Bush Honeysuckle
Lonicera species

LEAVES

Identification Features:

- DECIDUOUS
- Upright multi-stemmed SHRUB
- OPPOSITE branching pattern
- Leaves: SIMPLE; OVATE shaped; ENTIRE margins; have a sharp pointed tip and undersides are fuzzy; 1”-3” long
- Flowers: tubular and fragrant; pink, yellow, or white depending on the species; 1” long; bloom in Spring
- Fruits: red or orange BERRIES in clusters; 2-6 seeds per berry; 1/4 “ in diameter; ripen late SUMMER
- Stems: hollow
- Bark: gray brown and vertically shredded
- Reaches heights up to 20 feet tall.

FLOWERS

Habitat:

- INTRODUCED & INVASIVE to Pennsylvania
- Abandoned fields, along roadsides, near marshes, and in recently disturbed woodlots

Where did it come from?

Bush honeysuckles are native to Europe and Asia. Bush honeysuckles were introduced in the 1800's as ornamentals. They were also planted for wildlife food and cover and erosion control. The two species commonly found in Pennsylvania are Tartarian honeysuckle (*Lonicera tatarica*) and Morrow's honeysuckle (*Lonicera morrowii*).

FRUIT

How does it spread and what are its impacts?

Bush honeysuckles compete with many native plant species for natural habitats. Honeysuckles grow in a wide range of habitats and tolerate varying moisture conditions. Birds feed on honeysuckle berries spreading the seeds. The berries are low in fats and nutrients so, birds do not get enough nutrients to help them sustain long flights during migration. Seeds can remain viable in the soil for several years.

STEM

How can it be controlled?

Bush honeysuckle can be cleared by hand pulling because of its shallow root system. Make sure to remove all the roots, because new sprouts will grow from the root system. For severe infestations, cutting them in early spring and late fall for several years will eventually kill the honeysuckle by reducing the plant's reserve nutrients. Do not cut the bushes in the winter because this will cause the plant to re-sprout vigorously. Applying an herbicide to the leaves or a freshly cut stump late in the growing season will also help control bush honeysuckles.

BARK

Callery Pear
Pyrus calleryana

LEAF

Identification Features:

- DECIDUOUS
- ALTERNATE branching pattern
- Leaves: SIMPLE; OVATE shaped; WAVY and finely TOOTHED margins; dark green and glossy; 2”-3” long; turn purple red color in Autumn
- Flowers: white; ¾” wide; unpleasant smelling; bloom in spring
- Fruits: round, pinkish brown POME; Pome fruits have a "core" of several small seeds, surrounded by a tough membrane; pomes speckled with white spots; ½” in diameter; ripen in Autumn
- Bark: gray, brown; scaley, ridges and furrows
- Medium size tree reaches heights of 50 feet tall. Grows in a PYRAMIDAL shape.

Habitat:

- INTRODUCED & INVASIVE to Pennsylvania
- Found in parks, disturbed woods and roadsides

FLOWERS

Where did it come from?

Callery pear is native to Asia. It was introduced to the United States in 1918 for hybridization experiments to improve disease resistance of the common fruiting pear. In the 1950’s, the cultivar “Bradford” was developed and became popular for ornamental planting. This is also where its other name, Bradford pear, originates. Bradford pear was supposed to be sterile and not produce seeds. But, because Bradford pear would easily split by wind and snow, other cultivars were developed. Bradford pear and these other cultivars would cross pollinate and were able to produce many seeds, contributing to the species' invasiveness.

How does it spread and what are its impacts?

Callery pear grows rapidly and produces large amounts of seeds. It spreads mostly by seed. European starlings and American robins eat the small pears and spread the seeds. Each pear contains 2-4 seeds. The tree can also root sprout, if injured or cut. Callery pear has adapted to a wide variety of environmental conditions including heavy clay soils, drought, heat and pollution. It can form dense thickets that push out other plants including native species.

POMES

How can it be controlled?

Complete removal of the tree is the best control. Large trees should be cut, with an immediate herbicide application to the stump. Seedlings can be pulled or dug out making sure to remove all of the roots.

Mile-a-Minute
Persicaria perfoliata

LEAVES

Identification Features:

- DECIDUOUS
- Herbaceous annual VINE
- ALTERNATE branching pattern
- Leaves: SIMPLE; TRIANGLE shape; light green in color; 1 ½"-2 ½" long and 2"-3 ½" wide; undersides of leaves contain barbs
- Flowers: very small; white; form in clusters and emerge from the ocreae; bloom in spring
- Fruits: round; berry-like; bright blue; ¼"; each fruit contains a single reddish-black hard seed; emerge from the ocreae; ripen in summer
- Stems: reddish in color; contain downward facing barbs or prickles; round leaf-like structures called ocreae surround the stem
- Vine can grow as much as 6 inches per day and can reach heights of more than 25 feet within a single growing season.

ORCEAE

Habitat:

- INTRODUCED & INVASIVE to Pennsylvania
- Found along forest edges, wetlands, roadsides and forest clearings

Where did it come from?

Mile-a-minute, also known as devil's tail tearthumb, is native to Asia. It was first introduced into the United States in the 1930's at a nursery in York County, Pennsylvania where seeds were spread with rhododendron stock. Since then, it has spread to neighboring states.

How does it spread and what are its impacts?

As its name implies, mile-a-minute spreads very rapidly in sunny areas. Its prickly stems and leaves allow it to climb over surrounding vegetation and form dense, tangled mats that shade and choke out underlying vegetation. Seeds are dispersed by birds and mammals which eat the fruit. Floodwaters facilitate long distance dispersal of seeds. Seeds are also dispersed by moving contaminated soil and as hitchhikers on clothes, shoes and equipment. Seeds can survive in the soil for 7 years.

FRUIT

BARBS

How can it be controlled?

Vines can be hand-pulled but thick gloves should be worn. Removal should be done prior to fruit formation. Repeated mowing will prevent the plant from flowering and reduce fruit production. Herbicides may be used as an alternative in heavily infested areas. To be safe and effective, herbicide use requires knowledge of the chemicals and their appropriate concentrations as well as understanding of the method and timing of their application. A biological control is also currently being tested. A weevil, *Rhinocominus latipes*, is being used on various test plots in Pennsylvania and elsewhere to control mile-a-minute. These small insects feed on the leaves and bore into the stems. While they will not eliminate the plant, they can help keep it in check and reduce fruit production.

Weevil

Multiflora Rose
Rosa multiflora

LEAF

Identification Features:

- DECIDUOUS
- SHRUB
- ALTERNATE branching pattern
- Leaves: PINNATELY COMPOUND; 3”-6” long; 7–9 OVAL shaped leaflets; leaflets with finely TOOTHED margins and 1”-2” long; leaves have a feathery stipule (leaflike structure) at the base of the petiole
- Flowers: white; fragrant; ½”-1”; bloom in late Spring
- Fruits: round, red HIPS; ¼” in diameter; each hip contains several small seeds; ripen in late Summer
- Branches: thorned arching stems; layering occurs when branches come in contact with the ground and take root; thorns point downward
- Shrub can reach 15 feet tall

FLOWERS

Habitat:

- INTRODUCED & INVASIVE to Pennsylvania
- Found along forest edges, in open fields, or in fencerows, roadsides, and streambanks

Where did it come from?

Multiflora rose is an introduced species that is native to Japan and Korea and was introduced to the U.S. in the 1860s. It was originally planted as an ornamental shrub. In the 1930s, conservation agencies began to promote it as a wildlife food and a cover plant for animal habitats. It was also used for erosion control; as living fences to confine livestock, and as crash barriers along highways. Since its introduction, multiflora rose has spread rapidly from cultivation and readily invades open woodlands, forest edges, open fields, stream banks and other areas that have been subjected to land disturbance.

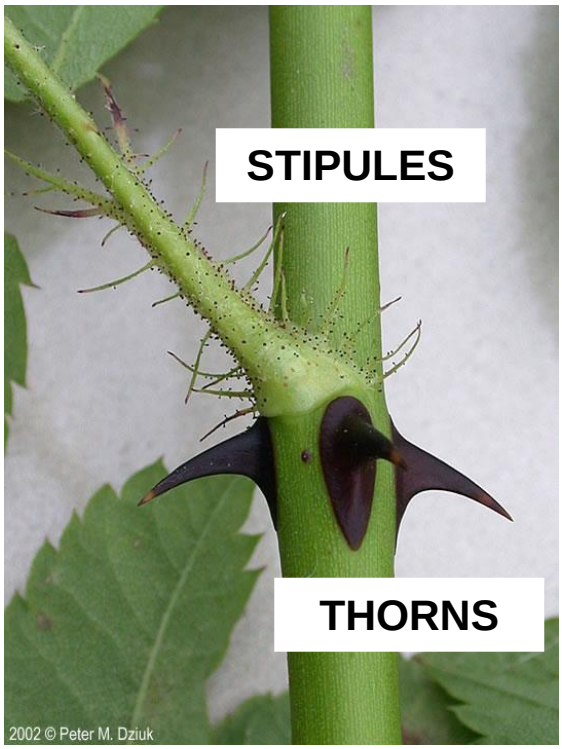
HIPS

How does it spread and what are its impacts?

Multiflora rose is spread by seeds and by suckering. Birds eat and disperse the seeds which is the primary means by which the shrub moves to new areas. An average plant may produce a million seeds per year. These seeds can sprout for up to 20 years. Suckering occurs both when the tips of arching stems root where they contact the ground and also when roots sprout new growth. Reproduction by suckering allows the plant to form dense, impenetrable thickets that displace native plants. The arching stems are also capable of growing up tree trunks. The inedible leaf litter changes the composition of aquatic macroinvertebrates. Multiflora rose has a wide tolerance for soil, moisture and light conditions allowing it to spread to many habitats.

How can it be controlled?

Regular mowing and repeated cutting in grassy areas prevent seedlings from getting established. Shrubs can be removed by digging and pulling. This is only effective when all of the roots are removed. Treatments with certain herbicides have also been effective at controlling the plant. Repeated treatments are needed because the seeds remain viable in the soil for many years. Two biological controls have also been used successfully to manage the spread of multiflora rose. One is a virus (rose-rosette disease) that is spread by a tiny native mite. The second is a non-native seed-infesting wasp, the European rose chalcid. However, both biological controls have the potential to also impact native rose species.



Norway Maple
Acer platanoides

LEAF

Identification Features:

- DECIDUOUS
- OPPOSITE branching pattern
- Leaves: SIMPLE; 5 coarsely tipped LOBES; 4”-7” wide; milky sap seeps from broken leaf stalk; turn yellow orange in Autumn
- Flowers: yellow or greenish yellow; very small; bloom in Spring
- Fruits: SAMARAS; wide spreading wings; wings nearly horizontal; 2”-4” long; ripen in Autumn
- Twigs: also seep a milky sap
- Bark: gray- black; furrowed
- Large trees reaching heights of 60 feet tall. Grows in a ROUND shape.

SAMARAS

Habitat:

- INTRODUCED & INVASIVE to Pennsylvania
- Found along city streets and in parks, disturbed woods and roadsides

Where did it come from?

Norway maple is an introduced species that is native to Eurasia from southern Scandinavia to Iran. It was introduced in Philadelphia in 1756 by botanist John Bartram as an ornamental shade tree. It was frequently planted in neighborhoods during the 1950’s to replace native American elms that were killed by the Dutch elm disease.

MILKY SAP

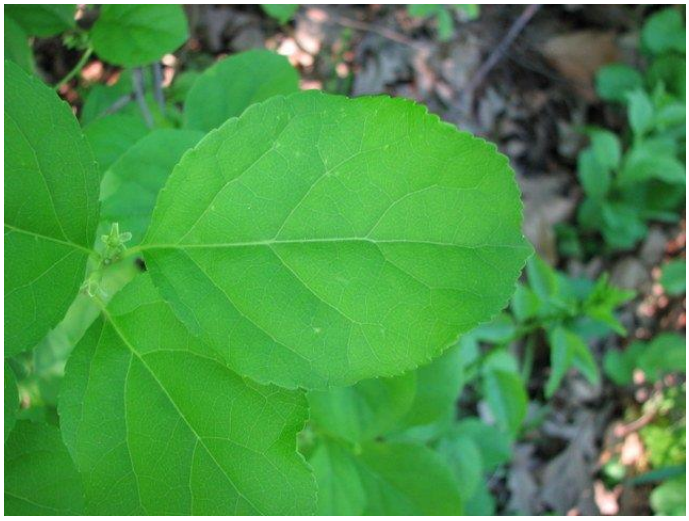
How does it spread and what are its impacts?

The samaras are spread by the wind. The seeds germinate and grow quickly. Norway maples out compete native maples, even in shady conditions.

How can it be controlled?

Seedlings can be hand pulled when the ground is wet or dug out. Care should be taken to get all of the roots. Larger trees can be cut close to the ground and then grind out stump. There are several herbicides that are also effective in controlling the tree.

Oriental Bittersweet
Celastrus orbiculatus



LEAF

Identification Features:

- DECIDUOUS
- Woody, perennial VINE
- ALTERNATE branching pattern
- Leaves: SIMPLE; OVAL to ROUND shaped; rounded TEETH; glossy; 2”-4” long; turn yellow in Autumn
- Flowers: greenish yellow; 5 petals; ¼” long; grow in clusters along the stem; bloom in Spring
- Fruits: round; first green and then when ripe turn yellow and split open to reveal a bright red, 3-sectioned berry-like fruit; each section containing 1-2 seeds; ⅓” diameter; ripen in Autumn and remain on the vine through Winter
- Vines: woody; multi-branched; light brown; furrowed with noticeable raised lenticels
- Roots: bright orange; deep and spreading
- Vine can grow to 5 inches in diameter and up to 66 feet long.

FLOWERS

Habitat:

- INTRODUCED & INVASIVE to Pennsylvania
- Woodlands, fields and streams

Where did it come from?

Oriental bittersweet is native to Asia. It was brought to the United States in the mid 1800’s. It was used as an ornamental and has escaped cultivation. The fruiting stems are frequently used in fall decorations.

FRUITS

How does it spread and what are its impacts?

Oriental bittersweet can overrun natural vegetation. It strangles shrubs and small trees, can weaken mature trees by girdling* the trunk, and can weigh trees down breaking tree branches. It also blocks sunlight from native species and competes with natives for water and nutrients from the soil. A typical female plant can produce up to 370 fruits. Oriental bittersweet can be spread by birds and mammals that feed on the fruits, and then drop the seeds in their scat. People also move the seeds by using fruiting stems in flower arrangements and then carelessly discarding them. Additionally, roots can spread and send up new plants.

*Girdling is when something is tightly wrapped around the tree and can potentially kill the tree.

ROOTS

How can it be controlled?

Oriented bittersweet vines can be pulled out by hand. Be sure to remove all the root or the vine will re-sprout. If there are any fruits present, they should be bagged and disposed of. Herbicides applied to cut stems have also been successful. Do not use Oriental bittersweet stems in decorations.

Paper Mulberry
Broussonetia papyrifera

LEAVES

Identification Features:

- DECIDUOUS
- ALTERNATE, OPPOSITE, and WHOLRED branching pattern
- Leaves: SIMPLE; OVAL, OVATE, LOBED, and MITTEN shaped on same tree; SERRATE margins; rough on top of leaves; hairs on underside of leaves; up to 10” long; milky sap seeps from cut leaf; turn yellow in Autumn
- Flowers: green in color; male flowers in drooping CATKINS that are 2 ½”-3” long; female flowers round and 1” in diameter; bloom in Spring
- Fruits: round; reddish orange; ¾”-1” in diameter; contain many small seeds that are loosely attached and easily spread; ripen in Summer
- Twigs: reddish brown; with hairs, contain a milky sap when broken
- Bark: pale brown; shallowly grooved or smooth
- Small tree reaching heights up to 30 feet tall. Grows in a ROUNDED shape.

Habitat:

- INTRODUCED & INVASIVE to Pennsylvania.
- Open forests, roadsides, and distrubed areas

Male FLOWERS

Female FLOWERS

Where did it come from?

Paper mulberry is an introduced species that is native to Asia. It was introduced to the United States as a shade and ornamental tree in the early 1900s. In Asia, it was once used in paper making. Since its introduction it has invaded disturbed areas throughout the Eastern United States.

FRUIT

How does it spread and what are its impacts?

Paper mulberry spreads by seeds and suckering. The seeds of paper mulberry are spread over large distances by wildlife that feed on the fruit. Once established, paper mulberry grows very quickly and aggressively. It can then continue to spread by sprouting and suckering from its roots. It can form dense thickets which displace and shade out native plants. Wildlife are also negatively impacted by paper mulberry because they are dependent on native plants for food, nesting, and cover. Paper mulberry has a very shallow root system, making the tree susceptible to blowing over during high winds, posing a hazard to people. Trees blowing over can also cause erosion and further disturbance to the area. The pollen of paper mulberry has been known to cause allergies to people.

How can it be controlled?

Paper mulberry seedlings can be pulled out by hand. Trees can be controlled through cutting and herbicide applications. During the growing season, trees should be cut near ground level, followed by an immediate application of an herbicide to the stump in order to destroy the root system. Herbicides can also be applied to the base of the tree or the foliage.

MILKY SAP

Tree of Heaven
Ailanthus altissima

LEAF

Identification Features:

- DECIDUOUS
- ALTERNATE branching pattern
- Leaves: PINNATELY COMPOUND; ELLIPTICAL shaped leaflets; 10-40 leaflets; lower leaflets often TOOTHED at the base; 1½' -4' long; Autumn color is essentially non-existent
- Flowers: small; yellow green in color; in large, upright clusters near the tips of branches; flower clusters 7"-15" long; bloom in Spring
- Fruits: SAMARAS; flat and twisted with a flattened seed in the center; tan to pink in color; 1½" long; occur in large clusters; ripen in Summer
- Leaves and twigs have a rancid odor when broken
- Bark: light gray; ridges and furrows; checkered appearance
- Large tree reaching heights up to 90 feet tall. Grows in an IRREGULAR shape.

LEAFLETS

Habitat:

- INTRODUCED & INVASIVE to Pennsylvania
- Disturbed woods, roadsides, vacant lots and railroad banks

FLOWERS

Where did it come from?

Tree of heaven is an introduced species that is native to central China. It was introduced to the U.S. in 1784 by a Philadelphia, PA gardener. By 1840 it was commonly available from nurseries as an ornamental shade tree. Since its introduction, tree of heaven has sprouted up just about everywhere including alleys, sidewalks, parking lots, streets as well as in fields, roadsides, fencerows, woodland edges and forest openings.

SAMARAS

How does it spread and what are its impacts?

Tree of heaven spreads by seeds and suckering. Suckering occurs when cut stumps and root fragments re-sprout. A single female tree can produce up to 325,000 seeds per year. The seeds are very light in weight and can easily be transported by wind. Wind can blow samaras onto clothing, gear or cars of a hiker or biker. If the person is not careful to clean off these items, the seeds can easily "hitchhike" their way to new locations.

Once established, it grows rapidly and forms dense stands that displace native plants. It has the ability to grow under a wide range of conditions including poor soil and poor air quality. Tree of heaven also produces chemicals that kill or prevent other plants from growing near it. Because of the tree of heaven's extensive root system, it can cause damage to sewer lines and building foundations. The tree has also helped advance the spread of the spotted lanternfly. These insects seek out the tree of heaven as a place to lay their eggs. Tree of heaven can also affect human health. The tree is a very high pollen producer and a moderate source of allergy in some people. There have also been cases of skin irritation reported from contact with plant parts.

BARK

How can it be controlled?

Seedlings can be pulled or dug up. Gloves should be worn to prevent skin irritation. Care must be taken to remove the entire plant including all roots and fragments to prevent re-sprouting. Several herbicides have also proven to be effective in controlling tree of heaven. Targeting the removal of large female trees is the best way to control the spread. Female trees are responsible for seed production. Before any control measures are used, it is important to correctly identify the plant because some native species are often confused with tree of heaven. A native biological control, a fungus, is currently being developed and tested and may soon be available for use.

Spotted Lanternflies on Tree of Heaven