

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

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Fig. 1. Alligatorweed forms monospecific stands in moist soil or shallow water of large floating mats. Photos by Ryan Wersal.



Fig. 2. The leaves of alligatorweed are elliptical, about 4" long and opposite. A single inflorescence may be formed, one per node.



Fig. 3. The inflorescence of alligatorweed is a roundish cluster of white flowers, formed by white or clear sepals. The fruit has one seed.

## Introduction

### **Problems caused**

Alligatorweed forms dense mats along the shoreline of lakes, ponds, streams, ditches, and wetlands, with the mat extending out into open water. The dense growth suppresses native plant species, reduces the quality of habitat for waterfowl, wildlife, and fish, and will reduce oxygen levels in the water under the mat. The dense mats interfere with navigation and recreational use, and will exacerbate flooding.

### **Regulations**

Alligatorweed is not listed as a federal noxious weed, although the related sessile joyweed (*Alternanthera sessilis*) was listed out of concern that it too would become a widespread weed. It is listed as a noxious weed in AR and SC, and a Class C weed in AL. Alligatorweed is widely recognized as an invasive weed by state Exotic Pest Plant Councils (EPPC).

## Description

### **Vegetative growth**

Alligatorweed is an emergent herbaceous perennial plant, forming dense stands up to 3 ft tall. The stems vary in color, are approximately  $\frac{1}{4}$ " thick, and often hollow, particular in the floating mat stage. The stem nodes are  $\frac{1}{2}$ " thick, and hollow. Stems will root from the nodes, and in standing water the stems will float on the surface, forming a dense mat, with upright branches. Leaves are opposite, without a petiole, and the orientation of the leaves will shift  $90^\circ$  from one node to the next. Leaves are entire, elliptical in shape, and approximately 4 in long. The leaf base forms a sheath around the stem at the node.

### **Flowering**

An inflorescence may be formed, one per node, with at least one node separating flowering nodes. The flower stalk is  $\frac{1}{2}$  - 3" long, and the flower spike is a collection of numerous flowers forming a roundish cluster. The flower itself has no petals, but has five white or colorless sepals, which are  $\frac{1}{4}$ " long. One seed is produced per flower. Flowering will occur throughout the growing season.

### **Dispersal mechanisms**

Stems that break off can root at the nodes and form a new colony. Seeds are fertile, and may be transported by animals or water, or germinate from the seedbank if the plants are removed.

### **Spread by**

Plants are spread naturally by animals or water. Stems may also be transported on boats, boat trailers, and other equipment.

## Habitat

Alligatorweed can grow on damp soil into shallow standing water. Once a floating mat is formed, water depth is no longer a limiting factor. While alligatorweed can invade into upland sites, it prefers saturated soil to shallow water habitats.

## Distribution

### US

Alligatorweed is found throughout the southeastern United States and California.

### MidSouth

Alligatorweed is found throughout the MidSouth states of AL, AR, LA, MS and TN, though its distribution is poorly documented.

## Control Methods

### Biological

Biological control of alligatorweed has been a phenomenal success, with certain caveats. The alligatorweed flea beetle (*Agasicles hygrophila* Selman and Vogt), particularly combined with the alligatorweed moth (*Vogtia malloi* Pastrana), has completely controlled the aquatic nuisance-forming floating mat in southern regions where the insects survive the winter, approximately 100 miles from the Gulf Coast in LA, MS, and AL. Formerly a significant nuisance in FL, no herbicides are used to control alligatorweed floating mats in FL due to the insect. However, these insects do not control alligatorweed growing on terrestrial or moist soil sites, and control of the aquatic mats does not occur in northern portions of its range. Some success in northern portions of alligatorweed range has been achieved with augmentative releases of the insects.

### Chemical

In northern portions of the alligatorweed range, herbicides are the best management option. Good control has been achieved with both 2,4-D and triclopyr in both spot and broadcast applications, with selectivity that allows survival of native vegetation. Both glyphosate and imazapyr have been used with excellent results in spot and broadcast applications, with slightly higher efficacy with imazapyr. Application in mid-summer provides longer-term control than applications in spring. All formulations of aquatic herbicides listed should be applied to the foliage, and a nonionic surfactant included in the spray mixture. Use only products labeled for aquatic use in sites with standing water.

### Mechanical

Mechanical control with mowers, choppers, and harvesting equipment may provide short-term control, but the increased risk of spreading alligatorweed from stem fragments would suggest that these are not good long-term control options.

Hand removal of individual plants has been an effective technique.

### Physical

Drawdown will increase the abundance of alligatorweed, through stimulation of seed germination.

Herbicide	Spot rate	Broadcast rate	Surfactant	Notes
2,4-D	1.28 fl oz./gal	1.9 lbs ae/acre (4 pints/acre)	1.0% v/v nonionic surfactant	Systemic
Glyphosate	1.25% solution	3 lbs ae/acre (6 pints/acre)	Nonionic surfactant at 0.25-0.5% v/v	Systemic with slow results
Imazapyr	0.5% Solution	0.25 - 1 lbs ae/acre (1 - 4 pints/acre)	Nonionic surfactant at 0.25% v/v	Systemic with slow results
Triclopyr	1 % solution (1.25 fl oz/ gallon)	2 - 6 lbs ae/acre (3 to 8 quarts/acre)	1% v/v nonionic surfactant	Systemic

## References

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