



# Supporting Sustainable Management of Private Woodlands

An Extension Publication of the Department of Natural Resources, New York State College of Agriculture and Life Science,  
a Statutory College of the State University at Cornell University, Ithaca, New York

## Treatment of autumn olive and other interfering shrubs

Peter Smallidge, NYS Extension Forester and Director, Arnot Teaching and Research Forest, Department of Natural Resources, Cornell University Cooperative Extension, Ithaca, NY 14853. Contact Peter at [pjs23@cornell.edu](mailto:pjs23@cornell.edu), or (607) 592-3640. Visit his website [www.ForestConnect.info](http://www.ForestConnect.info), and webinar archives at [www.youtube.com/ForestConnect](http://www.youtube.com/ForestConnect).

Autumn olive (*Elaeagnus umbellata*) is an introduced species and recognized as invasive because it can readily colonize fields, open woodlands, and may invade the interior of woodlands. It is characterized by simple, alternate, elliptical leaves with undulating margins and silver and rusty scales on the leaf and twig (Figure 1). Some twigs have a thorn. Flowers are light yellow and are borne in clusters on the stem. The fruit is a reddish berry. The lower leaf surface and the twig have silvery and rust-colored scales (Figure 2). A similar plant, Russian olive (*Elaeagnus angustifolia*) is differentiated by silvery scales on twigs and upper and lower leaf surfaces, plus a narrower leaf. Both species grow as a large shrub or multi-stemmed tree to approximately 20 to 25 feet.

Autumn olive was propagated and released in the early 1960's for use in wildlife habitat and to reclaim droughty infertile soils. It is able to fix nitrogen through its roots. The abundant production of fruits are eaten and spread by birds and other wildlife. It grows well on droughty soils, but survives well on mesic soils. It is uncommon on poorly drained or wet soils.

Strategies to control undesirable or interfering plants, such as autumn olive, can be categorized into treatments that are a combination of broadcast vs. selective and mechanical vs. chemical (Figure 3). Treatments can also be mixed, often for a more beneficial outcome, such as broadcast mowing followed by selective herbicide spraying.



Figure 1. Autumn olive foliage has undulating margins and a mixture of silvery and rust-colored scales. Flowers are pale yellow-white.



Figure 2. The twigs and buds have scales, and some branches terminate in a thorn, as seen in the lower right of the image.

The process to select the correct treatment depends on several factors. One consideration is whether the owner is willing and able to use herbicides. Another consideration is the response of the species to certain mechanical methods (e.g., cutting) and its propensity to sprout. Additional factors to consider when selecting a treatment option include the following:

- Size of plant
- Number and extent of plants
- Abundance of desired species intermixed with the interfering plant
- Ability to repeatedly treat stems that sprout
- Cost of treatments for materials and labor
- Equipment available
- Season of treatment
- Safety to the person making the treatment
- Ecological cost of a failed or delayed treatment
- Environmental cost of the treatment to soil and surrounding plants

Take for example two-year old autumn olive sprouts, presumably 3 to 5 feet tall, that are intermixed with a desired species the recommended treatment would be a selective application of an herbicide. Cutting alone would stimulate additional sprouting. A broadcast treatment of mowing or spraying would negatively impact the desired species.

There are several good resources to help guide owners who are interested in managing interfering plants such as autumn olive. These resources include general publications about the characteristics of herbicides, how to apply herbicides in forests, and strategies of integrated/forest vegetation management.

There are also several publications about the control of specific species that have application in New York. These are all available here <http://blogs.cornell.edu/ccednrpublications/vegetation-management/>.

In addition to written publications there are several webinars about vegetation management, and a variety of other species and related topics. Webinars cover chemical and organic options and are archived at [www.youtube.com/ForestConnect](http://www.youtube.com/ForestConnect)

The previously mentioned publications and webinars make reference to the importance of reading and following the label on herbicides. I strongly encourage a high level of familiarity with and adherence to the label. Notably, the target plant species must be listed on the label for the treatment to be compliant with NYS law. All products registered for use in NY have their label posted here <http://www.dec.ny.gov/nyspad/products?0>

## Management Options Overview

		Method Mechanism of Control	
		Mechanical	Chemical
Mode Target Specificity	Selective	Examples Hand pulling Flame weeding	Cut-stump Basal bark
	Broadcast	Mowing MIG	Mist blower

Select a management option(s) that is compatible with owner objectives, efficient, effective, and minimizes negative impacts.

Figure 3. Mode and method examples are illustrated to suggested different ways to control a variety of undesired plants. Not all examples are appropriate in all situations. Some example illustrate the integration of multiple modes and methods (e.g., cut-stump).



Figure 4. Basal bark treatments work by a chemical girdling of the stem, so the product must be applied to fully coat the entire circumference of each stem. Pathfinder II is the most common unrestricted basal bark product.

The selective treatment requiring the least time and effort would be to apply Pathfinder II as a basal spray (Figure 4). A basal spray is an herbicide mixed in oil. Pathfinder II is a premix of Garlon 4 (triclopyr) mixed in vegetable oil. It is unrestricted so can be purchased without a pesticide applicators license.

The basal spray is applied to the full circumference of all stems. As sprouts, there may be multiple stems. Spraying can happen throughout the year as long as spray can be applied from ground level to about 16 inches up the stem. The product is absorbed through the bark and chemically girdles the plant. Additional information about basal bark treatments, including a recent fact sheet from PSU Cooperative Extension is available at <http://CornellForestConnect.ning.com/> and search for “basal bark treatments”.

Another treatment option would be to use a brush saw (Figure 5) to sever the autumn olive stem at ground level and then apply Pathfinder II to the freshly cut surface. This treatment would use less herbicide, so lower cost, but would have the added cost of labor and more equipment to cut and handle the stems. There is also a slight risk of personal injury from the saw, but properly equipped and maintained brush saws are quite safe.

A final option would be a selective herbicide treatment to foliage. During the growing season the desired species are also leafed out, and treatment is not recommended. However, many of the introduced species leaf-out before and remain in leaf longer than native species (Figure 6). This phenological pattern provides an option, though the window of treatment is often only a couple weeks. One example of an unrestricted herbicide labeled for foliar treatment of autumn olive is Stalker, which has the active ingredient imazapyr. Note that imazapyr may move in the soil to non-target plants. There are relatively few unrestricted herbicides in New York that are labeled for autumn olive, and many are formulated for control and exclusion of all vegetation.



Figure 5. Brush saws are effective tools for vegetation management. The shoulder strap provides a barrier for kickback that would injure the operator. Safety equipment is still necessary.



Figure 6. Like autumn olive, multiflora rose (pictured) leafs out before other species. This early leaf display provides a management option for foliar treatments which avoid contact with those desired species that haven't yet broken bud.

For additional information on woodland management go to:  
[www.ForestConnect.com](http://www.ForestConnect.com) & [www.CornellForestConnect.ning.com](http://www.CornellForestConnect.ning.com)



Layout and design provided by Diana Bryant.

Support for ForestConnect is provided by the Cornell University College of Agriculture and Life Sciences, Cornell Cooperative Extension, and USDA National Institute of Food and Agriculture.

7/2018