



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

Alnus glutinosa -- Illinois

2017 Farm Bill PRE Project

PRE Score: 18 -- Reject (high risk of invasiveness)

Confidence: 75 / 100

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

Privacy: Public

Status: Completed

Evaluation Date: May 16, 2017

This PDF was created on June 15, 2018



Plant Evaluated

Alnus glutinosa



Image by Nikanos



Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Alnus glutinosa*) 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.

General Information

Status: Completed

Screener: Emily Russell

Evaluation Date: May 16, 2017

Plant Information

Plant: *Alnus glutinosa*

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:

Alnus glutinosa is naturalized in the United States, Canada, India, Korea, Australia, and New Zealand.

Reference(s):

- CABI (2017). *Alnus glutinosa* (European alder) Datasheet In: Invasive Species Compendium.
 - USDA NRCS (2017). USDA PLANTS Database: *Alnus glutinosa* (European alder).
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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** points to the total PRE score.
- The *screeners* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Alnus glutinosa is naturalized in the Midwest, MidAtlantic, and Ontario.

Reference(s):

- USDA NRCS (2017). USDA PLANTS Database: *Alnus glutinosa* (European alder).



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

Answer / Justification:

Alnus glutinosa is invasive in the Midwestern United States, Ontario, New Zealand, and the Australian Capital Territory.

Reference(s):

- Anderson, H. (2013). Invasive European Black Alder (*Alnus glutinosa*) Best Management Practices in Ontario..
 - Midwest Invasive Plant Network (2015). Midwest Invasive Plant List.
 - The State of Queensland Department of Agriculture and Fisheries (2016). *Alnus glutinosa* Fact Sheet from: Environmental Weeds of Australia for Biosecurity Queensland Edition.
 - Howell, C. (2008). Consolidated list of environmental weeds in New Zealand.
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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** points to the total PRE score.
- The *screeners* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Alnus glutinosa is a restricted invasive plant in Wisconsin, high invasive rank in Indiana, and also reported invasive in Ontario, Michigan, New York, and Pennsylvania.



Reference(s):

- Anderson, H. (2013). Invasive European Black Alder (*Alnus glutinosa*) Best Management Practices in Ontario..
 - Cao, L., Larson J., Berent L., & Fusaro A.. (2012). NOAA Great Lakes Aquatic Nonindigenous Species Information System: *Alnus glutinosa*.
 - Midwest Invasive Plant Network (2015). Midwest Invasive Plant List.
 - Mid-Atlantic Exotic Pest Plant Council (2005). Mid-Atlantic Exotic Pest Plant Council Plant List.
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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:

14 other species of *Alnus* are listed in the Global Compendium of Weeds, mostly as agricultural weeds. Evidence was not found that other species in the genus are invasive in a similar climate.

Reference(s):

- Randall, R. (2012). A Global Compendium of Weeds. 2nd Edition..
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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** points to the total PRE score.
- The *screeners* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Alnus glutinosa is a widespread species that grows in many different climates. It's native range in Northern Africa and Central and Southern Europe do not match the climate in Illinois.



Reference(s):

- CABI (2017). *Alnus glutinosa* (European alder) Datasheet In: Invasive Species Compendium.
 - GBIF Secretariat (2016). GBIF Backbone Taxonomy: *Alnus glutinosa* (L.) Gaertn..
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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 *screeener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

"European Black Alder can degrade wetland, riparian and littoral habitats. It forms mono-specific stands that out-compete native species in as little as 10 years, blocking them from water, nutrients, and sunlight." *Alnus glutinosa* also alters habitats by fixing nitrogen in the soil and producing copious amounts of leaf litter.

Reference(s):

- Anderson, H. (2013). Invasive European Black Alder (*Alnus glutinosa*) Best Management Practices in Ontario..
 - Cao, L., Larson J., Berent L., & Fusaro A.. (2012). NOAA Great Lakes Aquatic Nonindigenous Species Information System: *Alnus glutinosa*.
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8. Is the plant noted as promoting fire and/or changing fire regimes?

- 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:

"Clones shade herbaceous ground layer and consequently reduce opportunities for successful fire management in grassland and herbaceous wetland habitats." (John Taft, Illinois Natural History Survey)

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:

Health risks to animals or impacts to grazing systems were not reported in the literature.

Reference(s):

- [Anonymous] .
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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** points to the total PRE score.
- The *screeener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Alnus glutinosa can sucker from the roots to form thickets, but there are not descriptions of plants blocking movement in the literature. "*Alnus glutinosa* establishes readily in wetlands and riparian habitats and forms pure stands or thickets in disturbed wetland sites."



Reference(s):

- Anderson, H. (2013). Invasive European Black Alder (*Alnus glutinosa*) Best Management Practices in Ontario..
 - Cao, L., Larson J., Berent L., & Fusaro A.. (2012). NOAA Great Lakes Aquatic Nonindigenous Species Information System: *Alnus glutinosa*.
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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 *screeners* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Alnus glutinosa "also spreads through root suckers once it has established in an area or if the main trunk has died."

Reference(s):

- Lee, S. (2011). *Alnus glutinosa*.
 - Anderson, H. (2013). Invasive European Black Alder (*Alnus glutinosa*) Best Management Practices in Ontario..
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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** points to the total PRE score.
- The *screeners* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

Cuttings may be rooted, but there are not reports that *Alnus glutinosa* commonly fragments as a form of reproduction.



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

Answer / Justification:

Seeds are the usual method of reproduction for *Alnus glutinosa*.

Reference(s):

- Lee, S. (2011). *Alnus glutinosa*.
 - Anderson, H. (2013). Invasive European Black Alder (*Alnus glutinosa*) Best Management Practices in Ontario..
 - USDA Forest Service (2008). USDA FS Agriculture Handbook 727 - The Woody Plant Seed Manual.
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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:

They produce an average of 60 seeds per cone and up to 4,000 cones per tree on mature trees." USDA Forest Service germination tests estimate viability at 39-43%.



Reference(s):

- Lee, S. (2011). *Alnus glutinosa*.
 - Anderson, H. (2013). Invasive European Black Alder (*Alnus glutinosa*) Best Management Practices in Ontario..
 - USDA Forest Service (2008). USDA FS Agriculture Handbook 727 - The Woody Plant Seed Manual.
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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** points to the total PRE score.
- The *screeners* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Seeds usually germinate within the first year.

Reference(s):

- Anderson, H. (2013). Invasive European Black Alder (*Alnus glutinosa*) Best Management Practices in Ontario..
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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 *screeners* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Wisconsin DNR reports "about 2.5 years until tree can reproduce and seeds can germinate."



Reference(s):

- Lee, S. (2011). *Alnus glutinosa*.
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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** points to the total PRE score.
- The *screeener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

In the Eastern United States, flowering is usually March to May and fruit ripens in September.

Reference(s):

- USDA Forest Service (2008). USDA FS Agriculture Handbook 727 - 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: **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:

Seeds are consumed by birds but dispersal distances are not known. Ontario Invasive Plant Council: "birds, such as Goldfinches, Siskin and Redpolls, do feed on the cones in the winter, but they likely don't spread seeds far as they often split the seeds open while eating them." NOAA: "Black alder may provide food for deer, rabbits, hares, and several bird species."



Reference(s):

- Anderson, H. (2013). Invasive European Black Alder (*Alnus glutinosa*) Best Management Practices in Ontario..
 - Lee, S. (2011). *Alnus glutinosa*.
 - Cao, L., Larson J., Berent L., & Fusaro A.. (2012). NOAA Great Lakes Aquatic Nonindigenous Species Information System: *Alnus glutinosa*.
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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 **High** confidence in this answer based on the available literature.

Answer / Justification:

Seeds are dispersed short distances by wind, but can be dispersed long distance by flowing water. "Seeds contain an air bladder and can float for over 12 months."

Reference(s):

- Lee, S. (2011). *Alnus glutinosa*.
 - Anderson, H. (2013). Invasive European Black Alder (*Alnus glutinosa*) Best Management Practices in Ontario..
 - Cao, L., Larson J., Berent L., & Fusaro A.. (2012). NOAA Great Lakes Aquatic Nonindigenous Species Information System: *Alnus glutinosa*.
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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 *screeners* has a **Low** confidence in this answer based on the available literature.



Answer / Justification:

There are not reports of accidental dispersal by humans.

Reference(s):

- [Anonymous] .
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Total PRE Score

PRE Score: 18 -- Reject (high risk of invasiveness)

Confidence: 75 / 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 |
| • Michael Yanny | December 6, 2017 |
| • John Taft | September 25, 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 # 5025

Date Created: September 25, 2017 - 10:57am

Date Updated: December 10, 2017 - 12:10pm

Submitted by: John Taft

Status: Fixed

Type: Suggestion

Severity: Minor

Scope: Q08. Is the plant noted as promoting fire and/or changing fire regimes?

Issue Description

Clones shade herbaceous ground layer and consequently reduce opportunities for successful fire management in grassland and herbaceous wetland habitats.

Issue Resolution (Screener's Response to Issue)

Changed answer to yes with medium confidence, and added quotation from John Taft.



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.