Plant Risk Evaluator -- PRE™
Evaluation Report

Acacia saligna -- California

PlantRight

PRE Score: 17 -- High Potential Risk
Confidence: 69 / 100
Questions answered: 19 of 20 -- Valid (80% or more questions answered)

Privacy: Public
Status: Submitted

Evaluation Date: January 12, 2020

This PDF was created on October 04, 2021

Plant Evaluated

Acacia saligna

Image by floydwafer

Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Acacia saligna*) 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

This is a shrubby tree native to Australia. It has been noted as invasive in areas with a similar climate to the study area, California. It is known to outcompete native species, spread vegetatively and produce an abundance of seed, though there was not a good source of information about seed dispersal. The species is fairly well documented and there was adequate information available based on its history of invading native vegetation in South Africa.

General Information

Status: Submitted
Screener: Lynn Sweet
Evaluation Date: January 12, 2020

Plant Information

Plant: *Acacia saligna*

Regional Information

Region Name: California

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.

Evaluation Questions

These questions are based on an article published by PLOS One, which can be found 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** point(s) to the total PRE score.
- The *screener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Naturalized where it is not native in Africa, Australia and the United States (USDA GRIN).

Reference(s):

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

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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: **Yes**, which contributes **2** point(s) to the total PRE score.
- The *screener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Naturalized where it is not native in Africa, Australia and the United States (USDA GRIN). Naturalized in Southeastern Australia, South Africa, southern Europe, and the west coast of the United States in similar climates (GBIF). Naturalized in the southwestern Cape Province, South Africa (Milton & Hall 1981). The species occurs in 7 counties in coastal and southern California, the region of interest. (Calflora)

Reference(s):

- Milton, S. J., & Hall A. V. (1981). REPRODUCTIVE BIOLOGY OF AUSTRALIAN ACACIAS IN THE SOUTH-WESTERN CAPE PROVINCE, SOUTH AFRICA. Transactions of the Royal Society of South Africa. 44, 465-487.
- U.S. National Plant Germplasm Network (0). Taxonomy - GRIN-Global Web v 1.9.8.2.
- GBIF (0). Global Biodiversity Information Facility (GBIF).
- Calflora (2015). Calflora.

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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** point(s) to the total PRE score.
- The *screener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

The species is invasive in Cyprus, Israel and South Africa. (GISD) The species has been noted to be invasive in the southwestern Cape of South Africa. (Holmes et al. 1987)

Reference(s):

- Global Invasive Species Database, Invasive Species Specialist Group, Global Invasive Species Programme (GISP) (2006). Global Invasive Species Database.
- Holmes, P. M., MacDonald I. A. W., & Juritz J. (1987). Effects of Clearing Treatment on Seed Banks of the Alien Invasive Shrubs Acacia saligna and Acacia cyclops in the Southern and South-Western Cape, South Africa. Journal of Applied Ecology. 24, 1045–1051.

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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** point(s) to the total PRE score.
- The *screener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

The species is invasive in Cyprus, Israel and South Africa, all of which are a similar climate to the study area, California, USA. (GISD) The species has been noted to be invasive in the southwestern Cape of South Africa, which is similar in climate. (Holmes et al. 1987; Holmes & Cowling 1997)

Reference(s):

- Holmes, P. M., MacDonald I. A. W., & Juritz J. (1987). Effects of Clearing Treatment on Seed Banks of the Alien Invasive Shrubs Acacia saligna and Acacia cyclops in the Southern and South-Western Cape, South Africa. Journal of Applied Ecology. 24, 1045–1051.
- Holmes, P. M., & Cowling R. M. (1997). The Effects of Invasion by Acacia saligna on the Guild Structure and Regeneration Capabilities of South African Fynbos Shrublands. Journal of Applied Ecology. 34, 317–332.
- Global Invasive Species Database, Invasive Species Specialist Group, Global Invasive Species Programme (GISP) (2006). Global Invasive Species Database.

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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** point(s) to the total PRE score.
- The *screener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Acacia paradoxica is on the California noxious weed list (CDFA). 3 other Acacias are on the California Invasive Plant Council Inventory as of this writing (January 2020) (Cal-IPC, 2020)

Reference(s):

- CDFA (0). CDFA's Division of Plant Health's Pest Ratings and Proposals.
- Cal-IPC (0). California Invasive Plant Inventory.

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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** point(s) to the total PRE score.
- The *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Yes, the balance of occurrences are in areas matching the climate in the study region. The following areas match the climate of the region of concern: west coast of the US (7 counties in California, USA), central Mexico; southern Europe and the Mediterranean; very northern Africa (Mediterranean); the middle East (Israel, Palestine); South Africa (Cape and eastern region); Western Australia and southeastern Australia. (GBIF) The following areas where the plant occurs do not match the climate of the study region: Pakistan, Ethiopia, Sweden, the North Island of New Zealand, and the occurrences in South America. (GBIF)

Reference(s):

- GBIF (0). Global Biodiversity Information Facility (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: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Noted to produce "dense shade" in long-invaded areas in South Africa.

Reference(s):

- Holmes, P. M., & Cowling R. M. (1997). The Effects of Invasion by Acacia saligna on the Guild Structure and Regeneration Capabilities of South African Fynbos Shrublands. Journal of Applied Ecology. 34, 317–332.

8. Is the plant noted as promoting fire and/or changing fire regimes?

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

After fire a "dense sward of Acacia seedlings is usually the result," outcompeting the native fynbos species after fire. The species may also resprout after fire.

Reference(s):

- Holmes, P. M., & Cowling R. M. (1997). The Effects of Invasion by Acacia saligna on the Guild Structure and Regeneration Capabilities of South African Fynbos Shrublands. Journal of Applied Ecology. 34, 317–332.

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** point(s) to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Not listed as a health risk to humans or animals. (Canada BIF, FDA) Examined as feed for goats, found to be not a candidate as a whole food source. (Degen et al. 1997)

Reference(s):

- Canadian Biodiversity Information Facility. (0). Canadian Poisonous Plant Information System..
- Food and Drug Administration (2015). FDA Poisonous Plant Database.
- Degen, A. A., Blanke A., Becker K., Kam M., Benjamin R. W., & Makkar H. P. S. (1997). The nutritive value of Acacia saligna and Acacia salicina for goats and sheep. Animal Science. 64, 253–259.

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

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Areas in the Cape Peninsula in South Africa were noted to have >80% canopy cover of the species (notably high for a Mediterranean ecosystem).

Reference(s):

- Holmes, P. M., & Cowling R. M. (1997). The Effects of Invasion by Acacia saligna on the Guild Structure and Regeneration Capabilities of South African Fynbos Shrublands. Journal of Applied Ecology. 34, 317–332.

Reproductive Strategies (Questions 11 - 17)

11. Does this species (or cultivar or variety) reproduce and spread vegetatively?

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

Answer / Justification:

Noted to spread by both "root suckers and seed." (Flora of Australia) Can resprout from underground tissue post-fire. (Holmes & Cowling, 1997)

Reference(s):

- ABRS (0). FLORA OF AUSTRALIA.
- Holmes, P. M., & Cowling R. M. (1997). The Effects of Invasion by Acacia saligna on the Guild Structure and Regeneration Capabilities of South African Fynbos Shrublands. Journal of Applied Ecology. 34, 317–332.

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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** point(s) to the total PRE score.
- The *screener* has a **Very Low** confidence in this answer based on the available literature.

Answer / Justification:

The species occurs on upland sites and the species wasn't noted to spread beyond immediately from the vegetative reproduction. (Holmes & Cowling 1997)

Reference(s):

- [Anonymous] .

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

- Answer: **Yes**, which contributes **1** point(s) to the total PRE score.
- The *screener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Noted to reproduce by seed.

Reference(s):

- ABRS (0). FLORA OF AUSTRALIA.

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

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

Answer / Justification:

Seeds falling within seed traps below the canopy were noted to catch 5,443 seeds per meter square per year.

Reference(s):

- Milton, S. J., & Hall A. V. (1981). REPRODUCTIVE BIOLOGY OF AUSTRALIAN ACACIAS IN THE SOUTH-WESTERN CAPE PROVINCE, SOUTH AFRICA. Transactions of the Royal Society of South Africa. 44, 465-487.

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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** point(s) to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Germination without treatment is shown to be

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 could not locate this informatoin.

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: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Flowers "July-November" in Australia (Flora of Australia online) Flowers March, April, May (3 months) in California (Calflora) "Pod and seed fall: The pods and seeds of Acacia longifolia and A. saligna fall over a six week period, three to four months after the fall of withered flowers." This observation from South Africa. (Milton & Moll 2008)

Reference(s):

- ABRS (0). FLORA OF AUSTRALIA.
- Calflora (2015). Calflora.
- Milton, S. J., & MOLL EUGENE. J. (2008). Phenology of Australian acacias in the S.W. Cape, South Africa, and its implications for management. Botanical Journal of the Linnean Society. 84, 295–327.

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** point(s) to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

Even though it was noted in a species summary in GISD as being dispersed by birds, the original reference cited shows only: water, mammals and ants as dispersal agents (Appendix 6). (Henderson 1998). No distance or other information was found, and no specific adaptations for long-distance dispersal were noted. "The seeds of these species have small grey-white funicles (Fig. 16), unlikely to attract frugivorous dispersers, and are not presented to potential dispersers while on the tree, the pods being both deciduous and dehiscent." (Milton & Moll 2008)

Reference(s):

- Global Invasive Species Database, Invasive Species Specialist Group, Global Invasive Species Programme (GISP) (2006). Global Invasive Species Database.
- Henderson, L. (1998). Invasive alien woody plants of the southern and southwestern Cape region, South Africa. Bothalia. 28, 91–112.
- Milton, S. J., & MOLL EUGENE. J. (2008). Phenology of Australian acacias in the S.W. Cape, South Africa, and its implications for management. Botanical Journal of the Linnean Society. 84, 295–327.

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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** point(s) to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

There are no specific adaptations to disperse via these methods. See image, GRIN. Literature indicates that this species does occur on some water courses and may have spread downstream to other locations but this seems not special to this species in any way.

Reference(s):

- U.S. National Plant Germplasm Network (0). Taxonomy - GRIN-Global Web v 1.9.8.2.
- Milton, S. J., & Hall A. V. (1981). REPRODUCTIVE BIOLOGY OF AUSTRALIAN ACACIAS IN THE SOUTH-WESTERN CAPE PROVINCE, SOUTH AFRICA. Transactions of the Royal Society of South Africa. 44, 465-487.

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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: **No**, which contributes **0** point(s) to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

No specific adaptations for this. This species is not in wildflower packets. It is used for stock fodder and grown in plantations in many areas. I did not find any specific information about mode of spread from the intentional introductions.

Reference(s):

- Invasive Species Specialist Group (2017). GISD.

Total PRE Score

PRE Score: 17 -- High Potential Risk
Confidence: 69 / 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 : Low Potential Risk
13 - 15 : Moderate Potential Risk
> 15 : High Potential Risk

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: PlantRight
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.

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.