Emerging aquatic plants

By Stephen Futch, Kenneth Jones and David Hall

The emergent aquatic plants discussed in this article are frequently found in and around ditches, canals and ponds in or near citrus groves. These emergent aquatic weeds may need to be treated with herbicides to maintain adequate water flow in ditches and canals, thereby minimizing potential for grove flooding or elevated water tables that will impact citrus root growth.

Additional articles on floating and submersed aquatic weed species are planned for Citrus Industry magazine later this year.

ALLIGATOR WEED
Alternanthera philoxeroides

- **Leaves**: opposite, with a rim between the bases, margins smooth, elliptical, 2 to 5 inches long, and one quarter to three-quarters inch wide, lanced-shaped; tiny erect hairs are found in leaf axils and rims
- **Stem**: round, hollow, often pinkish in color, roots at nodes, to 3 feet long
- **Flowers**: white, in a solitary head on a long stalk, non-sexual parts of flower papery
- **Seeds**: none produced in Florida; reproduction is vegetatively by fragmentation
- **Height**: prostrate
- **Life cycle**: herbaceous perennial
- **Growth characteristics**: forms dense interwoven mat, can be free floating or rooted in soil; flowering primarily April to October or all year in southern parts of Florida
- **Distribution**: native to South America; throughout the entire southern United States; margins of ponds and lakes, streams, swamps, ditches, flooded fields
- **Origin**: non-native
- **Comments**: can be suppressed by alligator-weed flea beetle or alligator-weed stem-borer; grows primarily in fresh water, but can tolerate some salinity. During periods of low water, the weed can grow on muddy banks and other low areas.

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CATTAIL
Typha spp. (Typha domingensis, and T. latifolia)

- **Leaves**: straplike, spongy, upper surface concave, lower surface slightly rounded, tip of blade nearly flat; base of the blade can reach 2.5 inches wide, gradually narrowing upward
- **Stem**: extensive, fast-growing rhizomes
- **Flowers**: unisexual, brown, extremely small in size forming a dense cigar-shaped spike that ranges from 6 inches to 1.7 feet long; the male section of the spike includes the stamens and is located above the female section of the spike containing the pistils; the section with the male flowers is usually narrower than the female section
- **Seeds**: contained in sausage-shaped mass of clusters of nutlets surrounded by a protective casing; multitude of hairs around seeds enable long-distance dispersal by wind
- **Height**: to 11 feet tall
- **Life cycle**: perennial
- **Growth characteristics**: flowering primarily January–June; spreads by seeds and fragmentation of rhizomes; grows rapidly
- **Distribution**: native; T. latifolia – throughout North America; T. domingensis – Delaware west to Kansas and California, south into tropical America; shallow fresh and brackish waters of marshes, ditches, canals, retention ponds and lakes
- **Origin**: non-native
- **Comments**: common along shorelines; an aggressive invader of disturbed habitats with moist soils

CUBAN BULRUSH, BURHEAD SEDGE
Oxycaryum cubense (syn. Scirpus cubensis)

- **Leaves**: all near the base and often longer than the stem
- **Stem**: slender triangular stolons, to 2½ feet; upright shoots form along the stolons
- **Flowers**: one to 13, stalked, spherical clusters one-quarter to one-half inch in diameter, surrounded by two to six or more modified leaves
- **Seeds**: pale or red-brown nutlet about one-eighth inch long, base and edges covered with white bony material
- **Height**: can reach 2½ feet
- **Life cycle**: herbaceous perennial
- **Growth characteristics**: flowers winter through spring in Florida; reproduces by seeds and vegetatively through rhizome growth
- **Distribution**: probably a native of tropical America; Gulf Coast states from Florida to Texas; ponds, marshes, lakes, streams, flooded areas
- **Origin**: non-native
- **Comments**: can use other aquatic vegetation as a substrate to initiate raft-formation which sometimes become floating islands or mats
MAIDENCANE  
*Panicum hemitomon*  
**Leaves:** 4 to 10 inches in length, one-quarter to one-half inch in width, leaf upper surface is rough and the lower surface is smooth; sheath is smooth to hairy  
**Stem:** narrow, 1½ to 6 feet in height; roots at the nodes  
**Flowers:** green, in narrow spikes, 4 inches to 1 foot long  
**Seeds:** about one-sixteenth inch long; pale tan, narrowly football-shaped, smooth  
**Height:** typically 1½ to 3 feet tall  
**Life cycle:** herbaceous perennial  
**Growth characteristics:** flowering mainly in the summer; rhizomes form large stands, reproduces by seeds and vegetatively by branching and rhizome fragments; grows in shallow water and will extend from the shoreline upward, can form extensive colonies in uplands especially when irrigated, often occurs in pure stands  
**Distribution:** native; New Jersey to Florida and west to Texas  
**Origin:** native  
**Comments:** has extensive creeping rootstocks (rhizomes); normally in shallow waters, it can grow to 8 feet or more tall to keep pace with rising water

MEXICAN PRIMROSE-WILLLOW, LONG-FRUITED PRIMROSE-WILLLOW  
*Ludwigia octovalvis*  
**Leaves:** alternate, stalkless; blades narrowly lance-shaped to somewhat football-shaped, 2 to 6 inches long and up to one-half inch wide, veins are prominent; soft hairs cover both sides of the leaves  
**Stem:** erect, branched, entirely herbaceous or herbaceous upward and woody in the lower section  
**Flowers:** petals yellow, heart-shaped  
**Seeds:** light brown, shiny, nearly round, tiny; capsule several-angled, ribbed  
**Height:** 3 to 4 feet northward and to 9 feet tall southward  
**Life cycle:** herbaceous or woody perennial  
**Growth characteristics:** flowering summer-fall northward, all year southward; reproduces from seeds  
**Distribution:** native plant; pantropical; from North Carolina to Florida and into eastern Texas; marshes, ditches, margins of lakes, swamps  
**Origin:** non-native  
**Comments:** typically found along shores; extensive growth of populations impairs flood control, navigation and recreational uses, can crowd out native species

PARAGRASS  
*Urochloa mutica*  
(syn. *Brachiaria mutica*)  
**Leaves:** 4 to 13 inches in length, one-half inch wide; very fine, sparse, hairs on both leaf surfaces, or both surfaces can be smooth; a rim of hairs at the leaf collars  
**Stem:** hairy at nodes, roots at lower nodes  
**Flowers:** seed head 5 to 10 inches in length, with several alternate branches; with numerous spikelets about one-tenth inch in length  
**Seeds:** about one-sixteenth inch long, tan, minutely ridged, somewhat rounded at tip, football-shaped  
**Height:** usually 3 to 6 feet tall, or sometimes stems to 15 feet long and frequently leaning or creeping; stems can lodge upward on other vegetation and reach 8 to 10 feet  
**Life cycle:** herbaceous perennial  
**Growth characteristics:** flowering mostly spring-summer; reproduces primarily by seeds or by rapidly growing stolons; spreads horizontally into water, where it can form dense floating mats, and can even spread out many feet over paved surfaces  
**Distribution:** native to Africa; from Florida to Texas in the United States; prefers moist soils and grows along ditch banks and shores  
**Origin:** non-native  
**Comments:** originally introduced as a forage grass
**PICKERELWEED**
*Pontederia cordata*

- **Leaves:** stalked, erect, in clusters, growing from rhizomes; stalk to 2 feet long, constricted just below blade; blade 2½ to 9 inches long and 2¾ to 4¾ inches wide, varying in shape from lance-shaped to rounded to heart-shaped
- **Stem:** unbranched, hidden by leaves except when flowering, and, similar to the leaf stalk, constricted just below the first node
- **Flowers:** in a terminal spike which can have several hundred violet-blue or white flowers with yellow markings; two-lipped with six petals and six stamens of two sizes; each open for only one day
- **Seeds:** one-seeded, smooth; fruit ridged, dry
- **Height:** usually about 3 feet or less, but can be 6 feet tall
- **Life cycle:** herbaceous perennial
- **Growth characteristics:** flowering mostly spring-summer; typically found growing vigorously in shallow water; reproduces primarily vegetatively by branching and fragmentation of rhizomes and less frequently from seeds
- **Distribution:** native; eastern United States and into Canada; shallow waters of marshes, streams, ditches, lakes
- **Origin:** native
- **Comments:** can form extensive, almost pure stands

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**SMARTWEED**
*Polygonum hydropiperoides*

- **Leaves:** alternate; stalkless or nearly so; a papery tube sheaths the stem above leaf bases; blade narrow and lance-shaped
- **Stem:** swollen at nodes, usually branched, viney, rhizomes often present
- **Flowers:** pinkish, greenish or white in spike-like clusters at or near stem tip
- **Seeds:** shiny, black or brown, three-angular nutlet, one-eighth inch long
- **Height:** mostly 2 feet tall or less; plants can climb over old stems accumulated in wetlands reaching 4 feet or so
- **Life cycle:** herbaceous perennial
- **Growth characteristics:** flowering spring-fall; sprawling habit; reproduces by seeds, rooting from the nodes, and by rhizome fragmentation; can quickly cover open wet soils
- **Distribution:** native; throughout most of the United States; found in shallow water of swamps, marshes, ditches, ponds and floodplains
- **Origin:** native
- **Comments:** typically forms thick, dense populations

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**TORPEDO GRASS**
*Panicum repens*

- **Leaves:** blades flat or folded, one-quarter inch wide and 2 to 10 inches long, with very fine hairs on upper surface; leaf sheath is sparsely hairy
- **Stem:** rigid, can reach many feet in length; with long rhizomes; rhizome tips are very sharp-pointed and torpedo-like (from which it gets its common name).
- **Flowers:** whitish, small, stalked; in a terminal, open, branched seed head; seed head usually 2 to 4 inches long
- **Seeds:** shaped like a football, smooth, shiny, with rounded ends, about one-eighth inch long
- **Height:** mostly 8 inches to 1 foot tall, but can reach 3 feet, erect or leaning
- **Life cycle:** herbaceous perennial
- **Growth characteristics:** flowering mostly May–October; reproduces readily vegetatively and by seeds; may extend over open water, commonly forming large floating mats; can grow in almost any soil; requires moisture for germination; expands rapidly with irrigation or abundant rain
- **Distribution:** native in tropical and subtropical areas of the world, probably introduced into the United States; common in Gulf Coast states from Florida to Texas; ponds, lakes and ditches
- **Origin:** non-native
- **Comments:** terribly invasive, easily crowds out native species

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**WATER PASPALUM**
*Paspalum repens* (syn. *Paspalum fluitans*)

- **Leaves:** sheaths loose, with stiff, coarse hairs, often spongy; blades flat, 4 to 10 inches long and 1 inch wide or less
- **Stem:** sprawling, spongy, rooting at the joints, often elongated, can reach nearly 2 feet in length
- **Flowers:** greenish, hairy, clustered on the underside of the branches, about one-sixteenth inch long
- **Seed head:** 3.5 to 8 inches long; with 20 to 70 winged branches, one-half to 4 inches long
- **Height:** tips erect, usually less than 16 inches tall
- **Life cycle:** herbaceous annual
- **Growth characteristics:** flowering usually May–November; rapid growth; stems often submersed
- **Distribution:** native plant; common West Virginia to Florida to Kansas and Texas; margins of lakes, ponds, ditches, streams, marshes and swamps
- **Origin:** native
- **Comments:** can form thick extensive mats impeding flood control, navigation and recreational activities

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SMARTWEED

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TORPEDO GRASS

Vic Ramey, ©1999, UF

WATER PASPALUM

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WATER PENNYWORT
Hydrocotyle spp. (Hydrocotyle umbellata, H. bonariensis and H. verticillata)

**Leaves:** alternate; blades shiny green, blunt-toothed, almost round; stalks attached near the middle underneath the blade; although normally only an inch or two on land, stalks can be up to 1 foot or more long in deeper water

**Stem:** horizontally spreading, can be above or below ground, or floating

**Flowers:** small, white to greenish white, at the upper end of the flower spike, on individual whorled stalks (umbellata and bonariensis) or lacking stalks (verticillata), stalks simple H. umbellata, stalked branched H. bonariensis, no stalks H. verticillata

**Seeds:** paired nutlets, approximately one-sixteenth to one-eighth inch long, ribbed or ridged

**Height:** in shallow water or on land less than an inch to several inches tall; in deeper water, can be over a foot

**Life cycle:** herbaceous perennial

**Growth characteristics:** flowering March–July; reproduces by seeds and vegetatively by fragmentation of the stem

**Distribution:** native; H. bonariensis – outer Coastal Plain, west from North Carolina into Texas; H. umbellata – Nova Scotia and Minnesota south into Texas; H. verticillata – Coastal Plain and Piedmont, Massachusetts west into California; all three range south from Texas into South America; pond, ditch, lakes, seeps, marshes, prairies, streams, frequent in lawns, gardens and flower beds

**Origin:** native

**Comments:** grows from the shoreline and progresses outward into open water; floating mats can break off from shoreline plants; all three species can grow together in mixed populations; can become weedy in many irrigated situations; grows best during cooler seasons of the year

WEST INDIAN MARSH GRASS
Hymenachne amplexicaulis

**Leaves:** blades flat, to 14 inches long and 1½ inches wide, base heart-shaped and clasping the stem

**Stem:** horizontally spreading, can be above or below ground, or floating

**Flowers:** small, white to greenish white, at the upper end of the flower spike, on individual whorled stalks (umbellata and bonariensis) or lacking stalks (verticillata), stalks simple H. umbellata, stalked branched H. bonariensis, no stalks H. verticillata

**Seeds:** paired nutlets, approximately one-sixteenth to one-eighth inch long, ribbed or ridged

**Height:** in shallow water or on land less than an inch to several inches tall; in deeper water, can be over a foot

**Life cycle:** herbaceous perennial

**Growth characteristics:** flowering March–July; reproduces by seeds and vegetatively by fragmentation of the stem

**Distribution:** probably native to the West Indies; West Indies, tropics of Central and South America; central and south peninsula Florida; low wet pastures, marshes, river banks, wet ditches and other seasonally flooded habitats

**Origin:** non-native

**Comments:** adapted to fluctuating water levels, can survive extensive periods of drought

SELECTED SOURCES


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