Mequon's 8 Most Unwanted Woodland Invaders

Dedication

The mission of the Mequon Tree Board is to advise the Common Council about creating an urban forest of high quality mature trees and assuring tree protection and preservation in the City of Mequon.

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Remove, Replant, Restore

Your goal is a beautiful, diverse, native woodland plant community. To achieve that follow these three steps.

1. Remove the invasive alien species. This booklet will help you identify and effectively remove them.

2. Replant! Nature abhors a vacuum and if you don't plant the area with desirable species the undesirable invasives will be back. Generally you want to replant with fast growing natives that will be able to compete with the invasives. Some good choices are:

    - Red Twig Dogwood [Cornus sericea]
    - High Bush Cranberry (Viburnum trilobum)
    - Common Ninebark (Physocarpus opulifolius)
    - Wild Plum (Prunus Americana)
    - Black Chokeberry (Aronia melanocarpa)
    - Pagoda Dogwood (Cornus alternifolia)
    - For more ideas go to www.for-wild.org

3. Restore! Keep checking the area for straggler alien plants you may have missed. Get them while they're small and weak!

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Please Note:

Chemical treatment methods for controlling invasive species can be effective, but always follow the manufacturer's directions and safety precautions.

Several references are made to Glyphosate (Roundup, Rodeo, Accord) and Triclopyr (Garlon and Grazon) herbicides. See the following links for pesticide fact sheets and additional safety information:

http://infoventures.com/e-hlth/pestcide/triclopy.html

http://infoventures.com/e-hlth/pestcide/glyphos.html

Common Buckthorn (Rhamnus cathartica) and Glossy Buckthorn (Rhamnus fangula)

Description and History: Buckthorns are tall shrubs or small trees that grow up to 20 feet tall. The smooth, gray to brown bark is distinctively spotted. Glossy buckthorn has shiny leaves with smooth edges. It has solitary red to purple berry-like fruits. Common buckthorn has black fruits and dull green smooth leaves. Once established, both buckthorn species have the potential to spread very aggressively in large numbers because they thrive in habitats ranging from full sun to shaded understory. Both species cast a dense shade as they mature into tall shrubs. This shading has a particularly destructive effect on herbaceous and low shrub communities, and may prevent the establishments of tree seedlings.

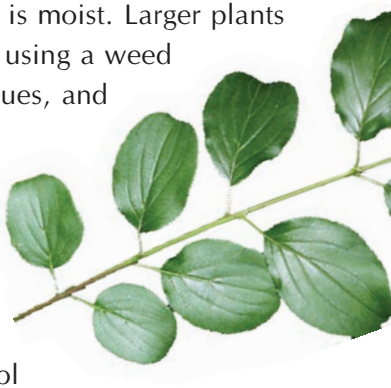
Although their aggressively invasive growth patterns have created problems in many areas, exotic buckthorns are still legally sold and planted as ornamentals.

Controls for the plant: As with all invasive species, the largest seed-producing plants should be removed first.

Mechanical Control: Girdling or cutting stems between December and March may not be very effective unless followed by an application of glyphosate herbicide.

In high quality natural areas where the use of chemicals is a concern, small patches of plants

up to 0.4 inch diameter can be pulled when the soil is moist. Larger plants 0.5 inch to 1.5 inch diameters can be dug or pulled using a weed wrench. Disturbed soil will result from these techniques, and should be tamped down to minimize seeding.



Chemical Control: Chemical control can be done during the fall when most native plants are dormant yet buckthorns are still actively growing. The buckthorns' green leaves will provide easy recognition and allow for a thorough treatment at this time. Control methods are also effective in the growing season, but there is more risk of affective non-target plants, and the effectiveness of the treatment is generally lower. Winter application of chemical has proven to be successful as well, and further lessens the risk of damaging non-target species.

During the growing season, cutting stems off near ground level and treating them with glyphosate successfully curbs sprouting. Immediately after cutting, a 20%-25% active ingredient (a.i.) glyphosate should be applied to the stumps. Resprouts should be cut and treated again, or sprayed with a hand sprayer of 1.5% a.i. glyphosate solution to the foliage.

After treatment, monitoring will be necessary for several years to control sprouting and to remove new seed origin plants.

Garlic Mustard
(Alliaria petiolata)

Description: Garlic mustard is a cool-season biennial herb that ranges from 12 to 48 inches in height as an adult flowering plant. Leaves and stems emit the distinctive odor of onion or garlic when crushed (particularly in spring and early summer). First year plants consist of a cluster of 3 or 4 round, scallop edged leaves rising 2 to 4 inches in a rosette. Second year plants generally produce one or two flowering stems with numerous white flowers that have four separate petals. Garlic mustard is the only plant of this height in our woods with white flowers in May. Fruits are slender capsules 1 to 2.5 inches long that produce a single row of oblong black seeds with ridged seed coats. Stem leaves are alternate and triangular in shape, have large teeth, and can be 2 to 3 inches across in fruiting plants.

Garlic mustard grows in upland and floodplain forests, savannas, yards, and along roadsides, occasionally in full sun. It is shade tolerant. The invasion of forests usually begins along the wood's edge, and progresses via streams and trails.

Life History: This species is a biennial that produces hundreds of seeds per plant. In our areas, seeds lie dormant for 20 months prior to germination, and may remain viable for five years. Seeds germinate in early April. Garlic mustard begins vegetative growth early in the spring, and blooms in southern Wisconsin from May through early June. Viable seeds are produced within days of initial flowering.

Garlic mustard is a rapidly spreading woodland weed that is displacing native woodland wildflowers in Wisconsin. It dominates the forest floor and can displace most native herbaceous species within ten years. Garlic mustard readily spreads into high quality forests.

Controlling Garlic Mustard:

Mechanical Methods: Minor infestations can be eradicated by hand pulling before the onset of flowering, or by cutting the flower stalk as close to the soil surface as possible just as flowering begins. A weed whip or power brush cutter may be helpful if the infestation covers a large area. When pulling, the upper half of the root must be removed. In general, cutting is less destructive than pulling as a weed method, but can be done only during flower stalk elongation. Pulling can be done at any time. If flowering has progressed to the point that viable seed exists, remove the cut or pulled plants from the area. Because seeds remain viable for five years, it is essential that an area be monitored and plants removed for at least five years after the initial control effort.

Chemical Methods: Several infestations can be controlled by applying 1-2% active ingredient (a.i.) solution of glyphosate to the foliage of individual plants and dense patches during late fall or early spring. At these times, most native plants are dormant, but garlic mustard is green and vulnerable. Glyphosate is a nonselective herbicide that will kill non-target plants. Herbicide use is safest for native plants if done during the dormant season, as garlic mustard will grow as long as there is no snow cover and the temperature is greater than 35º F. An early spring application of tricolopyr at a 1% a.i. concentration in solution with water has been used, resulting in a 92% rosette mortality rate.

Bush Honeysuckles
(Lonicera spp.)

Description: Exotic bush honeysuckles are dense, upright deciduous shrubs (3 to 10 feet in height) with shallow roots; opposite, simple, and oval or oblong leaves; and yellow, orange or red berries. Tartarian honeysuckle has smooth, hairless, bluish-green leaves. The shaggy-barked older stems and branches of the shrubs are often hollow. Flowering occurs during May and June, and produces fragrant, tubular flowers arranged in pairs. Flowers of the Tartarian honeysuckle are generally pink and white and become yellow as they age.

Bush honeysuckles are easy to find in early spring when they begin leaf development one to two weeks before native shrubs. Similarly, they hold their leaves later into the fall than native species.

Life History: Exotic honeysuckles have become widespread in Wisconsin. Their proliferation is due largely to horticultural plantings, especially in more urban southern and eastern Wisconsin.

The widespread distribution of bush honeysuckle is aided by birds, which consume the ripened fruit in summer and disperse the seeds over long distances.

Their vigorous growth inhibits development of native shrub and ground layer species; eventually they may entirely replace native species by shading and depleting soil moisture and nutrients.

Controlling Bush Honeysuckle:

Mechanical Methods: Since honeysuckle roots are fairly shallow, small to medium-sized plants can often be dug or pulled. Soil should be tamped down to discourage further establishment of honeysuckle seedlings.

Chemical Methods: Bush honeysuckles can be controlled by cutting the stems at the base with brush cutters, chain saws or other tools. After cutting, stumps should be treated immediately with a 20% active ingredient (a.i.) glyphosate solution using a low-pressure, handheld sprayer or sponge applicator. Triclopry formulated for dilution in diesel fuel can be used for applications on cut stumps throughout the year, although winter application has in some cases proven to be 100% effective. A 1.5% a.i. glyphosate solution can be sprayed to cover the foliage. Spraying after the plant blooms may kill mature and seedling plants. Spraying prior to the emergence of native shrubs and ground flora is the safest time to spray without impacting native species.

Both mechanical and chemical control methods must be repeated for at least three to five years in order to stop new plants emerging from the seed bank. Re-invasions by bush honeysuckles may be aided by “underplanting” disturbed areas with tolerant native species.

Dame's Rocket
(Hesperis matronalis)

Description: Dame's rocket is a showy, short-lived perennial with large, loose clusters of fragrant white, pink or purple flowers that bloom from May to August on flowering stalks 2-3 feet in height. This member of the mustard family has flowers with four petals. Many seeds are produced in long, narrow fruits. The leaves are oblong, sharply toothed, and alternately arranged. Leaves decrease in size as they ascend the stem. The overwintering rosette is easily identified from fall through spring. This species is often confused with garden phlox (Phlox paniculata)l. Unlike dame's rocket, the phlox species have opposite leaves that are not toothed, and flowers with five petals, not four.

Life History: Dames' rocket is planted as an ornamental, but can be found in wide distribution in "wildflower" seed mixes. It generally produces a basal rosette the first year, flowering the following year. The plants are prolific bloomers and produce large quantities of seed from May into July. Each plant may have several clusters of flowers at various stages of development, enabling the plant to produce both flowers and seeds at the same time.

Controlling Dame's Rocket:

Locating and removing plants immediately before seed sets is the best way to prevent the spread of dame's rocket. Be sure to check the contents of "wildflower" seed mixes for this species, and do not plant those that carry it.

Mechanical Methods: Any plant whose seed may escape to roadsides or woodlots should be eradicated or prevented from going to seed by cutting the flower heads after they bloom. Pulling may need to be done for several years to remove new plants established from the seed bank. Pulling or use of a dandelion digger is most effective when the soil is moist. If plants are pulled when in bloom, they should not be placed in compost piles, as the seeds may still ripen and spread. Flower-heads should be bagged for landfill, or dried and burned where permissible. Where there is sufficient leaf litter or other fuel, burning has been found to be an effective control method.

Chemical Methods: Selectively applying a broadleaf herbicide like glyphosate to seedlings according to label recommendations may also be an effective means of control. To avoid damaging adjacent native vegetation, apply herbicide in late fall when the rosettes are still green.

Multiflora Rose
(Rose multiflora)

Description: A member of the rose family, multiflora rose is a dense spreading shrub with wide, arching canes and stiff, curved thorns. Older plants can reach a height of 15 feet. Its pinnately compound leaves grow alternately and usually consist of seven to nine small (1/2 to 1 inch) oval leaflets with toothed margins. The leaflets are nearly smooth on the upper surface and paler with short hairs on the underside. Blossoming in late spring, its numerous white flowers form a panicle from 1/2 to 1 1/2 inches across. The flowers develop into small, hard, nearly round, red fruits (called hips) that are 1/2 inch in size. They remain on the plant throughout the winter.

Life History: Multiflower rose blooms in May or June. Individual plants may produce up to 500,000 seeds per year; seeds stay viable in the soil for 10-20 years. The majority of seedlings emerge near the parent plant. In addition, many species of birds and mammals feed on the hips, dispersing the seeds widely. The canes are also capable of rooting when in contact with soil.

Controlling

Multiflora rose:

Mechanical Methods: In areas where multiflora rose is just beginning to invade, fire can limit its establishment. Scattered populations in high-quality natural areas can be effectively controlled by complete removal of the plants. All roots must be removed. Mowing with heavy equipment has proven effective, although non-selective. Mowing or cutting should be repeated 3-6 times during the growing season for at least 2-4 years. Follow-up monitoring is necessary.

Chemical Methods: Manual application of herbicides on freshly cut stems has proven effective. After the stem is cut, herbicide should be applied.

Glyphosate can be used effectively as a 10-20% active ingredient solution if applied to the cut stems or canes late in the growing season (between July and September) or during dormancy. A foliar spray of 1% glyphosate solution applied to flowering or budding plants is also effective, especially when the flowers are in full bloom. However, it is non-selective and should not be used in high-quality natural areas.

Triclopyr formulated for water dilution can be applied to cut stems or canes with a hand-held sprayer. Triclopyr must be applied within a few hours of cutting. Dormant season is the best time for application to ensure that non-target species are not damaged by runoff.

A foliar spray of Triclopyr in water can be effectively used from July to September if the foliage is well covered. Die-back will not be apparent until the following summer.

Common Burdock
(Arctium minus L.)

Description: Growth form: Biennial forb. The flowers are purple, less than 2.5 cm across, and borne in short-stalked clusters along the stems. Mature flower heads form a prickly bur that readily sticks to clothing or animals. Stem leaves are alternate, broadest at the leaf base, and somewhat diminished upward. Lower leaf stalks are hollow. Leaf margins are toothed or wavy and the entire leaf is wooly beneath and dark green above. Rosette leaves are large, hairy, and heart-shaped. Mature plants are 3 to 9 feet tall. The stem is erect, coarse, and much branched. Leaves of the rosette stage are large, simple, and usually heart-shaped.

Life History: Germination occurs mainly in early spring. During the first year, the plant forms a rosette. The following year the plant produces a stout, grooved, rough stem with numerous branches. Flowering and seed production occur from July to September. Seeds are mature by September, depending on location, and are shed continuously throughout the autumn, winter, and following spring.

Controlling Common burdock:

Mechanical Methods: Tillage can be used to kill the plants at the rosette stage. Mowing or cutting can be used to eliminate seed production. Mow after the plant has bolted but before it has flowered.

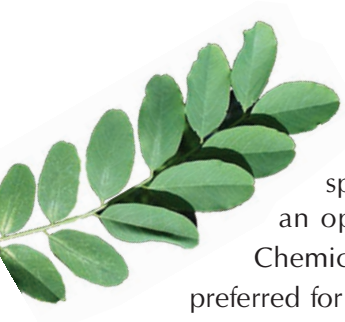
Chemical Methods: Common burdock can be controlled with 2,4-D, picloram, dicamba, or glyphosate. Herbicides are most effective when applied to first-year rosettes.

Black Locust
(Robinia pseudoacacia)

Description/History: Black locust is a leguminous deciduous tree that grows from 30 to 80 feet tall. Young saplings have smooth, green bark with flat-topped ridges. Leaves are alternate and pinnately compound with 7 to 21 leaflets. Leaflets are thin, elliptical, dark green above, and pale beneath. Smaller branches are armed with heavy, paired thorns. Flowers are pea-like, fragrant, white and yellow, and born in large dropping racemes. Seed pods are shiny, smooth, arrow, flat, 2 to 4 inches long and contain 4 to 8 seeds. Black locust stands are easy to identify in spring because they typically form multiple stemmed clones and are slow to leaf out. They produce showy flower clusters in May or June.

Black locust commonly occurs in disturbed habitats. Successful reproduction via vegetative runners has contributed to the naturalization of black locust in upland forests, prairies, and savannas. Because dense clonal stands shade out most understory vegetation, such tree groves can be detrimental to native vegetation.

Controlling Black Locust:



Mechanical Control: Cutting black locust stimulates sprouting and clonal spread. Mowing and burning temporarily control spreading. Annual haying may be adequate to control first year seedlings and prevent spreading in prairie communities. Bulldozing may be an option on disturbed lands.

Chemical Control: Basal stem application is preferred for treatment because it is selective and easy to apply. The

herbicide should be applied in a band at least 6 inches high all around the trunk approximately 12 inches from the ground. Triclopyr formulated for dilution in diesel fuel or mineral oil is currently the herbicide of choice for black locust. Both diesel fuel and mineral oil is potentially less toxic to neighboring organisms. The triclopyr/oil mixture may also be applied to a girdle cut at standing height or to cut stumps.

For small isolated plants or thick patches under 5 feet in height, Triclopyr can be applied as a foliar spray. Triclopyr should be applied at the end of the growing season. In order to effectively curb regeneration, every branch or stem must be sprayed because missed stems will leaf out. Triclopyr mixed with water may also be used effectively as a foliar spray in the latter half of the growing season.

Glyphosate can be applied to foliage of actively growing trees using a hand sprayer (1-1.5% active ingredient solution). Black locust stems can be cut at the base with brush-cutters, chainsaws, or hand tools; stumps should be treated immediately with a 20% active ingredient solution of glyphosate. The treatment works best when applied in late summer, early fall, or during the dormant season.

Norway Maple
(Acer platanoides)

Description:

Appearance: Large deciduous tree, dense canopy, 60′ high when mature. Similar to native sugar maple except: broken leaf emits milky sap, upright green flower clusters, widely spreading winged fruit, regularly grooved bark, fall color always yellow. Leaves are opposite, five lobed, coarsely toothed, pointed. Flowers are flat-topped upright cluster, yellowish green, appearing with the leaves, blooming in May.

Life History:
It invades native woodlands by out-competing sugar maple as it is also very shade tolerant. Wildflower diversity is reduced beneath because it forms a more dense canopy. Although sold primarily as a boulevard tree it spreads by seeds into disturbed forest communities. It is native to Europe and Asia and widely sold in nurseries in the U.S.

Controling Norway Maple:

This species presents a real dilemma because it is one of the most popular species for street and home landscaping. To suggest a ban on planting would cause an impact on the landscape industry. However, there are current uses that should be discontinued, such as: planting in parks adjacent to natural forests, near ravines, rural areas, conservation areas and naturalized areas.

Mechanical Methods: Pulling seedlings when soil is moist.

Chemical Methods: Cut-stump treatment with glyphosate; cut-stump or basal bark spray treatment around the stem with triclopyr.

The City of Mequon wants to acknowledge the permission and use of the following websites and their contributing photographers:

http://tncweeds.ucdavis.edu
Photographers:
JMR John M. Randall / The Nature Conservancy
BAR Barry A. Rice / The Nature Conservancy

http://dnr.state.wi.us/invasives/photos
Photographers:
Kelly Kearns / WI DNR
Elizabeth Czarapati / WI DNR

http://www.nps.gov/plants/alien
Photographers (National Park Service):
Theodore G. Scott / Virginia Native Plant Society
Kathy Bolin / MN DNR

http://www.invasive.org
Photographers:
Paul Wray / Iowa State University
James Miller / USDA Forest Service
Bill Cook / Michigan State University
Chris Evans / The University of Georgia
Mary Ellen Hart

The website, http://invasive.org, has a very extensive photo collection and is an excellent resource if additional information is desired. Go to the website and put the name of the plant in the search slot.