



***Plant Risk Evaluator -- PRETM
Evaluation Report***

Albizia julibrissin -- Texas

2017 Farm Bill PRE Project

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

Confidence: 78 / 100

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

Privacy: Public

Status: Completed

Evaluation Date: March 28, 2017

This PDF was created on July 06, 2018



Plant Evaluated

Albizia julibrissin



Image by Wikimedia Commons



Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Albizia julibrissin*) 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.

General Information

Status: Completed

Screener: Kim Taylor

Evaluation Date: March 28, 2017

Plant Information

Plant: *Albizia julibrissin*

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:

Mimosa has been naturalized across most of the Eastern U.S., particularly in the South as it is intolerant of cold temperatures. Also scattered locations in the U.S. southwest, from Texas to California. Also naturalized in Western Europe.

Reference(s):

- Martine, C. T., Leicht-Young S., Herron P., & Latimer A. (2008). Fifteen woody species with potential for invasiveness in New England. *Rhodora*. 110, 345–353.
- McClain, W. E., McClain P. M., & Ebinger J. E. (2012). Naturalized Mimosa (*Albizia julibrissin* Durazz., Fabaceae) in Illinois. *Castanea*. 77, 231–234.
- GBIF (0). *Albizia julibrissin* Durazz. (gbif).
- United States Department of Agriculture (2014). USDA-NRCS Plants Database.
- 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 *screeener* has a **Very High** confidence in this answer based on the available literature.



Answer / Justification:

The southern portion of its range in the US is within a similar climate.

Reference(s):

- Kartesz, J. T. (2015). The Biota of North America Program (BONAP).
 - GBIF (0). *Albizia julibrissin* Durazz. (gbif).
-

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

Answer / Justification:

Listed as invasive in Florida, Georgia, Kentucky, Louisiana, Tennessee, and Virginia. Noted as invading a high quality Loess hill prairie in Illinois. "*A. julibrissin* is a weed mainly in the USA where it is being monitored in 13 southern states according to USFS policy. It is a category A weed (severe threat) in Tennessee, USA where it grows along many roadside slopes, disturbed areas and stream banks. It is also regarded as one of the top ten invasive plant species in Georgia, is a category 1 (altering plant community) species on the Florida Invasives list (SE-EPPC, 2002) and is listed as moderately invasive (with minor influence on ecosystem function and plant composition) in Virginia (Virginia Department of Conservation and Recreation, 2003). In South Africa it is proposed as a category 3 weed under the Conservation of Agricultural Resources Act 1983, subject to further investigation (Henderson, 2001)."

Reference(s):

- United States Department of Agriculture (2014). USDA-NRCS Plants Database.
 - McClain, W. E., McClain P. M., & Ebinger J. E. (2012). Naturalized Mimosa (*Albizia julibrissin* Durazz., Fabaceae) in Illinois. *Castanea*. 77, 231–234.
 - CABI (0). *Albizia julibrissin* (silk tree) - cabi.
 - Invasive Plant Atlas of the United States (0). mimosa: *Albizia julibrissin* (Fabales: Fabaceae (Leguminosae)): Invasive Plant Atlas of the United States.
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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:

Mimosa is listed as invasive in Florida, Georgia, Louisiana, Tennessee, and Virginia, all areas with a similar climate to Texas.

Reference(s):

- CABI (0). *Albizia julibrissin* (silk tree) - cabi.
 - Invasive Plant Atlas of the United States (0). *mimosa: Albizia julibrissin* (Fabales: Fabaceae (Leguminosae)): Invasive Plant Atlas of the United States.
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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 *screeners* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

Albizia chinensis and *A. lebeck* are problematic on Pacific islands, notably Hawaii. There are no regions where these species are invasive with a climate match for Texas however. *Albizia lebeck* is present in Florida but is problematic primarily in Southern Florida which is outside the climate match region for Texas.

Reference(s):

- Pacific Island Ecosystems at Risk (PIER) (0). *Albizia chinensis* (PIER species info).
 - Pacific Island Ecosystems at Risk (PIER) (0). *Albizia lebeck* (PIER species info).
-



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

Answer / Justification:

While about 50% of the naturalized US distribution is a climate match, only a small portion of the native range is a climate match.

Reference(s):

- GBIF (0). *Albizia julibrissin* Durazz. (gbif).
 - Kartesz, J. T. (2015). The Biota of North America Program (BONAP).
-

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:

Mimosa forms dense stands that can reduce available light to natives, allowing it to displace native vegetation. "Because silk tree can grow in a variety of soils, produce large seed crops, and resprout when damaged, it is a strong competitor to native trees and shrubs in open areas or forest edges. Dense stands of mimosa severely reduce the sunlight and nutrients available for other plants." "Binggeli (1999) classifies *A. julibrissin* as moderately invasive. The ability of this species to grow very rapidly (sprouts can grow over 1 m in a season), resprout after damage and seed prolifically contribute to its invasiveness in favourable conditions."



Reference(s):

- Koepke-Hill, R. M., Armel G. R., Brosnan J. T., Breeden G. K., Vargas J. J., & Mueller T. C. (2012). Control of Silk Tree (*Albizia julibrissin*) with Aminocyclopyrachlor and Other Herbicides. *Weed Science*. 60, 345–349.
 - CABI (0). *Albizia julibrissin* (silk tree) - cabi.
 - TexasInvasives.org (0). Texas Invasives - *Albizia julibrissin*.
-

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 evidence that mimosa promotes or changes fire regimes.

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: **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:

No information was found suggesting the plant is poisonous or has impacts on grazing systems.

Reference(s):

- [Anonymous] .



10. Does the plant produce impenetrable thickets, blocking or slowing movement of animals, livestock, or humans?

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

Answer / Justification:

"naturalized mimosa was reported along roadsides, in thickets, and borders of woods..."

Reference(s):

- McClain, W. E., McClain P. M., & Ebinger J. E. (2012). Naturalized Mimosa (*Albizia julibrissin* Durazz., Fabaceae) in Illinois. *Castanea*. 77, 231–234.
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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 **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Mimosa can sprout from root material. Damage or cutting of an actively growing tree results in rapid stimulation of root sprouts. "Trees cut down to ~10 cm have survived 641 d on average via root sprouts." "Forms colonies from root sprouts"

Reference(s):

- Koepke-Hill, R. M., Armel G. R., Brosnan J. T., Breeden G. K., Vargas J. J., & Mueller T. C. (2012). Control of Silk Tree (*Albizia julibrissin*) with Aminocyclopyrachlor and Other Herbicides. *Weed Science*. 60, 345–349.
 - TexasInvasives.org (0). Texas Invasives - *Albizia julibrissin*.
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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 *screeners* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

"*Albizia julibrissin* does not propagate from ordinary stem cuttings but can be reproduced from root cuttings taken in late winter or early spring. Commercial nursery practice is to take root pieces in spring and line them out in nursery rows" While mimosa can sprout from root material there is no indication that this happens naturally.

Reference(s):

- Koepke-Hill, R. M., Armel G. R., Brosnan J. T., Breeden G. K., Vargas J. J., & Mueller T. C. (2012). Control of Silk Tree (*Albizia julibrissin*) with Aminocyclopyrachlor and Other Herbicides. *Weed Science*. 60, 345–349.
 - Fordham, A. J. (1968). PROPAGATION OF ALBIZIA JULIBRISSIN. *Arnoldia*. 28, 35–40.
 - TexasInvasives.org (0). Texas Invasives - *Albizia julibrissin*.
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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 *screeners* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Mimosa is a prolific seed producer and spreads easily by seed.

Reference(s):

- Koepke-Hill, R. M., Armel G. R., Brosnan J. T., Breeden G. K., Vargas J. J., & Mueller T. C. (2012). Control of Silk Tree (*Albizia julibrissin*) with Aminocyclopyrachlor and Other Herbicides. *Weed Science*. 60, 345–349.
- McClain, W. E., McClain P. M., & Ebinger J. E. (2012). Naturalized Mimosa (*Albizia julibrissin* Durazz., Fabaceae) in Illinois. *Castanea*. 77, 231–234.
- TexasInvasives.org (0). Texas Invasives - *Albizia julibrissin*.



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

- 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:

There are 5 to 16 seeds in each pod. A single tree can produce over 8,000 seeds per year. Seed production is prolific.

Reference(s):

- McClain, W. E., McClain P. M., & Ebinger J. E. (2012). Naturalized Mimosa (*Albizia julibrissin* Durazz., Fabaceae) in Illinois. *Castanea*. 77, 231–234.
 - CABI (0). *Albizia julibrissin* (silk tree) - cabi.
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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: **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:

"When pods of *Albizia julibrissin* have reached maturity and are about to change from green to straw-color, the coats of the seeds within consist of thin, soft membranes. At this stage they offer no barrier to germination and seedlings appear shortly after the seeds are sown. But as ripening continues, the seeds are reduced to about one-third their original weight and develop flinty-hard water-impermeable coats. When sealed from moisture in this way, respiration takes place at such a low rate that viability is retained for a remarkably long time when conditions are unfavorable to germination." "If seeds are not pre-treated before being sown, germination can occur erratically over a period of many years." Seeds have a hard, impervious seed coat. Seeds can survive more than 5 years in the seed bank with up to 90% germination.



Reference(s):

- Koepke-Hill, R. M., Armel G. R., Brosnan J. T., Breeden G. K., Vargas J. J., & Mueller T. C. (2012). Control of Silk Tree (*Albizia julibrissin*) with Aminocyclopyrachlor and Other Herbicides. *Weed Science*. 60, 345–349.
 - McClain, W. E., McClain P. M., & Ebinger J. E. (2012). Naturalized Mimosa (*Albizia julibrissin* Durazz., Fabaceae) in Illinois. *Castanea*. 77, 231–234.
 - Fordham, A. J. (1968). PROPAGATION OF ALBIZIA JULIBRISSIN. *Arnoldia*. 28, 35–40.
-

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

Answer / Justification:

Individuals are fast growing and can reach heights of 6m and dbh of 15 cm in 6 years. I found no reference of age or size of plants when they reach sexual maturity. I have personally seen plants of about 5 to 6 m in height with flowers so presumably they are reproducing within 5 years.

Reference(s):

- McClain, W. E., McClain P. M., & Ebinger J. E. (2012). Naturalized Mimosa (*Albizia julibrissin* Durazz., Fabaceae) in Illinois. *Castanea*. 77, 231–234.
-

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



Answer / Justification:

Flowers early July to mid September. Seeds ripen late fall into winter. Fruits ripen in September to November, but stay on tree until spring. While most seeds may stay on the tree until spring, strong winds can remove seeds earlier than this so there is dispersal from fall through spring.

Reference(s):

- McClain, W. E., McClain P. M., & Ebinger J. E. (2012). Naturalized Mimosa (*Albizia julibrissin* Durazz., Fabaceae) in Illinois. *Castanea*. 77, 231–234.
 - Fordham, A. J. (1968). PROPAGATION OF ALBIZIA JULIBRISSIN. *Arnoldia*. 28, 35–40.
 - CABI (0). *Albizia julibrissin* (silk tree) - cabi.
-

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:

"Fruit does not attract wildlife". Primary means of dispersal is wind.

Reference(s):

- Gilman, E. F., & Watson D. G. (2016). *Albizia julibrissin*: Mimosa.
-

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



Answer / Justification:

Pods are dispersed by wind. Pods require high winds to dislodge them from the tree and can be found "lodged against obstacles some distance from the mother plant." "Seeds are Produced in a thin papery seedpod that can be dispersed by wind and the pods can float in water, which also affects dispersal." Martine et al. note that it is able to move along riparian corridors through water dispersal of fruits.

Reference(s):

- Koepke-Hill, R. M., Armel G. R., Brosnan J. T., Breeden G. K., Vargas J. J., & Mueller T. C. (2012). Control of Silk Tree (*Albizia julibrissin*) with Aminocyclopyrachlor and Other Herbicides. *Weed Science*. 60, 345–349.
 - Martine, C. T., Leicht-Young S., Herron P., & Latimer A. (2008). Fifteen woody species with potential for invasiveness in New England. *Rhodora*. 110, 345–353.
 - Fordham, A. J. (1968). PROPAGATION OF ALBIZIA JULIBRISSIN. *Arnoldia*. 28, 35–40.
-

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

Answer / Justification:

Listed as potential seed contaminant and often moved through fill dirt, but there are no special mechanisms to promote this type of dispersal and this does not appear to be a normal means of dispersal.

Reference(s):

- U.S. National Plant Germplasm Network (0). Taxonomy - GRIN-Global Web v 1.9.8.2.
-

Total PRE Score

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

Confidence: 78 / 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:

- Jed Aplaca January 2, 2018

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.

Issue ID # 3107

Date Created: May 9, 2017 - 9:36am

Date Updated: June 5, 2017 - 2:27pm

Submitted by: Steve Moore

Status: Fixed

Type:

Severity: Minor

Scope: General Information

Issue Description

Some introductions may prove to have less fecundity, but I've read no research to indicate that this has been investigated. *A. julibrissin* 'Summer Chocolate' is one that comes to mind.

Issue Resolution (Screener's Response to Issue)

This evaluation is addressing the parent species and does not address any specific cultivars. A separate evaluation would need to be completed to address the potential for invasiveness of 'Summer Chocolate'. The various cultivars of the species do likely contribute to the wild population, though it is not clear if reduced fecundity would remain in seedlings with 'Summer Chocolate' parents.



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.