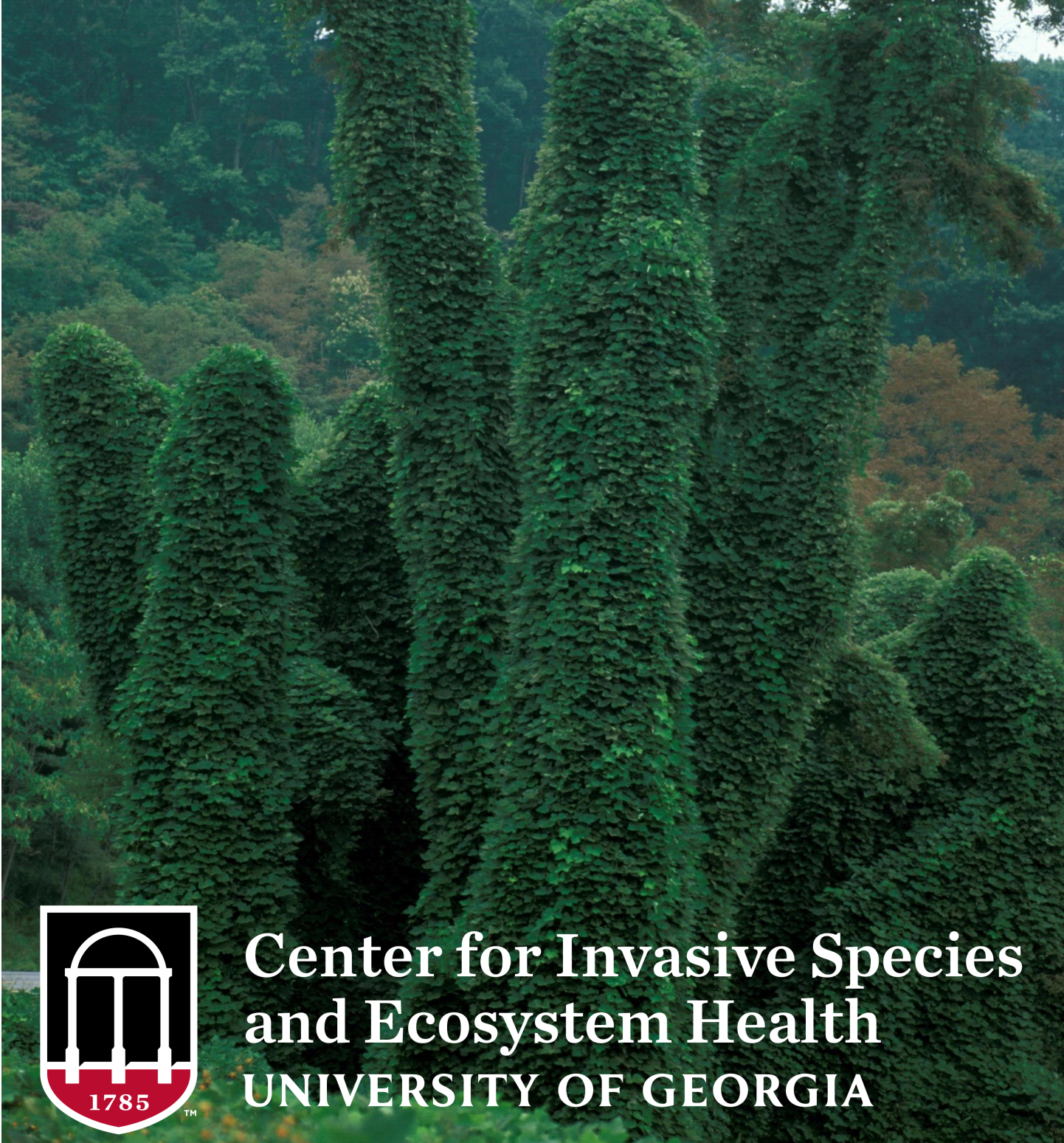


Invasive Plants of Concern to Georgia



**Center for Invasive Species
and Ecosystem Health**
UNIVERSITY OF GEORGIA

Front cover: Kudzu (*Pueraria montana var. lobata*) by Barry Rice, sarracenia.com, Bugwood.org

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Why are these plants of concern to Georgia?

These plants have been shown to significantly alter the ecosystems they invade. By dominating these areas, they disrupt the food chain, impact hydrology/waterways, reduce recreational usability, reduce yields in working forests, and farms, create safety issues, and negatively impact these ecosystems in many other ways.

What is an invasive species?

An invasive species is “any species (including its seeds, eggs, spores, or other propagative material) that is not native to an ecosystem, and lives free from natural predators, parasites, or competitors.” As a result, they can rapidly develop large populations, and their introduction does or is likely to cause harm to the economy, environment or human health. Native plants can be pests or weeds, but the introduction of exotic plant species has the potential to cause greater damage due to a lack of effective herbivores and a competitive edge over our native plants. Invasive species can out-compete, displace, or kill native species and disrupt vital ecosystem functions such as alteration species niches, food chains, hydrology (water flow), nutrient cycling or soil decomposition. This brochure provides information about non-native plant species that are thought to be of concern to Georgia: some are established causing significant harm, while others have limited established populations, or are threatening to become established in Georgia.

Where do these invasive plants come from?

The plants in this booklet are native to other continents, but a few plants on invasive species lists in the Southeast are native to other areas of the US. Invasive plants are often introduced accidentally as “hitchhikers” in contaminated materials or intentionally as ornamental plants that later escape the areas they were planted.

How do these plants take over?

Some common traits that exist among many invasive plants include:

- Habitat generalist/adaptable
- Competitive with other plants by vigorous growth and/or allelochemicals
- Reproduces (sexually and/or vegetatively) easily and abundantly
- Easily dispersed fruit/seeds/vegetative reproductive structures
- Staggered/discontinuous germination
- Not affected by native pests/diseases

Many of these traits are also common among desirable ornamental plants. The plants that have been introduced unintentionally have some of these similar traits, such as the marsh dayflower (*Murdannia keisak*). Marsh dayflower spreads by seed and stem fragment, it outcompetes native plants, grows in many types of wet habitats, and its population isn't significantly impacted by insects, diseases, or wildlife.

Are all exotic species invasive?

Only a small percentage of introduced species will become invasive in a novel area. However, it is difficult to predict which species, especially those without risk assessments or known histories, in a new ecosystem will become invasive and new species are being introduced every day. Some introduced species can be present in a novel ecosystem for many years before they spread. Some go through a “lag phase” in which their populations establish slowly or adapt to the environment. Many woody ornamental plants may be planted for years or decades before their population begins to spread and their invasive potential is realized by ecologists, gardeners, horticulturalists, etc.

What can I do to fight these invasive plants?

Preventing introduction and establishment are the most important things we can do to help fight invasive species. State and Federal government agencies, academia, and many other groups have developed some very basic measures the public and professionals can follow to prevent the spread of invasive pests locally.

If you engage in recreational activities such as gardening, hunting, fishing, camping and boating, you could be inadvertently planting or transporting invasive species. Some common and popular ornamentals and wildlife seed mixes consist of or inadvertently contain invasive plants. Additionally, invasive organisms often hide in or on gardening and outdoor gear, such as clothes, trowels, tires, firewood, etc. Researching species before you plant them, cleaning your equipment before visiting another area, and purchasing local firewood (from the same county or within fifty miles from where you will burn it per the Don't Move Firewood program) helps to minimize introduction and transport.

It is important to educate yourself and keep up-to-date on the status of the plants listed in this publication and other invasive plant resources. Resources with information on what to look for and how to control exotic species are available through your local extension office (<https://extension.uga.edu/county-offices.html>) and many websites, including these:

- <https://www.bugwood.org>
- <https://www.invasive.org>
- <https://www.gaepcc.org>
- <https://www.eddmaps.org>
- <https://www.invasivespeciesinfo.gov>
- <https://nas.er.usgs.gov>
- <https://www.invasiveplantatlas.org>
- <https://www.gainvasives.org>

Rapidly identifying new introductions and reporting any occurrences to your local County Extension Agent or through a mapping website (such as EDDMapS) may help to minimize the introduction, spread, and impact of invasive species. So spread the word: tell your neighbors if you see invasive species on their property. You can also volunteer with natural resources agencies or programs to control invasive species. It is more effective and economical to control small infestations than well-established, rapidly spreading infestations.

Some very useful points can be found in the Gardensmart Plantwise Guidelines, which were developed by The Lady Bird Johnson Wildflower Center:

- 1) Know Your Plants—Know the invasive plants in your area, avoid problem species
- 2) Use Non-invasive Alternatives—Investigate non-invasive and native alternatives for planting
- 3) Watch Out for Invasive Hitchhikers—Check clothes, vehicles, and gear for seeds and plant pieces
- 4) Have a Care if You Share—Don't share cuttings, seedlings, or plants that are invasive
- 5) Use Weed Free Seed Mixes—Check species listed on mix packets for invasives and buy from reputable sources to ensure purity
- 6) Use Weed Free Soil & Mulch—Contaminated soil and mulch can spread invasives, purchase these from reputable sources and/or look for tags "Certified weed-free"
- 7) Be Especially Careful With Aquatic Plants—Aquatic plants can very easily spread; don't dump aquarium species near water bodies and take care when introducing new aquatic plants to ponds
- 8) Keep an Eye on New Sprouts & Volunteers—Be aware of any new plants in your yard or seedlings spreading beyond where you have planted them
- 9) Dispose of Invasive Plants Carefully—Bag, or burn if allowed and safe, pulled plants and plant parts
- 10) If You Can't Part With Your Invasive Plant, Remember – contain it, control it, or cage it—Remove fruit/seeds, place barriers for roots/rhizomes/stolons, etc. to control spread

cogongrass

Imperata cylindrica

Overview

Cogongrass is an invasive perennial grass that is native to southeast Asia. It was introduced first in Alabama in 1912 as packing material and in the 1920s and 1930s in four southern states as livestock forage. It has spread and been found in 10 states in the southern US.

Appearance

A colony-forming grass which can grow up to 6 ft (1.8 m) tall. Leaves grow directly from underground rhizomes, as this species lacks above-ground stems. It dies back to the ground in winter.

Foliage has an off-center, whitish midvein with finely serrated margins. Leaves are up to 6 ft (1.8 m) long, 1 in (2.5 cm) wide, stiff, and have a sharp, pointed tip. Ligule (tissue where leaf connects to stem) is Ω -shaped and hairy. Rhizomes are whitish, branched, scaly and sharp at the tips; difficult to pull up by hand.

Flower heads are 1-8 in (2.5-20.3 cm) long, silvery-white and cylindrical. Blooms in April-May and flowering lasts a short time.

Fruit/Seeds mature on the flower head, are tan, and have long white hairs. A plant can produce up to 3,000 viable seeds/year.



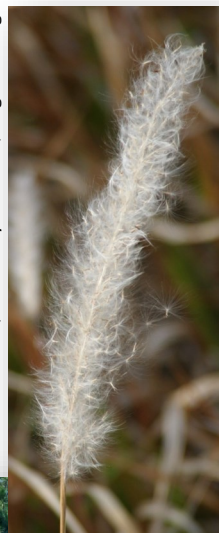
Chris Evans, University of Illinois, Bugwood.org

Rhizome



N. Loewenstein, Auburn University, Bugwood.org

Flower Head



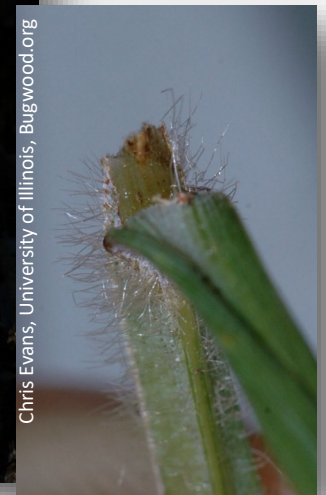
Chris Evans, University of Illinois, Bugwood.org

Foliage



Mark Atwater, Weed Control Unlimited, Inc., Bugwood.org

Ligule



Chris Evans, University of Illinois, Bugwood.org

Damage to trees from prescribed burn in cogongrass infested stand



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

More Info

Spreads mainly by rhizomes carried on equipment.

Produces large amounts of rhizomes, plant parts, and seeds. When the plant dies back in winter, this biomass makes fire regimes dangerous for normally fire-tolerant species and ecosystems.

Japanese stiltgrass

Microstegium vimineum

Overview

Japanese stiltgrass is an invasive annual grass that is native to Asia and was introduced first to Tennessee around 1919. It is now spread broadly throughout the Southeast, mid-Atlantic, Midwest, and Northeastern US. Unlike some invasive plants, this one will invade undisturbed habitats as well as disturbed ones.



J. H. Miller & T. Bodner, SWSS, Bugwood.org

Appearance

Plant germinates in the spring and grows in a sprawling, drooping habit. Mature plant is 0.5-4 ft (0.1-1.2 m) tall, and can root at the nodes, creating large mats of foliage.

Foliage is pale green, alternate on the stem, and lance-shaped. Leaves are 1-3 in (2.5-7.6 cm) long and have a shiny, off-center midvein. They are slightly hairy on both sides of the leaf.

Inflorescence is a spike-like raceme, growing from leaf axils in September. Fruit occur in late September through October. Seeds are small and easily adhere to fur, tread, clothing, etc. Each plant can produce up to 1,000 seeds.

Fruit



Leslie J. Mehrhoff, UConn, Bugwood.org

Bristles (awns) on the seeds catch in fur, clothes, etc.



L. J. Mehrhoff, UConn, Bugwood.org

Rooting at the nodes

Where the stems touch the ground, roots will grow from the stem nodes into the ground.

Off-center midvein and alternate leaf arrangement



Leslie J. Mehrhoff, UConn, Bugwood.org

5483954

Infestation



Leslie J. Mehrhoff, UConn, Bugwood.org

UGA5271071

More Info

Roots are shallow and plants are easily pulled up when soil is loose or damp, making this species a good candidate for volunteer pull days.

Russian olive

Elaeagnus angustifolia

Overview

Russian olive is an invasive shrub to small tree that is native to Europe and western Asia and was introduced to the US as an ornamental and for wildlife habitat in the late 1800s. It is now spread broadly throughout the western US with scattered infestations in the southeastern US.



T. Davis Sydnor, OSU, Bugwood.org

Appearance

A deciduous shrub to small tree that grows 16-40 ft (5-12 m) tall, with trunks 4-20 in (10-50 cm) thick.

Foliage is simple, alternate, and lanceolate to oblong-lanceolate. Leaves are green and 1-4 in (3-10 cm) long, with silver scales on top and bottom.

Flowers in spring-summer, blooms are yellow and tubular, and 5-10 will occur in the leaf axils.

Fruit are 0.5 in (1.3 cm) long, orange-yellow, and almost completely covered by dense silver scales. The fruit has one large seed that can be up to 0.4 in (1 cm) long.

Foliage



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



Leslie J. Mehrhoff, UConn, Bugwood.org

Underside

Flowers



Joseph Berger, Bugwood.org

Robert Vidéki, Doronicum Kft., Bugwood.org

Fruit



John M. Randall, The Nature Conservancy, Bugwood.org

More Info

Fruit can be spread by birds, mammals, and water.

Can be easily mistaken for other *Elaeagnus* species, leaf shape and fruit color are key characteristics.

Thorny olive

Elaeagnus pungens

Overview

Thorny olive is an invasive shrub that is native to eastern Asia and was introduced to the US as an ornamental in the 1830s. It is now spreading throughout the southeastern US. This shrub invades shaded woodlands as well as open, disturbed sites.

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



Appearance

An evergreen shrub that is often multi-stemmed and short, can grow 3.3-26.3 ft (1-8 m) tall. Sharp shoots give it a thorny appearance. Shrubs are usually very dense with long shoots extending from the top that allow spread into adjacent vegetation.

Foliage is alternate, oval to elliptical, with irregular wavy margins, 0.4-4 in (1.0-10.2 cm) long and thick, underside silvery with small brown scales.

Flowers appear in autumn and are white to brown in color with a tubular shape, 1-3 will occur in the leaf axils.

Fruit are small, red and dotted with small, brown scales; contains one seed.

Flowers

James Allison, naturalist, Bugwood.org



Foliage

Karan A. Rawlins, UGA, Bugwood.org



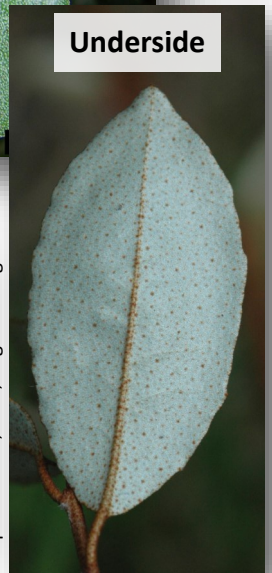
Fruit



N. Loewenstein, Auburn University, Bugwood.org

Underside

Joseph LaForest, UGA, Bugwood.org



More Info

Fruit can be spread by birds, mammals, and water.

Can be easily mistaken for other *Elaeagnus* species, scales on leaf undersides are a key characteristic.

autumn olive

Elaeagnus umbellata

Overview

Autumn olive is an invasive perennial shrub that is native to eastern Asia and was introduced to the US as an ornamental and for shelter belts, erosion control, wasteland reclamation, and wildlife habitat in the 1830s. It is a nonleguminous nitrogen fixer. It is now spread broadly throughout the eastern US.



Appearance

A deciduous shrub that grows up to 3-20 ft (0.9-6.1 m) tall. It has thorny branches and stems.

Foliage is alternate, 2-3 in (5-8 cm) long and 1 in. (2.5 cm) wide. The margins are entire and wavy. Leaves are green to gray-green on top and silver scaly beneath with short petioles.

Flowers in late winter through summer, white to yellow tubular flowers are abundant and occur in clusters of 5-10 near the stems.

Fruit are round, juicy drupes, red and finely dotted with silvery to silvery-brown scales. Each drupe contains one seed. Fruit ripen in autumn.

Upper surface Foliage Lower surface



Fruit



Flowers



More Info

It often invades old fields, woodland edges, and other disturbed areas.

Can be easily mistaken for *Prunus* and other *Elaeagnus* species, leaf shape and fruit color are key characteristics.

shrubby lespedeza

Lespedeza bicolor

Overview

Shrubby lespedeza is a deciduous invasive shrub that is native to Asia and was introduced in the late 1800s for wildlife habitat. It is spread broadly throughout the southeastern US.



Appearance

An upright semi-woody shrub, 3-10 ft (0.9-3 m) tall with many slender stems and arching branches.

Foliage is elliptical, alternate, abundant, and three-parted. Leaflets are oval with the upper surface darker than the lower surface. Leaflets have pointed tips.

Flowers in summer, when purple to white, pea-like flowers develop in clusters. Flowers are less than 0.5 in (1.3 cm) long.

Fruit contain one seed that measures up to 0.31 in (8 mm) long in a flat, indehiscent pod.

Flowers



Lower surface



Foliage

Upper surface



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

Fruit



More Info

Extremely aggressive invader of fields and other open areas and forms dense thickets.

Seeds remain viable for decades and spread is encouraged by prescribed fire, making eradication difficult without herbicides.

sericea lespedeza

Lespedeza cuneata

Overview

Sericea lespedeza, or Chinese lespedeza, is a deciduous invasive forb that is native to Asia and was introduced in the late 1800s for erosion control, mine reclamation, and wildlife habitat. It is spread broadly throughout the eastern half of the US.

Appearance

An upright semi-woody forb, 3-6 ft (0.9-1.8 m) tall with one to many slender stems. Stems have lines of hairs and are often gray green.

Foliage is dense on the stem, thin, alternate, and three-parted. Leaflets are 0.5-1 in (1.3-2.5 cm) long, hairy, and have wedge-shaped bases.

Flowers occur from late summer to early autumn. They are small, creamy-white flowers with purple throats and develop in clusters of two to four in leaf axils.

Fruit is a flat pod, ovate to round, single-seeded, and 0.12-0.15 in (3-4 mm) wide.



Richard Gardner, Bugwood.org

Flowers

Dan Tenaglia, MissouriPlants.com, Bugwood.org



Leaflets have pointed tips

Foliage

Chris Evans, Univ Illinois, Bugwood.org



Fruit

L. J. Mehrhoff, UConn, Bugwood.org



More Info

Extremely aggressive invader of open areas and outcompetes native vegetation.

Seeds remain viable for decades, making eradication difficult.

Chinese privet

Ligustrum sinense

Overview

Chinese privet is an invasive perennial shrub to small tree that is native to eastern Asia and was introduced to the US as an ornamental in the 1850s. It is now spread broadly throughout the southern and Mid-Atlantic US. It often invades forest edges, fence rows, roadsides, etc.



Appearance

An evergreen to semi-evergreen shrub growing up to 20 ft (6 m) tall. Often has multiple trunks and long branches.

Foliage is dull green, opposite on the stem, simple, margins smooth, oval to oblong shape and 1-2.4 in (2.5-6.1 cm) long and 0.2-0.6 in (0.5-1.5 cm) wide. Midvein on the underside of the leaf is pubescent.

Flowers occur spring-summer and develop in clusters towards the ends of branches. They are small, white, and four petals with stamens extending from the corolla.

Fruit is a dull waxy purple-black berry that persists through winter and is eaten by animals.

Foliage



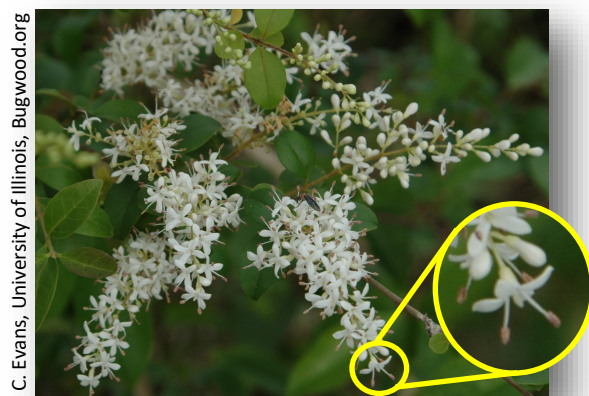
More Info

A common and popular hedge that easily escapes cultivation.

Plant spreads by seeds and root sprouts, making control difficult.

Can be easily mistaken for other *Ligustrum* species, mature plant size, foliage, and flower characteristics key for correct ID.

Flowers



Fruit



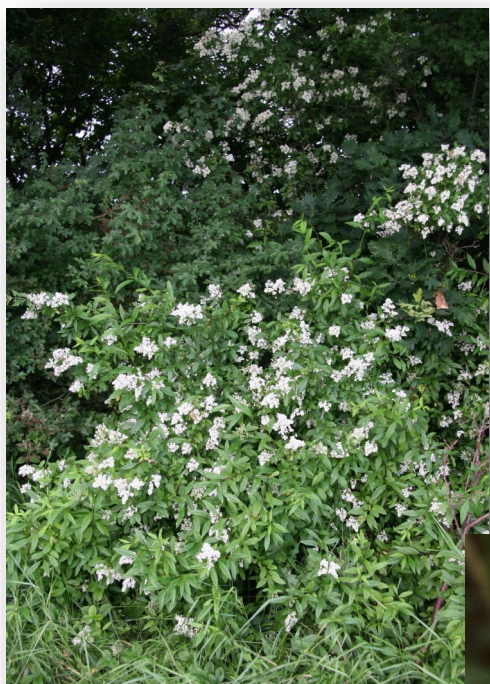
European privet

Ligustrum vulgare

Overview

European privet is an invasive perennial shrub that is native to southern Europe, northern Africa, and southwestern Asia. It was introduced to the US as an ornamental in the 1800s. The species is now spread broadly throughout the eastern US. It often invades forest edges, fence rows, roadsides, etc. European privet is known to hybridize with Chinese privet (*L. sinense*).

Robert Vidéki, Doronicum Kft., Bugwood.org



Appearance

An evergreen to semi-evergreen shrub that grows to 10-16 ft (3-5 m) tall. Often has multiple trunks and long, leafy, stiff branches.

Foliage is dull green, opposite on the stem, simple, margins entire, and lanceolate. Leaves are 1.5-2.4 in (3.8-6.1 cm) long and 0.2-0.6 in (0.5-1.5 cm) wide. Midvein on underside usually hairless.

Flowers in summer, small, white, four petals, stamens don't extend past the corolla, develop in compact clusters at the ends of branches. Stems of flowers slightly pubescent.

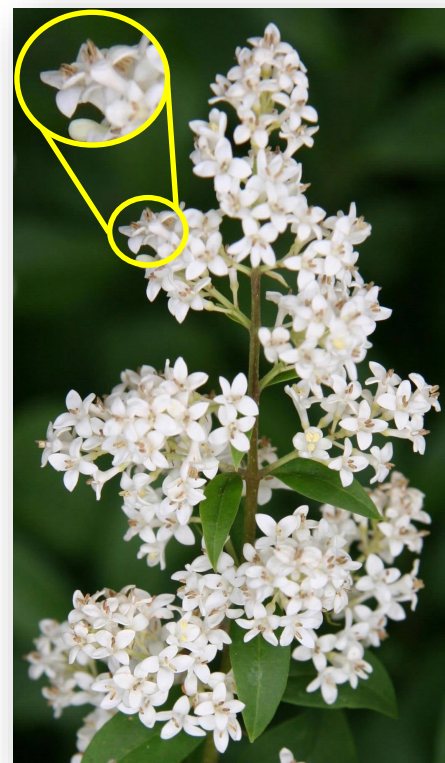
Fruit is a shiny, black berry that persists through winter and is eaten by animals.

Foliage



T. Davis Sydnor, The Ohio State University, Bugwood.org

Flowers



Robert Vidéki, Doronicum Kft., Bugwood.org

Fruit



Robert Vidéki, Doronicum Kft., Bugwood.org

More Info

A common and popular hedge that easily escapes cultivation.

Plant spreads by seeds and root sprouts, making control difficult.

Can be easily mistaken for other *Ligustrum* species, mature plant size, foliage, and flower characteristics are key for correct ID.

Japanese knotweed

Reynoutria japonica

Overview

Japanese knotweed is an invasive, deciduous shrub-like perennial that is native to eastern Asia and was introduced in the late 1800s as an ornamental and for erosion control. It is now spread broadly throughout the midwestern, eastern, and western United States.



Leslie J. Mehrhoff, UConn, Bugwood.org

Appearance

An upright, herbaceous shrub that can grow 10-13 ft (3-4 m) tall. The semi-woody stem is hollow with enlarged nodes.

Foliage is alternate, 3-6 in (7.6-15.2 cm) long, 3-4 in (7.6-10 cm) wide and broadly-ovate. Leaf tips are abruptly tapering to a point and the bases are squared-off.

Flowers occur in late summer, are small, greenish-white and develop in 2.5-6 in (6-15 cm) long upright panicles in the axils of the leaves. Plants are dioecious.

Fruit are papery with wings, containing shiny, black, three angled seeds. Reproduction also occurs vegetatively by spreading rhizomes.

Flowers



Jan Samanek, Phytosanitary Administration, Bugwood.org



Joseph M. DiTomaso, UC - Davis, Bugwood.org

Hollow Stem



Leslie J. Mehrhoff, UConn, Bugwood.org

Foliage



Steve Manning, Invasive Plant Control, Bugwood.org

Fruit



Leslie J. Mehrhoff, UConn, Bugwood.org

More Info

Hybridizes with giant knotweed (*R. sachalinensis*) to produce Bohemian knotweed (*R. x bohemica*).

English ivy *Hedera helix*

Overview

English ivy is an invasive perennial vine that is native to Europe and western Asia. It was introduced to the US in the 1700-1800s as an ornamental. It is now spread broadly throughout the west coast and the eastern and southern US.

Appearance

A trailing and climbing evergreen vine that can grow up to 90 ft (27 m) tall.

Foliage is green (darker on top and paler underneath) with whitish veins, alternate, waxy, somewhat leathery; extremely variable leaf forms.

Flowers occur in late summer to early autumn; flowers are small, greenish-yellow and occur in globular starburst-type inflorescences at tips of flowering stems.

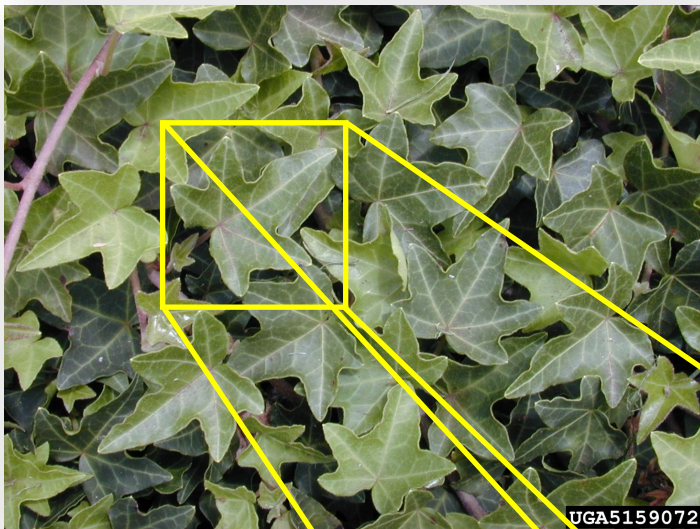
Fruit is black, 0.2-0.3 in (0.5-0.75 cm) wide, and berry-like with stone-like seeds that are dispersed by birds.



Karan A. Rawlins, University of Georgia, Bugwood.org

5405087

Foliage



Forest and Kim Starr, Starr Environmental, Bugwood.org

UGA5159072

More Info

Attaches to bark of trees, brickwork, and other surfaces by aerial rootlets that exude a glue-like substance to aid in adherence.

Can harbor the disease bacterial leaf scorch.

Flowers



Jan Samanek, Phytosanitary Administration, Bugwood.org

Fruit



Robert Vidéki, Doronicum Kft., Bugwood.org



R Vidéki, Doronicum Kft., Bugwood.org

Leaves can be variable in shape, from unlobed to 3-5 lobed



F & K Starr, Starr Environmental, Bugwood.org

Japanese honeysuckle

Lonicera japonica

Overview

Japanese honeysuckle is an invasive, perennial, twining vine that is native to eastern Asia and was introduced to the US as an ornamental in the early 1800s. It is now spread broadly throughout the eastern half of the US and with some escapes reported in a few western states. It often invades forest edges, fence rows, etc.

Leslie J. Mehrhoff, UConn, Bugwood.org



Appearance

A woody, evergreen to semi-evergreen vine that can trail or climb over 80 ft (24 m). Stems may be pubescent or hairless.

Foliage is opposite on the stem, pubescent, oval and 1-2.5 in (2.5-6.4 cm) long. Leaf margins are usually entire, though young leaves have lobes.

Flowers occur in spring-summer, showy, fragrant, tubular, whitish-pink flowers develop in pairs in the axils of the leaves. The flowers turn cream-yellow as they age.

Fruit is a shiny, black berry and is eaten by animals.

Fruit

L. J. Mehrhoff, UConn, Bugwood.org



More Info

Twining can girdle small saplings, and plants can form dense mats in the tree canopy, shading out everything below.

Spreads by seeds (infrequently) and rooting at stolon nodes.

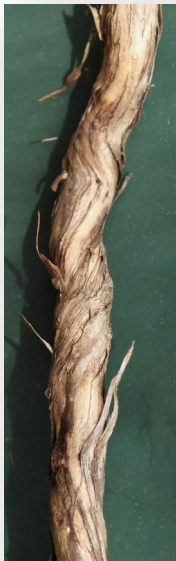
Foliage



James H. Miller & Ted Bodner, SMSS, Bugwood.org

Vine

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



Infestation

Chuck Barger, University of Georgia, Bugwood.org



UGA5302048

Japanese climbing fern

Lygodium japonicum

Overview

Japanese climbing fern is a perennial fern that is native to eastern Asia. Introduced to the US in the 1930s as an ornamental, it has now spread broadly throughout the southeastern US. It is deciduous in colder climates and evergreen in warmer climates. It often invades disturbed areas, forest edges, roadsides, etc.



Appearance

A climbing fern that grows to 90 ft (30 m) tall. Vines are thin, wiry, green to orange to black and usually die back during the winter.

Foliage is opposite, compound, usually triangular in shape, 3-6 in (8-15 cm) long, 2-3 in (5-8 cm) wide and finely dissected with a lacy appearance.

Fertile fronds bear sporangia during late summer and autumn that produce tiny, wind-dispersed spores. Plants also spread by rhizomes.

Foliage



Fertile Fronds



More Info

Climbs trees and makes them vulnerable to prescribed fire regimes.

Spores and rhizomes can travel in pine straw.

kudzu

Pueraria montana var. lobata

Overview

Kudzu is an invasive, perennial vine that is native to Asia. It was introduced to the US in the 1800s for erosion control and livestock feed. It is now found throughout the eastern US and is continuing to spread.

Appearance

A climbing, deciduous vine that can grow over 100 ft (30.5 m) in a single season.

Foliage is green, alternate, compound (with three, usually lobed, leaflets), and 7 in (17.8 cm) long.

Flowers bloom in midsummer, when 0.5 in (1.3 cm) long, purple, fragrant, pea-shaped flowers grow in 2-12 in (5-30.5 cm) long clusters in the leaf axils.

Fruit are seed pods that are brown, hairy, flat, 3 in (7.6 cm) long and 0.3 in (0.8 cm) wide. Each pod can contain 3-10 hard seeds.



John D. Byrd, MSU, Bugwood.org

Flowers



Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

5483253

Foliage



Leslie J. Mehrhoff, UConn, Bugwood.org

Leaf top

Leaf bottom

5483398

Fruit



Leslie J. Mehrhoff, UConn, Bugwood.org

More Info

Climbs by twining and can smother plants, removing their access to the sun.

invasive wisterias

Wisteria spp.

Overview

Chinese wisteria (*Wisteria sinensis*) and Japanese wisteria (*W. floribunda*) are both considered invasive in the US. These species are difficult to differentiate and often hybridize (*W. x formosa*). The vines are native to Asia and were introduced to the US as ornamentals in the 1800s. They have spread throughout the southern and mid-Atlantic US. Vines invade forest edges, disturbed areas, riparian zones, and rights-of-way.

Robert Vidéki, Doronicum Kft., Bugwood.org



5398529

Appearance

Deciduous vines can grow up to 65 ft (20 m) tall. Stems can be up to 10 in (25.4 cm) diameter with smooth, gray-brown bark. *W. sinensis* twines counter-clockwise and *W. floribunda* twines clockwise.

Foliage is green, alternate, pinnately compound leaves that taper at the tip with wavy edges and reach 12 in (30 cm) long. *W. sinensis* has 7-13 leaflets and *W. floribunda* has 13-19.

Flowers occur during the spring. Blooms are purple or white, fragrant, showy, and abundant. They occur in long, dangling clusters, 6-12 in long (*W. sinensis*) with simultaneous blooming or 9-20 in long (*W. floribunda*) with progressive (base to end) blooming.

Fruit are a flattened, hairy, 6 in (15.2 cm) long, bean-like pod containing 1-8 brown seeds.

Foliage

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



UGA2307174

Fruit

Franklin Bonner, USFS (ret.), Bugwood.org



Flowers

Rebekah D. Wallace, UGA, Bugwood.org



Robert Vidéki, Doronicum Kft., Bugwood.org

More Info

Many southeastern US populations are likely the hybrid species.

Wisterias climb by twining, rather than having tendrils, and can girdle trees causing their death.

tree-of-heaven

Ailanthus altissima

Overview

Tree-of-heaven is an invasive tree that is native to China. It was introduced to the US in 1784 as an ornamental and is found throughout most of the continental states. This tree typically lives 50 years, though some specimens can live over 100 years.

Appearance

A rapidly growing, often small deciduous tree up to 80 ft (24.4 m) tall and 6 ft (1.8 m) diameter. Twigs have large, heart-shaped leaf scars. Bark is smooth with lenticels and light grey; develops fissures with age. Leaves and other parts smell like rancid peanut butter.

Leaves are pinnately compound, 1-4 ft (0.3-1.2 m) long, with 10-41 leaflets. Glandular, notched base present on each leaflet.

Flowers occur in early summer when large terminal clusters of small, yellow flowers on 20 in (50 cm) long stems develop above the foliage.

Fruit are single winged, tan to reddish, with one central seed and can be wind or water-dispersed. Fruit can persist through the winter.



Joseph M. DiTomaso, UC - Davis, Bugwood.org

Foliage



Annemarie Smith, ODNR Division of Forestry, Bugwood.org

Flowers



Leslie J. Mehrhoff, UConn, Bugwood.org

Fruit



Leslie J. Mehrhoff, UConn, Bugwood.org

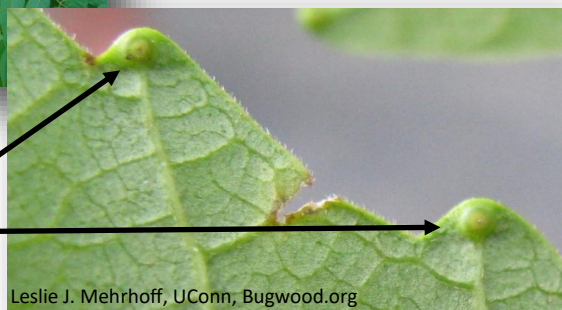
More Info

Plant releases allelopathic chemicals, suppressing other plant species' growth.

If cut down, tree aggressively resprouts from the roots, which makes control difficult.

An individual tree can produce 325,000 seeds/year.

Leaflet Glands



Leslie J. Mehrhoff, UConn, Bugwood.org

silk tree

Albizia julibrissin

Overview

Silk tree, also known as mimosa, is an invasive, deciduous tree that is native to southwestern and eastern Asia. It was introduced to the US as an ornamental in the 1700s. It is now spread broadly throughout the eastern US. It often invades disturbed areas, old fields, roadsides, etc.

T. Davis Sydnor, OSU, Bugwood.org



Foliage

T. Davis Sydnor, OSU, Bugwood.org



Flowers

Tony Pernas, USDI National Park Service, Bugwood.org



Appearance

A small tree that is 10-50 ft (3-15.2 m) tall, often having multiple trunks and a broad canopy.

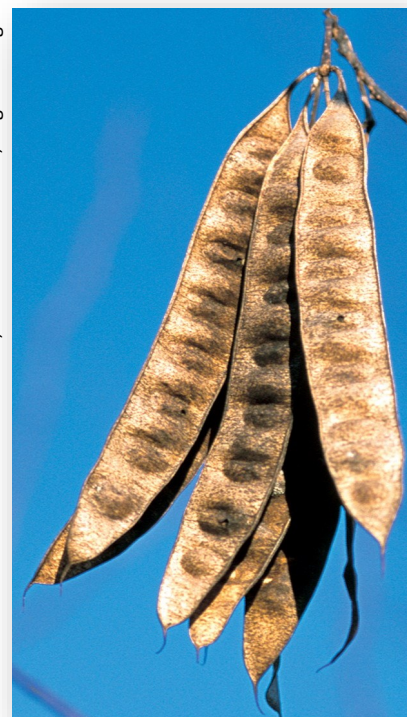
Foliage is arranged alternately and bipinnately compound (6-20 in long), with 20-60 leaflets per leaf. Silk tree leaves have a fern-like or feathery appearance.

Flowers in early summer, when very showy, fragrant, pink flowers develop in clusters at the ends of the branches.

Fruit is a flat, 6 in (15 cm) long seed pod that develops in the late summer then turns from green to brown and persists through winter.

Fruit

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



More Info

Reproduces by root sprouts and by seed that remain viable for many years.

Trees can form dense stands.

trifoliolate orange

Citrus trifoliata

Overview

Trifoliolate orange is an invasive shrub or tree that is native to Asia and was introduced to the US as an ornamental in the 1850s. It is now spreading throughout southeastern US woodlands, forest edges, fence rows and urban green spaces.



John Ruter, University of Georgia, Bugwood.org

Appearance

A deciduous shrub to small tree that can grow 8-25 ft (2.4-7.6 m) tall. Leaves on dense stems with large, sharp axillary thorns. Root sprouts abundant around stems.

Foliage is dark green, hairless, compound (three leaflets), leaflets unequal in size with the terminal leaflet 1-2.5 in (2.5-6.4 cm) long, alternate, obovate to elliptical. Leaves turn yellow in autumn.

Flowers in spring, blooms are showy, white with five petals and occur in clusters.

Fruit are a hairy, green turning yellow to orange when ripe, bitter, up to 1.5 in (3.8 cm) wide.

Thorns



John Ruter, UGA, Bugwood.org

More Info

Often used as a rootstock for sweet orange cultivars. It can sprout below the graft union and crowd out the desirable fruit.

Foliage



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

Flowers



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

Fruit



J. D. Byrd, Mississippi State Univ, Bugwood.org

chinaberry

Melia azedarach

Overview

Chinaberry is an invasive tree that is native to southeastern Asia and Australasia and was introduced in the 1830s as an ornamental. It is now spread broadly throughout the southwest and southern US.

Appearance

A deciduous tree that can grow up to 50 ft (15.2 m) tall and 2 ft (0.6 m) trunk diameter.

Foliage is shiny dark green, alternate, bipinnately compound, 1-2 ft (30-60 cm) long and 9-16 in (23-40 cm) wide, with a long petiole, and serrate margins.

Flowers grow in fragrant clusters during spring. They are small, showy, and white or purple.

Fruit appear in summer and persist through winter, are round, <1 in (<2.5 cm) in diameter, light tan at maturity, and are dispersed by birds, mammals, water, and gravity.



James H. Miller USDA Forest Service, Bugwood.org

Flowers

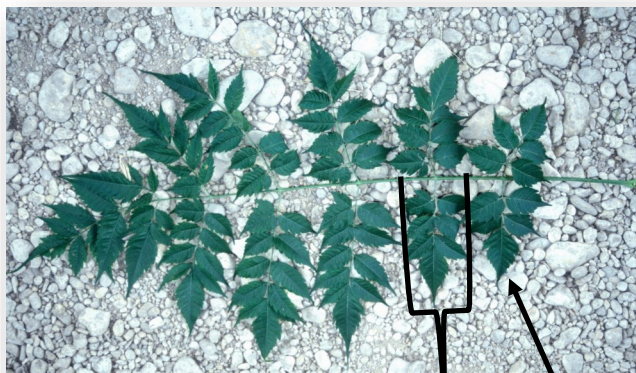


John Ruter, UGA, Bugwood.org



Chuck Barger, UGA, Bugwood.org

Foliage



John M. Randall, TNC, Bugwood.org

Fruit



Karan A. Rawlins, UGA, Bugwood.org

Leaf Leaflet Pinnule

More Info

Seeds are poisonous to humans, livestock, and some other mammals.

Trees spread by seeds and stump sprouts.

Callery (Bradford) pear

Pyrus calleryana

Overview

Callery pear is also known by one of its variety names, Bradford pear. It is an invasive tree that is native to Asia and was introduced as root stock for improvement of edible pears and then later as an ornamental. It is now spread broadly throughout the eastern US along with about 20 other cultivars. It must have pears of another cultivar to produce fertile fruit, which were introduced to provide sturdier trees.

Appearance

A round to pyramidal-shaped deciduous tree that can grow up to 60 ft (18 m) tall and 2 ft (0.6 m) diameter. Branches and twigs will often have thorns.

Foliage is dark green, oval to nearly heart-shaped, alternate, simple, 2-3 in (5.1-7.6 cm) long, and shiny with wavy, slightly toothed margins. It has attractive autumn colors.

Flowers grow in bunches in spring, often before leaves appear. They are 1 in (2.5 cm) wide, showy, malodorous, and white.

Fruit are round, 0.3-0.5 in (0.8-1.3 cm) in diameter, and hard until a frost occurs; softened fruit are eaten by birds and spread widely.



David Stephens, Bugwood.org

5521720

More Info

Branch unions are often weak and break in high wind or from heavy ice or snow and either cause a slow death by infection or catastrophic failure.



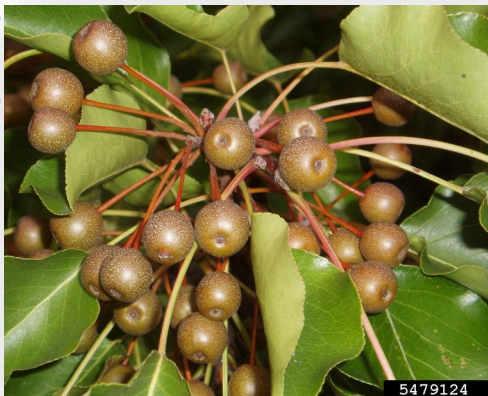
Rebekah D. Wallace, UGA, Bugwood.org

Flowers



Richard Gardner, Bugwood.org

Fruit



Leslie J. Mehrhoff, UConn, Bugwood.org

5479124

Infestation



Leslie J. Mehrhoff, UConn, Bugwood.org

Chinese tallowtree

Triadica sebifera

Overview

Chinese tallowtree is an invasive tree that is native to Asia and was introduced as an ornamental and for seed oil production. It is now spread broadly throughout the southeastern US. Tallowtree is allelopathic and has high levels of tannins in the leaf litter, which can alter soil conditions.

Appearance

A deciduous tree reaching 60 ft (18.3 m) tall and 3 ft (0.9 m) diameter.

Foliage is alternate, triangular to nearly heart-shaped, 2-3 in (5.1-7.6 cm) long with a narrow, pointed tip. Leaf petioles are 1-3 in (2.5-7.6 cm) long.

Flowers late spring to summer. Blooms are yellowish, small, and occur on 8 in (20 cm) long, dangling spikes.

Fruit are three-lobed, greenish, and found in clusters at the end of branches. Fruit mature to black and later open revealing white, wax covered seeds.

Foliage



Cheryl McCormick, UF, Bugwood.org

Flowers

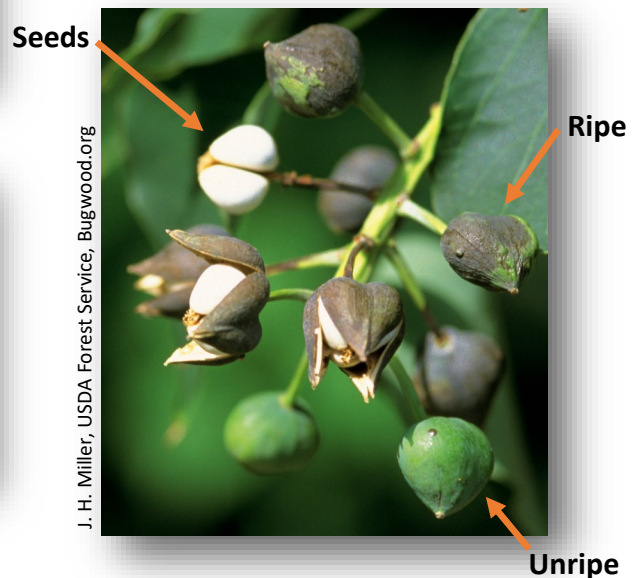


R. D. Wallace, UGA, Bugwood.org



Thomas Ellis, Jr., Baldwin County, Alabama Forestry Planning Committee, Bugwood.org

Fruit



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

More Info

Emerging/expanding leaves are orange-red before turning green. It has attractive autumn colors.

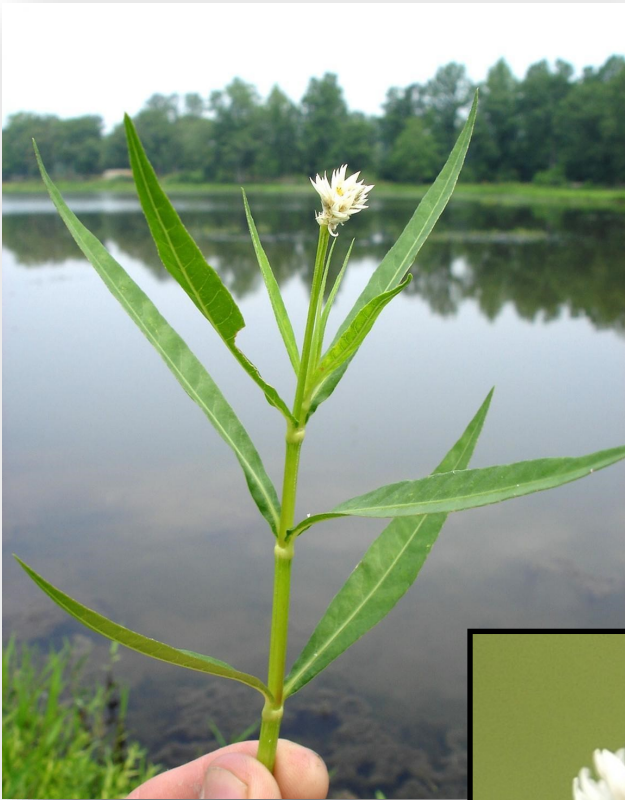
alligatorweed

Alternanthera philoxeroides

Overview

Alligatorweed is native to South America and likely introduced through ships' ballast water. First introduced to South Carolina in 1885, it has now spread across much of the South. It can reproduce from seed as well as vegetatively, rooting at the stem nodes or from plant fragments. Machinery, such as mowers, boat motors, etc. can easily distribute this plant across large areas and establish new populations.

Graves Lovell, Alabama Department of Conservation and Natural Resources, Bugwood.org



Foliage

Appearance

An emergent or rooted floating deciduous perennial herb that invades aquatic areas and adjoining uplands. Plants have hollow stems that can be up to 30 ft long and can grow in water up to 6.5 ft deep.

Foliage is oppositely arranged while leaves are elliptical and thick. Leaves are non-succulent, do not have a petiole, and up to 4 in (10 cm) long. Nodes are usually swollen and can age to a reddish or brown color.

Flowering occurs during spring-summer. Blooms are white with yellow centers (anthers), clover-like heads in the axils of the leaves.

Fruit are very small, and single-seeded. Viable seed are not known to be produced in the US.



Flowers



UGA2117088

Chris Evans, University of Illinois, Bugwood.org

Chris Evans, University of Illinois, Bugwood.org



UGA2117095

More Info

Alligatorweed flea beetle has been used as a biocontrol agent.

Grows in thick mats that impact the native ecosystem, recreation, agriculture, etc.

wild taro

Colocasia esculenta

Overview

Wild taro is an invasive perennial aquatic forb that is native to southeastern Asia and southern India. It was introduced from Africa to the Americas in the 1600s as food crop for slaves and in 1910 by the USDA as a substitute crop for potatoes. It is now spreading throughout the southeastern United States.



Appearance

A deciduous or evergreen forb that originates from a corm and can grow to 4 ft (1.5 m) tall.

Foliage is arrowhead shaped, up to 2 ft (0.6 m) long and 1.6 ft (0.5 m) wide, on a 3 ft (1 m) long petiole that attaches to the bottom of the leaf, and velvety on the upper surface.

Flowers seldom occur outside of the native range. When present, they are small and densely crowded at the top of a fleshy stalk.

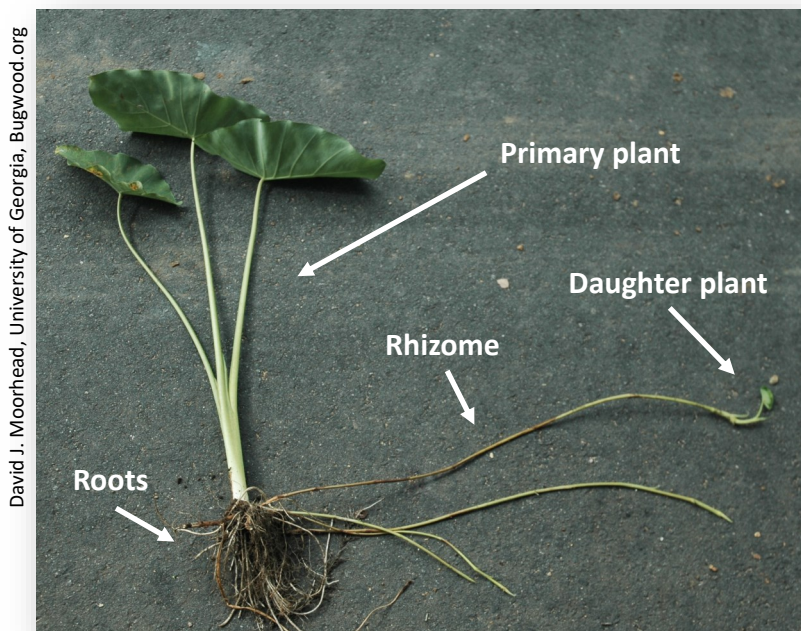
Fruit are small berries, but are rarely produced. Plants spread primarily by vegetative reproduction through rhizomes, stolons, offshoot corms, or plant parts.

More Info

A popular ornamental for ponds and wet landscaping areas. It invades ditches, wetlands, lake/pond edges, stream/river banks etc.

The tuber is a popular food around the world.

Vegetative Reproduction



Foliage



Flowers



hydrilla

Hydrilla verticillata

Overview

Native to parts of Asia, Africa, and Australia it was introduced to the US in the 1950s from Asia as an aquarium plant. Populations introduced to Florida ecosystems by aquarium dumping or intentional plantings. Stem fragments on watercrafts, trailers, etc. introduce this plant to new waterways. Both monoecious and dioecious biotypes have been found in the US.

Appearance

A submersed, rooted aquatic perennial that can grow in water up to 20 ft (6.1 m) deep. Stems grow to 6.5-30 ft (2-9 m) long. Dies back in the winter and grows back from buds (turions).

Foliage is whorled in bunches of 3-8. The midveins of the leaves are reddish with the undersides having small, raised teeth. Leaves have serrated margins and are 0.2-0.8 in (5-20 mm) long, less than 0.1 in (2 mm) wide.

Flowers are rarely seen in the US, are small, with three sepals and three petals. Petals are 3-5 mm long and transparent or translucent green with red streaks.

Fruit are cylindrical, about 0.3 in (0.7 cm) long and 0.05 in. (0.15 cm) wide, and contain 2-7 oblong-elliptic seeds. Fruit are rarely seen in the US. Turions (stem tubers) are another vegetative method of reproduction. They are bud-like structures, which occur in the water or soil, that can drop off the plant and successfully survive freezing or drought.



Leslie J. Mehrhoff, UConn, Bugwood.org

Turion



Leslie J. Mehrhoff, UConn, Bugwood.org

Foliage



Robert Vidéki, Doronicum Kft., Bugwood.org

5399531

Infestation



Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

5480588

More Info

Reproduce by fragmentation, rhizomes, and overwintering turions. Forms dense mats that affect native ecosystems, irrigation, recreation, etc.

marsh dayflower

Murdannia keisak

Overview

Marshday flower is an annual plant that is native to temperate and tropical Asia wetlands. It was accidentally introduced as a weed in rice crops to South Carolina around 1935. It is found in the southeastern and northwestern US. It has also been used as an aquarium or water feature plant.

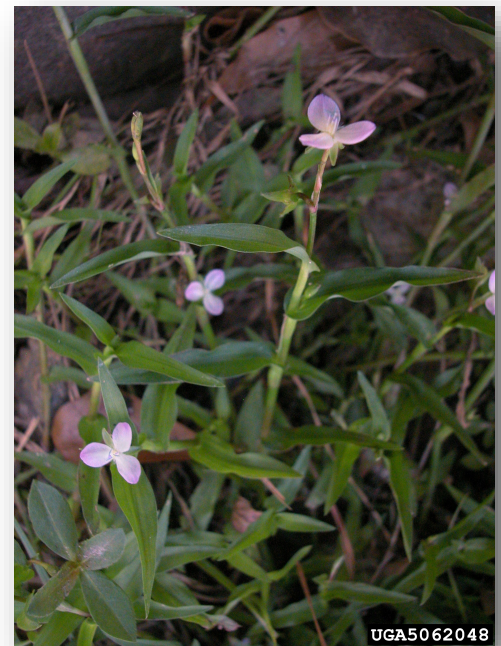
Appearance

An emergent forb that invades wetlands and agricultural crops. Plant stems are succulent, grow prostrate along the ground and root at the nodes. Stems are 12-30 in (30.5-76.2 cm) long. Plants can reproduce vegetatively from stem fragments.

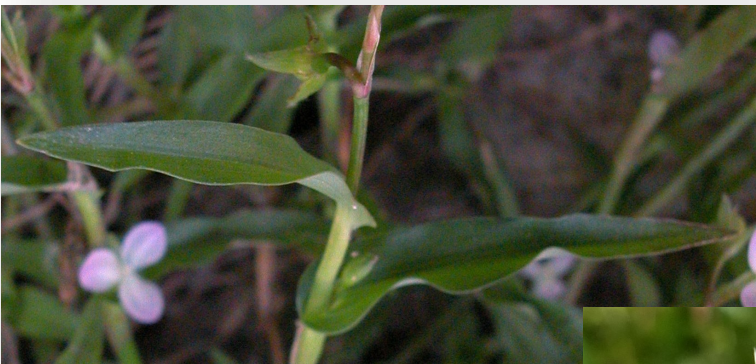
Foliage is alternate, lance-shaped, lacks a petiole, and up to 3 in (7.6 cm) long. The leaf sheath is pubescent along the margins and surrounds the stem.

Flowers occur during autumn. Blooms are small, pink, three-petaled, that occur individually or in small clusters in the leaf axils and at the top of the stems. Three green sepals (0.3 in [0.75 cm] long) are reflexed when the flower is open.

Fruit are a capsule that contains several small seeds.



Foliage



Linda Lee, University of South Carolina, Bugwood.org

Fruit



Rebekah D. Wallace, UGA, Bugwood.org

Flowers



Linda Lee, University of South Carolina, Bugwood.org

More Info

Often grows immersed, invading water edges, wetlands, ponds, marshes, and ditches.

Seeds can be eaten and spread by waterfowl.

common water hyacinth

Pontederia crassipes

Overview

Common water hyacinth (synonym *Eichhornia crassipes*) is native to South America. The US introduction was as an ornamental in 1884 at the Cotton States Exposition in New Orleans. It is found in most states, but is especially widespread in the southern US and California.

Shaun Winterton, California Department of Food and Agriculture, Bugwood.org



Appearance

A free floating aquatic forb that can form dense monocultures and grow up to 3 ft (1 m) tall.

Foliage is bright green, oval to elliptical, thick, up to 6 in (15 cm) wide and waxy with spongy petioles that often have a bulb-like base. Leaves curve inward at the edges and are in a whorl arrangement around the stem.

Flowering occurs in late summer to early fall. Flowers have six blue-purple petals with the uppermost having a yellow patch. They are born on upright spikes with 8-15 flowers on the spike.

Fruit contains 450 seeds in a capsule. Seeds are oval at the base with a tapering apex measuring 0.2 in (4 mm) long and 0.04 in (1 mm) wide and can remain viable for 20-30 years. However, it primarily reproduces vegetatively by stolons (runner stems).

Foliage

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org



Daughter plant

Stolon

Flowers

Chris Evans, University of Illinois, Bugwood.org



Glossary

Allelopathic — A plant that releases a chemical that suppresses nearby plant growth.

Anther—The pollen-bearing part of a stamen.

Annual — A plant that completes its life cycle and dies within one year.

Axil — Upper angle of the intersection where a leaf or branch meets the stem of the plant.

Compound Leaf — A leaf that is divided into multiple parts (leaflets), these can radiate from the petiole (palmate compound), in three parts (trifoliate), or on either side of the midvein (pinnately compound). Some plants can branch more than once and be bi-pinnately compound (example: silk tree [*Albizia julibrissin*]) or tri-pinnately compound. Pinnate compound leaves can be odd (ending in a terminal leaflet) or even (an even number of leaflets; without a terminal leaflet).

Corolla — The petals of a flower considered as a unit.

Dioecious — Plants with male and female flowers on separate individuals.

Drupe — A fleshy fruit usually having a single hard stone that encloses a seed.

Emergent — Aquatic plants with their stem, leaves, etc. above the surface of the water.

Established — A species having a self-sustaining and reproducing population in a specified geographic area without the need for human intervention. Applies to both native and nonnative species.

Filament — The stalk that bears the anther in the stamen of a flower.

Fronde — The leaf of a fern. They can be non-reproductive (sterile) or reproductive (spore-bearing).

Indehiscent — A type of seed that does not split open at maturity.

Inflorescence — An arrangement of flowers from a common point; a flower cluster

Introduced — A species brought to a new geographic area intentionally or unintentionally by humans. Common methods include ornamental introductions, contaminants in shipping materials or travel, exotic pet trade, contaminants in ships' bilge water, etc.

Invasive — A species that (a) is nonnative to a specified geographic area, (b) was introduced by humans (intentionally or unintentionally), and (c) does or can cause environmental or economic harm or harm to humans.

Leaflet — One of the divisions of a compound leaf.

Lenticel — A lens shaped spot on the stem of a plant that serves as a pore.

Ligule — A thin tissue growing from the base of the blade of most grass species.

Midvein — The central or middle vein of a leaf; also called a midrib.

Monecious — Plants with male and female flowers, or flowers with both male and female parts (perfect flowers), on the same individual.

Native — A species that occurs naturally in a specified geographic area. In the United States, this is defined as species that have been in North America since before Europeans arrived (before 1500s). There are instances that a species could be native to one ecosystem, but be invasive in another even though they are in the same country. This is frequently seen with aquatic species and their movement assisted by humans from one waterbody to another.

Node — A joint in the stem, often where leaves emerge.

Nonnative — A species that does not occur naturally in a specified geographic area. Nonnative status doesn't automatically indicate a species will be invasive.

Nuisance — An individual or group of individuals of a species that causes management issues or property damage, presents a threat to public safety, or is an annoyance. Can apply to both native and nonnative species. This includes species that would be called "pests" or "weeds."

Perennial — A plant whose life cycle takes more than one year to complete.

Petiole — The stalk that connects a leaf to the main stem or branch.

Pinnate — Leaflet arrangement where they are opposite each other on the leaf, resembling a feather.

Pinnule — A secondary leaflet on bipinnately compound leaves (example: chinaberry [*Melia azedarach*])

Pubescent — The surface of the whole plant or a specific feature (ex: stem, fruit, leaves, etc.) covered in fine hairs.

Range change — The circumstance of a species' current/existing range growing, shrinking, or shifting over time. This change can happen to native and nonnative species with or without human assistance.

Rhizome — A modified underground plant stem that sends out roots and shoots from nodes.

Sporangia — Enclosures in which spores are formed

Stamen — The pollen-bearing organ of the flower consisting of a filament and anther.

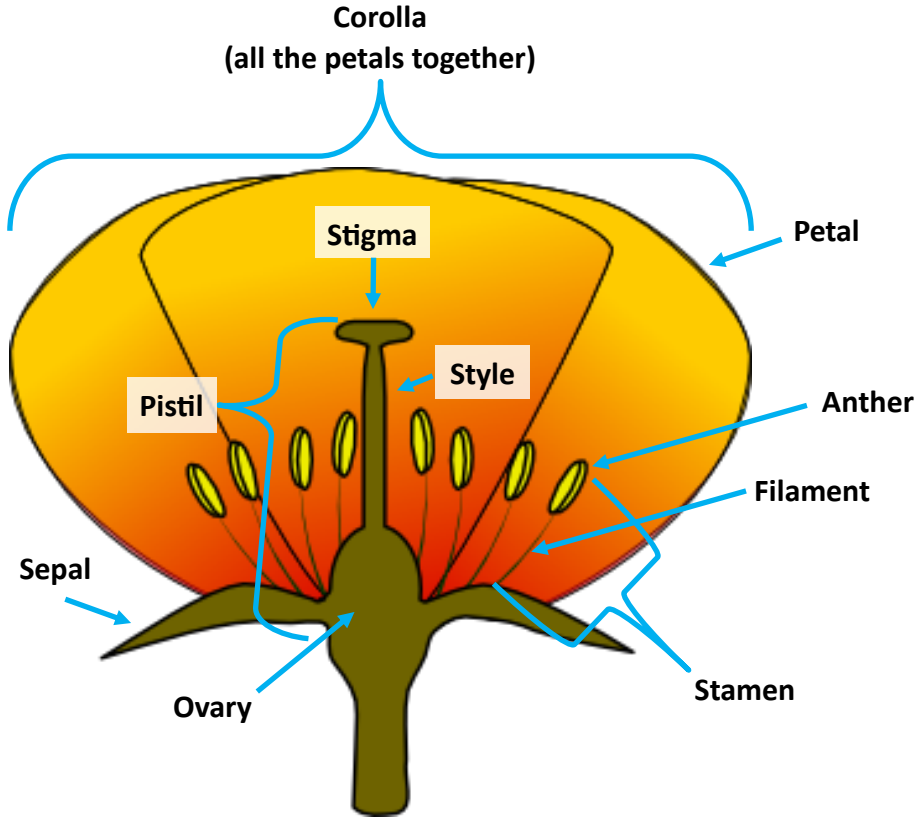
Stolon — A prostrate stem that grows along the surface of the ground that produces roots and branches at nodes.

Turion — A leaflike overwintering bud that can grow into a new plant; can form above ground or below.

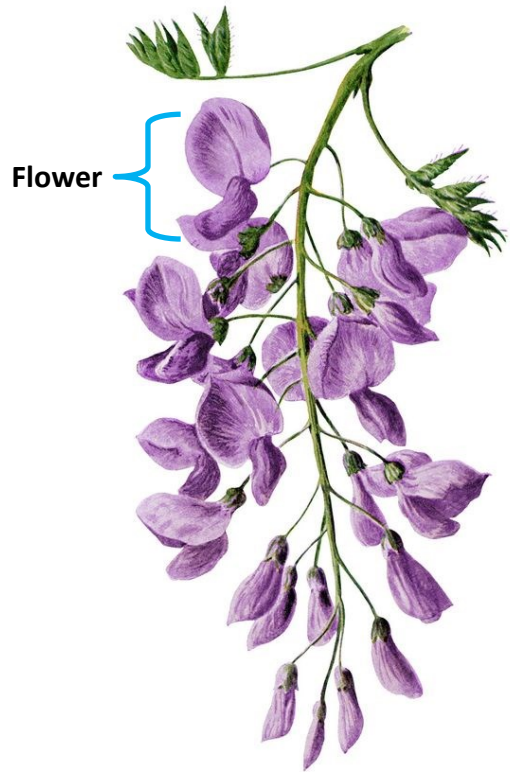
Variety — A group of plants within a species whose appearance are distinct but are insufficient to justify classification as a separate species.

Plant Diagrams

Simple Flower

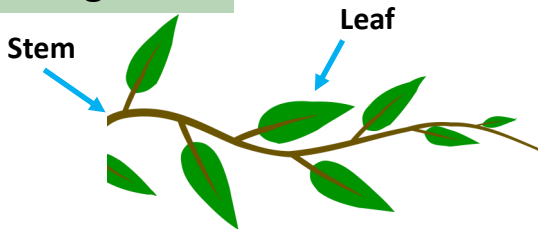


Inflorescence

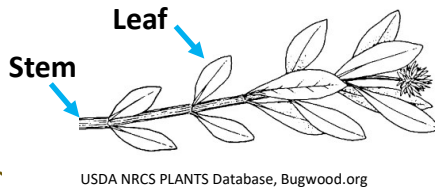


Leaf Arrangement

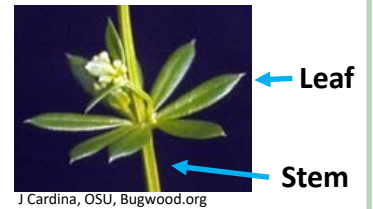
Alternate



Opposite

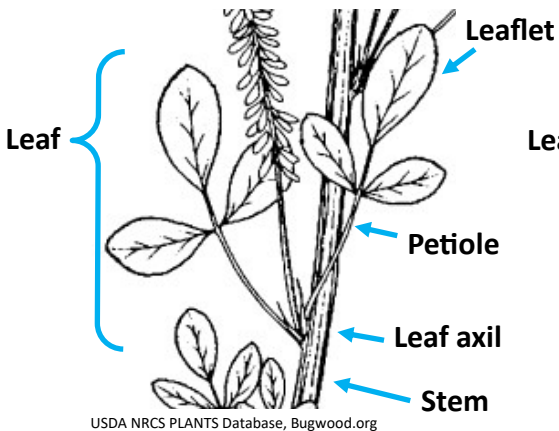


Whorl

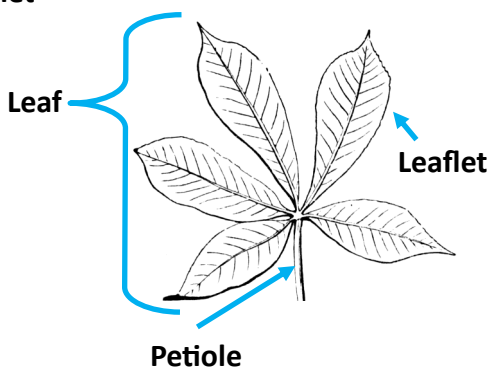


Compound Leaves

Trifoliolate



Palmate



Pinnate (odd)

