

What Makes a Tree Invasive?

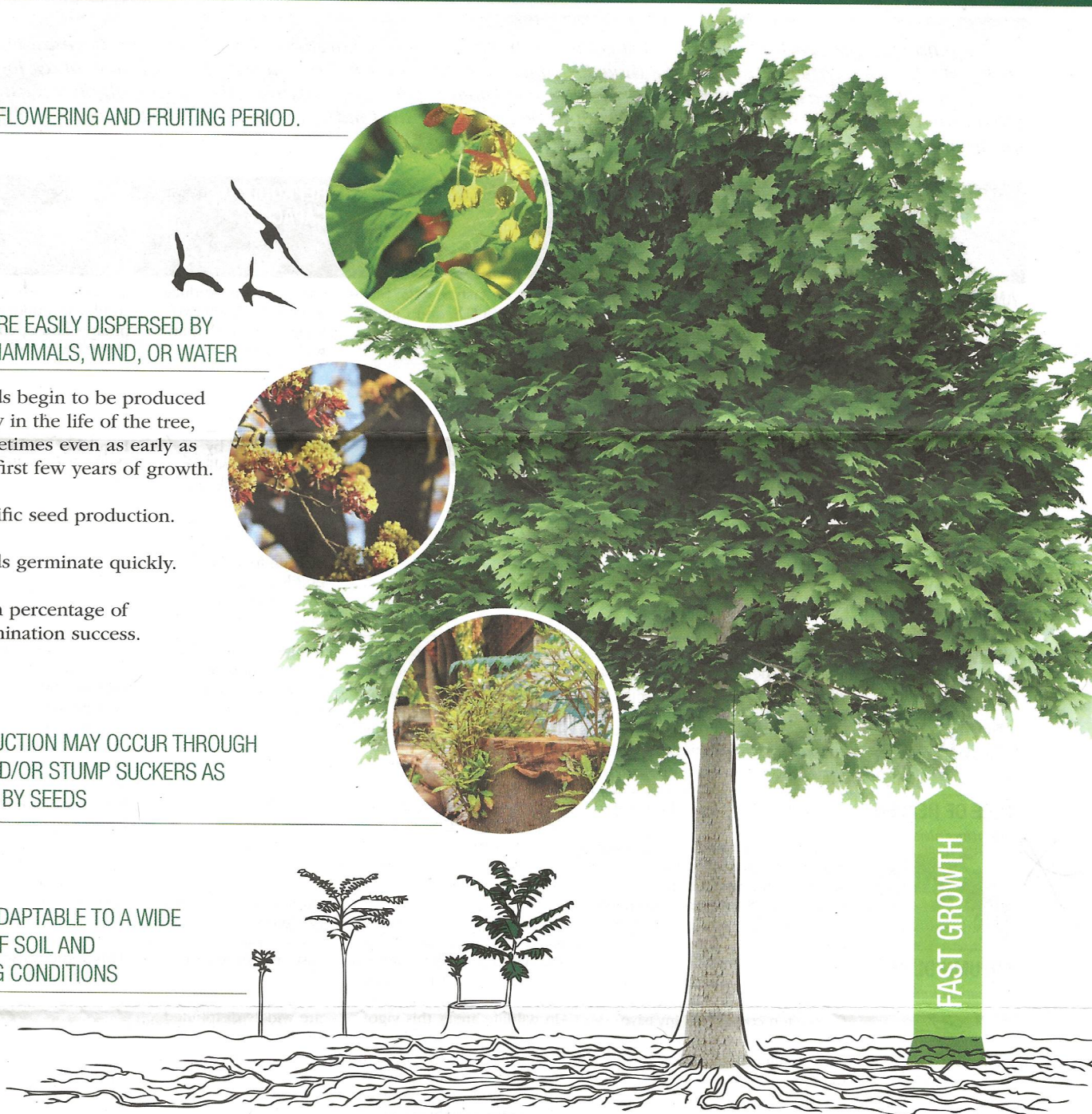
A LONG FLOWERING AND FRUITING PERIOD.

SEEDS ARE EASILY DISPERSED BY BIRDS, MAMMALS, WIND, OR WATER

- Seeds begin to be produced early in the life of the tree, sometimes even as early as the first few years of growth.
- Prolific seed production.
- Seeds germinate quickly.
- High percentage of germination success.

REPRODUCTION MAY OCCUR THROUGH ROOT AND/OR STUMP SUCKERS AS WELL AS BY SEEDS

HIGHLY ADAPTABLE TO A WIDE RANGE OF SOIL AND GROWING CONDITIONS






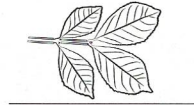



Results of Invasive Trees

- Native species, which often can grow only on specific, sometimes limited sites, are displaced.
- Plant diversity is reduced, changing the ecosystem processes, including animal life that may depend on the displaced native plants.
- Invasives can sometimes hybridize with native plants, changing the genetic makeup of their offspring.
- Local economic uses of native trees or plants may be negatively impacted.
- Non-native animals and pathogens may be introduced.

Some Common Invasive Trees & Shrubs

The following list is adapted from a list compiled by the Morton Arboretum. A few trees have been added from other lists. In some cases, a tree may be invasive in one location and not in another. For example, black locust may not be considered invasive in its natural range in the Appalachians and Ozarks. Also, many highly invasive species are omitted due to lack of space. State lists should be consulted, and many communities also have lists of prohibited species that may or may not be invasive.

COMMON AND BOTANICAL NAME <small>(Alphabetical by botanical name)</small>	DESCRIPTION	ORIGIN	REPRODUCTIVE CAPACITY	INVASIVE POTENTIAL
AMUR MAPLE <i>Acer ginnala</i> 	A small 20' tree with double-tooth edged leaves that have shallow lobes. In spring, small, fragrant, pale yellow flowers appear as leaves unfold. Two-winged, inch-long seeds mature in late summer.	Native of Eastern Asia. Introduced into U.S. and Canada in the 1860s.	One tree can produce more than 5,000 two-winged seeds that are widely spread by wind.	In open woods, it displaces native shrubs and understory trees. In prairies and open fields, it can shade out native species.
BOXELDER <i>Acer negundo</i> 	Large 30'-50' tree adaptable to wet or dry soils. Leaves have three to five leaflets opposite each other on the stem. Female trees produce many two-winged seeds. New stems are a waxy gray-blue, turning green when rubbed.	Native to U.S., particularly along riverbanks and floodplains, except in the extreme South and West.	It can spread by suckers, root shoots, and a prolific number of wind-borne seeds. It readily establishes in disturbed areas, including fencelines, near buildings, abandoned roads, railroad beds, dumps, and farm fields.	It quickly establishes thickets that shade out smaller, more desirable plants.
NORWAY MAPLE <i>Acer platanoides</i> 	A 40'-50' tree with a leaf shape like its cousin the sugar maple. Norway maple leaves have a milky sap when broken, and their fall color is limited to yellow (except for the maroon-leaved varieties).	Native to Europe, this tree was introduced in Philadelphia in 1792 as an ornamental street tree. Today, it is the most commonly planted street tree in the U.S.	It spreads by prolific production of wind-borne, two-winged seeds.	It is easily established in open woodlands and fields. Shade-tolerant and as an efficient user of water and nutrients, it can out-compete natives. Its dense canopy limits wildflowers and understory herbaceous growth.
TREE OF HEAVEN <i>Ailanthus altissima</i> 	Can reach 80' in height. Compound leaves 1'-3' in length with anywhere from 10-41 leaflets 3"-5" long. Margins smooth except for 1 or 2 teeth on lower margin. Smooth, gray or light brown bark. Small yellowish/greenish flowers in large, terminal clusters.	Native of eastern Asia and introduced to U.S. in 1784. Very common on urban sites.	Reproduces by seeds, root sprouts, and stump sprouts. Male and female trees are separate; female may produce 325,000 seeds per year.	Fast-growing and a prolific seeder. It can survive just about any place and takes over from native plants, sometimes forming dense thickets. Roots can damage sewer systems and foundations.
AUTUMN OLIVE <i>Elaeagnus umbellata</i> 	This shrub or small tree can grow to 20' high and wide. Its gray-green leaves are shorter than Russian Olive (also often considered invasive). It has fragrant yellow flowers that emerge after the leaves in spring and mature into bunches of red fruits in fall.	Native to Asia, this plant was introduced in 1917. Valued for its use as a forage plant in wildlife areas, this vigorous shrub now dominates many untended areas from fencerows to meadows to open woods, sand dunes, and railroad rights of way.	Just one shrub can produce up to 200,000 seeds a season. These are widely distributed by birds.	This shrub grows rapidly into a dense thicket, choking out native plants.
BURNING BUSH <i>Euonymus alatus</i> 	Burning bush is often 12' tall and can reach 15'-20' high and wide. It's identified easily by four corky "wings" on the stems and its brilliant red fall color.	Native to northeast Asia, this plant was introduced in the 1860s for its ornamental value.	Spread by birds that eat the seeds. It can tolerate many conditions, from full sun to nearly full shade and from very dry to moist soils.	This shrub has begun invading open woodlands, mature second-growth forest ravines, and hill prairies. Rarely a problem in urban landscapes.
EUROPEAN PRIVET <i>Ligustrum vulgare</i> 	This deciduous shrub grows 12'-15' high and wide. It is densely branched, irregularly shaped, and most easily identified by its clusters of fragrant small white flowers. Its lustrous black fruit ripens in fall and remains until the following spring.	Native to Europe and introduced into the U.S. around 1850. It has been widely used for hedges.	Birds spread the seeds of this prolific producer. The plant also suckers aggressively.	It is extremely aggressive, crowding out native plants along natural areas including river bottoms and open woods, as well as in fencerows, vacant lots, old fields, and roadsides.

COMMON AND BOTANICAL NAME

(Alphabetical by botanical name)

DESCRIPTION

ORIGIN

REPRODUCTIVE CAPACITY

INVASIVE POTENTIAL

AMUR HONEYSUCKLE

Lonicera maackii



This upright, spreading, deciduous shrub grows 12'-15' tall and wide. It can best be differentiated from native species because it leafs out several weeks earlier in spring and holds its leaves longer in fall. It has white flowers that turn yellow, and red berries that ripen in October.

Native to Asia and introduced into North America in 1896. Illinois is one of the states where it has been most invasive.

In addition to being a vigorous, aggressive grower, amur honeysuckle seeds are widely spread by birds.

Amur honeysuckle colonizes a wide variety of habitats, turning prairies into scrub and reducing the plant diversity and density of woody seedlings in the ground layers of woodlands. Because it leafs out early, it shades out spring-blooming woodland wildflowers.

WHITE MULBERRY

Morus alba



Deciduous tree growing 30'-50' tall and wide. Its extremely dense, rounded form is composed of tight-knit slender branches, often developing 'witches' brooms. In summer, it develops fruits resembling blackberries.

Native to China. It was imported by early settlers in Jamestown, Virginia, for the silkworm industry.

Seeds spread by birds and mammals. Establishes itself in woodlands and along streams.

Rarely a problem in undisturbed woodlands but it naturalizes in disturbed woodlands and along railroads, back alleys, floodplains, and open lots.

AMUR CORKTREE

Phellodendron amurense



A medium-sized shade tree 30'-45' tall with an equal or greater spread. Its compound leaves are 10"-15" long and include five to 11 leaflets. The bark of older trees is gray-brown and cork-like in texture. Yellow-green flowers appear in late spring followed by 1/2" black fruits.

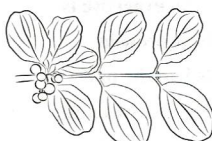
Native to Asia and introduced to the U.S. in 1856.

Seeds spread by birds. Establishes itself in woodlands and along streams.

Female plants produce seed and should be avoided. Seedless male selections are becoming available in the nursery trade.

COMMON BUCKTHORN

Rhamnus cathartica



A tall shrub or small tree that can grow to 20' tall. The leaves, which appear earlier than most natives in spring and persist beyond most natives in fall, are a dull green and elliptical. Twigs often have thorn-like spurs. Female plants bear dark blue fruits in May, which ripen to black in August and may persist for much of the winter.

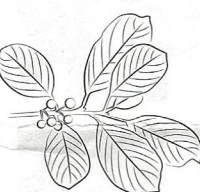
Native to Europe and Asia, these plants were introduced during the 1800s as ornamental hedgerows.

Birds widely disperse its seeds, which have a high germination rate. It grows rapidly in a variety of conditions, from full sun to shaded understory, and resprouts vigorously when cut back.

Can grow in a variety of habitats including gardens, fencerows, pastures, and roadsides. Once established, this plant quickly develops dense thickets that outcompete other plants. In woodlands, it can completely replace existing understory plants, including spring wildflowers.

GLOSSY BUCKTHORN

Rhamnus frangula



A multi-stemmed shrub or small tree. It can grow 10'-15' tall. The elliptical leaves, which appear earlier than most natives in spring and persist beyond most natives in fall, are glossy green on top and somewhat hairy underneath. Female plants bear red fruits in May, which ripen to black in August and may persist through the winter. It is much less shade-tolerant than common buckthorn.

Native to Europe and Asia, this plant was introduced during the 1800s as ornamental hedgerows.

Birds disperse its seeds, which have a high germination rate. Although it favors wetlands, it can also become established on dry sites. It grows rapidly in a variety of conditions, from full sun to shaded understory, and resprouts vigorously when cut back.

Once established, this plant quickly develops dense thickets that out-compete other species. It can thrive in a variety of habitats including bogs, marshes, river banks, pond margins, gardens, fencerows, pastures, prairies, roadsides, and abandoned farm fields.

BLACK LOCUST

Robinia pseudoacacia



This fast-growing tree reaches 30'-80' tall. Its blue-green leaves are 6"-14" long with seven to 21 leaflets. In May to early June, the tree has fragrant, white flowers in large, drooping racemes. Later, shiny, flat, 2"-4" long seedpods develop.

A native to the eastern U.S. Its rapid growth, ability to grow on poor soils, high fuel value, and flowers that provide an attractive food source for bees are among the reasons it has been widely planted.

Black locust creates expansive, dense stands through seed germination and suckering.

Outside its natural range this tree can out-compete native species in most dry, disturbed environments including upland forests, savannas, pastures, and roadsides. Its seeds, leaves, and bark are toxic to humans and animals.

SIBERIAN ELM

Ulmus pumila



Another fast-growing tree that is 50'-70' tall with a round, open crown. It has small, elliptical leaves, usually less than 2 inches long. Greenish flowers appear in small, drooping clusters before the leaves unfurl in spring. Later, the one-seeded, winged fruits hang in clusters.

A native of Asia and introduced to the U.S. in the 1860s. It was valued for its rapid growth and ability to adapt to a variety of conditions, including drought and poor soils.

Windblown seeds germinate prolifically, often forming thickets of hundreds of seedlings.

This tree can dominate prairie habitat in a few years. It also invades roadsides, pastures, streambeds, and sand prairies.

Fighting the Good Fight

It may not be possible to completely eradicate invasive trees, but control is a reality. It is also something being gallantly carried on by volunteer groups as well as park and municipal agencies. But the issue is complex, and there is no silver bullet in this fight. Here are just a few of the hundreds of efforts being made nationwide to combat invasive trees.

Buckthorn Bustin' in Minneapolis

Buckthorn could well be the poster child of invasive trees. In the woodlands of Minnesota, this shrub or small tree from Europe and Asia is taking over the remnants of natural areas that remain at the edges of agriculture and urban development. Buckthorn...

- Out-competes native vegetation.
- Creates a dark, dense understory with no herbaceous layer.
- Degrades water quality by suppressing native groundcover plants.
- Reduces birdlife diversity, provides little nutritional value, and makes nesting birds more prone to predation.
- Alters habitat suitability for many wildlife species, including deer.
- Disrupts embryo development and prevents hatching of amphibians.
- Contributes to forest decline and decreases forests' ability to store carbon.
- Is an alternate host for crop pests.
- Produces messy berries that stain cars, decks, and other facilities.
- Has thorns, making it a safety hazard to children and park users.

The invasion of buckthorn is particularly disheartening in the Mississippi River Gorge in the Twin Cities area. This is a natural oasis of limestone bluffs, natural springs, and hardwood

forests and a place highly popular with birders and other nature enthusiasts. Organized efforts using volunteers are making a difference in the fight against this weed tree. For example, eradication events are organized by the nonprofit organization Friends of the Mississippi River with help from volunteers called Gorge Stewards. Sometimes park crews or contractors do the heavier cutting with volunteers stacking and carrying out the brush to be chipped or hauled away. Other helpers pull or "Weed Wrench" smaller buckthorns. Ecologists oversee the projects, flagging native look-alikes such as wild black cherry. In some cases site restoration also includes planting native species.

Is it working? "Yes," said Karen Solas, a long-time member of Friends of the Mississippi River, and its former stewardship coordinator. "We pick away at it every year and we've got to the point where the land is again beautiful," she says. "Now we are expanding the buckthorn-free areas and targeting other invasive species. We are even seeing bird species we had not seen before."



Buckthorn bustin' events are held regularly to rally volunteers for the ongoing challenge of removing the invasive buckthorn and other invasive plants. No expertise is necessary as Friends of the Mississippi staff members provide instructions. They have also developed a series of cards like the one shown below. These help volunteers identify the various invasives and provide tips on what they might do in their own backyards to help with the problem.



Nearly 5,000 residents of the greater Minneapolis area turn out annually to help Friends of the Mississippi River control buckthorn and carry out its mission to protect, restore, and enhance the Mississippi River and its watershed in the Twin Cities region.