



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

***Elaeagnus umbellata -- Georgia***

***2017 Farm Bill PRE Project***

**PRE Score:** 17 -- Reject (high risk of invasiveness)

**Confidence:** 86 / 100

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

**Privacy:** Public

**Status:** Submitted

**Evaluation Date:** September 11, 2017

*This PDF was created on July 06, 2018*



## Plant Evaluated

*Elaeagnus umbellata*



Image by KENPEI, Wikipedia user



## Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Elaeagnus umbellata*) 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

*Elaeagnus umbellata* is ranked as a category 1 plant in the state of Georgia, and is invasive in other southern states. It has a massive fruit set which increases its potential for distribution, and along with its ability to produce seed as an early plant, and form dense thickets it has a high potential for invasiveness in the region of concern. The PRE evaluation reflects this concern.

## General Information

**Status:** Submitted

**Screener:** Kylie Bucalo

**Evaluation Date:** September 11, 2017

## Plant Information

**Plant:** *Elaeagnus umbellata*

## Regional Information

**Region Name:** Georgia

## 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:

Found in several SE states in the USA

#### Reference(s):

- USDA Plants Database (0). Plants Profile for *Elaeagnus umbellata* (autumn olive).
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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 *screeners* has a **Very High** confidence in this answer based on the available literature.

#### Answer / Justification:

Found in several SE states in the USA

#### Reference(s):

- USDA Plants Database (0). Plants Profile for *Elaeagnus umbellata* (autumn olive).
-



### 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:

Invasive in parts of U.S, Caribbean, and Europe

#### Reference(s):

- CABI (0). *Elaeagnus umbellata* (autumn olive)\_CABI.
- 

### 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:

Yes. CABI lists *Elaeagnus umbellata* as invasive in many southeastern states. GAEPCC ranks oleaster as a category 1 plant, which can be described as "Category 1 - Exotic plant that is a serious problem in Georgia natural areas by extensively invading native plant communities and displacing native species."

#### Reference(s):

- CABI (0). *Elaeagnus umbellata* (autumn olive)\_CABI.
  - Georgia Invasive Species Task Force (0). List of Non-native Invasive Plants in Georgia - Georgia Invasive Species Task Force- LIST.
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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 **Very High** confidence in this answer based on the available literature.

### Answer / Justification:

*Elaeagnus pungens* is invasive in Florida and Tennessee, of which are both a climate match to the region of concern. *E. pungens* is included on the GA EPPC list as an "Exotic plant that is a moderate problem in Georgia natural areas through invading native plant communities and displacing native species, but to a lesser degree than category 1 species".

### Reference(s):

- CABI (0). *Elaeagnus pungens* (thorny olive)- CABI.
  - Georgia Invasive Species Task Force (0). *Elaeagnus pungens* - Georgia Invasive Species Task Force.
  - UF/IFAS Center for Aquatic and Invasive Plants (0). *Elaeagnus pungens* – UF/IFAS Center for Aquatic and Invasive Plants.
  - Georgia Invasive Species Task Force (0). List of Non-native Invasive Plants in Georgia - Georgia Invasive Species Task Force- LIST.
  - USDA Plants Database (0). Plants Profile for *Elaeagnus umbellata* (autumn olive)- USDA.
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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 Low** confidence in this answer based on the available literature.

### Answer / Justification:

USA occurrences is close to a 50% climate match, but extensive occurrences in the northern states probably rules it out. Japan is 50% as the distribution fits along the thin band that is highlighted on the climate map. Distribution in Australia is >50% match. Europe occurrences



## 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:

"*E. umbellata* grows vigorously and is competitive against native species, growing rapidly into impenetrable, thorny thickets, suppressing and/or displacing native and/or more valuable species and supplanting native habitat."

#### Reference(s):

- CABI (0). *Elaeagnus umbellata* (autumn olive)\_CABI.
- 

### 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:

There is no evidence of this.

#### Reference(s):

- [Anonymous] .
-





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

**Answer / Justification:**

There is no evidence of this.

**Reference(s):**

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

**Answer / Justification:**

"*E. umbellata* grows vigorously and is competitive against native species, growing rapidly into impenetrable, thorny thickets, suppressing and/or displacing native and/or more valuable species and supplanting native habitat."

**Reference(s):**

- CABI (0). *Elaeagnus umbellata* (autumn olive)\_CABI.
-



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

#### Answer / Justification:

I think this answer is a yes given the description in the information section of this question. It can re-sprout quickly after fire or cutting. It is NOT it's main method of reproduction.

#### Reference(s):

- CABI (0). *Elaeagnus umbellata* (autumn olive)\_CABI.
  - GBIF (0). *Elaeagnus umbellata* C.P. Thunb. ex A. Murray\_GBIF.
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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 *screeener* has a **High** confidence in this answer based on the available literature.

#### Reference(s):

- [Anonymous] .
- 

### 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.



**Reference(s):**

- CABI (0). *Elaeagnus umbellata* (autumn olive)\_CABI.
  - GBIF (0). *Elaeagnus umbellata* C.P. Thunb. ex A. Murray\_GBIF.
  - EDDSMaP (0). *Elaeagnus umbellata*\_Invasive plant of New England.
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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 **Very High** confidence in this answer based on the available literature.

**Answer / Justification:**

"Once *Elaeagnus umbellata* is introduced to a region, it seems only a matter of time before it spreads due to the ability of the plant to produce up to 80 lbs. of fruit in a season. "

**Reference(s):**

- EDDSMaP (0). *Elaeagnus umbellata*\_Invasive plant of New England.
- 

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

**Answer / Justification:**

seed germination increases with cold stratification. " Germination in the USA is much reduced with less than two months of cold temperatures, and is optimum with 4-5 months of cold (Munger, 2003)."

**Reference(s):**

- CABI (0). *Elaeagnus umbellata* (autumn olive)\_CABI.



**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:**

"Fruiting begins at 3-5 years old under favorable conditions such as full sunlight and adequate moisture."

**Reference(s):**

- CABI (0). *Elaeagnus umbellata* (autumn olive)\_CABI.
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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:**

"Fruit ripens in August and September. Fruit generally remains on the plant until late winter."

**Reference(s):**

- CABI (0). *Elaeagnus umbellata* (autumn olive)\_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:

Yes. Seeds are spread by birds.

#### Reference(s):

- CABI (0). *Elaeagnus umbellata* (autumn olive)\_CABI.
  - GBIF (0). *Elaeagnus umbellata* C.P. Thunb. ex A. Murray\_GBIF.
  - EDDSMaPS (0). *Elaeagnus umbellata*\_Invasive plant of New England.
- 

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

#### Answer / Justification:

There is no evidence of this.

#### Reference(s):

- [Anonymous] .
-



## 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:

not sure of this answer. I think it should be a no, although CABI suggests that machinery may be a method of dispersal, but no further information is given, and there is no biological evidence that would indicate this.

### Reference(s):

- CABI (0). *Elaeagnus umbellata* (autumn olive)\_CABI.
  - GBIF (0). *Elaeagnus umbellata* C.P. Thunb. ex A. Murray\_GBIF.
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## Total PRE Score

**PRE Score:** 17 -- 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:

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](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.