Washington Invasive Ranking System Washington Natural Heritage Program

Alliaria petiolata (Garlic Mustard)

Assessed by Emily Stevenson (Program Coordinator, Skamania County Noxious Weed Control Program) 3 January 2024 (WIRS Version 1.5)

Ecological Impact Rank: High (77)

Confidence: Low (8)

Management Difficulty Rank: Insignificant (93)

Biological Characteristics of Invasiveness: High (96)

Concern Related to Distribution and Abundance: High (73)

Confidence: Moderate (60) Confidence: Moderate (59)

Confidence: Low (30)



Photo Credit: Dr. Amadej Trnkoczy 2008, used under Creative Commons license (CalPhotos, 2024).

Ranking Notes

Rapid assessment only, based primarily on professional expertise.

Legal Listings

Washington State Weed Board: Class A, Washington State quarantine list.

Washington Invasive Species Council: Yes

Section 1: Distribution and Abundance



Figure 1. Distribution of counties where Alliaria petiolata has been documented in Washington State (CPNWH, 2024; EDDMapS, 2024; iNaturalist Community, 2024).

Q1: Current Range Size in Washington

Rating: Moderate

Confidence: High

Alliaria petiolata is found in 28% of counties in Washington (CPNWH, 2024; EDDMapS, 2024; iNaturalist Community, 2024). Most documentation is from iNaturalist.

Source: Herbarium records and other observations

Q2: Current Trend in Total Range

Rating: Moderate



Confidence: Low

Most of the occurrences documented are from iNaturalist, suggesting recent expansion for this species (CPNWH, 2024; EDDMapS, 2024; iNaturalist Community, 2024).

Source: Herbarium records and other observations

Q3: Proportion of Potential Range Currently Unoccupied

Rating: High

Confidence: Moderate

Source: Professional expertise

Q4: Local Range Expansion or Change in Abundance

Rating: Unknown

Confidence: Not Rated

Alliaria petiolata is a class A species that is required by law to be eradicated. So far, control efforts appear to be successful at preventing local expansion.

Source: Professional expertise

Q5: Diversity of Ecosystems Invaded

Ecosystem types: Forest & Woodland, Grassland & Shrubland, Semi-Desert (includes Shrub-steppe), Marine Coastal Shore, Open Rock, Emergent Open Wetland, Forested Wetland

Rating: High

Confidence: Low

Based on the assessor's experience, this plant may grow in many different habitats.

Source: Professional expertise

Section 2: Biological Characteristics

Q6: Aggressive Mode of Reproduction Rating: Yes

Confidence: High

Source: Professional expertise

Q7: Innate Potential for Long-Distance Dispersal

Rating: Yes

Confidence: Moderate

Source: Professional expertise

Q8: Potential to be Spread by Human Activities

Rating: Yes

Confidence: High

Source: Professional expertise

Q9: Allelopathy

Rating: Yes

Confidence: High

The assessor asserts that this species is allelopathic.

Source: Professional expertise

Q10: Competitive for Limiting Abiotic Factors

Rating: Yes

Confidence: Low

This species maintains photosynthetic foliage for most of the year.

Source: Professional expertise

Q11: Growth Form

Rating: Yes

Confidence: High

This species often forms dense stands.

Source: Professional expertise

Q12: Germination Requirements

Rating: Yes

Confidence: Moderate

Source: Professional expertise

Q13: Invasiveness of Other Plants in Genus

Rating: Unknown

Confidence: Not Rated



Source:

Q14: Shade Tolerance <u>Rating</u>: High

Confidence: High

Source: Professional expertise

Q15: Disturbance Tolerance

Rating: Yes

Confidence: Moderate

Source: Professional expertise

Q16: Propagule Persistence

Rating: >10 years

Confidence: Moderate

Further research is needed.

Source: Professional expertise

Q17: Palatability

Rating: Unknown

Confidence: Not Rated

Browsing has occasionally been observed in the wild, but not frequently. While some people do forage this species, there is likely not enough foraging activity to impact population growth.

Source: Professional expertise

Section 3: Ecological Impact

Q18: Impact on Ecosystem Abiotic Processes

<u>Abiotic Processes</u>: Nutrient dynamics, Light availability, Chemistry

Rating: Moderate

Confidence: Low

Source: Professional expertise

Q19: Impact on Ecosystem Structure

Rating: Low

Confidence: Low

Source: Professional expertise, Thesis

Q20: Impact on Ecosystem Composition

Rating: Moderate

Confidence: Moderate

This species has potential for high impacts on ecosystem composition if left unchecked.

Source: Professional expertise

Q21: Impact on Particular Native Species

Rating: Unknown

Confidence: Not Rated

Source:

Q22: Observed Ability to Invade Undisturbed Ecosystems

Rating: Unknown

Confidence: Not Rated

This species might have the potential to invade intact systems if left unchecked.

Source: Professional expertise

Q23: Observed Ability to Invade Naturally Disturbed Ecosystems

Rating: Yes, plant is unpalatable

Confidence: Low

Source: Professional expertise

Section 4: Management Difficulty

Q24: General Management Difficulty

Rating: High

Confidence: High

Propagule persistence for *Alliaria petiolata* still needs research, which makes management more difficult. Plants vary widely in height, from 1 inch to 5 feet tall. This makes *A. petiolata* difficult to eradicate in westside forests, where small plants can be easily hidden beneath other vegetation.



Source: Professional expertise

Q25: Minimum Time Commitment

Rating: High

Confidence: High

Source: Professional expertise

Q26: Impacts of Management on Native Species

Rating: High

Confidence: Moderate

This species frequently occurs in dense westside forest settings with a lot of vegetation that may become collateral damage. However, the effects of *Alliaria petiolata* infestations may be more damaging than the effects of treatment to native plant communities.

Source: Professional expertise

Q27: Accessibility of Invaded Areas

Rating: Moderate

Confidence: Moderate

Source: Professional expertise

Q28: Sociopolitical Implications of Management

Rating: Moderate/Low

Confidence: Low

This plant is edible to humans, and foraging activities could potentially result in some resistance to management.

Source: Professional expertise

Additional Comments

None

References

CalPhotos. 2024. Berkeley Natural History Museums, University of California, Berkeley. https://calphotos.berkeley.edu/. Accessed: December 17, 2024.

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