



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

Pistacia chinensis -- Texas

2017 Farm Bill PRE Project

PRE Score: 11 -- Accept (low risk of invasiveness)

Confidence: 67 / 100

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

Privacy: Public

Status: Completed

Evaluation Date: September 21, 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 ssp. *integerrima* is naturalized across much of the southern U.S., including Texas where it is listed by TexasInvasives. It is unclear how invasive the species really is in Texas. The species spreads by bird dispersed seed.

General Information

Status: Completed

Screener: Kim Taylor

Evaluation Date: September 21, 2017

Plant Information

Plant: *Pistacia chinensis*

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

Answer / Justification:

Kartesz indicates *P. chinensis* ssp. *integerrima* is naturalized across many southern states, including North Carolina, Georgia, Mississippi, Arkansas, Oklahoma, Texas, Arizona, and California.

Reference(s):

- Kartesz, J. T. (2015). The Biota of North America Program (BONAP).
-

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:

Kartesz indicates *P. chinensis* ssp. *integerrima* is naturalized across many southern states with a similar climate to Texas, including North Carolina, Georgia, Mississippi, Arkansas, Oklahoma, Texas, Arizona, and California.



Reference(s):

- Kartesz, J. T. (2015). The Biota of North America Program (BONAP).
-

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

Answer / Justification:

Pistacia chinensis is listed by TexasInvasives.org. It is listed by the Global Compendium of Weeds as an "agricultural weed, environmental weed, garden thug, naturalised, sleeper weed, weed".

Reference(s):

- Global Compendium of Weeds (GCW) (0). *Pistacia chinensis* information from the Global Compendium of Weeds (GCW).
 - TexasInvasives.org (0). Texas Invasives *Pistacia chinensis*.
-

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

Answer / Justification:

Pistacia chinensis is listed by TexasInvasives.org.

Reference(s):

- TexasInvasives.org (0). Texas Invasives *Pistacia chinensis*.
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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 *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Pistacia vera is naturalized in portions of Arizona and southern California which share a similar climate to Texas. It is listed as "naturalised" by the Global Compendium of Weeds indicating it the "Species has self sustaining and spreading populations with no human assistance but not necessarily impacting on the environment." *Pistacia khinjuk* and *P. lentiscus* are listed as a "weed" indicating "The reference source was not specific but in most cases these are economic weeds ie agriculture, horticulture, turf, nurseries etc. The source details can usually give some idea of the type of weed but is not conclusive in all cases." Neither species occurs in similar climate and it is unclear if they are invasive.

Reference(s):

- Global Compendium of Weeds (GCW) (0). *Pistacia chinensis* information from the Global Compendium of Weeds (GCW).
- Global Compendium of Weeds (GCW) (0). *Pistacia khinjuk* information from the Global Compendium of Weeds (GCW).
- GBIF (0). *Pistacia khinjuk* Stocks ex Stocks (gbif).
- Global Compendium of Weeds (GCW) (0). *Pistacia lentiscus* information from the Global Compendium of Weeds (GCW).
- GBIF (0). *Pistacia lentiscus* L. (gbif).
- Global Compendium of Weeds (GCW) (0). *Pistacia vera* information from the Global Compendium of Weeds (GCW).
- 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 *screener* has a **High** confidence in this answer based on the available literature.



Answer / Justification:

While most of the naturalized records in the U.S. share a similar climate with Texas records from around the world do not. Only about 10% of the records from Australia and approximately 40% of the records from China are in a similar climate. The remaining records in Europe, Africa, and India do not share a similar climate.

Reference(s):

- GBIF (0). *Pistacia chinensis* Bunge (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 **Low** confidence in this answer based on the available literature.

Answer / Justification:

While listed by TexasInvasive.org there is no indication as to the impact the plant has. Presumably, the plant outcompetes and shades out competitors, but I found no evidence that this is happening.

Reference(s):

- TexasInvasives.org (0). Texas Invasives *Pistacia chinensis*.
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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:

There is no evidence of this.



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: **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:

This plant is not known to be toxic.

Reference(s):

- Plants For A Future (PFAF) (0). *Pistacia chinensis integerrima* PFAF Plant Database.
-

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:

There is no evidence that this species forms thickets.

Reference(s):

- [Anonymous] .
-



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:

The species does not appear to spread vegetatively.

Reference(s):

- [Anonymous] .
-

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:

The species does not appear to spread vegetatively.

Reference(s):

- [Anonymous] .
-

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 is propagated by seed.

Reference(s):

- Plants For A Future (PFAF) (0). *Pistacia chinensis integerrima* PFAF Plant Database.
-

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

Answer / Justification:

No information was found on number seeds produced.

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 / Justification:

Pre-soak the seed for 16 hours in alkalized water, or for 3 - 4 days in warm water, and sow late winter in a cold frame or greenhouse. Two months cold stratification may speed up germination, so it might be better to sow the seed in early winter. The germination is variable and can be slow." "Collect bluish color fruits only, wash seed 3x daily 7d, sow @ 39°F in damp paper towels, check for radicle emergence in approx. in 50-60d, then sow outdoors." It is not clear how much of the seed germinates in the next growing season.

Reference(s):

- Plants For A Future (PFAF) (0). *Pistacia chinensis integerrima* PFAF Plant Database.
 - Clothier, T. (0). Tree/Shrub Seed Germination - Quick Reference.
-



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

Answer / Justification:

"*Pistacia chinensis* is a dioecious species and female trees do not produce large quantities of seeds until established in the landscape for fifteen or twenty years."

Reference(s):

- TexasInvasives.org (0). Texas Invasives *Pistacia chinensis*.
-

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

Answer / Justification:

"Bloom Time: April" "Fl. Mar-May, fr. Aug-Nov."

Reference(s):

- Missouri Botanical Garden PlantFinder (0). *Pistacia chinensis* - Plant Finder.
 - efloras.org (0). *Pistacia chinensis* in Flora of China @ efloras.org.
-



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 inconspicuous flowers, borne in panicles, are followed in summer by small red spherical seed pods that turn blue in fall and attract birds."

Reference(s):

- TexasInvasives.org (0). Texas Invasives *Pistacia chinensis*.
-

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

Answer / Justification:

Seeds are bird dispersed.

Reference(s):

- TexasInvasives.org (0). Texas Invasives *Pistacia chinensis*.
-



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] .
-

Total PRE Score

PRE Score: 11 -- Accept (low risk of invasiveness)

Confidence: 67 / 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:

This evaluation does not have any reviewers.



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 # 5838

Date Created: November 13, 2017 - 9:43am

Date Updated: January 2, 2018 - 1:25pm

Submitted by: Charlotte Reemts

Status: Fixed

Type: Suggestion

Severity: Major

Scope: Plant Information

Issue Description

I am concerned that this plant is not listed as at least "needs further information". We see pistache showing up in natural areas, at least hundreds of meters away from planted trees. The species also appears to be spreading into natural areas in Australia (see the study at this link):

<http://onlinelibrary.wiley.com/doi/10.1111/1467-8470.00115/full>

I do not have full-text access to the linked article, but it may include information about seed production and spread.

Issue Resolution (Screener's Response to Issue)

I agree that this species is spreading and becoming naturalized and this fact has already been included in the evaluation in the "yes" responses to questions 1-4. No additional information was found in the paper referenced that would change any responses within the 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.