

VIRGINIA FOREST LANDOWNER UPDATE

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You Ain't From Around Here! Exotic Invasive of the Quarter: Autumn-Olive (*Elaeagnus umbellata* Thunb)

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I will be featuring an invasive species in each newsletter. This section will provide resources to help you identify and control these plants and insects, hopefully before they become a problem!

Exotic invasives are non-native plants and insects that are able to thrive and spread aggressively outside their natural range. When spread is extensive, they can alter ecosystem function by replacing native species, changing forest structure, decreasing forest productivity and biodiversity. Some key characteristics include: prolific seeding or reproduction, efficient dissemination, adaptability to different environments, rapid growth, and lack of natural controls. Landowners can help stop invasives before they get out of control by 1. inspecting their property regularly, 2. maintaining a healthy forest with minimal disturbance, 3. treating invasives as soon as they are detected and 4. rehabilitating sites after eradication.

As with so many other invasive species, the tale of autumn-olive began with good intentions. Native to China, Japan, and Korea, autumn-olive was brought to the U.S. in the 1830's. In 1965, the Soil Conservation Service released a variety of the shrub, called Cardinal, for use in commercial propagation. The shrubs were used for wildlife food and cover, screens and barriers along roadways, stabilization and revegetation of road banks, and to reclaim mine soils. In fact, until 1975 the species was described as rarely escaping cultivation; by 1981, however, autumn-olive was described as being naturalized (adapted to local climates, soils, and able to successfully reproduce outside of cultivation). Currently, this species can be found from Maine through Florida, west into Nebraska, and in the Pacific northwest. In Virginia, autumn-olive has been identified in most counties.

Disturbed areas, successional fields, pastures, roadsides, prairies, open woodlands, and forest edges are most often invaded; autumn-olive is rarely found in dense forests or on extremely wet sites. Although not a legume, this species is able to fix nitrogen through nodules on its roots, allowing it to adapt to even poor soils and out-compete native plant species. Shrubs begin producing seed by age three; one plant can produce up to 8 pounds of seed! Seeds are dispersed either by gravity (fruit simply falling to the ground) or by birds, although raccoons, skunks and opossums also eat the fruit.



Autumn-olive form. Photo by: Chris Evans, University of Georgia

Autumn-olive is a medium to large deciduous shrub, reaching heights of 15 to 20 feet and forming dense dark thickets, which suppress the growth of other plant species, particularly

those requiring bright sunlight. And, although it provides wildlife food, studies have shown that the berries are not as beneficial to wildlife as fruit from other plant species. In spite of its invasiveness, this species is sold by on-line nurseries, and does have some favorable qualities. For example, the fruits are edible to humans, and often used for jams and jellies. And word has it that a tasty white wine can be made from the berries. Additionally, research has also shown that the fruits contain up to 7 times more lycopene (a cancer-fighting nutrient) than tomatoes.

How to Control Autumn-Olive:

Mechanical: Young seedlings can be hand-pulled from the ground in early spring – just be certain to remove the roots, as these can sprout. Cutting, burning, or mowing larger autumn-olive shrubs, without herbicide follow-up, results in prolific sprouting and makes the problem even worse.

Chemical: The leaves of mature shrubs can be sprayed with Roundup herbicide (a glyphosate formulation). Or, if shrubs are cut, Roundup can be applied directly to the stumps either with a low pressure sprayer or a sponge applicator. Since Roundup is a non-specific herbicide, it will kill other plants it makes contact with. If there are desirable plant species in the area, sponge application is your best bet as it limits the herbicide to only the autumn-olive stumps. Herbicide application on the stumps is most effective in the growing season (July through September) but also works in the dormant season.

Biological: Although there's been no scientific data collected, goats appear to effectively browse autumn-olive down, and can be used to clear pasture-land that has been invaded. Just be careful not to let them over browse the desirable vegetation!

How to identify autumn-olive

Flower: yellow, bell-shaped, borne along current year's twigs, appear in late April through May, after first leaves appear



Small yellow flowers along branch. Photo by: John Seiler, Virginia Tech

Leaves: simple, alternately arranged, upper surface green to grayish-green and scaly; undersides covered with silvery-white scales



Silvery backside (top) and gray-green surface (bottom) of autumn-olive leaves. Photo by: John Seiler, Virginia Tech.

Fruit: borne along current year's twigs, 0.25 to 0.33 inches, pink to red and covered with silvery scales; sweet & juicy; mature in late summer



Close up of ripe berries on an autumn-olive branch. Photo by John Seiler, Virginia Tech.

Branches/bark: young covered with silvery-gray or golden brown hairs; older develop a scaly, split and furrowed gray-brown bark



Right: A young autumn-olive twig. Left: The bark of a mature shrub. Photos by John Seiler, Virginia Tech.



When you've successfully eradicated your autumn-olive problem, you may be left with some bare ground. Fortunately, there are many native species which are suitable replacements (also provide wildlife food and cover). These include winterberry (*Ilex verticillata*), blackhaw (*Viburnum prunifolium*), gray dogwood (*Cornus racemosa*), shining sumac (*Rhus copallinum*), serviceberry (*Amelanchier* sp.), American holly (*Ilex opaca*), bayberry (*Morella pensylvanica*) and wax myrtle (*Morella cerifera*).

Log on to www.cnr.vt.edu/forestupdate to see the color version of this newsletter, including color photos of autumn-olive.

References:

Miller, James H. 2003. Nonnative invasive plants of southern forests: a field guide for identification and control. Gen. Tech. Rep. SRS-62. Asheville, NC, USDA Forest Service. 93 p. www.invasive.org

Szafoni, Bob. 1990. Vegetation management guideline: Autumn-olive (*Eleagnus umbellata* Thunb.). Illinois Nature Preserves Commission, Illinois Department of Conservation. www.inhs.uiuc.edu

Virginia Tech Dendrology Homepage. www.cnr.vt.edu/dendro