

VEGETATION MANAGEMENT GUIDELINE

Siberian elm (*Ulmus pumila* L.)

SPECIES CHARACTER

Description

Siberian elm is a fast-growing, small to medium-sized tree with an open, round crown of slender, spreading branches. It generally measures 50-70 feet (15-21 meters) tall with a spread equal to three-fourths its height. Its rough bark is gray or brown and shallowly furrowed at maturity. Both the small, blunt buds and slender, smooth twigs are nearly hairless. This elm is distinguished by its small, elliptic, smooth, singly-toothed leaves, that reach lengths of approximately 0.8-2.6 inches (2-7 cm). Blades of the alternate, simple leaves are short-pointed at the tip and tapering or rounded at the asymmetrical base. The short-petioled leaves are dark green and smooth above, paler and nearly hairless beneath, and yellow in autumn. Foliage is slightly pubescent when young, and firm at maturity. Flowers are greenish, lack petals, and occur in small drooping clusters of 2-5. The winged fruit of this hardy tree is a 1-seeded, smooth, circular or rather obovate samara that is 0.4-0.6 inch (10-15 mm) wide and hangs in clusters.

Similar Species

Siberian elm is distinguished from American elm (*Ulmus americana*) and slippery elm (*Ulmus rubra*) based on the following characteristics. Siberian elm has relatively small leaves (rarely more than 2 inches or 5 cm long) that are symmetrical or nearly so at the base and are once-serrate. Both American and slippery elm have leaves typically over 2.8 inches (7 cm) long that are strongly asymmetrical at the base and are usually twice-serrate. Siberian elm 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

Siberian elm is native to northern China, eastern Siberia, Manchuria, and Korea, and was introduced to the U.S. in the 1860's. It is the hardiest of all elms and does well even in areas with cold winters and long periods of summer droughts. Often planted in recent decades because of its fast growth, it is now established at least from Minnesota south to Arkansas and west to Utah.

Habitat

Because this elm tolerates a variety of conditions, such as poor soils and low moisture, it is found in dry regions, along roadsides, in pastures, in grasslands, as well as in moist soils along streams. It invades dry and mesic prairies, including sand prairies.

Life History

The tree flowers in spring before leaves begin to unfold. The samaras follow quickly and are disseminated by wind, allowing the species to form thickets of hundreds of seedlings in bare ground. Seeds germinate readily and seedlings grow rapidly.

Effects Upon Natural Areas

If there is a nearby seed source, the tree can invade and, in a few years, dominate prairie areas, particularly if they have been subjected to past disturbance.

CONTROL RECOMMENDATIONS

RECOMMENDED PRACTICES IN NATURAL COMMUNITIES OF HIGH QUALITY

Initial effort in areas of heavy infestation

Girdling trees is the preferred management technique where practical. Girdle large trees in late spring to mid-summer when sap is flowing and the bark easily peels away from the sapwood. Girdled trees die slowly over the course of one to two years and do not resprout. When girdling a tree, the bark and phloem must be removed from a band around the tree trunk and the xylem must remain intact. If girdled too deeply, the tree will respond as if it had been cut down and will resprout from the roots. Girdling can be done with an ax, saw, or chainsaw. Two parallel cuts 3-4 inches apart, cutting through the bark slightly deeper than the cambium are needed. The bark is knocked off using a blunt object like the head of an ax. The girdles should be checked every several weeks at first to make sure they are good and bark does not develop over the cut area.

If girdling is not an option, trees can be cut, and any resprouts that occur subsequently should also be cut. If time constraints prevent cutting the new sprouts, the stumps created by the initial tree cutting can be treated with Roundup (a formulation of glyphosate) to prevent resprouting. While the Roundup label recommends a 50-100% concentration of Roundup for stump treatment, a 10-20% concentration has proven effective. Roundup can be applied to the cut stump either by spraying the stump with a low pressure hand-held sprayer or wiping the herbicide on the stump with a sponge applicator to prevent resprouting. Herbicides should be avoided except when there is not enough time to go back and cut the sparse resprouts. Care should be taken to prevent contacting nontarget plants with the herbicide. By law, herbicides only may be applied as per label instructions and by licensed herbicide applicators or operators when working on public properties.

Seedlings can be pulled out by hand and small trees can be removed carefully by grub hoe. Elm seeds blowing in from nearby areas are often a greater threat than resprouting of established elms. Managers should eliminate nearby Siberian elms whenever possible.

Initial effort in areas of light infestation

Same as given above for heavily infested areas.

Maintenance control

A regular fire regime should control Siberian elm in fire-adapted communities. Siberian elms should be controlled in areas surrounding a preserve whenever possible.

RECOMMENDED PRACTICES ON BUFFER AND SEVERELY DISTURBED SITES

Initial effort in areas of heavy infestation

Same as above except that labor-saving chemical methods may be preferred.

Initial effort in areas of light infestation

Same as above except that labor-saving chemical methods may be preferred.

Maintenance control

A regular fire regime should control this species in fire-adapted communities. Annual mowing may be appropriate in some situations, especially where nearby seed sources cannot be removed.

FAILED OR INEFFECTIVE PRACTICES

No biological controls are known that are feasible in natural areas.

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