

**You Ain't from Around Here!
Nonnative Invasive of the Quarter:
Winged Euonymus (*Euonymus alatus*)
By: Jennifer Gagnon, Virginia Tech**

Orange and maroon are not only the colors of Virginia Tech and the Hokies, but also the dominant colors of fall in SW Virginia. And it just so happens, I love orange and maroon, the Hokies, and fall. They go together well. And the folks in charge of landscaping at Virginia Tech have made a concerted effort to landscape with species that are orange and/or maroon in the fall – particularly around Lane Stadium.



Winged euonymus surrounds Lane Stadium on the Virginia Tech campus and displays bright maroon foliage in the fall.

Photo by: Jennifer Gagnon, Virginia Tech.

For example, there are varieties of red maple (*Acer* spp.) planted along Beamer Way, the road that passes directly next to the Stadium. They have vivid red and orange leaves in October, the heart of football season. They have also planted winged euonymus along many of the walkways around the Stadium. In the fall, the leaves are bright maroon, and the fruits are orange. It's as if it was made specifically for this purpose.

Unfortunately, winged euonymus, also known as burning bush, winged burning bush, corky spindletree, and winged spindle tree, is a nonnative invader. In the bittersweet family (*Celastrales*), winged euonymus is native to China, Japan, and northeast Asia and was introduced to the United States in the 1800s as an ornamental. By the 1970s, it was officially documented as an invasive species. Currently, it is found all along the eastern US, except Florida, and into the Midwestern States, and Wyoming.

Although winged euonymus is not as aggressive as other nonnative invasive shrubs (think autumn olive, *Elaeagnus umbellata*), the Department of Conservation and Recreation ranks it as highly invasive in Virginia. Like many nonnative invasives, winged euonymus is a prolific seeder; unlike many other nonnative invaders, winged euonymus can grow under a mature canopy in full shade. This means it can become a problem in mature, undisturbed forests, where we typically don't have problems with nonnatives. And not only is it shade-tolerant, it is also drought-tolerant, further increasing the sites it can grow on.

Winged euonymus invades forests, forest edges, pastures, prairies, and roadsides. Under ideal growing conditions, winged euonymus can form dense thickets, dominating the forest shrub layer, and out-competing native species. This species is spread primarily by birds that are attracted to the brightly colored fruits. Seeds can remain viable in the soil for many years. And of course, it is also spread by otherwise well-meaning landscapers.

How to Identify Winged Euonymus

Form: A dense, multi-stemmed, rounded shrub, up to 20 feet tall. More compact cultivars are also sold.

Leaves: Deciduous, arranged opposite to sub-opposite, elliptical to obovate (egg-shaped with the narrower part at the base) shaped. Leaves are 1.5 to 3 inches long and just over 1.25 inches wide. The edges of the leaves (margins) have fine teeth. Tops of the leaves are medium to dark green; bottoms of the leaves is slightly paler. They turn bright maroon in the fall.

Flowers: The tiny (less than 0.5 inch across) yellow-green flowers grow in groups of 3 directly on the stems. Flowers bloom in spring.

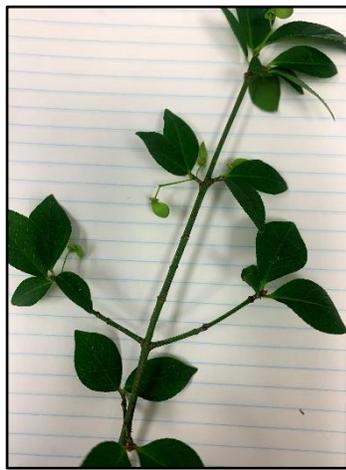
Fruit: The fruits are 0.25 to 0.3-inch-long capsules contained in a purplish-husk. The husk splits open when the capsules are ripe in the fall. Ripe capsules are a bright orange red.

Buds: Sharp and pointed, reddish brown.

Bark: Gray to gray-brown, splitting to reveal a lighter inner bark, causing it to look faintly striped.

Stems: Vibrant green with raised tan or brown corky wings.

Native look a-likes: There are a few native plants that look like winged euonymus, including: bursting heart (*E. americanus*), burningbush (*E. atropurpureus*), and running strawberry bush (*E. obovatus*). However, all of these native species lack the wings on the stems. Sweetgum (*Liquidambar styraciflua*) twigs can have wings, but its leaves are shaped very differently.



Winged euonymus (a) stem with irregular edges called wings, (b) leaf with serrated edges (like a bread knife), (c) oppositely-arranged leaves and twigs, (d) orange-red mature fruits, and (e) small yellow-green flowers. Photos a-c by Jennifer Gagnon, Virginia Tech; photos d-e from Virginia Tech Department of Forest Resources and Environmental Conservation.

Control: Fortunately, winged euonymus leaves out early in the spring and retains its leaves late into the fall. This makes it easy to see (especially the maroon leaves in the fall) and easier to control.

Chemical

Foliar: Since winged euonymus retains leaves for a long time, there is ample time each year to use foliar herbicide treatments. A backpack sprayer can be used to apply herbicide from mid-May through onset of fall color.

Basal bark: Herbicide treatments can be applied directly to the bark of winged euonymus year-round using an oil-based herbicide that can penetrate the bark and travel systemically through the plant. The entire lower 12-18 inches of the stem should be sprayed.

Cut stump: Herbicide treatments can be applied to cut stumps year-round. Oil-based herbicides can be applied to the cut stump surface and bark of the stump any time after stems are cut. Water-based herbicides must be applied to the cut stump surface immediately after stems are cut.

Manual

Small plants can be hand pulled, and a hoe can be used to remove most of the roots. Winged euonymus cannot recover from this type of disturbance. Mowing with a brush hog can reduce the height of the shrubs and make herbicide applications easier. Mowing alone will not control the plant.

Gagnon. Virginia Forest Landowner Update. V. 36 No. 3. Summer 2022.

Commercial

Don't buy nonnative invasive plants. Just because they are sold at a nursery doesn't mean they aren't invasive. I found winged euonymus listed on many gardening sites. To be fair, many of them state that it can be invasive, but then proceed to tell the internet how to plant and tend to it properly.

Reclamation

Once you have the nonnative invader under control, reclaim the site with native species as soon as you can. Native shrubby alternatives with bright fall foliage include: some of the native viburnums (*Viburnum* spp.), and dogwood species such as silky (*Cornus amomum*), gray (*C. racemosa*), and red stem (*C. sericea*). As an added bonus - both viburnum and dogwood shrubs provide valuable food and shelter for wildlife in addition to aesthetically pleasing foliage and flowers.

I suppose the lesson of this article is, although it's almost impossible to believe, not everything that comes in orange and maroon is good. But it does look awesome around Lane Stadium in the fall. If you're reading this in black and white, I encourage you to look at the color photos posted on the web version of this newsletter at:

<https://forestupdate.frec.vt.edu/newsletter/current.html>.

Resources:

- Applying herbicide using the cut stump method: <https://youtu.be/6zJb0tq15U0>
- Other methods of herbicide application: <https://youtu.be/Dh883U8G9NU>
- For specific herbicide recommendations, visit: <https://extension.psu.edu/burning-bush>

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