

## **INVASIVE PLANT FACTSHEET**

### **Parrot feather (*Myriophyllum aquaticum* (Vell.) Verdc.)**

**Problems:** Forms dense surface mats of vegetation that inhibit growth of native plant species and reduce the water quality of habitat utilized by aquatic fauna. Mats can also inhibit recreational uses in waterbodies and worsen flood events. Parrot feather provides breeding habitat for mosquitos and may increase prevalence of insect borne disease. Parrot feather has also been shown to negatively affect water supply sources in developing countries.

**Regulations:** No federal or MS regulations prohibiting movement of this plant.

**Description:** Parrot feather is a perennial plant species that can be confused with native milfoil species. Parrot feather has whorls of highly dissected leaves at each node; nodes are capable of producing roots. Plants produce submersed and emergent foliage. Stems and leaves intertwine, forming dense surface mats.

**Dispersal:** Parrot feather is native to South America but has been found in at least 29 U.S. states (mostly in the southeastern, western, and Atlantic states) and is becoming more common in MS (Figure 2; Turnage and Shoemaker 2018, Turnage et al. 2019, 2020). All parrot feather populations in the U.S. are believed to be female; thus, vegetative reproduction is the only mode of recruitment and dispersal.

**Control Strategies:** Physical-drawdown is effective if exposed sediment is subjected to hard freezes; dredging is also effective. Mechanical-harvesters may reduce nuisance growth but likely cause further spread through dispersal of plant fragments. Biological-grass carp can reduce nuisance vegetation but are thought to prefer other plant species compared to parrot feather. Chemical-the herbicides diquat, glyphosate, 2,4-D, imazapyr, and fluridone have all been shown to be effective against parrotfeather; however, repeated applications may be necessary to control parrotfeather. Chemical solutions of diquat and fluridone should be mixed with water and applied via subsurface injection to infested waterbodies while solutions of imazapyr, 2,4-D, and glyphosate should be applied as a foliar spray (with non-ionic surfactant) to emergent vegetation (Table 1).

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#### References

Turnage, G. and C. M. Shoemaker. 2018. 2017 survey of aquatic plant species in Mississippi waterbodies. Geosystems Research Institute, Mississippi State University, Mississippi State, MS. February 2018. GRI Report # 5077. Pp. 69.

Turnage, G. 2019. A Brief Introduction to Factors Affecting Water Quality, Aquatic Weed Control, Herbicide Labels, & Mixing Calculations. Mississippi State University, Geosystems Research Institute Report #5084. Pp. 22.

Turnage, G., A Lazaro-Lobo, S. L. Sanders, and M. Thomas. 2019. 2019 survey of aquatic plant species in Mississippi waterbodies. Geosystems Research Institute, Mississippi State University, Mississippi State, MS. December 2019. GRI Report # 5085. Pp. 35.

Turnage, G., A. Sample, and C. McLeod. 2020. 2020 survey of aquatic plant species in Mississippi waterbodies. Geosystems Research Institute, Mississippi State University, Mississippi State, MS. October 2020. GRI Report #5086. Pp. 71.

Tables and Figures

Table 1. Chemical control strategies for parrotfeather; the first row for each herbicide is the amount of formulated product needed for commercial applications (100-gal solution), the second row is the amount of product needed for private landowners (25-gal of solution; typical ATV sprayer size); all rates are in imperial units (see Turnage 2019 for instructions on calculating ac-ft; and to gain a greater understanding of how aquatic plant management and aquatic ecosystem processes affect each other); herbicide will move to a constant concentration in the waterbody after application.

HERBICIDE <sup>*,†</sup>	EARLY SEASON RATE	LATE SEASON RATE	NOTES
Diquat	0.185 ppm	0.37 ppm	Short term control; submersed injection to non-turbid water
	0.25 gal/ac-ft	0.5 gal/ac-ft	
Fluridone	10 ppb	30 ppb	Slow acting, submersed injection, bump application 30 days after first
	0.86 oz/ac-ft	2.58 oz/ac-ft	
Imazapyr	1.0 qt/ac	3.0 qt/ac	Add 1% v:v non-ionic surfactant, foliar application
	8 oz	24 oz	
2,4-D	1 pt./ac	2 pt./ac	Add 1% v:v non-ionic surfactant, foliar application
	16 oz	32 oz	
Glyphosate	2 qt./ac	5 qt./ac	Add 1% v:v non-ionic surfactant, foliar application
	1 pt.	2.5 pt.	

\*Diquat rates are based on a 3.73 lb./gal formulation, fluridone rates are based on a 4.0 lb./gal formulation, imazapyr rates are based on a 2.0 lb./gal formulation, 2,4-D rates are based on a 3.8 lb./gal formulation, and glyphosate rates are based on a 5.4 lb./gal formulation; see Turnage (2019) regarding herbicide labels and formulation determination.

†This table is meant to be an aid in mixing herbicide solutions; it is not meant to be used as a replacement for herbicide label recommendations.



Figure 1. Image of parrot feather infestation (left), foliage (center), and line drawing (right). Image credits: R. Wersal.

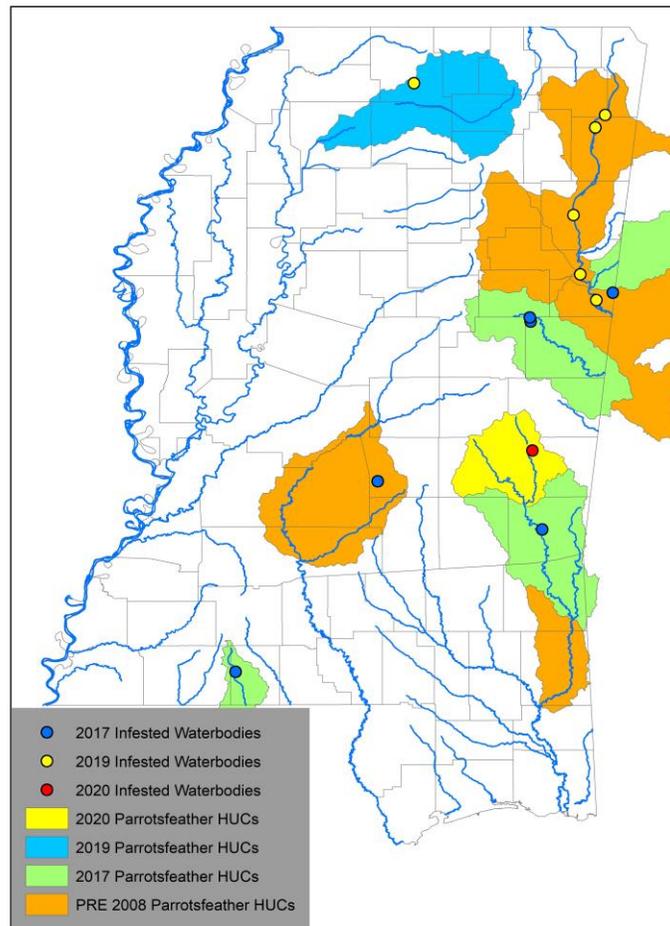


Figure 2. Mississippi Hydrologic Units and waterbodies infested by parrot feather according to surveys by Turnage and Shoemaker (2018) and Turnage et al. (2019, 2020). Hydrologic units are based on HUC 8 codes.

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