

This WEED REPORT does not constitute a formal recommendation. When using herbicides always read the label, and when in doubt consult your farm advisor or county agent.

This WEED REPORT is an excerpt from the book *Weed Control in Natural Areas in the Western United States* and is available wholesale through the UC Weed Research & Information Center (wric.ucdavis.edu) or retail through the Western Society of Weed Science (wsweedscience.org) or the California Invasive Species Council (cal-ipc.org).

Alternanthera philoxeroides (Mart.) Griseb.

Alligatorweed

Family: Amaranthaceae

Range: Mainly in the southeastern states, but also in California.

Habitat: Shallow water in ditches, marshes, pond margins, and slow-moving waterways. May also be found terrestrially in wet soils. It can tolerate saline conditions up to 10% salt by volume. Alligatorweed requires a warm summer growing condition but can survive cold winters provided there are no prolonged periods of freezing temperatures.

Origin: Native to South America.

Impact: Alligatorweed forms dense floating mats on the surface of water that decrease light penetration and change the natural ecology at the site. It also competes with native vegetation, can cause flooding, and has the potential to create anoxic conditions, increase mosquito breeding, and harbor diseases.

Western states listed as Noxious Weed: Arizona, California

California Invasive Plant Council (Cal-IPC) Inventory: High Invasiveness (Alert)



Photo courtesy of Richard Old

Alligatorweed is an aquatic perennial that also has a terrestrial form. The aquatic form roots in shallow water and rarely grows in water deeper than 6 ft. Its stems are hollow both above and below the water. The stems are stolon-like and root at the nodes. The roots of the aquatic form are shorter and finer than the terrestrial form. The stems above water form dense interwoven floating mats that spread out over deeper water. The foliage and stems are bright green with oppositely placed obovate to narrowly lanceolate leaves. The leaves are 1 to 4 inches long and 0.5 to 1 inch wide with smooth margins and a glabrous waxy surface. The leaves are either sessile or have narrow winged petioles up to 0.5 inch long that clasp the stem at the base.

Alligatorweed produces fragrant flowers in a head inflorescence. The inflorescence can either be produced in the terminal or axillary position and is 0.5 to 1 inch in diameter with a 1 to 3 inches long stalk. The flowers and bracts are pearly white and have 5 separate sepals that are 5 to 7 mm long but lack petals. Seed set is rare and, when produced, is usually non-viable. The seed that is produced is not released from the membranous utricle. Plants typically reproduce vegetatively when pieces of the floating mats break away and colonize downstream. Any stem fragment with a node can develop into a new plant.

NON-CHEMICAL CONTROL

Mechanical (pulling, cutting, disking)	Mechanical control methods such as using a cookie cutter, flail chopper, hand removal, harvesting, hand cutter, or rotoation are good for clearing water ways, but unless all fragments of the stems are collected these management practices could exacerbate the problem. Since alligatorweed reproduces vegetatively, if any fragments move downstream they can develop into another colony and clog the waterway. Using these methods could result in an increase in the number of alligatorweed stands.
Cultural	There are no effective cultural control options for the management of alligatorweed. Drawdown of the water source will not control established infestations because the plant is also adapted to survive in moist terrestrial conditions.
Biological	Three insect species were introduced into the United States from South America between 1964 and 1971. They established in some states but populations have failed to establish in California. The alligatorweed flea beetle (<i>Agasicles hygrophila</i>) can cause considerable damage to the aquatic form of alligatorweed by eating the leaves and boring into the stem, where it pupates. Alligatorweed thrips (<i>Amyothrips andersoni</i>) produce limited damage to the stands by attacking and deforming the apical leaves. Dispersal is also limited because there is often a lack of adults with wings. The alligatorweed stem borer (<i>Arcola malloi</i> (formerly <i>Vogtia malloi</i>)) is a small moth that lays its eggs on the apical leaves. The larvae bore into the stem and work their way down the stem, resulting in wilting and drooping of the plant.

CHEMICAL CONTROL

The following specific use information is based on published papers and reports by researchers and land managers. Other trade names may be available, and other compounds also are labeled for this weed. Directions for use may vary between brands; see label before use. Herbicides are listed by mode of action and then alphabetically. The order of herbicide listing is not reflective of the order of efficacy or preference.

GROWTH REGULATORS

2,4-D Several names	Rate: 8.4 qt product/acre (8 lb a.e./acre), applied in 50 gallons of water per surface acre. Timing: Postemergence after plants have completely emerged, but before blooming stage. Only fair control is achieved when plants are young and succulent. Remarks: Because alligatorweed is a perennial, good control may require a repeat application. 2,4-D is a broadleaf-selective herbicide.
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Triclopyr <i>Renovate</i>	Rate: 1.5 gal product/acre (4.5 lb a.e./acre) Timing: Summer application timing has proved to be better than spring timing. Remarks: Triclopyr is broadleaf-selective and safe on most grasses. It provides only partial control of alligatorweed in field trials. Add 0.25% aquatic registered non-ionic surfactant.
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AROMATIC AMINO ACID INHIBITORS

Glyphosate <i>Roundup, Accord XRT II</i> and others	Rate: Broadcast foliar treatment: 6 pt product (<i>Roundup ProMax</i>)/acre (3.4 lb a.e./acre) with a non-ionic surfactant at 0.75% v/v solution applied in 50 gallons of water per surface acre. Spot treatment: 1.5% v/v solution Timing: Postemergence when most target plants are in bloom. Remarks: Only partial control is achieved with a single application of glyphosate. Repeat applications will be required to maintain good control. Glyphosate is a nonselective herbicide.
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BRANCHED-CHAIN AMINO ACID INHIBITORS

Imazapyr <i>Habitat</i>	Rate: Broadcast foliar treatment: 1 to 4 pt <i>Habitat</i> /acre (4 to 16 oz a.e./acre) applied in 100 gal water per acre. Spot treatment: 0.5% v/v <i>Habitat</i> Timing: Postemergence when target plants are growing rapidly. Remarks: Imazapyr is nonselective. Only the formulation <i>Habitat</i> is registered for aquatic use. Apply spray-to-wet with good coverage on the rapidly growing emergent foliage. Tank mixtures with glyphosate are not recommended because they may reduce control of alligatorweed. Do not apply more than 6 pt product/acre per year.
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RECOMMENDED CITATION: DiTomaso, J.M., G.B. Kyser et al. 2013. <i>Weed Control in Natural Areas in the Western United States</i> . Weed Research and Information Center, University of California. 544 pp.
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