

# Destroyer of Fields, Pastures and Woodlands

## AUTUMN OLIVE

**Aggressive, Persistent, and Noxious Outsider**



*Autumn olive is unmistakable when it blooms in early spring, because it is covered in silvery new growth and creamy white, fragrant flowers.*

### The Culprit

Like so many nonnative invasive plants that now run rampant across the landscape, autumn olive (*Elaeagnus umbellata*) was first introduced to North America with the best of intentions. Beginning in the 1830's, this Asian shrub was used extensively to revegetate strip mines and to create shelter belts because it thrives in poor soil. Because it fruits heavily, autumn olive was recommended for creating wildlife habitat. Unlike many nonnative plants, native birds and animals do eat its ripe fruits. These include thrushes, cardinals, cedar waxwings, evening grosbeaks, sparrows, bobwhite, ruffed grouse, wild turkeys, ducks, raccoons, skunks, opossums, and black bears. However, the sugary fruits are junk food for wildlife, especially for migrating birds. Birds need high-fat and high-protein foods, not sugary sweets, to fuel their flights. Poor nutrition slows migration and makes birds vulnerable to other risks.

Thriving in poor disturbed sites, autumn olive can quickly form a monoculture in sunny fields and roadsides. It can also spread into open forests from infested fields. In all of these sites, it displaces desirable plants and reduces species diversity. Because its roots can fix nitrogen, this fast-growing invasive shrub alters soil fertility and changes the habitat. It increases nitrate levels and thus pollutes streams and rivers. The increased soil nitrogen promotes the spread of weedy species in favor of the natives adapted to the site. This nasty shrub is a serious threat to fragile native plant communities such as rocky barrens and prairies. Autumn olive infests fields and woodlands in most of the eastern U.S., from Maine to Virginia and west to Wisconsin.

### Known Hangouts

Autumn olive targets sunny fields and pastures, roadsides, forest edges near mowed fields and open woods. It prospers in nutrient-poor soils, sand or clay, whether moist or dry. It invades openings in woodlands and forests and can multiply in the semi-shade of a young forest. Once it has arrived, autumn olive will hang around for years.

### Modus Operandi

Like many nonnative shrubs, autumn olive leafs out early and retains its leaves into late fall, so it kills desirable plants with its shade. The shrub then gets a further competitive edge by adapting to a wide range of soil and light conditions, and its deep tap root makes it drought tolerant. Because its nitrogen-fixing roots alter soil chemistry, it prospers at the expense of surrounding plants that fail in the more-fertile soil. Any attempt at cutting down autumn olive without applying herbicide only increases the number of stems that sprout from its crown and roots.

Mature plants can produce up to 30 pounds of fruit each autumn, which yields about 65,000 seeds. Because the seeds have extremely high germination rates, a veritable population explosion occurs. Since the fruits can linger on branches well into winter, they provide a food source when native fruits are scarce. This way, seeds are sure to be carried far and wide. Fruits not eaten drop to the ground, where the seeds plant themselves, germinate, and seemingly overnight grow into a thicket. The seedbank in the soil is quickly depleted. However, because autumn olive begins to heavily flower and fruit when only three to five years old, the seedbank is easily replenished. The onslaught of new plants gets out of hand so quickly that it is almost impossible to eradicate all the invading plants.



*Autumn olive, recognizable in the photo by its silvery leaves, can turn an open woodland or a fallow field into a monotypic stand in only a few years.*

## Positive Identification

Autumn olive is a large shrub with multiple trunks and dense branching. It can grow to 15 feet tall and wide. You can easily identify autumn olive in spring because it leafs out before most native vegetation, and its new leaves are bright silver. Leaves mature to olive-green with silvery undersides. (Other invasive



Top: Creamy, fragrant four-petaled flowers bloom in profusion in early spring. Bottom: Late summer and fall brings abundant, red fruits that are dotted with tiny speckles.

shrubs such as bush honeysuckles, multiflora rose, and Chinese privet also leaf out early, but their leaves are bright green.) Autumn olive's leaves are alternate on the stems, and vary from narrow to wide ovals. The leaf undersides are densely covered with silver scales, as may be the tops of immature leaves. Young twig tips may be silvery and scaly. Older stems have brown to yellowish-brown, smooth bark, which becomes scaly with age. Small thorns often occur on the twigs.

The small, fragrant, tubular-shaped flowers have four petals and are creamy to pale yellow. They bloom in such profusion in spring, along with silvery new leaves, that an autumn olive shrub becomes a glittery vision. The oval-shaped, single-seeded fruits, which ripen in August and September, are dull to bright red and are dotted with tiny silvery speckles.

## Mistaken Identity

Two other species of *Elaeagnus* are also seriously invasive, but are less common in the Blue Ridge. Russian olive (*Elaeagnus angustifolia*) has invaded Warren County. It is a 30-foot-tall tree with one to several trunks. Its leaves are much narrower and are very silvery on both sides; thorns are sometimes present. Silver scales coat the fruits. Thorny olive (*Elaeagnus pungens*) has leathery, evergreen leaves that are egg-shaped with wavy margins. The leaf tops are shiny green without silvery scales, and the undersides are covered with dull white scales and light brown dots. Large thorns arm the branches. Several species of bush honeysuckle (*Lonicera* sp.) are invasive in the Blue Ridge and might be mistaken for autumn olive because they have red berries. They are easily told apart. Bush honeysuckles have green, opposite leaves without any silvery scales.

## Search and Destroy

Look for autumn olive in fields, along roadsides and in semi-shaded woods. In early spring, its silvery new growth makes it stand out in the landscape. Identify it in fall when its silvery-olive-green foliage stands out against the fall color or leafless branches of other vegetation. In summer, identify it by its silvery leaf undersides and red fruits. In winter, look for its speckled twigs and alternate leaf buds.

Autumn olive is more difficult to control than most invasive shrubs and is almost impossible to eradicate completely from a locale once it is well established. A combination of control methods is most effective in the long-run. Your first goal is to prevent seed production and dispersal by killing or cutting back autumn olive shrubs by mid-July to prevent seed ripening. The best method varies depending upon the extent of the infestation and quality and type of the site requiring treatment. Disturbing the soil can bring up seeds of this and other invasives, increasing the problem. Use mechanical removal cautiously.

**Manual & Mechanical:** Seedlings and young autumn olive shrubs can be hand-pulled or dug if the population is not extensive. Digging larger plants is problematic because they resprout from any roots left behind. Repeatedly cutting back established shrubs to ground level without applying herbicide will not control autumn olive, because stems regrow thicker and denser than before. Tools such as the Weed Wrench® or Root Talon® offer more leverage than a shovel, allowing removal of plants with stems up to 3 inches across. In low-quality, heavily invaded fields, you can pull large autumn olive shrubs with a chain or a tractor bucket. Treat resprouts with herbicide. Regular repeat mowing can prevent seedlings from establishing.

**Burning:** Prescribed burning does not control established autumn olive because it does not kill the root system, which resprouts vigorously. Two to three additional burns with sufficient fuel may ignite the dead stems and kill the roots. Prescribed burning can kill autumn olive seedlings when adequate fuel is present. Burning can be combined effectively with foliar spraying. Burn to kill the tops of the plants, then use a recommended foliar herbicide on the resprouts.

**Grazing:** Goats are particularly effective for autumn olive control if they are grazed heavily in spring and early summer. They must be grazed for several years to kill the shrubs, but be aware that they browse indiscriminately.

**Cut Stump:** Autumn olive can be controlled at any time of year, except during spring growth, by cut-stumping. Cut or saw all stems to several inches from the ground and immediately spray cuts with a concentrated recommended herbicide or a ready-to-use stump killer. Watch for resprouts; cut and treat all new stems or apply a foliar herbicide spray to the new foliage.

**Basal Bark:** Concentrated herbicide applied to autumn olive stems of 6 inches or less in diameter is effective. Use a concentrated herbicide in a horticultural or vegetable oil. Spray or paint all stems from ground level up to about 10 inches. This is most effective in January and February or from May to October.

**Foliar Spray:** A higher concentration of foliar herbicide than is effective on most other plants is needed to control autumn olive. Be sure to add a surfactant if the product you use does not contain it. Treat any time after autumn olive leafs out until just before its leaves change color in fall. Because it greens up earlier and remains green later than many plants, early spring or late fall treatment reduces collateral damage. Use foliar sprays in summer only where there are few desirable plants nearby.

For currently approved herbicide recommendations, check the Virginia Department of Forestry chart *Non-Native Invasive Plant Species Control Treatments*, which you can download from the Blue Ridge PRISM website.