



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

Clerodendrum bungei -- Texas

2017 Farm Bill PRE Project

PRE Score: 15 -- Evaluate this plant further

Confidence: 71 / 100

Questions answered: 19 of 20 -- Valid (80% or more questions answered)

Privacy: Public

Status: Completed

Evaluation Date: September 3, 2017

This PDF was created on August 13, 2018



Plant Evaluated

Clerodendrum bungei



Image by MBOT



Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Clerodendrum bungei*) 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

Clerodendrum bungei is a deciduous shrub growing to a height and diameter of 2 meters. It spread by seed as well as vegetatively by root suckers. It has naturalized across much of the southern U.S. but it is unclear if it is a problematic invasive.

General Information

Status: Completed

Screener: Kim Taylor

Evaluation Date: September 3, 2017

Plant Information

Plant: *Clerodendrum bungei*

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

Answer / Justification:

Kartesz and USDA Plants indicate the species is naturalized in South Carolina, Georgia, Alabama, Mississippi, Louisiana, Florida, and Texas. GRIN indicates the species is naturalized in the tropics and subtropics. " It is known to be a cultivation escape in the USA, and is naturalized in many parts of the world including Japan, Mexico, and the USA." It has been naturalised in 10 Mexican states.

Reference(s):

- Villaseñor, J. L., & Espinosa-Garcia F. J. (2004). The Alien Flowering Plants of Mexico. Diversity and Distributions. 10, 113–123.
- CABI (2014). *Clerodendrum bungei* (rose glorybower) Datasheet (CABI).
- U.S. National Plant Germplasm Network (0). Taxonomy - GRIN-Global Web v 1.9.8.2 *Clerodendrum bungei*.
- Kartesz, J. T. (2015). The Biota of North America Program (BONAP).
- USDA, & NRCS (2017). The Plants Database.

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 species is naturalized in South Carolina, Georgia, Alabama, Mississippi, Louisiana, Florida, and Texas. Much of the southern US has a similar climate to Texas.

Reference(s):

- Kartesz, J. T. (2015). The Biota of North America Program (BONAP).
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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 *screeener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

"The species is included in the European invasive plants database (DAISIE, 2014) and the Global Compendium of Weeds (Randall, 2012)." The species was listed on the Invasive Plant List by the Florida Exotic Pest Plant Council, but has since been removed. It is listed by Texas Invasives as invasive in Texas, but Nesom does not consider it so.

Reference(s):

- CABI (2014). *Clerodendrum bungei* (rose glorybower) Datasheet (CABI).
 - TexasInvasives.org (0). Texas Invasives *Clerodendrum bungei*.
 - 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 **Medium** confidence in this answer based on the available literature.



Answer / Justification:

The species was listed on the Invasive Plant List by the Florida Exotic Pest Plant Council, but is not on the 2017 list. It is also listed by Texas Invasives as invasive in Texas but Nesom (2009) reports this species as not invasive in Texas, placing it in a category described as “Trees, shrubs, subshrubs, and woody vines; relatively few in number, known from relatively few localities, usually in disturbed habitats, repeatedly introduced or perhaps merely long-persisting at some localities, not showing aggressively invasive tendencies, or perhaps incipiently invasive”.

Reference(s):

- Nesom, G. L. (2009). ASSESSMENT OF INVASIVENESS AND ECOLOGICAL IMPACT IN NON-NATIVE PLANTS OF TEXAS. *Journal of the Botanical Research Institute of Texas*. 3, 971–991.
 - CABI (2014). *Clerodendrum bungei* (rose glorybower) Datasheet (CABI).
 - TexasInvasives.org (0). Texas Invasives *Clerodendrum bungei*.
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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 *screeener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Clerodendrum indicum and *C. speciosissimum* are listed as invasive in Florida. Florida shares a similar climate to Texas.

Reference(s):

- Swearingen, J., & Barger C.. (2016). Javanese glorybower: *Clerodendrum speciosissimum* (Lamiales: Verbenaceae): Invasive Plant Atlas of the United States.
 - Swearingen, J., & Barger C.. (2016). turk's turbin: *Clerodendrum indicum* (Lamiales: Verbenaceae): Invasive Plant Atlas of the United States.
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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:

About half of the species distribution shares a similar climate to Texas, including portions of Mexico and China.

Reference(s):

- GBIF (0). *Clerodendrum bungei* Steud. (gbif).
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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: **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:

The species was included on Florida's 1999 Invasive Plant List as a Category II species, "species that have shown a potential to disrupt native plant communities" but has since been removed from the list, suggesting its lower priority as an invasive threat in Florida. Although the species was reported as rarely found in Florida, a risk assessment conducted by the University of Florida in 2005 concluded *C. bungei* to be invasive to the USA. Nesom reports this species as not invasive in Texas, placing it in a category described as "Trees, shrubs, subshrubs, and woody vines; relatively few in number, known from relatively few localities, usually in disturbed habitats, repeatedly introduced or perhaps merely long-persisting at some localities, not showing aggressively invasive tendencies, or perhaps incipiently invasive".



Reference(s):

- Nesom, G. L. (2009). ASSESSMENT OF INVASIVENESS AND ECOLOGICAL IMPACT IN NON-NATIVE PLANTS OF TEXAS. *Journal of the Botanical Research Institute of Texas*. 3, 971–991.
 - FLEPPC (2017). List of Invasive Plant Species.
 - CABI (2014). *Clerodendrum bungei* (rose glorybower) Datasheet (CABI).
 - TexasInvasives.org (0). Texas Invasives *Clerodendrum bungei*.
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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 *screeener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

There is no evidence of this.

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

Answer / Justification:

There is no evidence of this.

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

Answer / Justification:

Clerodendrum bungei is a shrub up to 2 meters tall that can spread via suckers. While I found no direct mention of thickets, species with these characteristics tend to form dense thickets.

Reference(s):

- CABI (2014). *Clerodendrum bungei* (rose glorybower) Datasheet (CABI).
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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 *screeners* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Clerodendrum bungei spreads primarily by runners. It "rapidly spreads asexually via rootstalk. A single plant can produce a large colony over time." It "reproduces by both seeds and root suckers, which allow it to spread quickly and widely and form colonies, and is dispersed by humans and birds." " it reproduces by both seeds and root suckers which can spread as far as 6.1 m before sending up a stem."

Reference(s):

- CABI (2014). *Clerodendrum bungei* (rose glorybower) Datasheet (CABI).
 - TexasInvasives.org (0). Texas Invasives *Clerodendrum bungei*.
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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:

The Invasive Species Compendium notes the species can spread both local and long distances by "portions of roots transplanted on wheels of vehicles or within soil or "by portions of roots within contaminated soil." However, it is unlikely that these segments are detaching naturally and producing new plants.

Reference(s):

- CABI (2014). *Clerodendrum bungei* (rose glorybower) Datasheet (CABI).
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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 **High** confidence in this answer based on the available literature.

Answer / Justification:

The species is propagated both vegetatively and by seed.

Reference(s):

- CABI (2014). *Clerodendrum bungei* (rose glorybower) Datasheet (CABI).
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14. Does this plant produce copious viable seeds each year (> 1000)?

- 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:

Little information is available about number of seeds produced. Fruits are single seeded. Though plants may produce several flowers, there is no evidence that they produce over 1000. More information is needed.

Reference(s):

- Chen, H., Felker S., & Sun S. (2010). Allometry of within-fruit reproductive allocation in subtropical dicot woody species. *American Journal of Botany*. 97, 611–619.
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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 **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Seeds usually germinate within 20 to 60 days at 20 C. "Seeds will usually germinate in 21-60 days, even under good conditions germination may be erratic." There is no indication that seeds have a long dormancy period or require special conditions for germination.

Reference(s):

- CABI (2014). *Clerodendrum bungei* (rose glorybower) Datasheet (CABI).
 - b-and-t-world-seeds.com (0). *Clerodendrum bungei* at B & T World Seeds.
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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 / Justification:

I was unable to find information on age at maturity.



Reference(s):

- [Anonymous] .
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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 *screeener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Flowers in late summer and autumn with seeds ripening in late autumn to early winter. Plant Finder notes the species flowers from July to October. The Flora of China indicates the species flowers and fruits from May to November.

Reference(s):

- CABI (2014). *Clerodendrum bungei* (rose glorybower) Datasheet (CABI).
 - Missouri Botanical Garden PlantFinder (0). *Clerodendrum bungei* - Plant Finder.
 - efloras.org (0). *Clerodendrum bungei* 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 *screeener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Clerodendrum bungei seeds are "dispersed by humans and birds." The species "may be spread by bird dispersal, as in the case of the New Zealand pigeon."



Reference(s):

- CABI (2014). *Clerodendrum bungei* (rose glorybower) Datasheet (CABI).
-

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

Answer / Justification:

The seeds are likely dispersed by birds. It is unlikely that they are dispersed by wind or water.

Reference(s):

- CABI (2014). *Clerodendrum bungei* (rose glorybower) Datasheet (CABI).
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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: **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 Invasive Species Compendium notes the species can spread both local and long distances by "portions of roots transplanted on wheels of vehicles or within soil or "by portions of roots within contaminated soil."

Reference(s):

- CABI (2014). *Clerodendrum bungei* (rose glorybower) Datasheet (CABI).
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Total PRE Score

PRE Score: 15 -- Evaluate this plant further

Confidence: 71 / 100

Questions answered: 19 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:

- Hans Landel December 18, 2017
- Steve Moore September 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.

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, requesting a PRE Account.

PRE beta funding is provided by Sustainable Conservation (<http://www.suscon.org/>) and a USDA Farm Bill grant.