

Prohibited Aquatic Weeds of Florida FIELD GUIDE



2025 Division of Plant Industry
Rulemaking Authority 369.25,
369.251
Rule Chapter: 5B-57

DIVISION
of
PLANT INDUSTRY

Aquatic Weed Species Included

Scientific name order

This guide is arranged alphabetically by scientific name of the weed species. The following page lists plants alphabetically by common name. These species are either on the state list of Noxious Weeds and Invasive Species or the Federal Noxious Weed List and/or both. Federal listed species are in **bold**. Asterisks (*) indicate an explanation below.

SCIENTIFIC NAME	COMMON NAME	PLANT FAMILY
<i>Alternanthera philoxeroides</i>	alligator weed	Amaranthaceae
<i>Azolla pinnata</i>	feathered mosquito-fern	Salviniaceae
<i>Crassula helmsii</i>	swamp stone crop	Crassulaceae
<i>Eichhornia crassipes</i>*	water hyacinth	Pontederiaceae
<i>Hydrilla verticillata</i>	hydrilla, Florida elodea	Hydrocharitaceae
<i>Hygrophila polysperma</i>	hygro, Indian swampweed	Acanthaceae
<i>Ipomoea aquatica</i>	water spinach	Convolvulaceae
<i>Ipomoea fistulosa</i>	bush morning-glory	Convolvulaceae
<i>Lagarosiphon major</i>*	African elodea	Hydrocharitaceae
<i>Limncharis flava</i>	yellow velvetleaf	Alismataceae
<i>Limnophila sessiliflora</i>	ambulia	Plantaginaceae
<i>Lythrum salicaria</i>	purple loosestrife	Lythraceae
<i>Monochoria hastata</i>	arrow leaf false pickerelweed	Pontederiaceae
<i>Monochoria vaginalis</i>	heart-shaped false pickerelweed	Pontederiaceae
<i>Myriophyllum spicatum</i>	Eurasian watermilfoil	Haloragaceae
<i>Nechamandra alternifolia</i>	Indian oxygen-weed	Hydrocharitaceae
<i>Nymphoides cristata</i>	crested floatingheart	Menyanthaceae
<i>Nymphoides peltata</i>	yellow floatingheart	Menyanthaceae
<i>Oryza rufipogon</i>	wild red rice	Gramineae/Poaceae
<i>Ottelia alismoides</i>	duck lettuce	Hydrocharitaceae
<i>Pistia stratiotes</i>	water lettuce	Araceae
<i>Pontederia rotundifolia</i>	tropical pickerelweed	Pontederiaceae
<i>Salvinia molesta</i>*	giant salvinia	Salviniaceae
<i>Sparganium erectum</i>	simplestem bur-reed	Typhaceae
<i>Stratiotes aloides</i>	water aloe, soldier plant	Hydrocharitaceae
<i>Trapa natans</i> *	water chestnut	Lythraceae
<i>Vossia cuspidata</i>	hippo grass	Gramineae/Poaceae

*The federal list includes *Eichhornia azurea*; Florida lists all *Eichhornia* species. Florida lists all *Salvinia* species, except *Salvinia minima*; the federal list has five species, including *Salvinia molesta*. All species of *Lagarosiphon* are included in the Florida list; only *Lagarosiphon major* is on the federal list. All *Trapa* species are listed by Florida.

Aquatic Weed Species Included

Common name order

COMMON NAME	SCIENTIFIC NAME	PLANT FAMILY
African elodea	<i>Lagarosiphon major</i>	Hydrocharitaceae
alligator weed	<i>Alternanthera philoxeroides</i>	Amaranthaceae
ambulia	<i>Limnophila sessiliflora</i>	Plantaginaceae
arrow leaf false pickerelweed	<i>Monochoria hastata</i>	Pontederiaceae
bush morning-glory	<i>Ipomoea fistulosa</i>	Convolvulaceae
crested floatingheart	<i>Nymphoides cristata</i>	Menyanthaceae
duck lettuce	<i>Ottelia alismoides</i>	Hydrocharitaceae
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>	Haloragaceae
feathered mosquito-fern	<i>Azolla pinnata</i>	Salviniaceae
giant salvinia	<i>Salvinia molesta</i>	Salviniaceae
heart-shaped false pickerelweed	<i>Monochoria vaginalis</i>	Pontederiaceae
hippo grass	<i>Vossia cuspidata</i>	Gramineae/Poaceae
hydrilla, Florida elodea	<i>Hydrilla verticillata</i>	Hydrocharitaceae
hygro, Indian swampweed	<i>Hygrophila polysperma</i>	Acanthaceae
Indian oxygen-weed	<i>Nechamandra alternifolia</i>	Hydrocharitaceae
purple loosestrife	<i>Lythrum salicaria</i>	Lythraceae
simplestem bur-reed	<i>Sparganium erectum</i>	Typhaceae
swamp stone crop	<i>Crassula helmsii</i>	Crassulaceae
tropical pickerelweed	<i>Pontederia rotundifolia</i>	Pontederiaceae
water aloe, soldier plant	<i>Stratiotes aloides</i>	Hydrocharitaceae
water chestnut	<i>Trapa natans</i>	Lythraceae
water hyacinth	<i>Eichhornia crassipes</i>	Pontederiaceae
water lettuce	<i>Pistia stratiotes</i>	Araceae
water spinach	<i>Ipomoea aquatica</i>	Convolvulaceae
wild red rice	<i>Oryza rufipogon</i>	Gramineae/Poaceae
yellow floatingheart	<i>Nymphoides peltata</i>	Menyanthaceae
yellow velvetleaf	<i>Limnocharis flava</i>	Alismataceae

Federal Noxious Weed List – Aquatic Weeds

Effective as of December 10, 2010

SCIENTIFIC NAME	COMMON NAME
<i>Azolla pinnata</i>	feathered mosquito-fern
<i>Caulerpa taxifolia</i>	killer algae
<i>Eichhornia azurea</i>	rooted water hyacinth
<i>Hydrilla verticillata</i>	hydrilla
<i>Hygrophila polysperma</i>	miramar weed
<i>Ipomoea aquatica</i>	water spinach
<i>Lagarosiphon major</i>	African elodea
<i>Limnophila sessiliflora</i>	ambulia
<i>Melaleuca quinquernervia</i> *	broadleaf
<i>Monochoria hastata</i>	arrow leaf false pickerelweed
<i>Monochoria vaginalis</i>	heart-shaped false pickerelweed
<i>Ottelia alismoides</i>	duck lettuce
<i>Sagittaria sagittifolia</i>	arrowhead
<i>Salvinia auriculata</i>	giant salvinia
<i>Salvinia biloba</i>	giant salvinia
<i>Salvinia herzogii</i>	giant salvinia
<i>Salvinia molesta</i>	giant salvinia
<i>Solanum tampicense</i> *	wetland nightshade
<i>Sparganium erectum</i>	exotic bur-reed
<i>Oryza rufipogon</i> **	wild red rice

*These species are included in the Terrestrial Weeds of Florida Field Guide although they are listed as aquatic species by USDA. These woody plants grow in wet forests near (and sometimes in) water.

**This species is listed as terrestrial on the federal noxious weed list, but it is considered an aquatic weed in Florida.

[weedlist.pdf \(usda.gov\)](#)

Florida Aquatic Noxious Weed List

Found in Rule 5B-57, a chapter of the Florida Administrative Code

SCIENTIFIC NAME	COMMON NAME
<i>Alternanthera philoxeroides</i>	alligatorweed, green lead plant
<i>Crassula helmsii</i>	swamp stone crop
<i>Eichhornia</i> spp.	water hyacinth
<i>Hydrilla verticillata</i>	hydrilla, Florida elodea, stargrass, oxygen grass
<i>Hygrophila polysperma</i>	hygro
<i>Ipomoea aquatica</i>	water spinach
<i>Ipomoea fistulosa</i>	bush morning-glory
<i>Lagarosiphon</i> spp.	African elodea
<i>Limnocharis flava</i>	sawah flowing rush
<i>Limnophila sessiliflora</i>	ambulia
<i>Lythrum salicaria</i>	purple loosestrife
<i>Monochoria hastata</i>	arrow leaf false pickerelweed
<i>Monochoria vaginalis</i>	heart-shaped false pickerelweed
<i>Myriophyllum spicatum</i>	Eurasian watermilfoil
<i>Nechamandra alternifolia</i>	Indian oxygen-weed
<i>Nymphoides cristata</i>	crested floating heart
<i>Nymphoides peltata</i>	yellow floating heart
<i>Oryza rufipogon</i>	wild red rice
<i>Pistia stratiotes</i>	water lettuce
<i>Pontederia rotundifolia</i>	tropical pickerelweed
<i>Salvinia</i> spp. (excluding <i>S. minima</i>)	giant salvinia
<i>Sparganium erectum</i>	exotic bur-reed
<i>Stratiotes aloides</i>	water-aloe, soldier plant
<i>Trapa</i> spp.	water chestnut
<i>Vossia cuspidata</i>	hippo grass

The following plants may be cultivated in a nursery and shall only be sold out of state upon approval by the department.

- *Hygrophila polysperma* – hygro
- *Limnophila sessiliflora* – ambulia
- *Pistia stratiotes* – water lettuce

**Acute**

leaf tip tapering to a point with straight sides, forming an angle of less than 90°

**Alternate**

leaves arranged with one leaf at each point of attachment (node) along the stem; compare with opposite and whorled

**Basal rosette**

leaves positioned at the base of the stem, forming a crowded whorl or spiral

**Cordate**

leaf base heart-shaped with a notch at the point of attachment to the leaf stalk

**Elliptic**

leaf blade a narrow oval, widest near the middle and narrower at the two ends

**Emerged**

leaves and/or other plant parts rising above and out of the water

**Floating, rooted**

upper plant parts resting on the water surface, but with roots attached to the substrate (usually soil or mud)

**Free floating**

plant resting on the water surface and not attached to the substrate by roots or rhizomes

**Lanceolate**

leaf blade lance-shaped, much longer than wide, widest below the middle

**Linear**

long, narrow leaves with roughly parallel sides, needle-like leaf blade

**Oblanceolate**

inverted lanceolate, leaf blade much longer than wide, widest above the middle

**Oblong**

leaf blade two to four times longer than wide, with nearly parallel sides

**Obovate**

leaf blade inverted ovate, broadly egg-shaped, widest toward the tip

**Obtuse**

leaf tip blunt or rounded with sides forming an angle greater than 90°

**Opposite**

leaves arranged with two leaves (across the stem from each other) at each point of attachment (node); compare with alternate and whorled

**Orbicular**

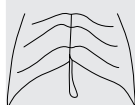
leaf blade roughly circular in outline

**Ovate**

leaf blade broadly egg-shaped, widest toward the base

**Rounded**

leaf base forming a smooth arc

**Sagittate**

leaf base arrow-shaped, with lobes of the leaf base pointing downward, at an angle of 45° or less from the leaf midvein

**Sheathing**

with the leaf bases surrounding other leaves or the stem, commonly seen in grasses

**Spatulate**

leaf blade shaped like a spatula, with a rounded blade gradually tapering to a narrow base

**Submersed**

all plant parts growing under water

**Whorled**

leaves arranged with three or more leaves at each point of attachment (node) along the stem; compare with opposite and alternate

Alternanthera philoxeroides – alligator weed

IDENTIFICATION

flowers papery, whitish, in spherical heads on long (2-inch) stalks

hollow stem with pink to red tint

narrow band of hairs on the stem at leaf bases (nodes)

HABITAT

shallow streams, swamps, ponds and lakes, floating in the water or growing along shorelines



GROWTH FORM

trailing pink to red stems (stolons) that can reach lengths of 16 feet or more; herbaceous perennial, rooting at the nodes; forming dense, floating mats



LEAVES

emersed, opposite; oblanceolate, obovate or elliptic; slightly succulent; to 3 ½ inches long and ½ inch wide; tipped with a tiny spine; midrib prominent on both sides; opposite leaf bases clasp the stem, forming a narrow sheath; scattered fine hairs on both sides when young, becoming hairless with age; margins translucent, with minute dentations bearing long hairs.



FLOWERS

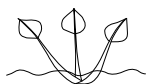
spherical heads of several whitish, papery flowers; heads on stalks (peduncles) to about 2 inches long and 1/16 inch thick; stalks usually originate from leaf axils, rarely terminal; flower segments five; stamens two to five; style one.



FRUIT

tiny, one-seeded, thin-walled; not seen in North America

emersed



opposite



oblanceolate



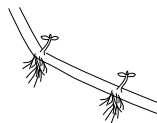
obovate



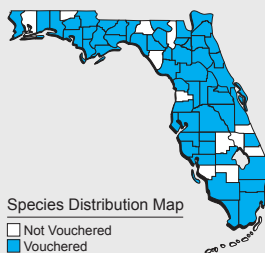
elliptic



roots at nodes



DISTRIBUTION



Alligator weed is native to tropical South America, but it has become naturalized in Central America, Asia, Australia and the southern United States, including Florida, where it is found growing nearly throughout the state.

Alternanthera philoxeroides – **alligator weed**



1. **habitat.** Photo by Nancy Loewenstein 2. **growth form.** Photo by Graves Lovell 3. **node.** Photo by Rebekah D. Wallace
4. **flower.** Photo by Rebekah D. Wallace 5. **stolons.** Photo by James H. Miller 6. **node close view.** Photo by Patti J. Anderson

Azolla pinnata – feathered mosquito-fern

FEDERAL NOXIOUS WEED

IDENTIFICATION

free-floating aquatic with triangular shape (like a tiny, flat Christmas tree)

dense mats of green or burgundy red fronds

frond surface with velvety appearance

HABITAT

still waters of ponds, swamps, marshes, ditches, rice paddies in mainly tropical areas; can persist in moist soil for short periods



GROWTH FORM

free-floating, tiny, aquatic fern up to 1 inch long, growing in large clusters, often aggregating to form mats with several layers, blocking sunlight from the water surface; host to nitrogen-fixing bacteria (sometimes used as a green fertilizer); overall triangular shape formed by larger fronds growing at base with gradually smaller fronds toward the tip; underwater rhizome with dangling roots growing from nodes



LEAVES

each leaf with two lobes: an emergent lobe, bright green to deep burgundy/purple based growing conditions and a submerged or partly submerged, transparent, cup-shaped lobe providing floatation; upper lobes with a velvety appearance caused by fleshy, surface trichomes; nitrogen-fixing bacteria live within a leaf cavity



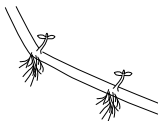
REPRODUCTION

As with all ferns, reproduction is by spores; this species is unusual in that it produces both male and female spores on one plant

free floating



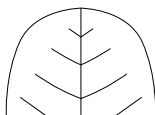
roots at nodes



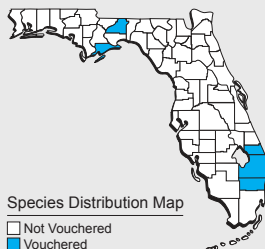
pinnate compound



obtuse

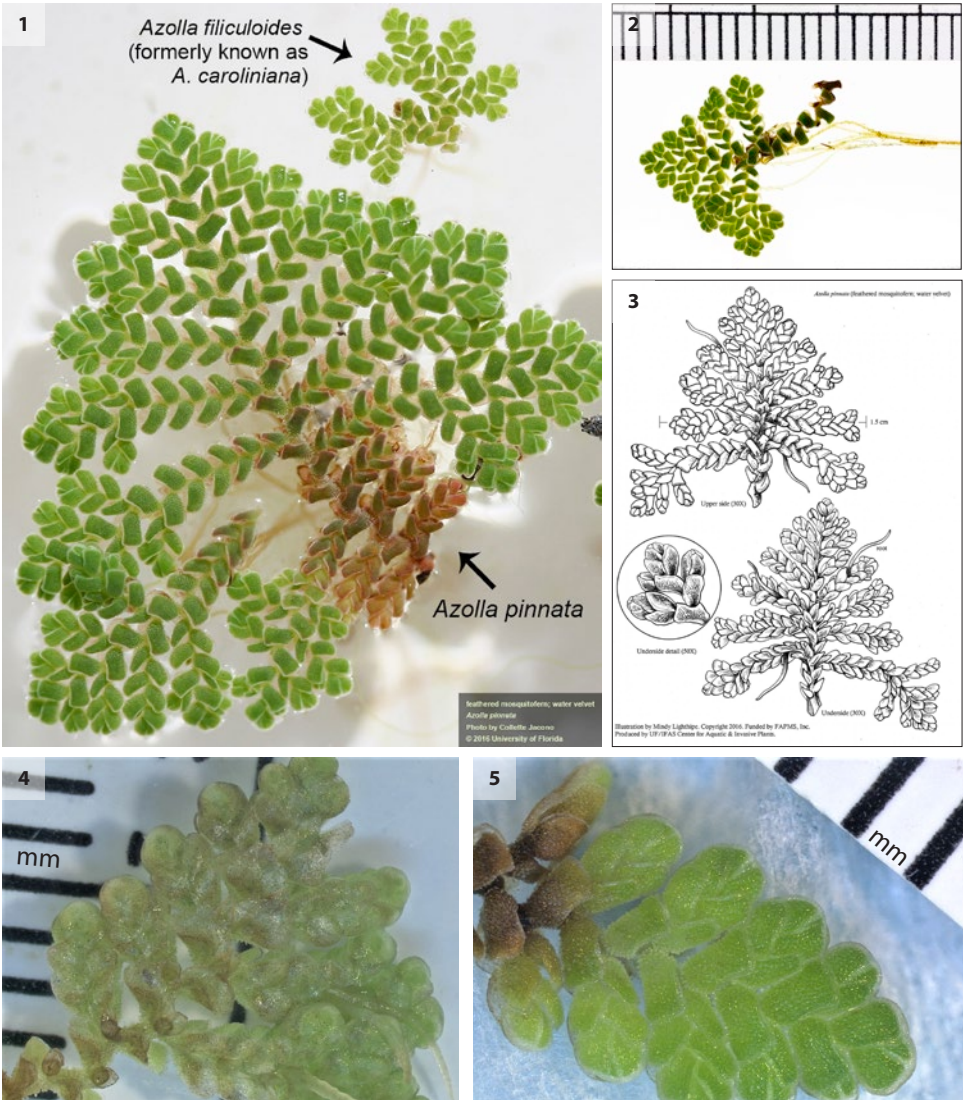


DISTRIBUTION



This species is native to New Caledonia and Australia; it has been introduced into California, Florida, Hawaii, Louisiana, Nevada, New Zealand and North Carolina. In Florida, *Azolla pinnata* has been found in five counties.

Azolla pinnata – feathered mosquito-fern



1. comparison. Photo by Colette Jacono 2. close up. Photo by Jeffrey Lotz 3. drawing. Photo by Mindy Lighthipe 4. leaf underside. Photo by Patti Anderson 5. leaf upperside. Photo by Patti Anderson

Crassula helmsii – swamp stonecrop

IDENTIFICATION

thick, narrow leaves

opposite leaves joining to form a collar at each node

tiny, white, four-petaled flowers, rising above the water on long stalks

HABITAT

freshwater lakes and streams; aquatic to semiterrestrial



GROWTH FORM

perennial herb, slender, once or twice branched; creeping, floating, or ascending; grows up to 4 feet long; white anchoring roots about 3 inches long produced at lower nodes; vegetative reproduction from stem



LEAVES

submersed or emerged; thick, to $\frac{3}{16}$ inch, succulent; opposite, sessile (without leaf stalks/petioles); opposite leaf pairs join at base to form cylindrical collar around stem; $\frac{1}{8}$ inch - $\frac{3}{4}$ inch long, $\frac{1}{32}$ - $\frac{1}{16}$ inch wide; narrow linear to lanceolate; margins without teeth (entire); pointed tip on upper leaves, rounded tip on lower leaves



FLOWERS

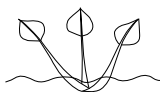
white to pale pink; tiny ($\frac{1}{8}$ inch wide); held singly in upper leaf axils on slender stalks; flowers typically with four sepals, petals and stamens



FRUIT

four fruits (follicles), each $\frac{1}{16}$ inch long; with three to five elliptical seeds in each; seeds about half as long as the fruit

emersed



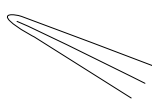
opposite



lanceolate



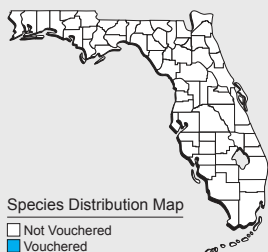
linear



submersed



DISTRIBUTION



Swamp stonecrop is native to Australia and New Zealand, but it has naturalized in several areas of Europe. This species is not known to have escaped in Florida, but it is sold online.

Crassula helmsii – **swamp stonecrop**



1. habitat. Photo by David Gould 2. flower. Photo by John Crossley 3. infestation. Photo by Lucy Shuker 4. stems. Photo by M. Nault 5. leaf and collar. Photo by Alan Gregg

Eichhornia crassipes – water hyacinth

FEDERAL NOXIOUS WEED

IDENTIFICATION

large, rounded, glossy leaves

large spikes of showy purple to blue flowers

inflated leaf stems (petioles) keeping plants afloat

HABITAT

ponds, lakes, streams and sloughs, forming dense mats of floating vegetation



GROWTH FORM

free-floating, frost-tender, aquatic perennial; spongy, inflated leaf stalks allow floating; stems often bearing stolons (short runners) with buds producing daughter plants



LEAVES

basal, in circular clusters (rosettes), whorled around a short stem; entire; broadly ovate to circular (orbicular), or somewhat kidney-shaped; up to 8 inches in diameter; leathery, glabrous and glossy with numerous closely spaced veins; petioles inflated



FLOWERS

inflorescence a spike of several (eight to 15) flowers, to 12 inches long, rising above the foliage, with four to 15 spirally arranged, showy lavender to blue (rarely pink) flowers with six fused tepals (three petal-like sepals and three petals); uppermost flower with a dark blue or purplish splotch surrounding a bright yellow spot; flowers 1 ½ - 2 ½ inches across



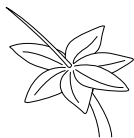
FRUIT

three-celled capsule with many minute, ribbed seeds; seeds form in submerged, withered flower

free floating



whorled



ovate



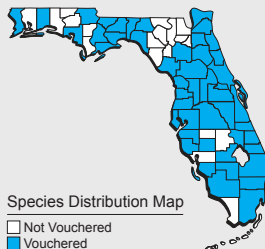
cordate



orbicular



DISTRIBUTION



Water hyacinth is native to the Amazon Basin from Venezuela to Brazil but has become naturalized throughout the tropics and subtropics and even some warm temperate areas. In the United States, the species is found from New York to Florida, throughout the Southeast to Texas and in several western counties scattered from Arizona to Washington. In Florida, water hyacinth can be found in water bodies almost everywhere.

NOTE: All species of *Eichhornia* are prohibited, but the others are rarely seen in Florida. *Eichhornia azurea* is a FEDERAL NOXIOUS WEED.

Eichhornia crassipes – **water hyacinth**



1. roots. Photo by Leslie J. Mehrhoff 2. habitat. Photo by Ann Murray 3. flower. Photo by David Sutton 4. leaves and roots. Photo by Jeffery Lotz

Hydrilla verticillata – hydrilla

FEDERAL NOXIOUS WEED

IDENTIFICATION

submerged below the water surface with long, slender stems, rooted or floating

leaves whorled, with four to eight leaves per node

serrate (sawtooth) leaf margins with spines on midrib (underside)

HABITAT

shallow canals, ponds, channelized and spring-fed streams and lakes, found rooted in substrate or floating in water; often out competing other aquatic species



GROWTH FORM

fast-growing, herbaceous perennial with stems up to 25 feet long, forming dense masses



LEAVES

whorled, with four to eight leaves per node; sessile (no leaf stalk/petiole); oblong, with a conspicuous midrib; serrate (sawtooth) leaf margins; spines along midrib on the underside



FLOWERS

separate male (pollen-bearing) and female (seed producing) flowers, but not often seen; reproduction by broken stem fragments, rhizomes (underground stems) and turions (specialized structures like buds formed in leaf axils)



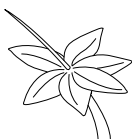
FRUIT

a capsule; linear, to ½ inch long and ⅓ inch wide; smooth or with a few spines; up to six dark brown shiny seeds

submersed



whorled



floating, rooted



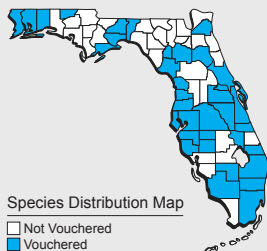
free floating



oblong



DISTRIBUTION



Hydrilla is native to Africa, Asia and Australia, but it has become naturalized outside its native range in Europe, South and Central America and the United States, including Florida, where it is found clogging waterways nearly throughout the state.

Hydrilla verticillata – hydrilla



1. **habitat.** Photo by David J. Moorhead 2. **growth form.** Photo by Raghavan Charudattan 3. **tubers.** Photo by Robert Vidéki 4. **leaves.** Photo by Robert Vidéki 5. **infestation.** Photo by Leslie J. Mehrhoff

Hygrophila polysperma – **hygro/Indian swampweed**

FEDERAL NOXIOUS WEED

IDENTIFICATION

simple, opposite leaves

submerged or emergent, dense mats in fast-moving water or rooted in slow-moving water and on stream banks

small, solitary, blue to white, tubular flowers

HABITAT

fast-moving rivers and streams, slow-moving waters in canals and lakes and floodplain forests



GROWTH FORM

herbaceous perennial with stems mostly submerged, usually rooted, but rooting at nodes where the easily fragmented stem breaks to form dense stands and floating mats; flowers above the water surface



LEAVES

opposite, submerged or emergent to 3 inches long and about $\frac{3}{4}$ inch wide, usually obtuse, sessile (with no petiole) and pairs of leaf bases joined by a flange of tissue with hairs (cilia) growing upward



FLOWERS

small, nearly $\frac{1}{2}$ inch long, held singly and nearly hidden in the axils of uppermost leaves; calyx five-lobed, corolla bluish white, two-lipped, three lobes on the lower lip, two lobes on the upper lip; two fertile stamens, two shorter bristle-like staminodes



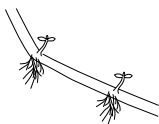
FRUIT

Fruit a narrow, oblong capsule, about $\frac{3}{8}$ inch long, splitting lengthwise to release 20-30 tiny round seeds

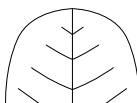
submersed



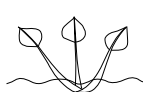
roots at nodes



obtuse



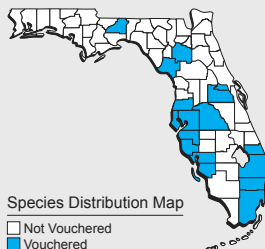
emersed



opposite



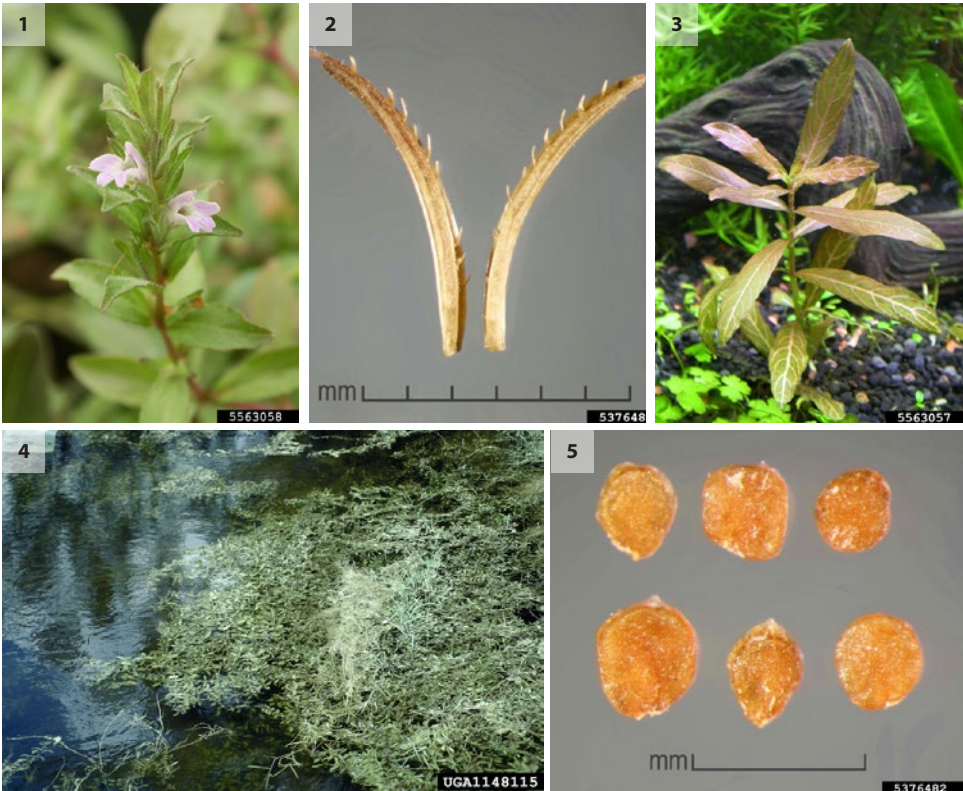
DISTRIBUTION



Hygro or Indian swampweed is native to Bangladesh, China, India, and Malaysia and has been introduced to the United States where it is found in Florida, Texas and Virginia. In Florida, this species is known to spread in several scattered counties where it can clog waterways and irrigation systems.

NOTE: Florida plant nurseries may apply for permits to sell this species out of state.

Hygrophila polysperma – **hygro/Indian swampweed**



1. flower. Photo by Shaun Winterton 2. fruits, after seeds dispersed. Photo by Julia Scher 3. leaves. Photo by Shaun Winterton 4. infestation. Photo by Robert Vidéki 5. seeds. Photo by Julia Scher

Ipomoea aquatica – water spinach

FEDERAL NOXIOUS WEED

IDENTIFICATION

Fast-growing, floating, creeping, climbing vine with hollow or spongy stems and milky sap

Leaves alternate, arrow shaped

Flowers funnel shaped, typical of the morning glory family

HABITAT

ditches, canals, shallow areas of ponds, lakes and rivers



GROWTH FORM

herbaceous (not-woody), perennial vine, up to 9 feet long, rooting at nodes and branching to form dense mats



LEAVES

alternate, usually shaped like an arrowhead, sometimes lance-shaped or heart-shaped, leaf stalk to 8 inches long and leaf blade up to 6 inches long



FLOWERS

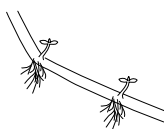
showy, funnel-shaped, white, pink or pale purple, to 2 inches across, growing singly or in twos or threes from leaf axils on stalks up to 5 inches long



FRUIT

spherical or egg-shaped capsules, $\frac{5}{8}$ inch long; up to four, wedge-shaped, gray or brown seeds; although seeds are produced, propagation is mainly through stem fragmentation

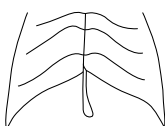
rooting at nodes



alternate



sagittate



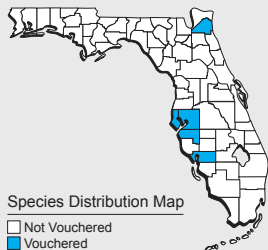
lanceolate



cordate



DISTRIBUTION



Ipomoea aquatica is native to Africa, Asia and the southwestern Pacific Islands, but now it is widely distributed throughout the tropics and subtropics, mainly for its use as a vegetable; water spinach has escaped from cultivation to become naturalized in a few Florida counties.

NOTE: Plant nurseries may apply for permits to sell this species out of state.

Ipomoea aquatica – water spinach



1. flower. Photo by Shaun Winterton 2. habitat. Photo by Shaun Winterton 3. seeds. Photo by Julia Scher
4. roots. Photo by Yanti Lin 5. leaves. Photo from Shutterstock

Ipomoea fistulosa – bush morning-glory

IDENTIFICATION

erect, sparsely branched shrub growing up to 8 feet tall

large leaves, 5 - 8 inches long, with a long stalk (petiole)

pink to purple funnel-shaped flowers in small clusters in the axils of the uppermost leaves

HABITAT

found in both aquatic and terrestrial habitats, from maritime strands and dry fields to wet bottomlands and roadside ditches; wild plants are found growing rampantly in wet areas, while cultivated plants can persist in dry places without invasive behavior

GROWTH FORM

unlike most other morning-glories, this species is a shrub, not a vine; if the stem falls, roots are formed along its length allowing the plant to spread horizontally; stem base is woody, hollow toward the tip

LEAVES

alternate, lanceolate, hairless leaf blades, 5 - 8 inches long, about 2 inches broad, and with long-tapering tip and a truncated or shallowly heart-shaped base; the leaf stalk (petiole) about 4 inches long

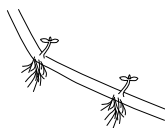
FLOWERS

funnel-shaped, 3 - 4 inches across, with five shallow lobes; fused petals pink to lavender or purple, with a darker center

FRUIT

oval-shaped capsule about $\frac{3}{4}$ inch long, opening by four valves to reveal one to four, dark brown seeds covered by wooly, brown or dark gray hairs

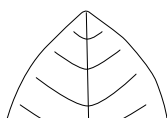
rooting at nodes



alternate



acute



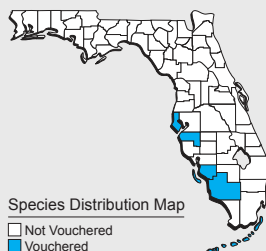
lanceolate



cordate



DISTRIBUTION



The plant is native throughout much of tropical America, from Argentina to Mexico, and it has naturalized widely in the Old World tropics. In the United States, it has been reported from Florida, Georgia, Hawaii, South Carolina and Texas. In Florida, bush morning-glory has escaped cultivation in only a few coastal counties.

Ipomoea fistulosa – **bush morning-glory**



1. leaves. Photo from Shutterstock 2. flowers. Photo from Shutterstock 3. seed in open fruit. Photo by Sheila Gregory 4. dry habitat. Photo by O.M. Montiel 5. wet habitat. Photo from egodaz, iNaturalist

Lagarosiphon major – African elodea

FEDERAL NOXIOUS WEED

IDENTIFICATION

submerged, rooted plant with leaves curving back to touch the stem

leaves similar to *Hydrilla*, densely crowded especially at the tip of the much-branched stem

HABITAT

freshwater lakes, dams and slow-moving streams; sold as aquarium plants where not prohibited

GROWTH FORM

aquatic perennial with stems to 25 feet long, breaking easily to form new plants in dense mats

LEAVES

alternate to whorled along the stem; linear, about 1 inch long by $\frac{1}{8}$ inch wide; visible midvein; minutely toothed leaf margins

FLOWERS

male and female flowers produced on separate plants; inconspicuous, transparent to white or pinkish; all parts in threes; female flowers on long (to 10 inches), thread-like tubes; male flowers form in the leaf axils, then become free-floating after reaching the water surface

FRUIT

Spindle-shaped capsule; each producing about nine seeds, about $\frac{1}{8}$ inch long

submersed



alternate



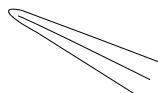
floating, rooted



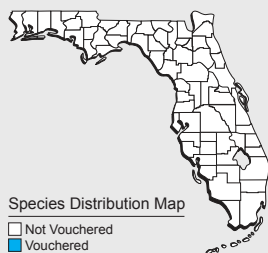
whorled



linear

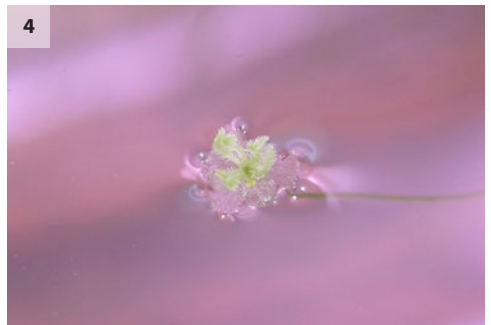
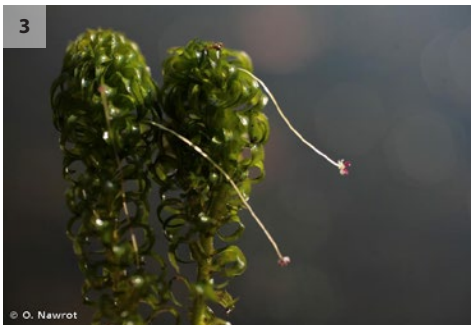


DISTRIBUTION



This species is native to southern Africa and has been introduced in several European countries and New Zealand; it has not yet escaped in Florida.

Lagarosiphon major – African elodea



1. leaves. Photo by H. Tinguy 2. growth form. Photo from Shutterstock 3. female flower. Photo by Olivier Nawrot 4. floating flower. Photo by O.M. Montiel 5. infestation. Photo by Bill Chisolm 6. growth form. Photo by Mary Gillham

Limnocharis flava – yellow velvetleaf

IDENTIFICATION

emergent, herbaceous aquatic plant with hollow stems growing to 45 inches tall

fleshy leaves with four prominent veins on both sides of midrib and long triangular stalks

yellow flowers with three petals, borne in loose clusters

HABITAT

shallow waters of lakes, ponds, swamps, marshes, ditches and rice paddies

GROWTH FORM

herbaceous perennial emergent aquatic plant forming rooted clumps

LEAVES

large (up to 12 inches long and 10 inches wide), fleshy blades on three-angled stalks (petioles) arising from the base of a short stem (about 1 inch long) forming a basal rosette; blades are lanceolate, ovate or rounded (sub-orbicular) with smooth or undulating margins

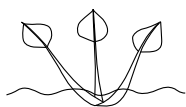
FLOWERS

clusters of two to 15 flowers, forming an umbel, emerge on long (to 40 inches), three-angled stalks (peduncles) from the base of the plant; each flower has three green sepals, three yellow petals, numerous yellow stamens and a spherical, yellow stigma; flower buds are sometimes eaten

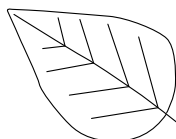
FRUIT

Spherical follicles (dry capsules splitting open when mature) less than 1 inch across with 10-20 semi-circular segments containing several ridged, horseshoe-shaped, brown seeds

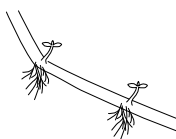
emersed



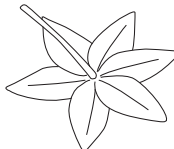
ovate



rooted



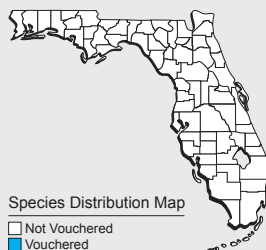
basal rosette



lanceolate

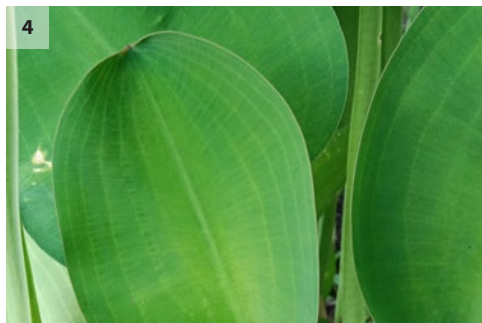


DISTRIBUTION



This species is native to several Caribbean islands, Central America, Mexico and South America; it has not yet escaped in Florida, but it is available as an ornamental aquatic plant. Yellow velvetleaf has been introduced widely in southern and southeastern Asia and is known as a pest plant in rice paddies.

Limnocharis flava – **yellow velvetleaf**



1. buds. Photo from Shutterstock **2. flower.** Photo by Shaun Winterton **3. habitat.** Photo from Shutterstock
4. leaves. Photo from Shutterstock **5. roots.** Photo from Shutterstock **6. fruit segments and seeds.** Photo by Clair Lock

Limnophila sessiliflora – ambulia, Asian marshweed

FEDERAL NOXIOUS WEED

IDENTIFICATION

leaves in whorls with submerged and emergent leaves having distinctly different shapes

solitary flowers attached directly to main stems, without flower stalks

sold in the aquarium trade as a decorative plant, sometimes mistakenly called *L. indica*

HABITAT

freshwater bodies including ponds, lakes, streams, ditches and canals; pest of rice paddies; occasionally terrestrial in wetlands

GROWTH FORM

submerged and emergent herbaceous perennial, with two different leaf shapes and flowers above and below water; stems to 12 feet long, branching at nodes to form dense mats which block light from lower vegetation, emerging up to 8 inches above the water surface; stems break at nodes to generate new plants

LEAVES

up to 1 ½ inches long; submerged: finely divided, in “feathery” whorls of six to ten at each node; emergent: lance-shaped leaves with irregular teeth, in whorls of five to eight at each node

FLOWERS

small, to ⅜ - ⅝ inch long, solitary, in two forms; submerged: self-fertilizing, remaining closed and bud-like (cleistogamous), smaller than emergent flowers; minute, less than ⅓ inch long, scale-like bracts at base, not seen on aerial flowers; emergent: tubular, with five lobes; calyx (five fused sepals) ¼ inch long, hairy; petals to ⅜ inch long, blue to lavender or pink; four stamens; style with two lobes

FRUIT

elliptical capsule, ⅛ - ¼ inch long; submerged: greenish-brown; emergent: dark brown; reproduction by seeds and fragmentation of stem

submersed



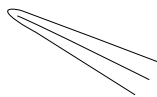
emersed



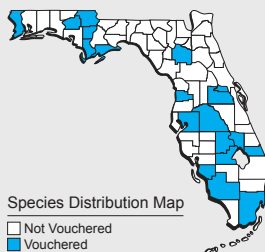
whorled



linear



DISTRIBUTION

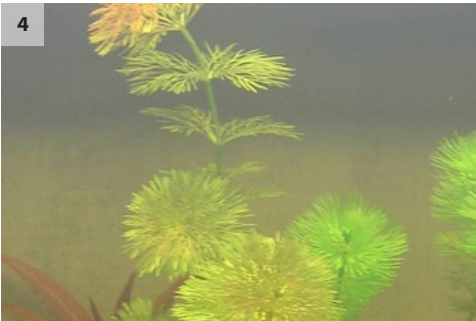


Asian marshweed is native to eastern and southeastern Asia and has been introduced to Bolivia, the Marianas, Sierra Leone, and in the United States to California, Florida, Georgia, Louisiana and Texas.

In Florida, it has been reported from the central and southern peninsula as well as a few counties in the panhandle.

NOTE: Florida plant nurseries may apply for permits to sell this species out of state.

Limnophila sessiliflora – ambulia, Asian marshweed



1. flower. Photo by Shaun Winterton 2. leaves submerged. Photo by Vic Ramey 3. infestation. Photo by Ann Murray 4. growth form submerged. Photo by Kajuko 5. growth form emerged. Photo from Chiuluan,iNaturalist

Lythrum salicaria – purple loosestrife

IDENTIFICATION

dense terminal spikes of showy, purplish pink flowers

found in wetlands along stream banks, canals and rivers

simple, opposite or whorled leaves becoming alternate toward the twig tip

HABITAT

dense stands (monocultures) growing in wet meadows, marshes and ditches as well as wetlands bordering streams and canals

GROWTH FORM
erect, perennial herb or subshrub to over 6 feet tall; many branches

LEAVES
opposite or whorled at base of stem; gradually smaller and overlapping in inflorescences; very short or no petiole (leaf stalk); leaf blade lanceolate to narrow oblong, up to 4 inches long, margins without teeth (entire), heart-shaped or rounded base

FLOWERS
held in dense, terminal spikes (4-15 inches long) of whorled flowers; sepals fused to form a cylindrical tube with long, pointed lobes; usually five oblong to ovate, purplish pink petals, $\frac{1}{2}$ - $\frac{3}{4}$ inch across, 12 stamens of two different lengths

FRUIT
oblong to ovoid capsules containing about 90 seeds

emersed



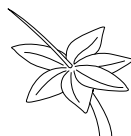
opposite



lanceolate



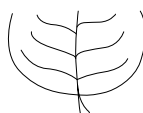
whorled



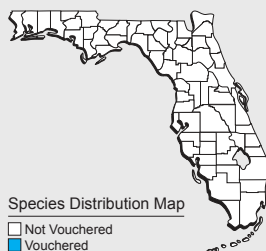
cordate



rounded



DISTRIBUTION



The native range of *Lythrum salicaria* is temperate Eurasia, Africa and Australia. Although not currently found in Florida, since its first introduction in 1841 it has become a major pest plant in most of North America, including nearby states of Alabama and North Carolina as well as California and Texas, states from which many plants are introduced to Florida.

Lythrum salicaria – purple loosestrife



1. growth form. Photo by Steve Dewey 2. infestation. Photo by Leslie J. Mehrhoff 3. leaves. Photo by Leslie J. Mehrhoff 4. flowers. Photo by Norman E. Rees 5. fruit. Photo by Leslie J. Mehrhoff

Monochoria hastata – arrow leaf false pickerelweed

IDENTIFICATION

clusters of light blue flowers with one large blue anther and five small yellow anthers

large, shiny green, triangular leaves with arrow-shaped base

branching rhizomes

HABITAT

weed in rice paddy fields; ponds, canals, shallow, slow-moving waterways



GROWTH FORM

robust, rhizomatous, perennial in frost-free areas; rhizomes with multiple branches from a single stem, creeping or erect, 1-4 feet tall; easily propagated by seeds and broken rhizomes



LEAVES

emersed, deep, shiny green triangular blades with arrow-shaped (sagittate) bases and pointed (acute) tips to 10 inches long; stout petioles to 2 feet long, clasping with sheaths at the base



FLOWERS

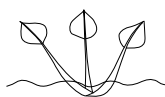
inflorescence a spike of many (15-60) flowers, arising from the leaf sheath, showy lavender to blue flowers with six $\frac{5}{8}$ inch long tepals (three petal-like sepals and three petals) and six stamens, five with small, yellow anthers and a larger one with a blue anther; flowers twist into spirals as they age



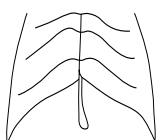
FRUIT

oblong, three-valved capsule to $\frac{3}{8}$ inch long, containing several tiny, light brown seeds

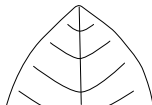
emersed



sagittate



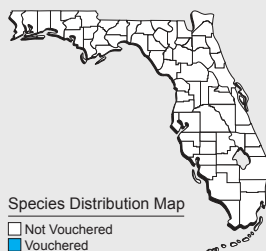
acute



sheathing



DISTRIBUTION



Monochoria hastata is an aquatic herbaceous plant native to tropical and subtropical Asia to northern Australia. Although this species has not escaped the Western Hemisphere, *M. hastata* has been listed as a Federal Noxious Weed because of its potential harm to agriculture.

NOTE: now known as *Pontederia hastata*, but on Federal list and in Florida rule as *Monochoria hastata*.

Monochoria hastata – arrow leaf false pickerelweed



1. petals spiraling. Photo from Wikipedia 2. flowers. Photo by Asadul Hasnat 3. leaves. Photo from Shutterstock
4. habitat. Photo by Shaun Winterton

Monochoria vaginalis – heart-shaped false pickerelweed

FEDERAL NOXIOUS WEED

IDENTIFICATION

- clusters of bluish-purple flowers with one large blue anther and five small yellow anthers
- shiny green, leaves with rounded or heart-shaped base
- short rhizomes

HABITAT

weed in rice paddy fields; ponds, canals, shallow mudflats, swampy places slow-moving waterways



GROWTH FORM

annual or perennial in frost-free areas; very short rhizomes with multiple branches from a basal rosette, erect or creeping, 2-21 inches tall; spreading by stolons; extremely variable in appearance



LEAVES

emersed, deep, shiny green blades, varying in shape from ovate-oblong to broadly ovate, rounded or heart-shaped (if lobed, lobes are heart-shaped) with pointed tips; $\frac{3}{4}$ -5 inches long; hollow petioles to 12 inches long, clasping with twisted leaf sheaths at the base



FLOWERS

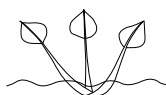
inflorescence a spike of many (three to 25) flowers, arising from the leaf sheath, bright purplish-blue flowers in a spiral arrangement above the water level with six $\frac{5}{8}$ inch long tepals (three petal-like sepals and three petals) and five stamens with small, yellow anthers and one larger blue stamen anther with an upright hook; flowers similar to those of water hyacinth.



FRUIT

Oblong, $\frac{3}{8}$ inch long, three-valved capsule containing numerous, tiny, light brown seeds with longitudinal ribs

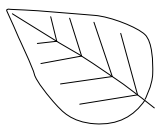
emersed



basal rosette



ovate



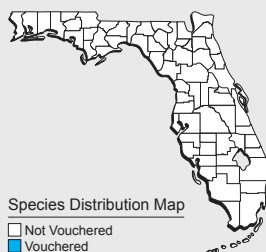
cordate



sheathing



DISTRIBUTION



Monochoria vaginalis is native to northern Australia and Asia, including Afghanistan, China, Japan, and Malayan Islands. Although this species has not escaped in Florida, it has reached California and could potentially arrive here through international trade. *Monochoria vaginalis* has been listed as a Federal Noxious Weed because of its potential harm to agriculture.

NOTE: now known as *Pontederia vaginalis*, but on Federal list and in Florida rule as *Monochoria vaginalis*.

Monochoria vaginalis – heart-shaped false pickerelweed



1. seeds. Photo by Julia Scher, USDA 2. flower. Photo by Kadavoor, Wikipedia 3. growth form. Photo by Shaun Winterton 4. infestation. Photo by Timothy Blank

Myriophyllum spicatum – Eurasian watermilfoil

IDENTIFICATION

submerged below the water surface with long, rooted branching stems

leaves featherlike in whorls, three to six (usually four) per node

small, reddish flowers rising above the water level

HABITAT

still or slow-moving water in swamps, ponds, lakes and canals; for sale as an aquarium plant

GROWTH FORM

perennial, rhizomatous, submersed herbaceous weed with long (up to 12 feet), branched reddish brown or pinkish stems forming dense mats just below the water surface

LEAVES

submersed, feather-like, less than 2 inches long, in whorls about $\frac{3}{8}$ inch apart with three to six leaves at each node; with at least 12 pairs of segments along the midrib of each leaf; dark green or grayish olive green; smaller, bract-like leaves surround emergent flower spikes and are about the same length

FLOWERS

tiny, about $\frac{1}{8}$ inch long, reddish, on an emergent spike about 8 inches long; flowers may be pollen-bearing (staminate or male), fruit producing (carpellate or female), or having both sets of reproductive organs; four sepals, four petals held in whorls of four flowers along the spike

FRUIT

small, spherical, reddish green nut-like with four lobes splitting into four nutlets

submersed



floating, rooted



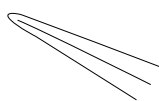
whorled



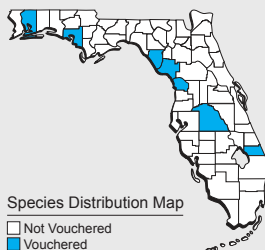
compound



linear



DISTRIBUTION



Myriophyllum spicatum is native to temperate and tropical Eurasia and Northern Africa, but it has become naturalized outside its native range throughout much of North America. In Florida, it is found clogging waterways in seven counties from Santa Rosa to Martin.

Myriophyllum spicatum – Eurasian watermilfoil



1. leaves. Photo by Kristian Peters, Wikipedia 2. flowers. Photo by David Sutton, UF/IFAS 3. habitat. Photo by Alison Fox, Bugwood 4. fruit and flowers. Photo by Leslie J. Mehhof, Bugwood 5. infestation. Photo by Tom Wolfe, Idaho Department of Agriculture

Nechamandra alternifolia – Indian oxygen-weed

IDENTIFICATION

submerged below the water surface with scattered clusters of elongated, linear leaves

tiny flowers on long stalks, opening at the water surface

male flowers floating freely on water surface

HABITAT

freshwater bodies such as lakes and ponds; slow-moving rivers and channels

GROWTH FORM

submerged perennial or annual, with an elongated, somewhat branched stem, 2-3 feet long, with scattered clusters of leaves

LEAVES

submerged, alternate, with sheathing base, often twisted toward the acute tip; 1 1/8 - 3 1/8 inches long and up to 1/4 inch wide, linear to lanceolate; blade margins with minute teeth; midvein obscure

FLOWERS

separate male (staminate/pollen bearing) and female (carpellate/fruit producing); female flowers borne on long stalks and opening at water surface; male, free-floating on water surface three sepals, no petals

FRUIT

ovoid with numerous seeds

submersed



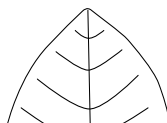
alternate



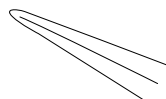
sheathing



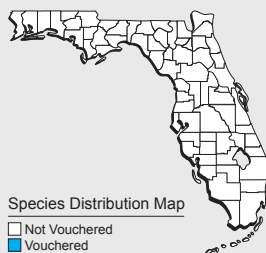
acute



linear

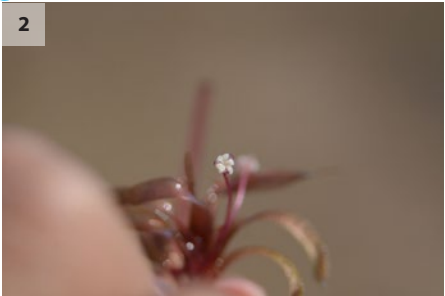
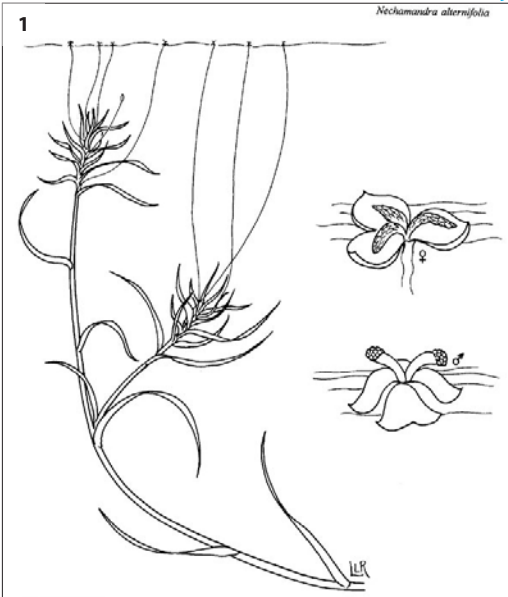


DISTRIBUTION



Nechamandra alternifolia is native to Asia from India to southeastern China and has been introduced to Sudan, but it has not become naturalized beyond that country. This species is not yet found in Florida, but it is a weed with the potential to harm agricultural crops.

Nechamandra alternifolia – Indian oxygen-weed



1. illustration. Drawing from UF Center for Aquatic and Invasive Plants 2. flower. Photo by S. More, iNaturalist 3. habitat. Photo by Radha Veach, iNaturalist 4. leaves. Photo by Radha Veach, iNaturalist 5. infestation. Photo by S. More, iNaturalist

Nymphoides cristata – crested floatingheart

IDENTIFICATION

small, floating white flowers with a yellow center and an erect crest along the midline of each petal

floating leaves with heart-shaped bases

purple leaf undersides, often with tuber-like roots growing from the leaf

HABITAT

still, shallow waters of ponds, lakes and canals; slow-moving streams; rice paddies



GROWTH FORM

rhizomatous, rooted perennial; long, thin stems submersed; new plants arise from rhizomes, adventitious roots on plant fragments, and small, fleshy, tuber-like roots growing on leaf undersides (another species, *Nymphoides aquatica*, is known as aquatic banana lily because of similarly shaped appendages)



LEAVES

leathery, rounded with a heart-shaped base, 1-4 inches long and wide; smooth margins with a tinge of red; red or purple on the underside; floating on water surface



FLOWERS

small, up to 1 inch across; five sepals, five stamens, and five white petals, fused at the base, forming a yellow throat; each petal with a raised, ruffled crest along the midline and ruffled margins; flower buds developing under water, then rising to the water surface when mature



FRUIT

oval to nearly spherical capsules; ¼ inch long, containing up to 20 tiny seeds

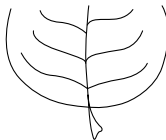
floating, rooted



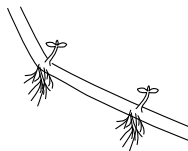
cordate



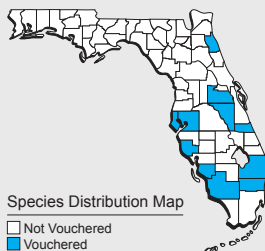
rounded



rooted at nodes

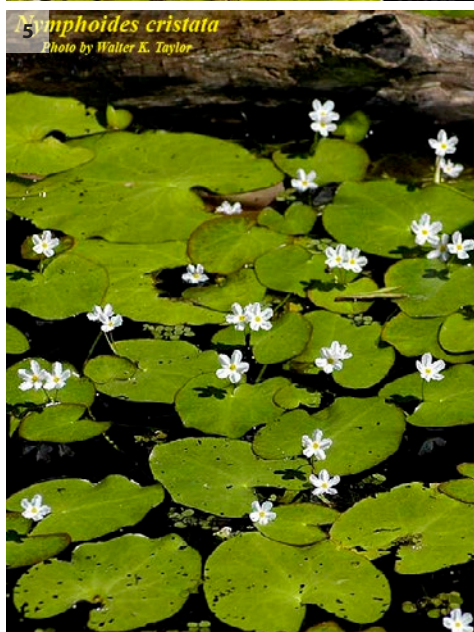


DISTRIBUTION



Crested floating heart is native to seasonally dry tropical areas of Asia. In Florida, it has been documented in counties scattered around the peninsula.

Nymphoides cristata – crested floatingheart



1. flower. Photo by Collette Jacono 2. leaves. Photo by Larry McCord and Santee Cooper. 3. infestation. Photo by Larry McCord and Santee Cooper 4. tubers. Photo by Ann Murray 5. habitat. Photo by Walter K. Taylor

Nymphoides peltata – yellow floatingheart

IDENTIFICATION

dense leaf mats covering the water surface

heart-shaped leaves with wavy and slightly scalloped margins and more or less heart-shaped bases

golden yellow flowers with fringed petals

HABITAT

shallow, still waters of ponds and lakes; slow-moving rivers; sometimes ditches and canals; sold as a pond garden ornamental



GROWTH FORM

rhizomatous perennial; rooted, floating; new shoots and roots from nodes of rhizome



LEAVES

ovate to rounded, flat, heart-shaped, medium green blades to 3-6 inches long and wide; wavy or scalloped margins reddish purple or maroon on the undersides, attached to the substrate; covering the water surface like waterlilies



FLOWERS

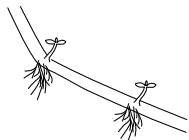
held in a lax inflorescence of two to five bright yellow five-petaled flowers, 1-1½ inches across, each petal with fringed, membranous margin



FRUIT

beaked capsule to 1 inch long containing many flattened, smooth seeds with densely hairy margins

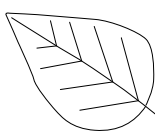
rooting at nodes



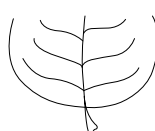
floating, rooted



ovate



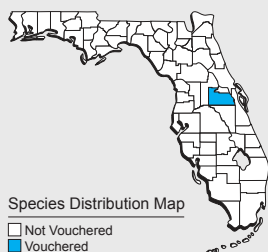
rounded



cordate

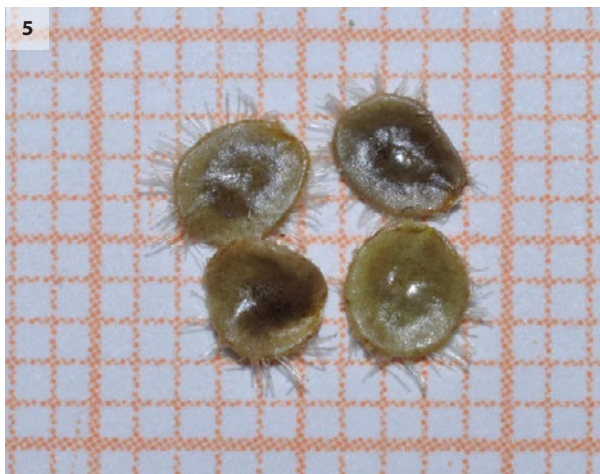
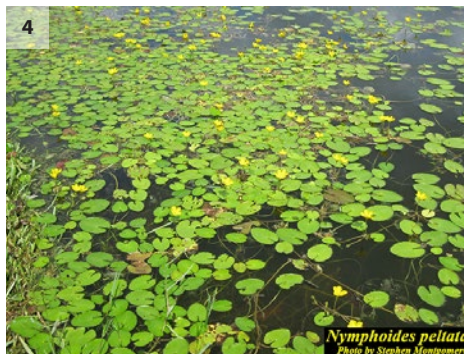
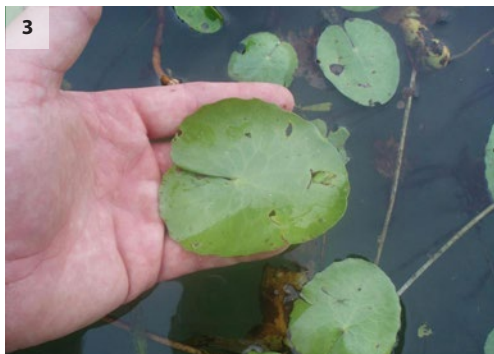


DISTRIBUTION



Yellow floatingheart is native to temperate Eurasia, from the Iberian Peninsula to western Siberia, and Algeria. It has been introduced to the United States and Canada. In Florida, it has escaped only in Orange County.

Nymphoides peltata – yellow floatingheart



1. flower. Photo from Shutterstock 2. bud. Photo from Shutterstock 3. leaf. Photo by Rob Andress 4. infestation. Photo by Stephen Montgomery 5. seeds. Photo by Pierfranco Arrigoni 6. growth form. Photo by Stephen Montgomery

Oryza rufipogon – wild red rice

FEDERAL NOXIOUS WEED

IDENTIFICATION

tufted grass to 10 feet tall, growing in calm water, shallow waters, rooting at nodes of long, spongy rhizomes

long, linear leaves with scabrous margins and large (to 2 inches), membranous, twin-peaked ligules

large, open, terminal panicles bearing red tinged flowers and reddish brown seeds

HABITAT

stagnant or slow-moving shallow waters; weed of rice crops



GROWTH FORM

Tufted, perennial grass with spongy rhizomes below the water surface; mature plants range from 2-15 feet tall; erect, leaning or prostrate; rooting at lower nodes



LEAVES

linear, with acute tip, up to 3 feet long and 1 inch wide, with scabrous (sandpapery) margins; some with conspicuous, curved auricles, over ¼ inch long; usually lined with long hairs, at the junction with the blade.



FLOWERS

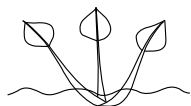
open panicles to 12 inches long; typical grass flowers with long, purple-red awns (stiff bristles)



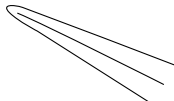
FRUIT

rice like grains, making it a serious contaminant in cultivated rice and leading to its designation as a noxious weed

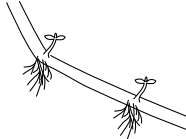
emersed



linear



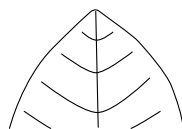
rooting at nodes



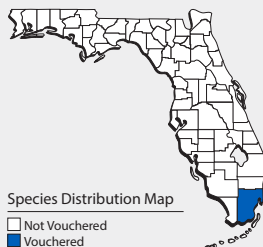
sheathing



acute



DISTRIBUTION



Native to tropical and subtropical Asia and northern Australia, growing primarily in the wet, tropical regions. This species has escaped in Central and South America, Cuba, Dominican Republic, Haiti and the Windward Islands, as well as California and Florida in the United States. In Florida, it was found only in Everglades National Park and is assumed to be extirpated. Surveys for this agricultural weed occur from time to time.

Oryza rufipogon – wild red rice



1. growth form. Photo from Daderot, Wikimedia **2. rhizome.** Photo from Gramene **3. ligule.** Photo from Shutterstock
4. habitat. Photo by FDACS-DPI **5. grain.** Photo by Julia Schur, USDA **6. leaves and flowers.** Photo by FDACS-DPI

Ottelia alismoides – ducklettuce

FEDERAL NOXIOUS WEED

IDENTIFICATION

broad, submersed leaves with a quilted surface of crossing veins

single, white, emergent flowers surrounded by a ribbed spathe, 1-2 inches long

long flower stalks attaching the flower to the muddy substrate

HABITAT

shallow water of bayous, pools and lakes; weed in rice paddies

GROWTH FORM

herbaceous annual, rooted with peduncle (flower stalk) rising to the water surface

LEAVES

submerged; juvenile leaf blades narrowly lanceolate; mature, widely ovate to cordate or reniform (heart- or kidney-shaped), 4-10 inches long; margins often slightly serrated to sharply toothed; veins conspicuous

FLOWERS

separate male (pollen producing) and female or bisexual (seed producing) flowers; male flowers rise above the water surface; female flowers open below the water; bisexual (cleistogamous) flowers remain closed under water for self-fertilization; petals range from white to pale pink or lavender

FRUIT

fleshy, ribbed, beaked tip, oblong capsules to $\frac{1}{16}$ inch long; producing up to 2,000 seeds; seeds are necessary for propagation; self-pollination occurs within closed, underwater flowers

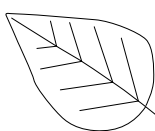
floating, rooted



submersed



ovate



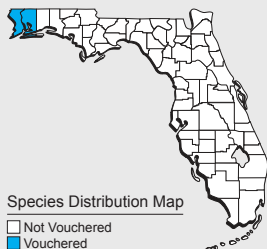
lanceolate



cordate

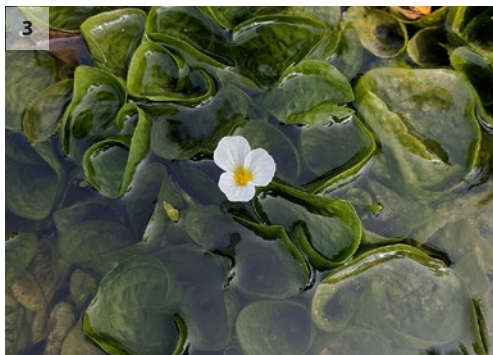


DISTRIBUTION



Native to tropical and subtropical Asia to northern Australia. It has been introduced to other warm areas, likely as a seed contaminant in rice, and has become a serious pest. In Florida, it has been found in only one location in Escambia County and one in Santa Rosa County and appears to have been contained.

Ottelia alismoides – ducklettuce



1. flower. Photo by Shaun Winterson 2. habitat. Photo from J.M. Garg, Wikimedia 3. growth form. Photo from Vengolis, Wikimedia 4. leaf and flowers. Photo by Jess Van Dyke, UF/IFAS 5. flower stalk. Photo from Mirko Thomasi, iNaturalist

Pistia stratiotes – waterlettuce

IDENTIFICATION

floating, lettuce-like rosettes of pale green or gray green leaves

long feathery roots

dense mats connected by stolons (runners)

HABITAT

rivers, canals, sloughs, ponds, slow-moving streams, ditches, lakes and springs

GROWTH FORM

free-floating, aquatic perennial forming dense floating mats of rosettes attached by stolons and with feathery roots to 20 inches long dangling in the water

LEAVES

pale, gray-green, wedge-shaped blades with distinct, parallel veins; often spongy at the base, up to 6 inches long, covered with white, water-repelling hairs

FLOWERS

inflorescence a tiny, inconspicuous, hairy spathe holding separate male (pollen-bearing) and female (seed-producing) flowers with a whorl of six to eight male flowers circling one female flower

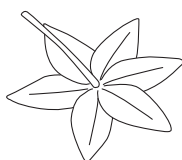
FRUIT

tiny green berries containing many light brown seeds

free floating



basal rosette



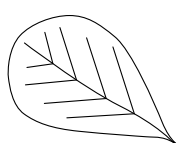
alternate



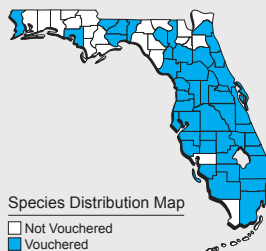
spatulate



obovate



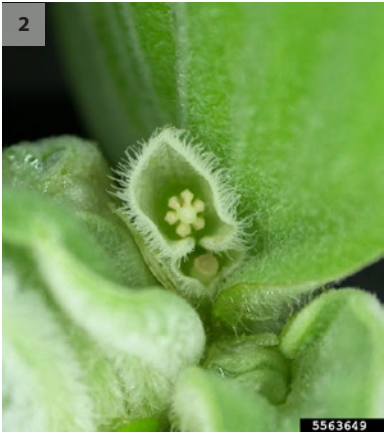
DISTRIBUTION



Native to tropical and subtropical areas around the globe. It has been introduced to other warm areas and is now found in Africa, Asia, Central and South America, Caribbean Islands, North America (Alabama, Arkansas, Florida, Hawaii, Louisiana, Maryland, Mississippi and Texas). Uncertainty continues about the native or non-native status of this species in Florida. Some evidence suggests the species is native to Florida, while other evidence suggests there could be both native and non-native species or subspecies.

NOTE: Florida plant nurseries may apply for permits to sell this species out of state.

Pistia stratiotes – **waterlettuce**



1. roots. Photo by Graves Lovell 2. flower. Photo by Shaun Winterton 3. infestation. Photo by Richard Carter 4. growth form. Photo by Leslie J. Mehrhoff 5. habitat. Photo by Dennis Woodland

Pontederia rotundifolia – tropical pickerelweed

IDENTIFICATION

dark green leaves with arching, parallel veins

branched floating or creeping stems

clusters of light blue or white flowers with a yellow splotch

HABITAT

tropical bogs and streams with high light levels

GROWTH FORM

perennial, emerged (roots and base of the stems underwater, stem creeping or floating then rising above water level), rooting at lower nodes, branching

LEAVES

sheathing petiole (leaf stalk) 3-10 inches long; blades variable, ovate to heart, kidney or arrow shaped with rounded or acute tip and closely spaced veins arching to match the shape of the leaf margin; to 6-12 inches long and about equally wide

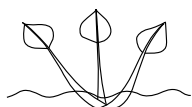
FLOWERS

inflorescence an elongate or globose cluster of three to 25 tubular, light blue to white flowers, with six lobes, one larger, grooved, with obvious yellow markings, six stamens with blue anthers

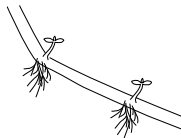
FRUIT

dry, closed, nutlike, $\frac{5}{16}$ inch long with spiny ridges

emersed



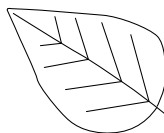
rooting at nodes



sheathing



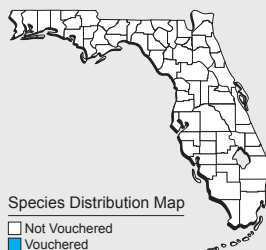
ovate



cordate



DISTRIBUTION



This species is native from southern Mexico through the tropical areas of South America. Tropical pickerelweed is not known to have escaped in Florida, but it is regulated to prevent potential environmental damage to the state's natural areas.

Pontederia rotundifolia – **tropical pickerelweed**



1. **habitat.** Photo by Ariadna Tripaldi 2. **leaf.** Photo from Top Tropicals 3. **growth form.** Photo by S.L. Winterton 4. **flower.** Photo from Top Tropicals 5. **illustration.** Drawing from IFAS Center for Aquatic and Invasive Plants

Salvinia molesta – Giant salvinia

FEDERAL NOXIOUS WEED

IDENTIFICATION

floating fern with “egg beater” hairs on the leaf surface

rounded, folded leaves on water surface

brown leaves with root-like hairs dangling below the water surface

HABITAT

rice paddies, canals, swamps, lakes, rivers and ornamental water gardens

GROWTH FORM

floating fern, unrooted; plant structure varies with habitat space and nutrients

LEAVES

floating fronds in whorls of three leaves; two are green and emergent and one is brown, submerged and root-like; oblong, 1-1 ½ inches long and wide; young plant leaves lie flat, but emergent leaves on older plants fold along the midrib and are crowded into vertical clumps; the upper surface of leaves have branched hairs that come together at the tip to form an “egg beater” or basket-like cage

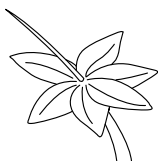
REPRODUCTIVE STRUCTURES

spores held in sori (spherical to oblong organs containing spores) attached to submerged, root-like, brown leaves

free floating



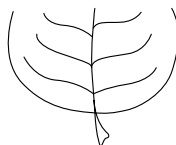
whorled



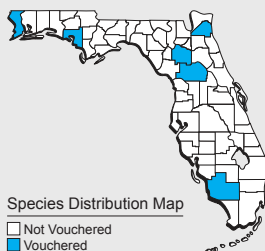
oblong



rounded



DISTRIBUTION



The native range of this species is southern and southeastern Brazil to Argentina. It grows primarily in still or slow-moving waters of wet, tropical areas. In Florida, it has been documented in a few scattered counties, but eradication efforts follow swiftly whenever this species is found in natural areas.

Salvinia molesta – Giant salvinia



1. submerged sori and roots. Photo by Leslie J. Mehrhoff, Bugwood 2. infestation. Photo from North Carolina State Extension 3. growth form immature. Photo by Barry Rice, Bugwood 4. eggbeater hairs. Photo by Barry Rice, Bugwood 5. growth form - older leaves. Photo by Keith Bradley, Atlas of Florida Plants

Sparganium erectum – simplestem bur-reed

FEDERAL NOXIOUS WEED

IDENTIFICATION

erect flower stalk with spherical bur-like flower heads

long, strap leaves

underground corms bearing stolons

HABITAT

muddy or shallow water of swamps, bogs and ponds

GROWTH FORM

perennial, rooting at nodes, stolons to 2 feet long, woody corms (bulb-like underground stems) producing up to nine stolons

LEAVES

strap-like and arching to 6 feet long and $\frac{3}{4}$ inch wide with acute leaf tips; medium green, slightly keeled

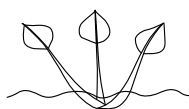
FLOWERS

individual, small, white flowers in separate male (staminate) or female (pistillate) bur-like, globular clusters on erect, branched flower stalks; male flower heads growing above the female heads

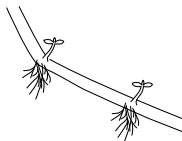
FRUIT

bur-like, sessile nutlets, varying in size and shape, but usually $\frac{1}{4}$ - $\frac{1}{2}$ inch long with a persistent style at the tip

emersed



rooting at nodes



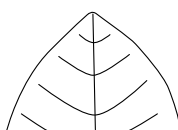
alternate



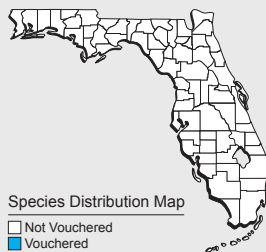
lanceolate



acute



DISTRIBUTION



The native range of this species is Europe to Central Asia and North Africa, primarily in temperate regions. So far, simplestem bur-reed has not escaped in Florida but has been found growing in a few western and northern states.

Sparganium erectum – simplestem bur-reed



1. flowers. Photo from hugo.arg, Wikipedia 2. unripe fruit. Photo from Show_rya, Wikipedia 3. nutlets. Photo by Julia Scher, Bugwood 4. habitat. Photo by S.L. Winterton

Stratiotes aloides – water soldier

IDENTIFICATION

floating plant with rosettes of spiny leaves like aloe or pineapple

flowers with three white petals on long stalks

new plants growing from long stolons like spider plants (*Chlorophytum comosum*)

HABITAT

still or slow-moving freshwater ponds, lakes and streams



GROWTH FORM

floating perennial with runner-like stolons; new plants arise from branching stolons; overwintering below the water surface; two growth forms: submerged and emergent



LEAVES

submerged leaves: thin, brittle, drooping; to 25 inches long and up to ½ inch wide; emergent leaves: spiny-margined, rigid, thick, dark green; usually less than 15 inches long and ½ - 3 inches wide, with well-developed spines along margins; dark green



FLOWERS

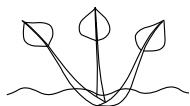
foul-smelling separate male (staminate) and female (pistillate) with three white petals and three green sepals; flower stalks to 1 foot long; male flowers with up to 12 stamens, two to six per stalk; female flowers, solitary on separate stalks



FRUIT

Fleshy capsule (berry-like) containing as many as 24 cylindrical brownish seeds, ¼ - ½ inch long; fruits rarely seen

emersed



basal rosette



submersed



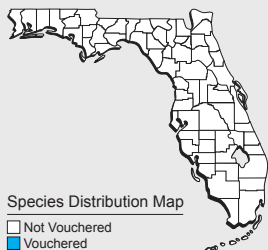
lanceolate



floating, rooted



DISTRIBUTION



The native range of this species is Europe to Central Asia. It grows primarily in the temperate biome.

Stratiotes aloides – **water soldier**



1. flower. Photo by Velela, Wikipedia 2. emergent leaves. Photo by Velela, Wikipedia 3. seeds. Photo from Steve Hurst, USDA Plants 4. habitat. Photo from Shutterstock 5. habitat. Photo from Shutterstock

Trapa natans – water chestnut, water caltrop

IDENTIFICATION

rosettes of floating, triangular leaves with coarsely toothed margins along the upper $\frac{2}{3}$ of the blade

long, slender, submerged stems

feather-like submerged leaves attached directly to the underwater stem

HABITAT

any fresh water, especially nutrient-rich lakes and rivers to 12-15 feet deep; can form dense, floating mats, severely limiting light, reducing oxygen levels, increasing the potential for fish kills



GROWTH FORM

annual, rooted in mud; slender, submerged stems to 15 feet long with floating leaves in rosettes attached to a very short aerial stem. NOTE: This species is not the water chestnut known in Chinese cuisine (*Eleocharis dulcis*, a sedge).



LEAVES

two leaf forms: floating rosette with triangular leaf blades, $\frac{3}{4}$ - 1 $\frac{1}{4}$ inches long with coarsely toothed margins along the upper $\frac{2}{3}$, attached to the short floating stem by inflated petioles; submerged, feathery leaves without petioles, attached directly to the underwater stem.



FLOWERS

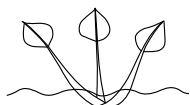
white to pale lilac; solitary in leaf axils; four petals and four sepals



FRUIT

nut with hard exterior, to 2 inches across, holding a single seed with four barbed spines about $\frac{1}{2}$ inch long

emersed



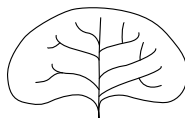
pinnately compound



submersed



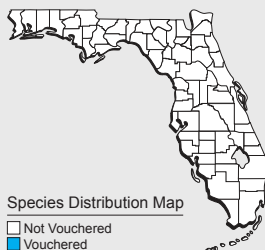
reniform



floating, rooted

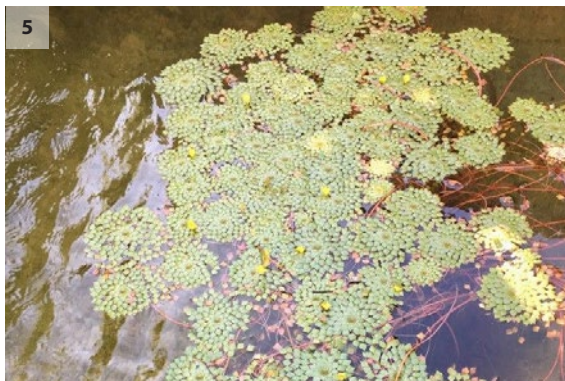
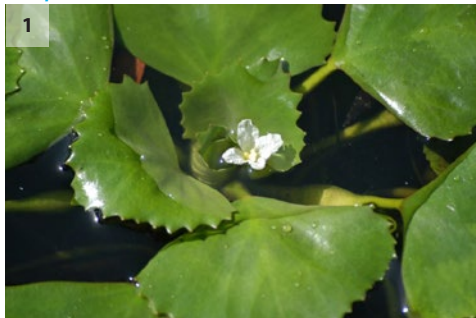


DISTRIBUTION



This species, *Trapa natans*, includes the plants once thought to be in separate species: *Trapa bicornis* and *Trapa rossica*. *Trapa* is native to warm temperate areas of Eurasia and tropical Africa. Spreading by seeds and floating rosettes, caltrop is known in the United States from Vermont to Virginia, but it has not yet become established in Florida.

Trapa natans – water chestnut, water caltrop



1. growth form. Photo from Georg Schramayr, Wikimedia **2. fruit.** Photo from Steve Hurst, USDA NRCS PLANTS Database, Bugwood **3. leaves.** Photo from Kurt Stüber, Wikipedia **4. underside and submerged leaves.** Photo from Leslie J. Mehrhoff, Bugwood **5. habitat.** Photo from Daniel Barthelemy, PlantNet **6. flower.** Photo from Shaun Winterton, CDFA, Bugwood

Vossia cuspidata – hippo grass

IDENTIFICATION

long, straplike leaves

long flower stalks

stout floating or submerged stem

HABITAT

growing near or in water, often floating, in slow-moving, fresh water to 18 feet deep

GROWTH FORM

robust, perennial grass, growing from the shore over the water surface to form thick floating mats; fibrous roots growing at nodes of the spongy, floating or submerged culm (stem) to 21 feet long and ½ inch in diameter

LEAVES

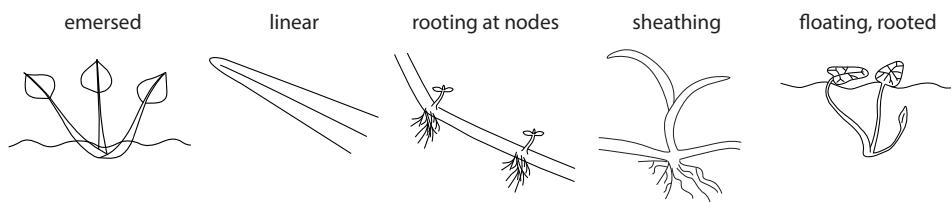
emergent, strap shaped blades to 3 feet long, ¾ inch wide; ligule, a tiny (⅓ - ⅛ inch long) membrane, fringed with a dense line of hairs; conspicuous, broad, pale creamy white midrib

FLOWERS

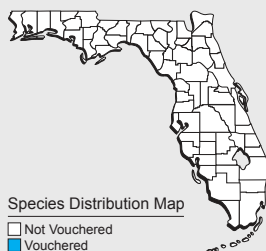
rarely seen (spreading mainly by rhizomes); flowers held in finger-like clusters of one to 12 pale green racemes, 4-12 inches long; spikelets (grass flowers) growing in pairs of one sessile and one stalked with a long, tail-like awn

FRUIT

Yellowish grain with long tail (awn)



DISTRIBUTION



The native range of this species is Africa and from India to Southeast Asia. It is perennial and grows primarily in wet, tropical regions. This species has not yet become established in Florida, but it is prohibited as a state noxious weed for its potential threat to agriculture.

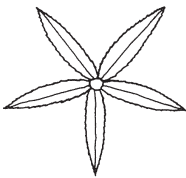
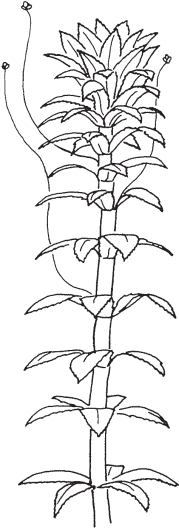
Vossia cuspidata – hippo grass



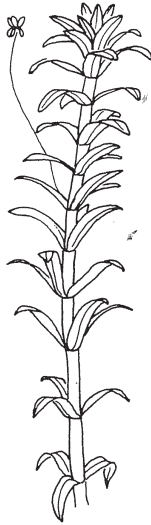
1. fruit. Photo from Steve Hurst USDA-NRCS PLANTS Database **2. habitat.** Photo from Robert Taylor, iNaturalist **3. flowers.** Photo by Tariq Stévant, GBIF **4. growth form.** Photo from Nick Helme, iNaturalist **5. fringed lingule.** Photo by PAPA A&RH, Plants of the World Online

Comparison of Similar Species

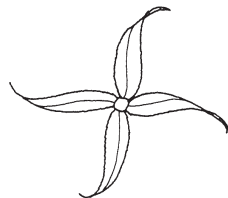
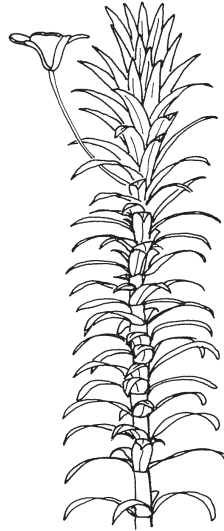
Hydrilla



Elodea



Egeria



Comparison of Similar Species

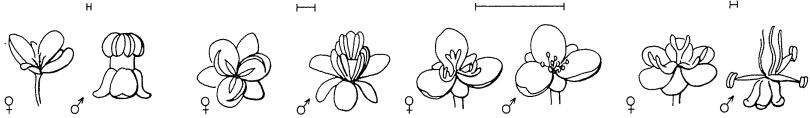
Hydrilla

Elodea

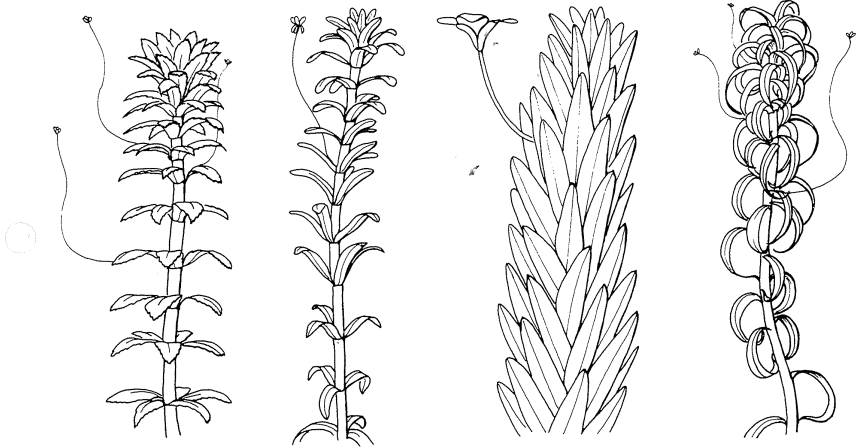
Egeria

Lagarosiphon

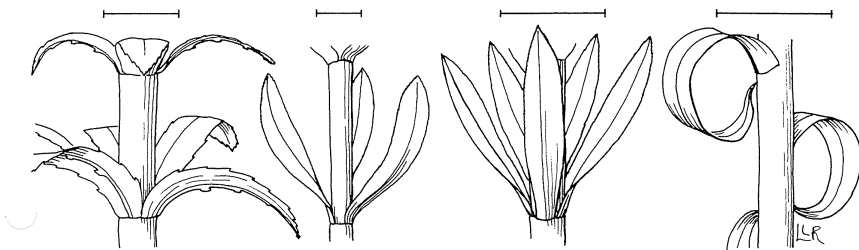
FLOWERS
(bar shows approximate size)



DRAWINGS TO SCALE



LEAF ARRANGEMENTS
(bar shows approximate length of leaf)



Hydrilla

Elodea

Egeria

Lagarosiphon

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CABI Compendium www.cabidigitallibrary.org

Center for Aquatic and Invasive Plants <https://plants.ifas.ufl.edu/>

Center for Invasive Species and Ecosystem Health www.bugwood.org and www.invasive.org

Florida Plant Atlas [Atlas of Florida Plants \(usf.edu\)](http://AtlasofFloridaPlants.usf.edu)

Global Biodiversity Information Facility [GBIF](http://GBIF.org)

Gramene <http://www.gramene.org/>

Identification Technology Program, USDA idtools.org

iNaturalist and iNaturalist-NZ www.inaturalist.org and www.inaturalist.nz

Nature France [INPN - National Inventory of Natural Heritage \(INPN\)](http://INPN.org)

North Carolina State Extension [NC State University](http://NCStateUniversity.org)

Plant Net [Pl@ntNet identify](http://Pl@ntNet.org)

Plants of the World [Plants of the World Online | Kew Science](http://PlantsoftheWorldOnline.org)

Shutterstock <https://www.shutterstock.com>

Top Tropicals www.toptropicals.com

Tropicos Tropicos.org, Missouri Botanical Garden

USDA-NRCS PLANTS Database [USDA Plants Database](http://USDAPlantsDatabase.org)

USGS <https://nas.er.usgs.gov/>

Wikipedia and Wikimedia Commons

For further information (websites)

UF/IFAS Center for Aquatic and Invasive Plants

<https://plants.ifas.ufl.edu/why-manage-plants/aquatic-and-wetland-plants-in-florida/>

UF/IFAS Assessment of Non-Native Plants in Florida's Natural Areas

<https://assessment.ifas.ufl.edu>

Florida Invasive Species Council

<https://www.floridainvasives.org/plant-list/2023-invasive-plant-species/>

Federal Noxious Weed List (aquatic, parasitic and terrestrial plants)

<https://www.aphis.usda.gov/sites/default/files/weedlist.pdf>

Florida Rule 5B-57 (listing noxious weeds)

<https://flrules.org/gateway/ChapterHome.asp?Chapter=5B-57>

Acknowledgements

We would like to acknowledge the contributions of DPI staff in the Office of Public Information and Outreach, especially Scott Burton; the Botany Section of the Bureau of Entomology, Nematology and Plant Pathology, especially Rebecca Kruger, and the Bureau of Plant Inspection to the development and production of this field guide. We also thank the contributors to earlier publications, including *Florida Prohibited Aquatic Plants* (1990) distributed by the Florida Department of Natural Resources, based on Rule 16C-52 and Florida State Statute 369.25 in effect at the time of publication, and *Common Plants of Florida's Aquatic Plant Industry* (1995) produced by staff of the Florida Department of Agriculture and Consumer Services – Division of Plant Industry.

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