



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

Lonicera maackii -- Texas

2017 Farm Bill PRE Project

PRE Score: 15 -- Evaluate this plant further

Confidence: 86 / 100

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

Privacy: Public

Status: Completed

Evaluation Date: March 20, 2017

This PDF was created on July 06, 2018



Plant Evaluated

Lonicera maackii



Image by Fanghong



Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Lonicera maackii*) 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

Lonicera maackii is a known invasive for several regions in North America. The species is naturalized across much of North America and considered invasive in several states. Several biological factors increase its tendency to be invasive including the production of large quantity of seed, production of impenetrable thickets, seed spread by birds, high germination rates and young reproductive age. There is still question as to whether the species will be invasive in Texas however as the areas where the species is a known invasive do not share a similar climate.

General Information

Status: Completed

Screener: Kim Taylor

Evaluation Date: March 20, 2017

Plant Information

Plant: *Lonicera maackii*

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

Answer / Justification:

Naturalized in North America, including US and Canada.

Reference(s):

- United States Department of Agriculture (2014). USDA-NRCS Plants Database.
- Kartesz, J. T. (2015). The Biota of North America Program (BONAP).
- GBIF (0). *Lonicera maackii* (Rupr.) Maxim. (GBIF).
- U.S. National Plant Germplasm Network (0). Taxonomy - GRIN-Global Web v 1.9.8.2.
- CABI (0). *Lonicera maackii* (Amur honeysuckle) - CABI.

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

Answer / Justification:

Naturalized in parts of Texas and parts of North America with similar climate.



Reference(s):

- United States Department of Agriculture (2014). USDA-NRCS Plants Database.
 - Kartesz, J. T. (2015). The Biota of North America Program (BONAP).
 - GBIF (0). *Lonicera maackii* (Rupr.) Maxim. (GBIF).
 - U.S. National Plant Germplasm Network (0). Taxonomy - GRIN-Global Web v 1.9.8.2.
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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 *screeners* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Listed as invasive in Connecticut, Massachusetts, and Vermont. Personally observed as invasive in Tennessee. Also noted as invasive in Ontario, Canada.

Reference(s):

- United States Department of Agriculture (2014). USDA-NRCS Plants Database.
 - CABI (0). *Lonicera maackii* (Amur honeysuckle) - CABI.
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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 *screeners* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

US states listing as invasive are outside the climate match.

Reference(s):

- United States Department of Agriculture (2014). USDA-NRCS Plants Database.



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

Answer / Justification:

Several species of *Lonicera* are considered invasive, including *Lonicera fragrantissima*, *Lonicera japonica*, and *Lonicera tatarica*.

Reference(s):

- Kartesz, J. T. (2015). The Biota of North America Program (BONAP).
 - Munger, G. T. (0). *Lonicera* spp. In: Fire Effects Information System.
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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 **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Most of the species' range is outside the climate match zone.

Reference(s):

- GBIF (0). *Lonicera maackii* (Rupr.) Maxim. (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:

"Exotic bush honeysuckles can rapidly invade and overtake a site, forming a dense shrub layer that crowds and shades out native plant species. They alter habitats by decreasing light availability, by depleting soil moisture and nutrients, and possibly by releasing toxic chemicals that prevent other plant species from growing in the vicinity. Exotic bush honeysuckles may compete with native bush honeysuckles for pollinators, resulting in reduced seed set for native species." (txinvasives) Plant species richness is greatly reduced under a *L. maackii* canopy. Tree seedling mortality increased, and radial and basal growth of existing trees declined. Alters species composition and successional patterns and is noted as reaching 100% cover of mid-story canopy.

Reference(s):

- Hartman, K. M., & McCarthy B. C. (2008). Changes in Forest Structure and Species Composition following Invasion by a Non-Indigenous Shrub, Amur Honeysuckle (*Lonicera maackii*). *The Journal of the Torrey Botanical Society*. 135, 245–259.
- Collier, M. H., Vankat J. L., & Hughes M. R. (2002). Diminished Plant Richness and Abundance below *Lonicera Maackii*, an Invasive Shrub. *The American Midland Naturalist*. 147, 60–71.
- CABI (0). *Lonicera maackii* (Amur honeysuckle) - CABI.
- TexasInvasives.org (0). Texas Invasives.

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:

No evidence was found that the plant promotes fire 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: **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:

Extracts of phenolic compounds in leaves affect the feeding behavior of insects and the survival and behavior of amphibians in several experiments. Predation of American robin nests were higher in *L. maackii* than native shrubs likely due to shrub architecture.

Reference(s):

- Schmidt, K. A., & Whelan C. J. (1999). Effects of Exotic *Lonicera* and *Rhamnus* on Songbird Nest Predation. *Conservation Biology*. 13, 1502–1506.
 - Watling, J. I., Hickman C. R., Lee E., Wang K., & Orrock J. L. (2011). Extracts of the invasive shrub *Lonicera maackii* increase mortality and alter behavior of amphibian larvae. *Oecologia*. 165, 153–159.
 - Cipollini, D., Stevenson R., Enright S., Eyles A., & Bonnelo P. (2008). Phenolic metabolites in leaves of the invasive shrub, *Lonicera maackii*, and their potential phytotoxic and anti-herbivore effects.. *Journal of Chemical Ecology*. 34(2), 8.
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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 *screener* has a **High** confidence in this answer based on the available literature.



Answer / Justification:

plants can grow into dense thickets, often over-topping one another.

Reference(s):

- Deering, R. H., & Vankat J. L. (1999). Forest Colonization and Developmental Growth of the Invasive Shrub *Lonicera maackii*. *The American Midland Naturalist*. 141, 43–50.
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Reproductive Strategies (Questions 11 - 17)

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

- 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:

There is no recorded vegetative spread. Primary means of reproduction is through seeds.

Reference(s):

- Deering, R. H., & Vankat J. L. (1999). Forest Colonization and Developmental Growth of the Invasive Shrub *Lonicera maackii*. *The American Midland Naturalist*. 141, 43–50.
 - Luken, J. O., & Goessling N. (1995). Seedling Distribution and Potential Persistence of the Exotic Shrub *Lonicera maackii* in Fragmented Forests. *The American Midland Naturalist*. 133, 124–130.
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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:

There appears to be no vegetative reproduction.

Reference(s):

- Deering, R. H., & Vankat J. L. (1999). Forest Colonization and Developmental Growth of the Invasive Shrub *Lonicera maackii*. *The American Midland Naturalist*. 141, 43–50.
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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 *screeener* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Seeds are the primary means of reproduction.

Reference(s):

- Deering, R. H., & Vankat J. L. (1999). Forest Colonization and Developmental Growth of the Invasive Shrub *Lonicera maackii*. *The American Midland Naturalist*. 141, 43–50.
 - Luken, J. O., & Goessling N. (1995). Seedling Distribution and Potential Persistence of the Exotic Shrub *Lonicera maackii* in Fragmented Forests. *The American Midland Naturalist*. 133, 124–130.
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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 *screeener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

One report from southwestern Ohio ranged from 0 to 1.2 million berries per plant. Number of fruit produced is dependent on size of the plant but large plants appear to have the capacity to produce copious viable seeds each year.



Reference(s):

- Munger, G. T. (0). *Lonicera* spp. In: Fire Effects Information System.
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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 *screeners* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

Seeds of *L. maackii* lack well developed dormancy mechanism and are absent from the seed banks in woodlots in Ohio where there are well established populations. Seeds appear to be dispersed in a non-dormant condition with 31-81% of untreated seeds germinated after 88 days, depending on light conditions. Seeds typically are produced in the fall and germinate in the fall or the next spring.

Reference(s):

- Deering, R. H., & Vankat J. L. (1999). Forest Colonization and Developmental Growth of the Invasive Shrub *Lonicera maackii*. *The American Midland Naturalist*. 141, 43–50.
 - Luken, J. O., & Goessling N. (1995). Seedling Distribution and Potential Persistence of the Exotic Shrub *Lonicera maackii* in Fragmented Forests. *The American Midland Naturalist*. 133, 124–130.
 - Munger, G. T. (0). *Lonicera* spp. In: Fire Effects Information System.
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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 *screeners* has a **High** confidence in this answer based on the available literature.



Answer / Justification:

Sources vary on the reproductive age of the plant. Some state the shrub can bare fruit as young as 3 to 5 years, others 3 to 8, and others 5 to 8. Deering indicates that 50% of shrubs were reproductive at age 5 with 100% reproductive by age 8.

Reference(s):

- Deering, R. H., & Vankat J. L. (1999). Forest Colonization and Developmental Growth of the Invasive Shrub *Lonicera maackii*. *The American Midland Naturalist*. 141, 43–50.
 - The University of Georgia Center for Invasive Species and Ecosystem Health (0). Amur honeysuckle, *Lonicera maackii* (invasive.org).
-

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:

Fruit is typically produced in the fall, with dates as early as June reported in southwestern Ohio. Fruits can persist on the plants well into winter.

Reference(s):

- Deering, R. H., & Vankat J. L. (1999). Forest Colonization and Developmental Growth of the Invasive Shrub *Lonicera maackii*. *The American Midland Naturalist*. 141, 43–50.
 - CABI (0). *Lonicera maackii* (Amur honeysuckle) - CABI.
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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 *screeners* has a **Very High** confidence in this answer based on the available literature.

Answer / Justification:

birds and mammals spread the fruit, including American robin, hermit thrush, European starling, and white tail deer in North America.

Reference(s):

- Deering, R. H., & Vankat J. L. (1999). Forest Colonization and Developmental Growth of the Invasive Shrub *Lonicera maackii*. *The American Midland Naturalist*. 141, 43–50.
 - CABI (0). *Lonicera maackii* (Amur honeysuckle) - 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 *screeners* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

No evidence of this. Fruits are primarily dispersed by birds.

Reference(s):

- Deering, R. H., & Vankat J. L. (1999). Forest Colonization and Developmental Growth of the Invasive Shrub *Lonicera maackii*. *The American Midland Naturalist*. 141, 43–50.
 - CABI (0). *Lonicera maackii* (Amur honeysuckle) - 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: **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 of spread in this manner.

Reference(s):

- [Anonymous] .
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Total PRE Score

PRE Score: 15 -- Evaluate this plant further

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

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 # 3108

Date Created: May 9, 2017 - 9:40am

Date Updated: June 6, 2017 - 2:25pm

Submitted by: Steve Moore

Status: Fixed

Type:

Severity: Minor

Scope: Plant Information

Issue Description

While this plant possesses landscape value, my personal experience is that it is very easily spread throughout a landscape in North Texas. Fruit production is heavy most years, and seed seem to germinate readily, especially in a maintained landscape.

Issue Resolution (Screener's Response to Issue)

The evaluation seems to confirm this statement. No changes were made.



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.