Plant Risk Evaluator -- PRE™
Evaluation Report

Schinus terebinthifolia -- Georgia

2017 Farm Bill PRE Project

PRE Score: 16 -- Reject (high risk of invasiveness)
Confidence: 72 / 100
Questions answered: 18 of 20 -- Valid (80% or more questions answered)

Privacy: Public
Status: Submitted

Evaluation Date: November 3, 2017

This PDF was created on August 13, 2018

Plant Evaluated

Schinus terebinthifolia

Image by Britta Gustafson

Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Schinus terebinthifolia*) 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

Brazilian peppertree (Schinus terebinthifolia) is a small dioecious evergreen tree or large shrub. It has glossy pinnate leaves and produces bright red berries. Brazilian peppertree is highly invasive in Florida, and is also invasive in California and Texas. This species grows in USDA zones 9-11. Though there is little overlap in similar climate, this species has the potential to become weedy in Georgia. Due to its various and highly successful reproductive strategies and its invasive presence in Florida, I would not recommend S. terebinthifolia be planted in Georgia.

General Information

Status: Submitted
Screener: Lila Uzzell
Evaluation Date: November 3, 2017

Plant Information

Plant: *Schinus terebinthifolia*

Regional Information

Region Name: Georgia

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

Answer / Justification:

"It is native to Argentina, Paraguay and Brazil, but has been introduced in tropical to sub-tropical areas around the world where it has naturalized and in many cases become invasive. In the U.S., it has escaped plantings and naturalized in parts of Florida, Texas, Arizona, California and Hawaii."

Reference(s):

- Missouri Botanical Garden (2017). Schinus terebinthifolius - Plant Finder MBG.

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

Answer / Justification:

Though this species has naturalized in similar climate areas such as FL and Uruguay, most of the the areas it has naturalized in are not of the same climate or of the same USDA hardiness zone.

Reference(s):

- GBIF (2017). Schinus terebinthifolia Raddi.
- Missouri Botanical Garden (2017). Schinus terebinthifolius - Plant Finder MBG.

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

Answer / Justification:

This species is highly invasive in Florida and is invasive to CA, HI, and TX.

Reference(s):

- United States Department of Agriculture (2017). Invasive Species: Plants - Brazilian Peppertree (Schinus terebinthifolius).
- The University of Georgia Center for Invasive Species and Ecosystem Health (2017). Brazilian peppertree, Schinus terebinthifolia N/A Sapindales: Anacardiaceae.
- Missouri Botanical Garden (2017). Schinus terebinthifolius - Plant Finder MBG.

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

Answer / Justification:

This species is invasive in FL, a state that has a similar climate to Georgia.

Reference(s):

- GBIF (2017). Schinus terebinthifolia Raddi.
- Missouri Botanical Garden (2017). Schinus terebinthifolius - Plant Finder MBG.

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

Answer / Justification:

S. molle is invasive in California.

Reference(s):

- United States Department of Agriculture (2017). Schinus mole - USDA Plants Database.

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

Answer / Justification:

This species is found in USDA Zones 9-11. Georgias climate matches zones 7-9. There is potential of this species overlapping in zone 9, and it is found in some areas similar to Georgias. However, most of its climate range is outside of Georgias region of concern.

Reference(s):

- GBIF (2017). Schinus terebinthifolia Raddi.
- Missouri Botanical Garden (2017). Schinus terebinthifolius - Plant Finder MBG.

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

Answer / Justification:

"Forms dense, monospecific stands that crowd out native species; possibly produces chemicals that inhibit the growth of native species"

Reference(s):

- United States Department of Agriculture (2017). Invasive Species: Plants - Brazilian Peppertree (Schinus terebinthifolius).

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

Answer / Justification:

There is no evidence that this species promotes fire or changes fire regimes.

Reference(s):

- Meyer, R. (2011). Schinus terebinthifolius-- USDA.

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

Answer / Justification:

"People sensitive to poison ivy, oak or sumac may also be allergic to Brazilian pepper tree because it also has the potential to cause dermatitis to those with sensitive skin. Some people have also expressed respiratory problems associated with the bloom period of pepper tree."

Reference(s):

- MacDonald, G., Sellers B., Langeland K., Duperron-Bond T., & Ketterer E. (2008). Schinus terebinthifolia – UF/IFAS Center for Aquatic and Invasive Plants.

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

Answer / Justification:

Brazilian peppertree covers and displaces native vegetation, but does not block or affect animals, livestock or humans.

Reference(s):

- United States Department of Agriculture (2017). Invasive Species: Plants - Brazilian Peppertree (Schinus terebinthifolius).
- The University of Georgia Center for Invasive Species and Ecosystem Health (2017). Brazilian peppertree, Schinus terebinthifolia N/A Sapindales: Anacardiaceae.

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

Answer / Justification:

"Brazilian pepper forms root suckers which develop into new plants. Damage to the plant apparently does not need to occur to trigger root sprouting [207]. On abandoned dryland farm sites on Reunion Island, Brazilian peppers originating from suckers were significantly (P=0.003) more abundant than those originating from seeds. In contrast, riverbank sites had more seedlings than suckers [183]."

Reference(s):

- Meyer, R. (2011). Schinus terebinthifolius-- USDA.

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

Answer / Justification:

"Brazilian pepper forms root suckers which develop into new plants. Damage to the plant apparently does not need to occur to trigger root sprouting [207]. On abandoned dryland farm sites on Reunion Island, Brazilian peppers originating from suckers were significantly (P=0.003) more abundant than those originating from seeds. In contrast, riverbank sites had more seedlings than suckers [183]."

Reference(s):

- Meyer, R. (2011). Schinus terebinthifolius-- USDA.

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13. Does the species (or cultivar or variety) commonly produce viable seed?

Answer / Justification:

lack of information.

Reference(s):

- [Anonymous] .

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

Answer / Justification:

lack of information.

Reference(s):

- [Anonymous] .

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

Answer / Justification:

"Brazilian pepper germination generally peaks within several weeks of sowing," it has been noted that germination rates are significantly higher in seeds that have been digested by birds or mammals.

Reference(s):

- Meyer, R. (2011). Schinus terebinthifolius-- USDA.

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

Answer / Justification:

"Brazilian pepper generally produces large amounts of seed and reaches maturity within 3 years of germinating. "

Reference(s):

- Meyer, R. (2011). Schinus terebinthifolius-- USDA.

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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: **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:

"Fruiting occurred on 2 sites from November to March and peaked in December and January."

Reference(s):

- Meyer, R. (2011). Schinus terebinthifolius-- USDA.

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

Answer / Justification:

Birds, reptiles, and mammals are a common means of dispersal for the Brazilian pepper seed.

Reference(s):

- MacDonald, G., Sellers B., Langeland K., Duperron-Bond T., & Ketterer E. (2008). Schinus terebinthifolia – UF/IFAS Center for Aquatic and Invasive Plants.
- Meyer, R. (2011). Schinus terebinthifolius-- USDA.

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

Answer / Justification:

"Brazilian pepper seeds may be dispersed substantial distances by water. Brazilian pepper fruits remained buoyant for 6 to 7 days on average in saline water (15 and 30 ppt), significantly (P

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

Answer / Justification:

There is no evidence of this.

Reference(s):

- [Anonymous] .

Total PRE Score

PRE Score: 16 -- Reject (high risk of invasiveness)
Confidence: 72 / 100
Questions answered: 18 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:

• John "Doc" Ruter	January 10, 2018
• Eamonn Leonard	December 7, 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 if additional action is required to resolve open issues.

Issue ID # 6288

Date Created: January 10, 2018 - 11:36am
Date Updated: February 21, 2018 - 10:23am

Submitted by: John "Doc" Ruter

Status: Fixed
Type: Suggestion
Severity: Minor
Scope: Evaluation as a whole

Issue Description

Can't say that I have ever seen one growing in Georgia, but the potential does exist if the climate is warming. Commonly observed around Orlando, FL and further south but not so in south Georgia.

Issue Resolution (Screener's Response to Issue)

Added to evaluation notes

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.