets are fused into one leaf.



PURPLE LOOSESTRIFE
LYSA – *Lythrum salicaria*



HERB
opposite
LYSA



What to look for:

- ★ **Sunny, moist habitat**
- ★ **Showy magenta flowers July – Sept on long spikes, 5-6 petals**
- ★ **Opposite or whorled lance-shaped leaves, somewhat clasping the stem.**
- ★ **Stem is stiff and ridged (4 to 6-sided)**
- ★ **Often little branchlets coming out from the leaf axil.**
- ★ **Tall plant 3-4 ft.**



Native look-alikes:

Tall fireweed (*Epilobium angustifolium*) is very similar and is found in similar habitat. Fireweed has flowers with **4 petals**, rather than 5-6 and has narrower, alternate leaves that are minutely toothed on the edge.

Swamp milkweed (*Asclepias incarnata*) also found in wet areas has opposite leaves but they are wider and they have a milky sap. The stem is round and not ridged. The flower is not similar.

JAPANESE KNOTWEED
POCU – *Polygonum cuspidatum*

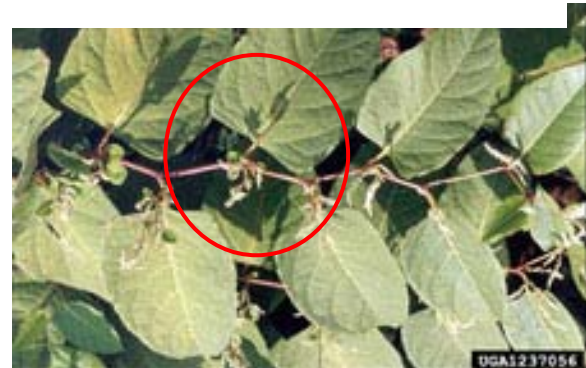


HERB
alternate
POCU



What to look for:

- ★ **Very tall, stout, jointed stems (like bamboo)**
- ★ **Stems have a distinct zig-zag**
- ★ **Large leaves that taper at the tip but are relatively straight across at the base**
- ★ **Grows in thick colonies**
- ★ **Often in disturbed ground, primarily in sun, dry or wet soil.**
- ★ **Erect finger-like clusters of small white flowers in August from the base of the leaves**



Look-alikes:

Giant knotweed (*Polygonum sachalinensis*), also **INVASIVE**, is uncommon in our area (Report any occurrences!). It has larger leaves (12+ inches long) with a clearly heart-shaped base with hairs on underside.

Virginia jumpseed (*Polygonum virginiana*). **NATIVE**. Much smaller, thinner plant, terminal spike of tiny flowers.



HERB
alternate
ALPE

GARLIC-MUSTARD
ALPE - *Alliaria petiolata*

What to look for:

- ★ **Biennial:** Look for both **ADULTS** and **JUVENILES**
- ★ Vary from small to large
- ★ Leaves have a strong garlic smell when crushed
- ★ **ADULTS:** - tall herb (up to 3 ft), with roughly triangular or heart-shaped leaves that are coarsely toothed
- ★ Small, four-petal white flowers in clusters at the top and in the axils of the plants, May to June
- ★ Slender, upright pods below the flowers
- ★ **JUVENILES:** short clumps of rounded, toothed, indented leaves
Plants remain close to the ground



Adult plants;
& close-up of
flower cluster

Veins of leaf
make it look
crinkly



Long thin upward-
pointing fruits



Juvenile –
basal
rosettes of
rounded
leaves

Look-alikes:



**HERB
alternate
ALPE**

- Can be confused with violets (pointed leaves, arc-like veins, darker green)

ALPE leaf



Violet leaf

Also similar
to ground ivy
(has a square
stem)



cantinoverde.blogspot.com

JAPANESE STILT GRASS
MIVI - *Microstegium vimineum*



HERB
 (grass)
 alternate
 MIVI

What to look for:

- ★ Weak-stemmed, light green grass
- ★ Forms dense patches & swards
- ★ Silvery line down the center of the leaf
- ★ Weakly rooted (easy to pull up)
- ★ June: small seedlings – low grass



Bed of seedlings

Native species

- ★ Few native grasses within forests
- ★ Grow sparsely, not in swards
- ★ Most 'grass' in forests are clumps of sedges

A native sedge



Silvery stripe along midrib

Native Look-Alikes:

White grass (*Leersia virginica*)

- ★ No silvery stripe
- ★ Edges of leaf are rough and catch at your skin if you run your fingers along them
- ★ Perennial so it has a strong root system
- ★ Tuft of hairs at node



Sources for images –

Photographs by J. Ehrenfeld, L. Rohleder and:

<http://classes.hortla.wsu.edu/hort231/List04/Acer.html>;

http://www.ibiblio.org/openkey/intkey/images/Acer_rubrum_leaf03.jpg

<http://wisplants.uwsp.edu/scripts/detail.asp?SpCode=RHUIR>

tncweeds.ucdavis.edu/photosa-c.html

<http://www.gov.ns.ca/tran/vegetation/images/wldrose1.JPG>

http://www.ct-botanical-society.org/galleries/pics_r/rosacaro.jpg

http://www.ecohusky.uconn.edu/images/EuyonymousTNC_BAR_000.jpg

http://ace.acadiau.ca/~lusby/Morton%20Centre/digital_herbarium/images_flowers/d_scans/rubus_alleghehiensis.jpg

<http://www.lter.umn.edu/plants1/midsized/BKberrySHJAH.jpg>

<http://www.lter.umn.edu/plants1/album/rubus.html>

<http://www.srs.fs.usda.gov/newsroom/newsrelease/images-old/goodclose2a.JPG>

<http://www.duke.edu/~cwcook/trees/viru.html> ©2011 by Will Cook

<http://www.mv.com/ipusers/pwa/invasive/Orientbtswt.jpg>

http://ipm.ppws.vt.edu/scott/weed_id/lonja.htm

<http://tncweeds.ucdavis.edu/esadocs.html>

<http://www.duke.edu/~jspippen/plants/Lonicera.htm>

Drawings: <http://plants.usda.gov/>