



*Plant Risk Evaluator -- PRETM
Evaluation Report*

*Hydrangea macrophylla 'Bailmer' ENDLESS
SUMMER THE ORIGINAL -- Illinois*

2017 Farm Bill PRE Project

PRE Score: 11 -- Accept (low risk of invasiveness)

Confidence: 55 / 100

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

Privacy: Public

Status: Submitted

Evaluation Date: September 6, 2017

This PDF was created on June 15, 2018



Plant Evaluated

Hydrangea macrophylla 'Bailmer' ENDLESS SUMMER THE ORIGINAL



Image by David J. Stang



Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Hydrangea macrophylla* 'Bailmer' ENDLESS SUMMER THE ORIGINAL) 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

Hydrangea macrophylla 'Bailmer' does not seem to present a significant risk of invasion in Illinois. Though it naturalizes freely in warmer climates, there are no reports of naturalizing in a similar climate. Vegetative reproduction and copious viable seed which germinates readily increase the risk score. Seeds and fragments could also potentially be moved long distances, but there is not strong evidence for this happening on a frequent basis.

General Information

Status: Submitted

Screener: Emily Russell

Evaluation Date: September 6, 2017

Plant Information

Plant: *Hydrangea macrophylla* 'Bailmer' ENDLESS SUMMER THE ORIGINAL

If the plant is a cultivar, how does its behavior differs from its parent's?

"'Bailmer' ENDLESS SUMMER is a mophead-like cultivar that is significantly different from other mop heads currently in commerce today because of its unique ability to bloom on both old and new growth and its extremely good winter hardiness. ENDLESS SUMMER plants produce flower buds not only in fall but also on new growth in spring and summer." (MOBOT)

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

Answer / Justification:

Hydrangea macrophylla has naturalized in Russia, China, Korea, New Zealand, Guatemala, Nicaragua, Peru, Pacific Islands and Macaronesia. The cultivar 'Bailmer' was patented in the United States in 2004 and is marketed for colder climates where the species is often damaged during the winter. It's therefore unlikely that 'Bailmer' was a factor in any of the naturalized populations cited above. Only two occurrences of *H. macrophylla* have been documented in the US thus far: in Arkansas and Oregon, and neither produced a naturalized population. Cultivation escapes or casual aliens of *H. macrophylla* have also been noted in Europe. Since 'Bailmer' does produce viable seed and there is no evidence it would not naturalize if planted in a warmer climate, the answer to this question is yes with a low confidence level.



Reference(s):

- Howell, C. (2008). Consolidated list of environmental weeds in New Zealand.
 - Silva, L., Land E. Ojeda, Luengo J. L. Rodrigu, Borges P. A. V., Oliveira P., & Jardim R. (2008). Invasive alien species in Macaronesia. Invasive Terrestrial Flora & Fauna of Macaronesia. TOP 100 in Azores, Madeira and Canaries. 159–165.
 - Shin, H. tak, Yi M. hoon, Yoon J. won, Sung J. won, & Kim G. song (2012). Status of Alien Plant Species in the Seongeup Folk Village in Jeju Island. Journal of Korean Nature. 5, 299–304.
 - Malyarovskaya, V.I.. (2015). VARIABILITY OF MORPHOMETRIC PARAMETERS IN NATURALIZED AND CULTIVATED *Hydrangea macrophylla* Ser. PLANTS UNDER DIFFERENT ENVIRONMENTAL CONDITIONS. Sel'skokhozyaistvennaya Biologiya [Agricultural Biology]. 50(1), 92-98.
 - US Forest Service, Pacific Island Ecosystems at Risk (PIER) (2010). *Hydrangea macrophylla* (PIER species info).
 - USDA-Grin (1999). *Hydrangea macrophylla*. In: Taxonomy - GRIN-Global Web v 1.9.8.2.
 - Serviss, B. E., Peck J. H., & MADDOX VICTOR. L. (2016). HYDRANGEA MACROPHYLLA (HYDRANGEACEAE) ADVENTIVE IN THE ARKANSAS FLORA. Phytoneuron. 2016(66), 1-6.
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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: **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:

There is no evidence of *Hydrangea macrophylla* naturalizing in a climate similar to Illinois. Only two occurrences have been documented in the United States: in Arkansas and Oregon. Neither produced a naturalized population and neither is a climate match for Illinois. Cultivation escapes or casual aliens of *H. macrophylla* have also been noted in Europe (Great Britain, Norway), but no significant populations in a similar climate to Illinois.

Reference(s):

- Serviss, B. E., Peck J. H., & MADDOX VICTOR. L. (2016). HYDRANGEA MACROPHYLLA (HYDRANGEACEAE) ADVENTIVE IN THE ARKANSAS FLORA. Phytoneuron. 2016(66), 1-6.
-



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

Answer / Justification:

Hydrangea macrophylla is invasive in the Azores, and perhaps some Pacific Island ecosystems. Descriptions of damage are lacking for most other areas where the species is naturalized. It's unlikely that the cultivar 'Bailmer' contributed to these invasions in warmer climates. 'Bailmer' was patented in the United States in 2004 and is marketed for colder climates where the species is often damaged during the winter. On the other hand, 'Bailmer' does produce viable seed and there is no evidence it would not invade as the parent species does if planted in a warmer climate, so the answer to this question is yes with a low confidence level.

Reference(s):

- Silva, L., Land E. Ojeda, Luengo J. L. Rodrigu, Borges P. A. V., Oliveira P., & Jardim R. (2008). Invasive alien species in Macaronesia. *Invasive Terrestrial Flora & Fauna of Macaronesia. TOP 100 in Azores, Madeira and Canaries.* 159–165.
 - US Forest Service, Pacific Island Ecosystems at Risk (PIER) (2010). *Hydrangea macrophylla* (PIER species info).
-

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

- 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:

There is no evidence of *Hydrangea macrophylla* or *H. macrophylla* 'Bailmer' as an invasive species in a similar climate to Illinois.

Reference(s):

- [Anonymous] .



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

- 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:

Hydrangea paniculata is naturalized in the Eastern United States and Ontario, but is not currently included on any state invasive species lists.

Reference(s):

- USDA NRCS (2017). USDA PLANTS Database: *Hydrangea paniculata* (panicked hydrangea).
-

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

Answer / Justification:

Hydrangea macrophylla is a widespread species that grows in many climates. It thrives in climates warmer than Illinois.

Reference(s):

- [Anonymous] .
-



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

Answer / Justification:

Evidence is lacking that *H. macrophylla* dominates the plant community where established.

Reference(s):

- [Anonymous] .
-

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:

There is no evidence that *H. macrophylla* changes fire regimes.

Reference(s):

- [Anonymous] .
-

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



Answer / Justification:

H. macrophylla is moderately toxic to humans and animals when consumed, but no impacts to grazing systems have been documented.

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 *screeener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

There are no reports of impenetrable thickets.

Reference(s):

- [Anonymous] .
-

Reproductive Strategies (Questions 11 - 17)

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

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

Answer / Justification:

Hydrangea macrophylla spreads vegetatively by suckering and layering.



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

Answer / Justification:

Hydrangea macrophylla can easily reproduce from fragments.

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

Answer / Justification:

The patent application for 'Bailmer' includes the information: "Seeds are numerous, viable and 200D in color"

Reference(s):

- Black, V. Glen (2004). *Hydrangea* plant named 'Bailmer' US PP15298 P3.
-



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

Answer / Justification:

The patent application for 'Bailmer' includes the information: "Seeds are numerous, viable and 200D in color" For *Hydrangea* in general, Dirr says: "I have collected infructescences in January and February that contained thousands of seeds."

Reference(s):

- Dirr, M. (2004). *Hydrangeas for American Gardens*.
-

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

Answer / Justification:

"Seeds require no special stratification treatments. ie, no seed coat and/or embryo dormancy... Seedlings are visible in 4 to 6 weeks."

Reference(s):

- Dirr, M. (2004). *Hydrangeas for American Gardens*.
-



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:

Hydrangeas can bloom within the first three years after germination.

Reference(s):

- [Anonymous] .
-

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

- 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:

Bloom time is "from June until frost in Minnesota and from June to November or frost in Georgia, if old flowerheads are removed."

Reference(s):

- Black, V. Glen (2004). *Hydrangea* plant named 'Bailmer' US PP15298 P3.
-



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

Answer / Justification:

There is 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 **Low** confidence in this answer based on the available literature.

Answer / Justification:

"The small winged seeds of most Hydrangeaceae are undoubtedly wind dispersed. They are readily thrown from the dehisced fruits when branches move in wind." "Water dispersal of stem segments generated from horticultural waste is a plausible explanation for the presence of the spontaneous plant, as *H. macrophylla* is commonly cultivated in Hot Springs and periodic flooding occurs along Hot Springs Creek, which could have transported and deposited such propagules to the site, allowing for establishment of the plant." Confidence is low because there are no estimates of dispersal distance.



Reference(s):

- Serviss, B. E., Peck J. H., & MADDOX VICTOR. L. (2016). HYDRANGEA MACROPHYLLA (HYDRANGEACEAE) ADVENTIVE IN THE ARKANSAS FLORA. *Phytoneuron*. 2016(66), 1-6.
 - Kubitzki, K. (2013). Flowering Plants. Dicotyledons: Celastrales, Oxalidales, Rosales, Cornales, Ericales.
-

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

Answer / Justification:

No evidence of dispersal by humans, other than possible dumping of yard waste.

Reference(s):

- Serviss, B. E., Peck J. H., & MADDOX VICTOR. L. (2016). HYDRANGEA MACROPHYLLA (HYDRANGEACEAE) ADVENTIVE IN THE ARKANSAS FLORA. *Phytoneuron*. 2016(66), 1-6.
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Total PRE Score

PRE Score: 11 -- Accept (low risk of invasiveness)

Confidence: 55 / 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
- Shannon McEnerney December 14, 2017
- Richard Hawke October 30, 2017
- John Taft September 26, 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 # 5074

Date Created: September 26, 2017 - 1:52pm

Date Updated: December 10, 2017 - 1:26pm

Submitted by: John Taft

Status: Fixed

Type: Comment

Severity: Minor

Scope: Evaluation as a whole

Issue Description

Adaption to a warmer climate suggests that portions of Illinois could be eligible with climate change. Occurrences in Minnesota suggest not limited exclusively to warmer climates. Perhaps likely future climate conditions could be a consideration when anticipating where this species could become adventive.

Issue Resolution (Screener's Response to Issue)

I am not aware of occurrences of *Hydrangea macrophylla* in Minnesota and would welcome a reference. Climate change is certainly a valid concern for invasive species range expansion.



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.