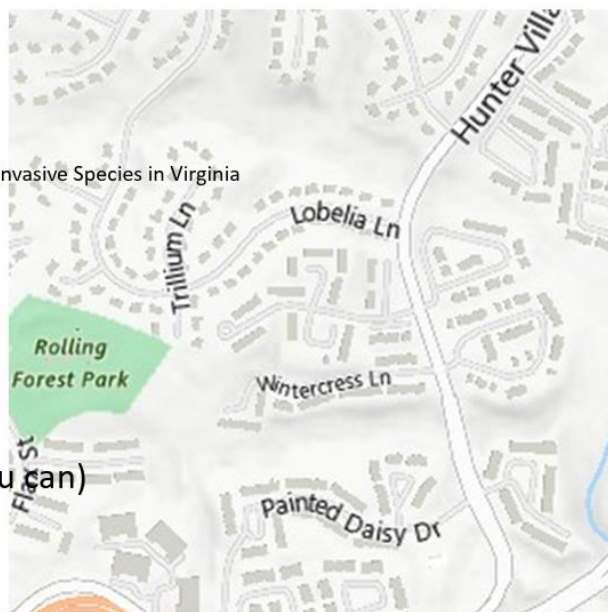


Daventry HOA Invasive Management Introduction

February 27, 2024

Topics

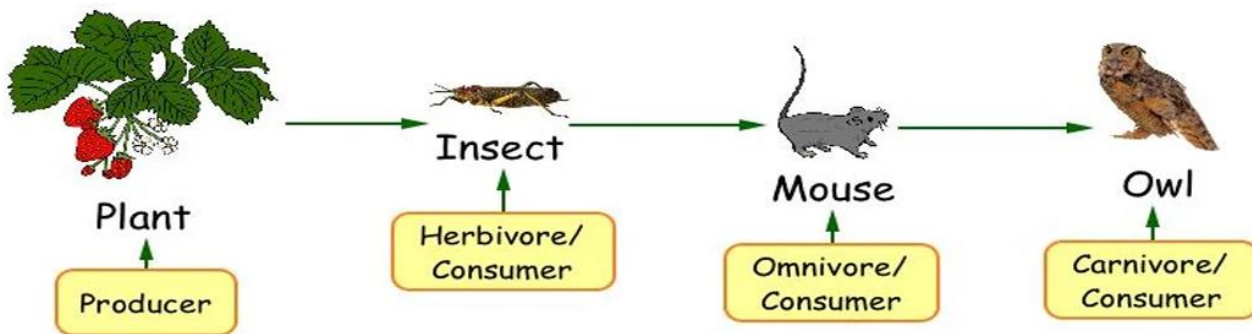
- Introductions
- Outline of the Daventry Invasive Control Project
- Invasive Management Area Site Leader Perspective
 - Sources
 - Dangers
 - Control Methodology by Species
 - What to do
 - What not to do
 - Tools and Safety
 - Questions and Discussion
- Invasive Walkabouts and Practice for Volunteers
 - 1st Work Session March 17, 2-5pm (or as long as you can)
 - 2nd Work Session March 24, 2-5pm
 - 3rd Work Session TBD



Why Save Native Trees in Daventry's Natural Areas?

Productivity!

The Food Chain Of An Owl



A food chain shows the path of energy from one living thing to another. Decomposers like bacteria, are necessary for all food chains.

POLLINATOR NOTE: One White Oak can support up to 500 Butterfly Species

I'm delighted to hear that you guys are starting a habitat restoration project and fighting back against the invasive plants in the common areas. Virginia has [about 100 species](#) of these invaders overwhelming our roadsides and natural areas. Very unfortunate, as our

state has some beautiful native flora that is becoming harder and harder to find, especially the spring flowers, increasingly smothered by the relentless tide of lesser celandine, an invasive from Europe.

Virginia's Invasive Species

Partial List From of Worst VA Invasives Dept of Conservation and Recreation



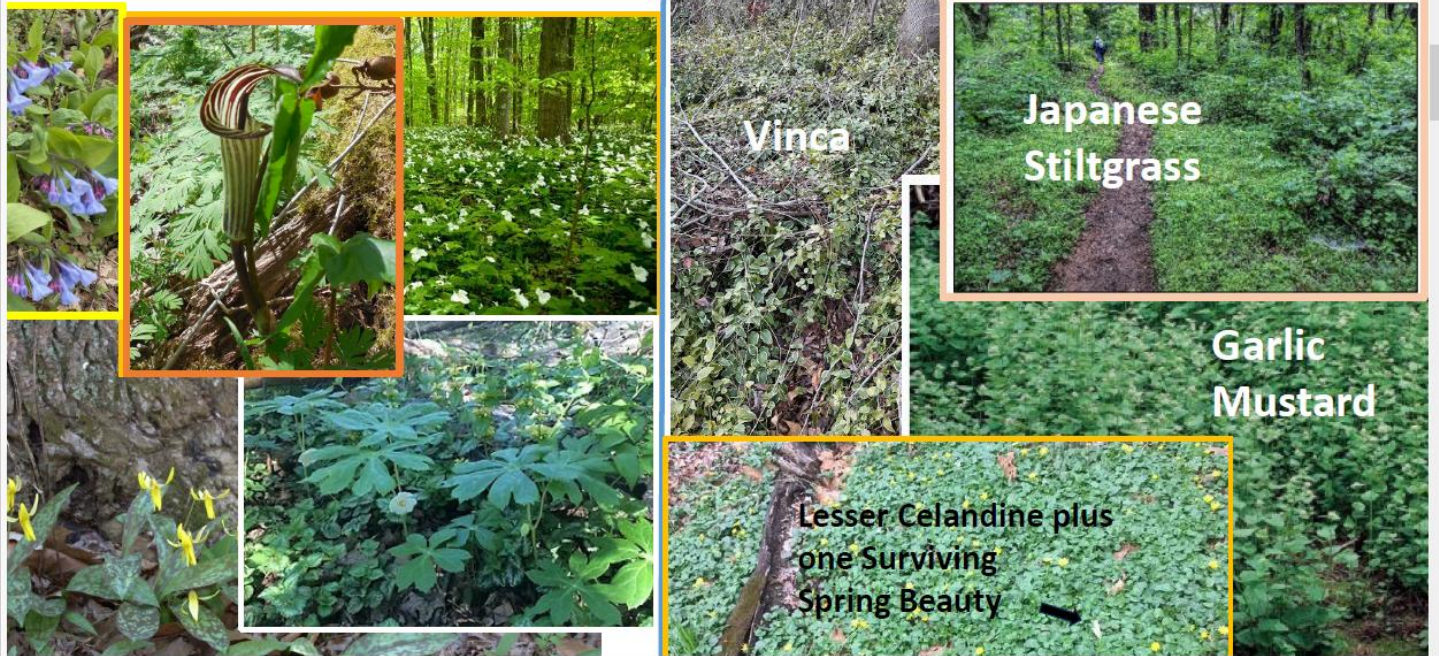
Scientific Name	Common Name	Virginia Invasiveness Rank
<i>Allanthus altissima</i>	Tree-of-heaven	High
<i>Alliaria petiolata</i>	Garlic Mustard	High
<i>Alternanthera philoxeroides</i>	Alligator-weed	High
<i>Ampelopsis brevipedunculata</i>	Porcelain-berry	High
<i>Carex kobomugi</i>	Japanese Sand Sedge	High
<i>Celastrus orbiculatus</i>	•Oriental Bittersweet	High
<i>Centaurea stoebe ssp. micranthos</i>	Spotted Knapweed	High
<i>Cirsium arvense</i>	Canada Thistle	High
<i>Dioscorea polystachya</i>	Cinnamon Vine	High
<i>Elaeagnus umbellata</i>	Autumn Olive	High
<i>Euonymus alatus</i>	Winged Euonymus	High
<i>Ficaria verna</i>	Lesser Celandine	High
<i>Hydrilla verticillata</i>	Hydrilla	High
<i>Iris pseudacorus</i>	Yellow Flag	High
<i>Lespedeza cuneata</i>	Sericea Lespedeza	High
<i>Ligustrum sinense</i>	Chinese Privet	High
<i>Lonicera japonica</i>	Japanese Honeysuckle	High
<i>Lonicera maackii</i>	Amur Honeysuckle	High
<i>Lonicera morrowii</i>	Morrow's Honeysuckle	High
<i>Lythrum salicaria</i>	Purple Loosestrife	High
<i>Microstegium vimineum</i>	Japanese Stiltgrass	High
<i>Murdannia keisak</i>	Marsh Dewflower	High
<i>Myriophyllum aquaticum</i>	Parrot Feather	High
<i>Myriophyllum spicatum</i>	Eurasian Water-milfoil	High
<i>Persicaria perfoliata</i>	Mile-a-minute	High
<i>Phragmites australis ssp. australis</i>	Common Reed	High
<i>Pueraria montana var. lobata</i>	Kudzu	High

Let's start with a few pix of what a forest floor is supposed to look like in the spring.

Examples of what has changed in Virginia forests

Before: A Natural Forest Floor in Virginia

Now: Invasives That Competed Successfully



Here you can see one lone spring beauty holding forth against masses of lesser celandine. Interestingly, the spring beauty has co-evolved with its own very own bee which feeds only on the pollen and nectar from its flower. If the spring beauty disappears, so will [the spring beauty mining bee](#).

And these are trout lilies, so called because of their mottled leaf coloration. Trout lilies grow in colonies, some of which date up to 300 years. Deer and rabbits don't eat them.

One of the coolest things about [trout lilies](#) is their relationship with ants. Trout lily seeds have these little nubs attached to them [called elaiosomes] which are eagerly sought after by ants. Worker ants bring the seeds back to their colony, eat the little nubs [the elaiosomes], and toss away the seeds. It's a win-win. The trout lilies have their seeds spread and the ants get food.

Here's jack-in-the-pulpit. Jack is sometimes plain green, sometimes with handsome dark violet stripes. When it comes to pollination, the [Jack-in-the-pulpit has evolved a trick](#) – instead of producing nectar, it produces an odor that smells like fungi and this attracts the fungus gnat who then looks for fungus.

When it can't find any, it tries to fly out, but the roof of the "pulpit" prevents it, and the fungus gnat falls back into the tube. As it falls, it gets dusted in pollen. It will keep trying to escape and keep tumbling back in. Eventually, the gnat will find the tiny hole at the bottom of the tube of the male Jack-in-the-pulpit and will make its escape - well coated in pollen. However, if the gnat falls into a female jack-in-the-pulpit, there is no exit, and the gnat will likely perish.

The other photos show may apple and the rare trillium.

You can see these flowers and others in the woods in March, April, and May, especially at the [botanical hot spot, River Bend Park](#), Great Falls, with its famous spread of Virginia bluebells. For trillium - if you care to drive 45 miles - the largest stand in Virginia is found at the [Thompson Wildlife Management Area](#), where trillium carpets 2 square miles of the forest.

Otherwise, apart from managed areas, you'll see our native spring flowers scattered here and there, but nothing like the profusion of even 10 years ago. These days you have to take a road trip just to see flowers that used to be everywhere.

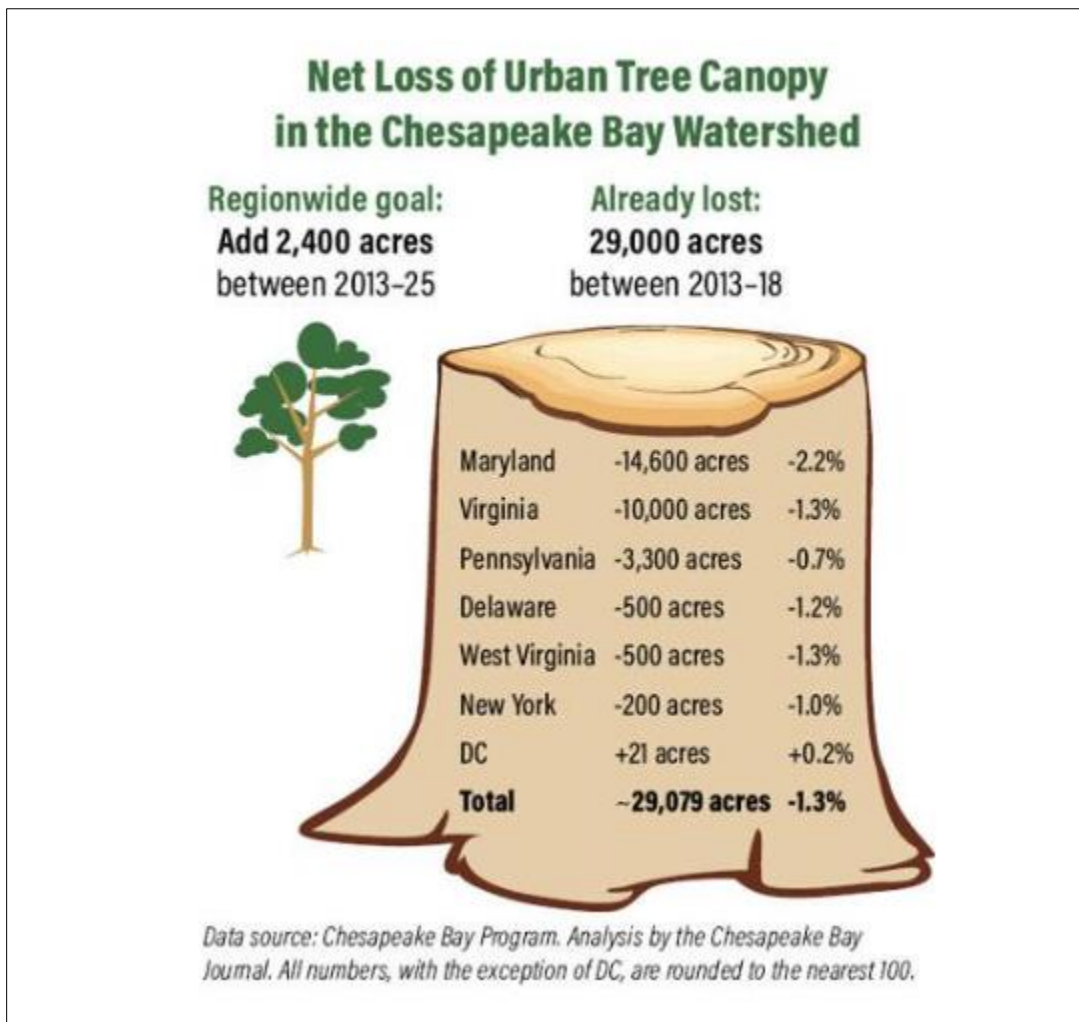
Other native spring ephemerals (skunk cabbage, bleeding heart, Quaker lady, Dutchman's breeches, varieties of violets and anemones, blood root, toad shade) are equally worthy of appreciation and used to thrive in abundance on our forest floors before the invasion of the lesser celandine, other invasives, and over deer-browse. Let's bring them back!

Harms done by invasive plants

Every country in the world struggles with invasive plants. It's not just a problem for the U.S. Over half of Britain's native plants are in decline, while introduced species are thriving. FYI, [our Virginia natives skunk cabbage, common milkweed, and broomsedge bluestem \(Andropogon virginicus\)](#) are among Britain's most pernicious invasive plants!

Globally, invasive species are one of the main drivers of biodiversity loss. Once they get established and spread, they displace native plants and thus alter natural habitats with disastrous consequences for the wildlife dependent on them.

Invasive vines kill trees, and we are already losing more and more trees to development, disease, and deer browse. The [Bay Journal](#) reports that between 2013 and 2018, Virginia lost 10 K acres of urban tree canopy. To compare, in the same period of time, D.C. gained 21 acres of urban tree canopy.



[Bay Journal](#)

Invasive plants can alter native plant genomes. An exotic vine, Oriental bittersweet, hybridizes with the native, American bittersweet, and produces vigorous offspring, and it is feared that the survival of the already declining native American bittersweet, as a distinct genetic entity, is at stake. [Source.](#)

Invasive plants threaten our [specialist native bees](#). Virginia has 400 species of native bees. Most are "generalist" meaning they can feed on any nectar and pollen. However, up to a quarter of our bees are "specialists", meaning they can only feed on a few species of native plants, sometimes only one single species, such as the spring beauty mining bee which only visits the spring beauty flower - now being horribly displaced by lesser celandine.

Sam Droege, USGS Patuxent Wildlife Research Center biologist, and bee expert explains in [a lecture](#), "If the plants are not there, the pollinators will not be there. If we save the plants, we'll save the bees and the other insects too. Plant diversity equals bee diversity."

Invasive plants harm butterflies and moths (Lepidoptera) While adult Lepidoptera feed on most flowers, their caterpillars can only eat the leaves of certain, generally native, host plants. The most famous example of specialist butterflies are monarchs whose caterpillars only eat milkweed plants.

Consequently, invasive plants harm our birds by creating food deserts for nestlings. Adult birds can eat seeds and berries but 96% of all baby birds depend on insects, largely caterpillars. Only native plants, mostly trees, provide the quantities of insects nestlings need to survive. Entomologist Doug Tallamy in *Nature's Best Hope*, 2019, says that raising one brood of Carolina chickadees takes over 6000 caterpillars. The leaves of native oak trees can support up to 517 species native caterpillars, American black cherry up to 448, native maples up to 285, hickory 200, beech 126, tulip trees 41, Eastern red bud, 21. [Doug Tallamy] All Native trees support caterpillars. We must not lose them to invasive vines whose leaves are inedible to our native caterpillars.

The berries from invasive vines do not generally provide the high fat and protein content required by birds in the fall and winter.

Invasive plants such as autumn olive and ailanthus trees can alter soil composition. Japanese stilt grass induces soil chemical changes and reduces soil litter microarthropod communities, at least in the forest site studied in the Cumberland Plateau. [That study](#) showed that after 6 months, the soil under the stilt grass infestation had a higher pH, more phosphorus and less aluminum compared to the soil in the surrounding uninvaded understory. It also had more mites than the surrounding forest floor, and less microarthropod diversity.

Invasive plants infest waterways impacting boating and other recreation. Trapa (water chestnut), present in Fairfax County, can form dense floating

mats that suffocate the aquatic life beneath it. Every summer volunteers work at removing it from Lake Accotink.

Economic damage caused by invasive plants costs the U.S. approx [\\$190 bn/yr.](#) [Jean E. Fantle-Lepczyk et al, 2022]. The greatest impact is felt by agriculture.

The continued success of invasive plants

Invasive plants generally have no insect predators, are avoided by deer, have left their competitors at home, and often have longer growing seasons. They tend to be the first to leaf out and the last to lose their leaves.

Author Elizabeth Kolbert in *The Sixth Extinction (2014)*, page 211, cites a recent study of invasives in North American coastal waters that reports exponential growth over the last 200 years. Kolbert goes on to say that The Center for Invasive Species Research in California estimates that the state acquires a new invasive species every 60 days, which, compared to Hawaii, is slow where a new invader is added every month. For comparison, before humans settled in Hawaii, a new species likely settled there once every 10,000 years.

Interestingly, only a tiny fraction of introduced species become invasive, and then only after an unusually long lag time after their arrival or after multiple introductions. A German study ([Kowarik, 1995](#)) reviewed 184 invasive woody species (with known dates of first cultivation). The mean delay in invasion was 131 years after arrival for shrubs and 170 years for trees. This could be that the plant underwent some genetic changes or was waiting for a mutualistic organism.

How & Why Did Pernicious Invasives Get Here?

Purposes (They seemed like good ideas at the time)

Erosion Control



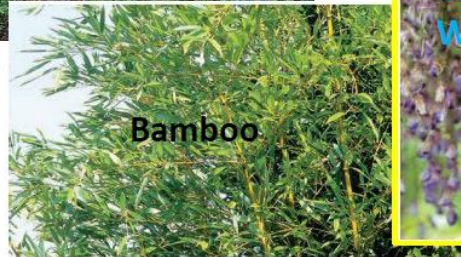
Root Stock for new cultivars (ex: roses)



Packing in imported goods



Our Choices That Escaped Our Lawns



How did invasive plants get here?

Kolbert in *The Sixth Extinction* (2014), page 198, writes that "Global trade and travel have been increasing, denying even the remotest islands their remoteness. The process of remixing the world's flora and fauna which began slowly along the routes of early human migration has in recent decades accelerated to the point where in some parts of the world, exotic plants now outnumber native ones. In any given 24 hrs, up to 10,000 different species are being moved around in the world just in ballast water. Thus a single super tanker ... can undo millions of years of geographic separation."

The horticulture trade bears a lot of responsibility. The vast bulk of invasive plants were introduced as ornamentals, though, a few such as English ivy and vinca were brought here by the early colonists. Such plants then escape from yards and infest natural areas.

Some were brought in also for erosion control. Examples are kudzu, autumn olive, and Chinese lespedeza. Multiflora rose was introduced in 1866 as rootstock for ornamental roses, then in the 1930s used for erosion control.

Some invasives arrived accidentally: wavyleaf basket grass, spotted knapweed, and Canada thistle. Japanese stilt grass, formerly used to pack porcelain, likely got a start when some seeds found their way outdoors. Kolbert tell us (page 207) that, in one summer, tourists and researchers to Antarctica arrived with 70,000 seeds from other continents.

Invasives are spread by ignorance and carelessness. Homeowners dump their yard waste in parks. Aquarium hobbyists dump unwanted plants into waterways. Boat propellers spread invasive aquatic plants; hikers spread seeds (and pathogens) with their shoes. Folks transporting firewood spread invasive insects and tree pathogens.

Deer spread invasive plants. Lesser celandine tubers, Japanese stilt grass, and other seeds hitch rides on their hoofs. [Bambi eats on average one ton of stems and leaves a year](#), most of it native. Clearing areas of native plants cedes valuable territory to invasives.

So why are invasive plants such a problem NOW ?

The main explanation seems to be climate change - higher temperatures, more floods and more droughts. Also, overabundance of deer, as prevails in the Eastern U.S., [allows the growth of invasive plants to flourish unchecked](#).

In Virginia, it is rare to see any uninfested natural areas.

However, awareness has been growing, Fairfax County parks which has 17 K acres of natural areas (Source: FCPA) now has 61 Invasive Management Area sites, but the county office is poorly funded and staffed. For the last two years, there's been a backlog of people waiting for permission to be site leaders so they can set up habitat restoration sites in their local parks.

What you can do about it: Start with saving what we have - trees! Remove the tree-killing vines!

First pick a day when the ground is not soggy. Trampling all over wet ground compacts the soil. The soil contains about 25% air which is important for plant roots. That's why we shouldn't park on grass under trees.

Use decent tick protection, a DEET product for skin, and spray [Permethrin](#) on your clothes. Permethrin should last for 5 or 6 washes. When you go home, shower and ask someone to check for ticks. If you haven't sprayed your clothes, put them in the dryer on hot for 15 mins. Washing clothes won't remove ticks.

Killers of Native Trees and How to Manage Them: English Ivy



As Tree Rescuers, we will *ONLY*
'collar' infested trees
We will *NOT* pull vines out of
trees
We will *NOT* pull vines out of
the ground

English ivy, a valuable native to Britain, Ireland, and Europe, is the main tree-killer on East Coast America. The vines climb up the trunks, spread out and envelop branches and twigs, blocking the sunlight from reaching the tree's own leaves, thereby impeding photosynthesis. Ivy vines are heavy and the extra weight can pull down trees in a storm. English ivy is a host plant to bacterial leaf scorch, a plant pathogen that can harm a wide variety of trees.

All the same, English ivy sells well. It's cheap, grows fast in any soil, in full sun or full shade, stays green all year, and suffers no diseases. No wonder the English colonists brought it with them in the 1700s. As a ground cover for under trees, it seems like the perfect plant - until it grows up the tree and kills it.

This General Assembly session, a bill by Delegate Paul Krizek was passed in Richmond to permit any locality in Virginia to ban sales of English ivy. All we need now is for the Governor to sign the bill.

Killers of Native Trees and How to Manage Them: Strangling Vines (Invasive Wisterias, Winter creeper, Bittersweet, etc.)



As Tree Rescuers, we **will** cut vines at ground level and a few feet up to prevent new growth climbing the old vine

We will **NOT** pull up vine roots and underground rhizomes

We will **NOT** pull vines off trees

We will **NOT** cut poison ivy, wild grape, nor any other native species (next slide)

Another tree killer is **wintercreeper**, native to China, Japan, and Korea, also for sale in all big box garden centers, but banned in throughout Maryland. Wintercreeper grows in full sun, full shade, in fields, forests, and roadsides. Like English ivy, it smothers and weighs down trees. The vines at the base can be as thick as your arm.

Asian wisterias also for sale, even though the equally showy and non-invasive America wisteria is also available. Invasive wisterias have a hard woody vine that twines tightly around its host and will cut thru the bark, girdling the tree. Girdling a tree injures the cambium, mainly the phloem, and prevents the tree from sending nutrients from its leaves to its roots, killing the tree over time.

On the ground wisteria forms dense thickets that smother and shade other plants while sending its tendrils out to seek more victims.

Several acres of the lovely Accotink Gorge are infested with Asian wisterias. [Friends of Accotink Creek](#) has a site behind the Springfield Costco where we cut it off the trees until we raise some decent money from local corporations to fund some crews to go in and remove it. Right now we're planning a drone survey of the area to get a better idea of the extent of the infestation.

Other invasive vines we'll be removing from trees are **porcelain berry**, on the noxious weed list, and therefore not sold. **Oriental bittersweet** used to be sold, but I haven't seen it in any Virginia garden centers.

Japanese honeysuckle creeper is a lightweight vine, but can still kill young trees by girdling the trunks.

How to remove vines

Cut at base and again at chest height. If you wish, clear the vines from around the base of tree. If so, spread wood chips to cover any bare soil. Bare soil invites invasive plants.

How not to remove vines

Do not yank them off the truck. This damages the bark. Do not remove vines from hillsides or river banks. This could cause soil erosion. Do not leave pulled vines on the ground. They can regrow.

Native Vines To Leave Alone:

Poison Ivy



Wild Grape



Virginia Creeper



Native vines not to remove

Virginia creeper, poison ivy, grape vine, and green brier do not kill trees, and their nutritious berries feed birds in winter.

We also have invasive shrubs that form dense thickets. Most common are Asian bush honeysuckle, Japanese barberry, Japanese holly, multiflora rose, burning bush, privets, Autumn olive, and wineberry.

Invasive Shrubs

NOTE: As Tree Rescuers, we pull smaller plants up by roots, if possible, or else cut at the base. If they are seeding, plants must be bagged and discarded in trash.

Bush Honeysuckle



Japanese Barberry



Multiflora Rose



How not to deal with invasive shrubs

Do not dive underneath to cut the base. It seems the most efficient method, but you risk getting Lyme ticks on yourself. Ticks will not jump on to you, but you want to avoid brushing against leafy branches and brush. Do not attempt to pull or dig out large roots. You may injure your back.

Hazards: Safety First!

- Ticks, mosquitoes, other insects that can carry disease
- Puncture wounds from branches, thorns
- Toxic plants: Poison ivy (a native: do not remove!), Virginia creeper stickers, some toxicity in invasives (do not eat!)

Tools for Volunteers

- Hand Tools Only: Bring Clippers, Hand Saw if you can; there will be some to share
- NO Power Tools
- NO Herbicides
- No Pulling if disturbed soil risk erosion (Step down small disturbances)



How to deal with invasive shrubs

Cut the branches in pieces from the outside going in. Then when the base is clear, saw it down. That way you'll have the branches already cut up and scattered on the ground where they can decompose and feed the soil. It's better to leave organic matter on the site. However, if there are berries, they should be cut off, bagged, and trashed. Leave removing the roots for next year when they'll come out more easily.

For small jobs, a root wrench may work. Otherwise walk away. For any roots you do remove, mark the spot to plant a new tree. That way you'll have the hole already dug.

Do not leave bare soil. Bare soil only invites more invasive plants, especially Japanese stilt grass. A nice 8-inch layer of wood chips will help suppress any surviving invasive plants left in the ground, it will build soil and help avoid compacting it.

Some common invasive trees are Callery pear, ailanthus, white mulberry, and Asian bush honeysuckle.

Don't attempt to remove ailanthus. It's a hydra. Cut it down and it goes into overproduction mode. Instead of one you'll find a dozen next year. Ailanthus needs a herbicide job. So leave for the professionals.

Once you have freed the trees and cut back the invasive bushes and trees, you can tackle **invasive ground covers**: vinca, Japanese pachysandra, wintercreeper, English ivy, garlic mustard, creeping charlie and Japanese honeysuckle creeper.

How to remove invasive ground cover

Avoid working on slopes and river banks. Watch for poison ivy. Wear gloves. To avoid pulling Virginia creeper and other natives, use a plant ID app like [iNaturalist](#) (free) or Picture This. To avoid plants re-rooting, pile the invasives pulled on a log or rock where the roots can be left to dry out.

The most common invasive grasses are Japanese stilt grass, Japanese silvergrass (miscanthus), and running bamboo.

Japanese stilt grass is one of our worst invasives. Each plant produces up to 1000 seeds which remain viable in the soil for 5 years. As mentioned, it alters soil chemistry.

How to remove Japanese stilt grass

Stilt grass is very flammable. You want to bag and remove it. Last summer Volkswagen came to my site and we packed 16 trash bags. Park volunteers like me may not use power tools, but you could tackle your own infestations with a string trimmer. Just mowing isn't enough as the stiltgrass will regrow from remaining stem nodes.

Constant mowing will cause stiltgrass to set seeds lower down. Better to mow plants just before flowering (say early August) which cuts off the flowering culm before seed matures.

Invasive plants to leave for professionals: ailanthus tree, Japanese knotweed, and the deadly lesser celandine. To remove the celandine by hand, you'd need to remove 8 inches of top soil as the plant can regrow from tiny nodules and root fragments.

But meanwhile you've plenty of trees to save!



In Closing:

- Q&A
 - Hope to see you on:
 - March 17 Work Day, 2-5pm,
 - March 24 Work Day, “ ”
- (Further Schedule TBD)

HOA's and civic associations are forming the Fairfax Invasive Removal Alliance.
[Join this coalition to take an active role in ridding our county of invasive plants.](#)