



# Calvert County Environmental Commission

## Managing the Most Common Invasive Plants in Calvert County

1. What are the most common invasive plants in Calvert County?

Phragmites, English Ivy, Kudzu, Bamboo and Autumn Olive. Images of these plants can be found here: [Invasive Species Photos](#)

### Phragmites common reed (*Phragmites australis*)

Accidentally imported in ship ballast, European phragmites has spread up and down the East Coast for centuries, displacing millions of acres of wetland plants, including native phragmites. The Maryland Eastern Shore may harbor our only remaining native phragmites (*Phragmites australis ssp. americanus*.) Whereas native phragmites grows in sparse clumps and decomposes readily, European phragmites forms impenetrable monocultures more than 15-feet tall composed of both old and new canes. Subsequently, infested wetlands become dry land, wildlife habitat is destroyed, and a fire hazard created. Roots penetrate several feet deep and extend out 10 feet a season. Wind and water, carrying seed and rhizome/root fragments, have spread phragmites to tidal and non-tidal wetland and dry lands, including ditches. It is extremely difficult to combat.

### English ivy (*Hedera helix*)

Eurasian, not English, in origin, this evergreen vine threatens habitats at all heights. At ground level, its leaves shade out seedlings and herbs, forming acres of monoculture and attracting rodents. In trees, it engulfs branches, shading and slowly killing them. Its weight topples trees in wind, snow or icy conditions. It serves as a reservoir for bacterial leaf scorch, a serious disease of trees including maples, oaks and elms. Vines mature in trees, then flower and bear toxic berries which induce birds to vomit them out, ensuring spread. Any rooted piece can resprout.

### Kudzu (*Pueraria montana var. lobata*)

“The vine that ate the South” was promoted as livestock forage, an ornamental, and for erosion control until the 1950s. Its incredible growth rate of up to one foot a day and 60 feet a season, plus a root system up to 400 lbs., make this invasive unequalled. Pods produce some viable seed, but reproduction is primarily vegetative. As many as 30 shoots grow from a single crown and can root where nodes touch soil.

### Bamboo (*Phyllostachys and Pseudosasa spp.*)

Latin America, the Caribbean, and Asia contribute two types of bamboo: running and clumping. As its name suggests, running bamboo spreads vigorously by rhizomes. Running bamboo should never be planted except with the most stringent, vigilant containment. Used as ornamentals and privacy screens, escaped bamboo has created huge monolithic stands with negligible wildlife value. Be careful not to confuse running bamboo with giant cane (*Arundinaria gigantea*), which is our native bamboo that grows in Southern Maryland.

### Autumn olive (*Elaeagnus umbellata*)

This large shrub or small tree was planted extensively for wildlife habitat, windbreak, and land reclamation. Flourishing in very poor and disturbed soils, it invaded fields and open woodlands,

out-competing native plants, creating dense shade, and disrupting plant succession and nutrient-cycling. Although birds do feed on the berries, bird species are more diverse among native vegetation. Other animals and insects are not known to feed on it.

See the following link for photos and further information: [Autumn Olive - Invasive Species & How to Control It](#)

2. What can be done to eradicate or control these invasive plants?

The best and easiest control is early identification and quick removal. Established plants can often be eliminated, often easily, once good control methods are known. The degree of invasiveness may vary by region. Some plants appear in more than one category. Invasives favor disturbed soils such as roadsides, new construction, and streambanks, as well as neglected spots such as abandoned fields. After invasives are removed, or whenever soil is vacant, be sure to plant quickly with desirable plants so invasives cannot move in.

#### Phragmites:

Techniques used to control phragmites may include chemical treatment (i.e., spraying herbicides) or physical treatments such as mowing and flooding. Multiple treatments are usually necessary to effectively control a heavy stand. Controlling phragmites in wetlands by any method may require advance approval by state and federal agencies before treating. Based upon experience obtained in Maryland and other states, the most practical method of controlling phragmites is treating the plants with glyphosate or imazapyr herbicides approved for aquatic use.

Glyphosate (the formulation approved by the U.S. Environmental Protection Agency for use in wetlands is sold under trade names such as Rodeo, Aquaneat, and Aquastar) is a broad-spectrum aquatic herbicide that is virtually nontoxic to mammals, birds, and fish when used according to instructions. It can be purchased at any store that sells agricultural chemicals. Imazapyr is the active ingredient utilized in the formulation of Habitat which is also a broad-spectrum herbicide effective in controlling Phragmites. All herbicides must include a non-ionic surfactant which allows the herbicides to adhere to the plants leaves, stalks and rhizomes for effective control. Surfactants must be acquired separately and added to tank mixtures, unless otherwise noted on label recommendations obtained with the herbicides. Important: A toxic chemicals application permit is needed to spray phragmites with aquatic herbicide in wetlands. To obtain a permit application, please contact: Maryland Department of the Environment's Industrial Discharge Permits Division 410-537-3323 or visit: [Request to Use Toxic Substances for Aquatic Life Management Purposes at: TMPPER015 Fillable Form.pdf \(state.md.us\)](#)

When applied to the foliage of actively growing plants, both imazapyrs and glyphosates are rapidly absorbed and transported throughout the plant tissues. The herbicides kill the entire plant: leaves, stems, and rhizomes. This is especially important in the control of phragmites since it spreads through rhizomes. It may be applied in or around wetlands using aerial spray equipment, a boom or handgun from a boat, or from the shore using spray equipment. However, large stands in open areas are best treated with an aerial application by helicopter. Phragmites can be treated successfully when plants are actively growing and are at mid- to full-bloom (late July through October but before a killing frost).

Physical control is an alternative only if conditions allow. This will help to remove the litter of matted canes and allows light to reach the soil. This increased light will encourage germination of seeds from desirable plants. Mowing often (6-8 times during the growing season) where feasible is the most widely used method of stressing phragmites and encouraging native plants.

There is some success with 'solarization' control in Calvert County. American Chestnut Land Trust and Calvert County Parks are using black plastic sheeting to cover cut down stands of Phragmites for several years which raises the soil temperature and cuts off the light to the rhizomes.

For further information visit: A Landowner's Guide for the Control of Phragmites at [Phragmites \(maryland.gov\)](#) and [Phragmites field guide](#)

#### English Ivy:

**Hand Control:** Controlling English ivy is a long-term intensive process. There are manual, mechanical, and chemical methods of addressing infestations, but unless the infestation is small, usually some combination of the three is most effective. For small infestations, hand pulling and grubbing the vine and roots can be effective over the course of a couple of seasons. It is important that all plant matter pulled up be bagged and disposed of to discourage re-establishment. Remaining roots can continue to resprout throughout the season and repeated pulling and grubbing will eventually exhaust the stored energy in the roots and the vine will die. Mulching is another option for controlling smaller infestations on the forest floor. Cover the English ivy with several inches of mulch and keep covered for at least two growing seasons. Wood chips, grass clippings, hay, or straw are suitable options. Over the two growing seasons, the mulch will settle, and additional mulch will be needed. Also, layering cardboard over the mulch may make the practice more effective.

**Equipment & Herbicide Control:** Larger infestations will usually require the use of herbicides or, in some cases, heavy equipment. Since English ivy creates dense blankets and can climb trees, equipment like skidsteers or brush hogs can be used to pull up thick areas of vines or cut the stems. Re-establishment can occur from the cut stems sprouting, seed germination, or any missed vine pieces left in the dirt. If the equipment is not completely cleaned on site, spread of the vine can occur when the equipment is transported.

For further information visit: [English Ivy info sheet](#)

#### Kudzu:

**Hand Control:** Once established, control of kudzu is a long-term intensive process. There are manual, mechanical, and chemical methods of addressing infestations, but usually some combination of the three is most effective. If detected early, hand pulling and grubbing the vine and roots can be effective over the course of a few years. It is very difficult to remove all of the roots. Remaining roots will continue to sprout throughout the season and repeated pulling and grubbing will eventually exhaust the stored energy in the roots and the vine will die. Other methods, such as repeated mowing or heavy grazing by livestock, can produce similar results over time.

**Equipment & Herbicide Control:** Larger infestations will usually require the use of herbicides or, in some cases, heavy equipment. Equipment like bulldozers, backhoes, or brush hogs can be very effective at removing the vines and roots. However, re-establishment can occur from seed

germination or any missed vine pieces left in the dirt. If the equipment is not completely cleaned on site, spread of the vine can occur when the equipment is transported. Many other mechanical methods have been attempted and there are non-profit groups, such as The Coalition to Control Kudzu Without Herbicides (2010), who experiment with control methods and chronicle the results. Kudzu is most often controlled by herbicides. The most commonly used herbicides for controlling kudzu include glyphosate (e.g. Accord® XRT), triclopyr (e.g. Garlon® 4), and picloram (e.g. Tordon® 101).

In recent years, research into controlling kudzu has expanded and there are new ways of controlling kudzu being developed. In one study applying a bio-herbicide, mowing, and revegetation was able to kill 91 percent of kudzu after 1 year and 95 percent after 2 years.

The Lawn Care Academy recommends:

- In smaller patches, cut the vines and dig up roots, if possible.
- Keep kudzu mowed when found growing on the ground. Removing the leaves is the goal.
- Strip vines off trees and bushes, etc.
- Allow animals to graze on the plants.
- Cover the plants with black plastic.
- Keep covering plants under heavy mulch, such as grass clipping.
- Try using a tractor with a “rock rake” or equivalent to tear as much vine out of the ground as possible.

For further information see: [Kudzu control](#)

### Bamboo:

Hand Control: There are manual, mechanical, and chemical methods of addressing infestations, and usually some combination of the three is most effective. If detected when the clump is small, hand pulling and grubbing the cane and rhizomes can be effective. It is important that all plant matter pulled up be piled and burned or bagged and disposed of to discourage re-establishment. It is very difficult to get all of the rhizomes. Remaining rhizomes can continue to resprout throughout the season and repeated pulling and grubbing will eventually exhaust the stored energy in the rhizomes and the golden bamboo will die. Similar results may be obtained by cutting or mowing the canes frequently during the growing season for several years.

Equipment & Herbicide Control: Larger infestations will usually require the use of herbicides or, in some cases, heavy equipment. Since golden bamboo creates dense thickets, equipment like bull dozers or skidsteers can be used with root rakes to push over and pull up the canes and rhizomes. Miller, Manning, and Enloe (2010) suggest using a bull dozer and root rake to excavate the root crowns and rhizomes, then pile and burn it. The authors note not to bulldoze bamboo infestations where blackbird species frequently roost because the infectious fungus, histoplasmosis can be present in the soil and cause deadly lung infections. Again, if all of the rhizomes and canes are not removed, re-establishment may occur. The most commonly used herbicides for controlling golden bamboo include glyphosate (e.g. Accord® XRT) and imazapyr (e.g. Arsenal® AC).

Heavenly Bamboo (*Nandina domestica*) is an evergreen to semi-evergreen woody shrub that grows to around 6-8 feet (1-2.5 m.) in height isn't actually a bamboo, it is a member of the grass family and is no doubt a reason for heavenly bamboo invasiveness. Their berries, while they are

pretty, they not only are a method of propagation for the shrub but are also toxic to birds; they contain cyanide and other alkaloids. Nandina produces practically impenetrable thick roots that expand year after year. Even if you do manage to chisel them out of the soil, every small piece of root that is left behind will reward you by growing anew! Plus, any seeds left in the soil can germinate long after the plant has been removed. So, the question of how to get rid of bamboo remains. There are no biological or chemical controls recommended for controlling heavenly bamboo. There are, however, mechanical means such as heavy digging or using a backhoe for controlling heavenly bamboo but, again, any bit of root or berry left behind will certainly propagate and the problem will start up all over again. Try to remove the plants before they have produced seeds and get out as much root as possible. Continued vigilance on your part will be needed to assure control of heavenly bamboo. Keep an eye on the area and immediately remove any smaller plants that crop up. Dig them up, don't pull them and try to get as much of the root as possible. Otherwise, in the future, plant native or non-invasive shrubs or the new hybrids of Nandina that are shorter, don't spread and lack berries.

For further information see: [Nandina/Heavenly Bamboo control](#)

#### Autumn Olive:

Hand pulling autumn olive seedlings is an effective way to rid yourself of the plant. Attempting to remove autumn olive by cutting or burning from your property can cause unwanted spreading as the shrub germinates easily.

Control efforts before fruiting will prevent the spread of seeds. If the plant is too big to pull, herbicides will be necessary to eradicate the plant from the general area of invasion.

You will need to cut and apply herbicide to the trunk repeatedly, from summer through winter. Please make sure to read and follow the directions on the herbicide label precisely.

You can also help by continuously being on the lookout for this pesky invasive species during hikes or walks through the neighborhood. For more information, see the [USDA's Autumn Olive page](#)