



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

***Acer tataricum* ssp. *ginnala* -- Illinois**

2017 Farm Bill PRE Project

PRE Score: 15 -- Evaluate this plant further

Confidence: 80 / 100

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

Privacy: Public

Status: Completed

Evaluation Date: September 19, 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 is listed as an invasive species in Illinois and this evaluation confirms that categorization. *Acer tataricum ssp. ginnala* invades in climates matching Illinois across the Eastern United States and Canada. The production of copious viable seeds and impacts on native plant communities are documented by horticultural sources.

General Information

Status: Completed

Screener: Emily Russell

Evaluation Date: September 19, 2017

Plant Information

Plant: *Acer tataricum ssp. ginnala*

Regional Information

Region Name: Illinois

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 *screeners* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Acer tataricum ssp. *ginnala* is naturalized in the Midwest, New England, and Canada, as well as Northern Europe.

Reference(s):

- DAISIE (0). DAISIE: *Acer ginnala*.
 - Kartesz, J. T. (2015). The Biota of North America Program (BONAP).
-

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 *screeners* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Acer tataricum ssp. *ginnala* is naturalized in the Midwest, New England, and Canada, as well as Northern Europe. These areas are a climate match for Illinois.



Reference(s):

- Kartesz, J. T. (2015). The Biota of North America Program (BONAP).
 - DAISIE (0). DAISIE: *Acer ginnala*.
-

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:

Acer ginnala is invasive in Illinois, Massachusetts, Missouri, Vermont, and Connecticut. It is restricted in Maine, Minnesota, and Wisconsin.

Reference(s):

- Midwest Invasive Plant Network (2015). Midwest Invasive Plant List.
 - Wisconsin Department of Natural Resources (2015). Amur maple - Wisconsin DNR.
 - Center for Invasive Species and Ecosystem Health (2017). Illinois Invasive Plant List.
 - Minnesota Department of Agriculture (MDA) (0). Restricted Noxious Weed Amur Maple - *Acer ginnala* Maxim..
 - Maine Department of Agriculture, Conservation and Forestry (2017). 33 Invasive Plants Prohibited from Sale in Maine What you need to Know.
 - Connecticut Invasive Plant Working Group, University of Connecticut (2014). Invasive Plant List - Connecticut Invasive Plant Working Group.
 - University of Vermont Extension (0). Gallery of Terrestrial Plants - Vermont Invasives.
-

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:

Acer ginnala is invasive in Illinois, Massachusetts, Missouri, and Vermont. It is restricted in Maine, Minnesota, and Wisconsin. These states share a climate with Illinois.

Reference(s):

- Maine Department of Agriculture, Conservation and Forestry (2017). 33 Invasive Plants Prohibited from Sale in Maine What you need to Know.
 - Wisconsin Department of Natural Resources (2015). Amur maple - Wisconsin DNR.
 - Center for Invasive Species and Ecosystem Health (2017). Illinois Invasive Plant List.
 - Minnesota Department of Agriculture (MDA) (0). Restricted Noxious Weed Amur Maple - *Acer ginnala* Maxim..
 - University of Vermont Extension (0). Gallery of Terrestrial Plants - Vermont Invasives.
-

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 invasive in Illinois, and many of the same areas where *A. tataricum* ssp. *ginnala* is invading.

Reference(s):

- Midwest Invasive Plant Network (2015). Midwest Invasive Plant List.
 - Maine Department of Agriculture, Conservation and Forestry (2017). 33 Invasive Plants Prohibited from Sale in Maine What you need to Know.
 - 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.
-



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 **Medium** confidence in this answer based on the available literature.

Answer / Justification:

The native distribution in Korea is a climate match. Occurrences are heavy in Northern Europe and the Eastern United States and Canada, which also match. Sparse occurrences in the Western United States, Australia/New Zealand, and central China do not match.

Reference(s):

- Universitetsparken 15 DK-2100 Copenhagen Ø DENMARK (0). Global Biodiversity Information Facility.
 - USDA-Grin (2007). *Acer tataricum* L. subsp. *ginnala*. In: Taxonomy - GRIN-Global Web v 1.9.8.2.
 - GBIF Secretariat (2016). GBIF Backbone Taxonomy: *Acer tataricum* subsp. *ginnala* (Maxim.) Wesmael.
 - DAISIE (0). DAISIE: *Acer ginnala*.
-

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:

"In open woods, Amur maple displaces native shrubs and understory trees. In prairies and open fields, it can shade out native species of plants, disrupting the ecosystems that plants and animals depend on." (Morton) "Amur maple has been found to produce allelopathic chemicals. It can alter habitats, invading prairies, grasslands, or open woodlands and adding a shrub layer. It will displace native shrubs and understory trees in open woods and shade out other sun-loving native species." (MN)



Reference(s):

- The Morton Arboretum (0). Amur maple (Not recommended).
 - Minnesota Department of Agriculture (MDA) (0). Restricted Noxious Weed Amur Maple - *Acer ginnala* Maxim..
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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 *screeners* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

No evidence of changing fire regimes. Some sources report it can survive prescribed burns.

Reference(s):

- Bebeau, G.. D. (2014). Amur Maple, *Acer ginnala* Maxim..
-

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 *screeners* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

No evidence of health risks to humans, animals, or grazing systems.

Reference(s):

- [Anonymous] .
-



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 *screeners* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Though the habit suggests thickets could be formed, there are no reports in the literature of invasive populations forming thickets.

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 *screeners* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Though "it re-sprouts easily from cut stumps", there is no evidence of spreading vegetatively to new areas.

Reference(s):

- Bebeau, G.. D. (2014). Amur Maple, *Acer ginnala* Maxim..
-



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 *screeners* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Acer tataricum ssp. *ginnala* can be propagated from cuttings, but there is no evidence of reproducing from fragments in the wild.

Reference(s):

- [Anonymous] .
-

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

- 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:

"One tree can produce more than 5,000 two-winged seeds that are widely spread by wind." "One plant can produce thousands of seeds each year."

Reference(s):

- US Forest Service (2008). The Woody Plant Seed Manual.
 - The Morton Arboretum (0). Amur maple (Not recommended).
 - Koetter, R., & Zuzek K. (0). Amur maple (*Acer ginnala*).
-



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:

"One tree can produce more than 5,000 two-winged seeds that are widely spread by wind." "One plant can produce thousands of seeds each year."

Reference(s):

- The Morton Arboretum (0). Amur maple (Not recommended).
 - Koetter, R., & Zuzek K. (0). Amur maple (*Acer ginnala*).
-

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

Answer / Justification:

"In *Acer ginnala*, one-month-old seed gave 44% germination, six-month-old seed 5% germination and nine-month-old seed 0% germination. Nine-month-old seed when treated with gibberellic acid, ethephon and cold gave 86% germination" (Norton) The USFS found that 52% of seeds germinated after 38 days of stratification, and recommends both warm and cold stratification to break dormancy. So it appears that >25% germination could be expected the next growing season in Illinois, but some seeds may wait another year to germinate.

Reference(s):

- US Forest Service (2008). The Woody Plant Seed Manual.
- Norton, C. R. (1987). SEED TECHNOLOGY ASPECTS OF WOODY ORNAMENTAL SEED GERMINATION. ISHS Acta Horticulturae 202: Germination of Ornamental Plant Seeds, XXII IHC.



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 *screeners* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

The USFS says the minimum seed-bearing age is 5 years.

Reference(s):

- 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:

Bloom time is between April and June, with seeds ripening between August and September, and dispersal from September to January.

Reference(s):

- US Forest Service (2008). The Woody Plant Seed Manual.
-



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 **Medium** confidence in this answer based on the available literature.

Answer / Justification:

No evidence of long-distance dispersal by animals.

Reference(s):

- [Anonymous] .
-

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

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

Answer / Justification:

"The seeds are winged samaras, mostly landing within 100 meters of the parent tree, but a small portion can be carried long distances by wind and water."

Reference(s):

- Minnesota Department of Agriculture (MDA) (0). Restricted Noxious Weed Amur Maple - *Acer ginnala* Maxim..
-



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 *screeners* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

No evidence of accidental dispersal by humans.

Reference(s):

- [Anonymous] .
-

Total PRE Score

PRE Score: 15 -- Evaluate this plant further

Confidence: 80 / 100

Questions answered: 20 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:

- | | |
|--------------------|-------------------|
| • Steve Worth | December 22, 2017 |
| • Jeff Mengler | December 20, 2017 |
| • Linda Mackechnie | November 12, 2017 |
| • Kim Shearer | October 14, 2017 |

This evaluation has a total of 4 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 # 5405

Date Created: October 14, 2017 - 9:50am

Date Updated: January 29, 2018 - 2:03pm

Submitted by: Kim Shearer

Status: Fixed

Type: Suggestion

Severity: Minor

Scope: Q16. Does this plant produce viable seed within the first three years (for an herbaceous species) to five years (for a woody species) after germination?

Issue Description

"The USFS says the **minimum seed-bearing age is 5 years.**"

This is correct, however the answer to the question below should then be no, not yes. This species requires a minimum of 5 years of juvenility before sexual reproduction. Thus it does not produce viable seed within the first 5 years, but after the first 5 years.

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

Issue Resolution (Screener's Response to Issue)

Though it is right on the borderline of PlantRight's age guide, I consider this species to have a short juvenile period.

Issue ID # 5403



Date Created: October 14, 2017 - 9:40am

Date Updated: December 10, 2017 - 2:40pm

Submitted by: Kim Shearer

Status: Fixed

Type: Suggestion

Severity: Major

Scope: Q14. Does this plant produce copious viable seeds each year (>1000)?

Issue Description

"One tree can produce more than 5,000 two-winged seeds that are widely spread by wind."

This quote from the Morton Arboretum website does not provide any evidence for this statement. There are no citations.

Issue Resolution (Screener's Response to Issue)

For the purposes of this evaluation, the Morton Arboretum is considered a valid source of information about plants. Another citation from the University of Minnesota Extension was added as well, for further supporting evidence. I understand the concern about the scientific integrity of the sources, but I do not believe the answer to this question is in dispute (that *A. tataricum* ssp. *ginnala* produces copious viable seed).

Issue ID # 5402

Date Created: October 14, 2017 - 9:38am

Date Updated: December 10, 2017 - 2:41pm

Submitted by: Kim Shearer

Status: Fixed

Type: Suggestion

Severity: Major

Scope: Q13. Does the species (or cultivar or variety) commonly produce viable seed?



Issue Description

"One tree can produce more than 5,000 two-winged seeds that are widely spread by wind."

This quote is taken from the Morton Arboretum site about *Acer ginnala*, however there is no citation or supporting evidence relative to this statement. The Woody Plant Seed Manual reference does provide information relative to juvenility period, however it does not make a statement relative to viability of seed.

Issue Resolution (Screener's Response to Issue)

For the purposes of this evaluation, the Morton Arboretum is considered a valid source of information about plants. Another citation from the University of Minnesota Extension was added as well, for further supporting evidence. I understand the concern about the scientific integrity of the sources, but I do not believe the answer to this question is in dispute (that *A. tataricum* ssp. *ginnala* produces copious viable seed). The Woody Plant Seed Manual contains germination requirements and test results for *Acer ginnala*, indicating a 52% germination rate for stratified seeds.

Issue ID # 5401

Date Created: October 14, 2017 - 9:25am

Date Updated: December 13, 2017 - 7:45am

Submitted by: Kim Shearer

Status: Fixed

Type: Suggestion

Severity: Minor

Scope: Q11. Does this species (or cultivar or variety) reproduce and spread vegetatively?

Issue Description

"It re-sprouts easily from cut stumps"

This quote from the referenced website does not indicate there is spreading through vegetative reproduction. It only indicates that the tree can resprout from a stump that has live roots. According to the site, this can be managed by applying glyphosate or triclopyr. Reproducing and then spreading vegetatively should be demonstrated through root suckering in the case of this species.

Issue Resolution (Screener's Response to Issue)



After checking with PlantRight on the intent of this question, the answer was changed to no: there is no evidence of spreading to new areas via vegetative reproduction. PlantRight has updated their wording to clarify that plants must indeed be spreading to new areas rather than persisting after damage.

Issue ID # 5400

Date Created: October 14, 2017 - 9:18am

Date Updated: December 10, 2017 - 2:51pm

Submitted by: Kim Shearer

Status: Fixed

Type: Suggestion

Severity: Minor

Scope: Q07. Does this plant displace native plants and dominate the plant community in areas where it has been established?

Issue Description

I would recommend removing the Morton site as a reference as it does not provide any citations for the information it relays.

Issue Resolution (Screener's Response to Issue)

For the purposes of this evaluation, the Morton Arboretum is considered a valid source of information about plants. I understand the concern about the scientific integrity of sources, but I do not believe the answer to the question is in dispute (that *A. tataricum* ssp. *ginnala* displaces native plants and dominates plant communities where it is established).

Issue ID # 5399

Date Created: October 14, 2017 - 9:10am

Date Updated: December 10, 2017 - 3:10pm



Submitted by: Kim Shearer

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

"*Acer ginnala* is invasive in Illinois, Massachusetts, Missouri, **New York, Vermont, and Connecticut**. It is restricted in Maine, Minnesota, and Wisconsin. These states share a climate with Illinois."

Need citations for New York, Vermont and Connecticut.

Issue Resolution (Screener's Response to Issue)

Added a citation for Vermont and removed Connecticut and New York.

Issue ID # 5397

Date Created: October 14, 2017 - 9:08am

Date Updated: December 10, 2017 - 3:09pm

Submitted by: Kim Shearer

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

"*Acer ginnala* is invasive in Illinois, Massachusetts, Missouri, **New York, Vermont, and Connecticut**. It is restricted in Maine, Minnesota, and Wisconsin."



Need citations for New York, Vermont, Connecticut.

Issue Resolution (Screener's Response to Issue)

Added a citation for Vermont and Connecticut and removed New York.

Issue ID # 5396

Date Created: October 14, 2017 - 9:01am

Date Updated: December 10, 2017 - 2:44pm

Submitted by: Kim Shearer

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

"*Acer tataricum* ssp. *ginnala* is naturalized in the Midwest, New England, and Canada, as well as Northern Europe."

This one needs a citation for the distribution in Canada.

Issue Resolution (Screener's Response to Issue)

The Biota of North America Program (BONAP) is a valid source for distribution in Canada.

Issue ID # 5395

Date Created: October 14, 2017 - 8:59am

Date Updated: December 10, 2017 - 2:43pm



Submitted by: Kim Shearer

Status: Fixed

Type: Suggestion

Severity: Minor

Scope: Q01. Has the species (or cultivar or variety, if applicable) become naturalized where it is not native?

Issue Description

"*Acer tataricum* ssp. *ginnala* is naturalized in the Midwest, New England, and **Canada**, as well as Northern Europe."

There is a citation missing for the Canada distribution. Two citations provided demonstrate naturalization in Midwest, New England, and Northern Europe.

Issue Resolution (Screener's Response to Issue)

The Biota of North America Program (BONAP) is a valid source for distribution in Canada.



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.