



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

***Dipsacus laciniatus -- Minnesota***

***2017 Farm Bill PRE Project***

**PRE Score:** 16 -- Reject (high risk of invasiveness)

**Confidence:** 84 / 100

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

**Privacy:** Public

**Status:** Completed

**Evaluation Date:** September 11, 2017

*This PDF was created on June 15, 2018*



## Plant Evaluated

*Dipsacus laciniatus*



Image by Simon Eugster



## Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Dipsacus laciniatus*) 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

*Dipsacus fullonum* is invasive largely due to its copious seed production and the likely high germination rate of the seed. The vectors by which it disperses are somewhat unclear. While it does disperse by water, the typical distance or frequency which it is dispersed by water was not reported. Also, there is some mention of it being dispersed by wind and by human intervention (as a decoration in arrangements), but again this method was not quantified. The fact that it does not prolifically reproduce vegetatively somewhat limits its invasiveness and subsequent PRE score. The spines, while unpleasant, are not necessarily a hazard, although the plant is generally avoided by grazing livestock, which could perpetuate its presence.

## General Information

**Status:** Completed

**Screener:** Mike Monterusso

**Evaluation Date:** September 11, 2017

## Plant Information

**Plant:** *Dipsacus laciniatus*

## Regional Information

**Region Name:** Minnesota



## **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:

*Dipsacus laciniatus* has naturalized in numerous US states.

#### Reference(s):

- United States Department of Agriculture (2017). Plants Profile for *Dipsacus laciniatus* (cutleaf teasel).
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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 *screener* has a **Very High** confidence in this answer based on the available literature.

#### Answer / Justification:

It has naturalized in Wisconsin and Minnesota.

#### Reference(s):

- United States Department of Agriculture (2017). Plants Profile for *Dipsacus laciniatus* (cutleaf teasel).



**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:**

It's invasive in multiple US states including Wisconsin.

**Reference(s):**

- United States Department of Agriculture (2017). Plants Profile for *Dipsacus laciniatus* (cutleaf teasel).
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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:**

It's invasive in Wisconsin.

**Reference(s):**

- United States Department of Agriculture (2017). Plants Profile for *Dipsacus laciniatus* (cutleaf teasel).
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**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 *screeners* has a **Very High** confidence in this answer based on the available literature.

**Answer / Justification:**

*D. fullonum* is invasive in Wisconsin.

**Reference(s):**

- United States Department of Agriculture (2017). Plants Profile for *Dipsacus fullonum* (Fuller's teasel).
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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:**

According to GBIF, most occurrences are in Europe and the Midwest, outside of Minnesota climate zone.

**Reference(s):**

- GBIF (2016). *Dipsacus laciniatus* L..
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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 *screeners* has a **Very High** confidence in this answer based on the available literature.

#### Answer / Justification:

"Cutleaf teasel escaped cultivation and now displaces desirable vegetation."

#### Reference(s):

- Minnesota Department of Agriculture (2017). Cutleaf Teasel.
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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 **High** confidence in this answer based on the available literature.

#### Answer / Justification:

"The limited fire studies in teasel habitats suggest that aboveground teasel vegetation has low flammability, and if present in the prefire vegetation, teasel will likely be present in postfire vegetation..."

#### Reference(s):

- Gucker, C. (2009). *Dipsacus fullonum*, *D. laciniatus*.
-





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

**Answer / Justification:**

"Spines and bristles on teasel leaves and stems discourage large herbivore grazing." "It is generally avoided by grazing animals because of its bitter taste and prickly nature."

**Reference(s):**

- Gucker, C. (2009). *Dipsacus fullonum*, *D. laciniatus*.
  - Washington State University Extension (2013). Common Teasel - Whitman County - Washington State University.
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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:**

One reference suggests "dense populations occur" but there is no mention of blocking animal movement.

**Reference(s):**

- Gucker, C. (2009). *Dipsacus fullonum*, *D. laciniatus*.
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## 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 *screeener* has a **High** confidence in this answer based on the available literature.

#### Answer / Justification:

"Teasel reproduces entirely by seed, but plants may regenerate following damage"

#### Reference(s):

- Gucker, C. (2009). *Dipsacus fullonum*, *D. laciniatus*.
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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 **High** confidence in this answer based on the available literature.

#### Answer / Justification:

No evidence found.

#### 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:**

"Teasel reproduces entirely by seed..."

**Reference(s):**

- Gucker, C. (2009). *Dipsacus fullonum*, *D. laciniatus*.
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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:**

"The head may contain up to 1500 flowers"

**Reference(s):**

- Wikipedia (2016). *Dipsacus laciniatus*.
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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 *screeener* has a **High** confidence in this answer based on the available literature.

**Answer / Justification:**

"In the laboratory or greenhouse, teasel seeds harvested in October germinate in a few days at rates over 90% on soil or on moist Whatman #3 filter paper..."



**Reference(s):**

- WERNER, PATRICIA. A. (1975). THE BIOLOGY OF CANADIAN WEEDS: 12. *Dipsacus sylvestris* Huds. - cjps75-122.
- 

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

**Answer / Justification:**

"Teasel first develops a rosette and after 2 or more years, bolts and flowers."

**Reference(s):**

- Gucker, C. (2009). *Dipsacus fullonum*, *D. laciniatus*.
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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 *screeners* has a **Low** confidence in this answer based on the available literature.

**Answer / Justification:**

The answer could be yes or no depending on the interpretation of the question. For Minnesota, this screener assumed a single flower and seed set cycle that occurs from early summer through fall. While flowers might persist for 3 months, seed set will generally occur in a relatively short period of time. "Generally teasel flowering dates were later, July to October, in the midwestern and eastern United States and adjacent Canada... In eastern North America, common teasel seeds mature and disperse from September to late November."



**Reference(s):**

- Gucker, C. (2009). *Dipsacus fullonum*, *D. laciniatus*.
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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 **High** confidence in this answer based on the available literature.

**Answer / Justification:**

"Teasel seeds are not morphologically adapted for wind dispersal. In a field in Kalamazoo County, Michigan, 99.9% of common teasel seeds fell within 4.9 feet (1.5 m) of the parent plant... Water... and human activities... are the most likely methods of long-distance teasel seed dispersal."

**Reference(s):**

- United States Department of Agriculture (2017). Plants Profile for *Dipsacus laciniatus* (cutleaf teasel).
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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 *screeener* has a **High** confidence in this answer based on the available literature.

**Answer / Justification:**

"Water... and human activities... are the most likely methods of long-distance teasel seed dispersal... Long-distance teasel seed dispersal by water is likely. Common teasel seeds floated in water for 22 days without losing viability..."



**Reference(s):**

- Gucker, C. (2009). *Dipsacus fullonum*, *D. laciniatus*.
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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 *screeener* has a **Medium** confidence in this answer based on the available literature.

**Answer / Justification:**

Some evidence suggest that teasel is dispersed by its inclusion in decorative flower arrangements (seasonal displays, cemeteries, etc.) but this does not appear to be a significant dispersal method: "Seed dispersal through the collection and use of dried teasel flower heads is probable... Reviews report that teasel often occurs in and around cemeteries and likely came from floral arrangements left at gravesides."

**Reference(s):**

- Gucker, C. (2009). *Dipsacus fullonum*, *D. laciniatus*.
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**Total PRE Score**

**PRE Score:** 16 -- Reject (high risk of invasiveness)

**Confidence:** 84 / 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:

- Laura Van Riper November 21, 2017
- Tom Buechel November 9, 2017

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](mailto: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](mailto: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.