Plant Risk Evaluator -- PRE™
Evaluation Report

Liriope spicata -- Texas

2017 Farm Bill PRE Project

PRE Score: 15 -- Evaluate this plant further
Confidence: 75 / 100
Questions answered: 19 of 20 -- Valid (80% or more questions answered)

Privacy: Public
Status: Submitted

Evaluation Date: September 24, 2017

This PDF was created on August 13, 2018

Plant Evaluated

Liriope spicata

Image by Elf at the English language Wikipedia, Wikipedia user

Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Liriope spicata*) 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

Liriope spicata is naturalized in several states in the eastern U.S. and is considered invasive in Georgia. The species spreads vegetatively as well as by bird dispersed seed.

General Information

Status: Submitted
Screener: Kim Taylor
Evaluation Date: September 24, 2017

Plant Information

Plant: *Liriope spicata*

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 L. spicata is naturalized in Maryland, Virginia, Georgia, Florida, Alabama, Mississippi, Louisiana, Illinois, Missouri, Arkansas, and Texas.

Reference(s):

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

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

Answer / Justification:

Kartesz indicates L. spicata is naturalized in several states in the U.S. including several with similar climates to Texas such as Maryland, Virginia, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, and 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 *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Liriope spicata is listed by the Global Compendium of Weeds as an "environmental weed, naturalised". EDD Maps reports the species invasive in Georgia.

Reference(s):

- Invasive Plant Atlas of the United States (0). creeping liriope: Liriope spicata (Liliales: Liliaceae): Invasive Plant Atlas of the United States.
- Global Compendium of Weeds (GCW) (0). Liriope spicata information from the Global Compendium of Weeds (GCW).

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

Answer / Justification:

EDD Maps reports the species invasive in Georgia, which shares a climate with Texas.

Reference(s):

- Invasive Plant Atlas of the United States (0). creeping liriope: Liriope spicata (Liliales: Liliaceae): Invasive Plant Atlas of the United States.

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:

Liriope muscari is naturalized in the southeastern U.S. which shares a similar climate to Texas. It is listed as "naturalised" by the Global Compendium of Weeds indicating the "Species has self sustaining and spreading populations with no human assistance but not necessarily impacting on the environment." Though naturalized the species does not appear to be invasive.

Reference(s):

- Global Compendium of Weeds (GCW) (0). Liriope muscari 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: **Yes**, which contributes **2** points to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Liriope spicata is native to China and Japan with records in the region occuring primarily in a different climate than Texas. Approximately 25% of the native range shares a climate with Texas. In the naturalized range which is primarily the Southeastern U.S. almost all of the range shares a similar climate to Texas. It is difficult to estimate total percent of the range with a similar climate but it appears to be about 50%.

Reference(s):

- GBIF (0). Liriope spicata Lour. (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 *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

"Spreads quickly by underground rhizomes to form colonies, and can be quite aggressive." It is not clear if the species displaces native vegetation and alters the ecosystem.

Reference(s):

- Missouri Botanical Garden PlantFinder (0). Liriope spicata - Plant Finder.

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

Answer / Justification:

The species does not promote fire.

Reference(s):

- Pacific Island Ecosystems at Risk (PIER) (0). Liriope spicata (PIER species info).

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

Answer / Justification:

The plant is not known to be toxic.

Reference(s):

- Pacific Island Ecosystems at Risk (PIER) (0). Liriope spicata (PIER species info).
- Plants For A Future (PFAF) (0). Liriope spicata Lily Turf, Creeping liriope, Creeping Lilyturf PFAF Plant Database.

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

Answer / Justification:

This species does not form thickets.

Reference(s):

- Pacific Island Ecosystems at Risk (PIER) (0). Liriope spicata (PIER species info).

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

Answer / Justification:

"Spreads quickly by underground rhizomes to form colonies, and can be quite aggressive." "vegetatively spread by rhizome"

Reference(s):

- Pacific Island Ecosystems at Risk (PIER) (0). Liriope spicata (PIER species info).
- Missouri Botanical Garden PlantFinder (0). Liriope spicata - Plant Finder.

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

Answer / Justification:

The species reportedly reproduces by vegetative fragmentation.

Reference(s):

- Pacific Island Ecosystems at Risk (PIER) (0). Liriope spicata (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 *screener* has a **High** confidence in this answer based on the available literature.

Answer / Justification:

Propagation is by seed.

Reference(s):

- Pacific Island Ecosystems at Risk (PIER) (0). Liriope spicata (PIER species info).

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

Answer / Justification:

Liriope spicata is not reported to be a prolific seed producer.

Reference(s):

- Pacific Island Ecosystems at Risk (PIER) (0). Liriope spicata (PIER species info).

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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 / Justification:

"Liriope muscari , Sow at Max. 5ºC (41ºF), germination irregular, often several months" "Depulped seeds germinated readily [implies lack of dormancy in soil" There does not appear to be a long dormancy period but more information is needed.

Reference(s):

- Pacific Island Ecosystems at Risk (PIER) (0). Liriope spicata (PIER species info).
- Clothier, T. (0). Seed Germination Database - Perennials - D to N.

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

Answer / Justification:

"presumed capable of seeding in one year"

Reference(s):

- Pacific Island Ecosystems at Risk (PIER) (0). Liriope spicata (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: **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:

"It is in flower from Aug to September." "Bloom Time: August to September" " Fl. May--Jul, fr. Aug--Oct"

Reference(s):

- Missouri Botanical Garden PlantFinder (0). Liriope spicata - Plant Finder.
- efloras.org (0). Liriope spicata in Flora of China @ efloras.org.
- Plants For A Future (PFAF) (0). Liriope spicata Lily Turf, Creeping liriope, Creeping Lilyturf PFAF Plant Database.

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

Answer / Justification:

Seed is reported as dispersed by birds.

Reference(s):

- Pacific Island Ecosystems at Risk (PIER) (0). Liriope spicata (PIER species info).

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

Answer / Justification:

Seed is reported as dispersed by birds.

Reference(s):

- Pacific Island Ecosystems at Risk (PIER) (0). Liriope spicata (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: **No**, which contributes **0** points to the total PRE score.
- The *screener* 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: 15 -- Evaluate this plant further
Confidence: 75 / 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:

- Steve Moore September 26, 2017

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.

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.