

Washington Invasive Ranking System

Washington Natural Heritage Program

Myriophyllum heterophyllum (Variable-leaf Milfoil)

Assessed by

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Ecological Impact Rank: **High** (85)

Confidence: **Moderate** (42)

Management Difficulty Rank: Moderate (68)

Confidence: Moderate (60)

Biological Characteristics of Invasiveness: Not Rated

Confidence: Not Rated

Concern Related to Distribution and Abundance: Low (38)

Confidence: High (80)



Photo Credit: Rich Miller 2017, used under Creative Commons license (iNaturalist Community, 2025).

Ranking Notes

Biological characteristics section was not rated for this species.

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 *Myriophyllum heterophyllum* has been documented in Washington State (CPNWH, 2023; EDDMapS, 2023; iNaturalist Contributors, 2023).

Q1: Current Range Size in Washington

Rating: Low

Confidence: High

Myriophyllum heterophyllum is found in 10% of counties in Washington State (CPNWH, 2023; EDDMapS, 2023; iNaturalist Contributors, 2023; Washington State Department of Ecology, 2023).

Source: Professional expertise, Herbarium records and other observations, Unpublished Washington State Department of Ecology data

Q2: Current Trend in Total Range

Rating: Low

Confidence: Moderate

Many populations of this species were found in Clark County in 2022, but they have likely existed for a long time and are primarily on private property. All discovered populations have been robust and in isolated locations (Washington State Department of Ecology, 2023).

Source: Professional expertise, Unpublished Washington State Department of Ecology data

Q3: Proportion of Potential Range Currently Unoccupied

Rating: High

Confidence: Moderate

This species has been spreading in the northeastern US and in lakes in Europe where it is also introduced. It could likely thrive in many Washington lakes (Les & Mehrhoff, 1999; Thum & Lennon, 2010; Gross et al., 2020; Washington State Department of Ecology, 2023).

Source: Published research, Professional expertise, Unpublished Washington State Department of Ecology data

Q4: Local Range Expansion or Change in Abundance

Rating: Low

Confidence: High

Populations in several lakes have diminished or been eradicated through intensive yearly management, but populations in less managed lakes have remained stable or even increased (Washington State Department of Ecology, 2023).

Source: Professional expertise, Unpublished Washington State Department of Ecology data

Q5: Diversity of Ecosystems Invaded

Ecosystem types: Emergent Open Wetland, Shallow Water Wetland (Aquatic)

Rating: Low

Confidence: High

This is a submersed freshwater aquatic plant. It can survive along muddy shorelines in a terrestrial form, but primarily occurs fully submersed.

Source: Professional expertise, Unpublished Washington State Department of Ecology data

Section 2: Biological Characteristics

Q6: Aggressive Mode of Reproduction

Rating: Not Rated

Confidence: Not Rated

Source:

Q7: Innate Potential for Long-Distance Dispersal

Rating: Not Rated

Confidence: Not Rated

Source:

Q8: Potential to be Spread by Human Activities

Rating: Not Rated

Confidence: Not Rated

Source:

Q9: Allelopathy

Rating: Not Rated

Confidence: Not Rated

Source:

Q10: Competitive for Limiting Abiotic Factors

Rating: Not Rated

Confidence: Not Rated

Source:

Q11: Growth Form

Rating: Not Rated

Confidence: Not Rated

Source:



Q12: Germination Requirements

Rating: Not Rated

Confidence: Not Rated

Source:

Q13: Invasiveness of Other Plants in Genus

Rating: Not Rated

Confidence: Not Rated

Source:

Q14: Shade Tolerance

Rating: Not Rated

Confidence: Not Rated

Source:

Q15: Disturbance Tolerance

Rating: Not Rated

Confidence: Not Rated

Source:

Q16: Propagule Persistence

Rating: Not Rated

Confidence: Not Rated

Source:

Q17: Palatability

Rating: Not Rated

Confidence: Not Rated

Source:

Section 3: Ecological Impact

Q18: Impact on Ecosystem Abiotic Processes

Abiotic Processes: Hydrology, Nutrient dynamics, Light availability

Rating: High

Confidence: Moderate

There is a lack of research in this area, but the biomass and structure of the plants suggests that these impacts are at least moderate (Gross et al., 2020).

Source: Published research, Professional expertise, Unpublished Washington State Department of Ecology data

Q19: Impact on Ecosystem Structure

Rating: Moderate

Confidence: Moderate

There is a lack of research in this area, but the biomass and structure of the plants suggests that these impacts are at least moderate. These plants fill the water column in a manner not seen with other native and invasive submersed aquatic plants (Gross et al., 2020).

Source: Published research, Professional expertise, Unpublished Washington State Department of Ecology data

Q20: Impact on Ecosystem Composition

Rating: Moderate

Confidence: Low

As with the topics above, there is just not enough research on this topic. However, the information we do have suggests that this species can outcompete others native species (Dülger & Hussner, 2017; Gross et al., 2020).

Source: Published Research, Professional Expertise, Unpublished Washington State Department of Ecology data

Q21: Impact on Particular Native Species

Rating: High

Confidence: Moderate

This plant hybridizes with the native *Myriophyllum hippuroides*, an uncommon species in Washington and a Pacific Northwest endemic. Hybridization could lead to the reduction of native gene pools. Many new hybrid populations have been found in Clark County, Washington and ongoing research will help shed light on these taxa (Thum et al., 2011).



Source: Published research, Professional expertise

Q22: Observed Ability to Invade Undisturbed Ecosystems

Rating: High

Confidence: High

Based on the data from Ecology and a handful of other sources, these plants seem to be able to establish in lakes with intact and healthy native plant populations (Gross et al., 2020; Washington State Department of Ecology, 2023).

Source: Published research, Professional expertise, Unpublished Washington State Department of Ecology data

Q23: Observed Ability to Invade Naturally Disturbed Ecosystems

Rating: Unknown

Confidence: Not Rated

The handful of lakes where this species is found in Washington do not appear to undergo substantial natural disturbance.

Source: Professional expertise

Section 4: Management Difficulty

Q24: General Management Difficulty

Rating: High

Confidence: High

Based on personal experience and knowledge, established populations have been very difficult to control (Bailey, 2007; Glomski & Netherland, 2008; Haug & Bellaud, 2013; Gross et al., 2020).

Source: Published research, Professional expertise, Thesis

Q25: Minimum Time Commitment

Rating: High

Confidence: High

This plant has only been eradicated in one lake with a very small population (i.e., a few plants) and that took yearly hand pulls for ~ 5 years. Larger established populations have been managed for more than 10 years to achieve control and in one lake, the population remains largely unchanged after nearly 15 years of ongoing management.

Source: Professional expertise

Q26: Impacts of Management on Native Species

Rating: Low

Confidence: Low

There is a lack of quantitative research on non-target impacts of management. There is a current research project examining this, so we should have more information on this soon (Washington State Department of Ecology, 2023).

Source: Professional expertise, Unpublished Washington State Department of Ecology data

Q27: Inaccessibility of Invaded Areas

Rating: Low

Confidence: Moderate

It is relatively easy to access known occurrences.

Source: Professional expertise

Q28: Sociopolitical Implications of Management

Rating: Insignificant

Confidence: Moderate

In general, the public has been supportive of treatment efforts for this species.

Source: Professional expertise

Additional Comments

None

References

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