Early Detection/Rapid Response
Invasive and Non-Native Plants
You Should Know

provided for your CISMA by the
Florida Invasive Species Partnership (FISP)
www.FloridaInvasives.org

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myfwc.com/wildlifehabitats/invasive-plants

The Florida Natural Areas Inventory (FNAI) collects, interprets, and disseminates ecological information critical to the conservation of Florida's biological diversity. FNAI is a non-profit organization administered by Florida State University.

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This project was initiated by Cody-Marie Miller of The Nature Conservancy and the Osceola CISMA floridainvasives.org/Osceola

Publication date: April 2015
Sometimes considered the “second line of defense” after prevention, early detection and rapid response (EDRR) is a critical component of any effective invasive species management program. When new infestations are detected, a prompt and coordinated containment and eradication response can reduce environmental and economic impacts. Early detection of new infestations requires vigilance and regular monitoring of the managed area and surrounding ecosystem and requires cooperative efforts from partners in both the public and private sector.

The plants in this ID deck were chosen as Early Detection/Rapid Response (EDRR) candidates with the assistance of the Florida Natural Areas Inventory (FNAI). They occur within 150 miles of your CISMA or in small numbers within your CISMA and could be reasonably expected to become invasive. Please be on the lookout for these species and report them to EDDMapS and/or your local natural resource manager if you see them.

Plant identification text primarily from:


*Florida Natural Areas Inventory*, Invasive Species, Species Information, *fnai.org*, February 2015.

Control methods are cited.

NOTE: Check all information for updates, particularly control methods. Verify plant identification with an expert before initiating any control method. Some websites to use are the UF/IFAS Assessment of Non-Native Plants in Florida’s Natural Areas (*assessment.ifas.ufl.edu*); the USF Atlas of Florida Vascular Plants (*florida.plantatlas.usf.edu*); UF/IFAS Extension (*edis.ifas.ufl.edu*) and the websites at the bottom of each card.

Publication date: April 2015
Report Invasive Plants and Animals in Florida

Enter data for invasive plants and animals at www.IveGot1.org or use the IveGot1 mobile app available for iPhone and Android.

Also notify your local CISMA at www.FloridaInvasives.org/CISMAs.html

Information Needed
- **Species:** website provides drop-down menu
- **Infestation:** date and description
- **Location:** county, lat/long, address OR location description, owner

IveGot1 Website & App Provides
- Location tools
- Image uploading capability

Call the hotline to report invasive animals 1-888-IVEGOT1 (1-888-483-4681)

IveGot1.org is powered by

Website developed by UGA Center for Invasive Species and Ecosystem Health
Alocasia macrorrhizos

giant taro

Photo by Tau’olunga (CC BY SA 2.5)
Read and follow directions on the manufacturer’s label. This guide does not supersede the label.

**Alocasia macrorrhizos**

**Prohibited:** No  
**FLEPPC Category:** N/A  
**IFAS Assessment:** N/A (NOT ASSESSED)

**USDA Hardiness Zone:** 8b-11  
**Growth Habit:** Herb  
**Origin:** Tropical Asia

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**Description:** Large herb to 5 m tall with large erect stems up to 1 m long. Leaves large, ovate-triangular. Stalked inflorescences. Spathe white to yellowish, 13-35 cm long, 4-6 cm wide, the upper part withering. Spadix nearly as long as spathe, 11-32 cm long. Berries red, ovoid, 8-10 mm in diameter.

**Habitat:** Wet disturbed thickets.

**Comments:** Cultivated widely in the tropics for its starchy tubers, used as a famine food in areas. Considered invasive in Cuba, Hawaii, Fiji, and other Pacific Islands.

**Florida Introduction Date:** Earliest Florida specimen available vouchered in 2000.

**Control Methods:** Mechanical: mechanical removal is effective and very labor intensive. All corms and tubers must be removed (CABI). Chemical: No specific recommendations. Generally, herbaceous species can be treated with foliar application of 3% glyphosate.
Asystasia gangetica

Chinese violet

Photo by Kim & Kevin Starr
Asystasia gangetica

Prohibited: No
FLEPPC Category: II
IFAS Assessment:
North CAUTION
Central CAUTION (INCOMPLETE)
South CAUTION (INCOMPLETE)

USDA Hardiness Zone: N/A
Growth Habit: Shrub
Origin: India and Africa

Description: Trailing to erect, glabrous to lightly hairy, perennial herb to 3.3 feet tall with weak stems, rooting from the nodes. Leaves opposite, simple, ovate, to 3 inches long and 1.5 inches wide, petiolate; margins entire to slightly toothed. Flowers purplish-blue (sometimes yellow or white with dark purple streaks), to 2 inches long, arranged along one side of a long terminal spike; subtended by 5 linear-lanceolate, green sepals; petals hairy, fused at base to form a funnel-shaped tube with 5 rounded, spreading lobes; 4 fertile stamens. Fruit a hairy, club-shaped capsule to 1” long, containing 2-4 angular, gray seeds. Flowers and sets fruit early in life cycle (45 days) and can produce hundreds of explosive capsules per plant. Also reproduces by vegetative fragments.

Habitat: This plant forms weedy thickets along roadsides and is found in disturbed upland habitats. Tolerates drought, full sun to partial shade, direct exposure to salt spray, and a variety of soils.

Comments: A successful colonizer that has invaded across a wide geographical range due to its fast establishment, rapid growth rate, and early flowering.

Florida Introduction Date: around 1930

Control Methods: Chemical: No specific recommendations. Generally, herbaceous species can be treated with foliar application of 3% glyphosate.

Plant species description and control methods provided by the University of Florida's Institute of Food and Agricultural Sciences (IFAS) and the Florida Native American Indian Trust (FNIAIT).
Begonia cucullata

wax begonia

Photo by Ann Murray, UF/IFAS
Begonia cucullata

**Prohibited:** No  
**FLEPPC Category:** II  
**IFAS Assessment:**  
North: CAUTION  
Central: CAUTION  
South: CAUTION  

**USDA Hardiness Zone:** N/A  
**Growth Habit:** Perennial herb  
**Origin:** Brazil and Argentina

**Description:** Succulent, glabrous, perennial herb with reddish-green jointed stems to 50 cm tall. Roots from the nodes. Leaves alternate, stalked, simple, waxy to 7 cm long and wide, ovate, margins with minute teeth. Flowers showy to 2 cm, in stalked clusters, tepals with variable colors. Fruit a 3-winged capsule with one larger wing to 1 cm.

**Habitat:** Hammocks, upland hardwood forest.

**Comments:** Prolific seed producer.

**Florida Introduction Date:** Earliest Florida specimen vouchered in 1910.

**Control Methods:** Mechanical: hand pull seedlings. Chemical: foliar 1% glyphosate (IFAS).
Read and follow directions on the manufacturer's label. This guide does not supersede the label.

_Bischofia javanica_  
Javanese bishopwood

Photos by Vic Ramey, UF/IFAS
Bischofia javanica  Javanese bishopwood

Prohibited: No  USDA Hardiness Zone: 9a-11
FLEPPC Category: I  Growth Habit: Tree
IFAS Assessment:  Origin: Tropical Asia, Pacific Islands
North CAUTION
Central CAUTION
South CAUTION (INCOMPLETE)

Description: Tree to 18 m. Leaves alternate, long-stalked, trifoliate, toothed margins, bronze-toned, leaflets 15-20 cm long. Flowers tiny, greenish-yellow, no petals, in clusters at leaf axils. Fruit a pea-sized berry, brown or reddish or black.

Habitat: Hammocks, disturbed sites, cypress swamps.

Comments: Vouchered north to Pinellas County, established in south. Female plants produce many bird-dispersed seeds.

Florida Introduction Date: early 20th Century

Control Methods: Mechanical: hand pull seedlings. Chemical: basal bark 10-20% triclopyr ester; frill or girdle for larger trees with 20% triclopyr ester (IFAS, SP 242).

Read and follow directions on the manufacturer’s label. This guide does not supersede the label.
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Cortaderia selloana
pampas grass
Photo by TNC, Bugwood.org
**Cortaderia selloana**

**Prohibited:** No  
**FLEPPC Category:** N/A  
**IFAS Assessment:**  
North INVASIVE  
Central INVASIVE  
South INVASIVE  

**USDA Hardiness Zone:** N/A  
**Growth Habit:** Clump  
**Origin:** South America

**Description:** Vigorous ornamental perennial grass widely used as a lawn specimen. Large, impressive clumps, 8 to 10 feet high and wide, with silver to white feathery plumes arising on female plants in summer and autumn. Alternate leaf arrangement, serrated simple leaves, parallel leaf venation, leaves are evergreen, blades grow to greater than 36” long.

Notes: Its quick growth rate and large size make it unsuitable for most home landscapes as it takes over quickly. Can form dense stands that exclude other plants. Spreads by division and seeds.

**Habitat:** Grows in alkaline, clay, sand, acidic, and loamy soils. Drought tolerant, generally favoring dunes, bluffs, coastal shrub, marshes, inland riparian areas, and disturbed areas. Quickly colonizes bare ground.

**Comments:** Each plume produces up to 100,000 seeds that are widely dispersed by wind and develop without fertilization.

**Control Methods:** Chemical: No specific recommendations. Generally, herbaceous species can be treated with foliar application of 3% glyphosate.

Read and follow directions on the manufacturer’s label. This guide does not supersede the label.
Cupaniopsis anacardioides

carrotwood

Photo by Bugwood.org
**Cupaniopsis anacardioides**  
**carrotwood**

**Prohibited:** Yes  
**FLEPPC Category:** I  
**IFAS Assessment:** N/A (PROHIBITED)  

**USDA Hardiness Zone:** 10-11  
**Growth Habit:** Tree  
**Origin:** Australia and New Guinea

**Description:** Evergreen tree to 10 m tall, usually single trunked. Leaves alternate, compound (4-12 oblong, stalked leaflets), leathery and shiny yellowish-green with entire margins and rounded tips. Numerous white to green tiny flowers in branched clusters in leaf axils. Fruit an orange woody capsule with 3 distinct segments containing 3 shiny oval seeds.

**Habitat:** Dunes, tropical hammocks, pinelands, mangrove swamp, scrub, coastal strand, cypress swamps.

**Comments:** Voucher north to Volusia County, established in south. Salt tolerant.

**Florida Introduction Date:** 1955

**Control Methods:** Chemical: basal bark 10-20% triclopyr ester; cut stump 10-50% triclopyr amine or undiluted glyphosate; frill or girdle 10-20% triclopyr ester. Properly dispose of seeds which are readily dispersed by birds. (IFAS, SP 242).

Note: Read label restrictions regarding high tide mark and be very careful near mangroves. Only herbicides registered for application in water by EPA and FDACS may be applied to weeds growing in or near water.

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*Cynodon nlemfuensis*  
African bermuda grass  
Photos by Michael Rúa Franco, Zootecnista
Prohibited: Yes
FLEPPC Category: N/A
IFAS Assessment: N/A (NOT ASSESSED)

USDA Hardiness Zone: N/A
Growth Habit: low growing perennial grass
Origin: Africa

Description: A large, robust, non-rhizomatous grass, deep-rooted. *C. nlemfuensis* has two distinct varieties: var. *nlemfuensis* is somewhat finer and less robust. The inflorescence has four to nine racemes, each 4-7 cm long. Inflorescence is one whorl (occasionally two), slender, green or pigmented; var. *robusta* resembles a very large *C. dactylon* except that it has no rhizomes (Harlan, de Wet & Rawal, 1970). It has 7-12 racemes, each 6-13 cm long (Chippendall & Crook, 1976).

Habitat: Native of Africa. Establishes in disturbed areas in grassland, cattle paddocks, verges, and moist alluvium.

Comments: Propagated by rooted runners.

Control Methods: A combination of manual and chemical methods is recommended for large infestations of *C. nlemfuensis*. For smaller infestations, plants can be cut out; all stolons must be removed. Larger infestations can be controlled by mowing the foliage and the above-ground segments. Burning is not recommended because fire can stimulate growth of new plants. Re-sprouts can be sprayed with a foliar application of glyphosate (Goldstein, 2003-CABI).
Dianella ensifolia

cerulean flaxlily

Photos by Jeff Hutchinson, UF/IFAS
Dianella ensifolia  cerulean flaxlily

Prohibited: No  USDA Hardiness Zone: 9b-11
FLEPPC Category: N/A  Growth Habit: Herb
IFAS Assessment:
North   INVASIVE
Central  INVASIVE
South   INVASIVE

Description: Leaf blades 50-80 cm tall, finely serrated, basal sheath purple. Inflorescence a panicle 10-15 cm tall with light blue flowers. Fruit a succulent, violet-blue berry with shiny, black seeds.

Habitat: Scrub, wet prairie, moist hammock, mostly in disturbed areas.

Comments: Common landscape plant but only vouchered from Manatee, Highlands, and Dade Counties. Propagated by seed or vegetatively by rhizomes. Seeds dispersed by birds.

Florida Introduction Date: at least 1962

Control Methods: Chemical: biannual foliar treatments with imazapyr, metsulfuron, glyphosate or a combination of these herbicides. Must follow-up regularly with spot treatments (Hutchinson, et al., 2011).
Dichrostachys cinerea

aroma

Photo by Tony Pernas, Bugwood.org
**Dichrostachys cinerea**

**Prohibited:** No  
**FLEPPC Category:** N/A  
**IFAS Assessment:**  
North  INVASIVE  
Central  INVASIVE  
South  INVASIVE  

**USDA Hardiness Zone:** 8a-11  
**Growth Habit:** Tree  
**Origin:** Africa  

**Description:** Semi-deciduous tree to 7 m tall. Bark brown except on new branches where it is green and hairy. Alternate spines up to 8 cm long, recurved. Leaves bipinnate, dark green above, pale below, leaflets and stalks hairy. Flowers in a pink hanging spike of dense flowers (bottlebrush-like). Fruit a narrow pod, yellow to brown, twisted, 10 cm long with 4 black seeds.

**Habitat:** Hydric hammock.

**Comments:** Vouchered in several counties from Monroe north to Dade, Palm Beach, and Polk. Grows in dense thickets via root suckering. Not tolerant of frost or water-logging.

**Florida Introduction Date:** specimen vouchered in 1929

**Control Methods:** Chemical: foliar spray: Milestone 2-4 mL/gallon of water + 1% Kinetic. Cut stump: 2.5% concentration Milestone in water; apply as soon as possible after cut. **Do not exceed maximum acre rate of 7oz concentrate/acre/per year** (CMMiller-TNC).

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*Eichhornia azurea*  
rooted water-hyacinth

Photos by Bill Haller, UF/IFAS
**Eichhornia azurea** rooted water-hyacinth

**Prohibited:** Yes  
**FLEPPC Category:** N/A  
**IFAS Assessment:** N/A (PROHIBITED)  
**USDA Hardiness Zone:** 9b-11  
**Growth Habit:** Rooted aquatic  
**Origin:** Central and South America

**Description:** Rooted perennial aquatic. Leaves alternate, submersed leaves sessile, emersed leaves stalked, the stalk not inflated. Showy purple flowers above water surface on erect stems, 7-50 flowers per stalk. Flowers summer through fall.

Note: Distinguished from the more common *Eichhornia crassipes* by not having inflated stalks on emersed leaves, and by being rooted as opposed to free-floating.

**Habitat:** Coastal rivers and lakes.

**Comments:** Only vouchered from Columbia County, but a Federal Noxious Weed.

**Florida Introduction Date:** Introduced in US in 1800s; unknown when introduced in Florida.

**Control Methods:** Chemical: foliar application of aquatic labelled herbicides glyphosate, triclopyr or 2,4-D (IFAS, Haller 2015).

Follow herbicide labels: Only herbicides registered for application in water by EPA and FDACS may be applied to weeds growing in or near water.

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[plants.ifas.ufl.edu](http://plants.ifas.ufl.edu)  
[fnai.org/invasivespecies.cfm](http://fnai.org/invasivespecies.cfm)  
April 2015
Ipomoea aquatica
water-spinach

Photo by UF/IFAS | Inset photo by C.T. Bryson, USDA ARS, Bugwood.org

Read and follow directions on the manufacturer’s label. This guide does not supersede the label.
**Ipomoea aquatica**

**Prohibited:** Yes  
**FLEPPC Category:** I  
**IFAS Assessment:** N/A (PROHIBITED)  
**USDA Hardiness Zone:** 7a-11  
**Growth Habit:** Herbaceous aquatic vine  
**Origin:** Central to south China

**Description:** Herbaceous, aquatic vine with milky sap. Stalked leaves alternate, arrowhead shaped. Showy tubular flowers, white, to 5 cm. Fruit an oval woody capsule, 1 cm wide with 1-4 grayish seeds.

**Habitat:** Shallow water in ponds, lakes and rivers.

**Comments:** Federal Noxious Weed. Cultivated for edible greens. Eradicated when established but likely to be reintroduced due to popularity as a cultivated vegetable. Forms dense floating mats that shade out submersed plants.

**Florida Introduction Date:** prior to 1950

**Control Methods:** Chemical: 2,4-D, glyphosate, imazapyr, triclopyr (FWC/CAIP).

Follow herbicide labels: Only herbicides registered for application in water by EPA and FDACS may be applied to weeds growing in or near water.

Read and follow directions on the manufacturer’s label. This guide does not supersede the label.
Read and follow directions on the manufacturer's label. This guide does not supersede the label.
Description: Perennial herbaceous aquatic, extremely variable depending on habitat from a terrestrial slender plant to 5 cm tall growing in mud to a highly branched aquatic with much branched stems to 1 m long. Aerial stem simple or branched to 14 cm, submerged stem to 1 m, much branched. Aerial leaves variable but usually whorled and dissected 4-12 mm long. Submerged leaves whorled up to 30 mm long. Flowers axillary from aerial leaves, solitary, stalked, mauve pink, 8-12 mm long.

Habitat: Ponds, lakes, ditches, marshes, swamps.


Florida Introduction Date: specimen vouched in 1983

Control Methods: No specific recommendations available, however *Limnophila sessiliflora* is treated successfully with 2-4,D (IFAS/CAIP).

Follow herbicide labels: Only herbicides registered for application in water by EPA and FDACS may be applied to weeds growing in or near water.

Read and follow directions on the manufacturer’s label. This guide does not supersede the label.
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Phyllanthus fluitans
red root floater
Photos by Michael Sowinski & Kelle Sullivan, FWC
Phyllanthus fluitans  
red root floater

Prohibited: No  
FLEPPC Category: N/A  
IFAS Assessment:
North  CAUTION  
Central  CAUTION  
South  CAUTION (INCOMPLETE)

USDA Hardiness Zone: N/A  
Growth Habit: Floating aquatic  
Origin: Central and South America

Description: Perennial aquatic herb with shoots floating on the water surface. Stems brittle, 1 to 1.5 mm in diameter, up to 13 cm long, with clusters of brown and pink roots at nodes. Leaves distichously arranged, 9 to 17 mm long, circular, densely papillate, entire, base cordate, tip notched, light blue-green in color. Leaf blade with peculiar elliptical pocket on each side of the midrib, protuberant above, concave below, with folds on the leaf surface. Flowers axillary, white, minute, 2-4 mm wide. Fruit a 3 mm wide, depressed globose capsule.

Habitat: Canals, rivers

Comments: Species sold as aquarium plant. Discovered in 2010 as naturalized in the Peace River drainage. Population treated with herbicides to attempt eradication.

Florida Introduction Date: Earliest Florida specimen vouchered in 2010.

Control Methods: Chemical: foliar treatment with aquatic labeled diquat dibromide (IFAS/CAIP, 2010).
Praxelis clematidea

Photo by Brandon Collins
**Praxelis clematidea**

**Prohibited:** No  
**FLEPPC Category:** II  
**IFAS Assessment:** N/A (NOT ASSESSED)  

**USDA Hardiness Zone:** N/A  
**Growth Habit:** Shrub  
**Origin:** South America, northern Brazil, Bolivia, Peru and northern and central Argentina

**Description:** Erect perennial herb to 1 m high. Plant covered with coarse segmented hairs. Leaves opposite, ovate to rhomboid with a pointed tip, 2.5–6 cm long and 1–4 cm wide, gland-dotted and hairy on both surfaces especially below, serrated margins. Pungent aroma similar to “minty cat urine”. Clusters of small, intense lavender / baby blue florets. Can be distinguished from similar native asters by the conical shaped receptacle and deciduous bracts.

**Habitat:** Disturbed areas including roadsides, trail edges, restoration habitats and pastures. Also found in natural areas from sandhill, dry flatwoods, to wet flatwoods having diverse herbaceous and shrub layers. Seeds easily spread by vehicles, people and animals. Possible secondary invader.

**FL Introduction Date:** July 2006 in Orange County, collected by LeAnn White.

**Control Methods:** Suggested herbicides are glyphosate (3%), fluroxypyr, metsulfuron-methyl, and a mixture of 2,4-D and picloram. Population is reportedly easy to kill but rebounds quickly from seed following prescribed burns. Multiple treatments needed. Effectiveness of these methods is currently under investigation.

Read and follow directions on the manufacturer’s label. This guide does not supersede the label.
**Solanum torvum**

susumber, turkey berry

Photo by Ann Murray, UF/IFAS
**Solanum torvum** susumber, turkey berry

**Prohibited:** Yes  
**FLEPPC Category:** II  
**IFAS Assessment:** N/A (PROHIBITED)  
**USDA Hardiness Zone:** 8a-11  
**Growth Habit:** Shrub or tree  
**Origin:** Tropical America

**Description:** Evergreen, widely branched, prickly shrub or small tree, to 5 m tall. Stems armed with stout, flattened prickles, usually straight or slightly curved. Twigs stellate tomentose. Leaves alternate, simple, petioled; blades oval to elliptic, unlobed to strongly lobed, to 25 cm long, bases unequal, tips pointed, surfaces densely stellate hairy below, less dense above, with usually a few long prickles on midveins (especially above). Many flowers in large branched clusters, with simple, mostly glandular hairs on stalks. Corolla bright white, to 2.5 cm across, lobed about 1/3 of its length, lobes not recurved. Stamens with prominent anthers. Fruit an erect, subglobose berry, to 1.5 cm wide, yellow when ripe.

**Habitat:** Disturbed uplands and swamps.

**Comments:** Sprouts from roots, forming thickets. Flowers and fruits all year. Seeds probably dispersed by birds and other animals.

**Florida Introduction Date:** before 1900

**Control Methods:** Mechanical: entire plant must be removed. Chemical: foliar applications of glyphosate, 2,4-D, picloram, or triclopyr applied at standard rates. Remove and dispose of fruit to prevent spread (IFAS, MacDonald, 2008).

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Cooperative Invasive Species Management Areas (CISMAs)

Partnering across the landscape!

CISMAs are an alliance of stakeholders (public & private) addressing invasive species management in geographic regions. In general, their missions are to implement comprehensive, cooperative efforts across boundaries to address the threats of invasive species to the lands and waters within the management area.

CISMAs are working in Florida to:

» Expand efforts across the landscape, rather than stopping at political or property boundaries.

» Form partnerships of federal, state and local government agencies, tribes, individuals and various interested groups that manage invasive species in a defined area.

» Address the following concerns:
  • Prevention
  • Education/Awareness
  • Early Detection & Rapid Response
  • Monitoring
  • Integrated Pest Management

Find your local CISMA at www.FloridaInvasives.org/CISMAs.html
Florida Invasive Species Partnership (FISP)
www.FloridaInvasives.org

Cooperative Invasive Species Management Areas (CISMA) Areas
www.FloridaInvasives.org/CISMA.html