



INVASIVE
PLANTS
OF
PITTSBURGH

About the Pittsburgh Parks Conservancy:

The Pittsburgh Parks Conservancy is a national leader in park planning, management, maintenance, and restoration. As the fundraiser and non-profit advocate for Pittsburgh's parks, The Pittsburgh Parks Conservancy has raised more than \$65 million for parks improvements.

The Parks Conservancy's work includes the restoration of historic buildings, public artworks, cultural landscapes, and natural areas; operations management and programming of Schenley Plaza, Schenley Park Café and Visitor Center and Mellon Square Park; and the education of students and involvement of citizen volunteers in hands-on ecological restoration.

Because of the efforts of volunteers in Pittsburgh, our parks are healthy, beautiful and safe places for exercise and recreation. Our volunteers deserve our thanks. We hope this handbook contributes to continued successful efforts.

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Laurel Foundation.



Urban EcoSteward Partner Organizations

Allegheny CleanWays

alleghenycleanways.org

Allegheny Land Trust

alleghenylandtrust.org

Frick Environmental Center

pittsburghparks.org/environmentalcenter

Mount Washington Community Development Corporation

mwcdc.org

Nine Mile Run

Watershed Association

ninemilerun.org

Pittsburgh Parks Conservancy

pittsburghparks.org

Urban EcoSteward Information

Name:

Site Name:

Site Number:

Urban EcoSteward Field Coordinator Information

Name:

Organization:

Phone Number:

E-mail:

**Please log your hours at
www.pittsburghparks.org/ueshours**

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Urban EcoStewards

The Urban EcoSteward program grew out of a belief that volunteers play an important role in the protection of our urban green spaces.

Urban EcoStewards take on the long term stewardship of a section of green space and work throughout the year to improve ecosystem health and function by monitoring and removing invasive plants, planting native species, cleaning up dumpsites, controlling erosion and spreading the word about the value of these activities.

Invasive Plants of Pittsburgh Guide

This guide is designed to give volunteers the information necessary to identify and control the invasive plants that pose the greatest threat to biodiversity in the Pittsburgh area. It is not intended as a complete list of non-native plants and should be used in conjunction with a guide to native species.

For a more detailed list of invasive plants in Pennsylvania, view the Invasive Plant Management Tutorial on the Pennsylvania Department of Conservation of Natural Resources website: www.dcnr.state.pa.us/forestry/plants/invasiveplants/invasiveplanttutorial/index.htm.

If you are in doubt about the identity of a plant, contact your Urban EcoSteward Field Coordinator before attempting to manage or remove the plant.

How to use this guide

The species in this guide are organized by plant type (herb, shrub, vine and tree) and alphabetically by common name. Each species has information about characteristics used to identify the plant, as well as how and when to manage it on your site. If you are unfamiliar with a term, refer to the glossary at the back of the book.

Key

Beside the heading and page number for various plants, you might see one of the following symbols:



This plant may be a new invader, or there are special concerns related to its management. Urban EcoStewards should contact their Field Coordinator before proceeding with management



This plant may have a native species look-alike, so Urban EcoStewards should be careful to positively identify the plant before removing it.



If unmanaged, aggressive invasive vines can take over and completely block sunlight to trees and understory plants.

What is an invasive plant?

Every species has a native environment where it lives in balance with its predators and competitors. If a plant is growing outside of its native environment without any controls to limit its growth and reproduction, it may become invasive and dominate a landscape by outcompeting native species. Some native plants, including vines, can become invasive in disturbed areas with high sunlight.

Where do they come from?

- Plants and animals have always moved around, but now move at a much faster rate.
- Plants that are native here are invasive in other places (e.g. rhododendrons in Ireland).
- Many of our invasive plants come from Eurasia or other places that share our latitude because of similarities in the amount of daylight over the year and severity of winter.
- 75% of invasive species are introduced intentionally (e.g. garden ornamental, food crops).

Why is an invasive plant invasive?

- Only around 1% of introduced species become invasive.
- Some key characteristics:
 - A large north/south range in their native habitat
 - Lack of local predators, pests or diseases
 - Rapid growth and early maturity (e.g. filling space before native plants sprout)
 - Aggressive reproductive strategy (e.g. prolific seed production)
 - Vegetative reproduction (e.g. sprouting from root fragments)
 - Physically crowd out other plants (e.g. dense shade, root mass, chemical allelopathy)

Why are they a problem?

- **Invasive plants can reduce native biodiversity and form monocultures.** Biodiversity is essential to the health and resilience of an ecosystem and the populations it supports.
- **Invasive plants alter habitat conditions and displace important native plant species.** Native plants fill unique ecological niches and evolved to form complex relationships with other native plants and animals.
- **Invasive plants threaten crops and other economically important plant populations.** Invasive plants and animals cost the US \$120 billion annually in damages and management.
- **Invasive plants threaten aesthetics and regional identity.** Pennsylvania has a unique selection of plants and animals that define our experience in the woodlands.

What can we do about them?

- **Don't plant them!**
 - Many invasive species remain unlabeled and are sold in nurseries.
- **Mechanical management**
 - Many invasive plants can be cut or pulled by volunteers with little impact on the surrounding landscape.
 - Mechanical management may not be completely effective for all species.
- **Chemical management**
 - Herbicides can be safe and effective when used correctly.
 - Herbicides must be applied by a professional.
- **Biological management**
 - Releasing a predator or pest from an invasive plant's native environment can control its aggressive growth and reproduction.
 - Biological management is slow, expensive and does not completely eliminate the population of invasive species.

General Site Visit Notes

- Safety is your first priority.
- Let someone know when you are working on your site alone.
- Wear long pants, gloves, and closed-toe shoes.
- Yellow flagging tied to a plant indicates a native species; pink or orange indicates a non-native or invasive species.
- Contact your Field Coordinator if you need a specific tool or have questions about restoration techniques.
- Be careful to remove any seeds from your clothes and mud from your boot tread to prevent the spread of invasive plants.
- Log your hours on the Urban EcoSteward website, www.pittsburghparks.org/ueshours, after each visit.

General Site Safety

Steep slopes should be navigated carefully and with proper footwear, especially when the ground is wet or you are carrying sharp tools.

Poison ivy has a compound leaf with three lobed leaflets. The outer leaflets are often mitten-shaped, and the stem where the leaflets meet is often red. Poison ivy can also occur as a hairy vine. An itchy or painful rash develops several hours after contact with any part of the plant.



Poison ivy



If you come in contact with poison ivy, wash the area with soap, water, and medicated poison ivy wash (available over-the-counter). Clothing or tools that come in contact with poison ivy should also be washed.

Stinging nettle has a lance-shaped, strongly serrate opposite leaf and small green or brown flowers. The leaf and stem are covered in needles, which embed in the skin and contain a stinging chemical. An itchy or painful rash can develop immediately following contact.

If you come in contact with stinging nettle, wash the area with water or rubbing alcohol and gently pat dry. Baking soda may help to neutralize the reaction. Remove needles using tweezers or tape.

Deer ticks—and other types of ticks—may cause Lyme disease and/or other serious illnesses if they remain embedded in your skin. Perform a tick check after every site visit, being sure to check your whole body, both exposed and unexposed skin, and along your hairline.

If you find a tick, do not attempt to burn, smother, or drown it. Use tweezers to remove the tick, pulling with gentle, uniform pressure. Visit a doctor if a bulls-eye-shaped rash develops or you experience flu-like symptoms.

Other hazards such as glass or metal should only be handled using leather gloves and transported by bucket. Syringes should be carefully placed in a capped plastic bottle or other sealed container. If you are concerned about your safety, do not touch the item.

Photo by Frank Vincenz



Stinging nettle



Photo by Scott Bauer

Deer ticks

General Notes for Managing Invasive Plants

What to do...

- Remove invasive plants only after a positive ID has been made; you may have to wait until the leaves or flowers appear.
- Refer to other field guides for more detailed descriptions of native lookalikes.

How to do it...

- Most herbaceous invasive plants can be pulled; those that reproduce vegetatively or by rhizomes should be dug up and allowed to dry on your site or be bagged and removed.
- Invasive trees and shrubs that are too difficult to pull should be cut at their base; controlled chemical treatment by your Field Coordinator may be required.
- Invasive vines should be cut once at eye level and once where they exit the ground; controlled chemical treatment by your Field Coordinator may be required. Do not pull down vines as you may injure other plants or dislodge overhanging dead branches.

When to do it...

- Plants are easily pulled when the ground is wet.
- Remove as much of the plant's root system as possible.
- Whenever possible, manage invasive plants before the flowers or seeds appear; seeds should be bagged and removed or concentrated into a small area on your site.
- To be effective, it is essential that you make repeated visits to your site for continued management and monitoring.
- Refer to the calendar of invasives on page 80.





Bull thistle has sharp spines on its stem, leaves and globular structure beneath the flower (called an involucre).

HERBS



Bull thistle

Cirsium vulgare

Quick Identification Tips

LEAF: Simple, alternate, elongate, lobed with spines, hairy

STEM: 2–6 feet tall with spines

FLOWER: Pink-purple, spiny, 1–2 inches wide

SEED: Feathery, wind-dispersed

ROOT: Deep-growing taproot

OTHER: Large, round spiny structure (involucre) under flower head

HABITAT: Moist to dry soil, sun

Management

SEASON: Spring to early summer

LIFE CYCLE: Biennial

SPREAD BY: Seed

Dig up the bull thistle's deep growing taproot, fold the plant over to prevent reestablishment, and leave it at your site before it flowers in mid-summer.

If the plant has flowered, cut and bag the flower head before digging up the taproot. Use care as the spines can pierce gloves.

Native Look-alike

Field thistle and other native thistles have much smaller, inconspicuous flowers and involucre.



Burdock

Arctium minus

Quick Identification Tips

LEAF: Simple, alternate, heart-shaped with rounded tip, entire to wavy

STEM: Up to 5 feet tall, hairy, hollow

FLOWER: Pink-purple globe, spiny

SEED: Burs with hooks that stick to clothing

ROOT: Deep-growing taproot

OTHER: Leaf stems are long and purple at base

HABITAT: Moist to dry soil, shade to sun

Management

SEASON: Spring to early summer

LIFE CYCLE: Biennial

SPREAD BY: Seed

Dig up the burdock's deep growing taproot, fold the plant over to prevent reestablishment, and leave it at your site before it flowers in mid to late-summer.

If the plant has flowered, cut and bag the flower head before removing. Check your clothes for burs after working with the seed to reduce the risk of spread.

Native Look-alike

None

Burdock produces seed pods called burs with hooks that cling to clothing.



Canada thistle



Cirsium arvense

Quick Identification Tips

LEAF: Simple, alternate, elongate, lobed with spines

STEM: Up to 4 ft tall, grooved, lacks spines

FLOWER: Pink/purple, ½ to 1 inch wide

SEED: Feathery, dispersed by wind

ROOT: Creeping perennial root

OTHER: Small, smooth, round structure (involucre) under flower head

HABITAT: Moist to dry soil, shade to sun

Management

SEASON: Spring to early summer

LIFE CYCLE: Perennial

SPREAD BY: Seed, rhizome

Dig up the Canada thistle by the root, fold the plant over to prevent reestablishment, and leave it at your site before it flowers in mid-summer.

If the plant has flowered, cut and bag the flower head before removing. Use care as the spines can pierce gloves.

Native Look-alikes

Native thistles often have hairy leaves, spiny involucre under their flowers or lack creeping perennial roots.

Prickly lettuce and sow thistle both have milky white sap when their leaves are broken off.

Canada thistle has spines at the tips of its leaves, but not on its stem.



Chinese silvergrass

Miscanthus sinensis



Quick Identification Tips

LEAF: Simple, alternate, blade with pointed tip, slightly serrate, up to 40 inches long

STEM: Stalks up to 15 feet tall

FLOWER: Pink/silver, branched and drooping, up to 35cm long

SEED: Rough with a twisted bristle at tip

ROOT: Thick, fibrous

OTHER: Silver midvein on leaf

HABITAT: Moist to dry, sun

Management

SEASON: Early to late summer

LIFE CYCLE: Perennial

SPREADS BY: Rhizomes, seed

Because Chinese silvergrass reproduces primarily by rhizomes, chemical control is usually required. If you find Chinese silvergrass growing on your site, contact your coordinator and monitor the site for spread. If the patch is small and isolated, remove and bag the entire plant (including the root mass), or cut and bag all seed.

If unmanageable, contact your coordinator as chemical control may be required.

Native Look-alikes

Big bluestem has a three-pronged flower head.

Sugarcane plumegrass has longer flower stalks (up to 12 feet tall) and a shorter leaf (up to 2 feet long).

Chinese silvergrass has a silver midvein running down its leaves.



Crown vetch

Coronilla varia



Quick Identification Tips

LEAF: Pinnately compound, alternate, elongate with oval-shaped leaflets, entire

STEM: Low-growing ground cover

FLOWER: Globe-shaped cluster of irregular pink flowers

SEED: Long, thin seedpod

ROOT: Fibrous, deep-growing rhizomes

OTHER: Creeping branches up to 5 feet long

HABITAT: Dry to moist soil, sun

Management

SEASON: Spring to mid summer

LIFE CYCLE: Perennial

SPREADS BY: Rhizomes (primary), vegetative

Dig up or hand-pull crown vetch, taking care to remove as much of the thick root mass as possible, preferably before it flowers in mid to late summer.

If unmanageable, contact your coordinator as chemical control may be required.

Native Look-alike

American vetch has leaves that are similar, but less uniform in size and fewer in number than crown vetch. The leaves also have stipules at their base and a tendrill at their tip.

Crown vetch has alternate leaf arrangement (however, the leaflets have opposite arrangement).



Garlic mustard is low growing in its first year (top) and tall growing in its second year (bottom) when it flowers and seeds.

Garlic mustard



Alliaria petiolata

Quick Identification Tips

- LEAF:** Simple, alternate, round or kidney-shaped, wavy
- STEM:** Purple and hairy near base
- FLOWER:** White, four petals, small, clustered at tip of stalk
- SEED:** Long, thin seedpods branching from stalk
- ROOT:** Shallow taproot
- OTHER:** Leaves produce garlic smell when crushed
- HABITAT:** Moist to dry soil, sun to shade

Management

- SEASON:** Early to late spring
- LIFE CYCLE:** Biennial
- SPREADS BY:** Seed

Short first-year garlic mustard plants should be hand-pulled by the base of the plant, folded over to prevent reestablishment, and left in a pile on your site to dry at any point during the year. Tall second-year plants should be pulled before they start to flower in early to mid-spring, folded over to prevent reestablishment, and left in a pile at your site. If the plant has begun to flower, pile it at your site to condense the seed bank or bag and remove the plants.

Native Look-alikes

Common violets have a similar leaf shape, but are low-growing, have a purple flower, and lack the garlic smell when crushed.

White avens have similar, but coarsely serrate, lobed leaves and lack the garlic smell when crushed.

Sweet cicely has similar flowers but has compound leaves and lacks the garlic smell and taste.



Photos by Donna R. Ellis, University of Connecticut, Bugwood.org

Giant hogweed

Heracleum mantegazzianum



Quick Identification Tips

LEAF: Palmately compound, alternate, elongate, deeply lobed with coarse and fine teeth, up to 5 feet across

STEM: Hollow, hairy, with purple spots

FLOWER: White, compound, umbrella-shaped, up to 2 feet across

SEED: Broad, flat and oval-shaped

ROOT: Deep-growing taproot

OTHER: Giant hogweed can grow up to 8 feet tall

HABITAT: Moist soil, full sun

Management

SEASON: Mid spring to late summer

LIFE CYCLE: Biennial or perennial

SPREADS BY: Seed

Flag the plant and notify your coordinator of its presence and location. Contact with giant hogweed can cause a serious skin irritation and should be handled with caution.

Native Look-alike

Cow parsnip has compound leaves with shallower lobes and flat-topped flowers; its leaves and flowers are both smaller.

Giant hogweed leaves and flowers can be several feet across.



Goutweed

Aegopodium podagraria



Quick Identification Tips

LEAF: Pinnately compound (three leaflets), alternate, elongate, serrate

STEM: Low-growing

FLOWER: White, compound, flat umbrella shape

SEED: Small, elongate

ROOT: Fibrous rhizomes

OTHER: Leaves can be green or variegated green and white

HABITAT: Moist soil, light shade

Management

SEASON: Spring to early summer

LIFE CYCLE: Perennial

SPREADS BY: Rhizomes

Dig up or hand-pull goutweed taking care to completely remove the root mass before it flowers in early to late summer.

If unmanageable, contact your coordinator as chemical control may be required.

Native Look-alike

Sweet cicely has similar leaves but smaller flower clusters.

Goutweed has compound leaves with serrated margins.



Japanese knotweed

Polygonum cuspidatum

Quick Identification Tips

LEAF: Simple, alternate, heart-shaped with pointed tip, entire

STEM: Light green, hollow, smooth, zig-zags at swollen red joints

FLOWER: Green-white, feathery

SEED: Papery, round, white

ROOT: Fibrous rhizomes

OTHER: Young shoots resemble asparagus

HABITAT: Wet to dry soil, shade to sun

Management

SEASON: Early spring to late summer

LIFE CYCLE: Perennial

SPREADS BY: Rhizomes (primary), vegetative, seed

Reduce vigor and limit seed production by cutting or bending Japanese knotweed to the ground repeatedly throughout the spring and summer, working from the edges to control spread before it flowers in the late summer. If you are in a flood zone, consider bagging all plant material and taking off site.

If unmanageable, contact your coordinator as chemical control may be required.

Native Look-alike

None

Japanese knotweed stems are hollow and red at the joints.



Japanese stiltgrass has jointed stems and a silver midvein on its leaves.

Japanese stiltgrass

Microstegium viminium



Quick Identification Tips

LEAF: Simple, alternate, blade with pointed tip, entire, up to 3 inches long

STEM: Low-growing, hollow, jointed

FLOWER: On stalks or indistinct

SEED: Hairy, occurs on spike

ROOT: Shallow, fibrous

OTHER: Shiny silver midvein along leaf

HABITAT: Moist soil, shade to sun

Management

SEASON: Mid spring to late summer

LIFE CYCLE: Annual

SPREADS BY: Seed, rhizomes, vegetative

Japanese stilt grass reproduces by seed. Pull and bag the plant, including the root system. This is easier and more effective later in the season when the plants are larger. Ideally, plants should be pulled when they are flowering, but have not yet started to produce seed. The plant flowers in the late summer.

Seeds often spread by sticking in boots and bike tire tread.

Native Look-alike

Virginia cutgrass and other native grasses lack the shiny silver midvein on their leaves.



Mugwort

Artemisia vulgaris



Quick Identification Tips

LEAF: Simple, alternate, elongate, deeply lobed with coarse teeth and rounded tips, hairy and silver underside

STEM: Green to purple, herbaceous to woody, with ridges, hairy

FLOWER: Yellow, indistinct

SEED: Small seed pod

ROOT: Rhizomes

OTHER: Leaves have distinct herbal smell

HABITAT: Moist to dry soil, sun

Management

SEASON: Early spring to late fall

LIFE CYCLE: Perennial

SPREADS BY: Rhizomes

Mugwort can be hand pulled at any time of the year, taking care to remove as much of the rhizome as possible. Rhizomes may re-sprout in the following year, but repeated removal will control it.

Native Look-alike

Common ragweed lacks the herbal smell and has a more finely cut leaf.

Mugwort has a deeply lobed leaf that has a distinct herbal smell.



Periwinkle

Vinca minor

Quick Identification Tips

LEAF: Simple, opposite, elongate, entire, dark green

STEM: Low-growing ground cover

FLOWER: Periwinkle blue, five petals

SEED: None

ROOT: Fibrous, rhizomes

OTHER: Leaves are thick and evergreen

HABITAT: Moist soil, sun to shade

Management

SEASON: Year round

LIFE CYCLE: Perennial

SPREADS BY: Rhizomes, bolting

Pull periwinkle by hand, taking care to remove runners (the primary method of reproduction). Concentrate efforts on small patches and the edges of large infestations to prevent their spread.

If unmanageable, contact your coordinator as chemical control may be required.

Native Look-alike

No native lookalikes

Periwinkle has a pale blue flower and thick evergreen leaves.



John Cardina, The Ohio State University, Bugwood.org



Poison hemlock

Conium maculatum



Quick Identification Tips

LEAF: Twice pinnately compound, alternate, triangular, fernlike

STEM: Hollow, purple spotted, with ridges

FLOWER: White, compound, cluster forms umbrella

SEED: Ovate with ridges

ROOT: Long white taproot with fibrous roots

OTHER: Poison hemlock is extremely poisonous if ingested

HABITAT: Moist to dry soil, sun to shade

Management

SEASON: Spring to fall

LIFE CYCLE: Biennial

SPREADS BY: Seed

Mechanical control of poison hemlock is fairly easy by means of hand pulling or grubbing. Poison hemlock is extremely poisonous if ingested; always use gloves when handling and avoid contact with skin. Removing the entire root is not necessary. Mowing of poison hemlock may also be effective if done before flowering.

Native Look-alike

Wild carrot has a flat-topped flower and a hairy stem with no purple spots.

Poison hemlock has a hairy and spotted stem.



Purple loosestrife

Lythrum salicaria



Quick Identification Tips

LEAF: Simple, alternate, elongate with pointed tip, entire, hairy

STEM: Woody, green with brown base, noticeably square edges

FLOWER: Bright purple, six petals, occurs along spike

SEED: Pod containing tiny reddish brown seeds

ROOT: Shallow, thick

OTHER: Usually multistemmed

HABITAT: Wet soil, sun

Management

SEASON: Late spring to early summer

LIFE CYCLE: Perennial

SPREADS BY: Rhizomes, vegetative, seed

Cut or pull small stands in late spring, being careful to bag and remove all plant material. It can resprout from the root, so monitor for regrowth. Consult your coordinator regarding large stands.

Native Look-alikes

Fireweed has alternate leaves and a round stem.

Blazing star has only one flowering stalk.

Blue vervain has a serrated leaf.

Purple loosestrife has a woody, noticeably square stem.



SHRUBS



Bush honeysuckle

Lonicera spp.

Quick Identification Tips

LEAF: Simple, opposite, elongate with pointed tip, entire

STEM: Light-brown, lined bark when mature, hollow

FLOWER: White or yellow, prominent stamens, in pairs

FRUIT: Fruit are round and red to orange

ROOT: Deep growing when mature

OTHER: Foliage appears in early spring and remains into winter

HABITAT: Moist to dry soil, shade to sun

Management

SEASON: Year round

LIFE CYCLE: Perennial

SPREADS BY: Seed

When young, pull bush honeysuckle by hand or completely remove it using a honeysuckle popper or shovel. If the plant is too large or difficult to remove, cut it at its base before flowering to prevent seeding. Use particular caution to ensure the identity of this plant as it closely resembles native mock orange.

Native Look-alikes

Mock orange has white pith in mature stems (not hollow) and round leaves with toothed margins.

Native bush honeysuckles have solid stems and blue or black fruit.

Mature bush honeysuckle trunks can grow to be several inches thick, with hollow pith.



Thorns protrude from between two buds at the tips of buckthorn branches.

Common buckthorn

Rhamnus cathartica



Quick Identification Tips

LEAF: Simple, opposite OR alternate, oval-shaped with pointed tip, serrate

STEM: Grey to brown, rough, light lenticels

FLOWER: Greenish-yellow, four petals

SEED: Round, black

ROOT: Deep growing when mature

OTHER: Thorn protrudes between buds at end of twig

HABITAT: Moist to dry soil, shade to sun

Management

SEASON: Year round

LIFE CYCLE: Perennial

SPREADS BY: Seed

Small common buckthorn plants can be pulled or dug out, taking care to remove as much root material as possible. Larger plants should be cut to the ground in summer to prevent them from going to seed or, if possible, pulled out with a weed wrench. Use leather gloves to protect from thorns.

Native Look-alikes

Carolina buckthorn and alder buckthorn have alternate branching patterns and more gradually come to a point at the tip.



European privet

Ligustrum vulgare

Quick Identification Tips

LEAF: Simple, opposite, elongate, entire, short stems

STEM: Smooth grey bark, opposite

FLOWER: White, occurs in clusters at end of stalk

SEED: Small, hard, green or blue-black berries

ROOT: Deep growing when mature

OTHER: Leaves often persist through winter

HABITAT: Moist soil, sun to shade

Management

SEASON: Year round

LIFE CYCLE: Perennial

SPREAD BY: Seed, rhizomes

Small European privet plants can be pulled or dug out, taking care to remove as much root material as possible. Larger plants should be cut to the ground in summer to prevent them from going to seed or, if possible, pulled out with a weed wrench.

Native Look-alike

None

Privet produces hard green berries that turn black in the fall.



A single thorn occurs at each node along the stem.

Japanese barberry

Berberis thunbergii



Quick Identification Tips

LEAF: Simple, alternate, tear-drop to oval-shaped, entire, green to purple

STEM: Grey, grooved, arching, with spines

FLOWER: Bright yellow, unpleasant odor

SEED: Red fruit hangs from branches

ROOT: Shallow and yellow

OTHER: Single spine at leaf nodes

HABITAT: Moist to dry soil, sun to shade

Management

SEASON: Year round

LIFE CYCLE: Perennial

SPREADS BY: Seed, bolting

Japanese barberry plants have a shallow root system, which makes them easy to hand-pull or dig out. Larger plants may be cut to the ground in summer to prevent them from going to seed or, if possible, pulled out with a weed wrench. Use leather gloves to protect from thorns.

Native Look-alike

Allegheny barberry has three spines at its leaf node and a sharply toothed leaf.

European barberry is another non-native invasive but is very difficult to distinguish from the native barberry because it also has serrate leaves and 2-3 spines at each node.

Work with your coordinator to correctly identify this plant before removal.



Jetbead

Rhodotypos scandens



Quick Identification Tips

LEAF: Simple, opposite, elongate with pointed tip, doubly-serrate

STEM: Grey with lenticels

FLOWER: White, four petals, clustered

SEED: Small black berries in groups of four, persist in winter

ROOT: Deep growing when mature

OTHER: Leaves are rough with deep veins

HABITAT: Moist to dry soil, shade to sun

Management

SEASON: Year round

LIFE CYCLE: Perennial

SPREADS BY: Seed

Small jetbead plants can be hand-pulled or dug out, taking care to remove as much root material as possible. Larger plants should be cut to the ground in summer to prevent them from going to seed or, if possible, pulled out with a weed wrench.

Native Look-alike

Southern arrowwood has a coarsely toothed, singly serrate leaf.

Jetbead berries form in square clusters of four and can persist into the winter.



Multiflora rose



Rosa multiflora

Quick Identification Tips:

LEAF: Pinnately compound (5–11 leaflets), alternate, elongate with pointed tip, serrate

STEM: Arched, with reverse-facing thorns

FLOWER: White-pink, five petals, occurs in clusters of many flowers

SEED: Red berries

ROOT: Shallow

OTHER: Pair of fringed stipules at base of leaf

HABITAT: Moist to dry soil, sun to shade

Management

SEASON: Year round

LIFE CYCLE: Perennial

SPREAD BY: Seed, bolting

Multiflora rose plants should be dug up, pulled out, or cut to the ground four–six times a year. Seedlings can be hand pulled at any time of year. Use leather gloves to protect from thorns.

Native Look-alike

Native roses have entire (unfringed) stipules and a few pink flowers that occur in clusters.

Multiflora rose has fringed stipules at the base of its compound leaves.



Winged burning bush

Euonymus alatus



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Quick Identification Tips

LEAF: Simple, opposite, elongate with pointed tip, finely serrate

STEM: Two or four prominent lengthwise wings

FLOWER: Yellowish-green, small

SEED: Purple to red capsule

ROOT: Deep growing when mature

OTHER: Leaf is a brilliant red-purple in the fall

HABITAT: Moist soil, shade to sun

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Management

SEASON: Year round

LIFE CYCLE: Perennial

SPREADS BY: Seed

Small winged burning bush plants can be pulled or dug out, taking care to remove as much root material as possible.

Larger plants should be cut to the ground in summer to prevent them from going to seed or, if possible, pulled out with a weed wrench.

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Native Look-alike

Native euonymus lacks the wings along the stem and has a bright pink to red capsule.

Winged burning bush has small ridges running the length of the stem.



English ivy has evergreen leaves with defined veins and three to five lobes.

VINES



English ivy

Hedera helix

Quick Identification Tips

LEAF: Simple, alternate, round, lobed (3-5) with pointed tips, waxy with white veins

STEM: Creeping, hairy vine

FLOWER: Green-yellow

SEED: Purple-black fruit contain orange-yellow seed

ROOT: Fibrous

OTHER: Evergreen, leaves persist through winter

HABITAT: Moist soil, sun to shade

Management

SEASON: Year round

LIFE CYCLE: Perennial

SPREAD BY: Rhizomes, trailing, climbing, vegetative, seed

English ivy mostly spreads via root fragmentation, so it is important when controlling it manually to remove as much of the root as possible. Focus on small patches and the edges of large infestations. If it is climbing a tree, cut the vine once at eye level and once where it exits the ground.

Native Look-alike

Poison ivy vines are also hairy but have a simple leaf that does not persist through winter.

Virginia creeper vines are also hairy, but have palmately compound leaves.



Japanese honeysuckle

Lonicera japonica



Quick Identification Tips:

LEAF: Simple, opposite, oval-shaped with pointed tip, entire

STEM: Smooth, green to reddish

FLOWER: White-yellow, trumpet-shaped

SEED: Black berries

ROOT: Shallow

OTHER: Leaves persist through winter

HABITAT: Moist to dry soil, sun

Management

SEASON: Year round

LIFE CYCLE: Perennial

SPREAD BY: Trailing, rhizomes, seed

Control Japanese honeysuckle by pulling small vines up by the root year round. If it is climbing a tree, cut the vine once at eye level and once where it exits the ground. Be sure to cut and remove vines that are constricting tree trunks. Monitor for regrowth.

Native Look-alike

Native honeysuckle has a red-orange flower and red berries.

Young Japanese honeysuckle vines are green or pink, while mature vines are darker.



Mile-a-minute

Polygonum perfoliatum



Quick Identification Tips

LEAF: Simple, alternate, triangular, entire, spines on underside

STEM: Pink to green with reverse-facing spines along stem

FLOWER: Inconspicuous, closed

SEED: Metallic blue fruit, cone-shaped cluster

ROOT: Shallow

OTHER: Leaf-like disks (ocrea) occur along stem

HABITAT: Moist to dry soil, sun

Management

SEASON: Mid spring to late summer

LIFE CYCLE: Annual

SPREAD BY: Seed, trailing, climbing

Mile-a-minute seedlings and vines can be easily pulled by hand before flowering. New seedlings will emerge throughout the season, so repeated removal is necessary. If the plant is flowering, remove and bag the seed. Wear gloves and long sleeves to protect from spines.

Native Look-alikes

Harbard-leaved tearthumb has two lobes at the base of each leaf and no ocrea.

Other lookalikes frequently lack ocrea and thorns, or have tendrils.

Mile-a-minute has unique leaf-like discs (called ocrea) at each node along its stem.



Oriental bittersweet

Celastrus orbiculatus



Quick Identification Tips

LEAF: Simple, alternate, round to oval-shaped with pointed tips, finely serrate

STEM: Grey, woody

FLOWER: Green, small, along stem

SEED: Yellow capsule containing red-orange fruit

ROOT: Orange-red, shallow

OTHER: Vines can be up to four inches thick

HABITAT: Moist to dry soil, sun to shade

Management

SEASON: Year round

LIFE CYCLE: Perennial

SPREAD BY: Seed, trailing, climbing

If the roots are shallow and can be easily pulled, remove and cut oriental bittersweet vines once at eye level before the plant flowers. If the plant cannot be pulled, cut it once where it exits the ground and once at eye level. Carefully cut and remove vines constricting trees or shrubs. Do not pull vines down from tree canopy.

Native Look-alike

American bittersweet flowers at the tips of its stem while oriental bittersweet flowers along the stem.

Middle & lower right: Oriental bittersweet bears beautiful bright red and orange fruit in the fall.



Porcelainberry



Ampelopsis brevipedunculata

Quick Identification Tips

- LEAF:** Simple, alternate, heart-shaped, coarsely toothed, shallow to deeply lobed (3-5) with pointed tips
- STEM:** Smooth, with tendrils, lenticels, and white pith
- FLOWER:** Small, greenish-yellow, appears in mid summer
- SEED:** Iridescent white, purple, or blue berries
- ROOT:** Deep growing
- OTHER:** Both the leaves and young twigs are hairy
- HABITAT:** Moist soil, sun to part shade

Management

SEASON: Year round; best to pull or cut before mid summer when the seed sets

LIFE CYCLE: Perennial

SPREAD BY: Climbing, trailing, seed

Pull porcelainberry vines out by their by roots when young. If mature, cut the vines once where it exits the ground and once at eye level. Carefully cut and remove constricting vines from trees or shrubs. Do not pull vines down from tree canopy. Vines regenerate, so monitoring and repeat care is required.

Native look-alike

Wild grape vine has flakey bark and no lenticels; wild grape may also become invasive in high-light environments.

Virginia creeper has a compound leaf with five leaflets and less conspicuous tendrils.

Porcelainberry resembles wild grape but bears iridescent white, purple and blue berries.



Wild grape

Vitis spp.



Quick Identification Tips

LEAF: Simple, alternate, heart-shaped, coarsely toothed, shallowly lobed (3-5) with pointed tips

STEM: Flakey rough bark when mature, smoother with tendrils when young

FLOWER: Small, greenish-yellow, form in long clusters

SEED: Small green berries eventually turn purple-black

ROOT: Deep growing

OTHER: Pith in mature vines can be white or brown

HABITAT: Moist soil, sun to part-shade

Management

SEASON: Year round

LIFE CYCLE: Perennial

SPREAD BY: Climbing, trailing, seed

Pull the vines out by their roots when young. If mature, cut the vines once where it exits the ground and once at eye level. Carefully cut and remove constricting vines from trees or shrubs. Do not pull vines down from tree canopy. Vine regenerates, so monitoring and repeat care is required.

Native look-a-like

Virginia creeper has a compound leaf with 5 leaflets and less conspicuous tendrils.

Mature wild grape vines have peeling brown bark and tendrils.



James H. Miller, USDA Forest Service, Bugwood.org

Winter creeper



Euonymus fortunei

Quick Identification Tips:

LEAF: Simple, opposite, oval-shaped, serrate, thick

STEM: Woody, smooth, climbing or trailing

FLOWER: Yellow-green

SEED: Pale white to brown capsule

ROOT: Deep growing

OTHER: Evergreen, variegated

HABITAT: Moist soil, sun to shade

Management

SEASON: Year round

LIFE CYCLE: Perennial

SPREADS BY: Climbing, trailing, seed

Light infestations of winter creeper can be controlled with hand pulling or by digging it up by the root, making sure to remove all runners and checking for new sprouting afterward. For heavier infestations, consult your coordinator as chemical treatment may be required.

Native look-alike

Native euonymus and has a bright pink to red seed capsule.

Wild grape is a native species that becomes invasive in high-light areas.

Winter creeper has opposite evergreen leaves and a hard woody stem.



TREES

Callery pear

Pyrus calleryana

Quick Identification Tips:

LEAF: Simple, alternate, serrate, oval-shaped with pointed tip

BARK: Grey-brown, scaly

FLOWER: White, five petals; foul-smelling

FRUIT: Brown, small, hard

BUD: Large, covered in white wooly substance

OTHER: May have thorns

HABITAT: Moist to dry, sun

Management

SEASON: Spring or summer

LIFE CYCLE: Perennial

SPREADS BY: Seed

Pull, dig out or cut back Callery pear saplings in the spring. For mature trees, consult your coordinator before girdling in spring or early summer.

Native look-alike

None

Callery pear produces white flowers that give off a powerful odor.



Norway maple



Acer platanoides

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Quick Identification Tips:

LEAF: Simple, opposite, round, lobed (5) and coarsely toothed with pointed tips, milky white sap

BARK: Light grey, smooth

FLOWER: Yellow, clustered, appears in spring

SEED: Samara with wide-angled wings

BUD: Large, blunt, with overlapping bud scales

OTHER: Leaves retain color longer, turn bright yellow in fall

HABITAT: Moist to dry, sun to shade

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Management

SEASON: Spring or winter

LIFE CYCLE: Perennial

SPREAD BY: Seed

Pull, dig out or cut back Norway maple saplings in the spring. For mature trees, consult your coordinator before girdling in mid winter.

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Native look-alike

Sugar maples lack the milky white sap, and have more U-shaped lobes and imbricate bud scales.

When broken off, the stem of Norway maple leaves produce a white sap.



Princess tree

Paulownia tomentosa



Quick Identification Tips

LEAF: Simple, opposite, heart-shaped, entire to coarsely toothed, hairy

BARK: Green-grey, white lenticels, can be hollow

FLOWER: Pale-violet, showy, in clusters

SEED: Brown capsule, four compartments

BUD: Terminal bud absent

OTHER: Mature leaves display small pointed lobes

HABITAT: Moist to dry soil, sun

Management

SEASON: Early spring

LIFE CYCLE: Perennial

SPREAD BY: Seed, vegetative

Pull or dig up princess tree saplings, being careful to remove the entire root mass as fragments may resprout. For mature trees, consult your coordinator, as chemical treatment may be required.

Native look-alike

Hardy catalpa has long pods containing seeds, rather than a capsule; non-hollow stems; and a dramatically pointed tip.

Princess trees produce brown seed capsules with four compartments.



Siberian elm



Ulmus pumila L.

Quick Identification Tips

LEAF: Simple, alternate, oval-shaped with pointed tip, serrate

BARK: Light grey, irregular grooves

FLOWER: Green, lacks petals, occurs in clusters

SEED: Flat, circular, winged

BUDS: Occurs at turn of zig-zag twigs

OTHER: Leaf is slightly uneven at base

HABITAT: Dry to moist soil, sun

Management

SEASON: Early to late spring

LIFE CYCLE: Perennial

SPREADS BY: Seed

Pull, dig out or cut back and flag Siberian elm saplings in the spring. For mature trees, consult your coordinator before girdling in late spring. Limited and controlled chemical treatment may also be required.

Native look-alikes

American elms and slippery elms have a much more uneven leaf base and significantly larger leaves when mature.

Siberian elms have smaller leaves than most other elms.



Sycamore maple

Acer pseudoplatanus



Quick Identification Tips

LEAF: Simple, opposite, round, lobed (3-5, rounded) and coarsely toothed

BARK: Brown-grey, flakey when mature

FLOWER: Yellow-green, small, appears in May

FRUIT/SEED: Samara

BUDS: Green, occur in pairs

OTHER: Prominent veins cause leathery leaf to seem wavy

HABITAT: Moist soil, sun to shade

Management

SEASON: Spring

LIFE CYCLE: Perennial

SPREAD BY: Seed

Pull, dig out or cut back and flag sycamore maple saplings in the spring. For mature trees, consult your coordinator before girdling in early spring. Limited and controlled chemical treatment may also be required.

Native look-alikes

Red maple and sugar maple lack the rounded leaf tips and flaking bark.

The bark of a Sycamore maple is flakey and resembles a sycamore's bark.



Tree of heaven

Ailanthus altissima



Quick Identification Tips

LEAF: Pinnately compound (11–41 leaflets), alternate, elongate with pointed tip, entire with lobe at base

BARK: Grey-brown, smooth, large bud scar

FLOWER: Yellow-green, 5–6 petals, small, clustered

SEED: Long, flat, winged

BUDS: Small, no terminal bud

OTHER: Leaves are foul smelling with a single lobe at the base

HABITAT: Dry to moist soil, sun to shade

Management

SEASON: Spring

LIFE CYCLE: Perennial

SPREAD BY: Seed, rhizomes, vegetative

Pull or dig out young tree of heaven seedlings, including the entire root mass in the spring. Take care to remove all plant material, as any fragments can resprout. If difficult to remove, consult your coordinator, as limited and controlled chemical treatment may be required. Cutting mature trees will prevent seed production, though aggressive resprouting from the root and stumps will occur.

Native look-alikes

Sumac and black walnut leaves have serrate margins, while tree of heaven has entire margins.

Tree of heaven leaves have entire margins except for small lobes at the base of the leaflets.

Calendar of Invasives Management

	PLANT NAME	MARCH	APRIL	MAY
HERBS	Bull Thistle		Manage	
	Burdock		Manage	
	Canada Thistle		Manage	
	Chinese Silvergrass	Only manually remove before it		
	Crown Vetch		Manage	
	Garlic Mustard	Manage		Flowering
	Giant Hogweed	Flag for chemical		
	Japanese Knotweed		Manage	
	Japanese Stilt Grass		Manage	
	Mugwort		Manage	
	Periwinkle		Manage	
	Poison Hemlock		Manage/Flag	
	Purple Loosestrife		Manage	
SHRUBS	Burning Bush		Manage	
	Bush Honeysuckle	Manage		Flowering
	Common Buckthorn		Manage	
	European Barberry	Manage		Flowering
	Japanese Barberry	Manage		Flowering
	Jetbead		Flowering	
	Multiflora Rose	Manage		Flowering
	Privet		Flowering	
VINES	English Ivy		Manage	
	Japanese Honeysuckle		Manage	
	Mile-a-Minute		Manage	
	Oriental Bittersweet		Manage	
	Porcelainberry		Manage	
	Winter Creeper		Manage	
TREES	Callery Pear	Flowering		Manage
	Norway Maple		Manage	
	Princess Tree	Manage	Flowering	
	Siberian Elm	Manage	Seeding	
	Sycamore Maple		Manage	
	Tree of Heaven		Manage	

SEE individual plant pages for specific management, flowering, seed and flag info

	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER
BT	Flowering				Manage
B	Flowering				
CT	Flowering				
CS	has started to seed. Flag for chemical manage				
CV	Flowering				Manage
GM	Flowering/Seeding				Manage
GH	management by coordinator				
JK	Manage		Flowering		
JSG	Manage	Flowering	Flag for chemical management		
M	Manage				
P	Manage				
PH	Manage	Flowering/Seeding			
PL	Flowering				Manage
BB	Manage			Flowering	
BH	Flowering	Manage			
CB	Manage				
EB	Flowering	Manage			
JB	Flowering	Manage			
J	Flowering	Manage			Seeds
MR	Flowering	Manage			
P	Flowering	Manage			
EI	Manage				
JH	Manage				
MaM	Manage	Flowering			
OB	Manage			Seeding	
P	Manage	Flowering		Manage	
WC		Flowering		Manage	
CP	Manage				
NM	Manage		Seeding		
PT	Seeding				
SE	Manage				
SM	Manage		Seeding		
ToH	Manage		Seeding		

Glossary

Allelopathy: The secretion of chemicals that inhibits the growth of other nearby plants

Alternate arrangement/branching: Leaves, buds and branches occur individually (not in pairs) at each node along the stem, alternating between the left and right sides

Annual: A plant that dies at the end of each growing season

Axil: Junction of a leaf or branch and the stem

Basal: At or near the base of the plant

Biennial: A plant with a two-year life cycle, usually only flowering in the second year

Bract: A modified leaf arising below a flower or inflorescence

Compound leaf: A leaf that is composed of two or more blades, called leaflets; a single bud is present at the base of a compound leaf, but not at the base of leaflets

Deciduous: Plants that shed all their leaves each year, usually in the fall

Doubly serrate margin: Leaf edge has teeth pointing toward the leaf tip that are themselves serrate along its whole length

Entire leaf margin: The leaf edge is smooth along its whole length, with no teeth or lobes

Evergreen: Plants that keep all or the majority of their leaves over winter

Herbaceous: Plants with a green, non-woody stem

Imbricate: Bud scales overlap, resemble shingles on a roof

Inflorescence: A grouping or cluster of flowers

Invasive plant: A plant that can grow and reproduce quickly, to the extent that it displaces other species that are growing in the area

Involucre: A series of bracts occurring subordinate to a flower

Leaf: The photosynthetic organ of a plant

Leaflet: Together with other leaflets, forms compound leaves

Lenticels: Small circular or elongated openings allowing gas-exchange on the surface of the bark of woody stems; appear as spots

Lobed leaf margin: The leaf edge has deep indentations that create lobes along its whole length

Node: Points along the stem at which buds, branches, or leaves occur

Noxious weed: A plant determined by Pennsylvania law to be injurious to public health, crops, livestock, agricultural land or other property

Ocrea: Leaf-like discs occurring at nodes along the stem

Opposite arrangement/branching: Leaves, buds and branches occur in pairs across from each other along the stem at each node

Perennial: An herbaceous plant living for more than two years

Rhizome: An underground stem that can produce new shoots

Rosette: A circular cluster of leaves radiating from the stem at ground level

Serrate margin: The leaf edge has teeth pointing toward the tip of the leaf along its whole length

Simple leaves: A leaf with a single blade and no divisions (as opposed to a compound leaf); has a single bud at the base of the leaf

Stipule: Small, leaf-like growths at the base of a leafstalk

Tendrils: Spring-like plant structure used by vines to grasp and climb

Terminal: Occurring at the tip of the plant stem or twig

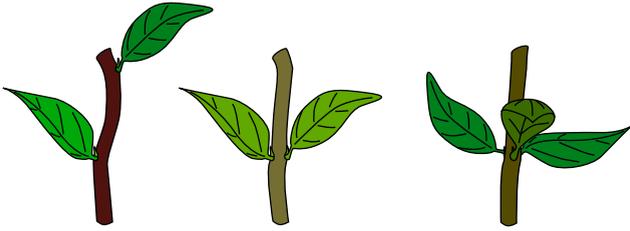
Vegetative reproduction: Any reproduction of a plant that does not directly result from seed germination, such as cloning or sprouting from stumps, rhizomes, leaves or twigs

Wavy margin: The leaf edge has shallow indentations along the whole length of the leaf edge

Whorled leaves: Leaves, buds and branches occur in groups of 3 or more around the stem at each node

Characteristics for Identifying Plants

Leaf arrangement _____

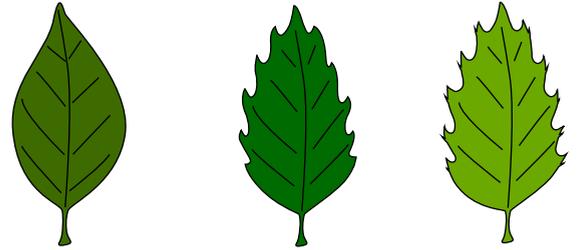


Alternate

Opposite

Whorled

Leaf margin _____



Entire

Serrate (toothed)

Doubly Serrate

Leaf structure _____

Note: All four illustrations display a single leaf



Simple



Palmately Compound



Wavy



Lobed

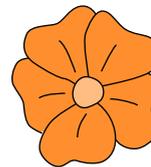


Pinnately Compound



Twice Pinnately Compound

Flower _____



Regular flower



Irregular flower

About the Pittsburgh Parks Conservancy

Improving quality of life for the people of Pittsburgh by restoring the park system to excellence in partnership with government and the community. Projects and programs are conducted with respect for the environment, historic design, and the needs of our diverse region.

For more information, visit
www.pittsburghparks.org



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