

# Allelopathy of Amur Honeysuckle and Management

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## Background

- Amur Honeysuckle is native to the countries China, Japan, and Korea.
- Invaded Eastern deciduous forest in North America out competing native species.
- Spreads through natural means like animal droppings and water then greens first out shading the other plants.
- It does not provide the nutrients needed for birds to endure migration.
- FLOW asked us to investigate the allelopathic properties of Amur Honeysuckle.
- To meet expectations, we have conducted a search of primary literature.
- Also researched current range in Ohio and how best to manage the invasive bush.

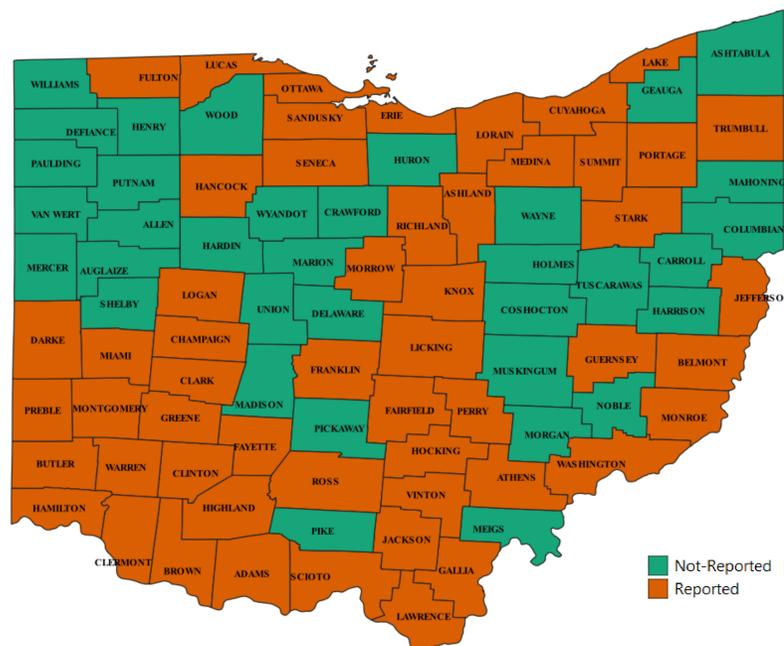


Figure 1. Counties of Ohio colored red for reported and green for not reported sighting of Amur Honeysuckle. The report is from EDDMaps and reported sightings are submitted by the public then reviewed for authenticity.

## Methods

### Primary Literature Collection

- Scopus
  - “Amur honeysuckle management”
  - “allelopathic” and “honeysuckle”
- EBSCO
  - “allelopathic” and “management”
  - “amur honeysuckle”
- Google Scholar
  - “honeysuckle”
  - “management”

### Data Preparation

- Subgroups
  - Different management methods
  - If native species were affected
  - If the article was relevant or not
  - Creation of data figure.

### Literature Separation

- Relevant
  - Mentions the keyword
  - Elaborates on the pros or cons of the method
  - Was published within the past 20 years
- Irrelevant
  - Does not mention keyword other than in the title
  - Was published more than 20 years ago
  - Doesn't give adequate information on method



Figure 2. Shown above is the relevance of different management styles and which ones are effective. It is also indicating the number of articles that have mentions about a keyword, but no necessary information regarding that management style. Those entries are represented in the light green.

## Results

- Managing for the invasive shrub is best in the spring ensuring less spread of its seeds.
- Excluding deer from the recovery area increases likely hood that native species will reestablish themselves.
- Using an active approach in the reestablishment of native plants is more effective than not planting at all.
- Allelopathy of honeysuckle is strong enough to affect seed germination but is easily mitigated with an active approach.

- Establishes itself through spread by animals and rain while outcompeting native species by greening first out shading them.
- Cutting Amur Honeysuckle near the base and spraying the roots with herbicide most effective removal of large bushes.
- Other methods are effective but not as reliable mowing, grazing, burning, and pulling.
- Mowing and grazing are not affecting in killing the roots.
- Pulling is only effective on small plants while burning is effective but dangerous in suburban and urban areas.
- Amur Honeysuckle establishes itself throughout shading competition by greening first and is indigenous to eastern Asia.

## Recommendations

- FLOW is currently handling the management of invasive honeysuckle correctly with cutting and spraying the shrub in areas of overgrowth.
- There are a few recommendations we have found and can suggest that can potentially help with the regrowth in the future.
- Remaining active in native plant regrowth and replanting, it will help to keep invasive species out
  - Replanting and seeding after a heavy rainfall, washing away the Glyphosate, making it easier for the native plants to survive
  - The key is to keep replanting every year, shortly after the amur honeysuckle has been cut down and sprayed
  - Check back at year 5 and 9 to maintain the progress and continue to plant native species
  - Focus on management of honeysuckle again at the 10-year mark to prevent regrowth and potential takeover of the newly implemented native species



Figure 3. FLOW volunteer using Honeysuckle popper to remove the root system of the invasive plant.

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