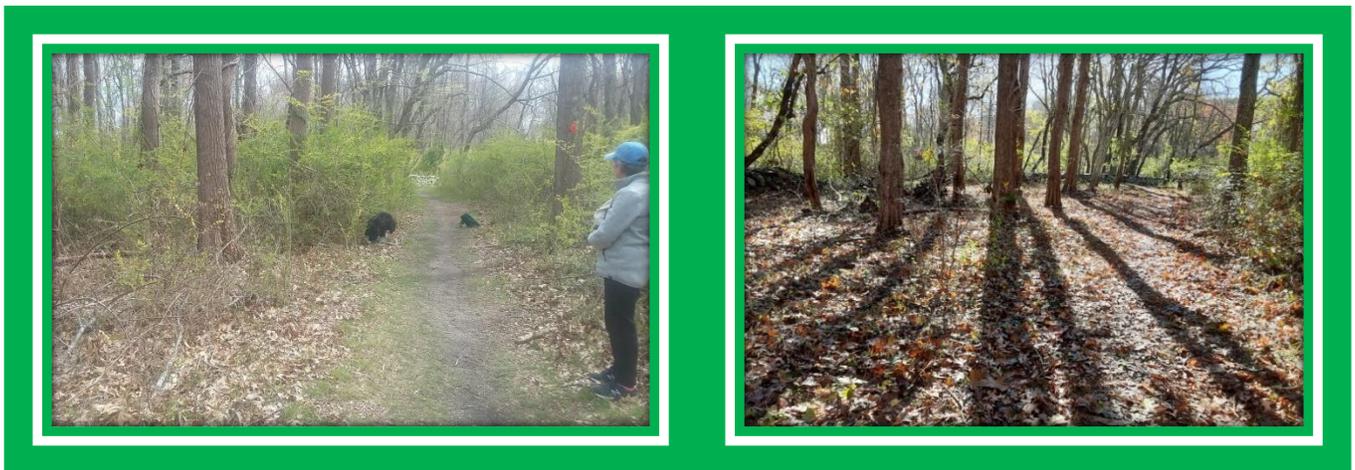


Invasive Plants: The Threat They Pose!

Enormous areas of South County are rapidly being ravaged by invasive plant species; on private lands as well as in our parks and along our roads and shoreline. These non-native invasive plants are displacing our treasured native plants and as a result, the quality and resilience of our habitats are seriously threatened. As a community, we need to heighten our awareness of the invasive species of most immediate concern, learn to identify them, and take community action to remove them and to reverse this dangerous trend.

Friends of Canonchet Farm in partnership with the town of Narragansett are working to remove the many invasive plant species that are threatening the environment in Canonchet Farm. By removing the invasive plants, the native plants can return to the area.



Before and after volunteers have cleared Canonchet Farm woods of Invasives.

What are we trying to protect?

South County's native plants such as Virginia Rose, Skunk Cabbage, High Bush Blueberry, Black Cherry, Common Winterberry, Shadbush, Smooth Arrowwood, White Wood Aster, Bayberry, Sweet Pepperbush are examples of plants that have established a natural ecological balance with South County's native insects, birds, mammals and other native plants. This balance has been achieved through parallel evolution of the plants, insects, birds and other animals. These local species have adapted to the native environmental conditions of South County and depend on each other for food.

This species interdependence is what the invasive plants disrupt and what we seek to restore and protect. Invasive plants out-compete our native plants, throwing the overall system out of balance. They propagate aggressively and are often very fast-growing. They establish areas as expansive monocultures; infestations that are very difficult to eradicate.

Invasive Plant Species of Most Immediate Concern

This booklet introduces thirteen of South County's most invasive plants that are considered to be of most immediate and critical environmental impact.

3. Japanese Knotweed (*Fallopia japonica*), an herbaceous perennial;
4. Black Swallowwort (*Cynanchum louiseae*), a perennial twining vine;
5. Porcelain-Berry (*Ampelopsis glandulosa*), a woody vine;
6. Garlic Mustard (*Alliaria petiolata*), a biennial herb;
7. Japanese Barberry (*Berberis thunbergii*), a shrub;
8. Common Reed (*Phragmites australis*), a perennial grass;
9. Asian Bittersweet (*Celastrus orbiculatus*), a woody vine;
10. Multiflora Rose (*Rosa multiflora*), a shrub which may climb into trees like a vine;
11. European Privet (*Ligustrum vulgare*), a shrub;
12. Burning Bush (*Euonymus alatus*), a shrub;
13. Autumn Olive (*Elaeagnus umbellata*), a shrub or small tree;
14. Morrow's Honeysuckle (*Lonicera morrowii*), a shrub; and
15. Japanese Honeysuckle (*Lonicera japonica*), a woody vine.

Profiles of these invasive plants are presented in this booklet to help you identify them.

Resources

Here is a list of useful resources with an abundance of related information.

University of Rhode Island (URI) Master Gardener Program web.uri.edu/mastergardener/

Go Botany Project gobotany.nativeplanttrust.org

URI Invasive Plant Management Trainings web.uri.edu/coopext/ipmc/

Homegrown National Park <https://homegrownnationalpark.org>

Rhode Island Natural History Survey Invasive Species Portal <https://rinhs.org/invasive-species-portal/>

This document was modified from the original Jamestown Invasive Plant booklet developed and published by the Taylor Point Restoration Association. Friends of Canonchet Farm thanks that organization for graciously allowing us to adapt their work. Here is the link to that organization: <http://taylorpoint.org>

Who We Are

The Friends of Canonchet Farm is a private, not-for-profit organization founded in 2007 that helps to manage Canonchet Farm with the Town of Narragansett in the State of Rhode Island. The Town of Narragansett retains control and policy responsibility for Canonchet Farm in this public-private partnership.

Thanks to the generosity of many individuals, the Friends have raised funds, and will seek to raise additional funds, to transform Canonchet Farm into a model for recreational and educational parks nationwide. For more information visit <https://canonchet.org>

Japanese Knotweed (*Fallopia japonica*)

Invasive, Non-Native, Herbaceous Perennial Plant
Grows 3 to 10 feet in height

Introduction: Japanese Knotweed was introduced to North America from Asia as an ornamental plant. It is one of the 100 most invasive species in the world, according to the Global Invasive Species Program.

Description: The semi-woody stem is smooth, stout, and swollen at joints where the leaf meets the stem. Its stems are jointed and hollow resembling the hollow stalks of bamboo. Its leaves are alternate and broadly oval to somewhat triangular and pointed at the tip, growing up to 6 inches long and 5 inches wide. Knotweed has numerous, small, creamy white flowers arranged near the end of the plant's arching stems. They bloom in August and September and then produce very small winged fruits. Its seeds are triangular, dark and glossy. Japanese Knotweed grows best in full sun but is shade tolerant. Japanese knotweed can tolerate high temperatures, high salinity, and drought.

Propagation: Knotweed can propagate vegetatively. It can regrow from even a tiny fragment of a root. It has a deep taproot and an extensive network of rhizomes that may extend laterally up to 65 feet and can grow 3 inches in diameter. It grows aggressively by these rhizomes and by sprouting from root and stem fragments. It also can reproduce by seed.

Competitive Factors: Japanese Knotweed forms monocultures that reduce plant species diversity by shading out native vegetation. It also alters nutrient cycling and suppresses growth of other plants by releasing toxic or inhibiting chemicals enhancing its ability to dominate native species. It is extremely fast-growing and can grow 9 - 12 feet in just ten weeks.

Management issues: Roadside maintenance equipment appears to disperse cut fragments of knotweed along roadways, contributing to the spread of knotweed. Dumping of landscape waste also is a source of new populations. Knotweed rhizomes and shoots can penetrate asphalt and create cracks in concrete.



Black Swallowwort (*Cynanchum louiseae*)

Invasive, Non-Native, Perennial Twining Vine
Can grow eight feet in length in a season

Introduction: In the late 1800s, Black Swallowwort, an herbaceous perennial vine native to southwestern Europe, was intentionally brought to North America as an ornamental. Also known as black dog-strangling vine, it is a member of the milkweed family. Monarch butterflies that rely on milkweed to reproduce are known to mistake Black Swallowwort for milkweed and deposit their eggs on the plant. However the Black Swallowwort is toxic to the monarch caterpillars and so the butterfly larvae that emerge on it die.

Description: The leaves of Black Swallowwort are oval shaped with pointed tips and occur in pairs along the stem. Its small five-petaled star-shaped flowers are dark purple to almost black with white hairs, and are borne in clusters. The fruits are slender tapered pods. The plants have rhizomes (underground stems) that sprout new plants and grow in clumps of several stems, forming extensive patches. Black Swallowwort thrives in a wide range of settings and is shade tolerant.

Propagation: In late spring the Black Swallowwort's small star-shaped purple flowers bloom and in the summer its long green seed pods release flat brown seeds that float on the wind by virtue of the fine white hairs that cover them. A square meter stand of Black Swallowwort can produce 1000-2000 seeds per year. This plant also propagates via rhizomes located at the base of the stem that can sprout and grow into new vines.

Competitive Factors: Black Swallowwort forms associations with fungi in the soil. The fungi help in the plant roots' uptake of soil nutrients. These associations are closer and more efficient than they are in native species, giving Black Swallowwort a competitive advantage. Large infestations of Black Swallowwort may have four times as many of these fungi spores, magnifying their advantage over native plants. It also twines around and strangles nearby native plants

Management issues: Since the vine has an extensive rhizome system, roadside maintenance activity or home landscape efforts that disturb Black Swallowwort have the potential to encourage new shoot growth if the plant is cut. Once the main stem is damaged, buds on the root crown will activate to produce new shoots. Also when the plant's seed pods are disturbed by workers or homeowners, seeds can inadvertently be spread to new areas.



Porcelain-Berry (*Ampelopsis glandulosa*)

Invasive, Non-Native, Woody Vine
Can grow 20 feet high

Introduction: In the 1870s this perennial vine was brought to the United States from East Asia as an ornamental ground cover. A member of the grape family, its clusters of iridescent berries form in autumn, growing in a dazzling array of sparkling blues and purples. Although it is well known to be highly invasive, because of its unusual and colorful fruits, Porcelain-Berry is still widely cultivated and sold for landscaping uses.

Description: Porcelain-Berry grows quickly, forming dense mats that cover native vegetation. It also climbs into trees and can shade out young shrubs and seedlings. The leaves of Porcelain-Berry look very much like grape leaves. They are bright green and slightly hairy on the underside. They are often deeply lobed with three to five lobes per leaf. Young twigs are also hairy to the touch. Porcelain-Berry can be distinguished from grapes because the pith of the Porcelain-Berry vine is white, whereas that of Wild Grape is brown. Also Wild Grape bark peels or shreds, while Porcelain-Berry bark does not. Porcelain-Berry flowers in mid-summer producing inconspicuous greenish to white flowers growing in small clusters. Porcelain-Berry prefers moist, rich soils and full sunlight, although it can tolerate partial shade. It has a vigorous root system and can re-sprout.

Propagation: Porcelain-Berry spreads both by seed and vegetatively. Birds and other small animals eat the berries and disperse seeds in their droppings. The taproot is large and vigorous.

Competitive Factors: Porcelain-Berry is a highly competitive invader of open and wooded habitats. Once it gets rooted it overtakes everything around it as its long woody vines grow over the tops of native shrubs and young trees, forming a dense cover that blocks sunlight, shading and killing the plants below. It grows rapidly, and can grow as much as 15 feet in a single growing season.

Management issues: Efforts to pull out the vines by hand should be undertaken before fruiting to prevent the production and dispersal of seeds. If the plants are pulled while in fruit, all plant material should be bagged for disposal. A large, thick mat of Porcelain-Berry can often be traced back to a single root. Killing the taproot is key to effective management efforts.



Garlic Mustard (*Alliaria petiolata*)

Invasive, Non-Native, Herbaceous Plant
Can grow eight feet in length in a season

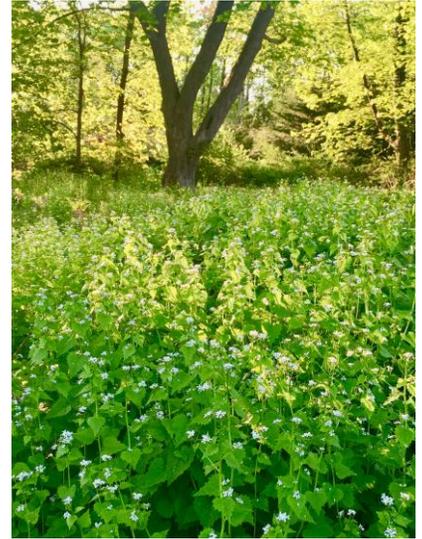
Introduction: In the 1860s Garlic Mustard was introduced to North America by settlers from Europe who used it as a culinary and medicinal herb. A cool season biennial herb, Garlic Mustard grows a deep, thin, white taproot that smells like horseradish. Its stalked, coarsely toothed leaves smell like garlic when they are crushed. The young leaves can be used in salads and pesto's. The leaves have reportedly been used to treat bronchitis, asthma and eczema and have been applied as an antiseptic poultice. Garlic Mustard favors moist, shaded areas of forests and grows alongside woods, roads, and trails. Disturbed areas are susceptible to invasion by Garlic Mustard.

Description: In the first year, Garlic Mustard appears as a rosette of green leaves close to the ground. The rosettes remain green through the winter and develop into mature flowering plants the following spring. Flowering Garlic Mustard plants can grow from 2 to 3 1/2 feet high. They produce clusters of small white flowers, each with four petals. In May, Garlic Mustard produces seeds in erect slender pods. The seeds become black and shiny as they mature. By late June, when the Garlic Mustard plants have died back, they are still recognizable by the erect stalks of dry, pale brown seedpods that remain.

Propagation: A single Garlic Mustard plant can produce thousands of seeds, which can disperse many yards from the parent plant and which can lay dormant in the soil for years before sprouting. Its flowers may either self-fertilize or may be cross-pollinated by insects.

Competitive Factors: Garlic Mustard spreads rapidly and can outcompete native plants that complete their life cycles in the springtime. Garlic Mustard can dominate the understory, outcompeting native plants by monopolizing light, moisture, nutrients, soil and space. Wildlife species that depend on early native plants for their foliage, pollen, nectar, fruits, seeds and roots, are deprived of these food sources when Garlic Mustard replaces them. The caterpillars of some species of garden white butterfly feed on toothwort (*Dentaria*). The butterflies are known to mistake Garlic Mustard for toothwort and lay their eggs on it. When the larvae hatch, they cannot digest the Garlic Mustard and they die.

Management issues: Garlic Mustard seeds are small. They can be spread to new areas by movement of contaminated soil, by animals and by humans via equipment and clothing.



Japanese Barberry (*Berberis thunbergii*)

Invasive, Non-Native, Shrub.

Can grow to eight feet tall and wide

Introduction: Japanese barberry was introduced to the U.S. and New England as an ornamental plant in 1875 in the form of seeds sent from Russia to the Arnold Arboretum in Boston, Massachusetts. Japanese barberry was later promoted as a substitute for native barberry (*Berberis vulgaris*) which was planted by settlers for hedgerows, dye and jam, and later found to be a host for the black stem grain rust.

Description: Japanese barberry is a dense, deciduous, spiny shrub that grows to 8 ft. high. The branches are brown, deeply grooved, somewhat zig-zag in form and bear a single very sharp spine at each node. The leaves are small ($\frac{1}{2}$ to $1\frac{1}{2}$ inches long), oval to spatula-shaped, green, bluish-green, or dark reddish purple. Flowering occurs from mid-April to May in the northeastern U.S. Pale yellow flowers about $\frac{1}{4}$ in (0.6 cm) across hang in umbrella-shaped clusters of 2-4 flowers each along the length of the stem. The fruits are bright red berries about $\frac{1}{3}$ in (1 cm) long that are borne on narrow stalks. They mature during late summer and fall and persist through the winter.

Propagation: Japanese barberry spreads by seed and by vegetative expansion. It produces large numbers of seeds which have an estimated 90% germination rate. Barberry seed is transported to new locations with the help of birds and small mammals which eat it. Birds frequently disperse seed while perched on powerlines or on trees at forest edges. Vegetative spread is through branches touching the ground that can root to form new plants and root fragments remaining in the soil that can sprout to form new plants.

Competitive Factors: Japanese barberry forms dense stands in natural habitats including canopy forests, open woodlands, wetlands, pastures, and meadows and alters soil pH, nitrogen levels, and biological activity in the soil. Once established, barberry displaces native plants and reduces wildlife habitat and forage. White-tailed deer apparently avoid browsing barberry, preferring to feed on native plants, giving barberry a competitive advantage.

Management issues: Because Japanese barberry leafs out early, it is easy to identify and could be removed in early spring. The root system is shallow making it easy to pull small plants from the ground, and it is important to get the entire root system. Hand pulling and using a shovel to remove plants up to about 3 ft high is effective if the root system is loosened up around the primary tap root first before digging out the whole plant. Mechanical removal may pose the least threat to non-target species and the general environment at the site. If time does not allow for complete removal of barberry plants at a site, mowing or cutting in late summer prior to seed production is advisable.



Common Reed (*Phragmites australis*)

Invasive, Non-Native, Grass
Can grow as high as 12 – 15 feet

Introduction: The Common Reed, *Phragmites australis*, was introduced to the United States in the late 19th century when ships from Eurasia unintentionally carried its seeds in their ballast.

Description: *Phragmites australis* is a stout, warm-season, perennial grass that can grow as high as 15 feet, often extending in vast, dense, expansive "reed beds". The stems of *Phragmites* are smooth, upright, rigid, and hollow. Its leaves are gray-green, contrasting with long white hairs that grow from the leaf-sheath junction. The inflorescence is light brown to purple and can reach from 7 inches to 15 inches long. The seeds of the Common Reed are brown, lightweight, and about a third of an inch long. In the fall the plant turns brown. The inflorescence persists throughout the winter. *Phragmites australis* can grow in a wide variety of habitats but is most often found in wet and in marshy areas. It grows in vast colonies along coastal beaches or dunes, along the banks and shores of lakes, streams, rivers and ponds, in ditches, in open disturbed areas, in salt marshes and wet meadows. This plant grows best in fresh water, but can be found in brackish, acid or alkaline wetlands. It also forms dense, thick walls of vegetation at the interface of upland and wetland habitats.

Propagation: Common Reed spreads easily and extensively by seed. Mature plants can produce as many as 2,000 seeds a year. It spreads most effectively by means of its extensive and aggressive system of horizontal and vertical rhizomes. Its rhizomes may exceed 60 feet in length and they can grow ten or more feet per year.

Competitive Factors: *Phragmites australis* is tolerant of many common urban pollutants, giving it an advantage over native species that are less tolerant of polluting substances and conditions. The tall thick expansive monocultures Common Reed forms prevent light from reaching other plants, killing them off, thus lowering species diversity and degrading fish and wildlife habitat. The reed beds can spread at 16 feet or more per year by horizontal runners.

Management issues: Small or broken portions of rhizomes left in the soil can lead to the establishment of new plants.



Asian Bittersweet (*Celastrus orbiculatus*)

Invasive, Non-Native, Woody Vine
Can grow to 100 feet

Introduction: Native to China, Japan and Korea, Asian Bittersweet was brought to the United States around 1860 as an ornamental plant. The colorful fruiting stems of this vine are often cut in the autumn and used for decoration, which unfortunately facilitates the establishment of new infestations.

Description: Asian Bittersweet is a woody, perennial, twining vine with thin, spindly, silver to reddish brown bark. It twines around and climbs trunks of trees or shrubs and can grow to 100 feet. The leaves are alternate, toothed, and teardrop-shaped to round with a pointed tip. The flowers are small and greenish yellow, with male and female flowers on separate plants. Asian Bittersweet blooms in early summer and bears fruit in the fall. The fruit is greenish to yellow and grows in clusters of 3-7 along the stem. In fall the fruit splits open to reveal a bright red inner fruit. Asian Bittersweet has distinctive bright orange roots.

Propagation: Asian Bittersweet reproduces by its seeds being dispersed by birds. Additionally stems can form off of the extensive root structure and small root fragments can regenerate.

Competitive Factors: Asian Bittersweet has high seed production, good seed viability, long range seed dispersal, and a rapid growth rate. It climbs up trees, shrubs, or any other above ground structure to grow upward into sunny exposures. The vine wraps around tree trunks as it grows and can eventually constrict the host plant's vascular system, inhibiting carbohydrate flow from the leaves to the roots and water and nutrient flow from the roots to the leaves. Thus the vines simply strangle the host tree to death or weigh it down so much from the excess weight that the host tree's branches break. Asian Bittersweet will over-top native plants and can even shade and wipe out entire plant communities. In the absence of a host tree or other structure to climb upon, it can use its own twining stems to grow toward the light, creating impenetrable thickets in open fields.

Management issues: Asian Bittersweet produces new stems from root sprouts and root fragments. Disturbing it when it is fruiting can spread its seeds, promoting the development of new infestations.



Multiflora Rose (*Rosa multiflora*)

Invasive, Non-Native, Shrub

Multiflora Rose can grow 10-15 feet high and 9-13 feet wide.

Introduction: Multiflora Rose, native to eastern China, Japan, and Korea, was introduced to North America from Japan in 1866 for use as rootstock for ornamental roses. In the 1930s, the U. S. Soil Conservation Service used it extensively for erosion control and to create natural hedge barriers to confine livestock. Once it was recognized as effective habitat and cover protection for pheasant, northern bobwhite, and cottontail rabbit and food for songbirds and deer, its spread was promoted further. More recently Multiflora Rose has been planted in highway median strips to provide crash barriers and reduce headlight glare from oncoming traffic. The impenetrable thickets it forms crowd out native species.

Description: Multiflora Rose is a vigorous perennial shrub. Its canes (stems) are reddish to green and often have curved thorns. Its compound leaves have oval, saw-tooth smooth leaflets. In early summer, clusters of showy, fragrant, white to pink flowers that are 1/2 inch to one inch in diameter, give way, as the summer progresses, to small bright red fruits, or rose hips. The rose hips remain on the plant through the winter. Multiflora Rose can be mistaken for the native species, Virginia Rose, Pasture Rose and Swamp Rose, all of which grow in South County.

Propagation: Multiflora Rose has both male and female reproductive parts on the same flower on the same plant. As a result a single plant can produce a colony of reproducing plants. One plant may produce as many as a million seeds per year and these seeds may stay viable in the soil bank for 10 to 20 years. The seeds are dispersed by birds and animals. Multiflora Rose also reproduces vegetatively, sprouting when stems are cut or broken, thus yielding more reproductive stems giving way to more flowers, fruit, and seed than the original uncut or unbroken stems. Canes held to the ground for a long time also can sprout roots and form a new plant; a process known as "layering".

Competitive Factors: Multiflora Rose is aggressive and will colonize roadsides, open fields, open woodlands, and the edges of forests. Its heavy seed production, strong seed viability and abundance of seed vectors, coupled with the fact that it also can reproduce vegetatively, all work to give it competitive advantages over native plant species.

Management issues: Cutting canes and leaving fragments on the ground has the potential to introduce new plants vegetatively. Disturbing fruiting plants can also spread seeds that may grow.



European Privet (*Ligustrum vulgare*)

Invasive, Non-Native, Shrub

Typically grows about 9 feet tall but can grow to 20 feet.

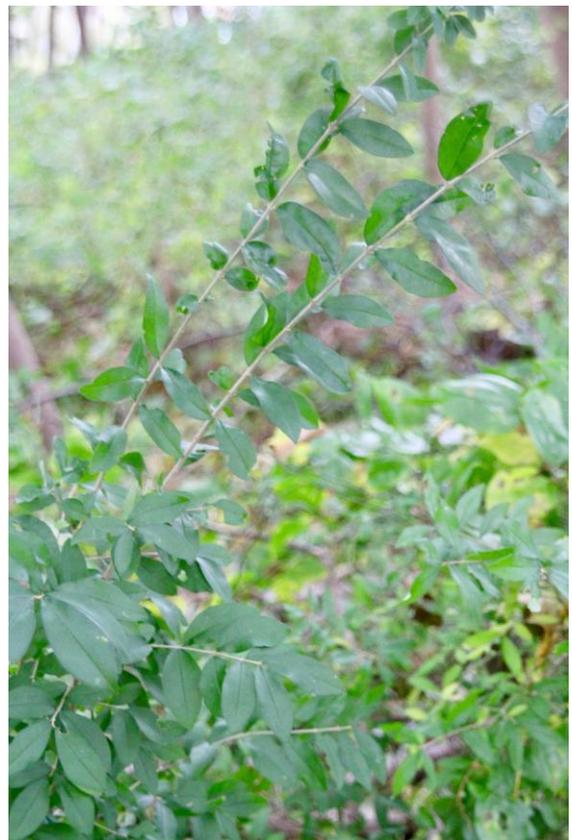
Introduction: A fast-growing, semi-evergreen or deciduous perennial shrub, European Privet was brought to North America as an ornamental in the 1700s for use as a hedge plant or for foliage in gardens. A member of the olive family, it is native to Europe, northern Africa and southwestern Asia. It grows in bottomlands, forests, old fields, closed canopy forests, along roadsides, fence rows, and areas with disturbed soil.

Description: The European Privet is a large irregularly shaped multi-stemmed shrub or tree. Its trunks are smooth and gray-brown generally occurring with many long, leafy branches. Its dark green leaves grow in an opposite leaf arrangement and have smooth leaf margins. They are oval to lanceolate and grow to about 2.5 inches long. Clusters of fragrant white flowers bloom at the stem tips in summer attracting butterflies. Many people find the fragrance of these flowers to be distinctly unpleasant. The flowers give way to small globe-shaped glossy blue/black berries that grow in drooping clusters and persist through winter. Each berry contains one to four seeds. The berries are poisonous to humans.

Propagation: European Privet propagates by seeds dispersed by birds and wildlife. It produces large numbers of viable seeds that germinate at high rates in a broad range of environmental conditions. Plants can produce hundreds of fruits per plant per year. European Privet also can grow from root and stump sprouts.

Competitive Factors: While European Privet favors full sun, it is readily adaptive to a wide range of light and soil conditions. It grows rapidly, and quickly forms dense thickets that shade out and displace other plants.

Management issues: Disturbing or cutting European Privet when it is fruiting has the potential to spread its seed. Because it also propagates vegetatively, roots, stumps and cuttings left behind have the potential to grow into new plants.



Burning Bush (*Euonymus alatus*)

Invasive, Non-Native, Shrub

Typically grows up to 15-20 feet tall and wide.

Introduction: Exotic burning bush (*Euonymus alatus*) is native to northeast Asia and central China. It was introduced in the United States in the 1860s and it is still widely planted today as an ornamental due to its brightly colored fall foliage. Unfortunately, it has spread from landscaping plantings and has become invasive in native habitat.

Description: A deciduous bushy shrub in the bittersweet family. It is multi-stemmed with a broad closed crown. The green to brown stems have two to four prominent corky wings. The elliptic leaves are simple, opposite or sub-opposite, 1 to 3 inches long and 1/2 to 1 1/4 inches wide and have fine toothed margins. The leaves turn a bright red in the fall before dropping. Small green inconspicuous flowers have 4-petals and occur from May to early June. Small smooth red-orange fruits appear as stemmed pairs in leaf axils and turn purple in fall.

Propagation: It has been widely planted as an ornamental shrub for its spectacular red autumn foliage and along roadsides for its tolerance to salt. It spreads by root suckers and by animal and bird-dispersed seeds. It shades out native herbs and crowds out native shrubs. The shrub is highly invasive because of the ease with which seeds are spread, the readiness of germination, the adaptability to various soils, and tolerance of full shade

Competitive Factors: It can be found in open woods, forests, pastures, prairies, and roadsides. It is very adaptable to a variety of soils, including being pH adaptable, performing best in well drained soils and poorest in waterlogged soils. It grows well in full shade and full sun

Management issues:

Hand-pull seedlings up to 2 feet tall; cut or dig out larger plants; root systems can be removed with a spading fork or pull with a weed wrench. Hand pull: especially after a rain, hand pull small plants by the base of the stem. Be sure to pull up the entire root system. Continue to monitor the area every year for new seedlings. Cut larger plants back to a stump in the fall or winter and monitor to prevent re-sprouting.



Autumn Olive (*Elaeagnus umbellata*)

Invasive, Non-Native, Shrub
Can grow as tall as 25 feet

Introduction: Native to China, Japan and Korea Autumn Olive was first brought to North America in 1830 as an ornamental. It was later used to provide vegetative windbreaks and to restore deforested lands. In the mid-twentieth century it was widely used in efforts to enhance wildlife habitat and to control erosion.

Description: Autumn Olive is a hardy, rapidly growing deciduous shrub or tree with a dense crown. Its simple leaves are alternate, silvery green on the undersides, and oval with a finely pointed tip. They grow 1-3 inches long and have a dark-green upper surface. Its bark is brown or gray-brown, with sharp thorns that can grow several inches long. Its fragrant pale yellowish white flowers have 4 petals and stamens. They grow in the leaf axils in clusters. In the fall Autumn Olive produces pulpy, juicy, sweet red fruits about 1/3 inch in diameter. The berries can be eaten raw or cooked and can be made into jams. An individual plant can produce as many as 10,000 berries in a season and the fruits can weigh branches to the ground. It grows in open to semi-shaded habitats including fields, woodlands, along roadsides, and in open disturbed sites. It does not favor wet soils or shade but it is moderately shade tolerant.

Propagation: Autumn Olive produces an abundance of fruits that are dispersed by birds and mammals. It can re-sprout from a stump or root fragment.

Competitive Factors: Autumn Olive leafs out early and retains its leaves late in fall. It grows rapidly and will grow in dense stands that shade out and crowd out native species. It produces an abundance of seeds that are widely dispersed. It can fix nitrogen in the soil owing to a symbiotic relationship between the autumn olive roots and fungi, thus changing the soil chemistry, making site conditions unfavorable for many native plants. It is also drought resistant and does well in a wide range of soil types.

Management issues: Autumn Olive can re-sprout readily after being burned or cut.



Morrow's Honeysuckle (*Lonicera morrowii*)

Invasive, Non-Native, Shrub
Can grow 8 to 10 feet high

Introduction: Native to eastern Asia, Morrow's Honeysuckle was brought to North America in the late 1800s as an ornamental. It has been planted widely for wildlife food and cover and for erosion control. The berries, a food source for birds, are poisonous to humans. The fruits, though abundant and carbohydrate-rich do not offer the same high-fat, nutrient-rich sustenance to migrating birds that native plant species provide.



Description: Morrow's Honeysuckle is a woody, perennial shrub, with hollow stems. Its flowers, which bloom in early spring, are paired and usually white, fading to yellow through the season. Its fruits are red berries; also borne in pairs. The berries appear in mid-summer and are usually gone in the fall. Its gray-green leaves are simple, opposite, and oblong. It leafs out early and has a long growing season. Morrow's Honeysuckle is commonly found in a variety of habitats, including abandoned fields, open disturbed areas, pasturelands, along roadsides and utility rights-of-way, and vacant lots. It thrives in mesic soils, but also grows well in dry, sandy soils in calcareous areas. Morrow's Honeysuckle is only moderately shade tolerant.



Propagation: Reproduction is primarily by seed. The seeds of Morrow's Honeysuckle are mainly dispersed by the birds and mammals that eat the fruits.

Competitive Factors: Due to the fact that it leafs out early, Morrow's Honeysuckle is particularly harmful to spring ephemerals, flowers that evolved to bloom briefly in the spring before other plants leaf out. It can form dense impenetrable thickets that prevent other native plants from growing. It crowds and shades out native plant species, alters habitats by decreasing light availability, and depletes soil moisture and nutrients.

Management issues: If mature plants are cut, they will likely re-sprout. Its root system is shallow and woody. Any portions of the root system not completely removed will potentially re-sprout.



Japanese Honeysuckle (*Lonicera japonica*)

Invasive, Non-Native, Woody Vine

Can climb or grow along the ground to lengths of 80 feet or more

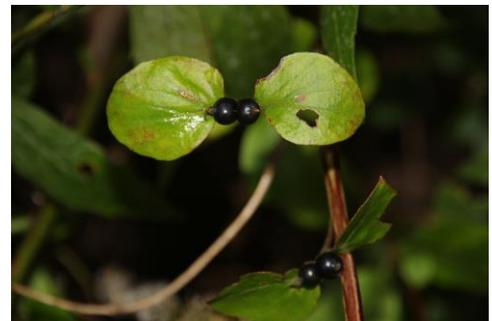
Introduction: Native to Japan and eastern Asia, Japanese Honeysuckle was introduced to North America in the 1800s as an ornamental and for erosion control. It has also been planted in efforts to enhance wildlife habitat. The leaves of Japanese Honeysuckle are a source of winter forage for white-tailed deer.

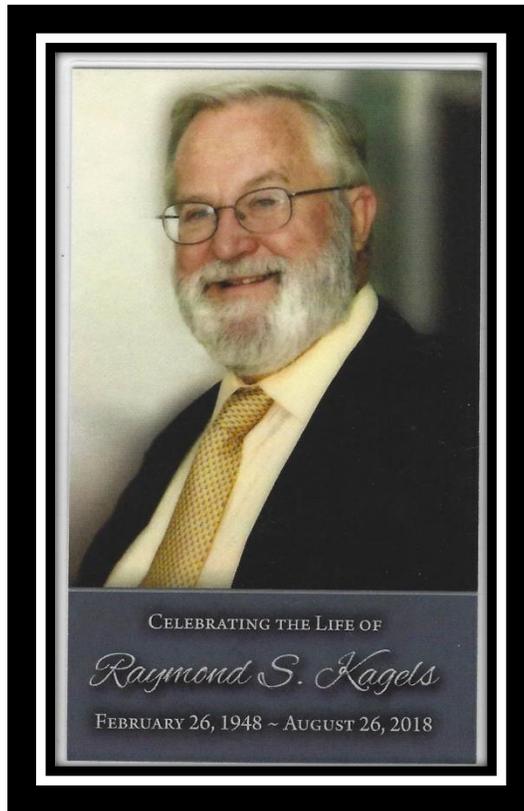
Description: Japanese Honeysuckle is a twining woody perennial vine that climbs by twisting its stems around vertical structures, including limbs and trunks of shrubs and trees. The vines can climb 80 feet high or more and will form a thick covering over trees, shrubs and ground cover species. The leaves are simple, opposite, and oval. Leaves are semi-evergreen to evergreen. The plant's stems are hairy, reddish/light brown, woody, and hollow. Fragrant flowers bloom all summer long and into the fall. The tubular flowers are white-cream-pink and fade to yellow. They are paired and grow along the stem. The flowers produce glossy black to purple fruits, also paired, which produce brown-black seeds. Its extensive root system may be as deep as three feet and may extend more than 10 feet across. Japanese Honeysuckle can be found growing along roadsides, fences, fields, and woods. It tolerates a broad range of soil and light conditions.

Propagation: Birds and other wildlife that consume its fruits disperse the Japanese Honeysuckle seeds. The plant's long vegetative stems that grow above-ground can root at the nodes and develop into new plants helping to spread the plant locally. The plant also propagates underground by rhizomes.

Competitive Factors: Japanese Honeysuckle grows very rapidly and will grow on and over top of small trees and shrubs, causing them to collapse. It can grow so densely that it will shade out plants in the understory and will twine around and choke others. Japanese Honeysuckle also can develop a large seed bank. Its habitat adaptability, wide seed dispersal, rapid growth rate, and extended growing season, confer on it a strong competitive advantage over many native species.

Management issues: Since Japanese Honeysuckle grows easily from the seeds in its berries, human activities that cause the seed to fall are likely to spread an infestation. Because it also propagates easily from its rhizomes, activities that leave root or rhizome fragments behind are also likely to spread an infestation.





This booklet is dedicated to Raymond Kagels

Ray Kagels was elected to the Board of Friends of Canonchet Farm in May of 2009 during a season of discontent for the founding Board, as we were struggling to define our mission and goals. Disagreements were running high and threatening to tear the Board apart. Ray immediately began work to organize the Board by creating clear policies to clarify the roles and responsibilities of all Board members.

Ray's extensive knowledge, guidance and strength of character eased this transition and brought consensus to the Board as the new policies and procedures were adopted. And this was accomplished fraternally due to Ray's gentle guiding hand throughout the process. With Ray's calm and knowledgeable leadership, conflict became cooperation; friction became friendship and chaos gave way to direction that supported the mission of preserving and improving Canonchet Farm for the citizens of Narragansett.

Ray enthusiastically adopted the organization's initial goal, that of removing invasive plants from the Lake Canonchet shoreline to restore the native ecosystem and the beautiful lake views. He became a certified URI and CRMC Invasive Plant Manager. He was a stalwart presence at work sessions, often volunteering his truck to both haul our equipment trailer to the site and remove the invasive plants that had been uprooted by the volunteers. We think he would be very proud of this comprehensive educational guide that the Friends of Canonchet Farm has published for the citizens of South County.

