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# Invasive Trees

Siberian elm, tree of heaven, salt cedar, and Russian olive; you may have one or more of these trees on your property. It is probably in your best interest to start thinking about replacing it with a more desirable species. All are invasive and have few if any redeeming qualities.

**Siberian elm** (*Ulmus pumila*) is a fast-growing, small to medium-sized tree with an open, round crown of slender, spreading branches. It looks similar to the American elms and is native to northern China, Manchuria, eastern Siberia, and Korea. It generally measures 50-70 feet tall with a spread equal to three-fourths its height. Its rough bark is gray or brown and shallowly furrowed at maturity. The tree flowers in spring before leaves begin to unfold. The winged seeds follow quickly and are disseminated by wind, allowing the species to form thickets of hundreds of seedlings in bare ground. In Prescott, the seeds blow around like flurries of snow. Seeds germinate readily and seedlings grow rapidly. This tree species is causing severe problems in New Mexico where it is moving upslope and invading mountain areas.

**Tree-of-heaven** (*Ailanthus altissima*) is a small to medium-sized tree with smooth gray bark. You undoubtedly know it as the tree that dominates the Town of Jerome. Leaves are compound with 11 to 25 leaflets. Tree-of-heaven leaves may be confused with those of sumac or black walnut. Flowers occur in panicles at the ends of branches; male flowers produce a strong odor, which has been described as "the smell of burnt peanut butter." The leaves when crushed also produce this distinctive, offensive odor. The winged seeds can be borne on the wind great distances from the parent plant like those of Siberian elm. One tree-of-heaven can produce up to 350,000 seeds in a year. Tree-of-heaven also produces a toxin in its bark and leaves. As these accumulate in the soil, the toxin inhibits the growth of other plants (a phenomenon called allelopathy). This toxin is so effective it is currently being studied as a possible source for a natural herbicide. Both Siberian elm and tree-of-heaven can become established on relatively dry sights given well-timed precipitation.

**Salt cedar** (*Tamarix ramosissima*) was introduced from Eurasia in the 1800's as an ornamental and is now wide spread in the western United States. It grows as a shrub or small tree, usually 5 to 20 feet tall. Bark on saplings and stems is reddish-brown. Leaves are small and scale-like, on highly branched slender stems. Salt cedar is deciduous and can be identified by the reddish stems. Flowers are pink to white, 5 petalled. Under good conditions, it can grow 9 to 12 feet in a single season. Salt cedar has invaded riparian areas across the southwest. Damage by saltcedar includes the displacement of valuable cottonwood/willow, seepwillow/baccharis, and other native plant communities often forming a pure stand. Salt cedars compete with native plants and invade areas by producing abundant seed, rooting and proliferating from buried stems, and concentrating salt in the leaves, which drop to the ground and inhibit growth of nearby plants. It can be found in several locations along the Verde River.

**Russian olive** (*Elaeagnus angustifolia*) is a small, usually thorny shrub or small tree that can grow to 30 feet in height. Its stems, buds, and leaves have a dense covering of silvery to rusty scales. Leaves are egg or lance-shaped, smooth margined, and alternate along the stem. At three years of age, plants begin to flower and fruit. Highly aromatic, creamy yellow flowers appear in June and July and are later replaced by clusters of abundant silvery fruits. This tree has been planted extensively for windbreaks and hedgerows. Like salt cedar, Russian olive also tends to invade riparian areas. In New Mexico, Russian olives are invading and choking out stands of salt cedar.

Controlling these species is not easy, but it can be done. Young trees can be dug out and hand pulled. As these trees mature, they become more difficult to kill. Mature individuals can be controlled either by girdling the trunk or by cutting and applying a herbicide to the cut stump.

Girdling may not always be successful, but it may be worth a try if you are not comfortable with herbicides. 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 should 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 may respond as if it had been cut down and will resprout from the roots. At this point, you may opt to use a herbicide.

Glyphosate herbicides can be used to control larger plants. Foliar application has proven effective in controlling these species. Application of the herbicide to the freshly cut stumps of the invasive shrub will also achieve the desired results. This method minimizes damage to non-target plants. Glyphosate herbicides are recommended because they are biodegradable and relatively safe to handle. Follow label direction for treating cut stumps. Most labels will show that glyphosate should be applied full strength (undiluted) to 4 to 5 holes drilled in the freshly cut stump.

The above mentioned trees, when established, displace native vegetation, which provides habitat and forage to wildlife. Why be part of the problem, when you can be part of the solution.



Siberian elm (*Ulmus pumila*) with close-ups of leaves (upper left), seed (upper right), bark (lower right), and seedling (lower left) (photos

Tree of heaven (*Ailanthus altissima*) with close-ups of seeds (upper left), sapling (upper right), leaves (lower right), and leaf scar and bark of a young tree (photos by Jeff Schalau, University of Arizona).

Adult tamarisk leaf beetle (*Dirhabda* sp.) on salt cedar, near Florence CO (*Tamarix ramosissima*, William M. Ciesla, Forest Health Management International, Bugwood.org).

**Additional Resource**

[Cut Stump Application of Herbicides to Manage Woody Vegetation](#), University of Arizona Cooperative Extension

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