Brush Management – Invasive Plant Control
Burning Bush – *Euonymous alatus*

Conservation Practice Job Sheet *VT-314*

Burning Bush (*Euonymous alatus*)

Burning Bush twigs

Burning Bush

Euonymus alatus was introduced into the USA from northeastern Asia around 1860 for use as an ornamental shrub. The bright red fall foliage of *E. alatus* makes this shrub a popular ornamental planting, and it is commonly planted along interstate highways, as hedges, and in foundation plantings.

While it behaves well in urban areas, *E. alatus* planted near woodlands, mature second-growth forests, and pastures can be problematic. It has been observed escaping from cultivation in the northeast and midwest. *E. alatus* threatens a variety of habitats including forests, fields, and coastal scrublands where it forms dense thickets, displacing many native woody and herbaceous plant species. Hundreds of seedlings are often found below the parent plant.

Like most invasive plants, seed production is prodigious. Birds relish eating the fruit, and seeds passing through their digestive tract are viable and easily germinate. *E. alatus* can also spread through vegetative reproduction.

There are several key characteristics of *E. alatus* that contribute to its effectiveness as an invader. It is adaptable to various environmental conditions; it grows well in different soil types and pH levels, has no serious pest problems in North America and is tolerant of full shade. Combined with its vibrant fall foliage making it a popular landscape ornamental, this species is difficult to contain.

Description

E. alatus is a deciduous multiple stemmed, angular branching shrub with conspicuously winged stems, normally 5-10 feet high. The leaves are oppositely positioned dark green turning bright scarlet to purplish red in autumn. The flowers, fruits and seeds are inconspicuous. Greenish flowers occur in late spring and red-purple fruits mature during the summer.

Similar Natives

E. alatus can resemble the larger leaved species of blueberry, *Vaccinium* spp., but their leaves are alternate. Dormant twigs may also resemble winged elm, *Ulmus alata*, and sweetgum, *Liquidambar styraciflua*, which are usually two-winged instead of four.

Control

The allure of burning bush as an ornamental shrub adds a unique element to its control strategy. One of the first steps in controlling the spread of burning bush is simply to stop planting it. Its popularity has caused the state of New Hampshire to restrict the sale of burning bush at nurseries.

Similar to other invasive plants control of this plant is difficult because it produces a tremendous amount of seed. Manual, mechanical and chemical means are

available to control established plantings. Seedlings can be pulled by hand and shrubs can be repeatedly cut to the ground to control re-sprouts, or cut and treated with herbicides. Once a site has been treated, it is important to replant with native vegetation to prevent further invasion.

Biological Control
There is no known biological control for burning bush.

Mechanical Control
Seedlings up to 60 cm (2 feet) tall can be easily hand-pulled, especially when the soil is moist. Larger plants and their root systems can be dug out with a spading fork or pulled with a weed wrench. An extremely labor intensive method to prevent spread is to trim off all the flowers, thus eliminating seed production. Larger shrub can be cut. The stump must be ground out or the re-growth clipped.

Chemical Control
Where populations are so large or conditions are such that cutting or other non-chemical means of control are impractical, the use of herbicides is an effective alternative. Scientific studies have shown that foliar, cut-stem and basal bark treatments have all been effective for control of burning bush[1, 2]. Early-summer treatments tend to be the most effective. Foliar spray is the best option as it is effective and efficient. For stems too tall for foliar sprays, cut stem applications can be effective as well.

Refer to the pesticide label for complete instructions on the use and application of a given herbicide. Some applications, by rule, may only be done by a certified pesticide applicator, and/or might require the applicator hold a special permit. You should contact the Vermont Agency of Agriculture Agrichemical Management Section if there are any concerns before applying any pesticides.

[1]- The Nature Conservancy - Element Stewardship Abstract (and references therein)

[2]- Miller, James H. 2003. Nonnative invasive plants of southern forests: a field guide for identification and control. http://www.invasive.org/eastern/srs/WBB.html

Disposal
There are a few general rules of thumb that will ensure proper disposal. Be sure the plant is dead before placing in a mulch or compost pile. Either dry it out in the sun, or bag it in a heavy duty black plastic bag. If you have flowers and/or seeds on the plant, put the flowers and seed heads into the bag head first so that there is minimal risk in dispersing seed.

Information and Recommendations compiled from:

- The Nature Conservancy - Element Stewardship Abstract (and references therein)
- Miller, James H. 2003. Nonnative invasive plants of southern forests: a field guide for identification and control. http://www.invasive.org/eastern/srs/WBB.html
- Swearingen, J., K. Reshetiloff, B. Slattery, and S. Zwicker. 2002. "Plant Invaders of Mid-Atlantic Natural Areas." National Park Service and U.S. Fish & Wildlife Service.

CAUTION: The VT Agency of Agriculture Division of Agricultural Resource Management and Environmental Stewardship, Agrichemical Management Section regulates the sale and use of pesticides in Vermont. Many labels and registrations change from year to year, so applicators will want to be sure they are using a currently, registered product. Contact the Agrichemical Section (802-828-6531) for information on pesticide registration, how to acquire a special permit, lists of currently-licensed pesticide applicators, and other information pertaining to the rules and regulations governing pesticide application in this state.