



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

***Pistacia chinensis -- Georgia***

***2017 Farm Bill PRE Project***

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

**Confidence:** 66 / 100

**Questions answered:** 18 of 20 -- Valid (80% or more questions answered)

**Privacy:** Public

**Status:** Submitted

**Evaluation Date:** November 15, 2017

*This PDF was created on August 13, 2018*



## Plant Evaluated

*Pistacia chinensis*



Image by Ron Vanderhoff, Orange County CNPS



## Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Pistacia chinensis*) 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

*Pistacia chinensis* has naturalized in parts of the United States and Australia. Due to the extended amount of years it takes for *P. chinensis* to reach reproductive maturity (6-25 years) it does not seem to pose as a threat to many states and countries. However, it is unclear whether this species can reproduce vegetatively. Though it is "under control" in urban areas of Australia, this species may displace native species in Texas. *Pistacia chinensis* does not seem to have a significant presence in Georgia.

## General Information

**Status:** Submitted

**Screener:** Lila Uzzell

**Evaluation Date:** November 15, 2017

## Plant Information

**Plant:** *Pistacia chinensis*

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

#### Answer / Justification:

According to the Global Compendium of Weeds, this plant has naturalized in Australia and the United States. *P. chinensis* can grow in zones 6-9.

#### Reference(s):

- Randall, R. Peter (2017). A Global Compendium of Weeds. Third Edition..
  - Missouri Botanical Garden PlantFinder (0). *Pistacia chinensis* - Plant Finder.
- 

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

#### Answer / Justification:

>50% of the areas where this species is found match Georgia's climate. The areas where *P. chinensis* is known to be naturalized include China (native), Southeastern Australia, and parts of the United States (Florida, Georgia, Alabama, Texas, and California). This species is also found in the similar climate area of Tajikistan and Kyrgyzstan according to GBIF, but its range in this area is much greater than the climate match, and there is no literature stating that *P. chinensis* is naturalized in these countries.



**Reference(s):**

- GBIF (0). *Pistacia chinensis* Bunge (gbif).
  - USDA, & NRCS (2017). The Plants Database.
  - Randall, R. Peter (2017). A Global Compendium of Weeds. Third Edition..
- 

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

**Answer / Justification:**

There is no literature stating that *P. chinensis* is invasive in the U.S. or world. However, a weed risk assessment has been created for this species, and it has an impact potential to displace native trees in Texas. (Note: this species was listed on the Texasinvasives.org website [last updated 2006]. This species is also listed on the Invasive Plant Atlas. However, the "invasive listing source" is blank, and the EDD MapS on this site does not show this species as invasive anywhere in the U.S. [last updated 2015]. This information leads me to believe that *P. chinensis* may have once been invasive to Texas, but no longer is).

**Reference(s):**

- United States Department of Agriculture Animal and Plant Health Inspection Service (2012). *Pistacia chinensis* WRA - USDA.
  - TexasInvasives.org (0). Texas Invasives *Pistacia chinensis*.
  - USDA, & NRCS (2017). The Plants Database.
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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: **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:**

Though this species has naturalized in a similar climate, there is no evidence that this species is invasive.

**Reference(s):**

- United States Department of Agriculture Animal and Plant Health Inspection Service (2012). *Pistacia chinensis* WRA - USDA.
  - USDA, & NRCS (2017). The Plants Database.
  - Randall, R. Peter (2017). A Global Compendium of Weeds. Third Edition..
- 

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

**Answer / Justification:**

There does not appear to be other invasive *Pistacia* invasives in a similar climate.

**Reference(s):**

- Randall, R. Peter (2017). A Global Compendium of Weeds. Third Edition..
- 

**6. Is the species (or cultivar or variety) found predominately in a climate matching the region of concern?**

- Answer: **Yes**, which contributes **2** points to the total PRE score.
- The *screeners* has a **High** confidence in this answer based on the available literature.

**Answer / Justification:**

>50% of *P. chinensis* locations are similar in climate to Georgia's region. This includes China, Japan, Southeastern Australia, Florida, Texas, Alabama, Georgia, California, and Tajikistan/Kyrgyzstan (questionable since region similar in climate is very small).



**Reference(s):**

- GBIF (0). *Pistacia chinensis* Bunge (gbif).
  - USDA, & NRCS (2017). The Plants Database.
- 

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

**Answer / Justification:**

"*Pistacia chinensis* may displace native trees (change community composition) in Texas (Dave's Garden, 2012), and is under control in Australian urban areas (Smith et al., 2000). It sends out horizontal roots that lift sidewalks and curbs, and handling it may cause skin irritation or allergic reaction (Dave's Garden, 2012). "

**Reference(s):**

- United States Department of Agriculture Animal and Plant Health Inspection Service (2012). *Pistacia chinensis* WRA - USDA.
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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 **Low** confidence in this answer based on the available literature.

**Answer / Justification:**

Lack of evidence.



**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: **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:**

The drupes of this species are inedible, and handling this plant may cause a skin irritation or allergic reaction.

**Reference(s):**

- United States Department of Agriculture Animal and Plant Health Inspection Service (2012). *Pistacia chinensis* WRA - USDA.
  - Missouri Botanical Garden PlantFinder (0). *Pistacia chinensis* - Plant Finder.
- 

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

**Answer / Justification:**

"ES-6 (Dense Thickets): No evidence. There are reports of numerous seedlings growing near female trees (Dave's Garden, 2012), but no one describes dense thickets."



**Reference(s):**

- United States Department of Agriculture Animal and Plant Health Inspection Service (2012). *Pistacia chinensis* WRA - USDA.
- 

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

**Answer / Justification:**

Lack of evidence. Many sources only mention that this species is propagated by seed only.

**Reference(s):**

- United States Department of Agriculture Animal and Plant Health Inspection Service (2012). *Pistacia chinensis* WRA - USDA.
  - Watson, E. F. Gilman, & G. D. (2015). *Pistacia chinensis*: Chinese Pistache.
- 

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

**Answer / Justification:**

Lack of evidence, this is not likely.

**Reference(s):**

- [Anonymous] .



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

**Answer / Justification:**

lack of info.

**Reference(s):**

- [Anonymous] .
- 

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

- 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:**

This tree may be capable of producing copious viable seeds, but it takes many years for it to develop a high seed production. "... female trees do not produce large quantities of seeds until established in the landscape for fifteen or twenty years."

**Reference(s):**

- United States Department of Agriculture Animal and Plant Health Inspection Service (2012). *Pistacia chinensis* WRA - USDA.
  - TexasInvasives.org (0). Texas Invasives *Pistacia chinensis*.
- 

**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 / Justification:**

lack of information.

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

**Answer / Justification:**

"Although trees may first flower at 6-10 years of age, wild trees appear to reach reproductive maturity more slowly, with one generation taking approximately 25 years (Smith et al., 2000)."

**Reference(s):**

- United States Department of Agriculture Animal and Plant Health Inspection Service (2012). *Pistacia chinensis* WRA - 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: **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:**

This tree, once it reaches maturity, blooms in April and produces drupes in the fall. There is no evidence that this species produces seed for a significant amount of time nor more than once a year.



**Reference(s):**

- Missouri Botanical Garden PlantFinder (0). *Pistacia chinensis* - Plant Finder.
  - TexasInvasives.org (0). Texas Invasives *Pistacia chinensis*.
- 

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

**Answer / Justification:**

The berries of this species are a common food source for birds.

**Reference(s):**

- Natural Resources, University of California Agriculture (2018). *Pistacia chinensis*.
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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 *screeners* has a **Low** confidence in this answer based on the available literature.

**Answer / Justification:**

Lack of evidence for this.

**Reference(s):**

- [Anonymous] .



**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:**

Lack of evidence for this

**Reference(s):**

- [Anonymous] .
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**Total PRE Score**

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

**Confidence:** 66 / 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
- Shelly Matthew Prescott January 4, 2018

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.

### Issue ID # 6291

**Date Created:** January 10, 2018 - 11:46am

**Date Updated:** February 21, 2018 - 10:32am

**Submitted by:** John "Doc" Ruter

**Status:** Fixed

**Type:** Suggestion

**Severity:** Minor

**Scope:** Evaluation as a whole

### Issue Description

The species is dioecious, so male and female trees have to be planted in proximity. Since ornamental trees are grown from seed, mixed plantings are now occurring in Georgia. When females do set fruit they set quite a bit. A planting from the 1960's in Tifton, GA has been reseeding in the understory for years, very similar to *Prunus caroliniana*. This one appears to have a long lag phase.

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

Thank you for the response- I believe I addressed this in Q 14. I will add this statement to the Evaluation notes

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### Issue ID # 6269

**Date Created:** January 4, 2018 - 7:16am

**Date Updated:** January 25, 2018 - 7:19am

**Submitted by:** Shelly Matthew Prescott



**Status:** Fixed

**Type:** Suggestion

**Severity:** Minor

**Scope:** Q01. Has the species (or cultivar or variety, if applicable) become naturalized where it is not native?

**Issue Description**

I have never seen this species in a naturalized area in Georgia

**Issue Resolution (Screeners' Response to Issue)**

check GA-EPPC.

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## **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.