Alligatorweed (*Alternanthera philoxeroides* [Mart.] Griseb.)

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Problems: Forms dense mats of vegetation along the margins of waterbodies and can extend into open water. Portions of mats can break away and float to new sites establishing new colonies which can inhibit growth of native plant species and reduce the water quality of habitat utilized by aquatic fauna. Mats can also inhibit recreational uses and commercial navigation in waterbodies and worsen flood events.

Regulations: None in MS.

Description: Alligatorweed is often confused with water primrose (*Ludwigia* spp.). However, alligatorweed has hollow stems, opposite leaves, and clusters of white flowers (Figure 1; similar to white clover in appearance) whereas primrose has solid stems and larger solitary yellow flowers. Alligatorweed stems creep across the water surface extending branches approximately 3 ft. into the air. Stems intertwine, forming dense floating vegetative mats that can trap sediment in the roots forming a floating island called a tussock.

Dispersal: Alligatorweed is native to South America but has been found throughout the southeastern U.S. (very common in MS; Figure 2) and California (Turnage and Shoemaker 2018; Turnage et al. 2019). Plant fragments can root at the nodes which can establish in moist soil, shallow sediments, and upland sites on rare occasions. Plant fragments can be spread by aquatic fauna, water currents, and boating equipment.

Control Strategies: Physical-none known; drawdown will exacerbate the spread of alligatorweed. Mechanical-hand removal of small patches may be effective. Mechanical mowers will provide short-term relief but are ineffective for long term control and may cause further spread through fragmentation. Biological-the alligatorweed flea beetle and the alligatorweed moth have been very effective in areas south of the I-20 corridor where the insects can survive winter temperatures. Chemical-the herbicides 2,4-D, triclopyr, glyphosate, and imazapyr have all been shown to be effective against alligatorweed; glyphosate and imazapyr (alone or in combination) are more effective. Chemical solutions should be mixed with water and a non-ionic surfactant and sprayed on foliage (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. February 2018. GRI Report # 5085. Pp. 35.

Madsen, J.D. 2012. Alligatorweed (*Alternanthera philoxeroides* [Mart.] Griseb.) MSU GRI Factsheet. Pp. 2.

Tables and Figures

Table 1. Chemical control strategies adapted from Madsen (2012); the first row for each herbicide is the amount of 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	SPOT RATE	BROADCAST RATE	SURFACTANT	NOTES
2,4-D	1%	2 qts/ac	1% (1 gal)	Foliar or submersed
		1 pt	1 qt	
Glyphosate	1.25%	3 qts/ac	0.5% (0.5 gal)	Foliar
		0.75 qts	1 pt	
Imazapyr	0.5%	2 qts/ac	0.25% (0.25 gal)	Foliar
		1 pt	1 cup	
Triclopyr	1%	8 qts/ac	1% (1 gal)	Foliar or submersed
		2 qts	1 qt	

*2,4-D rates are based on a 1.74 lb/gal formulation, glyphosate rates are based on a 3.8 lb/gal formulation, imazapyr rates are based on 2 lb/gal formulation, and triclopyr rates are based on a 3 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 replace the label recommendations.

Figure 1. Image of alligatorweed infestation (left), leaf and inflorescence arrangement (center), and inflorescence (right). Images courtesy of J. Madsen (2012).

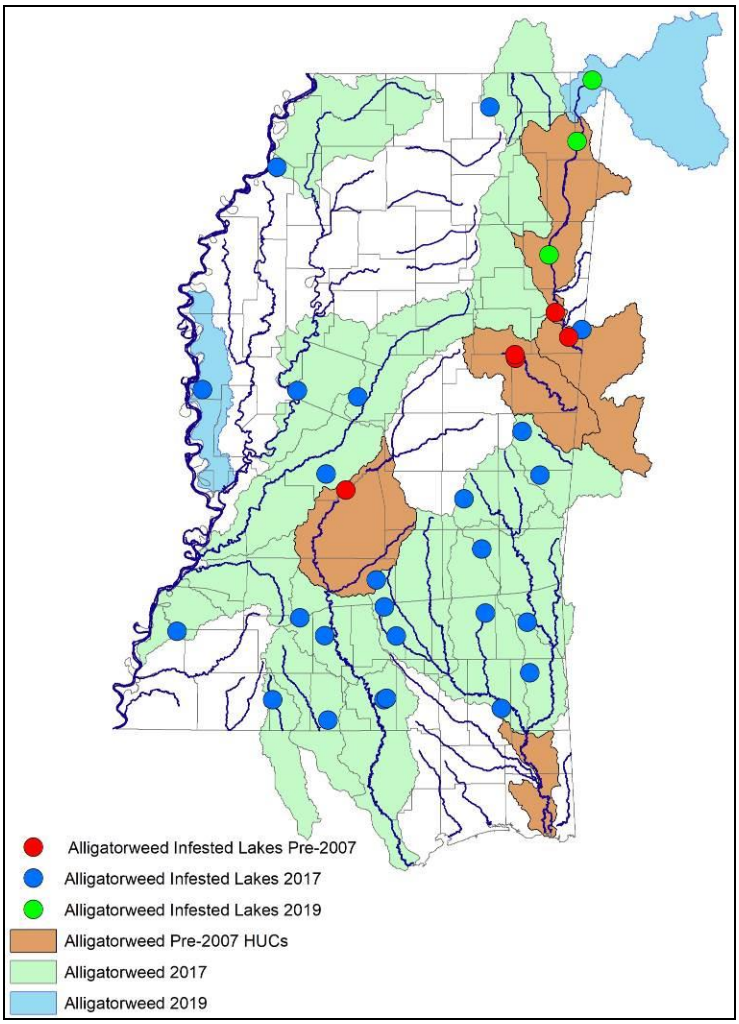

Figure 2. Mississippi Hydrologic Units and waterbodies infested by alligatorweed according to surveys by Turnage and Shoemaker (2018) and Turnage et al. (2019). Hydrologic units are based on HUC 8 codes.

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