



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

***Lantana camara -- Texas***

***2017 Farm Bill PRE Project***

**PRE Score:** 23 -- Reject (high risk of invasiveness)

**Confidence:** 86 / 100

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

**Privacy:** Public

**Status:** Completed

**Evaluation Date:** September 24, 2017

*This PDF was created on July 06, 2018*



## Plant Evaluated

*Lantana camara*



Image by Alvesgaspar, Wikipedia User



## Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Lantana camara*) 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

*Lantana camara* is native to Mexico, Central America, portions of South America, Puerto Rico and the U.S. Virgin Islands so is often considered a native plant. It is however not native to the continental U.S. where it has been introduced and naturalized. It spreads rapidly both vegetatively, forming dense thickets, as well as seed which is animal dispersed. Plants can flower year round, producing copious amounts of seed. The plant is poisonous and can tolerate all but the hottest fires.

## General Information

**Status:** Completed

**Screener:** Kim Taylor

**Evaluation Date:** September 24, 2017

## Plant Information

**Plant:** *Lantana camara*

**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 indicates *L. camara* is adventive or introduced and naturalized across most of the southern U.S. from North Carolina south to Florida and west to California. It is also introduced in Hawaii. GRIN indicates the species is widely naturalized in the neotropics.

#### Reference(s):

- U.S. National Plant Germplasm Network (0). Taxonomy - GRIN-Global Web v 1.9.8.2 *Lantana camara*.
- Kartesz, J. T. (2015). The Biota of North America Program (BONAP).
- USDA, & NRCS (2017). The Plants Database.

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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** points to the total PRE score.
- The *screeener* has a **Very High** confidence in this answer based on the available literature.



**Answer / Justification:**

Kartesz indicates *L. camara* is adventive or introduced and naturalized across most of the southern U.S. from North Carolina south to Florida and west to California. Most of this region shares 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 **Very High** confidence in this answer based on the available literature.

**Answer / Justification:**

*Lantana camara* is listed as a Category 1 invasive by the Florida Exotic Pest Plant Council. It is also listed by the Hawaiian Ecosystems at Risk Project. The species is listed by TexasInvasives.org. It is listed by the Global Compendium of Weeds as an "agricultural weed, cultivation escape, environmental weed, garden thug, naturalised, noxious weed, weed". It is reported invasive in Georgia and Florida by EDD Maps. It is reported invasive in American Samoa, Australia, Chile, Northern Mariana Islands, Cook Islands, Galapagos Islands, Micronesia, Fiji, Marquesas Islands, Society Islands, Tuamotu Archipelago, Austral Islands, Guam, Hawaii, Japan, Marshall Islands, Nauru, New Caledonia, Niue, Palau, Papua New Guinea, Philippines, Pitcairn Islands, Samoa, Solomon Islands, Tonga, Australia, Cambodia, China, Indonesia, Malaysia, New Zealand among other semi-tropical to tropical regions.

**Reference(s):**

- FLEPPC (2017). List of Invasive Plant Species.
  - Pacific Island Ecosystems at Risk (PIER) (0). *Lantana camara* (PIER species info).
  - Global Compendium of Weeds (GCW) (0). *Lantana camara* information from the Global Compendium of Weeds (GCW).
  - Invasive Plant Atlas of the United States (0). largeleaf lantana: *Lantana camara* (Lamiales: Verbenaceae): Invasive Plant Atlas of the United States.
  - TexasInvasives.org (0). Texas Invasives *Lantana camara*.
  - 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: **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:

*Lantana camara* is listed as a Category 1 invasive by the Florida Exotic Pest Plant Council. The species is listed by TexasInvasives.org. It is reported invasive in Georgia and Florida by EDD Maps. These regions share a similar climate with Texas.

##### Reference(s):

- FLEPPC (2017). List of Invasive Plant Species.
  - Pacific Island Ecosystems at Risk (PIER) (0). *Lantana camara* (PIER species info).
  - Global Compendium of Weeds (GCW) (0). *Lantana camara* information from the Global Compendium of Weeds (GCW).
  - Invasive Plant Atlas of the United States (0). largeleaf lantana: *Lantana camara* (Lamiales: Verbenaceae): Invasive Plant Atlas of the United States.
  - TexasInvasives.org (0). Texas Invasives *Lantana camara*.
  - USDA, & NRCS (2017). The Plants 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** points to the total PRE score.
- The *screeners* has a **High** confidence in this answer based on the available literature.

##### Answer / Justification:

*Lantana montividenensis* and *L. strigocamara* are naturalized across much of the southern US which shares a climate with Texas, including Texas itself. 18 species of *Lantana* are listed in the Global Compendium of Weeds.



**Reference(s):**

- Kartesz, J. T. (2015). The Biota of North America Program (BONAP).
  - Global Compendium of Weeds (0). Global Compendium of Weeds: species index.
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**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:**

Less than half of the species range has a similar climate to Texas.

**Reference(s):**

- GBIF (0). *Lantana camara* L. (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: **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:**

"Invades areas and can become the dominant understory, eliminating native flora and fauna. In Florida, *Lantana camara* forms thickets in sunny open areas and can hybridize with some varieties of *Lantana depressa*." " Locally becoming an aggressive and pernicious weed. This thorny shrub forms dense understory vegetation that crowds out and inhibits establishment of other species. Allelopathic substances are produced by shoots and roots which inhibit germination and growth of other plants. The plant is apt to form dense thickets, spreads very quickly, with one plant producing as many as 12,000 seeds a year." " At some sites, infestations have been so persistent that they have completely stalled the regeneration of rainforest for three decades." " This thorny shrub forms dense understory vegetation that crowds out and inhibits establishment of other species. Allelopathic substances are produced by shoots and roots."

**Reference(s):**

- Pacific Island Ecosystems at Risk (PIER) (0). *Lantana camara* (PIER species info).
  - Florida Invasive Plants (FLIP) (0). *Lantana camara* Plant Details - FLIP.
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**8. Is the plant noted as promoting fire and/or changing fire regimes?**

- 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 plants can tolerate all but the hottest forest fires, quickly resprouting from the base." It is reported to create a fire hazard in natural ecosystems.

**Reference(s):**

- Pacific Island Ecosystems at Risk (PIER) (0). *Lantana camara* (PIER species info).
  - Plants For A Future (PFAF) (0). *Lantana camara* Wild Sage, *Lantana Verbena* PFAF Plant Database.
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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 **Very High** confidence in this answer based on the available literature.

### Answer / Justification:

*L. camara* is listed as poisonous to mammals by GRIN. It is reported to cause "Liver damage; depression; neurological" due to the toxin lantadene. It is reported to impact cattle, dogs, goats, cats, humans, and sheep when unripe, green berries are eaten. The primary poison is titerpenes. "he leaves and seeds are toxic. The unripe, green berries cause vomiting, diarrhoea, dilated pupils and laboured respiration if ingested. The leaves may cause dermatitis. (All parts of plant are poisonous if ingested)"

### Reference(s):

- Plants For A Future (PFAF) (0). *Lantana camara* Wild Sage, *Lantana Verbena* PFAF Plant Database.
  - Cornell University Department of Animal Science (0). Plants Poisonous to Livestock - Animal Science - Cornell University.
  - U.S. National Plant Germplasm Network (0). Taxonomy - GRIN-Global Web v 1.9.8.2 *Lantana camara*.
  - Equines & Toxic Plants (0). Toxic Plant Database.
- 

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



**Answer / Justification:**

"Invades areas and can become the dominant understory, eliminating native flora and fauna. In Florida, *Lantana camara* forms thickets in sunny open areas and can hybridize with some varieties of *Lantana depressa*. Listed as a Category I invasive species by the Florida Exotic Pest Plant Council." " Locally becoming an aggressive and pernicious weed. This thorny shrub forms dense understory vegetation that crowds out and inhibits establishment of other species. Allelopathic substances are produced by shoots and roots which inhibit germination and growth of other plants. The plant is apt to form dense thickets, spreads very quickly, with one plant producing as many as 12,000 seeds a year."

**Reference(s):**

- Florida Invasive Plants (FLIP) (0). *Lantana camara* Plant Details - FLIP.
  - Plants For A Future (PFAF) (0). *Lantana camara* Wild Sage, *Lantana Verbena* PFAF Plant Database.
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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 **High** confidence in this answer based on the available literature.

**Answer / Justification:**

"*Lantana camara* can reproduce vegetatively through layering or suckering. Prostrate stems can root at the nodes if covered by moist soil."

**Reference(s):**

- Pacific Island Ecosystems at Risk (PIER) (0). *Lantana camara* (PIER species info).
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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: **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:**

*L. camara* is reported to reproduce via vegetative fragmentation.

**Reference(s):**

- Pacific Island Ecosystems at Risk (PIER) (0). *Lantana camara* (PIER species info).
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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:**

Fruit is a 2-seeded drupe. "spreads very quickly, with one plant producing as many as 12,000 seeds a year."

**Reference(s):**

- TexasInvasives.org (0). Texas Invasives *Lantana camara*.
  - Plants For A Future (PFAF) (0). *Lantana camara* Wild Sage, *Lantana Verbena* PFAF Plant Database.
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**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:**

"spreads very quickly, with one plant producing as many as 12,000 seeds a year." "Several thousand seeds per m<sup>2</sup> are produced a year."



**Reference(s):**

- Pacific Island Ecosystems at Risk (PIER) (0). *Lantana camara* (PIER species info).
  - Plants For A Future (PFAF) (0). *Lantana camara* Wild Sage, *Lantana Verbena* PFAF Plant Database.
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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:**

"Sow under thin cover at 20°C (68°F) in light, germinates in about two wks." There does not appear to be a dormancy period.

**Reference(s):**

- Clothier, T. (0). Seed Germination Database - Perennials - D to N.
- 

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

**Answer / Justification:**

"*Lantana camara* flowers in the first year and can flower year round."



**Reference(s):**

- Pacific Island Ecosystems at Risk (PIER) (0). *Lantana camara* (PIER species info).
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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 **Very High** confidence in this answer based on the available literature.

**Answer / Justification:**

"Flowering Time: Early summer, Early fall, Early spring, Early winter, Late summer, Late fall, Late spring, Late winter, Mid summer, Mid fall, Mid spring, Mid winter (Blooms repeatedly)." "Bloom Time: July to frost." "Fl. Per.: Throughout the year." "The plant flowers all the year in many warm countries."

**Reference(s):**

- Pacific Island Ecosystems at Risk (PIER) (0). *Lantana camara* (PIER species info).
  - Missouri Botanical Garden PlantFinder (0). *Lantana camara* - Plant Finder.
  - efloras.org (0). *Lantana camara* in Flora of Pakistan @ efloras.org.
  - Plants For A Future (PFAF) (0). *Lantana camara* Wild Sage, *Lantana Verbena* PFAF Plant Database.
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**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 **High** confidence in this answer based on the available literature.



**Answer / Justification:**

"The fruit is dispersed by frugivorous birds and rodents." "Seeds are widely dispersed, predominantly through migration by birds, but also by kangaroos, bearded dragons, sheep, goats, cattle, foxes, jackals, monkeys and, possibly, rodents." "Seeds get dispersed by animals when stuck in mud and attached to fur or hooves."

**Reference(s):**

- Pacific Island Ecosystems at Risk (PIER) (0). *Lantana camara* (PIER species info).
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**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 *screeners* has a **High** confidence in this answer based on the available literature.

**Answer / Justification:**

Propagules are reported as water dispersed.

**Reference(s):**

- Pacific Island Ecosystems at Risk (PIER) (0). *Lantana camara* (PIER species info).
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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 *screeners* has a **Medium** confidence in this answer based on the available literature.

**Answer / Justification:**

"Plants are commonly spread by the dumping of garden waste."



**Reference(s):**

- Pacific Island Ecosystems at Risk (PIER) (0). *Lantana camara* (PIER species info).
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**Total PRE Score**

**PRE Score:** 23 -- Reject (high risk of invasiveness)

**Confidence:** 86 / 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:

- Charlotte Reemts November 13, 2017
- Steve Moore September 26, 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](mailto: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](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.