



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

Viola odorata -- Texas

2017 Farm Bill PRE Project

PRE Score: 8 -- Accept (low risk of invasiveness)

Confidence: 67 / 100

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

Privacy: Public

Status: Submitted

Evaluation Date: October 1, 2017

This PDF was created on August 13, 2018



Plant Evaluated

Viola odorata



Image by Fritz Geller-Grimm



Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Viola odorata*) 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

Viola odorata is widely naturalized across the U.S. and is a common lawn and garden invader. It does not appear to become invasive in natural systems and is not considered invasive. The species spreads both vegetatively and by ant dispersed seeds.

General Information

Status: Submitted

Screener: Kim Taylor

Evaluation Date: October 1, 2017

Plant Information

Plant: *Viola odorata*

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

This evaluation is for the species, not a particular cultivar.

Regional Information

Region Name: Texas



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:

Kartesz indicates *Viola odorata* is naturalized sporadically across the U.S., including Maine, Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania, Maryland, Virginia, North Carolina, Georgia, Tennessee, Louisiana, Ohio, Indiana, Michigan, Illinois, Wisconsin, Oklahoma, Nebraska, Colorado, Arizona, California, Montana, Idaho, Washington, and Oregon. USDA Plants indicates it is also naturalized in Hawaii, Puerto Rico, British Columbia, Ontario, and Newfoundland.

Reference(s):

- Kartesz, J. T. (2015). The Biota of North America Program (BONAP).
- USDA, & NRCS (2017). The Plants Database.

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



Answer / Justification:

Kartesz indicates *Viola odorata* is naturalized sporadically across the U.S., including Maine, Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania, Maryland, Virginia, North Carolina, Georgia, Tennessee, Louisiana, Ohio, Indiana, Michigan, Illinois, Wisconsin, Oklahoma, Nebraska, Colorado, Arizona, California, Montana, Idaho, Washington, and Oregon. The Southeastern and Southwestern U.S. have a similar climate to Texas.

Reference(s):

- Kartesz, J. T. (2015). The Biota of North America Program (BONAP).
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3. Is the species (or cultivar or variety) noted as being invasive in the U.S. or world?

- 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 Global Compendium of Weeds identifies the species as "agricultural weed, casual alien, cultivation escape, environmental weed, garden thug, naturalised, weed". EDD Maps does not list the species as invasive in any state in the U.S. The Native Plant Society of Oregon lists the species as a category "S" species, indicating the species may be invasive but local observations are limited.

Reference(s):

- Invasive Plant Atlas of the United States (0). English violet: *Viola odorata* (Violales: Violaceae): Invasive Plant Atlas of the United States.
 - Global Compendium of Weeds (GCW) (0). *Viola odorata* information from the Global Compendium of Weeds (GCW).
-

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.



Reference(s):

- [Anonymous] .
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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 *screeener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Viola arvensis, *V. tricolor* are naturalized across much of the U.S. including the Southeast. 68 taxa in the genus *Viola* are listed in the Global Compendium of Weeds but none are noted as highly invasive.

Reference(s):

- Global Compendium of Weeds (0). Global Compendium of Weeds: species index.
 - Kartesz, J. T. (2015). The Biota of North America Program (BONAP).
-

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

Answer / Justification:

Less than half of the species range has a similar climate to Texas.

Reference(s):

- GBIF (0). *Viola odorata* L. (GBIF).
-



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

Answer / Justification:

The species is noted as invading lawns and gardens but there is no indication that it invades natural systems and displaces native vegetation. Its low growing habit prevents it from overtopping and smothering native vegetation.

Reference(s):

- Cornell University Home Gardening (0). Explore Cornell - Home Gardening - Flower Growing Guides - Growing Guide.
 - Houzz (0). Invasive Violet!.
-

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 indication that the species alters 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: **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:

"May cause vomiting. Possible additive effect with laxatives"

Reference(s):

- Plants for a Future (0). *Viola odorata* Sweet Violet, English Violet, Garden Violet, Sweet Violet, Florist's Violet PFAF Plant Database.
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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 *screeners* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Viola odorata is a low growing herbaceous plant and does not form thickets.

Reference(s):

- [Anonymous] .
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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 *screeener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

"*Viola odorata* occurs in small colonies; individual plants are interconnected by stolons."

Reference(s):

- efloras.org (0). *Viola odorata* in Flora of North America @ efloras.org.
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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 *screeener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

It is likely that a small rooted off shoot could become detached and produce new plants. However, while possible it does not seem to be a common form of spread for the species.

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:

The species produces and spreads by seed.

Reference(s):

- Cornell University Home Gardening (0). Explore Cornell - Home Gardening - Flower Growing Guides - Growing Guide.
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14. Does this plant produce copious viable seeds each year (> 1000)?

Answer / Justification:

Question left blank.

Reference(s):

- [Anonymous] .
-

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

Answer / Justification:

" best sown in the autumn in a cold frame. The seed requires a period of cold stratification and the germination of stored seed can be erratic."

Reference(s):

- Plants for a Future (0). *Viola odorata* Sweet Violet, English Violet, Garden Violet, Sweet Violet, Florist's Violet PFAF Plant Database.



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:

"*Viola odorata* is an evergreen Perennial growing to 0.1 m (0ft 4in) by 0.5 m (1ft 8in) at a fast rate."

Reference(s):

- Plants for a Future (0). *Viola odorata* Sweet Violet, English Violet, Garden Violet, Sweet Violet, Florist's Violet PFAF Plant Database.
-

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:

"Flowering Jan–May."

Reference(s):

- efloras.org (0). *Viola odorata* in Flora of North America @ efloras.org.
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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 *screeener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Seed is spread by the "attraction and manipulation of seed-utilizing ants"

Reference(s):

- Beattie, A.. J., & Lyons N.. (1975). Seed Dispersal in *Viola* (Violaceae): Adaptations and Strategies. *American Journal of Botany*. 62, 714–722.
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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 **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Seed is spread by the "attraction and manipulation of seed-utilizing ants"

Reference(s):

- Beattie, A.. J., & Lyons N.. (1975). Seed Dispersal in *Viola* (Violaceae): Adaptations and Strategies. *American Journal of Botany*. 62, 714–722.
-



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:

There is no evidence of this.

Reference(s):

- [Anonymous] .
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Total PRE Score

PRE Score: 8 -- Accept (low risk of invasiveness)

Confidence: 67 / 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:

- Steve Moore

October 4, 2017

This evaluation has a total of 1 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.

There are currently no issues associated with this evaluation.



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.