

Invasive Plants of Concern in Ohio



Tree-of-heaven (*Ailanthus altissima*)

Tree-of-heaven is a fast-growing tree that was introduced for ornamental purposes. It is often found in disturbed woodlands, fencerows, old fields, pastures, utility right-of-ways, as well as in unmanaged green spaces in urban areas. Tree-of-heaven often forms thickets and sprouts prolifically from the roots and from cut stumps.

Tree-of-heaven is characterized by very stout twigs which are distinctive against the winter sky. When in leaf, the tree has a palm-like appearance. It has long compound leaves with 11 to 41 leaflets along the petiole. Each leaflet has one or more thumbs, or lobes, at the base. Small glandular teeth are present at the tip of each lobe on the underside of the leaflet. The bark is smooth and gray with vertical fissures that become smoother with age. In late summer female trees produce winged seeds which turn yellow-orange to brown in the fall. All parts of tree-of-heaven emit a distinctive odor when crushed, which has been likened to cat urine or rancid peanuts.



Top Row, L to R: Tree-of-heaven in winter; long compound leaf, stout twig; smooth bark with vertical fissures.
Bottom Row, L to R: A tree-of-heaven growing in foundation of a building; winged seeds of female tree-of-heaven

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Bush Honeysuckles: Amur, tatarian, and morrow honeysuckle (*Lonicera* species)

There are several species of closely related bush honeysuckles that were introduced for ornamental use, wildlife habitat, and erosion control. These deciduous shrubs are invasive in woodlands, reverting old fields, fencerows, utility right-of-ways, along highway corridors, river corridors, and in unmanaged green spaces.

Amur, tatarian, and morrow honeysuckle are all similar in appearance. They all have long arching branches, with bark that appears striped. Dark green leaves are arranged oppositely along the stem. The leaves of amur honeysuckle are larger than the other two species and have an abruptly long pointed tip. The leaves of tatarian and morrow honeysuckle are smaller and more oval or egg-shaped. All of these shrubs have fragrant tubular flowers in the spring. Amur and morrow honeysuckle have white and yellow flowers; tatarian has pink or crimson flowers. Clusters of small round berries are produced in the mid summer and persist through the fall. Berry color is commonly red, occasionally orange or yellow.



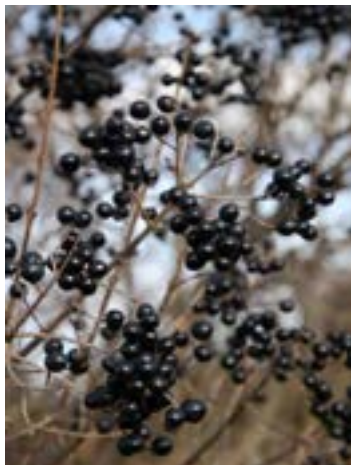
Top Row, L to R:
flowers of amur honeysuckle, fruit of amur honeysuckle; flowers of tatarian honeysuckle; fruit of tatarian honeysuckle
Bottom Row, L to R:
amur honeysuckle growing in the woods, note the arching form and the lack of vegetation beneath it; bark of bush honeysuckle

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Chinese and European Privet (*Ligustrum sinense* and *L. vulgare*)

Privet is a semi-evergreen, deciduous, thicket forming shrub. It has multiple stems and can reach up to 30 feet in height. Chinese and European privet are nearly identical, but can be distinguished from one another at flowering. Privet is often found in forests, along fencerows, and in right-of-ways. It was introduced in the United States for ornamental use because its highly branched, dense form makes a nice hedge or living screen for the home landscape. This plant is spread by bird-dispersed fruits.

Privet has long leaning to arching stems that are highly branched at nearly right angles. Twigs often have many short spur-like branches. The bark is brownish gray to gray. Small oval leaves have smooth margins (not toothed) and are arranged oppositely along the stem. Clusters of small white flowers appear in April to June along the terminal and upper axillary branches. Green fruits develop in late summer, ripen to blue-black berries in the fall, and may persist through the winter and into spring.



Clockwise from top left: Foliage; infestation along a woodland edge; short, spur-like branches in early spring; bark; blue-black berries that appear in fall and persist through the winter; white spring flowers

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Autumn olive (*Elaeagnus umbellata*)

Autumn olive is a deciduous shrub that can grow up to 20 feet tall. Leaves are untoothed, oval, with slightly wavy edges and are arranged alternately along the stem. Autumn olive was introduced for reclamation of disturbed areas, planted in windbreaks, and for use as an ornamental plant. This shrub is often found in forest edges, in fencerows, along highway corridors, and in reverting old fields.

Autumn olive is easily identified by the silvery scales on the underside of the leaves. New twigs, berries, and flowers also have silvery scales. Strongly fragrant light yellow flowers appear in the spring after the shrub has leafed out. Red berries are produced in the late summer and fall and are spread by birds and other wildlife. Stout thorns are sometimes present on the twigs. The bark of autumn olive is smooth and light grayish brown to bronze in color.



Top Row, L to R: Upper and lower surfaces of leaves, note the silvery sheen on the underside; thorny twigs.

Bottom Row, L to R: Infestation in a hay field; red berries with silver scales; tiny yellow flowers; brownish bronze bark of a mature shrub.

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Japanese Honeysuckle (*Lonicera japonica*)

Japanese honeysuckle is a semi-evergreen, woody vine that climbs trees or trails along the ground. It was introduced to the United States for ornamental use and for erosion control. It is often found on woodland edges, in the interior of disturbed woods, along roadsides, in fencerows, in bottomlands, or any other disturbed area where there is at least partial sunlight.

Japanese honeysuckle has small oblong leaves that are arranged oppositely along the stem. Young stems are hairy and light reddish brown. Fragrant white or yellow flowers are present in late May to early June. Berries develop in late summer and ripen to blue-black glossy fruits in September through October. Seeds are eaten and dispersed by a variety of wildlife species.



Clockwise from top left: Spiral growth habit of the vine; fragrant spring flowers; striped appearance of the woody vine; a disturbed woodland that is heavily infested with Japanese honeysuckle; blue-black berries that ripen in fall

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Multiflora Rose (*Rosa multiflora*)

Multiflora rose is a perennial, deciduous shrub with long, slender, thorny, arching branches. It was introduced to the United States for erosion control and promoted as a “living fence”. This shrub is intolerant of shade and is often found in reverting old fields, along forest edges, in disturbed forests, along fencerows, and in other disturbed areas.

Multiflora rose has compound leaves, each bearing 5-11 small, finely-toothed leaflets. The base of each petiole (leaf stem) is finely fringed. Clusters of white or slightly pink flowers are present in May to June. Small, red, egg-shaped fruits develop in the fall and often persist into winter.



Clockwise from top left: Clusters of white flowers that appear in late spring to early summer; fringed margin at the base of the petiole, finely toothed leaflets, and curved thorns; cluster of small red fruits which mature in the fall and last into winter; compound leaf.

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Garlic mustard (*Alliaria petiolata*)

Garlic mustard is a biennial herbaceous plant that is very shade tolerant. This fragrant plant likely escaped into natural areas from home gardens where it was cultivated for medicinal use and for human consumption. Garlic mustard can form dense colonies in woodlands, especially along streambanks as the seeds are often transported by water.

First year garlic mustard plants are low-growing with kidney-shaped, scalloped leaves that appear wrinkled. These plants will stay green throughout the winter months and continue to photosynthesize whenever the temperatures are above freezing. In the spring of the second year, garlic mustard produces tall stalks that are 2 to 4 feet in height. The leaves are triangular to heart-shaped with wavy-toothed margins. Clusters of tiny white four-petaled flowers appear in mid to late spring. Long slender seed pods develop by early to mid-summer, each containing a row of tiny black seeds.



Top Row, L to R: Scalloped, kidney-shaped leaves of first year plants; flowers and developing seed pods; close-up of four-petaled flowers

Bottom Row, L to R: heavy infestation of first year plants carpeting the ground; foliage of second year plants; dried seed pods and exposed seeds

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Japanese Stiltgrass (*Microstegium vimineum*)

Japanese stiltgrass is an annual grass that is native to Asia. It was likely introduced accidentally as packing material in shipments of goods from its native range. Japanese stiltgrass is common along forest edges, roadsides, trailsides, along ditches, in damp fields, in floodplains, and along stream sides. Seeds are dispersed by water, equipment, shoes, and clothing.

Japanese stiltgrass can grow up to 4 feet tall. The short flat leaf blades are arranged alternately along the stem and project outward from it. Leaves are sparsely hairy on both sides and along the margins with a whitish midvein that is off center. Flowers are thin and spike-like and appear in late summer to fall. Flowering plants turn reddish in the fall and then turn brown towards winter.



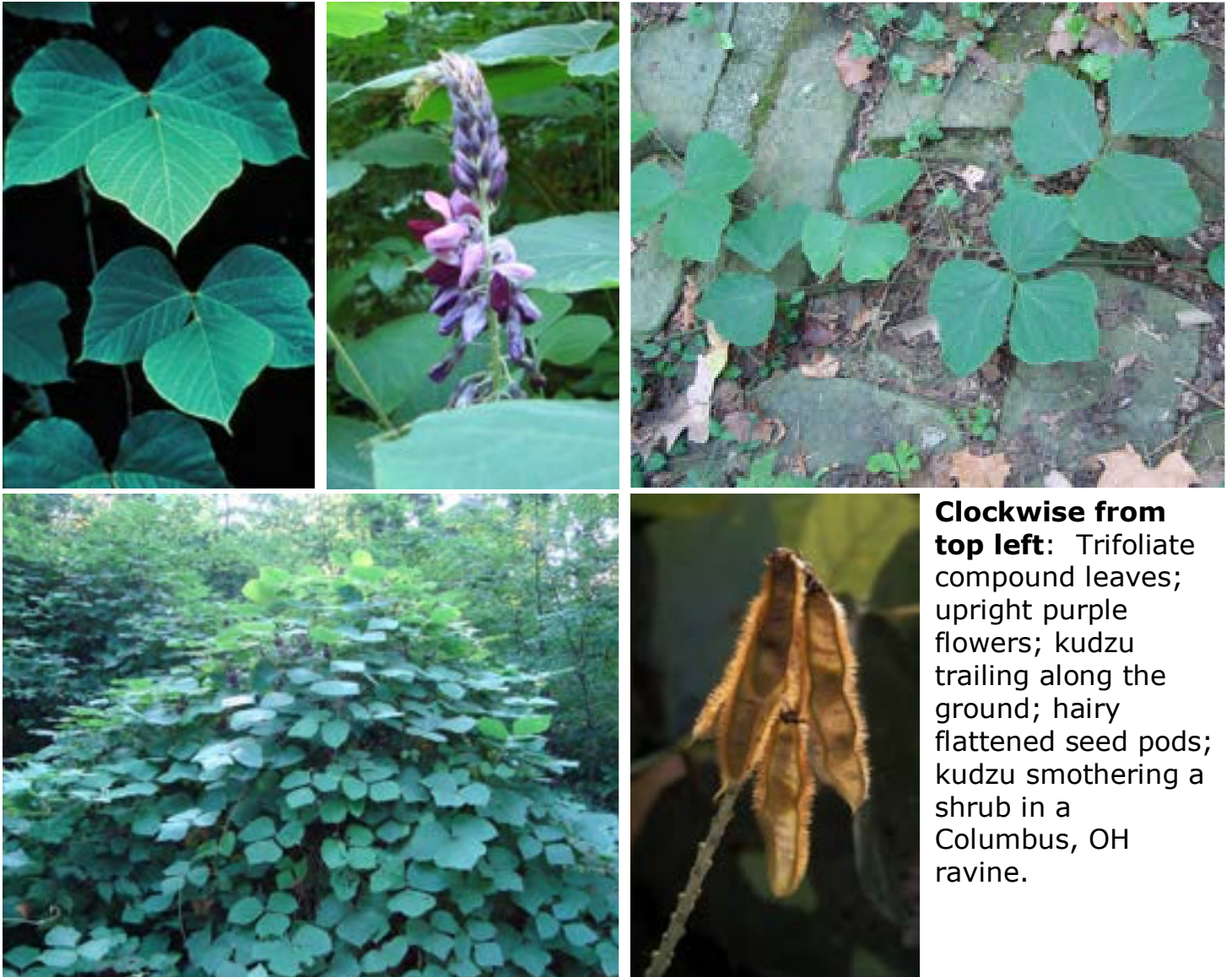
Clockwise from top left: Dense infestation; individual plant; flowers; late fall foliage of flowering plants

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Kudzu (*Peuraria montana*)

Kudzu is a fast-growing, climbing, perennial vine that was introduced in the southern United States as forage for livestock and as an ornamental plant. It spread quickly and became so common throughout much of the southern U. S. that it is often described as “the vine that ate the South”. Kudzu tolerates a wide variety of habitats and is often found on disturbed areas, old fields, roadsides, forest edges, vacant lots, and abandoned yards.

The compound deciduous leaves of kudzu are arranged alternately along the stem. Each leaf is composed of three broad leaflets which may be simple (without lobes) or deeply three-lobed. Leaflets are hairy along the margin. Upright purple flowers appear in the summer and are strongly grape scented. Hairy, flattened, bean-like pods develop in the fall and contain 3 to 10 hard seeds.



Clockwise from top left: Trifoliate compound leaves; upright purple flowers; kudzu trailing along the ground; hairy flattened seed pods; kudzu smothering a shrub in a Columbus, OH ravine.

Common and glossy buckthorn (*Rhamnus cathartica* and *R. frangula*)

Buckthorns are tall shrubs or small trees that grow up to 20 feet tall. Both were introduced to the United States for ornamental use. Common buckthorn is adapted to a wide range of habitats including open oak woods, woodland edges, prairies, reverting old fields, and fencerows. It can tolerate both moist and well-drained soils. Glossy buckthorn occurs in wetlands, along forest edges, riverbanks, lakesides, marshy land, and also on drier sites.

Both buckthorns have gray to brown bark that is roughly textured. The inner bark of common buckthorn is yellow and the heartwood is pink to orange. The leaves of both species are arranged alternately along the stem and have several pairs of distinct veins that are curved toward the leaf tip. Common buckthorn has finely toothed dull green leaves. Glossy buckthorn has shiny leaves that are without teeth. In the spring, common buckthorn has clusters of 2 to 6 yellow-green 4-petaled flowers; glossy buckthorn has pale yellow 5-petaled flowers that grow solitarily or in clusters of 2 to 8. Pea-sized fruits develop in fall and are black on common buckthorn and red to dark purple on glossy buckthorn. The twigs of common buckthorn are often tipped with a small spine; while those of glossy buckthorn are not.



Top Row, L to R: foliage of common buckthorn; 4-petaled flowers of common buckthorn; black fruits of common buckthorn

Bottom Row, L to R: stem of common buckthorn showing the rough bark, the inner bark and heartwood; foliage and fruit of glossy buckthorn.

Japanese barberry (*Berberis thunbergii*)

Japanese barberry is a deciduous shrub that was introduced for ornamental use and is still commercially available for use in landscaping. This shrub is very adaptable and can grow in well-drained soils or in low, wet areas. It is tolerant of shade and is often found in closed canopy forests as well as in open woodlands, wetlands, pastures, fencerows, utility corridors, and roadsides.

Japanese barberry has small, un-toothed, spoon-shaped leaves that can be green, bluish-green, or dark reddish purple. The branches are brown, grooved, and have a slight zigzag form. Very sharp, tiny spines are present along the branches between each cluster of leaves. In the spring, small yellow flowers hang down from the branches in groups of 2 to 4. Egg-shaped to oblong, red fruits mature in late summer and persist on the shrub through fall and winter. Japanese barberry can grow to a height of 6 to 8 feet.



Clockwise from left: Spoon-shaped leaves; twigs, sharp spines, and fruits; dangling white flowers that appear in spring; fall foliage.

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Callery Pear (*Pyrus calleryana*)

Callery pear is a deciduous tree that is widely planted in the urban landscape. Different cultivated varieties of pear that are sold for landscaping purposes are self-sterile; meaning that they cannot pollinate themselves to produce viable fruit. However, different cultivars of pear can cross-pollinate with each other when they are planted in close proximity in the landscape. This results in the production of viable fruits which are dispersed by fruit-eating birds such as European starlings. Callery pear grows well in full sun to partial shade. It tolerates a variety of soil types and can withstand occasionally wet or droughty soils. Wild pear often escapes into disturbed areas, meadows, roadsides, and open woods.

Callery pear can reach a height of 45 feet. The bark is smooth with horizontal lenticels when young and later develops vertical fissures. Leaves are oval, glossy, leathery and have round-toothed margins. Abundant white flowers develop in early spring before the leaves expand and this is when escaped wild pears become most noticeable in the landscape. Fruits are approximately ½ inch in diameter and brownish with white specks. They ripen in early to mid fall.



Top Row, L to R:
Fruits and foliage;
bark of mature
tree
**Bottom Row, L to
R:** Infestation
along roadway;
white spring
flowers

Oriental Bittersweet (*Celastrus orbiculatus*)

Oriental bittersweet is a deciduous vine that was introduced in the United States as an ornamental plant. This plant is adaptable and can cling to trees and other vertical structures, or it can trail along the ground and grow into a shrub-like form. It is still cultivated for ornamental use and maintained as an ornamental vine, which contributes to its ability to spread. Oriental bittersweet is commonly found on forest edges, forest openings, fencerows, fields, and roadsides. A heavy infestation of this vine can smother the host tree or cause increased risk of breakage especially during high winds or when there is heavy accumulation of snow and ice.

Oriental bittersweet can reach a height of 60 feet when it climbs into trees. The woody stem is olive-gray with raised whitish corky dots and can reach a diameter of up to 4 inches. Leaves are arranged alternately along the stem. Leaf shape is variable from round to long and tapering. The leaf margins are bluntly toothed. Inconspicuous, five-petaled, spring flowers are clustered along the upper portions of the branches in the leaf axils. These develop into round dangling fruit capsules which start out green, turn yellow orange, then tan. In the winter months the capsules split open to reveal a red, sectioned fruit. Invasive oriental bittersweet can be confused with the closely related native American bittersweet. The main difference between the two species is that the fruit and flowers of the American bittersweet are present only at the terminal tips of the stems, instead of along the stem at the leaf axils.



From top left: Bark of large vines; bark of smaller vines; foliage; split fruit capsules revealing red fleshy inner fruit

Japanese knotweed, giant knotweed, and bohemian knotweed (*Polygonum cuspidatum*, *P. sachalinense*, and *P. x bohemicum*)

Japanese knotweed, giant knotweed, and bohemian knotweed (a hybrid of the first two) are all fast-growing, herbaceous, perennial, bamboo-like plants that form dense thickets reaching 4 to 16 feet in height. Spread is primarily through creeping underground stems or rhizomes. Japanese and giant knotweeds are native to Asia and were introduced to the United States in the late nineteenth century for ornamental use, erosion control, and fodder. All three knotweeds are capable of re-sprouting from both above-ground and belowground pieces that are broken off the main plant. This ability allows knotweeds to spread through the movement of yard waste, roadside mowing, and other disturbances that move plant parts. Knotweeds are commonly found invading riparian areas and river bluffs, woodland edges, reverting fields, roadsides, and abandoned agricultural fields.

Japanese, giant, and bohemian knotweeds are all very similar in appearance with subtle differences in some structures. Bohemian knotweed has characteristics that are intermediate between the two parent species. Stems are stout, hollow, bamboo-like, and light green. Japanese knotweed is profusely branched and giant knotweed is sparingly branched. Leaves are arranged alternately along the stem. Japanese knotweed leaves are 4 to 6 inches in length and are broadly egg-shaped with a flattened or truncated base. Giant knotweed leaves are 6 to 16 inches long with a deeply heart-shaped base and a blunt leaf tip. Bohemian knotweed leaves are 7 to 9 inches long with a shape that varies from an elongate triangle, to spade-shaped, to heart-shaped. Flowers are small, white to whitish-green, and arranged in plume-like clusters along the leaf axils. Japanese knotweed has elongated flower clusters and giant knotweed has shorter flower clusters. Small, winged, three-sided, papery fruits dangle from the leaf axils and contain tiny, three-sided, shiny, black seeds.



Top row, L to R: Infestation of giant knotweed; shorter flower clusters of giant knotweed; an infestation of flowering Japanese knotweed along a road.

Bottom: leaf of giant knotweed