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VOLUNTEER
INVASIVE PLANT
SURVEY
Plant Guide

MAY - JULY, 2007

This is a guide to a selection of species introduced to the northern NJ/southern NY. It is not inclusive of all introduced species in the area. Some of the distinguishing characters noted will not apply in other areas because of differences in plant communities. Technical terms are used as little as possible and are defined when used. A plant glossary might be useful. A magnifying glass, ruler, and a small knife will be useful when using this key.

The type of growth is color-coded: Blue=Trees, Red=Shrubs, Orange=Vines, Violet=Herbs, and Green=Grasses. The distinction between trees and shrubs is not concrete. Shrubs tend to be smaller than trees and quite often have multiple stems rather than a single trunk, but some plants identified as trees often take this form.

The first plant to know is poison ivy. It has compound leaves with three leaflets and white berries. It can be a vine or a ground cover. Vines often very hairy. Proceed with caution when identifying vines or entering heavy growth.

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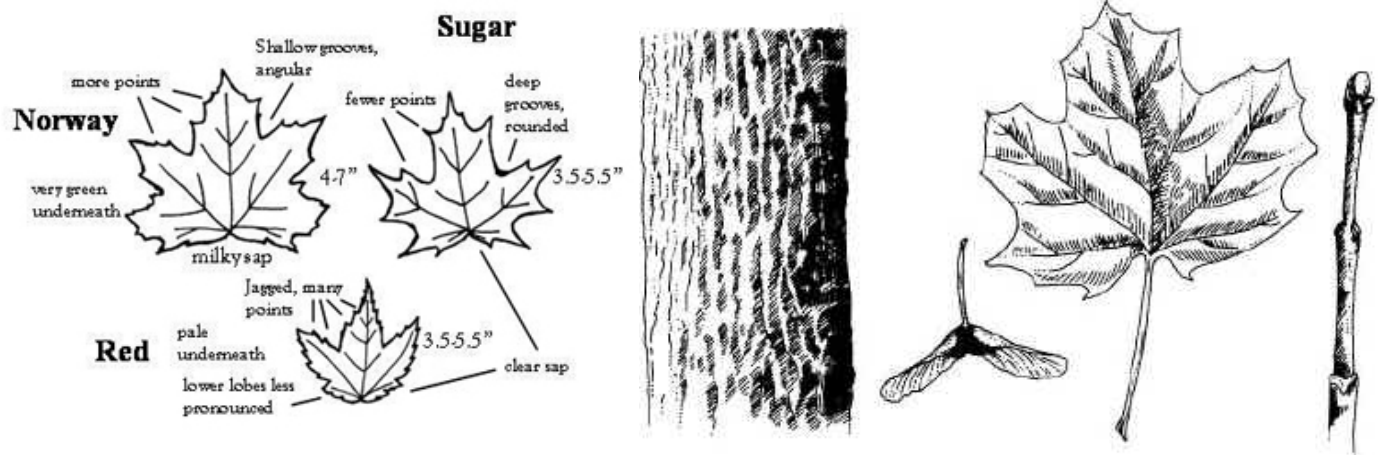
Acer platanoides, Norway maple, is a tree that grows to 40-60', but can reach 100'.

Bark: Grayish and regularly and shallowly grooved.

Leaves: 4-7" wide, palmately lobed, opposite, and have 5 to 7 sharp lobes with large but few teeth. The grooves between the lobes are v-shaped. The leaf petioles give out a white sap when broken. The leaves are usually green, but some strains have dark red leaves. The fall color of the green leaves is yellow.

Flowers: Appear in April and May and are yellow-green. The flowers appear in rounded, bouquet-like clusters that are borne on an erect stalk called a peduncle. Each flower is about one quarter inch wide.

Fruit: The fruit are one-seeded, dry, and winged (a samara), typical of maples. Each measure 1.5-2" in length, and are found stemmed in pairs on the tree.



From: <http://www.earthworksboston.org/articles/UWnorway.htm>

Similar species: *Acer saccharum* (sugar maple), *Acer rubrum* (red maple). Break a living leaf petiole and look for the white sap. An important feature distinguishing Norway maples from other maples is the angle that separates the wings of the paired fruit: Norway maple fruit reach a nearly 180° angle to each other, but seeds of sugar and red maple are generally separated by 120° or less. Sugar and red maple leaves are generally 3.5-5.5" wide. Sugar maple leaves have fewer teeth than the Norway maple. The lower lobes of red maple leaves are difficult to distinguish and the leaves have many small teeth. Bark of sugar maples is thick and forms irregular plates. Red maple bark is smooth and grey when young, but breaks into narrow plates as the tree ages.

Characters at a glance: leaf lobing; milky sap; fruit angle; bark.

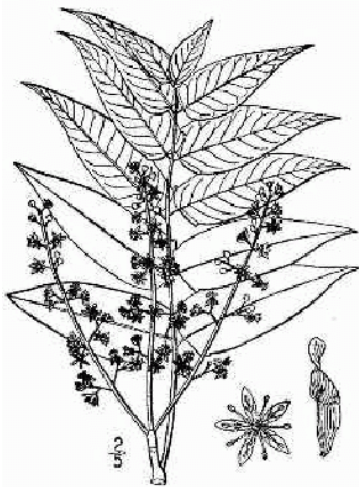
Ailanthus altissima, tree-of-heaven, is a rapidly growing tree that can reach over 60'.

Leaves: Pinnately compound (composed of leaflets connected to a central axis)

Leaflets: 11-25. Ovate (egg-shaped) to lanceolate (like a spear point). About 3-5' long. Bases may be a bit flattened and the tips are pointed or long-pointed. Each side of the base usually has a course of tooth that might be inconspicuous. Each of these teeth has a large gland beneath it.

Branches: Give an unpleasant odor when broken, often compared to peanut butter. Scars from lost leaves are large and heart-shaped. **Bark:** Smooth; pale gray.

Flowers: Appear in late spring. Male and female flowers on separate trees. Both types are small (less than 1/4") and greenish to greenish-yellow. Found in loose branching clusters called panicles at the end of branches. Each panicle is roughly pyramid-shaped and 4-8" long. Male flowers have an unpleasant smell.



Britton, N.L., and A. Brown. 1913. Illustrated flora of the northern states and Canada. Vol. 2: 61.



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Fruit: Appear from Sept. to Oct.. Found in hanging clumps on female trees. Begin yellowish-green to red, but turn brown with age. Individual fruits are winged samaras (similar to maple seeds), but the wings are twisted. Each is about 2" long.

Similar species: Sumacs, *Aralias*, and walnuts have similar leaves. Sumac leaves tend to be paler on the underside and might be hairy. Staghorn and smooth sumacs have toothed leaflets; shining sumac has entire (untoothed) leaflets. Sumacs have clusters of hairy, red fruit. *Aralia* leaves are bi-pinnate (leaflets are also divided into leaflets!), have prickles along the leaf axis, and the branches and trunk are spiny. *Aralia* fruit are juicy and purple to black. Walnuts have husky, green fruit containing nuts. Walnuts have rough, deeply furrowed bark, even when young.

Aralia elata is a deciduous small tree or shrub up to 20' tall, possibly taller.

Bark: Rough and gray with thorn-like prickles.

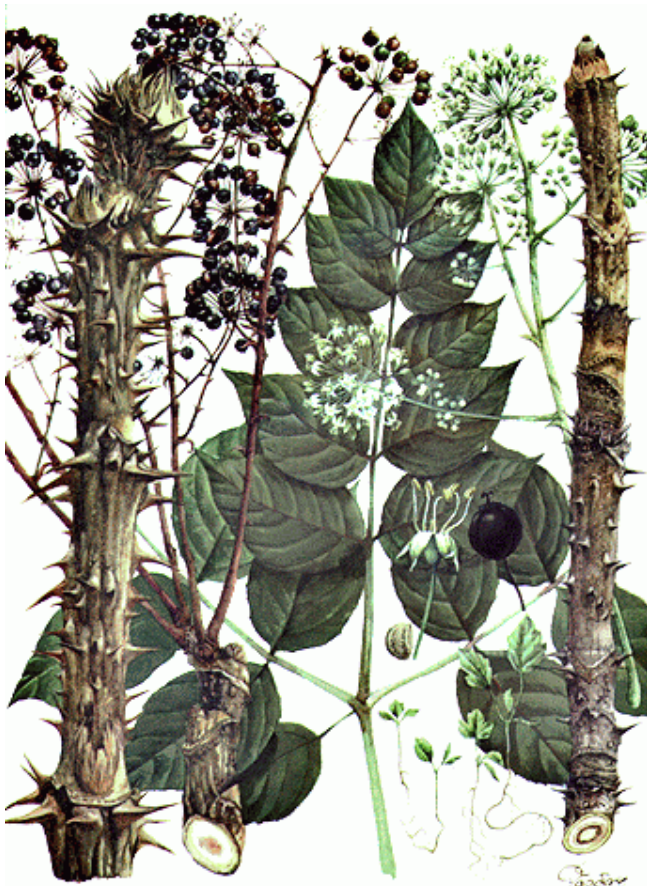
Branches: Spiny and thick. May have prominent leaf scars.

Leaves: Alternate, large, 3-4' long. Leaves look fern-like because they are double-pinnately compound, meaning they have a central axis, along which are leaflets that are themselves also pinnately compound. Can be triple pinnate.

Leaflets: Oval, fuzzy beneath, and can number 80 or more per leaf. Leaves will turn purple or orange in the fall and may drop early in season.

Flowers: Small and white. Produced in large umbels (clusters of flowers in which the stalks originate at the same point) in July-August. Umbels can be 2' long.

Fruit: Small and purple to black, spherical.



Characters at a glance: large, fern-like, bi-pinnately compound leaves; prickles.

TREE **Aralia elata* Japanese angelica tree AREL

Berberis thunbergii, Japanese barberry, is a dense, spiny deciduous shrub 2-8' high and is widely planted as an ornamental. It can form dense stands in a variety of habitats ranging from closed canopy forests, to woodlands, wetlands, pastures, meadows and wasteland and is readily dispersed by birds.

Flowers: Profuse pale yellow flowers about a quarter inch long located along the entire length of the stem. In clusters of 2-4 and blooming from mid April to May.

Fruit: Bright red, slightly juicy, but solid berries about a quarter inch long, typically elliptic but sometimes nearly spherical. Mature from July to October but can persist on the stems until the following spring.

Branches: Brown branches are smooth, hairless, deeply grooved, and have usually simple spines.



Leaves: Spatulate (like a spoon) or narrowly obovate (egg-shaped but with the narrow end close to the stem) and 0.5-1.5" long. Leaf edges are entire (smooth); lightly covered underneath with 'bloom', a whitish powdery or waxy substance. They range in color from slightly bluish-green to green to dark reddish purple.

Similar species: The European barberry, *Berberis vulgaris* is also an introduced species, but not likely to be encountered. It grows more like a tree and the fruit hang off a branching central axis, rather than singly or in a bunch originating at a single point. Leaves of European barberry are serrate (edged with small teeth). Consider all *Berberis* as Japanese barberry.

Characters at a glance: dense, shrubby growth; red fruit much of the year; spines; leaves commonly burgundy colored

SHRUB *Berberis thunbergii* Japanese barberry BETH

Euonymus alata is a multi-stemmed shrub reaching 10' to even 20'. Their crown is typically rounded and they can be as wide as tall. Widely planted as an ornamental.

Leaf: Opposite, simple, and elliptical to obovate (egg-shaped, but with the narrow end toward the stem.) They are 1.5-3" long and 0.5-1.25" wide and their margins are finely serrated. Leaf stems are short. They are green above, slightly paler beneath, but turn bright red in the fall, making the plant very conspicuous and earning its common, burning bush.

Flowers: Inconspicuous, pale, yellow-green, 4-petaled, and 1/2" across. They occur in clusters of 1-3 and appear from late April to June.

Fruit: Appear from September to October. Fruit is a capsule about one quarter to one third inch long. The dark red to reddish-purple ovary splits open to reveal up to 4 seeds, each covered by a waxy, bright red-orange aril (fleshy seed covering).



©R. Jackson, U. of Colo. at Colorado Springs

Twig: Moderate, greenish brown with 2-4 conspicuous corky wings on each stem; buds sharp pointed and reddish brown. Wings missing on some strains.

Bark: Gray to gray-brown, splitting revealing a lighter inner bark causing it to look faintly striped.

Similar species: None

Characters at a glance: winged stems; bright red fall leaves.

SHRUB *Euonymus alata* Winged *Euonymus* EUAL

Rosa multiflora, multiflora rose, is a densely spreading perennial shrub that can reach 15'.

Branches: Arching and red to green. Smooth and hairless. Most plants bear recurved (bending downward, opposite from the end of the branch) thorns.

Leaves: Alternate and compound (consisting of leaflets). The 5-11 leaflets are pinnately arranged (stem from a central axis) and have serrated (toothed) margins. Individual leaflets are 1-1½" long and are ovate (egg-shaped) or elliptic. Smooth and dark above and pale with small hairs below.

Flowers: Fragrant. 5 white to pink petals and numerous stamens. Bloom during May and June. 6-30 flowers per flat-topped or convex cluster (corymb).

Fruit: Red. Develop mid to late summer. Nearly spherical. About ¼-1/3" across.



Stipules: Stipules are leaf-like appendages at the base of the petiole (leaf stalk). In multiflora rose, these are described as being fringed or comb-like, meaning they have a narrow central axis with long processions extending from the margin.

Similar species: There are several other roses in the area, both native and non-native. Look first for the upright-arching growth (as opposed to groundcover or short plants), then the clusters of 6-30, 5-petaled flowers. Then look for the fringed stipules. Natives: *R. Virginiana*—stipules are broad and resemble narrow leaflets; *R. Palustris* (swamp rose)—stipules are very narrow and have no comb-like processions. It also prefers wet places. Some *Rubus* spp. (blackberries, raspberries, etc.) resemble roses. Look for the fruit, count leaflets, and compare leaflet shape and prickles (thorns). Greenbrier (*Smilax*) has simple, heart-shaped leaves

Characters at a glance: compound leaves, thorns, fruit, flower clusters

Rubus phoenicolasius is a deciduous perennial that reaches 6' with arching stems.

Stems: Typically very red and hairy with a few slender prickles. Hairs reddish-purple, glandular, and $\frac{1}{10}$ - $\frac{1}{4}$ " long. Old stems may be woody.

Leaves: Alternate and compound with 3 leaflets. Leaflets are toothed and coarse teeth on sides of the terminal leaflet can be very prominent, giving a slightly lobed look. Terminal leaflet is broadly ovate (egg-shaped) and can be 4" long. Lateral leaflets are similarly shaped but smaller. Petioles (stalk that attaches leaf to the stem) also hairy. Upper surface of leaflets green and pubescent (covered with fine hairs), lower surface appears white because of the dense, short hairs that give the appearance and feel of felt. White lower surface often revealed by wind.



Flowers: Appear late May-June. In many-flowered, irregularly branching clusters called panicles. Petals are small, white, and narrowly ovate (egg-shaped). Sepals (modified leaves below the petals) are hairy and longer than the petals.

Fruit: Juicy and bright, shiny red. About $\frac{1}{3}$ - $\frac{1}{2}$ " thick, and may have fine hairs. Ripen June to July.

Similar species: Several other *Rubus* spp. are in the area. Look for the hairy, red stems (versus heavy thorn-like prickles) and white lower leaf surfaces. New growth only of some *Rubus* might be red and hairy. Compare several leaves: some *Rubus* have simple leaves; others have compound leaves with more than 3 leaflets.

Characters at a glance: hairy, red stems; 3 serrated leaflets; white and wooly underside of leaflets.

Celastrus orbiculatus is a perennial, deciduous vine that can grow up to 60'.

Leaves: Light green, simple (not divided into leaflets) and alternate. Spiral around stem. Circular, egg-shaped (ovate), reverse ovate (obovate), or widely elliptic. Leaves of young plants often more narrow (look for tendrils on end of stem).

Stems: Dark brown to brown striated bark. Can reach 4" in diameter.

Twigs: Dark brown, brown or light gray. Smooth and hairless.

Flowers: Bloom May to early June. Axillary (located where leaves attach to the stem). Greenish and very small ($\sim 1/10$ " long, about twice as wide). 3-4 per cluster.

Fruit: Produced July to Oct. Round and about $1/4$ - $1/3$ " in diameter. Green changing to bright yellow. Ovary walls begin to fall after frost, revealing 3 red-orange wedges, which are the seeds covered by a fleshy aril. red-orange



Similar species: POISON IVY: Compound leaves with 3 leaflets; vine may look furry; white berries. Grape vines have opposite leaves that are toothed, sometimes lobed, and often hairy beneath. Also, grape vines and porcelain-berry have tendrils. *Celastrus scandens*, American bittersweet, bears a closer resemblance. The inflorescence (flower clusters) of *C. scandens* is terminal (at the tip of the vine), not axillary. An inconsistent feature is the color of the ovary walls: Darker orange in *C. scandens*, contrasting less with the red arils. *C. Scandens* is relatively rare. Greenbrier (*Smilax* spp.) also has simple leaves but the vine is prickly.

Characters at a glance: simple, alternate leaves; yellow and red fruit; tendrils.

Lonicera japonica is a woody, twisting vine without tendrils or aerial roots reaching 30'. It can form dense thickets in bushes and trees or sprawl along the ground.

Leaf: Opposite, simple, ovate to oval, 1-3" long, entire margin, light green and somewhat pubescent (having short, fuzzy hairs) on the underside. Young leaves can be lobed or toothed. Can retain green leaves through winter.

Flowers: Very fragrant, ½-1" long, white or yellowish-white petals, pubescent (fuzzy) on their outer side. Appear late spring. Fade to yellow with age. Occur in pairs on separate short stalks at axils (where the leaves attach to the stem).

Fruit: ¼" in diameter, black or purple berry, often in pairs, ripen in fall and persist into early winter. Within the berries are 2-3 small brown to black ovate seeds.

Twig: Slender and light red-brown to straw-colored. Young stems are hairy while older stems become hairless and hollow. Develop scaly, thin, shreddy, peeling bark



Lonicera japonica



James H. Miller, USDA Forest Service,
www.forestryimages.org

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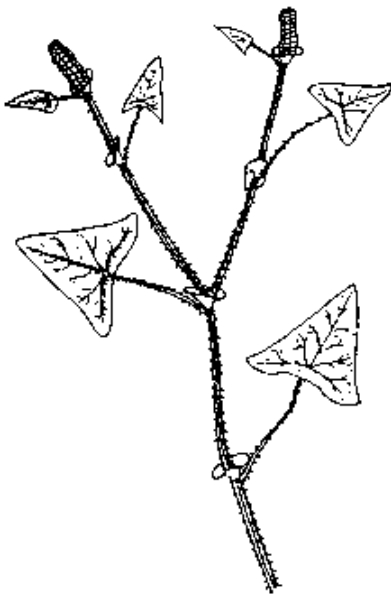
Similar species: There are several honeysuckles in our area, native and non-native. Some are shrubs, not vines. Native vines: Trumpet honeysuckle, *L. sempervirens*, limber honeysuckle, *L. dioica*, and hairy honeysuckle *L. hirsuta*. Flowers of the first two species are red; those of the third are yellow. The flowers are at the ends of vines, not in axils. Importantly, the terminal leaf pairs of the native vines are fused together at the base and it appears as though the stem pierces the pair. (*L. caprifolium*, Italian woodbine, an introduced vine, shares this trait). Fruit of the native vines are scarlet. Also useful: Native honeysuckles, whether a bush or a vine, have solid stems, while older stems of non-natives are hollow (the hollowness may be subtle, perhaps the width of a heavy needle).

Characters at a glance: simple, opposite leaves; flowers; slender, hollow stems.

Polygonum perfoliatum is a rapidly growing herbaceous annual vine. It can grow to 23' long and as much as 6" per day.

Stems: Thin, jointed, and highly branched. Green to reddish-green. Bear backward-pointing barbs. Dead winter plants are reddish-brown to tan and often form brittle mats.

Leaves: Alternate, $\frac{3}{4}$ -3" wide. Pale green and thin. Smooth and hairless, but veins on the underside and petioles bear backward-pointing barbs. Triangular and often equilateral. Petioles (leaf stems) are long and perfoliate, meaning that the margin of the leaves extend beyond where the petiole attaches (if the petiole were continued, it would appear to pierce the leaf). Stipules (leaf-like organs at the base of the petiole) are united to form a saucer or cup-like structure called an ocrea.



www.riparianbuffers.umd.edu/manuals/pannil.html



Leslie J. Mehrhoff.
Invasive Plants of New England

Flowers: Inconspicuous, about $\frac{2}{10}$ " across, and white. On racemes (unbranched, linear clusters) about $\frac{1}{2}$ " long that emerge from the ocrea.

Fruit: Berry, $\frac{2}{10}$ " across. Begin green, becoming pale metallic blue. Produces fruit continuously from June until the first frost.

Similar species: A number of other *Polygonum* species are in the area, but the triangular, perfoliate leaves are unique. *Aristolochia macrophylla*, Dutchman's-pipe or pipevine, and *A. serpentaria*, Virginia snakeroot (endangered in NY), have elongate heart-shaped leaves and lack the bract at the petiole. *Calystegia* spp. (bindweeds, morning glories) leaves more closely resemble arrows, with bases being lobed or extended, but not perfoliate. Flowers are large, singular, and trumpet-like.

Characters at a glance: thin, jointed stems; perfoliate, triangular leaves.

VINE

Polygonum perfoliatum Mile-a-minute POPE

Cynanchum louiseae, black swallow-wort is an herbaceous, perennial vine, growing up to 7'. It grows unbranched and twining.

Leaves: Opposite, dark green leaves with entire margins. Hairless (glabrous) and shiny with short petioles (stalks). Ovate (egg-shaped) or ovate-lanceolate (spear point-shaped). 2-5" long and ½-2½ wide.

Flowers: Clusters of 6-10 dark purple, 1/8" long flowers growing from the axils (angle formed by leaves and stem) June to Sept. Cluster stalks (peduncles) are ¼-1¼" long. Corolla (petals) are fleshy and triangular and the upper surfaces bear short, straight, white hairs. Within the corolla is small, 5-lobed, crown-like corona.



Photo by Jennifer Forman Orth, Umass Boston



Leslie J. Mehrhoff, UConn,
www.forestryimages.org

Fruit: Slender, elliptical pods (follicles) 1½-2 ¾" long. Similar to milkweed but narrower. Pods begin green but turn brown with age. Stems persist at the end of the season, frequently bearing open pods with some seeds remaining inside.

Seeds: Brown, flattened, ¼" long and ovoid. They have a membranous wing along the margin and a tuft of white hairs at the narrow end.

Similar species: Bittersweets (*Celastrus* spp.) have alternate leaves and distinct fruit. Greenbrier (*Smilax* spp.) has very prickly vines, honeysuckles (*Lonicera* spp.), have distinct flowers and typically smaller, hairy leaves.

Characters at a glance: Dark green, leathery leaves; small blackish flowers; pods.

Alliaria petiolata is a cool-season, herbaceous biennial that can reach about 3'. A first year plant is a basal rosette, or circular cluster of leaves (violets and dandelions are examples of rosettes). The rosette remains green throughout the winter. They develop into mature flowering plants the following spring.

Leaves: Coarsely toothed and heart-shaped, although the lower leaves are more rounded. Give off a strong garlic odor when crushed. Basal leaves can be 2½ -4" long and wide. Leaves along the stem gradually decrease in size toward the top of the stem.

Stem: Erect and unbranched below flower clusters. Begins green but dies in late June, leaving behind a pale brown stalk that can hold seed pods over the summer.



Flowers: 4 white petals arranged in a cross shape, about a quarter inch in diameter. They are borne on short stalks (pedicels) arranged in loose clusters at the top of stems. They appear in April – May.

Fruit: Produced by May. Cylindrical, shiny, black seeds about 1/10" long are contained in pods called siliques. The siliques are 1-2 ½ " long and 1/10" wide and contain 10-20 seeds. By June the plants are dead, leaving behind a dry, light-colored stalk often still bearing the seed pods.

Characters at a glance: Coarsely toothed, heart-shaped leaves; rosettes; white flowers; seed pods; 3' tall dry stems.