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Japanese Honeysuckle

Lonicera japonica

Japanese honeysuckle was bought over as an ornamental but has since spread into natural habitats across the United States. It spreads by rhizomes, runners, and bird-dispersed seeds. The plant forms evergreen mats which shade out native vegetation and climb up small trees and shrubs.

The Japanese honeysuckle can be identified by its fragrant flowers which blossom all summer. These flowers are yellow, white, trumpet-shaped, and occur in pairs. In the fall, they have small black fruits; the native species of *Lonicera* have red and orange fruits. The leaves of the Japanese honeysuckle are oblong (1 - 2" long), smooth (older leaves) or lobed (younger leaves) along the edges, and arranged oppositely along the stem. The Japanese honeysuckle also has a leaf at the tip of the stem; the

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Chuck Bargeron, University of Georgia, Bugwood.org

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Sweet Autumn Virgin's Bower

Clematis terniflora

Sweet autumn virgin's bower (*Clematis terniflora*), also known as sweet autumn clematis, is a vigorous woody vine that has fragrant flowers which bloom in the fall. Native to Japan, sweet autumn virgin's bower was introduced to the United States in the late 1800s as an ornamental plant and has since spread in parts of the Southeast and Midwest. This vine prefers sunny to partially shady habitat and is found invading forest edges, rights-of-way, and urban green spaces, especially near creeks.

Sweet autumn virgin's bower is a climbing, semi-evergreen vine with opposite compound leaves, each leaf composed of 3-5 glossy green leaflets, usually untoothed on mature plants. Blooming in the late summer or early fall, the flowers are 4-petaled, pubescent, white, star-shaped, and are only about an inch across with numerous white anthers

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autumns virgin's bower



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Sweet autumn virgin's bower produces prolific seed and is a rapidly growing species, usually up to 30 feet, overwhelming forest understories. In North Carolina, it has been observed in the Mountains, Piedmont, and Coastal Plain.

Fact Sheet: [Sweet Autumn Virgin's Bower](#)



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Bradford Pear

Pyrus calleryana

Bradford pear (*Pyrus calleryana*), also known as Callery pear, is a deciduous tree that can grow up to 60 feet in height and two feet in diameter. Native to China and Taiwan, its seeds were brought over to North America and experimented on to improve fireblight resistance for the common fruiting pear (*P. communis*). Unsuccessful with the experiments, Bradford pear emerged in the U.S commerce as a new ornamental tree, leading to massive landscape plantings.

Due to structural weakness, such as limb breakage from wind, ice, and snow, Bradford pear became less popular as an ornamental. Its non-sterile fruit has enabled Bradford pear to escape from lawns and gardens and to naturalize in native ecosystems.

Bradford pear is a thornless ornamental pear tree that typically grows to 20 feet tall with a pyramidal dome that

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THE EARLY SPRING, WHITE-TO-PINK BLOSSOMS, BRADFORD PEAR HAS BEEN observed within the Mountain, Piedmont, and Coastal Plain.

Fact Sheet: [Bradford Pear](#)

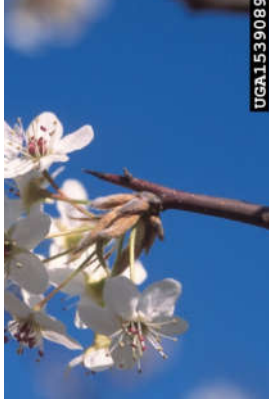


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Mimosa

Albizia julibrissin

Mimosa was introduced in the 1700s and is still a popular ornamental tree but it has jumped out of the garden and moved into natural habitats throughout the United States. The tree produces shoots from root sprouts allowing it to form dense thickets which prevents native plants from growing. Seeds are dispersed by animals and through water. It grows best under full sun - so areas along roads and streams are common places for them to grow. The also grow in suburban and urban areas. It is uncommon above 3,000 feet.

The tree (up to 50' tall) is easy to identify in the spring and summer because it produces fragrant, feathery, pink flowers, which resemble pom-poms. In later summer/early fall it produces oblong hanging seed pods (6" long).

POWERED BY [www.nc-ipc.com/albizia-julibrissin-mimosa.html](#) and leaves (5 - 8" long) are



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Tree-of-Heaven

Ailanthus Altissima

The ability of the tree of heaven to tolerate poor soils makes it a common invasive along roadsides in North Carolina (and all over the country). It is common in urban areas, the mountains, and in the coastal plain.

The tree is small to medium sized with smooth gray bark. It has alternate compound leaves, with 10-40 leaflets along the leaf stem. Each leaflet is lance-shaped.

It flowers in mid to late summer. Flowers are greenish-yellow and grow in clusters. The seeds are light and spread easily through the wind; they are enclosed in a twisted papery pod.



Photo credit: Jan Samanek, State Phytosanitary Administration, Bugwood.org



Tree of Heaven - Tree of Heaven

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Leatherleaf Mahonia

Berberis (Mahonia) bealei

Leatherleaf mahonia (*Berberis* or *Mahonia bealei*) is a large evergreen shrub with leathery holly-like leaves which usually grows in a multi-stemmed clump. Native to western China, it was introduced into the United States as an ornamental garden plant, escaping into natural habitat in many southeastern states.

Leatherleaf mahonia often grows about waist-high but can grow up to 10 feet in height. Its branch tips and inner roots are bright yellow, while its older branches and trunk are covered in thin tannish-gray bark. The oddly pinnate compound leaves are composed of 9 to 13 holly-like leaflets which grow along purplish leaf stalks. Flowering occurs in January to April with fragrant, yellow flowers. Flowers are followed by waxy green fruits, which mature in late spring and early summer to bright black egg-shaped fruits hanging attractive to birds, which

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Fact Sheet: [Leatherleaf Mahonia](#)



Photo Credit: John Ruter, University of Georgia, Bugwood.org

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Common Chickweed

Stellaria media

Common chickweed (*Stellaria media*), also commonly known as winterweed, is a cool season annual, somewhat succulent, low-growing herb. Native to Europe, this chickweed prefers wet or damp disturbed woodland areas, cultivated areas, and roadsides. Chickweed can create dense mats of shoots, up to 12 inches long, shading and out-competing young seedlings and other native plants. It has been noted that chickweed contains poisonous glycosides and high levels of nitrate.

Common chickweed stems are green or burgundy, prostrate-, up to about 12 inches long, with longitudinal line of hairs. Leaves are opposite, oval, light-green, usually about 2 centimeters long, and pointed at the tip. Small white flowers bloom during late fall through early spring. The flowers consist of 5 bifid or split petals that give the

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Photo Credit: Rebekah D. Wallace, University of Georgia, Bugwood.org

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nodes along the stem. Common chickweed can produce approximately 800 seeds in late fall to early spring and it takes 7 to 8 years for the seed bank (supply of viable seeds in soil) to be 95% depleted. Common chickweed has been observed in the Mountains, Piedmont, and Coastal Plain of North Carolina.

Fact Sheet: [Common Chickweed](#)



Photo Credit: Rebekah D. Wallace, University of Georgia,
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Chinese Silvergrass

Miscanthus sinensis

Chinese silvergrass was introduced as an ornamental grass and escaped cultivation. It now has invaded habitats all over the United States and in western North Carolina. Besides being an aggressive competitor with native species, it is also a problem because it poses a fire risk.

This grass is highly distinctive. It grows in tall bunches (5 - 12') which produce a fan-shaped panicle which has a silvery pink inflorescence in late summer, early fall. The leaves are long (18") and have sharp points and silvery midribs.



Photo credit: James H. Miller, USDA Forest Service,
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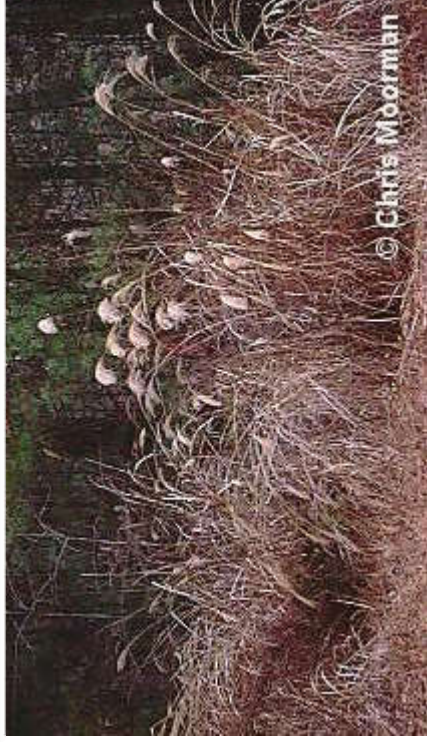


Photo Credit: Chris Moorman

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Japanese Stilt Grass

Microstegium vimineum

Japanese stilt grass has spread throughout the southeast and is found all over North Carolina. It is shade-tolerant and can grow in full sunlight, so it is found in forests, lawns, along roads, especially in floodplains. Once introduced to an area (dispersal via animals, water, and people), it forms monotypic stands within a few years.

The grass grows 2 - 3' in height, with long, alternating lance-shaped leaves (1 - 3") with off-center midribs. The stalks are distinguished by nodes. Flowers are placed on spikes which



Photo credits: Ted Bodner, Southern Weed Science Society, Bugwood.org; seedhead photo: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

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Fact Sheet: [Japanese Stilt Grass](#)



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ARTHRAxon GRASS (Small carpetgrass or Joint-head grass)

Arthraxon hispidus (Thunb.)

Arthraxon grass is a surreptitious invader found across all ecoregions of North Carolina. The species prefers wet habitats like stream banks, pond and lake margins, and wetlands, and is particularly aggressive following major disturbances such as flooding or soil movement. Dense monocultures can form within as little as 3 years, out-competing surrounding herbaceous vegetation.

Arthraxon is an annual, warm season (C4) grass growing up to 18 inches in height and having distinct, heart-shaped leaves that clasp the stems and that have a notably hairy margin. The grass flowers in fall, and the inflorescence has an appearance similar to that of big bluestem, only miniaturized. Seeds are distributed throughout late fall and winter. Seeds are adapted for aquatic distribution.



Figure 1. The distinctly clasping, heart-shaped leaves of small carpetgrass are a good identifying character. Also look for fine but noticeable hairs along the edges of the leaves.

A native of Asia, it is difficult to point at a single instance of introduction of Small carpetgrass into the US. Rather, patterns of distribution indicate multiple points of introduction along the east coast over the course of decades. As of 2019 this species is known to occur over 50 North Carolina counties, with a generally north-central distribution and outlying occurrences in the far eastern and western parts of the state. Populations extend northward and southward well beyond the state line, covering much of Virginia and northern South Carolina, respectively.



Figure 2. As its name implies, carpetgrass spreads through an area via its ability to root at each node that contacts the ground. Large, dense masses form this way and crowd out native plants.

Control efforts for the species should be focused on elimination of the plant prior to any seed formation. Thus, hand-pulling and mowing are the most appropriate manual techniques to utilize, especially in smaller infestations. Larger monocultures can be controlled using chemical means; glyphosate-based products are the most effective, but care

should be taken when selecting herbicide products due to the propensity of the plant to occur in and around wetlands, where pesticides use is restricted to certain aquatic-safe formulations.

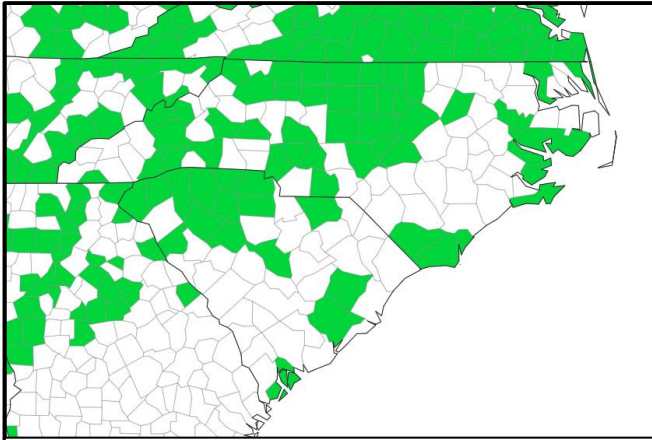


Figure 3: *Arthraxon hispidus* distribution within the Carolinas and adjoining states. (source: EDDMaps)

There have also been studies directed at biological control methods. Several fungi and at least a dozen insects parasitize and forage the grass, indicating the potential to isolate and utilize a biocontrol, but this is currently still in research phase.

The North Carolina Invasive Plant council strongly suggests that you discourage planting this plant, and to report naturalized incidences to www.EDDMapS.org.



For more information on this invasive plant, and others, please visit the North Carolina Invasive Plant Council website (nc-ipc.weebly.com).

11/26/19

Callery Pear



Background, Life History

Callery pear (*Pyrus calleryana*) is a deciduous tree, more commonly known as 'Bradford pear.' Native to China, it was first brought to the United States in 1917 for hybridization experiments to improve disease resistance of the common fruiting pear. The Bradford cultivar was widely planted as a promising new ornamental during the 1950s. Since then, many other cultivars were developed. While individual cultivars are considered self-sterile, different cultivars planted in close proximity cross-pollinate and produce fruits and viable seed. Shoots from root-stock developed with varying genotypes are also able to cross pollinate with the original tree. Spread occurs when the fruit of these hybrids is eaten and distributed by birds and other animals.

Concerns emerged over its structural weakness with limbs breaking from wind, ice and snow. More recently, the focus is on its escape from cultivation. Callery pear is adapted to a wide variety of environmental conditions, including heavy clay soils, drought, heat and pollution. Growing best in full sun, it also tolerates partial shading. Spreading into open, disturbed habitats, naturalization occurs within early successional fields, parks, rights of way, power lines and other natural open areas. It grows rapidly, flowers at a young age, often develops thorns and produces large amounts of seed. It is also establishing in the understory of forests and woodlands and is able to flower and fruit in small canopy openings.

Callery pear grows pyramidal to columnar in youth; with age it broadens and reaches heights of 30–50 feet. The bark is typically light gray. Alternate, simple, oval leaves grow to 3 inches long and 2 inches wide. The Bradford cultivar is without thorns, however, plants that have crossed with other cultivars may develop thorns. The glossy dark green leaves turn a deep reddish-purple in fall. Abundant clusters of 5-petaled, white flowers emerge in late March and April before leaf out. Round, small, olive-brown fruits appear from May to July.

Impacts

A single wild tree can spread quickly by seed and vegetative means, often forming dense thickets within several years and outcompeting native plants. In forested settings, it leafs out earlier than our native trees, effectively shading out spring wildflowers.





David J. Moorhead, University of Georgia, Bugwood.org

Abundant clusters of five-petaled white flowers bloom in early spring prior to leaf emergence.



Nancy Loewenstein, Auburn University, Bugwood.org

Glossy, oval leaves with fine toothed margins occur alternately on branches of naturalized callery pear, that often grow thorns.



David J. Moorhead, University of Georgia, Bugwood.org

Early blooming flowers, pyramidal shape, and dense groups of plants help to identify callery pear in early spring.

Control

In areas with light infestation, small trees can be removed by hand when the soil is moist, with care taken to remove the entire root. When too numerous, foliar spraying with a 2 to 5 percent systemic herbicide solution of glyphosate or triclopyr can be utilized in mid to late summer.

Medium to large trees should be cut down and stumps treated immediately with herbicide to prevent re-sprouting. Effective herbicides include glyphosate and triclopyr at a 25 to 50 percent solution. Less labor intensive control options include basal bark treatment and girdling. Basal bark treatment can be used for trees up to 6 inches in diameter by applying a 1:5 ratio of the ester formulation of triclopyr and basal oil in a 12-inch wide band around the entire circumference of the tree base. The most successful period for herbicide uptake is late winter/early spring or during the summer. Mature trees can be girdled during the spring and summer, by cutting through the bark around the entire trunk, 6 inches above the ground.

Due to the persistent seed bank and potential for re-sprouting, subsequent treatments will be required for several years.

Native Look-alikes

Serviceberry, plums, and crabapples bloom about the same time as callery pears, and all have five-petaled whitish flowers. Serviceberry petals are brighter white and are strap-shaped and wavy with space between, as opposed

to rounded and close together for the pear. Native plums have stamens (the threadlike stalks in the center of the flower) that are longer than the petals. Apple and crabapple flowers have a slightly pink hue, and apple tree branches are nearer to horizontal and less uniform compared to the vertical, symmetrical branching of callery pear.

Alternative Native Plants

American plum (*Prunus americana*)
Flowering dogwood (*Cornus florida*)
Eastern redbud (*Cercis canadensis*)
Hawthorn (*Crataegus spp.*)
Serviceberry (*Amelanchier arborea*)

Identifying Callery Pear

- Deciduous tree 30–50 feet in height, with wide spreading branches; may be thorny
- Shiny, dark green leathery leaves, with small toothed margins; reddish-purple in fall
- Five-petaled white flowers occur in spring prior to leaf-out; with small hard, brown fruits

For Additional Information

short.mdc.mo.gov/ZTA
invasive.org/weedcd/species/10957.htm
mipn.org

mdc.mo.gov

For more information or to report a population, contact your local Missouri Department of Conservation office, e-mail WildlifeDivision@mdc.mo.gov, or write:

Callery Pear
Missouri Department of Conservation
Invasive Species Coordinator
PO Box 180
Jefferson City, MO 65102–0180



ORANGE EYE BUTTERFLYBUSH

Buddleja davidii Franch.

Plant Symbol = BUDA2

Contributed by: USDA NRCS Corvallis Plant Materials Center



© G. D. Carr

Caution: This plant may become invasive.

Alternate Names

Alternative common names: Butterfly bush, orange eye, summer lilac, purple buddleja, red buddleja

Alternative scientific names: *Buddleia*, *Buddleja variabilis* Hemsl.

Uses

Ornamental: Orange eye butterflybush has been used in the nursery trade for over a hundred years due to its pleasant weeping, grey-green foliage and fragrant, colorful blooms that attract butterflies, hummingbirds and other floral visitors. Because it can become invasive and crowd out desirable native vegetation, sterile varieties or hybrids should be chosen when installing new plantings.

Status

Orange eye butterflybush is listed as a Class B noxious weed in Washington, and in Oregon is a list B designated weed, subject to quarantine. As of January 1, 2010, any plant listed as 'butterfly bush' is assumed to be *B. davidii* and is prohibited entry, transport, purchase, sale or propagation in the State of Oregon. Sterile varieties of *Buddleja* approved by the Oregon Dept. of Agriculture, including inter-specific hybrids, are not regulated and may be propagated and sold if labeled as follows:

“Seedless Butterfly Bush*.” “*Produces less than 2% viable seed.” Please consult the PLANTS Web site and your State Department of Natural Resources for this plant’s current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Weediness

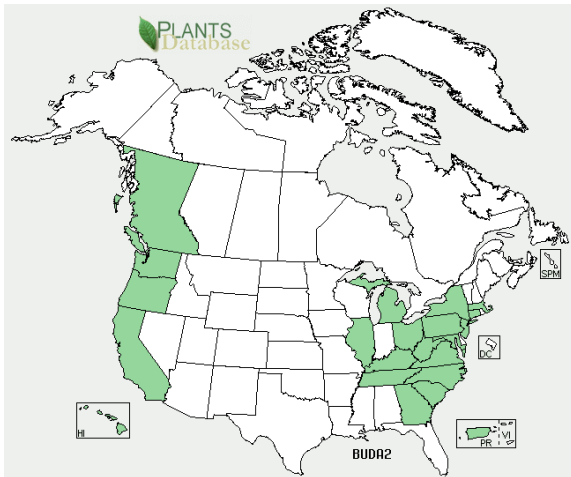
This plant establishes readily from seed and stem fragments in disturbed or natural areas, especially riparian zones, where it can form dense thickets that outcompete native vegetation. Seed can be produced the first year, is spread easily by wind and water, and can remain viable in the seed bank for three to five years. Plants are difficult to remove once established as they will readily resprout from the root crown after the stems are cut. Please consult with your local NRCS Field Office, Cooperative Extension Service office, state natural resource, or state agriculture department regarding its status and use. Weed information is also available from the PLANTS Web site at <http://plants.usda.gov>. Please consult the Related Web Sites on the Plant Profile for this species for further information.

Description and Adaptation

Orange eye butterflybush is a non-native, deciduous to semi-evergreen shrub that grows 6–16 feet tall and 4–15 feet wide. The leaves are egg- to lance-shaped, up to 10 inches long, green above and grayish, soft-woolly below, growing oppositely on long, arching stems that are green when young and have peeling, gray-brown bark when older. Tiny, tubular, four-petaled flowers are arranged in large, cone-shaped clusters 3–18 inches long that bloom from late spring to first frost in fall. Flowers are generally purplish with a yellow to orange throat, though horticultural varieties range from white or yellow to pink and deep purple.

Butterflybush is hardy to -20°F (USDA zones 5–10) and prefers moist, well-drained soils in partial to full-sun, although it is fairly drought-tolerant once established. Roots generally don’t survive in saturated soil. Ornamental escapes establish on roadsides, railroad tracks, stream and river banks, dryland meadows, dunes, coastal forest edges and logged areas, surface mined lands, industrial yards and other disturbed areas.

Native to China, this shrub has been spread widely through the horticultural trade and become naturalized in many parts of North America, including the pacific northwest, northeast, Hawaii and Puerto Rico (see map below), as well as western Europe, southeastern Australia and New Zealand. For updated distribution, please consult the Plant Profile page for this species on the PLANTS Web site.



Orange eye butterflybush distribution from USDA-NRCS PLANTS Database.

Establishment

Plants can be started easily in the spring from seed, container stock or cuttings. Plants should be given sufficient space in the garden as they grow rapidly and can shade out neighbors. They may need summer watering in drier climates the first couple of years, but most varieties are drought-hardy once established. There are approximately 143,000 seeds per pound.

Management

In gardens and yards, flowers should be deadheaded before they produce fruits to prolong bloom and prevent seeds from establishing in undesirable areas. In warmer climates (USDA zones 8–10) where the shrubs don't die back to the ground during winter, the weeping side branches should be pruned in the spring to encourage new growth and larger, more prolific blooms. In cold climates (USDA zones 5 and 6), mulch plants in the fall and cut back to about a foot high in late winter. Cut branches must be disposed of properly (burned or composted) to ensure they don't sprout into new plants.

Pests and Potential Problems

Orange eye butterflybush generally has few pests, but can be susceptible to spider mites, caterpillars, weevils, mullein moth, fungal leaf spot and dieback, especially during drought or stress.

Environmental Concerns

Dense thickets of butterflybush can crowd out native vegetation and disrupt natural succession patterns on forests after logging or burns, and on riverbanks and sandbars following floods. Plants buried by up to 1.5 feet of fine sand in a flood can survive by sprouting new roots and shoots from buried stems, thus aiding their rapid recovery and dominance of early succession riparian communities.

Control

Seedlings and small plants can be hand-picked or dug out, though this soil disturbance can also create sites for

further invasion. To remove established shrubs, stems should be cut off at the base and disposed of properly, and then a general use herbicide such as glyphosate or triclopyr can be applied to the freshly-cut stump to prevent regrowth. Alternately, infested areas can be fenced and browsed by goats for 3-4 years to attain acceptable control as part of an integrated pest management program. Two biological control agents are being used on an experimental basis in New Zealand, but have not yet been tested or approved for use in the US: the weevil *Cleopus japonicus*, whose adults and larvae consume butterflybush leaves, and the stem boring beetle, *Mecyslobus erro*. Please contact your local agricultural extension specialist or county weed specialist to learn what works best in your area and how to use it safely. Always read label and safety instructions for each control method. Trade names and control measures appear in this document only to provide specific information. USDA NRCS does not guarantee or warranty the products and control methods named, and other products may be equally effective.

Cultivars, Improved, and Selected Materials (and area of origin)

There are over a hundred *Buddleja* varieties or hybrids that are widely available from commercial sources. As of September 2011, the following sterile varieties were approved for sale and propagation in Oregon: *Buddleja* 'Asian Moon', 'Purple Haze', and 'Ice Chip' (formerly 'White Icing'); FLUTTERBY GRANDÉ™ Blueberry Cobbler Nectar Bush, Peach Cobbler Nectar Bush, Sweet Marmalade Nectar Bush, Tangerine Dream Nectar Bush, and Vanilla Nectar Bush; FLUTTERBY PETITE™ Snow White Nectar Bush; and FLUTTERBY™ Pink Nectar Bush. The following hybrids (between two or more *Buddleja* species) are not regulated in Oregon, and are assumed to be sterile, though their fertility has not been assessed: *Buddleja* 'Lilac Chip', 'Blue Chip', 'Miss Molly' and 'Miss Ruby'.

Prepared By

Anna Young-Mathews

USDA-NRCS Plant Materials Center, Corvallis, Oregon

Citation

Young-Mathews, A. 2011. Plant fact sheet for orange eye butterflybush (*Buddleja davidii*). USDA-Natural Resources Conservation Service, Corvallis Plant Materials Center, Corvallis, OR.

Published September, 2011

Edited: [06Sept2011 jab]

For more information about this and other plants, please contact your local NRCS field office or Conservation District <<http://www.nrcs.usda.gov/>>, and visit the PLANTS Web site <<http://plants.usda.gov/>> or the Plant Materials Program Web site <<http://plant-materials.nrcs.usda.gov/>>

CHICKWEEDS

Integrated Pest Management for Home Gardeners and Landscape Professionals

Two species of chickweed, common (*Stellaria media*) and sticky (*Cerastium glomeratum*), are widespread in California. Both are winter annuals that grow easily in gardens, low-maintenance lawns, and agricultural areas. Mouseear chickweed (*Cerastium fontanum* ssp. *vulgare*) can also be found invading turf. Common chickweed is found in well-watered areas, but sticky chickweed can tolerate somewhat drier sites. Common chickweed is known to be a reservoir for insect pests and plant viruses. As the common name implies, seeds of common chickweed are a preferred food for chickens and many other birds.

Its adaptability to almost all environmental conditions makes common chickweed a very widespread and successful weed. It can start producing seeds within five weeks of germination and can continue to produce seeds for weeks or even months thereafter. Seeds can germinate (sprout) soon after they disperse from the plant and require no further ripening as do seeds of many other weeds.

IDENTIFICATION AND LIFE CYCLE

Common chickweed is a prostrate or erect, somewhat succulent annual that often forms a dense mat. In lawns, it rarely grows higher than 2 inches, but can be taller (4 to 6 inches) and less compact in gardens or under shaded conditions. The stems have a diagnostic band of hairs along one side and the bright green smooth leaves grow opposite each other on each node. The leaves have an obvious pointed tip (see Fig. 1). The flowers are small with five white petals. However, the petals are deeply divided so the flower ap-



Figure 1. Common chickweed, *Stellaria media*.

pears to have 10 petals. The numerous seeds are borne in capsules at the end of the stalk. Roots are shallow and fibrous. Common chickweed will grow in a wide range of soils but does particularly well in neutral pH soils with high nitrogen and poorly in low pH or acid soils.

Sticky chickweed is similar in appearance to common chickweed, but has a more upright growth habit. The

leaves as well as stem are hairy, giving the plant a grayer appearance. The abundance of hairs, some with glandular secretions, gives the plant a sticky feel.

Both sticky and common chickweed are annual weeds. The seeds germinate from January to early March in cooler areas when soil temperatures reach about 59°F; the optimal temperature range is 54° to 68°F. However, if

the soil is very moist, seeds can sprout at much higher temperatures. The seeds typically germinate at or very near to the soil surface. Germination can be in large numbers after an irrigation or rain. The deeper the seeds are buried or the drier the soil, the less likely it is that the seeds will germinate or the seedlings will survive. Mature seeds can germinate without a dormancy period. Chickweed can complete its lifecycle in 5 to 6 weeks.

IMPACT

When growing without competition from other plants, common chickweed can produce approximately 800 seeds and it takes 7 to 8 years for the seed bank (supply of viable seeds in soil) to be 95% depleted, insuring an infestation for many years. Because of its ability to produce large numbers of seeds under cool temperatures, common chickweed rapidly colonizes any cool, moist area before winter or spring crops can become competitive. In commercial situations common chickweed can limit winter vegetable production by competing for space, light, and nitrogen. Additionally, common chickweed can serve as a host for insect pests such as lygus bugs and thrips as well as a reservoir host for tomato spotted wilt virus (TSWV) and cucumber mosaic virus (CMV).

In turf and landscape plantings, common and sticky chickweed can be unsightly, reducing the aesthetic value. In cool, wet conditions common chickweed forms a dense mat of spreading stems that may root at the nodes. This increases the difficulty of hand weeding or hoeing.

MANAGEMENT

Home gardeners should rely primarily on nonchemical control methods such as hand weeding, cultivation, mulches, and solarization when possible. Herbicides should only be used where the weed covers a very large area or where non-chemical weed management methods are difficult to adapt to the site. The likelihood of crop injury or application to plants that are not on the herbicide label is very high due to

the wide variety of plants grown by home gardeners.

Chickweed should be controlled before it flowers. This can be difficult due to the short period between germination and flower production. However, regular monitoring and removal of plants from the site will prevent seeds from developing and accumulating in the soil (seed bank). It is important not to only remove the plants from the ground but also remove them from the site; common chickweed can reroot from stem nodes in moist areas.

Cultural Control

Cultivation, including hand weeding, will effectively control chickweed if done early. It is most effective if the soil is dry and plants are small. Cultivation when plants are large and soil is moist can lead to spread of the weed through re-rooting. Under this situation, the weeded debris should be removed. Chickweed germination decreases with depth of the seed. Turning the soil over can reduce seed germination, but may also bring other weed seeds closer to the surface. Monitor the soil surface for chickweed seedlings throughout late fall and winter and then remove them by shallow cultivation or by hand pulling.

Solarization using clear plastic mulch is a method of heating the soil to temperatures lethal to seeds and other pests. It is an effective method for controlling many annual weeds including the chickweeds. If solarization is done in late summer and the soil is not disturbed, subsequent winter crops can develop a canopy and become more competitive before other winter weeds germinate. See UC ANR Publ. 21377 for details of soil solarization.

Using an organic mulch such as wood chips, at least two inches deep, will reduce the amount of weed seeds germinating by limiting light and serving as a physical barrier. Synthetic mulches such as landscape fabrics may also be used. In landscaped areas, they should be covered with an

additional layer of mulch (rock or bark) to reduce deterioration of the fabric by UV radiation. Vegetable gardens also can utilize black plastic, both as mulch into which seeds or transplants are placed and also between rows.

In turf, the primary method of control is to maintain a thick vigorous lawn. This will prevent chickweed seedlings from getting established. Deep, infrequent irrigation also discourages chickweed infestations. Follow fertilization guidelines as recommended for a particular turf species and avoid overapplication of nitrogen. For more detailed fertilizing information see the online UC Guide to Healthy Lawns, www.ipm.ucdavis.edu/TOOLS/TURF/, or download *Practical Lawn Fertilization*, UC ANR Publ. 8065.

Biological Control

Other than grazing by sheep and birds, there are no commercially available biocontrol agents for the chickweed species.

Chemical Control

In general, nonchemical controls are the safest method for weed control in home gardens and landscapes. When cultural control methods cannot be used, such as on very large areas, in weakly growing turf, or in professionally managed landscapes, herbicides may be an alternative. However, they must be applied at a time when they are most effective for controlling chickweeds and in a way that prevents injury to desired plants. In both vegetable gardens and landscaped areas, mulches, cultivation, and hand weeding would be preferred. For professional landscapers, an herbicide can be helpful as a preemergent treatment when transplanting annuals for fall color or in woody perennial beds where mulches are not used.

Preemergent products. Preemergent herbicides must be applied before weed seeds germinate. Therefore, they are most effective if applied in late fall or early winter. It is important to follow the label directions regarding application method. Always check to see if the material should be mixed

into the soil or not and whether the soil can be disturbed after application. Some products can only be used in ornamental areas or turf and must not be applied to areas where food crops will be grown. The label will also contain that information.

Postemergent products. Postemergent herbicides are applied to weeds after they have emerged from the soil. These are most effective when applied to weed seedlings. Postemergent

products will injure any plant that is susceptible, including desired plants. Products containing diquat, glyphosate, or glufosinate are nonselective postemergent herbicides; they will injure most plants they encounter and should not be used near desired plants. Other postemergent herbicides listed in Table 1 are selective against broadleaf species and generally will not injure most grasses. This makes them useful materials in turf lawns, but

they should not be used in landscape beds unless the desired plants can be protected from the spray. Products containing triclopyr will injure warm-season grasses like bermudagrass and kikuyugrass, but are safe to use in cool-season grasses like fescue. As with the preemergent herbicides, information regarding plant safety and appropriate use of the herbicide can be found on the product label. Table 1 lists the active ingredient in

Table 1. Herbicide Products Available for Chickweed Control in Home Gardens, Turf, and Landscapes.¹

| PREEMERGENT | |
|--|--|
| Active ingredient | Most appropriate use |
| BENEFIN Often a component of “weed and feed” products for lawns. ² Do not use on vegetables. Apply after plants are well established. | turf, landscaped beds |
| DITHIOPYR Often a component of “weed and feed” products for lawns. ² Apply after plants are well established. Do not use on food crops. | turf, landscaped beds |
| ORYZALIN Do not use on vegetables. Check label of specific product to see if registered for tree fruits and nuts or turf species. Apply after plants are well established and only on non-bearing fruit or nut trees. | turf (some species), landscaped beds |
| PENDIMETHALIN Often a component of “weed and feed” products for lawns. ² Apply after plants are well established. | turf |
| PRODIAMINE Often used as a component of “weed and feed” products for lawns. ² Apply after plants are well established. Do not disturb soil after application. | turf |
| TRIFLURALIN Often a component of “weed and feed” products for lawns. ² Certain products allow for use on vegetables—consult label of specific product. | some vegetables, turf (some species when commercial product is packaged as a combination with benefin) |
| POSTEMERGENCE | |
| DICAMBA Often a component of “weed and feed” products for lawns. ² Will injure or kill broadleaf plants. Do not use near any desired broadleaf ornamental or food crops. | turf |
| DIQUAT Most effective when applied to small plants. Non-selective contact herbicide—will kill or injure any plant it contacts. Does not translocate (move within the plant). Do not use on food crops. | spot treat in landscapes or broadcast spray in unplanted areas to prepare for planting |
| GLUFOSINATE Most effective when applied to small plants. Non-selective herbicide will kill or injure any plant that it contacts. Do not use on food crops. | spot treatments in lawn or landscapes or broadcast spray in unplanted areas to prepare for planting |
| GLYPHOSATE Most effective when applied to small plants but can also control larger ones. Non-selective herbicide—will kill or injure any plant that it contacts. Avoid drift by using a shield on the sprayer or shielding desired plants from spray. Translocates (moves within the plant). | spot treatments in lawn or landscapes or broadcast spray in unplanted areas to prepare for planting |
| TRICLOPYR Will injure or kill broadleaf plants. Should not be used near any desired broadleaf ornamental or food crop. May also be absorbed by tree and shrub roots. Should be used well away from any desired trees and shrubs. Can injure most warm-season turfgrasses. Consult label for specific uses. | cool-season turf species (e.g., fescue), nonplanted areas |
| ¹ Keep in mind that home gardeners should rely primarily on nonchemical methods. | |
| ² Turf applications. Unless the turf is expected to have or has a heavy weed infestation, weed and feed combinations are not recommended. It is much more effective to use the correct fertilizer at the appropriate time and overseed to cover bare or thin spots. | |

herbicides that provided good control of chickweed in field tests and can be found in products sold for nonprofessional landscape and garden use.

SUGGESTED READING

Elmore, C. L., J. J. Stapleton, C. E. Bell, and J. E. DeVay. 1997. *Soil Solarization: A Nonpesticidal Method for Controlling Diseases, Nematodes, and Weeds*. Oakland: Univ. Calif. Div. Agric. Nat. Res., Publ. 21377.

Henry, J. M., V. A. Gibeault, and V. F. Lazaneo. 2002. *Practical Lawn Fertilization*. Oakland: Univ. Calif. Div. Agric. Nat. Res. Publ. 8065.

UC Statewide IPM Program. Soil solarization method described online, <http://www.ipm.ucdavis.edu/TOOLS/TURF/SITEPREP/soilsolar.html>.

UC Statewide IPM Program. Lawn fertilization methods described online,

For more information contact the University of California Cooperative Extension in your county. See your telephone directory for addresses and phone numbers.

AUTHOR: C. A. Wilen, UC Statewide IPM Program, San Diego Co.
TECHNICAL EDITOR: M. L. Flint
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ILLUSTRATION: **Fig. 1** Regina O'Hughes, 1970. *Selected Weeds of the United States*. US Dept. Agriculture Publication 366.

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This Pest Note is available on the World Wide Web (www.ipm.ucdavis.edu)



This publication has been anonymously peer reviewed for technical accuracy by University of California scientists and other qualified professionals. This review process was managed by the ANR Associate Editor for Pest Management.

To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products that are not mentioned.

This material is partially based upon work supported by the Extension Service, U.S. Department of Agriculture, under special project Section 3(d), Integrated Pest Management.

<http://www.ipm.ucdavis.edu/TOOLS/TURF/MAINTAIN/fertilize.html>.

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Weed Research Information Center. 2004. *Weed Susceptibility Chart*. Davis, California: University of California. Available online, <http://WRIC.ucdavis.edu>. ❖

WARNING ON THE USE OF CHEMICALS

Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Confine chemicals to the property being treated. Avoid drift onto neighboring properties, especially gardens containing fruits or vegetables ready to be picked.

Do not place containers containing pesticide in the trash or pour pesticides down sink or toilet. Either use the pesticide according to the label or take unwanted pesticides to a Household Hazardous Waste Collection site. Contact your county agricultural commissioner for additional information on safe container disposal and for the location of the Household Hazardous Waste Collection site nearest you. Dispose of empty containers by following label directions. Never reuse or burn the containers or dispose of them in such a manner that they may contaminate water supplies or natural waterways.

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U.S. National Early Detection and Rapid Response System for Invasive Plants

EDRR Fact Sheet

Randy G. Westbrooks, U.S. Geological Survey. Whiteville, North Carolina. USA.
Bernard Martin, City of North Charleston, South Carolina.

Common Name: Deeprooted Sedge

Scientific Name: *Cyperus entrerianus* Boeckeler

Synonyms: *Cyperus luzulae* auct. non (L.) Rottb. ex Retz., *Scirpus luzulae* auct. non L.

Family: Cyperaceae

Description: A robust grass-like plant that grows up to 40" tall. **Rhizomes** deeply set, thick, dark purple to black leaf bases. **Leaves** basal, glossy, and flat or V-shaped. **Leaf bases** dark purple to black. **Inflorescence** terminal, with 5-11 elongate rays, ending in densely clustered spikelets.

Habitat: A weed of wet, disturbed areas such as highway ditches and field margins.

Native Range: South America.

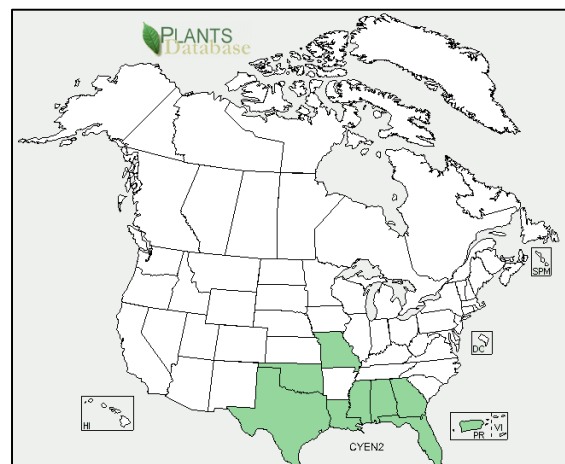
Pathways of Introduction and Spread:

Accidentally introduced into the United States via rice culture. It was first reported about 20 miles north of Brownsville (Cameron County), Texas, in 1941. It is now being spread across the southern U.S. by construction and agricultural activities, and roadside mowing.



U.S. and Canada Distribution:

Ecological and Economic Impacts: Currently, Deeprooted sedge is beginning to displace native vegetation in undisturbed habitats. Unless it is controlled it will continue to spread, and will infest agricultural and forest production areas, wetlands, riparian zones, and urban areas. Studies show that large plants can produce a million viable seeds per year, and it can overwinter in much of the South.



Control Strategies: Tillage (even repeated disking) temporarily suppresses seed production of Deeprooted sedge, but regrowth is rapid following rainfall. Mowing prevents additional seeding, but opens areas for germination of new seedlings and spread of established plants from underground rhizomes.

Several herbicides have been found to be effective in controlling Deeprooted sedge. Effective herbicides include [glyphosate](#) (Roundup – 2 qt./acre), [hexazinone](#) (Velpar – 2 pts./acre), [MSMA](#) (2 lb./acre), [2,4-D + Dicamba](#) (Weedmaster – 2 pt./acre) and [picloram](#) (Grazon P + D; 2 qt./acre).



Image: Deep rooted sedge seedling.

Equipment sanitation is important in preventing the spread of Deeprooted sedge. Any vehicle, machine, or equipment that is used in an infested area should be cleaned before it is moved to another site to minimize the spread of seeds and rhizomes.

Regulatory Status: Deeprooted sedge is not currently regulated by any state or federal agencies within the United States.

Online Resources:

Deeprooted Sedge – An Overlooked Aggressive Weed in the Southeastern United States. Fact Sheet. U.S. Fish and Wildlife Service et al.

URL: <http://www.invasive.org/eastern/other/ypentrflyer.pdf>

Deeprooted Sedge – Control and Suppression Fact Sheet – Charles Bryson – IL DNR.

URL: <http://dnr.state.il.us/Stewardship/cd/other/contol-deeprootedsedge.pdf>

Deeprooted Sedge Images - U-GA Bugwood Image Gallery.

URL: <http://www.invasive.org/species/subject.cfm?sub=10954>

Deeprooted Sedge Profile - USDA Plants Database.

URL: <http://plants.usda.gov/java/profile?symbol=CYEN2>

Rosen, D., R. Carter, and C. Bryson. 2006. The spread of *Cyperus entrerianus* (Cyperaceae) in the southeastern United States and its invasive potential in bottomland hardwood forests. *Southeastern Naturalist* 5:333-344.

URL: <http://www.valdosta.edu/~rcarter/Rosen.Carter.Bryson.2006.pdf>



Fig Buttercup

Ficaria verna (previously *Ranunculus ficaria* L.)
Buttercup family (Ranunculaceae)

NATIVE RANGE

Eurasia including Europe, Northern Africa, Western Asia, Caucasus, and Siberia

DESCRIPTION

Fig buttercup, also called lesser celandine and pilewort, is a perennial herbaceous flowering plant that completes its life cycle during the winter and spring. The name is derived from *Ficaria* (Latin for fig) and *verna* (spring). Plants consist of a basal rosette of tender, succulent, dark green, shiny, stalked kidney- to heart-shaped leaves. Flowers are symmetrical, bright buttery yellow with a slightly darker center, have 8 (typical) to 12 petals, and are borne singly on delicate stalks that rise above the leaves. Tiny cream colored bulblets are produced in stem axils and become apparent later in the flowering period. Abundant fingerlike tubers are produced by the roots and are easily visible when plants are pulled up. Fruiting heads are globose composed of many achenes that are pubescent and usually abortive. When in bloom, large infestations of lesser celandine appear as a green carpet with yellow dots, spread across the forest floor. There are many varieties of lesser celandine including a double-flowered form with many petals and dark green leaves mottled with silvery markings.



NOTE: Fig buttercup may be confused with marsh marigold (*Caltha palustris*), a native plant found in wetland habitats in the eastern United States. Marsh marigold is a robust plant with glossy, rounded or kidney-shaped leaves and flowers on stalks that are 8 in (20.3 cm) or more in height and consist of five to nine deep yellow "petals" (actually sepals). Marsh marigold does not produce tubers or bulblets, nor does it form a continuous carpet of growth. Extreme care should be taken to correctly identify lesser celandine before undertaking any control measures to avoid impacts to this plant. It also resembles celandine (*Chelidonium majus*) and celandine poppy (*Stylophorum diphyllum*), both of which belong to the poppy family and can be distinguished from the invasive buttercup by having flowers with four petals.

ECOLOGICAL THREAT

Fig buttercup is a vigorous growing vernal plant that forms large, dense patches in floodplain forests and some upland sites, displacing many native plant species, especially those with the similar spring-flowering life cycle. Spring ephemerals complete the reproductive part of their life cycle and most of their above-ground development in the increasing light of late winter and spring, before woody plants leaf out and shade the forest floor. Some examples of native spring ephemerals include bloodroot, wild ginger, spring beauty, harbinger-of-spring, twinleaf, squirrel-corn, trout lily, trilliums, Virginia bluebells, and many, many others. These plants provide critical nectar and pollen for native pollinators, and fruits and seeds for other native insects and wildlife species. Because fig buttercup emerges well in advance of the native species, it has a developmental advantage which allows it to establish and overtake areas rapidly.

DISTRIBUTION IN THE UNITED STATES

Fig buttercup is reported to be invasive in at least seventeen states in the northeastern U.S. from Wisconsin to New Hampshire south to Tennessee and, to date, in one western state, Oregon (<http://www.invasiveplantatlas.org>).

HABITAT IN THE UNITED STATES

Fig buttercup occurs in low open woods, floodplains, meadows and waste places and seems to prefer sandy soils.

BACKGROUND

Fig buttercup was introduced to the United States as an ornamental plant. It is still available commercially in the U.S. along with many colorful varieties. All varieties should be assumed to be potentially invasive and should not be allowed to escape from plantings.

BIOLOGY & SPREAD

Fig buttercup is a vernal or spring ephemeral perennial plant that spends much of the year (summer through early winter) underground as thickened, fingerlike tubers or underground stems. During the winter, leaves begin to emerge and photosynthesize in preparation for flowering. In the mid-Atlantic region, most flowering occurs from late winter through mid-spring (March through May), depending on conditions. After flowering, the above-ground portions begin to die back and the plants are mostly gone by June. Fig buttercup spreads primarily by vegetative means through abundant tubers and bulblets, each of which can grow into a new plant once separated from the parent plant. The prolific tubers may be unearthed and scattered by the digging activities of some animals, including well meaning human weed pullers, and spread to new sites during flood events.

MANAGEMENT OPTIONS

Due to its short life cycle, the window of opportunity for controlling fig buttercup is very short but it can be accomplished with persistence over time using methods that are appropriate for the site and size of infestation. While manual methods are possible for some (small) infestations, the use of systemic herbicide is more effective because it kills the entire plant including the roots and minimizes soil disturbance.

Biological

No biological control agents are currently available or being investigated for fig buttercup.

Chemical

In order to have the greatest negative impact to celandine and the least impact to desirable native wildflower species, herbicide should be applied in late winter-early spring, generally February through March. Start applications prior to flowering and up until about 50 percent of the plants are in flower, around April 1, then stop. After that, control success declines and many more native wildflowers have emerged that could be killed by spray. Native amphibians would also be emerging and could be harmed. Apply a 1 to 1.5% rate of a 53.8% active ingredient glyphosate isopropylamine salt (e.g., Rodeo® which is labeled for use in wetland areas), mixed with water and a non-ionic surfactant to foliage, avoiding application to anything but the celandine. Glyphosate is systemic; that is, the active ingredient is absorbed by the plant and translocated to the roots, eventually killing the entire plant. The full effect on the plant may take 1-2 weeks. Retreatment the following year will likely be needed. Applications can be made during the winter season as long as the temperature is 50 degrees Fahrenheit or above, and no rain is anticipated for at least 12 hours. Because glyphosate is non-specific, spray should be directed such that it contacts only fig buttercup and does not drift onto desirable native plants. To minimize impacts to sensitive-skinned frogs and salamanders, some experts recommend applying herbicide in March and then switching to manual methods.

Manual-Mechanical

For small infestations, fig buttercup may be pulled up by hand or dug up using a hand trowel or shovel. It is very important to remove all bulblets and tubers. Due to the abundant tiny bulblets and tubers, all material must be bagged up, removed from the site and disposed properly in a landfill or incinerator. A major consideration when manually removing invasive plants like this is the disturbance to the soil which can encourage the target invasive as well provide openings for invasion by other exotic species. For these reasons, manual and mechanical removal is probably inappropriate for larger infestations in high quality natural areas.



USE PESTICIDES WISELY: Always read the entire pesticide label carefully, follow all mixing and application instructions and wear all recommended personal protective gear and clothing. Contact your state department of agriculture for any additional pesticide use requirements, restrictions or recommendations.

NOTICE: mention of pesticide products on this page does not constitute endorsement of any material.

CONTACT

For more information on the management of fig buttercup, please contact:

- Sue Salmons, National Park Service, Washington, sue_salmons at nps.gov
- Jil Swearingen, National Park Service, jil_swearingen at nps.gov

SUGGESTED ALTERNATIVE PLANTS

Many lovely native perennial, spring-flowering plants are available as alternatives to fig buttercup. Plants native the eastern U.S. that are available from native plant nurseries include wild ginger (*Asarum canadense*), bloodroot (*Sanguinaria canadensis*), twinleaf (*Jeffersonia diphylla*), and various species of trilliums. Contact your local native plant society for additional suggestions and assistance for which species are appropriate for your area. Buying from reputable sources will ensure that the plants you buy are not collected from the wild. For sources of native plants, see link to Lady Bird Johnson Wildflower Center website below.

OTHER LINKS

- <http://www.invasive.org/search/action.cfm?q=Ranunculus%20ficaria>
- <http://nbii-nin.ciesin.columbia.edu/ipane/icat/browse.do?specieId=89>
- <http://invasiveplantatlas.org/subject.html?sub=3069#maps>
- <http://www.wildflower.org/explore/>

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PHOTOGRAPHS

Jim Stasz @ USDA-NRCS PLANTS Database

Olivia Kwong, Plant Conservation Alliance, Washington, DC

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Kartesz, J. 2010. Biota of North America Project (BONAP). <http://www.bonap.org/>

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Swearingen, J. 2008. Survey of Invasive Plants Affecting National Parks in the United States. <http://www.invasiveplantatlas.org/parksurvey.pdf>

USDA, NRCS. 2010. The PLANTS Database (<http://plants.usda.gov>, 19 February 2010). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

Weakley, A.S. 2008. North Carolina University Flora of the Southeastern United States. Chapel Hill, NC. <http://www.herbarium.unc.edu/seflora/firstviewer.htm>

Invasive Plant Atlas

of the United States


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sweet breath of spring

Lonicera fragrantissima Lindl. & Paxton

USDA PLANTS Symbol: LOFR

U.S. Nativity: Exotic

Habit: Shrub or Subshrub

Jump to: [Resources](#) | [Images](#) | [Distribution Maps](#) | [Sources](#)

Taxonomic Rank: Magnoliopsida: Dipsacales: Caprifoliaceae

Synonym(s): January jasmine

Native Range: E. China (REHD); China (BAIL);

Appearance

Lonicera fragrantissima is a multi-stemmed, upright, deciduous (evergreen in the South) shrub that grows from 6-10 ft. (1.8-3 m) tall. The stems are solid and continuous, white pith, has stringy, tan bark and are often purple when young.

Foliage

Leaves are opposite, round, 1-3 in. (2.5-7.6 cm) long and wide and usually persist into winter.

Flowers

Flowering occurs in the late winter, when fragrant, tubular, 0.5 in. (1.5 cm) long, white to red or yellow, thin-petaled flowers develop in pairs in the leaf axils.

Fruit

The abundant berries are 0.3 in. (8.5 mm) in diameter and ripen to orange or red in the mid-summer and often persist throughout winter.

Ecological Threat

Several species of exotic bush honeysuckles occur and distinguishing different species can be difficult. However, all have similar effects. *Lonicera fragrantissima* readily invades open woodlands, old fields and other disturbed sites. Its rapid spread is attributed to birds and mammals dispersing the seeds. It can form a dense understory thicket which can restrict native plant growth and tree seedling establishment. *Lonicera fragrantissima* is native to eastern Asia and was first introduced into North America in the late 1800s. It has been planted widely as an ornamental and for wildlife food and cover.

Identification, Biology, Control and Management Resources

[A Field Guide for the Identification of Invasive Plants in Southern Forests](#) - USDA Forest Service

[Plant Invaders of Mid-Atlantic Natural Areas](#) - National Park Service and U.S. Fish and Wildlife Service

[Southeast Exotic Pest Plant Council Invasive Plant Manual](#) - SE-EPPC

[Weeds Gone Wild: Alien Plant Invaders of Natural Areas](#) - Plant Conservation Alliance

Selected Images from Invasive.org

[View All Images at Invasive.org](#)



Plant(s);

Richard Webb, Bugwood.org

[Additional Resolutions & Image Usage](#)



Foliage; *Lonicera fragrantissima*;
fragrant honeysuckle

Richard Webb, Bugwood.org

[Additional Resolutions & Image Usage](#)



Foliage; leaves on twig in
September

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

[Additional Resolutions & Image Usage](#)



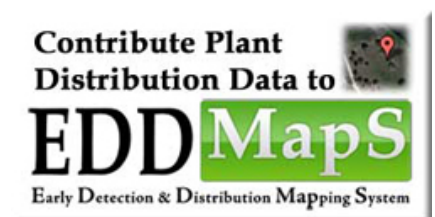
Feature(s); branch in September

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

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EDDMapS Distribution:

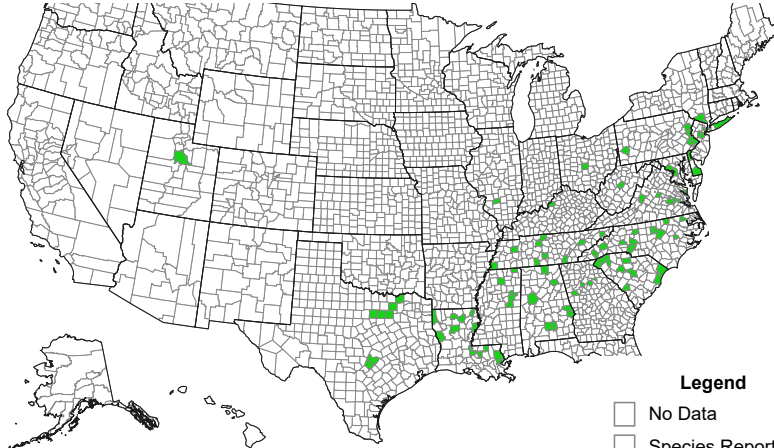
This map is incomplete and is based only on current site and county level reports made by experts and records obtained



from USDA Plants Database. For more information, visit www.eddmaps.org

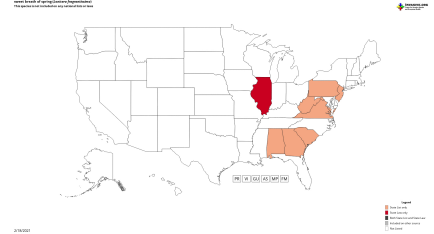
sweet breath of spring (*Lonicera fragrantissima*)

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State List

This map identifies those states that list this species on their invasive species list or law.



U.S. National Parks where reported invasive:

Stones River National Battlefield (Tennessee)

Invasive Listing Sources:

Alabama Invasive Plant Council

Alabama Invasive Plant Council

Georgia Exotic Pest Plant Council

Jil M. Swearingen, Survey of invasive plants occurring on National Park Service lands, 2000-2007

Non-Native Invasive Plants of Arlington County, Virginia

South Carolina Exotic Pest Plant Council

Virginia Invasive Plant Species List

West Virginia Native Plant Society, Flora West Virginia Project, and West Virginia Curatorial Database System, September 3, 1999

West Virginia Native Plant Society, Flora West Virginia Project, and West Virginia Curatorial Database System, September 3, 1999



Website developed by [The University of Georgia - Center for Invasive Species and Ecosystem Health](#) and the [National Park Service](#) in cooperation with the [Invasive Plant Atlas of New England](#), [Invasive Plant Control, Inc.](#), [USDA Forest Service](#), [USDA NRCS PLANTS Database](#), [Lady Bird Johnson Wildflower Center](#), [National Association of Exotic Pest Plant Councils](#), [Plant Conservation Alliance](#), and [Biota of North America Program](#).

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GOLDEN BAMBOO

Phyllostachys aurea



Map courtesy of
Early Detection &
Distribution
Mapping System

SPECIES AT A GLANCE

Golden bamboo is a perennial, fast-growing, oversized member of the grass family Poaceae. It is one of the most common bamboos in the United States and is readily available from garden centers and nurseries. Invasive bamboos are among the fastest-growing plants on Earth, and can quickly form into dense, nearly impenetrable stands, making bamboo a popular plant for use as a noise-barrier or privacy screen. A single infestation of golden bamboo can spread to an area of nearly 10 miles.

GOLDEN BAMBOO

Phyllostachys aurea



SPECIES DESCRIPTION

Golden bamboo reaches a maximum height of 30-40 feet and stands towering over most other grasses, forming a dense bamboo forest. The stems are woody, hollow, and jointed, starting out green when young and turning golden-yellow as they age and become exposed to the sunlight. The internodes, or the part of the stem between two joints, is short and swollen at the base of the stem, a characteristic that helps distinguish golden bamboo from other bamboo species. Leaves are slender, lance-shaped, and are often arranged in fan-like clusters. Leaves grow about 15 cm (6 in) long.

NATIVE & INTRODUCED RANGES

Native to Southeast China, golden bamboo was introduced into the United States in 1882 in Montgomery, Alabama where mature stems were used for fishing poles and walking sticks.

It has quickly spread and can be found throughout the Mid-Atlantic and Southeastern regions of the United States. Golden bamboo is not common in Pennsylvania and distribution data is lacking; however, it has been reported in several locations throughout the state.

BIOLOGY & SPREAD

Because golden bamboo is readily available from commercial nurseries, garden centers, and online sources, property owners often turn to this aggressive plant when needing a visual screen or noise barrier in their yards. It easily escapes confinement to nearby areas and uses an extensive network of underground stems, called rhizomes, to grow new shoots and form new plants. These rhizomes can be transported in yard waste, by roadside plows, and other movements of dirt and soil. Golden bamboo can rapidly infest soils that have been disturbed by fire, since rhizomes are protected underground. Golden bamboo only flowers every 7-12 years, but seed production is rarely observed.

Photo courtesy of
David Stephens,
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GOLDEN
BAMBOO



Photo courtesy of Barloventomagico, Flickr

GOLDEN BAMBOO



Photo courtesy of James R. Allison, Georgia Department of Natural Resources, Bugwood.org



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Pennsylvania Sea Grant is a partnership of NOAA, Penn State University, and the Commonwealth of Pennsylvania. Penn State is an affirmative action, equal opportunity university.



Funded in part by the U.S. Fish and Wildlife Service and the Great Lakes Restoration Initiative.

HABITAT

Golden bamboo grows best in full sun in moist, deep, loamy soils. It is often found along roadsides, lawns, urban landscapes and in residential right of ways, but will also tolerate shade and can spread into forested ecosystems and wetlands.

IMPACTS

Threat to Biodiversity

This bamboo is fast-growing and will invade both natural and human-dominated areas. The thick, tall monocultures it produces suffocate and shade out native vegetation, allowing little if anything to grow beneath. Leaf litter from golden bamboo found along streams is said to have impacts on litter-feeding invertebrates, altering ecosystem processes and stream food webs. In addition, the large monocultures it forms provide little to no valuable habitat for wildlife.

Economic Costs

Once introduced into urban landscapes, the thick root systems formed by golden bamboo can buckle sidewalks and driveways, damage structures, and have a negative impact on property values. It is difficult to control in gardens and can quickly dominate desirable garden species. It is also known to attract roaches in urban areas.

PREVENTION & CONTROL

Once established in an area, golden bamboo is very difficult to eradicate because of its rapid vegetative reproduction. Small infestations or areas where herbicides are not permitted can be controlled by cutting and mowing, although this needs to be repeated several times throughout the growing season since bamboo will readily re-sprout. Large areas of bamboo can be treated with herbicide, but only where risks to non-target species are minimal and chemical treatment does not always produce consistent results.

Preventing the introduction and spread of golden bamboo is the best way to protect natural habitats from harm. When selecting plants for garden, privacy, or shade purposes, choose species that are native to the region. Never use invasive plants, such as golden bamboo, that can escape and cause problems in natural areas. Native plants will provide an attractive setting and will support native wildlife.

References:

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Photo courtesy of Chuck Barger, University of Georgia, Bugwood.org



Photo courtesy of James H. Miller, USDA Forest Service, Bugwood.org

PALEYELLOW IRIS

Iris pseudacorus L.

Plant Symbol = IRPS

Contributed by: USDA NRCS Montana State Office



Figure 1. Paleyellow iris flowers. Photo by Jane Mangold, Montana State University, Bozeman, Montana

Alternate Names

Yellowflag iris

Uses

Paleyellow iris has been used as a horticultural plant. Because paleyellow iris tolerates low oxygen, it lives in areas with high levels of soluble organics and it may reduce the organic load by 25% over one year. Within a 24-hour period, rhizome reductions of *Escherichia coli* were 50 percent, *Salmonella* 70 percent, and *Enterocoli* 60 percent. It has been suggested that paleyellow iris can remove heavy metals efficiently and economically from wastewater because of its ability to absorb the metals and survive in unfavorable conditions.

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current

status (e.g., threatened or endangered species, state noxious status, and wetland indicator values). Paleyellow iris is listed as an invasive, banned, prohibited, designated, or noxious weed in Connecticut, Massachusetts, Montana, New Hampshire, Oregon, and Washington.

Weediness

This plant may become weedy or invasive in some regions or habitats and may displace desirable vegetation if not properly managed. Please consult with your local NRCS Field Office, Cooperative Extension Service office, state natural resource, or state agriculture department regarding its status and use. Weed information is also available from the PLANTS Web site at <http://plants.usda.gov>. Please consult the Related Web Sites on the Plant Profile for this species for further information. This species is weedy in many riparian habitats.

Description

General: Paleyellow iris is perennial and grows from a stout rhizome ranging in diameter from 0.4 to 1.6 inches (1-4 centimeters). The sap of the rhizome is black. Roots are normally four to eight inches (10-20 centimeters) long, but may reach lengths of 12 inches (30 centimeters). The hairless (glabrous) plants form clones when rhizomes separate. Each individual (ramet) produces 10 leaves covered with a fine waxy powder giving the leaves a whitish or bluish (glaucous) cast. The sword-shaped leaves have a raised midrib and are about 0.4 to 1.2 inches (10-30 centimeters) wide. Leaves range from 20 to 40 inches (50-100 centimeters) in length, or about as long as the flowering stem. Typical of iris, flowers form on a leafless stalk (peduncle) that is round in cross-section and is often branched. Beneath each flower is a large solitary bract (spathe), with thin, dry, margins that lack green color (scarious). Flower pedicels are about 1.5 to three inches (4-8 centimeters) long, about the length of the ovary. Flowers are about three to four inches (8-10 centimeters) in diameter, and vary in color from pale yellow to nearly orange, pale yellow being the most common color (see Figure 1). There are six perianth segments (sepals and petals) fused at their bases to form a tube and situated on top of the ovary. The sepals are variable in form but generally curve outward, have short claws, are commonly purple-veined, and have an orange spot near the base. The petals are smaller than the sepals and curve upward. The style has three petal-like yellow branches, and on the underside near the tip, is a small lip-like stigma. The three stamens are hidden beneath the three style branches. The elliptic capsules are 1.5 to three inches (4-8 centimeters) long and have three chambers each with two rows of seeds. The seeds are smooth, disc-

shaped, and variable in size, turning dark brown when mature.

Distribution: In its native range, paleyellow iris occurs in North Africa and all European countries except Iceland. It occurs in the Caucasus, Western Asia, and New Zealand. In North America it has been reported in all but 13 states and provinces. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Habitat: Paleyellow iris forms dense clumps in shallow water and wet places around lakes and ponds, and along streambanks.

Adaptation

Paleyellow iris grows in a wide variety of soil types ranging from gravel beds on beaches (shingle) where rhizomes grow over bare rock with roots penetrating into underlying soil, to waterlogged clay soils (gleys). It usually grows on sites with continuously high soil-water content, but not necessarily submerged soil, and it can grow on dry sandy soil. Rhizome clumps can form mats floating in water. Paleyellow iris grows on peats and permanently submerged organic and inorganic soils at water's edge. In Europe, it persists in the higher zones of salt marshes and in estuarine water with 24‰ salinity. It is less common on chalk (CaCO₃), but is found in fens and in fen woodland. It tolerates soil pH ranging from 3.6 to 7.7. It requires high levels of soil nitrogen. It is associated with depressions within terrestrial habitats and groundwater seepages. It tolerates high levels of organics and low levels of oxygen.

Establishment

Paleyellow iris grows from both rhizomes and seeds. Rhizomes increase in size from year to year unless flowering occurs or the rhizomes branch, which typically occurs after flowering. The seasonal accumulation of storage materials in the rhizomes results in annual segments that can be counted to determine their age. Rhizomes have air spaces in the cellular tissues (lacunae) that facilitate survival in low oxygen conditions characteristic of flooding. Carbohydrates are stored in rhizomes, roots, leaf bases, and developing flower shoots. Excavated rhizomes of paleyellow iris continued growing for three months indoors without water indicating they can tolerate extensive drought.

Most flowers bloom between May and July, but flowering can persist into November. Flowers are pollinated when insects pass between the stamens and the outer perianth segments to obtain nectar, brushing pollen from their backs between the two lips of the stigma. Two flower forms are reported with differences in the distance between the style branches and the outer perianth segments, and thus the flower forms differ in the insect species that are effective pollinators. In Europe, insect species visiting flowers include the bumblebees (*Bombus pascuorum*, the most common visitor, *B. hortum*, *B.*

runderarius, *B. vestalis* Hymenoptera), honey bees (*Apis mellifera*, Hymenoptera), solitary bee (*Osmia rufa*, Hymenoptera) and the hoverfly (*Rhingia rostrata*, Diptera). Seeds are produced between July and November. European studies found an average of 5.6 seed pods per plant; however the number of seeds per pod varied from 32 to 120 with many seeds undeveloped and not viable.

The percentage of seed that germinate is variable. Laboratory studies found germination of freshly collected seeds was 48 percent at 41 degrees Fahrenheit (five degrees Centigrade). Scarification increased germination to 70 percent and washing seeds with xylene to remove a fat-like substance from the seed coat increased germination to over 80 percent. Most seeds germinate in the spring, but some germinate in the summer. Seeds rarely germinate in autumn. In field situations, 20 percent of the seeds dispersed in October germinated the spring of the next year, with an additional 20 percent germinating the following year.

At germination under normal conditions, the root radical emerges and grows for about five days. The shoot cotyledon sheath emerges on the seventh day, and the first leaf appears on the tenth day. After one month, seedlings can have three leaves, lateral roots, and adventitious roots. The proportion of roots relative to shoots is high during early seedling development, which is believed to prevent the seedling from being washed out of muddy substrates and improves survival.

Management

See Control below.

Pests and Potential Problems

Paleyellow iris can be invasive. See Environmental Concerns below.

Environmental Concerns

Paleyellow iris forms dense colonies in riparian areas where it crowds-out native species, thus reducing plant community diversity. This may result in altered riparian area function and reduced habitat for wildlife and pollinators. In eastern states, reduced native sedges and rushes that support waterfowl is associated with paleyellow iris populations. Clumps of paleyellow iris may restrict water flow in irrigation and flood control ditches. The glycoside levels in leaves make the plant unpalatable to livestock and wildlife. Not only do grazers avoid eating the plant, but they avoid grazing palatable plants growing next to dense clumps of paleyellow iris. Animals eating hay containing paleyellow iris commonly experience gastroenteritis. Cattle in Scotland suffered acute diarrhea after eating rhizomes. Paleyellow iris is a skin irritant.

Control

Please contact your local agricultural extension specialist or county weed specialist to learn what works best in your area, how to use it safely, and for regulatory information about herbicide application in riparian areas. Always read label and safety instructions for each control method. Trade names and control measures appear in this document only to provide specific information. USDA NRCS does not guarantee or warranty the products and control methods named, and other products may be equally effective.

Glyphosate is the most widely used chemical for paleyellow iris management. A five percent solution of an aquatic label glyphosate applied to actively growing foliage in late spring or early summer has been most effective. Glyphosate is a non-selective herbicide and revegetation to provide competition to re-establishing paleyellow iris may be necessary.

Digging or grubbing rhizomes may be effective if all rhizomes are removed. Retreatment to remove missed rhizomes will most likely be necessary. Removed rhizomes should be disposed of in a landfill away from riparian areas. Gloves and skin protection are recommended to prevent skin irritation. Repeated mowing or clipping may prevent seed production or reduce spread by rhizomes by depleting energy reserves. Using mowing equipment that simultaneously applies herbicide (wet blade) may be a way to target paleyellow iris for herbicide control while reducing non-target impacts. Prescribed burning, fertilization or irrigation do not effectively control paleyellow iris. However, flooding may reduce populations if water levels are maintained for over 65 days.

Grazing management is not recommended for paleyellow iris because it is usually avoided by cattle, sheep, goats, horses, and rabbits because of glycosides in the leaves. Unpublished reports indicate sheep try early season leaves, and cattle eat leaves down to the rhizomes if leaves are present and short in the autumn.

There are no biological control agents developed or approved for the management of paleyellow iris in the United States. A list of species that feed on paleyellow iris is provided by Sutherland (1990).

Seeds and Plant Production

Not applicable.

Cultivars, Improved, and Selected Materials (and area of origin)

None available.

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Citation

Jacobs, J., M. Graves, and J. Mangold. 2010 Plant guide for paleyellow iris (*Iris pseudacorus*). USDA-Natural Resources Conservation Service, Montana State Office. Bozeman, Montana 59715.

Published September, 2010

Edited: 11Aug2010 jsj, 12Augjm, 13Augkb

For more information about this and other plants, please contact your local NRCS field office or Conservation District at <http://www.nrcs.usda.gov/> and visit the PLANTS Web site at <http://plants.usda.gov/> or the Plant Materials Program Web site <http://plant-materials.nrcs.usda.gov>.

PLANTS is not responsible for the content or availability of other Web sites.



leatherleaf mahonia

Mahonia bealei (Fortune) Carr.

USDA PLANTS Symbol: MABE2

U.S. Nativity: Exotic

Habit: Shrub or Subshrub

Jump to: [Resources](#) | [Images](#) | [Distribution Maps](#) | [Sources](#)

Taxonomic Rank: Magnoliopsida: Ranunculales: Berberidaceae

Synonym(s): Beale's barberry, Beale's Oregon-grape

Native Range: China (REHD); confused in cultivation (BAIL);

Appearance

Mahonia bealei is an evergreen shrub that can grow from 5-10 ft. (1.5-3 m) tall.

Foliage

Leaves are pinnately compound, 18 in. (46 cm) long, with 9-13 holly-like leaflets. Leaflets are 2-4 in. (5-10 cm) long and 1-2 in. (2.5-5.1 cm) wide.

Flowers

Flowering occurs in late winter and early spring, when fragrant, lemon-yellow flowers develop.

Fruit

The fruits are green berries, about 0.5 in. (1.3 cm) long, that turn bluish black with a grayish bloom. Fruits hang in grapelike clusters.

Ecological Threat

Mahonia bealei is native to China. It has been planted as an ornamental and is now invading woodlands in the southern United States.

Identification, Biology, Control and Management Resources

[A Field Guide for the Identification of Invasive Plants in Southern Forests](#) - USDA Forest Service

[Plant Invaders of Mid-Atlantic Natural Areas](#) - National Park Service

[Invasive Plant Alert](#) - National Park Service

[Invasive Species of Concern in Maryland](#) - Maryland Invasive Species Council (MISC), USDA APHIS PPQ

Selected Images from Invasive.org

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Plant(s);

Nancy Loewenstein, Auburn University,
Bugwood.org

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Fruit(s);

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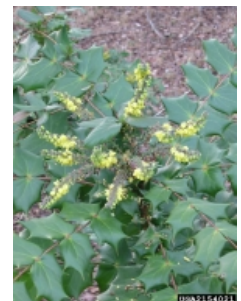
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Seedling(s);

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Plant(s); in flower

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Fruit(s);

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Fruit(s);

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Plant(s); In the woods

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Foliage; Showing glaucous underside of the leaves

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Plant(s); In the woods

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Infestation;

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Seedling(s);

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Plant(s);

Nancy Dagley, USDI National Park Service, Bugwood.org

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Plant(s);

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Root(s); In April

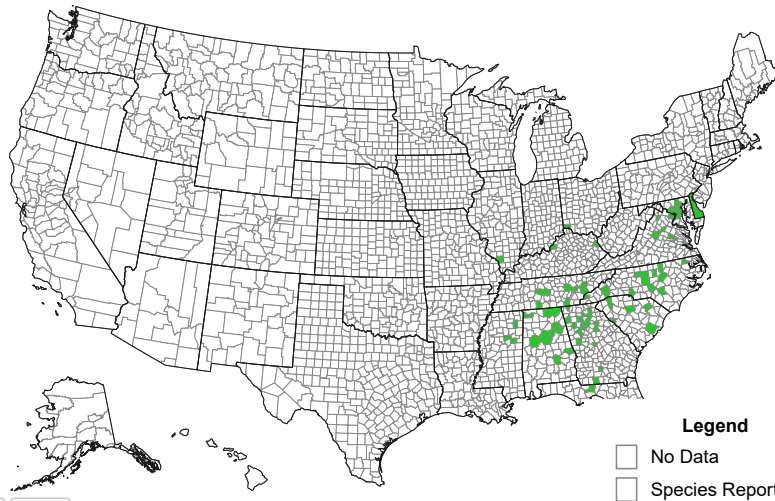
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EDDMapS Distribution:

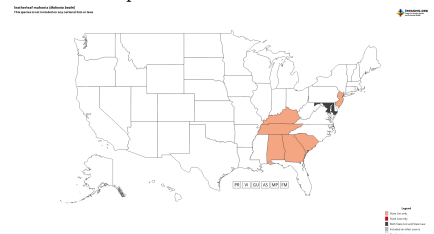
This map is incomplete and is based only on current site and county level reports made by experts and records obtained from USDA Plants Database. For more information, visit www.eddmaps.org

leatherleaf mahonia (*Mahonia bealei*) [Share](#) [Download](#) [Flag](#) [FullScreen](#)



State List

This map identifies those states that list this species on their invasive species list or law.



U.S. National Parks where reported invasive:

- Petersburg National Battlefield (Virginia)
- Stones River National Battlefield (Tennessee)

Invasive Listing Sources:

- Alabama Invasive Plant Council
- Georgia Exotic Pest Plant Council

Jil M. Swearingen, Survey of invasive plants occurring on National Park Service lands, 2000-2007

Jil Swearingen, personal communication, 2009-2017

Kentucky Exotic Pest Plant Council

Non-Native Invasive Plants of Arlington County, Virginia

Non-Native Invasive Plants of the City of Alexandria, Virginia

South Carolina Exotic Pest Plant Council

Tennessee Exotic Pest Plant Council



Website developed by [The University of Georgia - Center for Invasive Species and Ecosystem Health](#) and the [National Park Service](#) in cooperation with the [Invasive Plant Atlas of New England](#), [Invasive Plant Control, Inc.](#), [USDA Forest Service](#), [USDA NRCS PLANTS Database](#), [Lady Bird Johnson Wildflower Center](#), [National Association of Exotic Pest Plant Councils](#), [Plant Conservation Alliance](#), and [Biota of North America Program](#).

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Japanese clematis, *Clematis terniflora* (D.C.) Ranunculaceae¹

Michael Meisenburg, Ken Langeland, and Kurt Vollmer²



Figure 1. A Japanese clematis has smothered a Southern magnolia in a natural, wooded area of Gainesville, FL.

Introduction

Japanese clematis (*Clematis terniflora*) is a vigorous woody vine that has been used for landscaping in the southeastern United States since 1877. The plant is recommended for landscape use in cold-hardy zones and is sometimes grown on trellises.

Some other frequently used common names for Japanese clematis include the following: sweet autumn virginsbower (http://www.plantatlas.usf.edu), autumn virginsbower (Wunderlin and Hansen 2003), sweet autumn clematis and autumn clematis.

Although native to Asia, Japanese clematis has naturalized and is considered invasive in many areas of the country, including in Florida. Japanese clematis is currently classified by the Florida Exotic Plant Pest Council as a Category II Invasive Species. This designation indicates the plant has increased in abundance and frequency in natural areas, but has not altered native plant communities to the extent caused by a Category I species.

In natural areas, Japanese clematis typically invades along roadsides and thickets, as well as along the edges of woods near creeks. It also grows well in the well shaded understory of forests.

Description

Dark green, glossy leaves are opposite in arrangement with 3 - 5 leaflets ranging from 2 - 3 inches long (Figure 2). The leaves of mature Japanese

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1. This document is SS AGR 309, one of a series of the Agronomy Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Original publication date, September 2008. Reviewed April 2011. Visit the EDIS website at <http://edis.ifas.ufl.edu>.
 2. Michael Meisenburg, biological scientist; Ken Langeland, professor; and Kurt Vollmer, graduate student assistant, Department of Agronomy, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. U.S. Department of Agriculture, Cooperative Extension Service, University of Florida, IFAS, Florida A. & M. University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Millie Ferrer-Chancy, Interim Dean

clematis are entirely smooth, without teeth. However, leaves of the small plants may have teeth, which are sometimes rounded (Figure 3). Leaves on small plants are often variegated (Figure 3).

Vines usually grow to about 1/2-inch in diameter (rarely to 4 inches). The vine can climb up to 30 feet with the aid leaf petioles twisting around supports (Figure 4). The bark is light brown with long splits and long shredding strips. Like other *Clematis* species, nodes persist on stems every 6 - 8 inches from where the leaves attach (Figure 5). Sporadic flowering takes place year-round, but occurs primarily in the late summer and early fall. Densely pubescent, star-shaped flowers are white with four sepals about 1 1/4 inch in length (Figure 6). Seeds are small and brown with a white, feathery plume (Figure 7). Mature seeds can germinate anywhere between one and nine months after maturity. Vines trailing along the surface of the ground rarely take root.

Two native species of similar-looking *Clematis* also occur throughout northern and central Florida: virginsbower (*C. virginiana*) and satincurls (*C. catesbyana*). Toothed leaves distinguish each of these native species from Japanese clematis (Figure 8).



Figure 2. Leaves of the invasive Japanese clematis usually have entire margins (smooth edges with no serrations).



Figure 3. Japanese clematis leaves can have some teeth along the margins and light green down the middle.



Figure 4. Leaf petioles wrap around vegetation to support climbing vines.



Figure 5. Clematis stems are distinctive with their swelled nodes every 6-8 inches.

Impacts

Populations of Japanese clematis have been occurring with increased frequency in northern Florida. This invasive plant is a prolific seed producer, and the short-winged appendages and fairly large seed mean most seeds are probably not dispersed far. While this method of dispersal may limit the speed at which the population expands, the



Figure 6. Flowers of Japanese clematis.



Figure 7. A cluster of Japanese clematis seeds. These seeds are not quite mature as evidenced by their light color.



Figure 8. The toothed leaves of native Clematis (such as these *C. catesbyana*) aid in distinguishing them from the invasive *C. terniflora*.

plant occurs at high densities within infested areas. In natural wooded areas, Japanese clematis commonly overgrows saplings and small trees, killing some. (See Figure 1.) As the Japanese clematis vine climbs, it has the potential to smother fully grown trees. In a review of Japanese clematis by UF/IFAS' Assessment of Non-native Plants in Florida's Natural Areas (<http://plants.ifas.ufl.edu/assessment/>), a lack of sufficient evidence for the invasiveness of the plant in northern and central Florida resulted in Japanese clematis being listed as "OK" for planting throughout Florida.

By contrast, Japanese clematis is considered invasive by exotic/invasive plant councils in Alabama, Georgia, Tennessee, South Carolina, and the Mid-Atlantic, as well as in Florida. Given the invasive designation these councils have assigned to Japanese clematis, and considering, as well, the plant's tendency to escape cultivation and invade intact natural areas, it would be prudent not to cultivate this plant in Florida

Management

Preventative. Japanese clematis is still at the stage where it can be effectively managed by preventing its introduction into new areas. Homeowners should not introduce this plant to their lawns or gardens, but instead plant the native *C. virginiana* or *catesbyana* if so desired. Identification of Japanese clematis is important to distinguish it from the native *Clematis*. Homeowners wishing to remove Japanese clematis vines from their property should properly dispose of cuttings and seeds, leaving them out of mulch and yard waste. Japanese clematis will probably continue to spread in natural areas throughout the Southeast. Natural-area managers should be proficient in identifying the species and be vigilant for its occurrence.

Mechanical. Seedlings may be hand-pulled or mowed. Mature plants can be cut by hand or mowed. Plants must be cut back enough and dug up to ensure complete removal.

Biological. To date no biological control exists for this species. However, leaf damage is occasionally observed (Figure 2) perhaps because Japanese clematis shares its range with several native *Clematis*.

Chemical. Current chemical-control methods include foliar applications of triclopyr amine (e.g. 2-3% Garlon 3A) and triclopyr ester (e.g. 15% Garlon 4 oil) for basal-bark applications. Either formulation, applied to cut stump, is effective in controlling the plant. Foliar application of glyphosate (e.g. 3% Roundup) provides good, but short-term control. For basal-bark applications, be sure to locate where the vine is rooted. Clematis vines will sometimes grow up one tree, trail back down to the ground, and climb up another tree. Applying

herbicide to a trailing vine will only kill the distal part; another treatment will later be required.

References and Useful Links

Clematis terniflora. Kemper Center for Home Gardening, Missouri Botanical Gardens.
<http://www.mobot.org/gardeninghelp/plantfinder/Plant.asp?cpde=A300>

Clematis terniflora Fact Sheet.
<http://www.cnr.vt.edu/dendro/dendrology/syllabus2/factsheet.cfm?ID=494>

Clematis terniflora: *Sweet Autumn Clematis*
<http://www.plantoftheweek.org/week273.shtml>

Clematis terniflora. Global Invasive Species Database.
<http://www.invasivespecies.net/database/species/ecology.asp?si=1224&fr=1&sts>

Floridata:
http://www.floridata.com/ref/c/clem_ter.cfm

Invasive Plant List: Planting for a Livable Delaware.
http://dda.delaware.gov/publications/plant_industries/DEInvasPlntBklt.pdf