IOWA DNR FORESTRY INVASIVE SPECIES GUIDE

Autumn Olive

Bushy plant up to 20 feet tall. Oblong leaves are silver on undersides. Stems have silver tint and thorns. Fruit is red at maturity. Must grow three years before producing fruit.

Flowers: Appear in May, after first leaves are produced. Find abundant, tiny flowers in leaf axils. They are fragrant, silvery yellow, tubular and 1/2 inch long.

Bark: As shrub ages, bark splits and cracks starting at base and working up.

Fruits: First appear silver, then red at maturity. Produces up to 6 pounds of fruit a year.

Leaves: 1-inch-wide and oblong, with smooth but wavy edges, dark green to grayish-green with silver and white dotted undersides. Arranged alternately on stems. Appear in early spring, before native vegetation.

Management Techniques: Stump treat—cut stump in July and immediately treat with 12.5% Triclopyr solution formulated for use with surfactant or penetrant per the label.

Photos: Bugwood.org/Leslie J. Mehrhoff, Univ. of Connecticut, Chris Evans, Univ. of Illinois, James H. Miller, USDA Forest Service

Black Locust

A deciduous tree native to the mid-southern U.S., but spreading and becoming invasive nationwide. Trees grow from 40 to 100 feet tall. Trees grow upright in forests, but develop an open growth form in open areas. The bark of black locust is light brown, rough, and becomes very furrowed with age.

Leaves: Pinnately compound with 7 to 21 small, round leaflets per leaf. Leaflets are 1.5 inches long. A pair of long, stipular spines is found at the base of most leaves.

Flowers: Occurs in spring, when showy, fragrant, white to yellow flowers develop in 8 inch long clusters.

Fruit: Smooth, thin seed pod 2 to 4 inches long.

Management Techniques: Stump treat on cut stumps in July and immediately treat with 6.25% glyphosate solution or with with 12.5% Triclopyr solution formulated for use with surfactant or penetrant per the label.

Photos: Bugwood.org/Norbert Frank, Univ. West Hungary, Paul Wray, Iowa State Univ.

Burning Bush

This non-native, invasive deciduous shrub grows up to 20 feet tall in areas of full sun. Small red fruit matures in late summer. Leaves turn bright red in the fall.

Flowers: small, green-yellow, contain 4 petals and bloom from May to June.

Twigs/Stems: Contain wide, brown, cork-like wings.

Fruit: Red, smooth and mature in late summer. Birds and small animals eat and spread seeds to new areas.

Leaves: Simple, opposite and elliptical, margins finely toothed. Leaves brilliant red in fall.

Management Techniques: Basal bark spray—Apply a 25% triclopyr solution plus a penetrant once to base of plant between May and November. Stump Treat—cut stump in July, immediately treat with 20% glyphosate solution or 25% Triclopyr solution.

Photos: Bugwood.org/James H. Miller, USDA Forest Service, Leslie J. Mehrhoff, Univ. of Connecticut, Richard Gardner, UMES

Bush Honeysuckle

Deciduous shrub. Older stems hollow with tubular flowers that range from white, yellow, pink or red. Flowers produced in pairs along stem at base of leaves. Both species have egg-shaped leaves oppositely arranged on stem. Fruits are many-seeded berries ranging from red, orange or black. Create dense thickets, inhibiting desirable plant growth.

Morrow's Honeysuckle (Lonicera morrowii): Grows up to 7 feet tall, 2- to 3-inch long leaves hairy on underside. Flowers white to cream. Fruit is orange to red when ripe.

Amur Honeysuckle (Lonicera maackii): Grows up to 15 feet high. White to yellow flowers May through June. Red berries in September.

Management Techniques: Basal bark spray—Apply a 25% triclopyr solution plus a penetrant once to base of plant between May and November. Stump Treat—cut stump in July, immediately treat with 20% glyphosate solution or 25% Triclopyr solution.

Photos: Bugwood.org/Richard Gardner, UMES, Chris Evans, Univ. of Illinois

Canada Thistle

Grows 1½ to 4 feet tall.

Seeds: Feathery seeds appear August to October and are 1- to 1 ½-inches long. Most germinate in a year, but they can remain viable up to 20 years.

Flowers: Usually purple, but can be white and measure up to ½ inch diameter. Generally in umbel shaped clusters. Flowers can look different if the plant is male or female. Female flowers have a fragrance, males do not. Usually appear June through October. **Young Plants:** Leaves of young plants are dark green and form a rosette for the first few months. Root stocks spread up to 10 feet per season with new shoots every 6 inches.

Leaves: Dark green, lance-shaped, irregularly lobed with spiny, toothed margins and arranged alternately along the stem.

Management Techniques: Mowing—repeated mowing of area February-May. Foliar Spray—7 ounces per acre Aminopyralid solution March–November.

Photos: Bugwood.org/L.L. Berry

Glossy Buckthorn

A small tree or tall shrub. Brown-gray bark with light colored lenticels. Yellow sapwood. Heartwood pink to orange. Terminal buds shaped like a deer hoof, in pairs with a thorn between buds. Pea-sized fruits have laxative effect on birds. Seeds viable up to 3 years.

Leaves: Common—simple, opposite, ovate with minute teeth on margins. Dark green with shiny topsides. Veins curve towards leaf tip. Twigs have sharp spikes at tips. Glossy—alternate, untoothed with hairy undersides. Veins first extend straight, then curve towards tip. No spikes present on twigs.

Terminal Buds: Common—not hairy. Glossy—hairy.

Flowers: Common—Fragrant, small, green-yellow flower cluster near end of stems in leaf axils. Bloom May to June. Each flower contains 4 petals. Glossy—pale yellow flowers contain 5 petals. Blooms late May until first frost.

Fruit: Common—female plant fruits. Fruit are clustered, black and pea sized and shaped. Ripe August to September and can stay on plant through winter. Glossy—both male and female plants fruit. Progressively ripen from red to dark purple.

Management Techniques: Basal bark spray—apply a 25% triclopyr solution plus a penetrant once to plant base between May and November. Stump Treat—cut stump in July, immediately treat with 20% glyphosate solution or 25% Triclopyr solution.

Garlic Mustard

White flowers with four petals; plant parts have garlic-like odor when crushed. Young plants resemble creeping Charlie or violets.

First-year plants: Seedlings appear late spring to early summer, and throughout growing season as scattered individuals or dense ground layer. Rounded, heart-shaped leaves with scalloped edges form low rosettes that stay green through winter.

Second-year plants: April into June, rosettes become more robust and send up flowering stalks with triangular to heart-shaped, coarsely toothed leaves. Stems 1' to 3' tall. Clusters of small, white, four petaled flowers at stem tip. Seed pods form soon after flowering. Green, thin, elongated pods enlarge and turn grayish-brown. Seeds shed mid-summer. Plants die.

Management Techniques: Prescribed burn—April to May to control large areas of newly emerging seedlings. Hand pulling—All season long, place in garbage bags for landfill—do not compost to prevent spread. Herbicide—Spray directly with 1% to 2% glyphosate from late fall until early spring.

Photos: Bugwood.org/Daniel Herms, The Ohio State Univ., Richard Gardner, UMES

Japanese Barberry

Dense, low growing shrub. Contains single thorn at base of each leaf. Leaves green, blue-green, or dark red-purple. Bright red berries in fall and winter. Usually found in shaded areas. Grows 2 to 8 feet tall.

Flowers: Small yellow flowers found in clusters or individually. Flowers are 1/3 of an inch wide and bloom in May.

Fruit: Small, bright red, egg shaped berries. Found in singles or small clusters. Mature in mid-summer and remain on stem into winter. Eaten by birds and small mammals.

Leaves: Simple, alternate, small and oval. Clustered in tight bunches close to branch, with thorn below each cluster. Leaves appear early spring, and turn red-purple in the fall.

Management Techniques: Stump treat—cut stump year round and immediately treat with 25% Triclopyr. Prescribed burn—spring burning can kill the plant. Mow—during growing season to deplete seed production.

Photos: Bugwood.org/Richard Webb, Barry Rice, sarracenia.com, Britt Slattery, USF&WS

Japanese Hops

Herbaceous shallow rooted vine reaches heights of ten feet. Leaves are rough, finely toothed, and have 5-7 pointed lobes. Produces seed bearing cones July and August.

Stems: Covered in fine downward hooked bristles that wrap around other vegetation.

Mature Vines: Form dense mats that pile over native vegetation up to ten feet in height. Once entangled they are very difficult to separate.

Leaves: Leaves occur in symmetrical pairs on the stem. Palmate pattern with 5-7 finely toothed lobes that are rough to the touch.

Cones: Female plants begin producing greenish, scaled, drooping cones late summer which begin seed production mid-August.

Flowers: Appear on the leaf axil. Greenish yellow with five petals. Male flowers are distinct from female cones. Male flowers are needed to pollinate female plants to produce viable seeds.

Management Techniques: Mowing—Repeated mowing of area February-May. Foliar Spray—glyphosate (1 quart per acre) May–August.

Photos: Bugwood.org/Chris Evans, Univ. of Illinois, Leslie J. Mehrhoff, Univ. of Connecticut

Japanese Knotweed

Can reach 10 feet tall. Begins growth in April, with full height in June.

Stems: Stems are hollow and green to reddish brown. Appear bamboo-like with ridges and joints.

Fruits: Shiny, 3-sided, lightweight, black and 1/10 inch long. Produced after flowers die. Spread by wind.

Flowers: Small greenish-white flowers bloom late summer. Grow in lacy cluster on 2 ½- to 6-inch long stems.

Leaves: Alternately arranged along stem. Six inches long and 3- to 4-inches wide. Oval shaped sides with squared bottoms and pointed tips. Upper surfaces are sandpaper like.

Roots: Up to 60 feet long and 6 feet deep. New plants sprout from roots or cut pieces.

Management Techniques: Herbicide—Late summer, cut stems 2 inches above ground, immediately apply 0.25% Imazapyr solution and a 0.25% non-ionic surfactant. Mechanical—Cover infested area with tarps.

Photos: Bugwood.org/Gerald J. Lenhard, Louisiana State Univ., Mary Ellen Harte, Lynn Sosnoskie, Univ. of Georgia

Multiflora Rose

Dense shrub grows up to 15 feet tall. Produces small white flowers in May or June. Small red fruit mature in August, and can remain through winter. Stems contain thorns. Petioles have feathery stipules.

Leaves: Pinnately compound, alternate with 5 to 11 leaflets. Leaflets toothed, with smooth top and hairy underside. Fringed petioles distinguish it from other roses.

Flowers: Usually 1 inch wide, contain 5 petals, white in color, and form a panicle. Clusters bloom May and June.

Fruit: Small, hard, round, red berries form clusters in August. Berries can remain on the plant through winter. Eaten by birds and animals.

Stems: Arching, woody stems contain curved thorns. Stems can grow up to 13 feet long, but typically bend groundward at 6 feet. Upon reaching ground, they can take root.

Seeds: Each plant produces up to 500,000 seeds per year—viable in soil up to 20 years.

Management Techniques: Hand pulling—spring remove entire plant and root system and place in garbage bags for landfill—do not compost to prevent spread. Herbicide—Treat cut stumps with a 50% Triclopyr solution or foliar spray with a 2% Triclopyr solution with a surfactant.

Photos: Bugwood.org/Rob Routledge, Sault College, Chris Evans, Univ. of Illinois

Norway Maple

A large tree up to 60 feet tall. Forms dense, symmetrical, rounded canopy up to 60 feet wide. Leafstalk and buds produce white sap. Fruit come as a double samara, with one seed in each half.

Leaves: Simple, opposite and toothed. Topsides dark green and undersides can be hairy in axils of veins. Leaves change to yellow in fall and stay on tree late into the season. Leafstalks produce milky sap if removed from the stem.

Flowers: Yellow in clusters—develop same time as leaves and bloom in May.

Fruits: Double samaras. Horizontally spreading wings up to 2 inches long. One seed contained in each half of fruit. Seeds are windblown.

Bark: Gray-black with shallow furrows. Twigs smooth and olive to gray-brown.

Management Techniques: Stump treat—cut stump in July and immediately treat with 25% glyphosate solution or 20% Triclopyr solution. Basal bark—20% triclopyr and 80% surfactant or penetrant per the label.

Photos: Bugwood.org/Paul Wray, Iowa State Univ., David Stephens, T. Davis Sydnor, The Ohio State Univ.

Oriental Bittersweet

Climbing vine with round, glossy, finely toothed leaves. Green or yellow fruits grow at leaf axils along stem and reveal red-orange berries later in fall.

Young Vines: Grow vertically and wrap around each other for support to reach sunlight.

Vines on Trees: Wrap around tree as they grow towards sky. Upon reaching canopy they start growing back to ground. Weight of vines eventually pulls down entire tree.

Leaves: Glossy, rounded, finely toothed and alternately arranged along stem.

Berries: When female matures, spherical green to yellow fruits split open to reveal three red-orange fleshy arils that contain seeds.

Flowers: Clusters of small greenish flowers emerge from leaf axils. Prolific seed numbers.

Management Techniques: Basal bark spray—Apply a 25% triclopyr solution plus a penetrant once to base of plant between May and November. Mowing—mow area and treat resprouts with 2% Triclopyr solution.

Photos: Bugwood.org/Leslie J. Mehrhoff, Univ. of Connecticut, Linda Haugen, USDA Forest Service

Purple Loosestrife

An erect perennial herb with a square, woody stem and opposite or whorled leaves. Grows four to ten feet high. “Guaranteed sterile” cultivars are actually highly fertile and able to cross freely with purple loosestrife and other native Lythrum species. Therefore, outside of its native range, purple loosestrife of any form should be avoided.

Leaves: Lance-shaped, stalkless and heart-shaped or rounded at base. Often covered by downy hairs.

Stems: Mature plants can have 30 to 50 stems from a single rootstock. Readily reproduces through underground stems at a rate of about one foot per year. Many new stems may emerge vegetatively from a single rootstock of the previous year.

Flowers: Showy display of magenta-colored flower spikes all summer. Flowers have five to seven petals. Extended flowering season from June to September produces vast seed quantities. Requires pollination by insects, for which it supplies an abundant source of nectar. A mature plant may yield two to three million tiny seeds per year.

Management Techniques: Hand pull young plants. Foliar Spray—glyphosate (1 quart per acre) May - August.

Photos: Bugwood.org/Richard Gardner, UMES, Linda Wilson, Univ. of Idaho, Bruce Ackley, The Ohio State Univ.

Reed Canary Grass

Grows 2 to 6 feet tall, and occasionally reaches 9 feet. Produces green to purple flowers. Leaves are long, narrow and rough on both sides.

Leaves: Alternately growing leaves are wide, have a flat blade (erect through the majority of the plant's life), are gradually tapered and have a rough texture on top and bottom. Leaves measure 3-1/2 to 10 inches long and 1/4 to 3/4 inches wide.

Flowers: Dense terminal clusters. Over the summer, branches of flower heads open up. As plant goes to seed, branches fold up again. Flower colors green to purple, turning beige in late summer and fall.

Stem: Bluish green, round, hairless and stand erect. Unique characteristic is a stiff ½-inch ligule at base of leaves.

Management Techniques: Hand Pull—In spring, pull young plants before seeds are produced. Herbicide—two treatments of 5% glyphosate solution foliar spray to leaves using a sprayer before native vegetation begins to grow. Prescribed burn the area 4-5 years in a row post-herbicide treatment.

Photos: Bugwood.org/Jamie Nielsen Univ. of Alaska, Fairbanks, John Cardina, The Ohio State Univ., Rob Routledge, Sault College

Siberian Elm

A deciduous tree that grows up to 70 feet tall. Round, open crown with slender, spreading branches. Produces pale green flowers in early spring.

Flowers: Petal-less flowers emerge in spring, before leaves begin to unfold. Flowers are pale green and come in clusters of 2 to 5 blossoms.

Fruit: Thin, flat and in clusters. Each fruit contains one seed, spread easily by wind. Seeds are egg-shaped and smooth.

Bark: Gray to brown in color. Becomes furrowed with light colored spots when mature.

Leaves: Small, simple, and alternate. Dark green and smooth on the topsides, pale and fuzzy on undersides and rarely more than 2 inches long. Elliptical in shape and singly toothed. Fall color is yellow.

Management Techniques: Stump treat—cut stump in July and immediately treat with 25% glyphosate solution or with 12.5% Triclopyr solution. Basal bark—20% triclopyr and 80% surfactant or penetrant per the label.

Photos: Bugwood.org/Patrick Breen, Oregon State Univ., Tom DeGomez, Univ. of Arizona, John M. Randall, The Nature Conservancy

Tree of Heaven

Deciduous tree up to 80 feet tall. Pink fruit develops in clusters and can last all winter.

Leaves: Large and pinnately compound, alternate with 11 to 30 lance-shaped leaflets. Tops are pale green, undersides dark green. Crushed leaves smells like rancid peanut.

Bark: Gray to brown, becoming nearly black once mature. Bark is thin and trunk is no more than 2 feet in diameter. Weak wood rots easily. Large, v-shaped leaf scars are left on branches in winter.

Roots: Aggressively spreading rhizomes are one form of reproduction. Can damage sewers and foundations.

Flowers: Small, yellow-green clusters at ends of upper branches in late spring. Male and female flowers are on separate plants. Male flowers have offensive odor.

Fruit: Fruit produced by female plants develop in fall, remaining throughout winter. Fruit are papery, flat, winged, pink to tan and in clusters. Each contains one seed.

Seed: Yields up to 350,000 easily germinated seeds annually.

Management Techniques: Stump treat—cut stump in July and immediately treat with 20% glyphosate solution or with 20% Triclopyr solution. Basal bark—20% triclopyr and 80% surfactant or penetrant per the label.

Photos: Bugwood.org/Jan Samanek, Phyosanitary Administration, Chuck Bargeron, Univ. of Georgia

White Mulberry

Small deciduous tree with low branches and wide spreading crown. Roots are a distinctive, obnoxious orange, a color lightly reflected in its ridged, brown bark.

Leaves: A glossy sheen is obvious on the upper surface of its variably-lobed leaves. White mulberry flowers are green-yellow and occur in dense spikes.

Fruit: The aggregate fruits, which ripen from May to August, turn from green to white to red to black. Fruit is relished by wildlife, which spread white mulberry to new locations. Can also spread through root sprouting.

Management Techniques: Stump treat—cut stump in July and immediately treat with 20% glyphosate solution or with 20% Triclopyr solution. Basal bark—20% triclopyr and 80% surfactant or penetrant per the label.

Photos: Bugwood.org/Chuck Bargeron, Univ. of Georgia, Chris Evans, Univ. of Illinois, Ohio State Weed Lab

Wild Parsnip

Grows up to 4 feet tall. Leaves alternate with jagged teeth.

First Year: Rosette grows up to 6 inches tall during this stage. Seedling leaves are small and ovate while first true leaves are arranged in spiral during first year. Fully developed rosettes have 10 to 15 pinnately compound leaves with broad ovate to oblong leaflets.

Flowers: Hundreds of small flowers arranged in umbels at tops of stems and branches. Each flower contains 5 petals. Yellow blooms early June to mid-July.

Leaves: Alternate with 5-15 oval leaflets with sharply toothed edges and deep lobes. Topmost stem leaves are narrow bracts and flowering branches arise from their axils.

Seeds: Round but flattened on one side with five ribs.

Similar Species: Do not confuse wild parsnip with these native species: Golden alexander (*Zizia aurea*) grows only 2 feet tall. Lacks a flower stalk on the central flower of each umbel. Each leaf only contains 3 leaflets. Heart-leafed meadow parsnip (*Zizia aptera*) has heart-shaped basal leaves and lacks a flower stalk on central flower of each umbel.

Management Techniques: Mowing—several times during growing season to prevent both plant growth and seed production. Herbicide—apply to leaves while in rosette stage, 1% 2,4-D solution. Prescribed burn—may kill young emerging plants in the spring. Follow up with mowing and herbicide.

Photos: Bugwood.org/Leslie J. Mehrhoff, Univ. of Connecticut

IOWA DEPARTMENT OF NATURAL RESOURCES

IN PARTNERSHIP WITH UNITED STATES DEPARTMENT OF AGRICULTURE FOREST SERVICE

Always follow herbicide labels for application, usage and safety instructions.

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