



***Plant Risk Evaluator -- PRE™
Evaluation Report***

***Acer tataricum* ssp. *ginnala* -- Minnesota**

2017 Farm Bill PRE Project

PRE Score: 13 -- Evaluate this plant further

Confidence: 87 / 100

Questions answered: 19 of 20 -- Valid (80% or more questions answered)

Privacy: Public

Status: Completed

Evaluation Date: May 1, 2017

This PDF was created on June 15, 2018



Plant Evaluated

Acer tataricum ssp. *ginnala*



Image by Wikimedia



Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Acer tataricum ssp. ginnala*) 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

Acer tataricum ssp. ginnala (Amur Maple) is a MDA Specially Regulated Plant in Minnesota and a restricted plant in Wisconsin. These designations are based on the fact that the Amur Maple shades out native species in the wild and produces copious amounts of seed. On the other hand, it is a slow grower and the economic and human impact is perhaps minimal. These opposing factors support the borderline PRE score indicated. Continued monitoring and evaluation is appropriate.

General Information

Status: Completed

Screener: Mike Monterusso

Evaluation Date: May 1, 2017

Plant Information

Plant: *Acer tataricum ssp. ginnala*

Regional Information

Region Name: Minnesota



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 in an original article published at the University of California, Davis, and can be found on the PLOS One website, 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** points to the total PRE score.
- The *screeener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Amur maple is native to Manchuria, China, and Japan. It has become naturalized in several US states.

Reference(s):

- Minnesota Department of Agriculture (2017). Amur maple - Invasive species: Minnesota DNR.
 - The University of Georgia - Center for Invasive Species and Ecosystem Health (0). EDD Maps: Amur maple, *Acer ginnala*.
 - Wisconsin Department of Natural Resources (2015). Amur maple - Wisconsin DNR.
-

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** points to the total PRE score.
- The *screeener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

The Climate Matching Map Tool and the EDD Map for Amur Maple were compared. Amur maple has naturalized in Wisconsin, Nebraska, and Michigan, all of which have areas with a climate similar to Minnesota.



Reference(s):

- Wisconsin Department of Natural Resources (0). Amur maple - Wisconsin DNR.
 - The University of Georgia - Center for Invasive Species and Ecosystem Health (0). EDD Maps: Amur maple, *Acer ginnala*.
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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** points to the total PRE score.
- The *screeener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Amur Maple is restricted in Wisconsin, moderately invasive in New York, and listed as potentially invasive in Connecticut,

Reference(s):

- Maine Department of Agriculture, Conservation and Forestry (2017). 33 Invasive Plants Prohibited from Sale in Maine What you need to Know.
 - DAISIE (0). DAISIE: *Acer ginnala*.
 - The University of Georgia - Center for Invasive Species and Ecosystem Health (0). EDD Maps: Amur maple, *Acer ginnala*.
-

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** points to the total PRE score.
- The *screeener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Amur Maple is restricted in Wisconsin, invasive in Illinois, and potentially invasive in Connecticut.



Reference(s):

- Maine Department of Agriculture, Conservation and Forestry (2017). 33 Invasive Plants Prohibited from Sale in Maine What you need to Know.
 - The University of Georgia - Center for Invasive Species and Ecosystem Health (0). EDD Maps: Amur maple, *Acer ginnala*.
 - Wisconsin Department of Natural Resources (0). Amur maple - Wisconsin DNR.
 - DAISIE (0). DAISIE: *Acer ginnala*.
 - Center for Invasive Species and Ecosystem Health (2017). Illinois Invasive Plant List.
 - Connecticut Invasive Plant Working Group, University of Connecticut (2014). Invasive Plant List - Connecticut Invasive Plant Working Group.
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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** points to the total PRE score.
- The *screeener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Acer platanoides is reported to be invasive in Illinois.

Reference(s):

- McNamara, S., Gervais M., & Hokanson S. C. (2010). Evaluating the invasive potential of Norway maple (*Acer platanoides* L.) and Amur maple (*Acer tataricum* L. ssp.*ginnala*) in central Minnesota - initial results.
 - Webb, S. L., & Kaunzinger C. Kalafus (1993). Biological Invasion of the Drew University (New Jersey) Forest Preserve by Norway Maple (*Acer platanoides* L.). *Bulletin of the Torrey Botanical Club*. 120, 343–349.
 - Martin, P. H. (1999). Norway Maple (*Acer platanoides*) Invasion of a Natural Forest Stand: Understory Consequence and Regeneration Pattern. *Biological Invasions*. 1, 215–222.
 - The University of Georgia - Center for Invasive Species and Ecosystem Health (0). Norway maple (*Acer platanoides*) - EDDMapS State Distribution.
 - United States Department of Agriculture (0). USDA - NRCS PLANTS Database *Acer platanoides* profile.
 - The University of Georgia - Center for Invasive Species and Ecosystem Health (2017). Amur maple (*Acer ginnala*) - EDDMapS Distribution.
-



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

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screeners* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Compared climate matching map to GBIF. GBIF shows highest density locations to be in central Europe and Norway.

Reference(s):

- Universitetsparken 15 DK-2100 Copenhagen Ø DENMARK (0). Global Biodiversity Information Facility.
-

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** points to the total PRE score.
- The *screeners* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

"The Amur Maple has been reported to displace native shrubs and understory trees in successional fields and open woods and it also shades out native species in prairies (Randall and Martinelli 1996). It is also known that *Acer ginnala* is shade tolerant which may allow it to invade intact forests (University of Connecticut 2001), thereby displacing species there too."

Reference(s):

- NatureServe (2005). Completed U. S. National Assessments of Non-Native Plants.
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8. Is the plant noted as promoting fire and/or changing fire regimes?

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screeener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

There is no evidence to support that this plant promotes fire.

Reference(s):

- [Anonymous] .
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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: **No**, which contributes **0** points to the total PRE score.
- The *screeener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

A University of Minnesota report indicates that the wilted leaves of maple are toxic to horses. However, this is believed to be a rare occurrence.

Reference(s):

- Martinson, K., Hovda L., Murphy M., & Weicherding P. (2017). Maple : Horse : University of Minnesota Extension.
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10. Does the plant produce impenetrable thickets, blocking or slowing movement of animals, livestock, or humans?

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screeener* has a **High** confidence in this answer based on the available literature.



Answer / Justification:

There is no evidence to support that this plant procudes impenetrable thickets or blocks the movement of animals.

Reference(s):

- [Anonymous] .
-

Reproductive Strategies (Questions 11 - 17)

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

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screeener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

There is no evidence that this plant spreads vegetatively on its own. A cut stump that is untreated would theoretically resprout, but there is not evidence that this would result in additional plants (clones). There is some mention in the literature of propagating via cuttings, but this is not a naturally occurring process.

Reference(s):

- [Anonymous] .
-

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** points to the total PRE score.
- The *screeener* has a **Very High** confidence in this answer based on the available literature.



Answer / Justification:

There is not evidence to support that detached fragments are a common method of reproduction for this plant.

Reference(s):

- [Anonymous] .
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13. Does the species (or cultivar or variety) commonly produce viable seed?

- Answer: **Yes**, which contributes **1** points to the total PRE score.
- The *screeener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

"Amur maple has become invasive in the northern United States, including Minnesota. One plant can produce thousands of seeds each year."

Reference(s):

- Koetter, R., & Zuzek K. (0). Amur maple (*Acer ginnala*).
 - Ma, J., & Moore G. (2008). NEW YORK NON-NATIVE PLANT INVASIVENESS RANKING FORM - 4a6d0_1db2a_Acer.ginnala.NYS.pdf.
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14. Does this plant produce copious viable seeds each year (> 1000)?

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

Answer / Justification:

"Amur maple has become invasive in the northern United States, including Minnesota. One plant can produce thousands of seeds each year."



Reference(s):

- Wikipedia (0). Maple.
 - Minnesota Department of Agriculture (MDA) (0). Restricted Noxious Weed Amur Maple - *Acer ginnala* Maxim..
 - The Morton Arboretum (0). Amur maple (Not recommended).
-

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 / Justification:

While there is no data available on the specific germination rate of the seeds of this plant, seeds are readily available for purchase and instructions are easily found regarding scarification and stratification treatments to promote germination. This information when combined with the plant's prolific fruiting characteristic, plus the fact that the seeds do not require special or infrequent environmental conditions to germinate, supports the notion that at least 25% of seeds are viable in any given year.

Reference(s):

- [Anonymous] .
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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: **Yes**, which contributes **1** points to the total PRE score.
- The *screeener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

References suggests that time to seed production could be as short as 5 years.



Reference(s):

- Matson, E. (2011). NAME OF SPECIES: *Acer ginnala* Maxim.. (Boos, T., Ed.).
 - US Forest Service (2008). The Woody Plant Seed Manual.
-

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** points to the total PRE score.
- The *screeners* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Acer ginnala flowers for a few weeks in spring, at most (common knowledge / personal observation)

Reference(s):

- [Anonymous] .
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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: **No**, which contributes **0** points to the total PRE score.
- The *screeners* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

There is no evidence of frequent dispersal of seed via mammals, birds, or other animals.

Reference(s):

- [Anonymous] .



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

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screeener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

While maple samaras do not frequently travel long distances, the sheer quantity of potentially viable seed should be considered. While question 14 addresses the issue of seed quantity, it may be a particularly important feature of this plant beyond the weight given by a single question.

Reference(s):

- [Anonymous] .
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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: **No**, which contributes **0** points to the total PRE score.
- The *screeener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

There is no evidence of this plant's propagules being frequently dispersed by the methods described.

Reference(s):

- [Anonymous] .
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Total PRE Score

PRE Score: 13 -- Evaluate this plant further

Confidence: 87 / 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 : accept (low risk of invasiveness)

13 - 15 : evaluate further

> 15 : reject (high risk of invasiveness)

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: 2017 Farm Bill PRE 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:

- Laura Van Riper November 30, 2017
- Tom Buechel November 9, 2017

This evaluation has a total of 2 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 # 3234

Date Created: May 17, 2017 - 7:00am

Date Updated: June 13, 2017 - 12:30pm

Submitted by: Christy Marsden

Status: Fixed

Type:

Severity: Minor

Scope: Q15. 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?

Issue Description

The justification for why the overall quantity of seeds is valuable and should be noted, but in keeping with the evaluation format, should probably not be discussed within this question.

Issue Resolution (Screener's Response to Issue)

I'm not sure I fully understand the stakeholder's comment. However, it does not appear to contradict the original answer.



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.