

Invasive Plant Species in Jamestown - Raising Public Awareness

1. Who we are

We are the Jamestown Invasive Plant Public Awareness Campaign, a committee operating within the Taylor Point Restoration Association, in cooperation with other Jamestown organizations. Our focus is on invasive plant infestations occurring throughout our island. We are committed to promoting community-wide awareness and understanding of these infestations and the hazards they pose to Jamestown's environmental quality. We seek to promote effective strategies to address this environmental hazard.

Many communities across the nation and the globe are launching campaigns to raise public awareness of the effects of non-native invasive species on natural systems and of effective approaches to management, elimination and containment of invasive plant infestations. We are hoping to raise community-wide concern regarding the plants that threaten Jamestown's natural environment, as a prelude to promoting community environmental action.

2. Why we are here

Many Island residents are largely unaware of the presence of invasive species in their yards, in our parks and throughout our town. Mindful of the Town's outreach efforts under the Sustainable Jamestown program and the Town's Comprehensive Plan, we would like to invite the Town to consider incorporating invasive species awareness and removal into the Sustainable Jamestown efforts. By making residents aware of the species of greatest concern, and providing leadership and guidance regarding effective invasives management and removal efforts, we can encourage citizen participation in this aspect of local environmental protection.

3. What are invasive species?

Invasive plant species are those non-native plants that were brought here from other countries or regions and have reproduced in the wild to so prolifically that they are causing significant economic or environmental harm. These non-native species are not held in check by the local ecological relationships that keep our natural system in balance. As a result, the non-native species often spread aggressively, outcompete and dominate native plant species and community assemblages to the point of overtaking vast areas, disrupting the stability of the natural habitat, and degrading the environment.

4. Why is it important to control the spread of invasive plants?

When invasive plant species overtake an area they inflict damaging changes to the local plant assemblages, reduce diversity, and upset the natural balance of the native

ecosystem. The balance that is inherent in an undisturbed ecosystem generally results from eons of evolutionary progression; the parallel evolution of the plants and insects and birds and animals that existed locally through time and in close proximity. These local species are adapted to their native environmental conditions and also have adapted to each other to the point of growing dependent on each other for survival. This interdependence helps to maintain an overall balance of nature.

When invasive species are introduced to an area, they are not a part of this balance and are not held in check by it. Their proliferation can threaten the viability of the native communities of local birds, butterflies, pollinators, wildlife, etc. As the invasives overcome an area, they reduce the area's biodiversity, making the ecosystem less resilient. Thus, invasive species threaten the very survivability of our island's desirable native plant, animal, bird and insect species and disrupt their soil and land conservation functions. A list of the 68 plant species considered to be invasive in Rhode Island has been compiled by the Rhode Island Natural History Survey.

5. Which are the most serious invasive plants growing on Jamestown ?

Five invasive species that are not well known are of particular concern at this point. These include:

Japanese Knotweed (*Fallopia japonica*);
Black Swallowwort (*Cynanchum louiseae*);
Porcelain-Berry (*Ampelopsis glandulosa*);
Garlic Mustard (*Alliaria petiolata*); and
Japanese Angelica-Tree (*Aralia elata*).

An additional nine species, better known, are of equal concern. These include:

Common Reed (*Phragmites australis*);
Asian Bittersweet (*Celastrus orbiculatus*);
Multiflora Rose (*Rosa multiflora*);
European Privet (*Ligustrum vulgare*);
Norway Maple (*Acer platanoides*);
English Oak (*Quercus robur*);
Autumn Olive (*Elaeagnus umbellata*);
Morrow's Honeysuckle (*Lonicera morrowii*); and
Japanese Honeysuckle (*Lonicera japonica*).

The following discussions of the five species of concern that are not particularly well known are provided to demonstrate the nature and extent of the problems these species are causing on Conanicut Island, and to illustrate some of these plants' identifying characteristics.

Japanese Knotweed (*Fallopia japonica*)

Japanese Knotweed, is rated among the 100 worst invasive species in the world by the Global Invasive Species Programme (GISP). It is a non-native invasive herbaceous perennial shrub that can grow 15 feet high in the span of a 10-week growing season. We have identified major infestations of Japanese Knotweed in several areas of our Island including growing opposite Head's beach, on Narragansett Avenue near Grinnell Street, at East Ferry along the shore, along Carr Lane, along North Road, throughout West Passage Estates, at the entrance to East Passage Estates, and along West Wind Drive growing alongside Japanese Angelica Tree.

Knotweed's leaves are large and oval with square bases and pointed tips. Its stems are smooth, stout, and swollen at joints where the leaf meets the stem. Knotweed has numerous, small, creamy white flowers arranged near the end of the plant's arching stems. They bloom in August and September.

Japanese Knotweed's gnarled hollow stems are similar to those of bamboo and it typically puts out an extensive network of rhizomes (underground stems) that may extend laterally 65 feet or more. In older plants knotweed's extensive systems of thick underground rhizomes account for as much as two thirds of the plant's overall biomass. These rhizomes can reach 3 inches in diameter and penetrate at least 7 feet down into some soils. Although it can propagate from seeds, Knotweed can spread aggressively vegetatively by its rhizomes and by sprouting from fragments of root and stem material.

Roadside maintenance crews and equipment often disperse cut fragments of knotweed along roadways. Such activity promotes the proliferation of knotweed. Dumping of landscape waste also promotes the establishment of knotweed stands. This plant forms monocultures that reduce plant species diversity by shading native vegetation. Its rhizomes and shoots can penetrate asphalt and create cracks in concrete.



An infestation of Japanese Knotweed growing along North Road in Jamestown



Japanese Knotweed leaves and flowers



An infestation of Japanese Knotweed growing along Seaside Drive in Jamestown

Black Swallowwort (*Cynanchum louiseae*)

Black Swallowwort, also known as black dog-strangling vine, is a non-native, highly invasive twining perennial vine that is thought to have been brought to the US from Europe in the 1800s. A member of the milkweed family, Black Swallowwort can grow eight feet long or more in one season and will out compete milkweed.

Monarch butterflies who 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 cannot survive on it.

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.

Many areas of Jamestown have enormous infestations of Black Swallowwort including the gardens at the library; lower Walcott Avenue; Along Racquet Road; at Taylor Point, particularly on Potter's Cove; and also along Rosemary Lane.

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 workers or homeowners can inadvertently spread the seeds to new areas.



Close-up of Black Swallowwort in Jamestown



Black Swallowwort at Taylor Point

Porcelain-Berry (*Ampelopsis glandulosa*);

Native to China and Japan, Porcelain-Berry was originally brought to the United States in the late 1800s as a landscape plant. It is a highly invasive, deciduous, woody tendril-bearing vine that climbs to heights of more than 20 feet and can rapidly out compete and displace native plants. Porcelain-Berry has deeply lobed grape-like leaves and the underside of the leaves and the young twigs are hairy to the touch. Porcelain-Berry closely resembles Fox Grape (*Vitis lambrusca*). It propagates both by seeds (largely dispersed by the birds who feed on them) and by cuttings of the stems or roots.

Porcelain-Berry and Fox Grape can be distinguished from one another in the following aspects: 1) The pith of the Porcelain-Berry stem is white, whereas that of the Fox grape is brown; 2) The bark of the Porcelain-Berry has light dots and it will not peel, whereas the Fox Grape has no dots and the bark peels and shreds; the fruits of the Porcelain-Berry are hard and are about 1/4 inch in diameter, whereas the Fox Grape fruits are juicy and about 3/4 inches in diameter. Porcelain-Berry fruits are colorful and range from pale lilac, to green, to a bright blue and they appear from September through October, whereas Fox Grape berries are purple to dark blue, appearing from August through November.

Many infestations of Porcelain Berry have become established alongside Jamestown's roads. There are huge infestations along Racquet Road as well as along East Shore Road, along the road leading to the top parking circle at Fort Wetherill, and opposite the lower parking circle at Taylor Point.



Close-up of Porcelain Berry cluster in Jamestown



Infestations of Porcelain Berry on the Fort Wetherill road leading down from the top parking lot (left) and heading down to the beach (right)

Garlic Mustard (*Alliaria petiolata*)

Garlic Mustard one of Europe's oldest spices, was brought to North America by colonists who savored the spicy greens early in spring. It is a cool-season biennial herb with a deep, thin, white taproot that smells like horseradish. Garlic Mustard has coarsely toothed leaves that smell like garlic when they are crushed. They remain green all winter. 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 slender erect pods. The seeds become black and shiny when 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. These seed pods may hold viable seed through the summer. A single Garlic Mustard plant can produce thousands of seeds, which can disperse many yards from the parent plant. Garlic Mustard seeds may remain viable in the soil for up to ten years.

This plant spreads very rapidly and threatens native plants and animals. Many native plants that complete their life cycles in the springtime occur in the same habitat as garlic mustard. Once introduced to an area, 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 essential food sources when garlic mustard replaces them.

Many areas of Jamestown are infested with Garlic Mustard. Among them are Taylor Point, alongside Racquet Road, Blueberry Lane, Ledge Road, Walcott Ave, and at the Conanicut Battery.



Removing Garlic Mustard at Taylor Point



Garlic Mustard growing at Taylor Point

Japanese Angelica Tree (*Aralia elata*)*

Native to Japan, Korea, Manchuria and far eastern Russia, this deciduous thicket-forming tree was first introduced in 1830 as an ornamental species. It closely resembles the native species, Devil's Walking Stick (*Aralia spinosa*).

The Japanese Angelica Tree grows as high as 40 ft. tall. It can be multi or single stemmed and the bark is covered in sharp thorns. It grows aggressively, sprouting from root sprouts, and forming large dense thickets. It can also spread into new areas through bird-enabled dispersal of the berries.

This invasive tree has enormous compound leaves that are 2 to 4 feet long, borne on stems with large prickles. In late summer it produces cream colored flowers that grow in large clusters. These flowers give way to small fleshy purple to black berries. Its luxuriant foliage can shade out the native understory plants.

There are many infestations of Japanese Angelica Tree on our island including along the Helm Street exit, at Watson Farm, along East Shore Road, alongside North Road across from the reservoir, along West Wind Drive, at the Conanicut Battery, and along the Fort Wetherill Road.



Japanese Angelica Tree growing alongside East Shore Road



Japanese Angelica Tree growing alongside Fort Wetherill Road



Leaves of Japanese Angelica Tree growing in Jamestown

* *Aralia elata* is not yet listed on the RI Invasive Plant list

7. How important it is to have Jamestown residents recognize these plants and help with their control?

We do not know if the loss of one native species will trigger the loss of additional native species on Jamestown. We do know a lot about the interconnectedness of our native plants, insects, birds and wildlife and how they bring balance to our natural systems. And we understand how non-native species have a competitive advantage because they are not held in check by the natural forces and relationships that have evolved here over time.

Because of the rapid pace with which enormous areas of our island are becoming ravaged by invasive plant species such as those discussed briefly above, we need the residents of our community as well as our town workers to learn to recognize these species and learn how we can manage them and eliminate them. Communities and environmental organizations across New England, across the country and across the globe are realizing the threat these species pose to our environment and quality of life. They are taking action to inform their citizenry and are developing strategies and resources to promote citizen action. We would like to encourage Jamestown 1) to create and implement a strategy for raising awareness of the invasive species and 2) to develop guidance for invasive species control and elimination.

8. Elements of a Community-led Initiative to Raise Public Awareness of Invasive Plant Species and the threats they pose to the natural environment of Conanicut Island

With Town Council endorsement we propose to initiate actions to raise public awareness of invasive plants and their effects on our local environment. In pursuit of this goal we can take the following kinds of actions:

Documentation

Compile a comprehensive list, descriptions, photos, and key management concerns regarding all known invasive species on our Island.

Prepare a pamphlet describing the plants of most immediate concern, complete with photos, brief descriptions, and raising key management issues. This pamphlet can be made available to community members.

Develop posters designed to alert community members to the presence and threats posed by some of the plants of greatest concern.

Create a pamphlet specifically for community members to share with landscaping crews to warn them of the invasive plants of concern and the manner in which they spread.

Prepare an educational presentation on the Island's invasive plants for distribution as an insert in the Jamestown Press.

Research

Develop a compendium of programs ongoing in other communities' efforts to eliminate invasive plants in their locations.

Web Presentation

Create an in-depth web presentation concerning Jamestown's invasive plant species and the threats they pose including links to useful related resources and case studies and guidance.

Maps and Tours

Develop a map of serious infestations occurring throughout the Island.

Lead informative field tours of Jamestown's most serious invasive plants infestations and provide commentary and question-and-answer periods while in the field.

Training

Develop guidelines for Town employees regarding the identification and effective management of invasive plants.

Presentations

Host talks, presentations and workshops to acquaint community members with issues related to the invasive plants of Conanicut Island.

These are a few of the elements of a program to promote public awareness of invasive plants and the threats they pose to our Island.

We believe that Jamestown residents will be receptive to and supportive of these initiatives. In fact, the Natural and Cultural Resources section of the Town Comprehensive Plan presents a discussion of invasive species, defining them as "non-native species of plants and animals that out-compete native species and begin to dominate and take over the habitat." It further states that "Invasive species, such as Salt Marsh Reed, exist in Jamestown and threaten natural plant and wildlife habitats and the species that depend on them."

When asked in the 2010 Community Survey if Jamestown should "take a pro-active stance on invasive-species management", eighty-seven percent of respondents supported or strongly supported invasive species management. The magnitude of this problem has grown enormously since that survey was taken, and the rate at which invasive plants are ravaging our shorelines, parks and roadsides continues to accelerate. We sincerely hope you will endorse our initiative. Thank you.