

MN NWAC Risk Assessment Worksheet (04-2017)	Common Name	<i>Latin Name</i>
	Multiflora Rose	<i>Rosa multiflora</i> Thunb.
Reviewer	Affiliation/Organization	Date (mm/dd/yyyy)
Anthony Cortilet	MN Department of Agriculture	Original Review: 9/07/2011
Laura Van Riper	MN Department of Natural Resources	Current Review Date: 9/18/2019

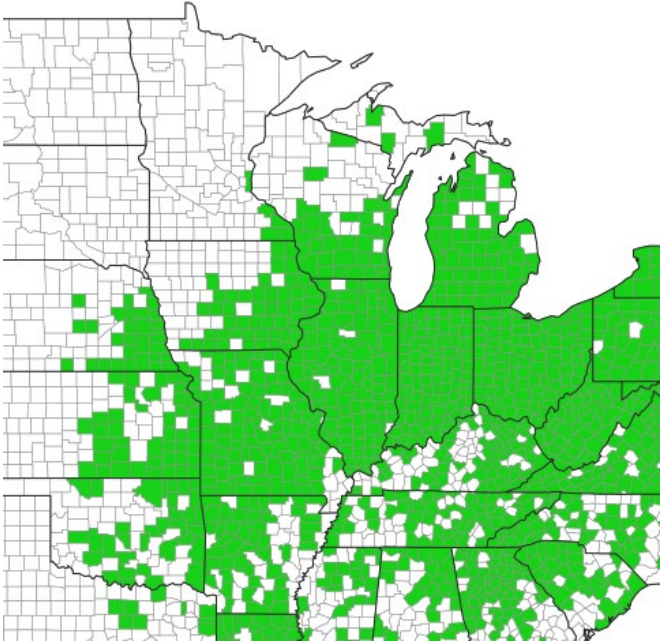
Species Description:

- Multiflora rose is a shrub that can form dense thickets and reduce populations of native plants and reduce grazing quality of a site.
- Can be found in forest edges, woodlands, oak savannas, prairies, fields, pastures, and roadsides.
- Was widely planted in the US starting in the 1930s. It was promoted for erosion control, wildlife habitat, and ornamental rose rootstock (Kurtz and Hanson 2013).
- Appearance:
 - Multi-stem shrub, can reach 8-13 feet tall and 9-13 feet wide.
 - Thick curved thorns.
 - Flowers are white to slightly pink.
 - The fringe on the stipule can help distinguish multiflora rose from native roses.
- See the [Minnesota Department of Natural Resources](#) and [Wisconsin Department of Natural Resources](#) multiflora rose webpages for additional photos and descriptions.



Photo of multiflora rose fringed stipules. Laura Van Riper, Minnesota Department of Natural Resources.

Current Regulation: Minnesota Restricted Noxious Weed.

Box	Question	Answer	Outcome
1	Is the plant species or genotype non-native?	YES – native to East Asia – Japan, Korea, and eastern China (USDA National Plant Germplasm System 2019).	Go to Box 3
3	Is the plant species, or a related species, documented as being a problem elsewhere?	<p>YES – considered naturalized in South Africa, New Zealand, British Isles, Canada and the United States (USDA National Plant Germplasm System 2019).</p> <p>Distribution in US – the plant is found in most of the warmer temperate parts of the US with exception to the desert SW, SE coastal plains (EDDMapS 2019).</p>  <p>Listed as a regulated species in at least 12 US States, including 3 MN border states: WI – Restricted Invasive Species and Nuisance Weed, SD – Regulated Non-native Species, and Iowa –</p>	Go to Box 6

Box	Question	Answer	Outcome
		<p>Secondary Noxious Weed (USDA Plants 2019, Wisconsin DNR 2019).</p> <p>Moser et al. (2016) report on multiflora rose distribution in the Midwest based on data from the U.S. Forest Service’s Forest Inventory and Analysis plots.</p>	
6	Does the plant species have the capacity to establish and survive in Minnesota?		
	A. Is the plant, or a close relative, currently established in Minnesota?	<p>YES – <i>Rosa multiflora</i> infestations have been well documented in southeastern MN up to the Twin Cities (EDDMapS 2019). Populations seem to become less dense the farther north you go from the Iowa border (Anthony Cortilet personal observation). Missouri Botanical Garden lists the hardiness zones for multiflora rose as 5-9 while the New Hampshire Department of Agriculture lists zones 3-8.</p> <p>Dr. Leon Snyder notes in his book that multiflora rose had not been hardy in trails at the Minnesota Landscape Arboretum in Carver county (Snyder 1980).</p> <p>In summer 2019, the US Forest Service was asked to follow up on the US Forest Service reports in Koochiching county in northern Minnesota. Since the reports could not be confirmed, they were removed from public view in EDDMapS. The reports were from plots in the Forest Inventory Analysis program. Locations of these plots are not publicly available. Jack Greenlee and Richard McCullough of the US Forest Service provided this update (personal communication June 28, 2019):</p> <p style="padding-left: 40px;">For the first multiflora rose location, the species was recorded in 2010, but in 2015 when the plot was revisited, it wasn’t a plot where invasives were recorded so no invasive data was gathered. Multiflora rose, if it was correctly identified in the first place, may still be there. Plot is on county land.</p>	Go to Box 7

Box	Question	Answer	Outcome
		For the second multiflora rose location, the species was detected in 2010, but not in 2015. Invasives were part of the protocol in each of the two years, so the first time may have been a misidentified, or else it somehow ceased to exist by the time of the second visit. Plot is on private land.	
7	Does the plant species have the potential to reproduce and spread in Minnesota?		
	A. Does the plant reproduce by asexual/vegetative means?	Yes – The plant has the ability to reproduce by “layering” whereby the tips of arching canes that touch the ground causing new roots to develop. New plants can also develop from shallow roots. Jesse et al. (2010) found evidence that spread includes clonal spread and sexual reproduction.	Go to Question 7B
	B. Are the asexual propagules effectively dispersed to new areas?	No – Although propagules can produce new plants, outside of the infestation itself, seeds tend to be the greatest dispersal factor.	Go to Question 7C
	C. Does the plant produce large amounts of viable, cold-hardy seeds?	Yes – An individual plant can produce up to 1 million seeds annually. Fruits containing the seeds are highly sought after by birds and other wildlife. Uncontrolled infestations create large viable seed banks that can produce new plants for up to 20 years (Armine 2002).	Go to Question 7F
	F. Are sexual propagules – viable seeds – effectively dispersed to new areas?	Yes – Several species of birds are highly attracted to the fruit of <i>R. multiflora</i> and are thought to effectively disperse seeds long distances. Work by LaFleur et al. (2009) shows that species like European starlings (<i>Sturnus vulgaris</i>) can consume <i>Rosa multiflora</i> seeds and either regurgitate or defecate them to new areas. Armine (2004) notes that songbirds feed heavily on rose hips which pass rapidly through the digestive tract and likely spread seeds. No specific studies evaluating the germination success of <i>R. multiflora</i> seeds following passing through the avian digestive tract could be found.	Go to Question 7G

Box	Question	Answer	Outcome
		<p>Humans and other wildlife species can move sexual propagules to new areas.</p> <p>Jesse et al. (2010) found evidence that spread includes clonal spread, sexual reproduction, and introduction of seeds from a distance to a new sites.</p>	
	<p>G. Can the species hybridize with native species (or other introduced species) and produce viable seed and fertile offspring in the absence of human intervention?</p>	<p>Multiflora rose can hybridize with many species of <i>Rosa</i>. However, no documented cases were found showing that any hybridization has resulted in an invasive species with characteristics similar to <i>Rosa multiflora</i>. Nakamura et al. (2011) found no evidence of gene flow from multiflora rose to cultivated rose plants in Japan. Crosses between <i>R. multiflora</i> and other native roses have resulted in sterile – non-viable offspring (Zlesak, personal communication). Debener et al. (2003) found that distances of 250m between rose plantations was not far enough to prevent gene flow between the populations.</p>	<p>Go to Question 7I</p>
	<p>I. Do natural controls exist, species native to Minnesota, that are documented to effectively prevent the spread of the plant in question?</p>	<p>Not known at this time – NO-</p> <p>Rose Rosette Disease is spread by the eriophyid mite (<i>Phyllocoptes fructiphilus</i>) and exists in much of the Midwest. Rose rosette disease was first reported in Canada in 1940 and gained greater notice in 1976 when it was found to be infecting multiflora rose hedges in Kansas (Epstein et al. 1997). The disease can affect other rose species as well as multiflora rose. It can infect plants and eventually kill them. Epstein et al. (1997) found that augmenting rose rosette disease provided effective control of multiflora rose after 3 to five years. There do not appear to be current, active release programs for rose rosette disease. The fact that it can affect ornamental roses is a reason that there are not active programs. It can spread on its own but it is not known to be an effective control of spread on a regional scale. Rose rosette disease is not native to Minnesota.</p> <p>Hindal and Wong (1998) surveyed multiflora rose in West Virginia for insects and diseases with the potential to control</p>	<p>Go to Box 8</p>

Box	Question	Answer	Outcome
		<p>multiflora rose. They identified rose rosette disease, a rose hip borer, rose seed chalcid, and the raspberry cane borer as species with potential. In the northeast there are three insects (tortricid hip borer, rose seed chalcid, raspberry cane borer) that can impact multiflora rose but they have generally not been present at high enough amounts to eliminate plants (Lingenfelter and Curran 2004). During the 2019 literature review the review author found no evidence of active biocontrol programs for multiflora rose in any states.</p>	
8	<p>Does the plant species pose significant human or livestock concerns or has the potential to significantly harm agricultural production, native ecosystems, or managed landscapes?</p>		
	<p>A. Does the plant have toxic qualities, or other detrimental qualities, that pose a significant risk to livestock, wildlife, or people?</p>	<p>No – However, this species is very thorny and can be detrimental to the coats of livestock or human skin when trying to navigate through infested areas.</p> <p>Adalsteinsson et al (2018) found that ticks in multiflora rose invaded habitats had a greater prevalence of the pathogen that causes Lyme disease, but they found more ticks in uninvaded areas. They noted that people are more likely to encounter ticks in the uninvaded areas so they conclude that the risk of Lyme disease to humans may not differ overall.</p> <p>Borgmann and Rodewald (2004) found that bird nests in the non-native shrubs multiflora rose and Asian bush honeysuckles had greater nest predation than those in native species.</p> <p>Chung et al. (2014) found that multiflora rose attracted generalist pollinators and likely had minimal impact on native forb pollinators. They propose future research to further refine the understanding of multiflora rose effects on the plant-pollinator networks of communities.</p>	<p>Go to Question 8B</p>

Box	Question	Answer	Outcome
	B. Does, or could, the plant cause significant financial losses associated with decreased yields, reduced crop quality, or increased production costs?	<p>Yes – The plant invades pastures and grazing lands significantly decreasing forage quality and forage acres and increase the potential for cattle skin and eye irritation (Armine 2002, Munger 2002).</p> <p>Regeneration of oak seedlings may be reduced with multiflora rose (Kurtz and Hanson 2013).</p>	Go to Box 9
	C. Can the plant aggressively displace native species through competition (including allelopathic effects)?	<p><i>Regeneration of oak seedlings may be reduced with multiflora rose (Kurtz and Hanson 2013).</i></p> <p><i>Multiflora rose extracts had small effects on seed germination in an allelopathy study (Pisula and Meiners 2010).</i></p>	This text is provided as additional information not directed through the decision tree process for this particular risk assessment.
	D. Can the plant hybridize with native species resulting in a modified gene pool and potentially negative impacts on native populations?	<p><i>Crosses between R. multiflora and other native roses have resulted in sterile – non-viable offspring (Zlesak 2011, personal communication).</i></p>	This text is provided as additional information not directed through the decision tree process for this particular risk assessment.
	E. Does the plant have the potential to change native ecosystems (adds a vegetative layer, affects ground or surface water levels, etc.)?	<p><i>Ashton et al. (2005) found that the leaf litter of multiflora rose and other invasive shrubs decomposed and released nitrogen more quickly than native shrub species.</i></p> <p><i>Banasiak and Meiners (2009) reported on a 40 year record of multiflora rose at an abandoned agricultural field in New Jersey. The population grew slowly for nine years, then grew rapidly for 20 years. Then the population began to decline. Once there was a dense canopy of multiflora rose, their seedlings did not do well under the low light conditions compared to the high light conditions when the population was expanding. The multiflora rose added a shrub layer to the field.</i></p> <p><i>Dlugos et al. (2015) also found that multiflora rose decreases as light decreases. They found multiflora rose took advantage of the growing season in the spring and fall when other woody species did not have full leaf out.</i></p>	This text is provided as additional information not directed through the decision tree process for this particular risk assessment.

Box	Question	Answer	Outcome
	F. Does the plant have the potential to introduce or harbor another pest or serve as an alternate host?	<i>Harbors rose rosette disease. See Box 7I for additional discussion.</i>	This text is provided as additional information not directed through the decision tree process for this particular risk assessment.
9	Does the plant species have clearly defined benefits that outweigh associated negative impacts?		
	A. Is the plant currently being used or produced and/or sold in Minnesota or native to Minnesota?	No –The roots were used as rootstocks for the commercial rose industry in the past. Minnesota Department of Agriculture Nursery Unit wasn’t sure if they still were in use, but highly doubted it since many of the new rose variety use their own rootings (2011 review author Tony Cortilet personal communication with Minnesota Department of Agriculture staff).	Go to Box 10
10	Should the plant species be enforced as a noxious weed to prevent introduction &/or dispersal; designate as prohibited or restricted?		
	A. Is the plant currently established in Minnesota?	Yes – Southeast MN counties near Iowa boarder have significant populations (EDDMapS 2019). There are also populations in forested areas around the Twin Cities metropolitan area (EDDMapS 2019).	Go to Question 10B
	B. Does the plant pose a serious human health threat?	No	Go to Question 10C

Box	Question	Answer	Outcome
	<p>C. Can the plant be reliably eradicated (entire plant) or controlled (top growth only to prevent pollen dispersal and seed production as appropriate) on a statewide basis using existing practices and available resources?</p>	<p>No – Forested and slope infestations are much harder to control using herbicides and certainly mechanical strategies. Forested and sloping regions may present an economic hardship for landowners forced to control.</p> <p>Control methods: The plant can be controlled in pasture and open field situations using mechanical and chemical controls (Minnesota Department of Natural Resources 2019, Wisconsin Department of Natural Resources 2019, Kansas Department of Agriculture 2019, Lingenfelter and Curran 2004). It takes a long-term commitment to successfully manage multiflora rose.</p> <p>Three to six mowings or grazings per season for two to three seasons for high plant reductions (Bryan 1994).</p> <p>Dlugos et al. (2015) recommend management focus on controlling edge populations and populations in canopy gaps to reduce the seed pressure into interiors of forests.</p> <p>Lingenfelter and Curran (2004) note that preventing overgrazing can help prevent problems in a grazing system.</p> <p>While rose rosette disease may be providing some control, there are not active biocontrol release programs for it as it can affect native and ornamental roses.</p>	<p>No – List as a Restricted Noxious Weed</p>

2011

Review Entity	Comments	Outcome
<p>NWAC Listing Subcommittee</p>	<p>Based on the current distribution and known spread, and the fact that this species typically occupies forested acres, control or eradication would be limited. Therefore, if it were to be listed it would best be suited to the Restricted list.</p>	<p>Possible Restricted</p>

Review Entity	Comments	Outcome
NWAC Full Committee		Restricted
MDA Commissioner	Approved as a Restricted Noxious Weed	Restricted

2019

Review Entity	Comments	Outcome
NWAC Listing Subcommittee	Based on the current distribution and known spread, and the fact that this species typically occupies forested acres, control or eradication would be limited. The restricted list continues to be the appropriate listing for this species. 07/18/19	Restricted
NWAC Full Committee	Vote on 12/03/19 was 15:0 in favor of remaining Restricted.	Restricted
MDA Commissioner	Commissioner agreed	Restricted

Risk Assessment Current Summary (Current Year – 06-03-2019):

- Risk assessment was updated in 2019. The information did not change the recommended listing of the species.
- Multiflora rose has negative impacts on native ecosystems. As a prickly, woody shrub that can grow in wooded habitats, it is challenging to manage. Multiflora rose became more widespread when it was planted purposefully in the past. The restricted noxious weed category is appropriate to prevent purposeful sale and spread while respecting the economic hardship that mandatory control would mean for landowners.

References

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