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Invasive Exotic Plants

of Charlotte and Mecklenburg County

A guide to identifying and removing
invasive exotic plants in our community

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Charlotte-Mecklenburg STORM WATER Services

stormwater.charmeck.org

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What are "invasive" plants?

Invasive plants are exotic plants that kill or suppress native plants when they enter a natural area. Natural areas provide food and habitat for plants and wildlife, and recreational and educational opportunities for humans. They can be big or small and include parks, preserves, school yards, roadsides, and even your own backyard!

What are "native" and "exotic" plants?

Native plants are those that occur in a natural area without any human assistance. Plants native to North Carolina are generally recognized as those occurring here before Europeans arrived. These plants generally grow well in our weather and soils and with other native plants and animals. They require little care when used for landscaping and provide the preferred food and shelter for local wildlife.

Plants are called exotic (alien, non-native, introduced) when they occur in an area beyond their known historical natural range because of direct or indirect human actions. Some exotic plants are intentionally imported for human use (food crops, landscaping, or erosion control). Other exotic plants arrive accidentally as "hitchhikers" in shipments of plants, seed, packing material, or fresh produce from other areas.

Exotic refers to plants brought from other continents, regions, ecosystems and even other habitats. It also includes any plants moved by people from one region in the United States to a new one. For example, Eastern baccharis (*Baccharis halimifolia*) is native to the Atlantic and Gulf coasts of the United States. Due to its ability to quickly invade areas disturbed by human activities, this plant has spread beyond its natural range and into Mecklenburg County. Even though it is native to the Coastal Plain of North Carolina, Eastern baccharis is considered exotic in Mecklenburg County.

Many exotic plants never invade natural areas from where they are planted. However, because they often lack natural enemies or controls in their new environment, exotic plants are more likely to escape their intended habitat and become invasive. For example, English ivy that was originally brought to the United States from Europe for ornamental purposes has escaped its gardens to destroy trees, shrubs, and plants in nearby natural areas and displace the wildlife that depend on them.

How do good plants go bad?

Plants provide necessary functions for other plants and animals within their natural ranges. However, most invasive plants have certain traits that allow them to rapidly invade and replace native plants when they're introduced to a new area. Invasive exotic plants generally:

- Tolerate a wide range of environmental conditions including soil, water, temperature, and light conditions
- Reproduce early, easily, often, in large numbers, and in multiple ways (seeds, runners, sprouts, bulbs, etc.)
- Grow rapidly for a long part of the year
- Out-compete native plants for sunlight, nutrients, water, and/or space
- Are difficult to kill

How do invasive exotic plants harm our community?

Invasive plants cause significant economic, environmental, and human harm. Invasive plants:

- Become "weedy" and overgrown as landscaping ornamentals and require regular maintenance and often hazardous chemicals to control
- May kill established shade trees
- Interfere with public water systems by obstructing pipes and drainage systems
- Form dense beds in water, making swimming, fishing, and boating difficult and dangerous
- Lower water levels in lakes, streams, and wetlands through excessive water uptake
- Outgrow native plants and destroy natural communities that sustain songbirds, fish, and wildlife

What can you do to control invasive plants?

The most important thing you can do as a responsible community member is to remember that what you do in your garden and yard has impacts far beyond your property line. Invasive plants in your backyard are easily spread by birds, insects, water, and wind to your neighbors' backyards and surrounding natural areas.

- **The first line of defense is prevention.** Often, the cheapest and easiest way to control the spread of invasive plants is to keep them from growing in your yard in the first place. Invasive species should be removed before they have a chance to grow and spread. In addition, support large-scale efforts to remove invasive plants in your community parks and public areas.

- **Avoid planting invasive plants.** Select native plants and trees, like those included in this manual, for home landscaping. If you do select exotic species, use only non-invasive varieties and avoid plants that are described as "fast growing" or "rapidly spreading."
- **Remove invasive plants from your yard, and replace them with native varieties.** Replanting will help reduce the opportunities for invasive plants to re-establish.

How do you control invasive plants?

There are many options available for controlling invasive plants. In general, a combination of manual and chemical methods is most effective and different methods work better on different plants. Here are a few examples of control methods that can be conducted by homeowners. For specific plant control, see the specific recommended method provided in the plant description.

Pulling - This method is appropriate for small infestations, young plants, and environmentally sensitive areas. The best time to use this method is in the spring after a rain event when the ground is soft. Make sure to pull up all roots with the plant as they may re-sprout if left in the ground.

Cutting/Mowing - This method reduces the spread of invasive plants by removing their ability to produce seeds; however, many invasive plants re-sprout even more vigorously after being cut and few are killed by this method alone. The best time to use this method is generally immediately before the plant flowers. This method may need to be repeated throughout the growing season.

Foliar Herbicide - This method consists of spraying or wiping herbicide on the leaves and stems of short plants, seedlings, or sprouts. In general, autumn is the best time to use this method because during this time plants move nutrients from their leaves down to their roots for winter storage and will carry the chemicals down as well, where they will be most effective. The effects of this treatment may take time to become noticeable. Be very careful not to spray nearby native plants.

Cut-Stump - This method entails cutting off the stem or trunk of woody plants and immediately applying an appropriate herbicide to the stump. This method gives you greater control over the target of the herbicide and reduces the chance that nearby natives will be harmed.

Use herbicides safely

- Wear protective clothing and safety devices as recommended on the label. Bathe or shower after each use.
- Read the herbicide label. The label provides information on what plants it controls, how much of the chemical to use, and any special conditions that must be followed. Follow the instructions on the label closely.
- Be cautious when you apply herbicides. Know your legal responsibility as an herbicide applicator. You may be liable for injury or damage resulting from herbicide use.

For more information on invasive plants, please see:

The Nature Conservancy Wildland Invasive Team
http://tncweeds.ucdavis.edu/

US Department of Agriculture
http://www.invasive.org/

Southeast Exotic Pest Plant Council
http://www.se-eppc.org/

The Plant Conservation Alliance's Alien Plant Working Group
http://www.nps.gov/plants/alien/

Trees

Bradford Pear

Pyrus calleryana 'Bradford'

Bradford pear is native to Korea and Japan, and is one of the most common and recognizable landscape trees in America.

Identification

- Grows up to 50 feet tall and 40 feet wide; pyramidal shape
- 2-3 inch heart-shaped leaves with a fine toothed edge
- Large, clustered white flowers appearing either before or with the leaves (April - May); unpleasant smell

Ecological Threat

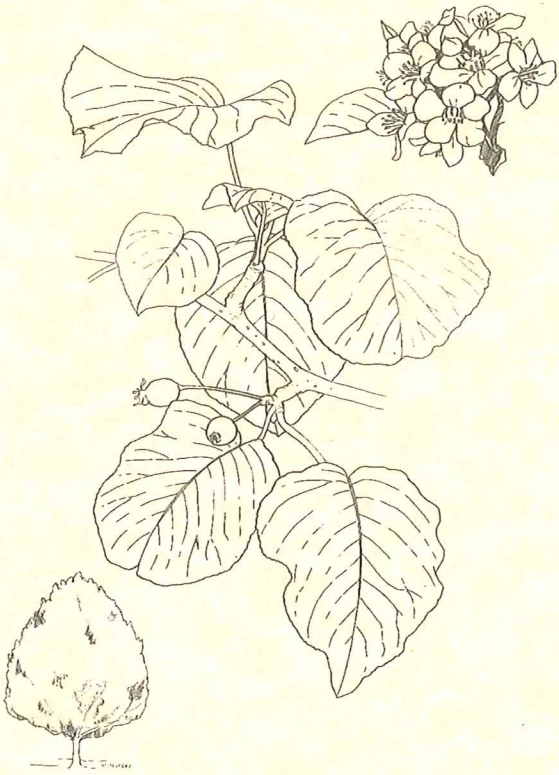
Bradford pear grows quickly, forming tight branch angles that are points of weakness. Thus, unless pruned the tree will eventually split under its weight due to high winds, storms, ice, or snow load. When damaged trees are removed, the roots produce tough thorny shoots which are difficult to remove. Very thorny thickets of Bradford pear, called "offspring," are invading natural areas due to over planting.

Control

- Seedlings: hand pull
- Mature: cut-stump method
- Re-sprouts: cut or foliar herbicide

Native Alternatives

redbud (*Cercis canadensis*), fringe tree (*Chionanthus virginicus*), and flowering dogwood (*Cornus florida*)



Pyrus calleryana 'Bradford'

Mimosa

Albizia julibrissin

Mimosa is native to an area ranging from Iran to central China. It is a popular landscape plant because of the fragrant and showy flowers.

Identification

- Grows 20 to 40 feet tall
- Smooth light brown bark
- Finely divided fern-like leaves; 5-8 inches long and 3-4 inches wide
- Showy fragrant pom-pom shaped pink flowers
- Fruit is flat, straw-colored pod; 6 inches long; contain light brown, oval-shaped seeds

Ecological Threat

Mimosa thrives in disturbed areas, along roadsides, and open vacant lots. It easily spreads from landscape areas to adjacent natural areas. It can be a serious problem along streams, where its seeds are easily transported in water. Dense stands of mimosa severely reduce sunlight and nutrients for native plants.

Control

- Hand pull seedlings
- Cut-stump method in the fall
- Foliar application of herbicide in the fall

Native Alternatives

redbud (*Cercis canadensis*), fringe tree (*Chionanthus virginicus*), and bigleaf snowbell (*Styrax grandifolius*)

Albizia julibrissin

Princess Tree

Paulownia tomentosa

Princess tree is native to China. In the United States it currently grows from the East coast to Texas, and along the West coast.

Identification

- Small to medium tree reaching 30-60 feet tall
- Rough, gray-brown bark with shiny, smooth areas
- Large, wide oval to heart-shaped or shallowly three-lobed leaves; hairy underneath; arranged in pairs along the stem
- Flowers are clusters of showy, pale purple, fragrant flowers
- Dry, brown capsule-shaped fruit containing winged seeds; mature in autumn and remain attached all winter

Ecological Threat

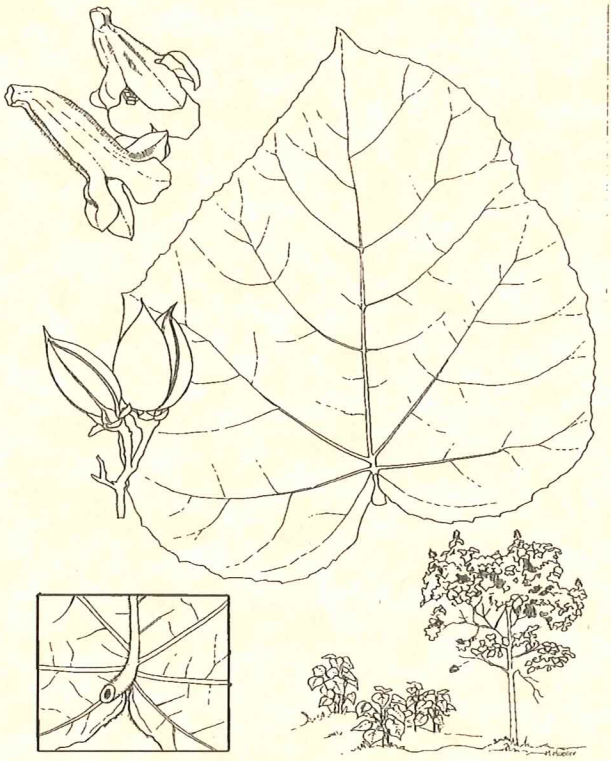
Princess tree grows along roadsides, stream banks, and forest edges. It easily adapts to disturbed habitats, including previously burned areas and the edges of natural areas, where it competes with native plants. It resprouts from stems and roots despite fire, cutting, and even bulldozing.

Control

- Hand pull or dig seedlings
- Cut-stump method at the beginning of flowering
- Repeated cutting over several years will eventually kill the tree

Native Alternatives

fringetree (*Chionanthus virginicus*), basswood (*Tilia Americana var. heterophylla*), and redbud (*Cercis canadensis*)



Paulownia tomentosa

Tree-of-Heaven

Ailanthus altissima

Tree-of-heaven is native to China. It was introduced to the United States in 1748 for landscaping and currently thrives on both coasts.

Identification

- Medium-sized tree reaching up to 80 feet
- Smooth stems with pale gray bark
- Large leaves of 11 to 25 leaflets alternating on the stems
- Flowers are small and yellow or green; female trees produce flat, twisted fruits that contain one seed each
- All parts of this plant have a bad odor like burnt peanuts

Ecological Threat

Tree-of-heaven can sprout up in alleys, sidewalks, parking lots, and streets in urban areas. The root system is strong enough to damage sewers and foundations. It also thrives in fields, along roadsides, fencerows, and woodland edges where it emits chemicals that prevent other plants from growing. Female trees can produce more than 300,000 seeds a year.

Control

- Hand pull or dig seedlings
- Cut large female trees to reduce spread by seed
- Foliar herbicide in mid-summer
- Cut-stump method in late spring

Native Alternatives

black walnut (*Juglans nigra*), basswood (*Tilia Americana var. heterophylla*), and bigleaf snowbell (*Styrax grandifolius*)

Ailanthus altissima

Shrubs

Autumn Olive
Elaeagnus umbellata

Autumn olive is native to Asia and is invasive from Maine to South Carolina, to Oklahoma, to Minnesota. This shrub is widely planted for wildlife habitat and food and landscaping uses.

Identification

- Shrub or small tree growing to 11-18 feet high
- Leaves are small, drab green; vary from narrow to moderately wide; wavy edges; undersides are silvery
- Flowers are white/yellow and fragrant
- Young fruit is silvery and ripens to a speckled red; single plants produce up to 8 pounds of fruit a year
- Easily confused with another invasive, Russian olive (*Elaeagnus angustifolia*) which has narrower leaves, thorny branches; and yellow, dry fruit

Ecological Threat

Autumn olive grows rapidly, produces large quantities of fruit, and is widely distributed by birds. It thrives under many site conditions and easily out-competes native plants. This shrub even re-sprouts after cutting and burning.

Control

- Cut-stump method between July and September
- Hand pull or dig seedlings

Native Alternatives

coral-berry (*Symphoricarpos orbiculatus*), spicebush (*Lindera benzoin*), and American holly (*Ilex opaca*)

Elaeagnus umbellata

Multiflora Rose

Rosa multiflora

Multiflora rose is native to Japan. Throughout the United States it has been promoted as ornamental rose rootstock, erosion control, "living fences," and wildlife habitat and food.

Identification

- Dense, thorny, shrub with wide, arching branches (canes) and stiff curved thorns; can reach a height of 15 feet.
- Leaves are five to eleven small, oval leaflets with toothed edges; the base of each leaf stem has a pair of comb-like structures
- White flowers bloom in late spring (native roses tend to have pink flowers)
- Fruits are small and bright red

Ecological Threat

Multiflora rose forms dense thickets that restrict human activities as well as wildlife movement and native plant growth. Each plant can produce at least 500,000 seeds a year which are easily spread by the various animals that eat the fruit. In addition, canes form roots when they contact the soil.

This exotic rose is able to grow in many different conditions and is difficult to kill once established.

Control

- Cut-stump method while in flower
- Repeated mowing, particularly where grass cover is dense
- Hand pull seedlings

Native Alternatives

wild rose (*Rosa carolina*), and swamp rose (*Rosa palustris*)

Rosa multiflora

Nandina, Heavenly Bamboo, Sacred Bamboo

Nandina domestica

Nandina is native to China, Japan and India. It is common in the southeastern United States, from North Carolina to Texas. Nandina is cultivated as an ornamental woody shrub.

Identification

- Evergreen or semi-evergreen, upright woody shrub; lacey appearance; growing 6-8 feet tall.
- Leaves are oval with pointed tips; 3/4-3 inches long; young leaves are coppery to purplish-red becoming blue-green with age
- Yellow wood
- Large clusters of small white flowers appear in May to June
- Bright red berries ripen in September to October; remain through winter

Ecological Threat

This attractive shrub is escaping its intended landscaping locations and invading natural areas. It has practically no pests or diseases. Some specimens are known to have lived for more than 100 years.

Control

- Foliar herbicide in August to October
- Cut-stump

Native Alternatives

American holly (*Ilex opaca*), elderberry (*Sambucus canadensis*), Virginia willow (*Itea virginica*), and strawberry bush (*Euonymus americana*)

Nandina domestica

Privet, Chinese

Ligustrum sinense

Chinese privet is native to China. It thrives in the southern United States where it is commonly used for landscaping.

Identification

- Shrub or small tree up to 20 feet tall
- Young twigs are very hairy
- Leaves are 1 1/2-3 in. long with smooth edges; arranged opposite of each other along the stem
- Large clusters of small white flowers produce an offensive odor
- Fruits are round, dull black, and remain through winter

Ecological Threat

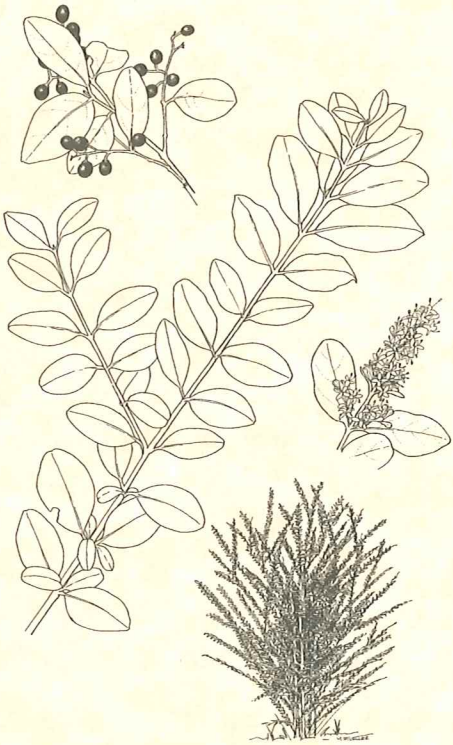
Thousands of acres in North Carolina have been invaded by privet. It produces many seeds which are widely distributed by birds, is very adaptable to various site conditions, and has few natural enemies to help control it. It forms thickets that exclude all other plants.

Control

- Hand pull seedlings
- Repeated cutting controls spread, but does not kill it
- Cut-stump
- Foliar application

Native Alternative

American holly (*Ilex opaca*), coral-berry (*Symphoricarpos orbiculatus*), and horse sugar (*Symplocos tinctoria*)



Ligustrum sinense

Rose-of-Sharon, Shrub Althea

Hibiscus syriacus

Rose-of-Sharon is native to China and India. It is a popular landscaping plant and is now widely distributed around the world including the southern United States.

Identification

- Small tree or vase-shaped shrub grows up to 10 feet
- Long, straight, relatively unbranched, light gray stems
- 3-lobed leaves
- Very showy, 5-petaled flowers; range from white to reddish-purple; bloom throughout the entire summer
- Green to brown fruits, last through much of the winter

Ecological Threat

Rose-of-Sharon is adaptable to various soils, drought, heavy pruning, and pollution. It becomes established relatively rapidly and thrives in many urban and natural settings. It is not currently a serious threat to natural areas around Charlotte; however, it has the potential to become one based on its characteristics.

Control

- Pull seedlings by hand
- Cut-stump method
- Foliar herbicide

Native Alternatives

rose mallow (*Hibiscus moscheutos*), sweet-shrub (*Calycanthus floridus*), and strawberry bush (*Euonymus americana*)

Hibiscus syriacus

Grasses & Forbs

Bamboo

Bambusa spp., Phyllostachys spp., Pseudosasa spp.

Several kinds of invasive bamboos have been introduced to the United States from various countries including Asia, Latin America, and the Caribbean. They thrive in the mild climate of the Southeast.

Identification

- Member of the grass family; range in size from a few inches to 130 feet tall
- Jointed cane stems; colors include gold, green, and black
- Leaves are slender and 3-10 inches long; color ranges from gold to green and occasionally variegated
- Flowers and seeds are rarely seen

Ecological Threat

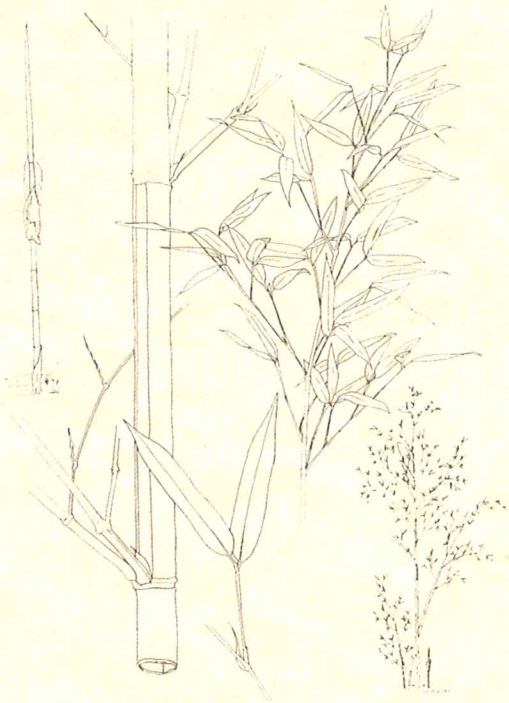
Some bamboos grow over three feet a day! They spread beyond their original planting site by specialized underground runners (rhizomes). These are called "running bamboo." "Clumping bamboo" has a much slower rate of spread.

Control

- Foliar application; mid-summer/early fall; cut to ground and allow to grow to 4 feet tall; apply herbicide to shoots
- Cut-stump method; mid-summer or early fall
- Pull/Dig up entire plants (including roots and runners)

Native Alternatives

big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), and Indian grass (*Sorghastrum nutans*)



Bambusa spp., Phyllostachys spp., Pseudosasa spp.

Chinese Lespedeza

Lespedeza cuneata, Sericea lespedeza

Chinese lespedeza is native to eastern Asia. Widespread use of lespedeza by federal and state agencies for erosion control has led to its spread throughout the eastern United States.

Identification

- Grows straight up; 3-5 feet tall
- Grayish-green leaves; 1/2-3/4 inches long; round with pointed tips; in groups of three resembling a bird's foot
- Flowers are white with purple markings; appear where stem meets the leaves in the middle to upper part of the plant
- May be confused with native plants, especially slender lespedeza (*Lespedeza virginica*); slender lespedeza flowers range from purple to pink; leaves have a rounded tip

Ecological Threat

Chinese lespedeza invades open areas such as meadows, open woodlands, wetland borders and fields. Once it gains a foothold, it can crowd out native plants, interfere with sapling growth, and leave many seeds in the soil, ensuring its long residence at a site. Native wildlife and livestock generally avoid eating it.

Control

- Mow plants while in flower bud
- Foliar application of herbicide in early to mid-summer

Native Alternatives

broom-sedge (*Andropogon virginicus*), little bluestem (*Schizachyrium scoparium*), and switch grass (*Panicum virgatum*)

Lespedeza cuneata, Sericea lespedeza

Common Reed

Phragmites australis

It is believed that common reed is native to North America; however, more invasive forms of it have recently been introduced from Eurasia. This plant is recognized as aggressive throughout the eastern and upper midwestern United States and Texas.

Identification

- Tall, sod-forming grass
- Stems are straight, smooth, and hollow; nearly 1 inch in. diameter; from 6-13 feet tall
- Flowers are in a cluster up to 12 inches long

Ecological Threat

Common reed forms thick mats that exclude all other plants in disturbed as well as pristine areas. It spreads by spreadingroot structures (rhizomes) and seed. It thrives in swamps, ditches, and along streams and ponds. Populations that do not appear to be spreading should be left alone as they are likely the native form.

Control

- Foliar applications of herbicides (September/October).
- Cut just before the end of the growing season (cutting common reed several times during a season, or at the wrong times might make it grow even more)
- Cut and cover with black plastic

Native Alternatives

bushy bluestem (*Andropogon glomeratus*), switchgrass (*Panicum virgatum*), and Indian grass (*Sorghastrum nutans*)

Phragmites australis

Gill-Over-Ground, Ground Ivy

Glechoma hederacea

Ground ivy originated in Europe and is currently distributed throughout the United States.

Identification

- Has a somewhat disagreeable, minty odor when crushed
- Square stems; creeping along ground with upright stems
- Round leaves with scalloped edges; 1/2-1 inch wide
- Flowers occur in clusters of three; purple to purplish-blue; 1/2 inch long
- Dark brown seed pod; white spot at the base
- Roots occur at each joint whenever it touches the soil

Ecological Threat

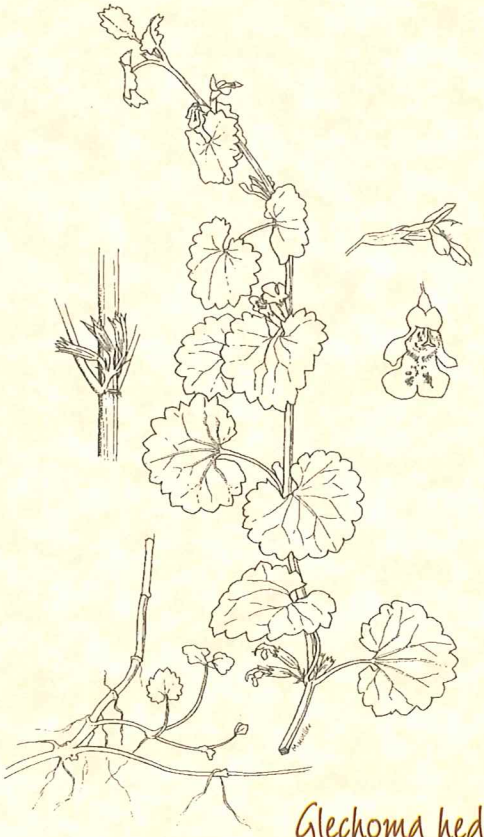
Ground ivy can be found in ditches, roadsides, pastures, open woods, agricultural fields, and is especially troublesome as a weed in lawns and gardens.

Control

- Remove the top-layer of soil containing roots and seeds
- Foliar application of herbicide in the fall
- Re-establish lawn or native groundcover to suppress future outbreaks

Native Alternatives

Carolina jessamine (*Gelsemium sempervirens*), Virginia creeper (*Parthenocissus quinquefolia*), and Canadian wildginger (*Asarum canadense*)



Glechoma hederacea

Japanese Knotweed

Polygonum cuspidatum

Japanese knotweed is a native of the mountainous regions of Japan, Taiwan, Korea, and eastern China. It is found in most of the continental United States where it has been imported for and escaped from ornamental use.

Identification

- Upright and shrubby; can grow over 9 feet tall
- Leaves are dark green; oval; pointed; 2-3 inches wide; 4-6 inches long; occasionally wider than they are long
- Stems are reddish, hollow, jointed, and bamboo-like
- Small, greenish-white flowers bloom in early summer followed by small, winged fruits

Ecological Threat

Japanese knotweed is often found near water sources along roadsides and stream banks where it forms clumps that crowd out all other vegetation. This plant can tolerate flooding, drought, high temperatures, high salinity, and full shade. The dead stems and leaf litter decompose very slowly and form a deep layer that prevents native seeds from sprouting. It can be very difficult to control once established.

Control

- Pull/Dig up entire plants (including roots)
- Cut stump method while in flower

Native Alternatives

possumhaw (*Viburnum nudum*), sweet pepperbush (*Clethra alnifolia*), and Virginia willow (*Itea virginica*)

Polygonum cuspidatum

Japanese Stiltgrass, Nepalese Browntop

Microstegium vimineum

Japanese stiltgrass is native to Asia. It was widely used as packing material, the likely means for its introduction to the United States. It was first observed in the United States in 1919 in Tennessee and now ranges through the eastern United States.

Identification

- Low-growing, branched stems with upright branches
- Roots form at the nodes of stems and branches
- Light green leaves; long and narrow in shape; taper at both ends; slightly hairy
- Flowers appear in clusters at the tips of branches
- Fruit is a grain; ranges from yellow to yellow-purple

Ecological Threat

Each plant produces up to 1,000 seeds that can remain in the soil for up to 7 years. This plant forms a dense patch that excludes all other plants in lawns and moist natural areas. This plant reduces nesting sites for ground-nesting birds like quail and reduces food available for other wildlife.

Control

- Pull/Dig up entire plant (shallow roots)
- Foliar herbicide before seeds appear

Native Alternatives

broom-sedge (*Andropogon virginicus*), switch grass (*Panicum virgatum*), and little bluestem (*Schizachyrium scoparium*)

Microstegium vimineum

Johnsongrass

Sorghum halepense

Johnsongrass is native to the Mediterranean. It is named after a farmer who introduced it to Alabaman from South Carolina in 1840. By the late 1800s, it was planted throughout the United States as feed for livestock.

Ecological Threat

Johnsongrass produces large amounts of seed, has an extensive root system, sprouts readily from fragmented roots, and grows in a wide range of environments. It crowds out native vegetation and is very difficult to control.

Identification

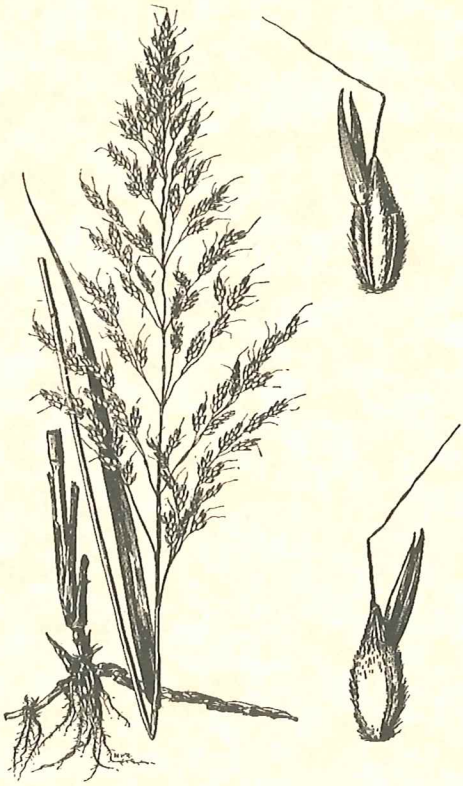
- Straight grass that ranges from 3-10 feet tall
- Leaves are 12 to 30 inches long; 1/2 to 1 inches wide; noticeable white stripe along the middle
- Open pyramid shaped flower ends in a reddish cluster; 6-24 inches long

Control

- Combination of cutting and foliar herbicide application
- Repeated treatments will likely be necessary

Native Alternatives

bushy bluestem (*Andropogon glomeratus*), switchgrass (*Panicum virgatum*), and Indian grass (*Sorghastrum nutans*)



Sorghum halepense

Wild Garlic, Crow Garlic

Allium vineale

Wild garlic is native to Europe, North Africa, and Asia where it is used to flavor food. In the United States, it currently grows on the West coast and from Nebraska, Arkansas, and Oklahoma to the East coast.

Identification

- Straight stems and leaves that smell like garlic when crushed
- Underground bulb resembles garlic bulbs used for cooking
- Flowers are slightly pink or white and appear in a round cluster on a tall stem
- Flowers produce small bulbs (bulbils) and/or black seeds
- A related plant that is similar in invasiveness and appearance is meadow garlic (*A. canadense*);

Ecological Threat

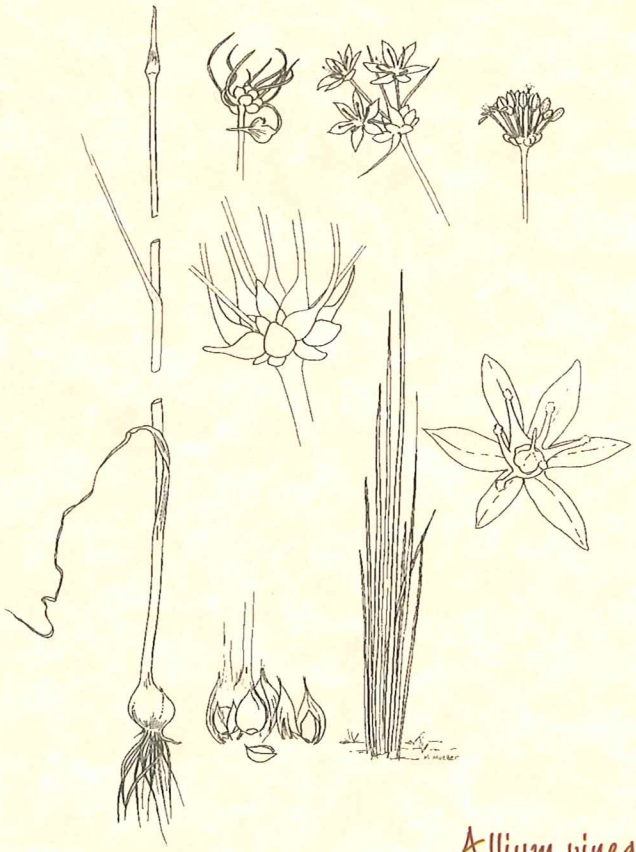
This plant invades pastures, lawns, roadsides, and fields. It reproduces in three different ways (underground bulbs that enlarge and divide; and seeds and aerial bulbils that drop from the flowerhead) which makes it difficult to control.

Control

- Dig up bulbs in small patches
- Foliar application of herbicide; early spring when leaves are especially tall compared to the surrounding grass or vegetation

Native Alternatives

wild ginger (*Asarum canadense*), Christmas fern (*Polystichum acrostichoides*), and heart-leaved aster (*Aster divaricatus*)



Allium vineale

Vines

Air Potato, Chinese yam, Cinnamon vine

Dioscorea oppositifolia

Air potato is native to East Asia. It was introduced into the United States as an ornamental and currently ranges throughout the eastern states and west to Texas.

Identification

- Vines twist upwards counterclockwise
- Large, deep root system including large white fleshy tuber
- Leaves are opposite of each other on the stem; generally heart-shaped with noticeable veins originating at leaf base
- Bulbils (small bulbs) appear where the leaf joins the stem
- Greenish-white spiked flowers; cinnamon fragrance
- Similar to: wild yam (*Dioscorea villosa*) and morning-glories (*Ipomoea spp.*) which never have bulbils

Ecological Threat

Air potato quickly climbs nearby vegetation forming a thick blanket of leaves that restricts sunlight to other plants. The vines are heavy enough to bend and break the stems of herbaceous plants and small trees and shrubs.

Control

- Dig up the tuber (appropriate for small infestations)
- Collect bulbils from the plants and ground (winter)
- Cut back plants in late spring; apply foliar herbicide to the new growth in the fall.

Native Alternatives

Virgin's bower (*Clematis virginiana*), climbing hydrangea (*Decumaria barbara*), and Virginia creeper (*Parthenocissus quinquefolia*)

Dioscorea oppositifolia

English Ivy

Hedera helix

English ivy is a native of Europe and was brought to North America by colonial settlers.

Identification

- Evergreen climbing vine; up to 50 feet
- Juvenile leaf has 3-5 lobed leaves; dark, glossy green with whitish veins
- Adult leaves lack lobes; lighter green, thick; less prominent whitish veins
- Greenish-white clustered flowers; only on mature growth
- Inconspicuous and rare black fruits follow flowering

Ecological Threat

English ivy forms a thick canopy just above the ground and prevents sunlight from reaching other plants. Vines climbing up trees surround branches and twigs, preventing most of the sunlight from reaching the leaves of the host tree. The added weight of vines breaks tree branches and causes heavily-infested trees to blow over during storms.

Control

- Cut vines climbing into the tree canopy
- Cut-stump method

Native Alternatives

Carolina jessamine (*Gelsemium sempervirens*), Virginia creeper (*Parthenocissus quinquefolia*), and climbing hydrangea (*Decumaria barbara*)

Hedera helix

Japanese Honeysuckle

Lonicera japonica

Japanese honeysuckle is native to East Asia. It is an invasive problem from the Gulf of Mexico to Massachusetts.

Identification

- Woody vine twining counter-clockwise
- Leaves are opposite of each other along the stem; 1 1/2-3 inches long
- Fragrant white and yellow flowers; tube-shaped; 1-1 1/2 inches long
- Black berries from September through November
- Similar to native honeysuckle (*Lonicera sempervirens*); native honeysuckle has red flowers and red-orange berries

Ecological Threat

Japanese honeysuckle invades fields, roadsides, forest edges, and fencerows. It spreads through seeds, underground roots, and above-ground runners. This vine covers and crushes small trees and shrubs. It aggressively out-competes other plants for sunlight, water and nutrients.

Control

- Pull entire plant
- Foliar application of herbicide; after first light frost; while temperature is above freezing
- Foliar application of herbicide; mid-August

Native Alternatives

coral honeysuckle (*Lonicera sempervirens*), climbing hydrangea (*Decumaria barbara*), and yellow jessamine (*Gelsemium sempervirens*)

Lonicera japonica

Kudzu

Pueraria montana

Kudzu is native to Asia. Prior to the mid-1950s it was planted throughout the American south for soil erosion. It now ranges from the East coast to Texas.

Identification

- Climbing, fuzzy, semi-woody vine; can reach 100 feet long
- Fleshy roots; 7" or more in diameter; 6' or more long; weighing as much as 400 pounds
- Leaves are 3-lobed
- Reddish-purple, fragrant flowers are about 1/2 inch long
- Flat, hairy seedpods, approximately 2 inches long

Ecological Threat

Kudzu damages other plants by smothering them under a solid blanket of leaves, by girdling woody stems and tree trunks, and by breaking branches or uprooting entire trees and shrubs through the sheer force of its weight. Once established, kudzu vines can grow a foot a day.

Control

- Dig up small infestations
- Cutting can be used to prevent its spread; repeat every two weeks
- Cut-stump method
- Foliar application of herbicide while in flower

Native Alternatives

American wisteria (*Wisteria frutescens*), Virginia creeper (*Parthenocissus quinquefolia*), and virgin's bower (*Clematis virginiana*)

Pueraria montana

Morning-glory, Common

Ipomoea purpurea

Most morning-glories occurring in the United States are native to the tropics. They were brought to the United States for ornamental uses and are still sold as such today.

Ecological Threat

Morning-glory vines grow very fast, reaching 10 feet or more within two months of sprouting. They quickly smother surrounding vegetation. They cover shrubs and small trees, eventually causing their death.

Identification

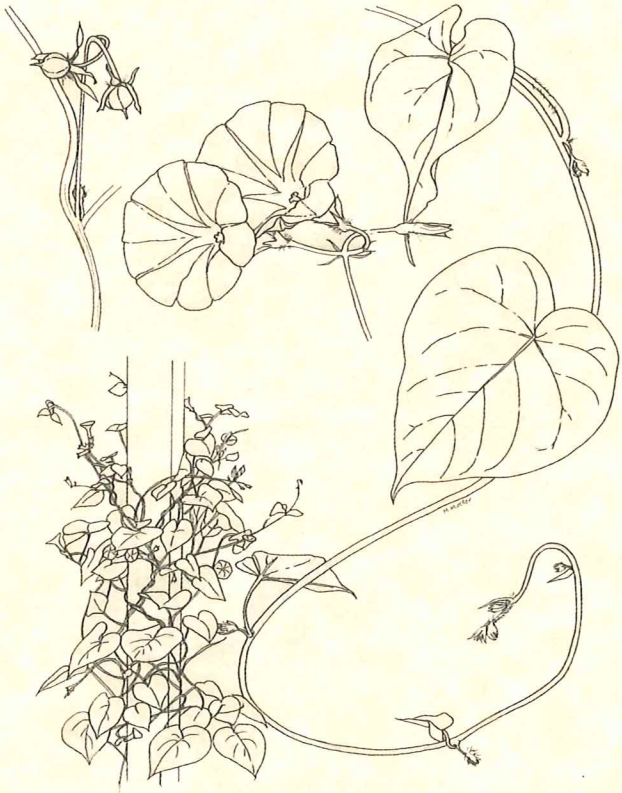
- Slender, hairy stems, green or purplish in color; contain milky fluid
- Heart-shaped leaves, 4-5 inches long
- Flower are funnel-shaped, purple or blue varying to white flowers
- Leaf shape and flower color vary in other types of morning-glories; any morning-glory that appears to be "taking over" should be treated as an invasive

Control

- Dig up or pull (June-July)
- Treat with a foliar herbicide before flowers appear in July

Native Alternatives

Carolina jessamine (*Gelsemium sempervirens*), climbing hydrangea (*Decumaria barbara*), and virgin's bower (*Clematis virginiana*)



Ipomoea purpurea

Periwinkle

Vinca minor / Vinca major

Periwinkle is native to Europe and North Africa. It occurs across the United States where it was imported for ornamental use.

Identification

- Low growing, mat-forming evergreen vines
- Stems contain a milky fluid
- Leaves are shiny, dark green with a subtle white stripe down the middle; 1-2 1/2 inches long; oval; smooth edges
- Flowers are blue-purple; appear where the leaf joins the stem of every other leaf
- Landscaping varieties may have white and green leaves, and flowers ranging from white to purple to red

Threat

Once established, periwinkle forms a dense mat that doesn't allow other plants to grow. It can cover shrubs and small trees, weakening branches with the added weight. It spreads by vines and runners.

Control

- Cut them close to the ground or dig them out
- Cut plant and then apply foliar herbicide; early or late spring; after a rain

Native Alternatives

creeping phlox (*Phlox stolonifera*), partridge berry (*Mitchella repens*), climbing hydrangea (*Decumaria barbara*), and yellow jessamine (*Gelsemium sempervirens*)

Vinca minor / Vinca major

Porcelainberry

Ampelopsis brevipedunculata

Porcelainberry is native to China, Korea, Japan, and Russia. It was originally cultivated and imported to the United States as a landscape plant.

Ecological Threat

The characteristics that make porcelainberry a good landscaping plant (colorful berries, fast growing vines, pest-resistance, and tolerance to harsh conditions) also make it an aggressive invader and difficult to control. Seeds are dispersed by animals and water.

Identification

- woody vine in the grape family
- Dark green, heart-shaped, lobed leaves; toothed edges; shiny underneath; 2 1/2-5 inches long
- Small, greenish-white flowers appear in clusters in June through August
- Berries appear from September to October; 1/4-inch in diameter; colors include white, yellow, green, purple, turquoise and blue; multiple colors of the berry grow on the same plant at the same time

Control

- Pull up plants by hand before fruit ripens
- Cut in the fall or spring
- Apply foliar herbicide in the summer and fall

Native Alternatives

coral honeysuckle (*Lonicera sempervirens*), Virginia creeper (*Parthenocissus quinquefolia*), and virgin's bower (*Clematis virginiana*)

Ampelopsis brevipedunculata

Wisteria, Chinese and Japanese

Wisteria sinensis / Wisteria floribunda

Exotic wisterias were brought to the United States from China and Japan. They grow throughout the southern United States.

Ecological Threat

Exotic wisterias smother native shrubs and trees by strangling or shading them. Climbing wisteria vines can kill even mature trees. On the ground these vines form dense thickets, excluding all other native vegetation. The vines can grow up to 65 feet high!

Identification

- Showy, woody ornamental vines in the pea family
- Leaves are made up of pairs of smaller leaflets
- Flowers are fragrant, purple to blue-purple; clusters hang from stems like grapes; flowers in spring
- Seed pods are flat, brown, and velvety
- Wisteria native to the southeastern United States (*W. frutescens*) flowers in the summer and produces small, smooth seed pods

Control

- Cut vines repeatedly from spring to autumn
- Apply foliar herbicide in late summer
- Cut-stump method in late summer

Native Alternatives

American wisteria (*Wisteria frutescens*), climbing hydrangea (*Decumaria barbara*), and Virginia creeper (*Parthenocissus quinquefolia*)

Wisteria sinensis / Wisteria floribunda

Andropogon gerardii

Andropogon glomeratus

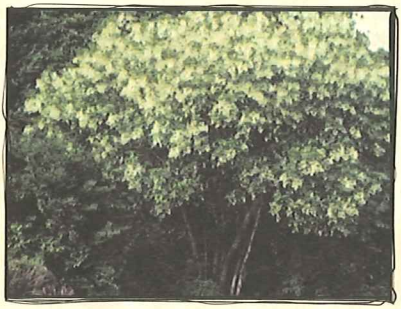
Andropogon virginicus

Asarum canadense

Aster divaricatus

Calycanthus floridus

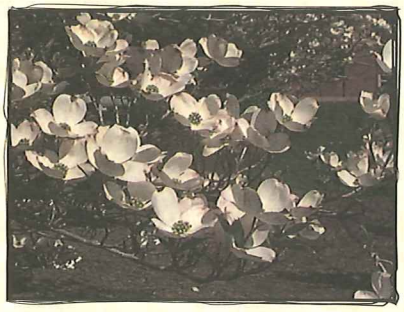
Cercis canadensis



Chionanthus virginicus

Clematis virginiana

Clethra alnifoilia

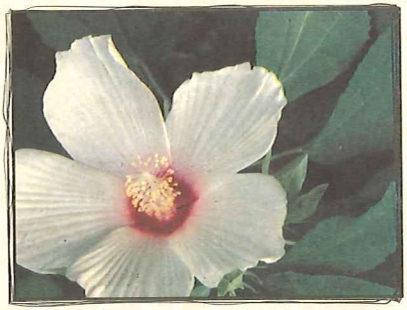


Cornus florida

Decumaria barbara

Euonymus americana

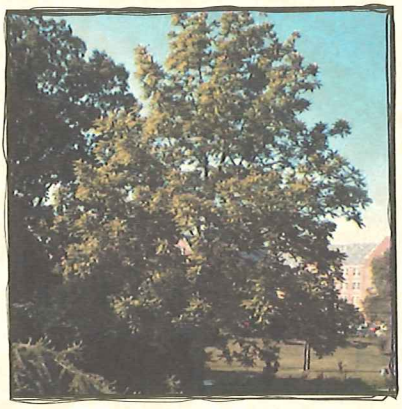
Gelsemium sempervirens



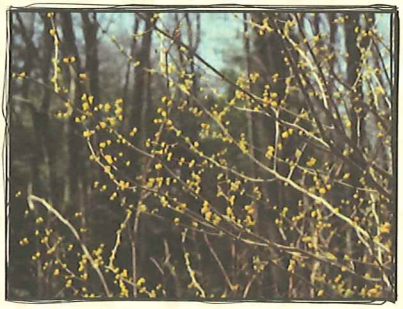
Hibiscus moscheutos

Ilex opaca

Itea virginica



Juglans nigra



Lindera benzoin

Lonicera sempervirens

Mitchella repens

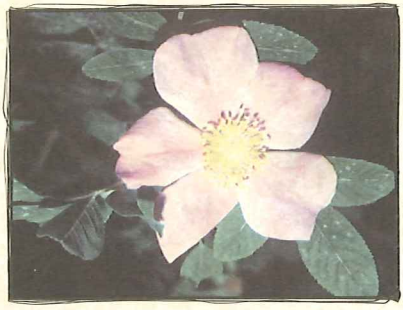
Panicum virgatum

Parthenocissus quinquefolia

Phlox stolonifera

Polystichum acrostichoides

Rosa carolina



Rosa palustris

Sambucus canadensis

Schizachyrium scoparium

Sorghastrum nutans

Styrax grandifolius

Symphoricarpos orbiculatus

Symplocos tinctoria

Tilia americana var. heterophylla

Viburnum nudum

Wisteria frutescens

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