



## Parrotfeather (*Myriophyllum aquaticum*) Identification and Management in Waterways

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### Parrotfeather Quick Facts

- This ornamental plant is often used in aquariums and private ponds.
- Submersed stems can grow to 16 feet.
- A dense mat is created that covers waterways and prevents sunlight from reaching native organisms.

### Introduction

Parrotfeather (*Myriophyllum aquaticum*) is an invasive aquatic plant species that grows in ditches, ponds, lakes, and other freshwater habitats. Due to its aggressive nature, parrotfeather will often take over freshwater settings by creating a thick mat covering that prevents sunlight for native aquatic organisms and inhibits regular water flow (Figure 1). Originally from the Amazon River Basin in South America, parrotfeather has adapted to thrive in subtropical climates such as the United States (Wersal et al., 2022). Although parrotfeather has been in the United States since 1890, it was not observed in Utah until 2020 (Wersal et al., 2022). Salt Lake

and Cache are the only counties that have reported parrotfeather. However, due to its ability to spread quickly, it is essential that this noxious weed is identified, treated quickly, and otherwise managed.

### Identification

Parrotfeather is a perennial heterophyllous plant, meaning that it has both emergent and submerged leaves (Gettys, 2020). Emergent stems can be up to 1 foot long out of water, while submerged stems can grow up to 16 feet (Washington State Noxious Weed Control Board [WANWCB], 2022; Figure 2). Due to the length of submerged stems, runners and stems intertwine, creating a dense mat that covers waterways (WANWCB, 2022; Figure 1).

Emergent leaves are grayish-green and have a feather-like appearance (Wersal et al., 2022;



Figure 1. Parrotfeather creating a dense mat of vegetation covering a waterway in Cache County.

Figure 3). Leaves are whorled, stiff, and have 10 leaflet pairs (20 linear divisions). Submerged leaves are darker and can even be reddish-orange (Wersal et al., 2022; Figure 4). Flowers, located in the leaf axils of emergent stems, are usually white (WANWCN, 2022).

## Management

### Prevention

Prevention (Table 1) is the first and preferred approach when managing any noxious weed. Being aware of and able to identify aquatic noxious weeds like parrotfeather is crucial for successful prevention. Observe waterways frequently to ensure that streams, ditches, and canals are not infected. Be aware of all plants within waterways to help distinguish when a weed, such as parrotfeather, enters the system. If you have questions about aquatic plant or weed identification, please call your local [Utah State University \(USU\) Extension office](#) or county weed department.



**Figure 2.** Parrotfeather submerged stem, with leaves and rhizomes, which can be up to 16 feet long.

### Cultural Methods

If maintained for long enough to dry the soil completely, drawdown can be an effective cultural control of parrotfeather. Drawdowns need extra attention, as a large infestation can retain moisture under the biomass, and the root crown can survive. Also, rain and snowfall can provide enough moisture for the plant to survive (Gettys et al., 2020).

### Mechanical Methods

Parrotfeather can be removed by seining (with a net to collect the plant) or by raking it from the pond (AquaPlant, 2021). However, any fragments or remaining parrotfeather roots can re-establish quickly. Because of this phenomenon, mechanical methods are not advised unless an area is completely infested with parrotfeather to avoid inadvertently increasing the infestation (WANWCN, 2022; Table 1).



**Figure 3.** Parrotfeather leaf structure, with 10 leaflet pairs (20 linear divisions).



**Figure 4.** Parrotfeather leaves growing underwater, a growth stage wherein it's often confused with Eurasian watermilfoil (*Myriophyllum spicatum*).

**Table 1.** Summary of Non-Herbicide Options for Controlling Parrotfeather

Control method	Notes
Prevention	<ul style="list-style-type: none"> <li>• Teach yourself and others how to properly identify parrotfeather.</li> <li>• Observe waterways frequently.</li> <li>• Be able to identify all plants within waterways to distinguish when aquatic noxious weeds enter the system.</li> </ul>
Mechanical: Small infestation	<ul style="list-style-type: none"> <li>• Mechanical methods are not suggested for small infestations as the removal will most likely cause larger infestations.</li> </ul>
Mechanical: Large infestation	<ul style="list-style-type: none"> <li>• <b>Only</b> use mechanical methods, such as raking or seining, in completely infested areas, as mechanical removal in areas with small infestations can lead to larger infestations in waterways.</li> </ul>
Biocontrol	<ul style="list-style-type: none"> <li>• Grass carp (freshwater cyprinid fish) is not a suitable biological control method.</li> <li>• <b>No</b> sustainable biocontrol method has been found.</li> </ul>

### **Biological Methods**

Some research has suggested that grass carp can be a reasonable biological control when stocked at a range of 7 to 15 fish per surface acre in private ponds (AquaPlant, 2021). Other research sources have stated that parrotfeather is unpalatable to grass carp and is not a reasonable control method (WANWCN, 2022). Grass carp are not native to Utah and require a permit from the Utah Division of Wildlife Resources to be added to any waterway. Additionally, as no sustainable biocontrol method has been found for parrotfeather control, introducing carp can lead to changes in aquatic ecosystems, potentially causing more harm than benefit (Table 1).

### **Chemical Control**

Before using any herbicide, **always read the label; it is against the law and unsafe to do otherwise.** While reading the label, pay special attention to safety requirements, restrictions of use, directions for use, and disposal requirements.

The herbicide label will dictate what areas can be treated with a particular product and restrict options for use under specific site conditions (Table 2).

At the target location, be aware of your surroundings. Slope, vegetation nearby, wind, and temperature can all have a major effect on applying chemical herbicides. When using herbicides to treat parrotfeather, it is important to check the target area’s waterways for other hazards that may prevent the safe and effective use of herbicides.

*When using herbicides to treat parrotfeather, check the target area’s waterways for other application hazards, noticing wind, temperature, and nearby vegetation.*

**Table 2.** Summary of Herbicide Options for Controlling Parrotfeather in Waterways

Active ingredient	Trade name	Comments <sup>a</sup>
2,4-D	(several)	<ul style="list-style-type: none"><li>• Foliar application provides consistent control.</li></ul>
2,4-D butoxyethyl ester	Navigate	<ul style="list-style-type: none"><li>• Granular formulation.</li><li>• In-water application.</li></ul>
Triclopyr	Renovate 3	<ul style="list-style-type: none"><li>• Both foliar and in-water applications provide consistent control.</li></ul>
Triclopyr + 2,4-D	AquaSweep	<ul style="list-style-type: none"><li>• Both foliar and in-water applications provide consistent control.</li></ul>
Imazapyr	Habitat, Arsenal, Polaris	<ul style="list-style-type: none"><li>• Foliar application provides consistent control.</li></ul>
Florpyrauxifen-benzyl	ProcellaCOR	<ul style="list-style-type: none"><li>• Foliar application.</li></ul>
Carfentrazone + 2,4-D	Stingray + 2,4-D	<ul style="list-style-type: none"><li>• No pre-mixture is available.</li><li>• Excellent control of small infestations.</li><li>• Foliar applications of carfentrazone-ethyl alone <b>will not</b> provide long-term control.</li></ul>
Flumioxazin + 2,4-D	Clipper or Flumigard + 2,4-D	<ul style="list-style-type: none"><li>• No pre-mixture is available.</li><li>• Excellent control of small infestations.</li><li>• Foliar applications of flumioxazin alone <b>will not</b> provide long-term control.</li></ul>

<sup>a</sup>Note. All foliar applications must have enough foliage above water for sufficient herbicide uptake.

## Disclaimer

Parrotfeather is an aquatic plant, and using herbicides will require applications over water (Table 2). An applicator performing aquatic herbicide treatments must have the appropriate State of Utah and federal licenses and permits.

## Picture Credits

USU Extension and authors provided all photos.

## References

*AquaPlant: A Diagnostic Tool for Pond Plants and Algae.* (2021). *How to control parrot's-feather.* Texas A & M Extension. Retrieved October 7, 2024, from <https://aquaplant.tamu.edu/management-options/parrotfeather/>

Gettys, L. A., Haller, W. T., & Petty, D. G. (Eds.) (2020). *Biology and control of aquatic plants: A best management practices handbook.* Aquatic Ecosystem Restoration Foundation. <https://aquatics.org/bmp.html>

Washington State Noxious Weed Control Board (WANWCB). (2022). *Parrotfeather* [Fact sheet].

<https://www.nwcb.wa.gov/weeds/parrotfeather>

Wersal, R. M., Baker, E., Larson, J., Dettloff, K., Fusaro, A. J., & Redinger, J. (2024). *Myriophyllum aquaticum* (Vell.) Verdc. [Fact sheet]. Nonindigenous Aquatic Species Database, U. S. Geological Survey. Retrieved October 7 , 2024, from <https://nas.er.usgs.gov/queries/factsheet.aspx?SpeciesID=235>

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