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VEGETATION MANAGEMENT GUIDELINE

Autumn Olive *(Elaeagnus umbellata* Thunb.)

SPECIES CHARACTER

DESCRIPTION

Autumn olive is a medium to large shrub, often reaching heights of 20 feet. The leaves, borne alternately on the stems, are generally oval in shape, approximately 1-3 inches (2.5-7.5 cm) long, and lack teeth. The upper surface of leaves is dark green to grayish-green in color, while the lower surface is covered with silvery white scales, a conspicuous characteristic that can be seen from a distance. The small light yellow flowers bloom in late April and May after the first leaves have appeared. Flowers and fruits, when present, are borne along twigs. The small (less than 1/4 inch) fleshy fruits range in color from pink to red and are produced in abundance each year.

SIMILAR SPECIES

Autumn olive is distinguished from other shrubs in Illinois by the silvery white scales covering the lower leaf surface and by its elliptical or ovate leaves that often have a slightly wavy margin. Autumn olive resembles Russian olive (*Elaeagnus angustifolia*), another exotic shrub, in that leaves of both species appear silvery on the lower surface. However, Russian olive has narrower leaves that are lanceolate in shape. Autumn olive should be accurately identified before attempting any control measures. If identification of the species is in doubt, the plant's identity should be confirmed by a knowledgeable individual and/or by consulting appropriate books.

DISTRIBUTION

Autumn olive was introduced into U.S. cultivation in 1830 from its native range in China, Japan, and Korea. In Japan, this species is common and variable, occurring in thickets and thin woods in both lowlands and uplands. The species was studied in the 1940's by the Soil Conservation Service and the strain 'Cardinal' was released in 1963 for commercial propagation. In the eastern and central United States, autumn olive has been planted primarily to provide food and cover for wildlife but also as screens and barriers along highways, to stabilize and re-vegetate road banks, and to reclaim mine spoil. Autumn olive was first introduced in east-central Illinois in the 1970's. As late as 1975 this species was described as escaping rarely from cultivation. It quickly spread from plantings to invade roadsides, un-mowed meadows, and degraded woodlands. By 1981, it had been documented as naturalized in Illinois. Autumn olive has been officially recorded from only 12 counties; it is, however, probably found in most counties now.

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HABITAT

Autumn olive occurs in disturbed areas, successional fields, pastures, and roadsides, where it has been widely planted. It has been noted from prairies, open woodlands, and forest edges. Autumn olive rarely is encountered in very wet sites.

LIFE HISTORY

Autumn olive is a non-leguminous, nitrogen-fixing woody shrub. Plants flower and develop fruits annually after reaching 3 years of age, although 2 year old plants have been known to flower. An individual plant can produce up to 8 pounds of fruit. Seed dispersal appears to be mainly by falling fruit and birds. Birds seem to be the primary vector for dispersal, although raccoons, skunks, and opossums are known to feed on the fruit. Once established, this species is highly invasive and difficult to control. Burned, mowed, or cut plants will re-sprout vigorously.

CURRENT STATUS

Currently, there are no restrictions on the sale or use of autumn olive in Illinois.

CONTROL RECOMMENDATIONS

RECOMMENDED PRACTICES IN NATURAL COMMUNITIES OF HIGH QUALITY

Autumn olive is easily seen in early spring because its leaves appear while most native vegetation is still dormant. Young seedlings and sprouts can be hand-pulled in early spring when adequate ground moisture is present to allow removal of the root system along with above-ground growth. The entire root system must be removed to prevent re-sprouting.

Cutting the plant off at the main stem and applying herbicide to the stump has been effective in killing root systems and preventing re-sprouting. Roundup herbicide (a formulation of glyphosate) has been effective in controlling autumn olive when used as a 10.0-20.0% active ingredient solution and applied directly to the cut stump. Although the Roundup label specifies a higher concentration for cut-stump application (25.0-50.0 % active ingredient), this lower concentration has proven effective. Roundup can be applied either by spraying individual stumps with a low pressure hand-held sprayer or else by wiping each stump using a sponge applicator (sponge-type paint applicators can be used). With cut-stump treatment, herbicide is applied specifically to the target plant, reducing the possibilities of damaging nearby desirable vegetation. Cut-stump treatment is particularly effective late in the growing season (July-September), but is also effective during the dormant season. Glyphosate is a nonselective herbicide, so care should be taken to avoid contacting non-target species.

Garlon 4 or Tahoe 4E (a formulation of triclopyr) has been effective when used as a 10.0% active ingredient solution mixed with a mineral or plant-oil based carrier and applied directly to the stump. Garlon 4 may be applied at any time, including in winter months, except when ice or snow cover exists or water is present above the ground. Garlon 4 is selective against broadleaf species, so it may be used in areas where desirable grasses are growing under autumn olive. Do not apply Garlon 4 or Tahoe 4E if snow, ice, or water is present on the ground. By law, herbicides only may be applied according

to label directions and by licensed herbicide applicators or operators when working on public properties.

Injection using the EZ-Ject lance with Roundup capsules is an effective control. For plants with numerous stems, each stem greater than 2 cm (3/4 inch) may need to be treated to ensure the plant is killed. Stems larger than 5 cm (2 inches) in diameter should be injected with an additional capsule for each 2.5 cm (1 inch) increase in stem diameter. For plants with multiple stems less than 1.5 cm (1/2 inch), a capsule may be injected into the upper portion of the root crown.

RECOMMENDED PRACTICES ON BUFFER AND SEVERELY DISTURBED SITES

Same as above for high-quality natural communities. In addition, the following treatments are effective.

Thin-line basal bark treatments with triclopyr herbicides have demonstrated 95% kill. A 30.0-60.0% active ingredient solution of Garlon 4 with a mineral or plant-oil based carrier should be applied in a thin, pencil-point line around the base of the plant 6-12 inches (15-30 cm) above the ground. Application can be made with a hand-held plant sprayer and should be performed during the dormant season to minimize risk to non-target species. A narrow band of Garlon 4 or Tahoe 4E encircling the stem is needed to be effective. A 10.0 % active ingredient solution of Garlon 4 mixed with a mineral or plant-oil based carrier and applied in broad band (6 - 10 inches wide) around the base of the plant 6-12 inches above the ground is also effective. Do not apply Garlon 4 if snow, ice, or water is present on the ground.

Great care should be exercised to avoid getting any of the mixtures on the ground near the target plant since some non-target species may be harmed. By law, herbicides only may be applied according to label directions and by licensed herbicide applicators or operators when working on public properties.

Foliar application of dicamba herbicides (available under the trade name Banvel) and 2,4-D herbicides (available under a variety of brand names, including Crossbow, a formulation of triclopyr and 2,4-D) can provide total kill with little or no regrowth the following year. Banvel when applied at the rate of 0.25% active ingredient plus a surfactant has provided 90% total kill of shrubs. Crossbow applied at the rate of 0.76% active ingredient. One hundred percent coverage of foliage should be achieved during the growing season (April-September). Therefore, this control measure is best suited to shorter plants. Although application can be done any time during the growing season, summer application (July-August) is especially effective. Banvel and Crossbow are selective against broadleaf plants, so care must be taken to avoid contacting desirable, broadleaf vegetation. **Do not spray so heavily that herbicide drips off the target species**. **Foliar spray of herbicides should only be used in less sensitive areas because of problems with contacting non-target species.** The herbicide should be applied while backing away from treated areas to avoid walking through the wet herbicide.

A 1.0% active ingredient solution foliar application of glyphosate (Roundup) is effective when applied during the growing season; however, it is nonselective and can result in unnecessary damage to non-target species. Use of glyphosate should be very early in the growing season when most native vegetation is dormant or in areas with very high shrub density where non-target damage would be minimized.

FAILED OR INEFFECTIVE PRACTICES

Repeated pruning of established plants to ground level without subsequent herbicide application is not effective for autumn olive control. Each regrowth results in a thicker stem base and denser branches.

Mowing and grazing can prevent development of fruiting shrubs; however, this is not a suitable practice for natural areas.

Prescribed burning has not proven effective in controlling established autumn olive.

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