Plant Risk Evaluator -- PRE™
Evaluation Report

Rosa multiflora -- Washington

2021 Western IPM Grant Project

PRE Score: 18 -- High Potential Risk
Confidence: 79 / 100
Questions answered: 19 of 20 -- Valid (80% or more questions answered)

Privacy: Public
Status: Completed

Evaluation Date: August 25, 2021

This PDF was created on April 29, 2022

This project was funded in part by the USDA National Institute of Food and Agriculture through the Western Integrated Pest Management Center, grant number 2018-70006-28881.

Plant Evaluated

Rosa multiflora

Image by JoJan, Wikipedia user

Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Rosa multiflora*) in an effort to understand the invasive history, reproductive strategies, and the impact, if any, on the region's native plants and animals. This research reflects the data available at the time this evaluation was conducted.

Summary

Rosa multiflora is a large, thorny shrub capable of forming thickets across pastures, rangelands, and waste places, and forming impenetrable barriers to humans, wildlife, and livestock. The species has invaded habitats in the east, midwest, and Pacific Coast of North America. Rosa multiflora produces large quantities of viable seeds, and can spread clonally across broad areas by layering and by tip-rooting. Seeds may be spread by wildlife as well as through human vectors.

General Information

Status: Completed
Screener: Jim Evans
Evaluation Date: August 25, 2021

Plant Information

Plant: *Rosa multiflora*

Regional Information

Region Name: Washington

Climate Matching Map

To answer four of the PRE questions for a regional evaluation, a climate map with three climate data layers (Precipitation, UN EcoZones, and Plant Hardiness) is needed. These maps were built using a toolkit created in collaboration with GreenInfo Network, USDA, PlantRight, California Invasive Plant Council, and The Information Center for the Environment at UC Davis.

Click here to see the generated climate matching map for this region. This climate match database is hosted by GreenInfo Network and publicly accessible.

Evaluation Questions

These questions are based on an article published by PLOS One, which can be found here: https://doi.org/10.1371/journal.pone.0121053.

Invasive History and Climate Matching (Questions 1 - 6)

1. Has the species (or cultivar or variety, if applicable; applies to subsequent "species" questions) become naturalized where it is not native?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

The USDA Agricultural Research Service (2021) lists Rosa multiflora naturalized in: South Africa, New Zealand, United Kingdom, Canada, and the United States.

Reference(s):

- ARS, USDA. (0). Rosa multiflora Thunb..

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2. Is the species (or cultivar or variety) noted as being naturalized in the US or world in a similar climate?

- Answer: **Yes**, which contributes **2** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Rosa multiflora is native to east Asia. In particular, the species' naturalized distribution in similar climates includes California, Oregon, British Columbia, and the eastern US particularly along the Appalachian Mountains chain from New York/New England to the southern Appalachians (PlantRight Climate Match [http://websites.greeninfo.org/images.tmp/71e44e3e2545e568aaf926cea81010c2/Matching_Results.pdf], GBIF [https://www.gbif.org/species/3003244])

Reference(s):

- [Anonymous] (0). PlantRight.
- Facility, GBIF—the. Global Bio (2021). Rosa multiflora Thunb..
- CABI (2021). CABI, Invasive Species Compendium, Rosa multiflora (multiflora rose).

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3. Is the species (or cultivar or variety) noted as being invasive in the U.S. or world?

- Answer: **Yes**, which contributes **2** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Native to East Asia, Rosa multiflora is invasive in North America in most of the east and midwest, and along the Pacific Coast from California to British Columbia, as well as in New Zealand (CABI 2021). The USDA PLANTS Database cites listings of Rosa multiflora as invasive in Connecticut, prohibited in New York state, and a Class C noxious weed in Alabama.

Reference(s):

- USDA Plants Database (2021). Rosa multiflora Thunb.; Multiflora rose.
- CABI (2021). CABI, Invasive Species Compendium, Rosa multiflora (multiflora rose).

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4. Is the species (or cultivar or variety) noted as being invasive in the US or world in a similar climate?

- Answer: **Yes**, which contributes **3** point(s) to the total PRE score.
- The *screener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Multiflora rose is listed as a prohibited, invasive, or noxious species in a number of states which have a climate match (PlantRight Climate Match [http://websites.greeninfo.org/images.tmp/71e44e3e2545e568aaf926cea81010c2/Matching_Results.pdf]) with western Washington, including New Hampshire, New York, Pennsylvania, and West Virginia, as well as in New Zealand.

Reference(s):

- [Anonymous] (0). PlantRight.
- Washington State Noxious Weed Control Board (2019). Draft Written Findings, Rosa multiflora Thunb. .
- USDA Plants Database (2021). Rosa multiflora Thunb.; Multiflora rose.
- CABI (2021). CABI, Invasive Species Compendium, Rosa multiflora (multiflora rose).

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5. Are other species of the same genus (or closely related genera) invasive in a similar climate?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Rosa rugosa is recognized as an invasive species, primarily of coastal habitats, in Maine and Connecticut in climates broadly similar to Washington’s.

Reference(s):

- Connecticut Invasive Plant Working Group (2021). Connecticut Invasive Plant List.
- USDA Plants Database (2021). Rosa rugosa Thunb.; rugosa rose.
- Maine Natural Areas Program. (2019). Advisory List of Invasive Plants – 2019.

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6. Is the species (or cultivar or variety) found predominately in a climate matching the region of concern?

- Answer: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

A comparison of the PlantRight Climate Match (http://websites.greeninfo.org/images.tmp/71e44e3e2545e568aaf926cea81010c2/Matching_Results.pdf) and GBIF distribution (https://www.gbif.org/species/3003244) indicates that more than 50% of the species distribution lies outside of climatically matching areas.

Reference(s):

- [Anonymous] (0). PlantRight.
- Facility, GBIF—the. Global Bio (2021). Rosa multiflora Thunb..

Impact on Native Plants and Animals (Questions 7 - 10)

7. Does this plant displace native plants and dominate (overtop or smother) the plant community in areas where it has established?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Munger (2002) reports that the species' dense growth and vegetative spread crowds out and inhibits establishment and growth of desirable native plants.

Reference(s):

- Munger, G. T. (2002). Rosa multiflora. In: Fire Effects Information System.

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8. Is the plant noted as promoting fire and/or changing fire regimes?

- Answer: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

There is no information linking Rosa multiflora to increased fire risk or a change in fire regimes. The species resprouts following fire and may be promoted by fire (Munger 2002).

Reference(s):

- Munger, G. T. (2002). Rosa multiflora. In: Fire Effects Information System.

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9. Is the plant a health risk to humans or animals/fish? Has the species been noted as impacting grazing systems?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Amrine (2002) and Evans (1983) review reports of significant loss of pasturage due Rosa multiflora's thorny and unpalatable thickets. The species can be an eye and skin irritant to cattle and other livestock (CABI 2021).

Reference(s):

- Amrine, Jr., J.W. (2002). multiflora rose. Biological Control of Invasive Plants in the Eastern United States. 265-292.
- Evans, J.E. (1983). A literature review of management practices for multiflora rose (Rosa multiflora). Natural Areas Journal. 3(1), 6-15.
- CABI (2021). CABI, Invasive Species Compendium, Rosa multiflora (multiflora rose).

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10. Does the plant produce impenetrable thickets, blocking or slowing movement of animals, livestock, or humans?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

The species can form large dense thickets that are impenetrable to livestock, wildlife, and people(Amrine 2002, Munger 2002).

Reference(s):

- Amrine, Jr., J.W. (2002). multiflora rose. Biological Control of Invasive Plants in the Eastern United States. 265-292.
- Munger, G. T. (2002). Rosa multiflora. In: Fire Effects Information System.

Reproductive Strategies (Questions 11 - 17)

11. Does this species (or cultivar or variety) reproduce and spread vegetatively?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

The species spreads clonally by layering and by tip-rooting (Jesse et al. 2010, Evans 1983).

Reference(s):

- Evans, J.E. (1983). A literature review of management practices for multiflora rose (Rosa multiflora). Natural Areas Journal. 3(1), 6-15.
- Jesse, L.C. (2010). Quantifying the levels of sexual reproduction and clonal spread in the invasive plant Rosa multiflora. (Nason, J. D., Ed.).Biological Invasions. 12, 1847-1854.

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12. If naturally detached fragments from this plant are capable of producing new plants, is this a common method of reproduction for the plant?

- Answer: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Since the species is capable of clonal spread via layering, broken or detached stem fragments are likely to take root under suitable conditions. However, none of the literature reviewed mentioned fragmentation, let alone suggested that this is a common method of reproduction.

Reference(s):

- Evans, J.E. (1983). A literature review of management practices for multiflora rose (Rosa multiflora). Natural Areas Journal. 3(1), 6-15.
- Jesse, L.C. (2010). Quantifying the levels of sexual reproduction and clonal spread in the invasive plant Rosa multiflora. (Nason, J. D., Ed.).Biological Invasions. 12, 1847-1854.

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13. Does the species (or cultivar or variety) commonly produce viable seed?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Each large cane can produce up to 17,500 seeds, and a plant may consist of many large canes.

Reference(s):

- Amrine, Jr., J.W. (2002). multiflora rose. Biological Control of Invasive Plants in the Eastern United States. 265-292.

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14. Does this plant produce copious viable seeds each year (> 1000)?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Each large cane can produce up to 17,500 seeds, and a plant may consist of many large canes. Seed viability can be up to 90%.

Reference(s):

- Amrine, Jr., J.W. (2002). multiflora rose. Biological Control of Invasive Plants in the Eastern United States. 265-292.

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15. Is there significant germination (>25%) of seeds the next growing season, with no requirement of an infrequent environmental condition for seeds to germinate (i.e. fire) or long dormancy period?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Seed viability is high, as noted above, and cold, moist overwinter conditions are sufficient to break dormancy.

Reference(s):

- Amrine, Jr., J.W. (2002). multiflora rose. Biological Control of Invasive Plants in the Eastern United States. 265-292.
- Doll, J. (2006). Biology of multiflora rose. North Central Weed Science Society Proceedings. 61.

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16. Does this plant produce viable seed within the first three years (for an herbaceous species) to five years (for a woody species) after germination?

Answer / Justification:

Available literature does not address this question.

Reference(s):

- [Anonymous] .

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17. Does this plant continuously produce seed for >3 months each year or does seed production occur more than once a year?

- Answer: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Flowering period for the species is no more than 3 months, during one period, spring, of the year.

Reference(s):

- Calflora (2021). Rosa multiflora Thunb..

Dispersal (Questions 18 - 20)

18. Are the plant's propagules frequently dispersed long distance (>100 m) by mammals or birds or via domestic animals?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Birds are an important vector for dispersal of Rosa multiflora seeds at distances less than a mile.

Reference(s):

- Evans, J.E. (1983). A literature review of management practices for multiflora rose (Rosa multiflora). Natural Areas Journal. 3(1), 6-15.
- Jesse, L.C. (2010). Quantifying the levels of sexual reproduction and clonal spread in the invasive plant Rosa multiflora. (Nason, J. D., Ed.).Biological Invasions. 12, 1847-1854.

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19. Are the plant's propagules frequently dispersed long distance (>100 m) by wind or water?

- Answer: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Hips generally do not split apart to release individual seeds, so wind dispersal is unlikely (Evans 1983). Since Rosa multiflora may invade riparian areas (WA NWCB 2019) water transport of hips may be a possibility but is not discussed in available sources.

Reference(s):

- Washington State Noxious Weed Control Board (2019). Draft Written Findings, Rosa multiflora Thunb. .
- Evans, J.E. (1983). A literature review of management practices for multiflora rose (Rosa multiflora). Natural Areas Journal. 3(1), 6-15.

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20. Are the plant's propagules frequently dispersed via contaminated seed (agriculture or wildflower packets), equipment, vehicles, boats or clothing/shoes?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Hips and seeds may attach to agricultural equipment following mowing, plowing, or excavating (Lingenfelter and Curran 2013).

Reference(s):

- Lingenfelter, D. (2013). Multiflora Rose Management in Grass Pastures (An Integrated Approach). (Curran, W., Ed.). 6 pp..

Total PRE Score

PRE Score: 18 -- High Potential Risk
Confidence: 79 / 100
Questions answered: 19 of 20 -- Valid (80% or more questions answered)

PRE Score Legend

The PRE Score is calculated by adding the point totals for each (answered) question.
< 13 : Low Potential Risk
13 - 15 : Moderate Potential Risk
> 15 : High Potential Risk

Questions Answered Legend

It is important to answer at least 16 questions to consider a PRE Score as "valid".
>= 16 : valid (80% or more questions answered)
<= 15 : invalid (not enough questions answered)

Organization Ownership and Content Privacy

Organization: 2021 Western IPM Grant Project
Content Privacy: Public

Evaluation Reviewers

The PRE approach is to base decisions on science and make decisions by consensus of diverse horticultural stakeholders. The literature review and process of answering PRE's questions are based on science; the decisions of which plants to prioritize are based on consensus. To ensure this process is in place and that PRE is collaborative, volunteer stakeholders are recruited from each region to review evaluations. The following experts in their profession (plant science, conservation, or horticultural trade) have participated as volunteer PRE reviewers for this evaluation:

• Tony Lind	October 18, 2021
• Lizbeth Seebacher	October 15, 2021
• Alexandria Stubblefield	October 6, 2021

This evaluation has a total of 3 reviewer(s).

Evaluation Issues

The following section lists all public issues for this evaluation. Issues provide a way for stakeholder reviewers to communicate any concerns or suggestions they might have with the plant or evaluation. Please email PlantRight@suscon.org if additional action is required to resolve open issues.

Issue ID # 7269

Date Created: October 6, 2021 - 1:25pm
Date Updated: December 14, 2021 - 8:05pm

Submitted by: Alexandria Stubblefield

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q12. If naturally detached fragments from this plant are capable of producing new plants, is this a common method of reproduction for the plant?

Issue Description

Is there anyway to get more specific with your answer here? Percent likelihood? Please add more detail (Alex Stubblefield).

Issue Resolution (Screener's Response to Issue)

In answering 'Yes' to this question I had considered the species ability to spread vegetatively as an indication that fragments, if they occurred, might be viable. But in reconsidering the question in light of the phrase "is this a common method of reproduction for the plant?" I now see that the answer should have been 'No' since there is no mention in any of the literature suggesting that this happens in the field. I changed the answer and added the following sentence to the explanation: "However, none of the literature reviewed mentioned fragmentation, let alone suggested that this is a common method of reproduction."

Issue ID # 7075

Date Created: September 23, 2021 - 2:18pm
Date Updated: November 30, 2021 - 5:00pm

Submitted by: Tony Lind

Status: Fixed
Type: Comment
Severity: Minor
Scope: Q04. Is the species (or cultivar or variety) noted as being invasive in the US or world in a similar climate?

Issue Description

I think there are enough peer-reviewed articles available to use as a source and increase the confidence level to very high. - Tony Lind

Issue Resolution (Screener's Response to Issue)

Added CABI reference and increased confidence to Very High as suggested.

Issue ID # 7074

Date Created: September 23, 2021 - 1:54pm
Date Updated: November 30, 2021 - 5:13pm

Submitted by: Tony Lind

Status: Fixed
Type: Comment
Severity: Minor
Scope: Q09. Is the plant a health risk to humans or animals/fish? Has the species been noted as impacting grazing systems?

Issue Description

I might be good to add that this plant can be an eye and skin irritant to cattle and other livestock according to https://www.cabi.org/isc/datasheet/47824.

Issue Resolution (Screener's Response to Issue)

Added suggested information and source.

Issue ID # 7066

Date Created: September 22, 2021 - 2:18pm
Date Updated: November 30, 2021 - 5:06pm

Submitted by: Tony Lind

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q04. Is the species (or cultivar or variety) noted as being invasive in the US or world in a similar climate?

Issue Description

When comparing the Washington climate matching map to the invasive list on https://www.cabi.org/isc/datasheet/47824#tosummaryOfInvasiveness, it appears New Zealand could be added as invasive in the world in a similar climate. - Tony Lind

Issue Resolution (Screener's Response to Issue)

Added New Zealand and CABI reference.

Issue ID # 7065

Date Created: September 22, 2021 - 1:36pm
Date Updated: November 30, 2021 - 5:07pm

Submitted by: Tony Lind

Status: Fixed
Type: Suggestion

Severity: Minor
Scope: Q03. Is the species (or cultivar or variety) noted as being invasive in the U.S. or world?

Issue Description

I appears to me that Rosa multiflora is invasive in most of the states and a few other locations outside the U.S., Question ask if noted as being invasive in the U.S. and World, make sure to add other countries labeled as invasive (https://www.cabi.org/isc/datasheet/47824) - Tony Lind

Issue Resolution (Screener's Response to Issue)

Added information from CABI.

Issue ID # 7064

Date Created: September 22, 2021 - 1:14pm
Date Updated: November 30, 2021 - 5:19pm

Submitted by: Tony Lind

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Q02. Is the species (or cultivar or variety) noted as being naturalized elsewhere in the US or world in a similar climate?

Issue Description

I think it would be good to add that Multiflora Rose is native to Eastern Asia (https://www.invasivespeciesinfo.gov/terrestrial/plants/multiflora-rose) - Tony Lind

Issue Resolution (Screener's Response to Issue)

Added suggested information.

Issue ID # 7063

Date Created: September 22, 2021 - 12:48pm
Date Updated: November 30, 2021 - 5:16pm

Submitted by: Tony Lind

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Regional Information

Issue Description

The climate matching link does not seem to work. The link may need to be updated.

Tony Lind

Issue Resolution (Screener's Response to Issue)

The climate matching link (Climate_Matching_Results_ROMU.pdf) worked when tried on 11/30/2021.

Issue ID # 7062

Date Created: September 22, 2021 - 12:45pm
Date Updated: November 30, 2021 - 6:05pm

Submitted by: Tony Lind

Status: Fixed
Type: Suggestion
Severity: Major
Scope: General Information

Issue Description

Need to add a summary of the evaluation.

Tony Lind

Issue Resolution (Screener's Response to Issue)

Added summary.

About PRE and this Plant Evaluation Report

The PlantRight Plant Risk Evaluator -- PRE is an online database and platform enabling those involved in non-native, terrestrial plant production to know before they grow if a plant poses a regional invasive risk. This tool offers many benefits, and we encourage you to visit the PRE website (https://pre.ice.ucdavis.edu) for more information.

If you are a nursery trade association, or involved in the research, development or distribution of horticultural plants we invite you to join the PRE community. If you are a plant scientist, affiliated with a horticultural college or botanic garden, and would like to learn more about becoming a PRE Screener, please drop us an email, PlantRight@suscon.org, requesting a PRE Account.

PRE beta funding is provided by Sustainable Conservation (http://www.suscon.org/) and a USDA Farm Bill grant.