Plant Risk Evaluator -- PRE™
Evaluation Report

Vinca minor -- Illinois

2017 Farm Bill PRE Project

**PRE Score:** 12 -- Accept (low risk of invasiveness)
**Confidence:** 67 / 100
**Questions answered:** 20 of 20 -- Valid (80% or more questions answered)

**Privacy:** Public
**Status:** Completed

**Evaluation Date:** April 23, 2017

*This PDF was created on June 15, 2018*
Plant Evaluated

*Vinca minor*

Image by 4028mdk09
Evaluation Overview

A PRE™ screener conducted a literature review for this plant (Vinca minor) 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: April 23, 2017

Plant Information

Plant: Vinca minor

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

   Answer / Justification:

   Vinca minor has escaped cultivation and naturalized throughout the eastern United States. It has also been reported as a weed in China, Australia, and New Zealand.

   Reference(s):


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

   Answer / Justification:

   Vinca minor is naturalized in Illinois and across the eastern United States.
Reference(s):


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

Answer / Justification:

Vinca minor is invasive in much of the eastern United States.

Reference(s):


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

Answer / Justification:

Vinca minor is invasive in the Midwest and Mid-Atlantic United States.
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 screener has a Medium confidence in this answer based on the available literature.

Answer / Justification:

Vinca major is also invasive in the eastern United States particularly the Southeast, but does not seem to be a problem in the Midwest.

Reference(s):

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 to the total PRE score.
- The screener has a Medium confidence in this answer based on the available literature.

Answer / Justification:

There are some conflicting views on whether Vinca minor dominates plant communities. Some sources say that Vinca minor grows in dense smothering mats that shade out tree seedlings and other plants. Other sources point out that "bulbs and perennials are able to emerge through areas where Vinca is used as underplanting" (Shannon McEnerney, Midwest Groundcovers, reviewer).

Reference(s):


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

Answer / Justification:

Information on Vinca and fire regimes is lacking and warrants further study. "Some evidence suggests that periwinkles may alter local fuel characteristics by changing community structure, litter dynamics, fuel arrangement, and understory temperatures."

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

Answer / Justification:

Vinca is generally unpalatable to animals and has not been reported as poisonous. There are some medicinal uses. A 2007 Michigan study found that Vinca minor negatively impacted the spider assemblage on the forest floor.

Reference(s):


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

Answer / Justification:

Vinca minor is a low-growing groundcover that does not impede the movement of humans or animals.

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

Answer / Justification:

"Vegetative regeneration is very important to the establishment and spread of periwinkle." Trailing stems root at the nodes.

Reference(s):


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 point to the total PRE score.
- The screener has a Medium confidence in this answer based on the available literature.

Answer / Justification:

"It is likely that periwinkles establish from plant fragments"
13. Does the species (or cultivar or variety) commonly produce viable seed?

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

Answer / Justification:

Vinca minor rarely produces seed.

Reference(s):


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

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

Answer / Justification:

Vinca minor rarely produces seed.

Reference(s):

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

Answer / Justification:

Germination rates and requirements for Vinca minor are unknown, but plants rarely set seed.

Reference(s):

   - [Anonymous] .

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

Answer / Justification:

The time from germination to maturity is unknown. Since plants rarely produce seed, it can be assumed a plant would not do so within the first three years.

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

Answer / Justification:

Vinca minor can have a long flowering period: "flowers typically have one large flush in spring and then flower rather infrequently after that" (Shannon McEnerny, Midwest Groundcovers, reviewer) into the fall. "While it does flower for prolonged periods, these flowers rarely produce seed" (Jeff Mengler, reviewer).

Reference(s):


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

Answer / Justification:

There are not reports of Vinca minor dispersal by 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 screener has a Low confidence in this answer based on the available literature.

Answer / Justification:

There is no evidence that Vinca minor propagules are dispersed long distance by wind or water.

Reference(s):


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

Answer / Justification:

There are reports of Vinca establishing in natural areas after dumping of contaminated yard waste, but no other evidence of dispersal by humans.

Reference(s):

Total PRE Score

**PRE Score:** 12 -- Accept (low risk of invasiveness)
**Confidence:** 67 / 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:

- Michael Yanny
- Christopher Evans

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 # 5589

Date Created: October 31, 2017 - 10:57am
Date Updated: December 10, 2017 - 11:57am

Submitted by: Christopher Evans

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

Issue Description

This evaluation doesn't have a climate map associated with it. At least one wasn't linked to on the evaluation

Issue Resolution (Screener's Response to Issue)

Added climate map

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Issue ID # 3284

Date Created: May 23, 2017 - 10:06am
Date Updated: June 19, 2017 - 2:35pm

Submitted by: Jeff Mengler

Status: Fixed
Type:
Severity: Minor

Scope: Q17. Does this plant continuously produce seed for >3 months each year or does seed production occur more than once a year?

Issue Description

The answer given for Q17 seems inconsistent with information given in response to other questions. Several other questions state that "Vinca minor rarely produces seed" while this questions answers yes, Vinca minor produces seed > 3months or more than once a year. This response is based on the flowering phenology of the plant. Perhaps this should be clarified that while it does flower for prolonged periods, these flowers rarely produce seed. This clearly does not affect the total score for this plant.

Issue Resolution (Screener's Response to Issue)

The text was changed as follows: Vinca minor can have a long flowering period: "flowers typically have one large flush in spring and then flower rather infrequently after that" (Shannon McEnerney, Midwest Groundcovers, reviewer) into the fall. "While it does flower for prolonged periods, these flowers rarely produce seed" (Jeff Mengler, reviewer).

Also, the confidence level for this question was lowered to medium.

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Issue ID # 3182

Date Created: May 12, 2017 - 8:30am
Date Updated: June 19, 2017 - 2:40pm

Submitted by: Shannon McEnerney

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

Issue Description

Commonly used in landscapes, bulbs and perennials are able to emerge through areas where Vinca is used as underplanting.

Issue Resolution (Screener's Response to Issue)
The answer was changed as follows and confidence was lowered to medium: "There are some conflicting views on whether Vinca minor dominates plant communities. Some sources say that Vinca minor grows in dense smothering mats that shade out tree seedlings and other plants. Other sources point out that "bulbs and perennials are able to emerge through areas where Vinca is used as underplanting" (Shannon McEnerney, Midwest Groundcovers, reviewer)."

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**Issue ID # 3181**

**Date Created:** May 12, 2017 - 8:23am  
**Date Updated:** June 19, 2017 - 2:25pm  
**Submitted by:** Shannon McEnerney  
**Status:** Fixed  
**Type:**  
**Severity:** Minor  
**Scope:** Q17. Does this plant continuously produce seed for >3 months each year or does seed production occur more than once a year?

**Issue Description**

From landscape observations, flowers typically have one large flush in spring and then flower rather infrequently after that.

**Issue Resolution (Screener's Response to Issue)**

The reviewer's comment was added to the answer for this question: "From landscape observations, flowers typically have one large flush in spring and then flower rather infrequently after that."
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.