



## VEGETATION MANAGEMENT GUIDELINE

Multiflora Rose (*Rosa multiflora* Thunb.)

### SPECIES CHARACTER

#### DESCRIPTION

Multiflora rose is a medium height, thorny shrub with a spreading growth form. Leaves are born alternately on the stems and divided into 5-11 leaflets (usually 7-9). Each leaflet is broadly oval and toothed along its margin. Clusters of numerous, white flowers, 3/4" - 1-1/2 inches (1.9-3.8 cm) across, blossom in late spring. The fruits are small, firm, red hips that may remain on the plant well into winter. Older rose shrubs may obtain a height of 15 feet (4.6 meters) or more with a root crown diameter of 8 inches (20 cm).

#### SIMILAR SPECIES

Multiflora rose can be distinguished from Illinois' native roses by the presence of a feathery or comb-like margin on the narrow stipules (a green, leaf-like structure) found at the base of each leaf stalk. Illinois' native rose species all have stipules at the base of the leaf stalk, but stipules of the native roses do not have feathery margins. Also, the styles (floral structures) of multiflora rose are fused together into a column, while all native roses except for prairie rose (*Rosa setigera*) have separate styles. The flowers of prairie rose are also deep pink and 1.5-3 in (4-8 cm) across. Multiflora rose 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

Multiflora rose was introduced into Illinois in the 1950's from eastern Asia for wildlife cover and food. Managers recognized that plantings of this thorny, bushy shrub provided excellent escape cover and a source of winter food. Because of its dense thorny nature, the commercial nursery trade began marketing it as a "living fence" as well. The species soon spread and became a serious invader of agricultural lands, pastures, and natural communities throughout Illinois.

#### HABITAT

Multiflora rose occurs in successional fields, pastures, and roadsides. It also may occur in dense forests, particularly near disturbances such as tree fall gaps.

#### LIFE HISTORY

Multiflora rose is named for the clusters of many white flowers born on this perennial bramble during May or June. The



flowers develop into small, hard fruits called hips that remain on the plant throughout winter. The great majority of plants develop from seeds remaining in the soil relatively close to plants from which they were produced. Birds and mammals also consume the hips and can disperse them greater distances. Rose seeds may remain viable in the soil for 10-20 years. Multiflora rose also spreads by layering, i.e., where tips of canes touch the ground and form roots, and by plants that arise from shallow roots.

#### **EFFECTS UPON NATURAL AREAS**

Multiflora rose readily invades prairies, savannas, open woodland, and forest edges. This thorny, spreading shrub can form impenetrable thickets or "living fences" and smother out other vegetation. It is a serious pest species throughout the eastern United States.

#### **CURRENT STATUS**

Multiflora rose is categorized as an exotic weed under the Illinois Exotic Weed Act (525 ILCS 10). As such, the sale or planting of this species within Illinois is prohibited.

### **CONTROL RECOMMENDATIONS**

#### **RECOMMENDED PRACTICES IN NATURAL COMMUNITIES OF HIGH QUALITY**

Pulling, grubbing, or removing individual plants from the soil only can be effective when all roots are removed or when plants that develop subsequently from severed roots are destroyed. These approaches are most practical for light, scattered infestations of small plants.

In fire-adapted communities, a routine prescribed burn program will hinder invasion and establishment of multiflora rose. Before commencing any prescribed burns, open burning permits must be obtained from the Illinois Environmental Protection Agency and often the appropriate local agencies too. Burns should be administered by persons trained or experienced in conducting prescribed burns, and proper safety precautions should be followed.

Research indicates that 3-6 cuttings or mowings per growing season for more than one year can achieve high plant mortality. Such treatment may need to be repeated for 2-4 years. Increased mowing rates (+6/season) did not increase plant mortality. In high quality communities, repeated cutting is preferred over mowing, because repeated mowing will damage native vegetation as well as multiflora rose.

Cutting stems and either painting herbicide on the stump with a sponge applicator (sponge-type paint applicators can be used) or spraying herbicide on the stump with a low pressure hand-held sprayer kills root systems and prevents re-sprouting. Roundup herbicide (a formulation of glyphosate) has been effective in controlling multiflora rose when used as a 10.0% active ingredient solution and applied directly to the cut stump. Although the Roundup label recommends a higher concentration for cut-stump treatment (50-100%), this lower concentration has proven effective. With this technique, herbicide is applied specifically to the target plant, reducing the possibilities of damaging nearby, desirable vegetation. Cut-stump treatment is effective late in the growing season (July-

September), and also during the dormant season. Dormant season application is preferred because it will minimize potential harm to non-target species. Glyphosate is a nonselective herbicide, so care should be taken to avoid contacting non-target species.

Triclopyr (trade name Garlon 3A, Tahoe 3A) can be applied to cut stems or canes for selective control of multiflora rose. A 22.0% active ingredient solution in water can be sprayed using a hand sprayer to the cut surface. Application should be within a few hours of cutting.

A 10.0% active ingredient solution of Garlon 4 or Tahoe 4E and mineral or vegetable based basal oil may also be applied to cut stems or canes for selective control utilizing a hand sprayer. Stems or canes may be sprayed in a manner which thoroughly wets the root collar area, but not to the point of runoff.

Use of Garlon 3A and Garlon 4 is best done in the dormant season to lessen damage to non-target species. Great care should be exercised to avoid getting any of the herbicide on the ground near the target plant since some non-target species may be harmed. Do not use Garlon 4 if snow, ice, or water is present on the ground.

Injection using the EZ-Ject lance with Roundup capsules is an effective control. For plants with numerous stems, each stem greater than 2 cm (3/4 inch) may need to be treated to ensure the plant is killed. Stems larger than 5 cm (2 inches) in diameter should be injected with an additional capsule for each 2.5 cm (1 inch) increase in stem diameter. For plants with multiple stems less than 1.5 cm (1/2 inch), a capsule may be injected into the upper portion of the root crown.

By law, herbicides may only be applied according to label directions and by licensed herbicide applicators or operators when working on properties not owned by the applicator. Herbicides should be applied as backing out of an infested area to prevent contamination of the worker and spreading of the herbicide on boots and other protective clothing.

#### RECOMMENDED PRACTICES ON BUFFER AND SEVERELY DISTURBED SITES

Repeated cutting, as discussed above, is effective. For large populations on severely disturbed areas, mowing can be substituted for cutting individual plants. However, mowing multiflora rose can result quickly in flat tires. On mowers, filling tires with foam is recommended.

Fosamine (trade name Krenite) can be applied as a foliar spray in a 0.8% active ingredient solution plus 0.25% surfactant. The Krenite S formulation contains the appropriate amount of surfactant. Coverage of foliage should be complete. Krenite should be applied only in July-September. No effects will be observed during the autumn season following application. Slight regrowth may occur the following season but canes will die during summer. Fosamine kills only woody species and is non-volatile, therefore it is the preferred foliar spray treatment.

Dicamba (trade name Banvel) is an effective foliar spray that is less preferred than Krenite. Banvel is selective against broadleaf plants, so care must be taken to avoid contacting desirable, broadleaf vegetation. It can be applied as a foliar spray in a 0.5% active ingredient solution. Though this solution can be applied any time during the growing season, best results are obtained during May and June when plants are actively growing and flowering, following full leaf-out. One-half ounce of a surfactant should be added when treating dense foliage and, to enhance control in late season applications,

complete coverage of all green leaves should be achieved. **Do not spray herbicide so heavily that herbicide drips off the target species. Foliar spray of herbicides should only be used in less sensitive areas because of problems with contacting nontarget species.**

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Glyphosate (trade name Roundup, etc) is an effective foliar spray when applied as a 0.5% active ingredient solution to multiflora rose plants that are flowering or in bud. Roundup is not a preferred chemical treatment, however, because it is nonselective and the selective herbicides mentioned above are effective. Nevertheless, Roundup can be used as a foliar spray during the growing season on severely disturbed sites if care is taken to avoid contacting non-target plants. Roundup should not be used as a foliar spray during the growing season in high-quality natural areas because it can result in damage to non-target species. Roundup is useful as a foliar spray for alien plants that remain green and retain their leaves after native vegetation is dormant or senescent. Multiflora rose does not fit this description adequately and is controlled most effectively when treating during the growing season.

## BIOLOGICAL CONTROL

No biological control agent screened using classical biological criteria is currently approved for release in Illinois Nature Preserves for the control of multiflora rose. However, the following species may impact the spread of multiflora rose in natural areas.

Rose Rosette Disease (RRD) is a virus spread by an eriophyid mite, *Phyllocoptes fructiphilus*. This disease has caused high mortality in multiflora rose. The mite and virus are native to the western United States and both spread eastward after multiflora rose was widely planted in the Great Plains and eastern United States. The symptoms of Rose Rosette Disease on multiflora rose are a characteristic red or purplish vein mosaic, bright red side shoots, dwarfed leaves, and premature development of lateral buds that produce “witches brooms”. Only plants in the Genus *Rosa* appear to be susceptible to this disease. Some species of rose native to the eastern United States do not appear to be infected with the disease. These include *Rosa carolina*, *Rosa palustris*, and *Rosa setigera*. Rose Rosette Disease has the potential to eliminate over 90 % of the multiflora rose in some areas with dense stands. Intentional use of this agent is not recommended as it has been known to impact cultivated rose species and some species of *Rubus*.

Another agent that may provide biological control for multiflora rose is the rose seed chaclid wasp, *Megastigmus aculeatus* var. *nigroflavus*. The wasp lays its eggs in the developing ovules (immature seeds) of the rose hips. The growing larvae eat the contents of the seed, usually during July and August. The wasps appear to have a poor ability to fly, so dispersal is mainly by movement of infected seed. Despite this, Amrine and Stasny (1993) estimated that in 20 or more years the chalcid wasp would find and use 90 % of the multiflora rose seed in West Virginia. These researchers also found that in areas with diseased shrubs, 46.7 to 49.7 % of viable seeds were infested. The rose seed

chalcid larvae suffer 20 to 80% mortality when temperatures fall below -16°F (-26°C). The larvae's susceptibility to cold temperatures will likely decrease the wasp's effectiveness as a biocontrol agent for multiflora rose in northern areas where winter temperatures fall below the larvae's tolerance level.

Amrine and Stansy (1993) report that the rose seed chalcid is expected to eventually infest nearly 90% of the multiflora rose seed of the plants that survive Rose Rosette Disease. The combined impact of these two biocontrol agents is expected to significantly reduce the numbers and the rate of spread of multiflora rose in the eastern United States over an extended time period (perhaps 20 to 30 years or more). However, intentional introduction of this species is not recommended at this time due to the unknown impacts to native roses.

### REFERENCES

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### PERSONAL COMMUNICATIONS

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