

Invasive flora priority list for coastal Georgia

Priority 1 Species that CISMA partners view as a serious ecological threat and currently spend a significant amount of time and/or money on for some aspect of management or plans to spend in the next five years.

- **Cogongrass** - *Imperata cylindrical*

This plant was accidentally and intentionally introduced in the 1900s from Southeast Asia through packing material and for use as erosion control and livestock forage. It's a perennial, colony-forming grass that can grow up to 6 ft. tall. Leaves have serrated edges and an off-center whitish midrib with a pointed tip. Rhizomes are white, branched, sharp and scaly. It can be identified in the spring by its plumes of flowers/seeds that give it a cottony look; these flower heads are 2-8 in. long and cylindrical. Because of its rhizomes it spreads readily in a circular formation, excluding all other vegetation from the area. Seeds are easily distributed by the wind.



- **Chinese Tallow** - *Triadica sebifera*

This tree was introduced in the 1700s from China and Japan, where it's used for cultivating seed oil and as an ornamental. It can grow 60 ft. tall and with spade shaped leaves. New, tender growth is often reddish in color. Spring brings dangling, yellow spikes that give way to three-lobed fruit, and these split to drop seeds in fall and winter. These seeds spread by water and birds, and seedlings can reproduce by 3 years of age. This species turns landscapes into monospecific forests; its fallen leaves release toxins that kill off other native species. In addition to seeds, it spreads through root sprouts. In the winter, leaves turn red.



- **Japanese Climbing fern** - *Lygodium japonicum*

This perennial, climbing, vine-like fern was introduced in the 1930s as an ornamental from Japan and Australia, and can easily be 90 ft. long. Leaves are divided and lace-like on green, orange, or black vines. It forms thick mats, shading out vegetation and covering shrubs and trees. Rhizomes spread underground, providing more wiry black stems. Spores are easily disbursed through the wind and on clothing and equipment. While it dies back in the winter, the dead vines provide access for re-establishment and further provide wildfires access to taller trees.



- **Common Reed** - *Phragmites australis*

This is an invasive strain on a native species. European strains were believed to have been introduced through ship ballasts in the 19th and 20th centuries. It can grow over 19 ft. high and forms dense colonies through the use of rhizomes. Leaves are lanceolate. Flowers appear in mid-summer on tawny spikelets with silky hairs and seeds are created with cross-fertilization of plants. Plants can be found in freshwater and brackish water and because of their rhizomes, shade out and outcompete native species. Invasive *Phragmites* is thought to have more of a blue-green color, excludes other plants with its dense colonization, and seems to have no susceptibility to native fungi that appear as white spots on the native's stalks/leaves.



- **Tamarisk** - *Tamarix canariensis*

Also known as Salt Cedar or Canary Island Tamarisk, this tree has a feather or fluffy-like appearance. It was introduced to control soil erosion and as an ornamental from Europe and the Mediterranean and can be found in the southeast states and in west Texas. Flowers are monoecious (both sexes) and pink. Seeds have hairs and are borne on the wind. Plants can tolerate salty or alkaline soils and have the capacity to reproduce clonally. Spreading this way, they crowd out native species; salt cedar has a higher capacity to draw water from the soil and can leave salty patches around them in the soil, further harming natives.



- **Water Hyacinth** - *Eichhornia crassipes*

This floating perennial plant is a pest in many parts of the world, having originated from the Amazon basin. Leaves are round and leathery, attached to bulbous stalks that can be spongy or inflated. Roots are dark purplish to black and feathery. Plants form dense mats, clogging waterways for wildlife and boat traffic. Plants produce offsets through stolons, creeping steadily over the water surface. Flowers appear in showy, purple spikes 12 to 20 in. high.

Populations can double in as little as 6 days and intense management is needed to control it. Plants not only impede water travel, but also limit air-water surfaces and thus oxygen levels and light availability for aquatic plants.



- **Chinaberry** - *Melia azedarach*

This deciduous tree grows up to 50 ft. high. Leaves are dark green and pinnately divided and bear a musky odor. Spring flowers are in lavender clusters and give way to poisonous, yellow berries. Plants originated from the mid-1800s in Asia as an ornamental. Plants are disastrous to native species as fallen leaf litter raises the soil pH. This is exacerbated by the fact trees are fast growing and can reach 18-24 ft. in height in 4-5 yrs. Further, plants produce offsets through root sprouts and bird-dispersed seeds.



Priority 2 Species that CISMA partners deal with infrequently or attempts to control in selected high-priority areas (because they are thought to be lesser threats, or because they are widespread and difficult to control)

- **Beach Vitex** - *Vitex rotundifolia*

A perennial shrub, this 2 ft. tall plant can spread up to 60 ft. with woody stems. Plants were brought from Asia in the 1980s as a method to control beach erosion. Leaves are oval, silvery green 1-2 in. long. Violet flowers occur year-round at the ends of branches. Fruits are purple-black and 0.25 in. in diameter. Plants outcompete native species, forming dense colonies, and can take over nesting habitat for sea turtles.



- **Camphor Tree** - *Cinnamomum camphora*

Another Asian introduction, this plant has been around since the late 1800s and was founded as a failed method of camphor production. It is now sold as an ornamental. Crushing leaves or peeling twigs or bark release a camphor scent. As an evergreen, trees have oval to elliptical dark green leaves that are pointed on the ends and alternate on the stem. Twigs are initially green but turn reddish-brown. Bark is variable and can be scaly to furrowed. Most are 25-40 ft. tall but some can be 100 ft. Flowers are greenish white or pale yellow on panicles. Fruits are blue to black and fleshy. All parts of the plant are poisonous to humans in large enough doses. Trees are fast-growing, outcompete natives, and produce lots of seed readily ate by birds.



- **Tree of Heaven** - *Ailanthus altissima*

Introduced as an ornamental in the 1700s, this plant originates from China and Taiwan. Growing up to 70 ft. tall, trees are deciduous, and dioecious flowers are yellow-green with a smell likened to cat urine or rotting cashews or peanuts. Leaves are alternate and compound, with several teeth near the base. Plants are highly adaptable to soils, disturbance, and drought. In addition to this, seeds are produced prolifically and plants produce chemicals that impede the growth of other plants around them. This allows trees to create dense stands, and in urban areas, plants have been known to damage concrete and sewer structures.



- **Lantana** – *Lantana camara*

An ornamental introduced from the West Indies in the 18th century. This shrub can grow up to 6 ft. tall, and has square stems, hairy or prickly stems, and sandpaper-like serrated ovate leaves. Leaves are aromatic when crushed. Flowers appear in dense clusters and are multicolored as they age. Fruits are a 2-seeded drupe that turns black when ripe. Plants bloom from summer till frost. Plants escape cultivation and grow wild in croplands and natural areas, displacing native plants, providing a secondary host plant for some pests, and is poisonous to people and animals. Butterflies and other pollinators are highly attracted to it, which may hinder pollination of native plants.



- **Golden Bamboo** - *Phyllostachys aurea*

As an introduction from SE China in the 1800s, this species was selected for its ability to provide a noise barrier while acting as an attractive front. Now it is sold as an ornamental. Plants can grow up to 30 ft. tall. Stems are green, but turn yellow in the sun. Short, swollen internodes at the base of the culms (stems) define golden bamboo from others. Leaves are lanceolate and while plants



flower in frequently (up to several decades apart), the main mode of reproduction is by rhizomes and side shoots. Left unchecked, this plant creates dense stands with its fast-growing ability. Plants invade forests, blocking out sun and outcompeting native species for space.

- **Chinese / Japanese Wisteria** - *Wisteria sinensis* / *W. japonica*

These species were introduced from China and Japan in the 1800s for use as ornamentals. As vines, they will grow up anything in their path, and are capable of climbing over 65 ft. high. Leaves are pinnately compound and leaflets are ovate with wavy margins. Japanese wisteria stems are white in comparison to Chinese wisteria's dark gray. Japanese wisteria also twines clockwise while Chinese wisteria twines counter-clockwise. Flowers are born hanging on racemes that are 4-20 in. long. Velvet seed pods take the place of racemes, 4-6 in. long and turn dark brown when ripe. Seeds are poisonous. As a vine, plants' harm lies in the fact that they climb into canopies and shade out the plants below, and trees they climb can be girdled with the vines. Not only can they spread by seed, but plants reproduce by sprouting roots at each node and if cut back or trimmed, plants easily re-sprout.



- **Japanese / Glossy/ Chinese privet** – *Ligustrum japonicum* / *L. lucidum* / *L. sinensis*

Both Japanese and Glossy privet were introduced from China and Korea as ornamentals. In terms of identification, Japanese privet has smaller leaves and a duller point than glossy privet. Both have ovate, glossy-on-top leaves with pointed tips and clusters of white dioecious flowers. Twigs are greenish-brown to gray with raised corky lenticels (dots). Plants are evergreen shrubs or small trees. Plants are shade tolerant, tolerate poor environmental conditions, and form thickets by root sprouts and animal dispersed seeds.



L. lucidum (top) compared to *L. japonicum* (bottom)

- **Coral Ardisia** - *Ardisia crenata*

Another native of SE Asia, this plant was introduced in the 1900s as an ornamental. Leaves are evergreen, leathery, glossy, and dark green at 4-8 in. long. Flowers aren't usually noticed, but the deep red berries are. Birds and raccoons eat them year-round as they stay on the plant and spread the seed. Shrubs grow up to 6 ft. high and grow in clumps to colonies due to seedlings and rhizomes. Because of these thick colonies, native species get shaded out, and it is naturalized across many areas in Florida. Plants can re-sprout after a fire and grow in acidic or alkaline soils.



- **Sand Pine** - *Pinus clausa*

Native to Florida and one county in Alabama, this plant was introduced in other southern states in the forestry industry. An evergreen, this tree grows 20-40 ft. high and has a bushy crown. Needle fascicles are in 2s, and needles are slightly twisted and yellow-green. There are two varieties of it: the Ocala variety is native to the FL peninsula and needs fire to release its seeds while the Choctawhatchee variety grows in the FL panhandle and in Alabama and spreads its seeds regularly. Its ability to grow in poor and salty soils, its seedy nature, and bushy habit allow it to crowd out native species.



- **Pindo palm** – *Butia capitata*

Native to South America, this species is planted as an ornamental in yards and parking lots. Plants are defined by their blue-green, graceful fronds that curve towards the trunk. The trunks are stocky



and covered with leaf bases. Trees produce clusters of date-sized orange-yellow fruits that are used in jam/jelly recipes, which give this plant its other name: jelly palm. This species grows slowly but can reach 20 ft. high. It can tolerate temperatures down to -10C.



Its high tolerance, excessive seeds, and enhanced plantings by humans make it a candidate to watch.

- **Alligatorweed** - *Alternanthera philoxeroides*

This emergent or floating invasive originates from South America in the 1900s. Leaves are opposite, and white flowers occur in short spikes. Plants root in wet soils or shallow water and spread into waterways where mats expand along the surface. If needed, plants grow



terrestrially with smaller, thicker leaves. New plants come about from rooted nodes; when plants spread into waterways, pieces can be swept downstream to start new mats. Stolons can re-sprout from up to 12 in. deep in the mud. In addition to this, plants can tolerate brackish water and therefore can grow in marshes as well as rivers. Because of its tendency to create these mats, plants shade out underwater vegetation, limit air-water surface oxygen levels, increase sedimentation, and clog waterways.

Priority 3 Species that CISMA partners deal with only in unusual circumstances, either because they represent minor threats or are essentially naturalized and impossible to control with current methods.

- **Air yam / Chinese yam** - *Dioscorea bulbifera* / *Dioscorea oppositifolia*

Also known as air potato, *D. bulbifera* is an introduction from Asia in the 1900s. A defining characteristic is the leaf veins, which all arise from the leaf base. Leaves alternate on this plant and as a vine it can grow up to 70 ft. in length. Reproduction is mainly through vegetative, where plants form “air potatoes” at the leaf axils as well as large tubers underground.



Plants can grow up to 8 in. a day, and crowd out space at the tree canopies. Bulbs can sprout even when they're small and for some time without adequate water or sunlight. Plants die back in the winter but regrow come spring. Toxic.



D. oppositifolia, cinnamon vine, is another vine from Asia from the 1800s. These can climb up to 65 ft. high and cover shrubs and trees. Leaves have long petioles and are heart-shaped, usually opposite. These too spread by potato-like tubers at the leaf axils (up to 20 a year) and through underground tubers (up to 1 m long). Plants shade out natives underneath them and are fast-growing. Plants also die back in the winter, but come back from tubers.



- **Japanese honeysuckle** - *Lonicera japonica*

Another Asian introduction from the 1800s as an ornamental, this plant is widely spread today. Gardeners favor it because of its highly fragrant flowers and fast growth. An evergreen vine, this plant climbs shrubs and trees. Leaves are ovate and opposite, with fuzzy petioles. Tender, new growth is reddish in color and fuzzy while older stems have brown bark that peels in long strips. Stems can be 80-120 ft. long. White



flowers fade to yellow. Black berries are produced. While birds eat these, plants also spread through rhizomes and



aboveground runners. This coupled with its climbing, shading habitat, large seed production, fast growth, and lack of predators creates bad news for competing natives.

- **Mimosa - *Albizia julibrissin***

Introduced in the 1700s as an ornamental from China, this plant is still popular. It is a tree that can grow 20-40 ft. Leaves are bipinnately compound with 20-60 leaflets per branch. Flowers resemble pink pom-poms at terminal clusters. Seeds appear in flat pods that are straw colored. Seeds need scarification to germinate, but this also allows them to remain viable for several years, aiding in dispersal. Stands can become dense with seedlings, shading out native species, and easily takes over disturbed areas like roadsides. As a member of the legume family, it can fix nitrogen, which gives it a further edge in nutrient poor environments.



- **English Ivy – *Hedera helix***

This evergreen perennial vine was introduced from Europe in colonial times and can grow 100 ft. Today, it's still sold as an ornamental. Leaves are dark-green with whitish veins and 3-5 pointed lobes (juvenile). At 10 yrs. Of age, plants turn into erect plants or branches with unlobed leaves. Flowers are in terminal clusters and purple berries form. Vines climb trees, shading them out and eventually killing them. Trees with ivy are at an increased risk for blow-overs. On the ground, ivy forms dense mats. English ivy is also a reservoir for a plant pathogen, Bacterial Leaf Scorch (*Xylella fastidiosa*). Plants spread asexually through rooted pieces and through seed which is readily eaten by birds.



- **Kudzu** - *Pueraria montana*

Kudzu was introduced in the 1800s as a forage crop and ornamental, and later as a candidate for erosion control. This semi-woody, perennial vine can reach 100 ft. in length. Leaves are alternately arranged and compound with 3 broad leaflets. Leaflets can be entire or deeply 2-3 lobed with hairy margins. Seed pods are brown, hairy, and flattened with 3-10 seeds. Kudzu has a massive taproot, over 7 in. in diameter and over 6 ft. in



length, sometimes weighing up to 400 lbs. Many vines can grow from a single crown. Mostly, plants spread from runners, rhizomes,



and vines that root at the nodes, while still growing at a rate of 1 ft. per day. With this kind of capability, they create dense stands of vines, covering and shading out everything else.

- **Rattlebox** - *Sesbania punicea*

This woody shrub is from South America and was founded in North America and other parts of the world as an ornamental. Growing up to 15 ft. high, the bark is covered with lenticels and is gray to reddish-brown. Leaves alternate and are compound, up to 5-7 in. long. Leaflets appear in 7-16 pairs, oppositely arranged and are elliptical. Flowers are bright orange-red and appear in clusters. Seed pods are 3-4 in. long and have longitudinal wings. These pods give the plant its name as they make a rattling sound when shaken. Spreading primarily by seed, this plant forms dense thickets, and can clog waterways when they grow along it. Plants can reach maturity from seed in a year and germination is high even after several years.



- **Water lettuce** - *Pistia stratiotes*

This floating plant has been around at least since 1765 when the explorer William Bartram first described and drew in in Lake George in Florida. Appearing as a head of lettuce, leaves are thick, dull light green, hairy and ridged. With no leaf stalks, roots emerge from the base as feather-like projections. Flowers are hidden and inconspicuous, leaving behind a green berry. As a



nuisance, this plant commonly forms large mats that block up lakes and rivers. The associated harm to the environment come with this, including depleted oxygen levels due to less surface-air interface, less sunlight for aquatic plants, and thus less fish. Daughter plants are formed off stolons of the mother plant.



- **White mulberry** – *Morus alba*

This 30-50 ft. tree originated from China during colonial times when it was introduced as a potential food source for silkworms. Leaves are glossy, which distinguishes it from the native red mulberry, and are alternate, ovate, simple, and have 3 main veins running from the rounded or notched



base. Leaves can be slightly hairy underneath and coarsely-toothed.

Plants are dioecious and berries are white, purple, or pinkish. Plants have a high growth rate and can outcompete native species. It possibly hybridizes with the red mulberry while also transmitting a root disease to it.



- **Russian Thistle** – *Salsola kali*

This species is native to Russia and Siberia, but was brought to the US in the 1800s in contaminated flax seed. Growing 1-5 ft., plants are bushy, dense annuals. Leaves are alternate and can be threadlike, cylindrical, or awl-shaped with pointed tips. Flowers are small and green to



white and lack petals. Fruits contain a single seed and 5

wings. When a plant is mature, it breaks off at the base, forming tumbleweeds that enhance seed dispersal. Plants are drought-tolerant, and seedlings need little moisture to germinate. Plants become pests in dry areas due to these features. Plants become fire hazards and also play host to the sugarbeet leafhopper, which facilitates the curly-top virus the insect carries and which can spread to tomatoes, beans, and sugar beets.



- **Asparagus fern** – *Asparagus aethiopicus*

Hailing from South Africa, this evergreen herb is used as an ornamental. It's not even a fern at all, but a lily. Branches are upright to trailing, and its leaves are fine and needle-like, giving it a fluffy appearance. Flowers are white or light pink but aren't usually noticed. The bright red berries have 3 seeds each and birds eat them, facilitating spread. Plants have the capacity to smother understory plants.



- **Indian fig** – *Opuntia ficus-indica*

This plant has been cultivated since ancient times for its fruit, but its origin is believed to have been in Mexico. Plants are also cultivated as ornamentals. Also called sweet prickly pear, it can grow 9-16 ft. high. Branches are flattened, grey to grey-green. Leaves are minute.



Flowers are bright yellow, orange, or red. Red berries are edible and covered with tiny spines. In dry areas, this plant threatens cattle ranching as it displaces native species and impedes animal movement, and is a noxious weed in South African and parts of Australia.



- **Sword fern** – *Nephrolepis cordifolia*

Introduced as an ornamental, this plant came from Asia and Australia. As a woodland fern, this plant produces pinnate fronds up to 3 ft. tall. The pinnae (leaflets) along the rachis are lanceolate with an auricle that overlaps the rachis. Plants spread through both spores and rhizomes, the latter of which are orange-brown to brown with linear scales and hair-like tips. Stolons are pale yellow and produce underground tubers



– the presence of which differentiates the invasive from the natives. These four methods of reproduction and the plant's aggressive, spreading nature give it the edge over natives, allowing it to produce dense stands.



- **Torpedo grass** – *Panicum repens*

An introduction from Africa and/or Asia, this plant was originally intended as a forage crop in the 1800s. Like its name, leaves are sharply pointed or torpedo-like. It can grow up to 3 ft. tall, and its leaf sheaths are hairy with the hairs also on the upper margins of the leaves. Blades are stiff, linear, flat, or folded, often with a waxy or whitish coating. Flowers appear in panicles 3-9 in. long, but plants spread primarily through rhizomes. Plants grow in or near shallow waters, forming thick



UGA1391326



Torpedograss
Panicum repens
Photo by Vic Ramsey
© 2003 University of Florida

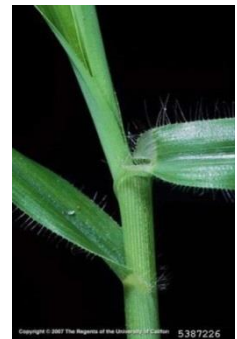
monocultures and excluding natives. This plant displaces native marshes, impedes water flow in ditches and canals, and restricts recreational use of lakes and ponds.

- **Durban crowfoot grass** – *Dactyloctenium aegyptium*

Found around the world in the tropics and subtropics, and introduced to North America, this is a weed from Africa. Reproduction occurs through seeds which occur in heads that split open to reveal a crowfoot like shape, and through stems that root at the lower nodes. Leaf blades are flat and lined with hairs, up to a 1 ft. tall. This plant acts as an annual, preferring heavy, moist soil. Because of its tendency to invade disturbed areas and its copious seed, it is a successful invader.



540960



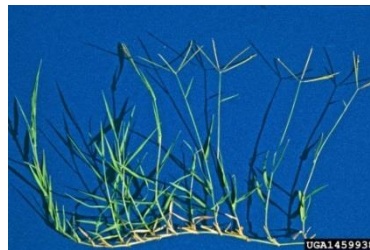
Copyright © 2007 The Regents of the University of California 5387226

- **Bermuda grass** – *Cynodon dactylon*

This grass entered North America in the mid-1800s as a pasture grass from Africa, and is still used today as a turf grass. Plants spread vegetatively through above- and underground runners. Leaves are grey-green and between 1-6 in. long. White hairs lie at the junction between leaf and leafstalk. Flowers occur on 1-3 in. spikes in late summer. Because of its rhizomes and stolons, and its ability to grow on all soil types, plants spread fast into turfs and push out natives.



UGA1459940



UGA1459938



UGA1459056

- **Bahia grass** – *Paspalum notatum*

A perennial grass planted for forage and soil stabilization, this species hails from Central and South America. Rhizomes



are stout and covered with the bases of old leaf sheaths. The live leaf bases at the terminals of each rhizome have a purplish color. Leaves are dark green and linear-elongate in shape.

Inflorescences have two or more spicate branches, and each of those have two rows of spikelets. Spikelets are broadly ovate or obovate. Plants readily invade disturbed areas and are adapted to fire, restricting the regrowth of long-leaf and slash pine with their fast growing nature due to rhizomes and seed.



- **Sawtooth Oak** – *Quercus acutissima*

A deciduous tree that can grow up to 50 ft. tall, this tree originates from Asia as an ornamental and wildlife food source. Leaves alternate, are broadly lance-shaped, 4-7.5 in. long, and have bristly teeth along the margin. Large acorns replace inconspicuous flowers, with spreading, curved scales on the involucre (base of the inflorescence). Plants have heavy crops that drop every other year, and are tolerant of many types of soils. Plants escape into native forests, displacing natives and hybridizing with native oaks.



- **Non-native Lespedeza** – *Lespedeza cuneata*, *L. thunbergii* & *L. bicolor*

- *L. cuneata* is semi-woody shrub from Asia in the 1800s that was introduced for erosion control and as a forage crop. It grows up to 6 ft. tall. Stems are slender and gray-green with hairs. Leaves are thin, alternate, and three-parted. Leaflets have wedged-shaped bases, are 0.5-1 in. long and hairy. Creamy-white flowers



with purple throats appear in clusters of 2-4 in the summer. Seed pods are flat and ovate to round and form at the terminal axils scattered along the stem. This plant is an aggressive invader that outcompetes natives; its copious seed remain viable for decades. A single plant can form a large stand that can live for 20 yrs. or more.



- *L. thunbergii* has wider, more pointed leaves than *L. cuneata*. From Asia, this plant produces stems up to 7 ft. tall. Dying back in the fall, plants will also produce pinkish to purplish blooms in the summer. Like other *Lespedeza* species, this plant can become invasive.



- *L. bicolor* can reach 3-10 ft. in height. Leaves are alternate with 3 elliptical leaflets. Stems are grey-green. Flowers are purple and 4-6 in. long and appear June-Sept. Also introduced for soil stabilization and wildlife food, it is invasive as it can form dense stands and limit forest regeneration by natives. Animals spread the seeds.



- **Red Algae** – *Gracilaria vermiculophylla*

Native to the Northwest Pacific Ocean and Japan, it was introduced to the West Pacific and the Atlantic Oceans probably through imported oysters, boats, and fishing equipment. Highly tolerant of water conditions and stressors, it invades estuarine areas and marshes and displaces natives. It is cylindrical and up to 50 cm long. Coarsely branched, it can be found as loose-lying thalli or attached to shells or stones. Usually found in the vegetative stage, reproductive structures are necessary for correct identification. For human use, this species is collected to create biopolymer agar, which is used widely in the pharmaceutical and food industries. It reproduces through non-motile spores which are dispersed through the water. Not only does this algae outcompete native algae, but it also has negative impacts on native seagrass beds by decreasing the net photosynthesis and survival rates. These impacts increase with temperature, which could have implications for global warming. The algae's structure provides a foothold for other species of algae animals, both of which could be non-native.



- **Clumping bamboo** – *Fargesia sp.*

Introduced from China for the ornamental trade, instead of spreading through rhizomes, this bamboo spreads out from clumps, spreading a few inches a year instead of feet. It can grow 10-15 ft. tall. Plants flower once in their lifetime before dying, sometimes after decades. Being evergreen, fast-growing, shade-tolerant, cold-tolerant, and deer-resistant lends this plant its invasiveness. Because of this and their lack of predators, this genus is to be monitored.



- **Heavenly Bamboo** – *Nandina domestica*

From China and Japan, this plant came to the US in the 1800s as an ornamental. However, while attractive, it grows quickly and reproduces by seed and root fragments, which quickly becomes a nightmare for the average gardener. As a semi-evergreen woody shrub, it can reach 6-8 ft. tall. Leaves are compound, tri-pinnately compound and alternately arranged. Leaflets are ovate, 1-2 in. long. Leaves start out reddish-bronze, then turn green and finally red in the fall. The inner bark is yellow. While not technically a bamboo, it resembles one. White flowers appear in panicles on the ends of stems. Fruit is red and is eaten by wildlife, enhancing its spread. Plants grow vegetatively through suckers and rhizomes, forming dense thickets that shade out everything else.



- **Tungoil Tree** – *Vernicia fordii*

A deciduous tree that can grow 66 ft. tall, this plant came from China in the 1900s for use in the tungoil industry, but is now an ornamental. It has milky white sap. Leaves are simple, 6-10 in. long, alternate, and are either heart-shaped or with three pointed lobes. Petioles are long and have a distinctive red gland at the base of each leaf. Flowers are showy with five white petals with red veins and bloom before the leaves emerge. Fruits are toxic and reddish-green, about 2-3 in. in diameter. Plants are fast-growing, forming dense stands. Plants come back from stumps and animals spread the berries. Even at three years of age, plants can begin to reproduce. All parts of this plant are toxic, and even one seed can be fatally so if ingested.



- **Brazilian vervain** – *Verbena incompta*

Introduced as an ornamental, this perennial herb originates from South America. Stems grow 3-6 ft. and are rough and square. Leaves are dark green, obovate to elliptic to lanceolate, have serrate margins, appear in a basal rosette, and are opposite and attach directly to the stem with the leaf bases narrowing. Flowers are small and purple, with five petals and appear in compact terminal fascicles within hairy



sepals and bracts. Plants bloom all summer through fall. Plants are capable of blooming for long periods of time, self-seed, and produce copious amounts of seed.

In addition, plants are heat and drought tolerant, often popping up along roadsides, forest edges, and other disturbed areas.



Invasive Species Watch List

Species considered future threats because (1) they are not known to be present in the state but have been documented in other southeastern states and have been shown to have significant ecological, economic, or health impacts where they occur; or (2) the species is present in Georgia and is currently not considered a serious pest in coastal Georgia, but may become one based on its history in other states.

- **Australian Pine** – *Casuarina equisetifolia*

Originating from Australia and Southeast Asia, this tree entered North America as an ornamental. Growing up to 150 ft. high, trunks are reddish brown to gray and bark is rough, brittle, and peels. Leaves are tiny scales, 6-8 whorled around grayish-green branchlets that resemble pine needles. Plants have both male and female cones. This species displaces native communities, altering community structures and possibly hybridizing with natives.



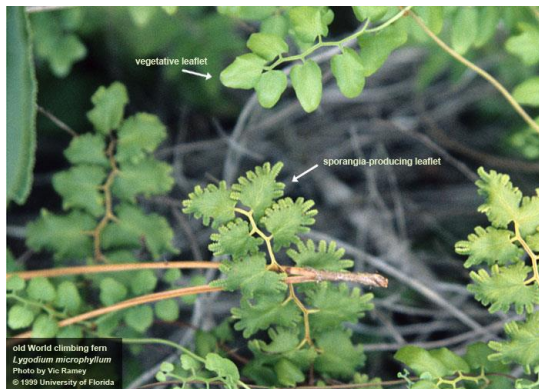
- **Giant Reed - *Arundo donax***

From western Asia, northern Africa, and southern Europe in the 1800s, this species probably arrived on the west coast first, and today is planted as an ornamental or for erosion control. As a perennial grass, plants grow over 20 ft. tall, spreading through creeping rhizomes that form compact masses. Leaves are elongate, 1-2 in. wide and a foot long. Flowers appear on 2 ft. long, dense plume-like panicles in the fall. Plants invade riversides and streams, chasing out natives, interfering with flood control, increasing fire risks, and reducing habitats for wildlife. The interconnected root mats can collect debris behind man-made structures such as bridges that can cause damage. Fragments can float downstream and root in new areas with its fast growth rate. Furthermore, plants have a high tolerance for salinity and can grow in a wide variety of soil types.



- **Old World Climbing Fern - *Lygodium microphyllum***

This species is a vine from Asia and Australia, introduced as an ornamental in the 1900s. This plant has climbing fronds (which resemble stems) up to 100 ft. long. Leafy branches off the sides are 2-5 in. long. Two types of leaflets occur on this plant: a simple unlobed vegetative leaflet and a more convoluted leaflet with sporangia along its margin, containing spores. Plants can resprout from any along each climbing leaf and dense plants can be fire hazards. Plants create dense mats, smothering natives and taking over.



- **Tropical Soda Apple** - *Solanum viarum*

Native to South America, plants are believed to have possibly arrived here through the feces of Brazilian cattle carrying undigested seed in the 1980s. Leaves are shaped like oak leaves, flowers are tiny and white, and fruits are green to yellow and golf-ball sized with a fragrance that attracts animals. Typically invading pastures, leaves and stems are unpalatable to cattle, and its prickly shrub-like form prevents cattle movement, especially in the shade where cattle need to avoid the heat. TSA is a reservoir for at least six crop viruses (affecting crops such as potato, tomato, tobacco, and cucumbers) and a potato fungus. Plus, insect pests use it as a vector, including potato beetles, tomato and tobacco caterpillars, peach aphids, whiteflies, loopers, and stink bugs. Plants displace natural vegetation as well, impacting biodiversity and interfering with ecological management. As a perennial, plants also grow year-round in southern areas, furthering the length of time they can spread and cause trouble.



- **Brazilian Pepper** - *Schinus terebinthifolius*

Introduced in the 1800s as an ornamental, this South American native is in the same family as poison ivy, poison oak, and poison sumac. Its bright red berries and bright green leaves are frequently used for Christmas decorations. Growing up to 30 ft. tall, this plant has a short trunk. Leaves are alternately arranged with elliptic, finely toothed leaflets, are reddish and often have a reddish midrib. Flowers appear in



clusters from Sept. to Nov. and are white. Glossy fruits appear in clusters that turn from green to red when ripe. Animals eat the fruits, dispersing the seed which have high germination rates. Plants are aggressive invaders, taking over disturbed areas and even areas such as hammocks, pinelands, and mangrove forests. Plants can resprout after fires. Due to their high germination and dispersers, plants can form dense stands chasing out native vegetation and communities.

- **Chinese silvergrass - *Miscanthus sinensis***

Another plant introduced as an ornamental, it came to us in the 1800s from Asia. Growing up to 12 ft. tall, this densely bunched grass has leaves that are up to 18 in., slender, upright to arching, and have silver tips and rough margins.



Midribs are silvery in color. Flowers are on

summer panicles that are fan-shaped and 2 ft. long, silvery to pink in color. Plants spread through seed as well as rhizomes, forming large clumps in disturbed areas, displacing natives. These large clumps are also a larger fire risk.



- **Brazilian elodea - *Egeria densa***

From South America, this plant is not actually *Elodea* for which its common name gives. As an aquatic, this plant is rooted, but fragments can be found drifting. Leaves are small and strap-shaped, about 1 in. long. Stems are usually a foot or two long, but can grow much longer. Leaf edges have fine saw teeth you need a



magnifying glass to see. Leaves

themselves occur in whorls of 3-6. Flowers appear on short stalks above the water with three petals and are 0.75 in. across. Easily confused with *Hydrilla*, they can be differentiated by flowers and midrib. *Hydrilla*'s flowers are very small on very thin flower stalks, and their midribs have one or more teeth on the underside of the midribs, where *Egeria* never has teeth. *Egeria* also never produces tubers and turions.



- **Hydrilla** – *Hydrilla verticillata*

Originating from Europe, plants came to America by the 1950s in the aquarium trade. There are two forms of *Hydrilla*: the monoecious form originating from Korea, and the dioecious form originating from India. Stems are slender, branched and grow up to 25 ft. long. The small leaves are strap-shaped and pointed, growing in whorls of 4-8. Leaf margins are saw-toothed, and leaf midribs have one or more teeth. Tiny white flowers are produced on tiny stalks. Plants also produce turions and tubers. Growing to the surface of waterbodies and forming dense mats, this plant can detach and float to new areas to colonize. Plants form the turions as leaf axils, which can serve as another means of dispersal, and tubers from attached to roots in the mud. Native aquatic plants get shaded and outcompeted, and tubers can remain viable for up to 4 yrs. Plants also can grow in 7% salinity, in low and high nutrient conditions, and can grow even in low light.



and tubers from attached to roots in the mud. Native aquatic plants get shaded and outcompeted, and tubers can remain viable for up to 4 yrs. Plants also can grow in 7% salinity, in low and high nutrient conditions, and can grow even in low light.

- **East Indian hygrophylia** - *Hygrophila polysperma*

Introduced in the aquarium trade from India and Malaysia in the 1950s, this plant grows mostly submersed. Stems are square, growing up to 6 ft. long, and leaves are opposite. Flowers are bluish-white to white, and have two lips, growing from the axils where leaves meet the stems. Plants form large, dense stands, shading out natives, impacting water temperature, and getting spread by boats, birds, and water. Plants can clog water ways and culverts and canals. Supposedly, even a free floating leaf can develop into a plant. It tolerates a wide range of pH, water hardness, and light. Adventitious roots develop at nodes, and its fast growth even allows it to outcompete *Hydrilla verticillata*.



- **Blue-green algae - *Lyngbya* spp.**

Hair-like and filamentous, this alga can form large benthic and surface mats. It chases out native algae, and actually smothers native plants with its density. It's easily dispersed by animals, either on their body or through feces. Boats and fishing equipment are also valid dispersers. Dense mats can become problems when photosynthesis' gases allow them to float to the surface and float to shore or against channels. They smother eelgrass, a food of the endangered West Indian manatee, and some species are linked to "swimmers' itch".



- **Eurasian water milfoil - *Myriophyllum spicatum***

Originating from Eurasia or northern Africa, this plant's introduction could be attributed to ship ballast in the 1800s or as packing material for worms sold to fishermen. It is continually spread through boats, fishing gear, and water currents. Stems are reddish-brown to whitish-pink, growing 6-9 ft. Leaves are deeply divided, soft and feather-like,



about 2 in. long and arranged in whorls of 3-6. Flowers are reddish and very small, held above the water on a water spike several inches long. This plant also forms dense mats, shading out natives and impacting ecosystems.



- **Variable Leaf Milfoil** - *Myriophyllum heterophyllum*

Also called the two-leaf water milfoil, this plant is native to Florida to Texas, and has made its way up north through waterways. This plant has stout green stems with leaves that are green and in whorls of 4-6. This plant has two leaf types: emergent and submersed. Emergent leaves can reach 4-6 in. above the water and



are stiff, serrated or lobed along the margins, and are lanceolate, lance-spatulate, or elliptic.

Submersed leaves are feather-like, pinnate, with 4-10 paired pinnae. Flowers are small, and petals are reddish and oval shaped. Plants spread to other areas by people, animals, and water currents. Plants make dense stands and mats, preventing water flow, reducing light and oxygen, and impeding recreation.



- **Spiny leaf naiad** - *Najas marina*

An aquatic plant introduced from Europe, this plant has slender green leaves with deep, conspicuous teeth along the edges. Leaves are usually opposite with a wide base and tapered tips, brittle, re-curved, and branching. Flowers occur along leaf axils. It has a great tolerance for turbidity and low-nutrient conditions, driving out other native *Najas* spp. Usually found in lakes and ponds, it can move into rivers, forming dense mats that



choke out natives. I can survive in saline, alkaline, and freshwater, particularly noticeable for colonizing brackish water. Plants reproduce through fragments, and can be spread through animals and equipment.



- **Common salvinia** - *Salvinia minima*

A rootless aquatic fern long considered native, it is now believed to have been introduced in the 1920s from South America and Mexico. Emergent fronds are oblong, flat or semi-cupped, growing in chains and float on the water surface. Leaves grow in pairs. A thread-like, brown leaf hands underwater, and all join at a node along an underwater stem. The upper surface of



the green leaves is covered with rows of white, coarse hairs acting as water repellent. Hairs are unjointed at the tips. Plants spread through mats, and by budding at nodes and broken stems. Populations can double in as little as two weeks, covering water bodies from shore to shore. Because of its dense mats, natives get crowded out, irrigation pipes get blocked, and boating is restricted.

- **Parrotfeather** - *Myriophyllum aquaticum*

A native of South America, this plant is still sold as an ornamental. As an emersed plant, it grows along the ground or water surface of water bodies. Its delicate, feathery, bright green leaves give it its name, growing in profusion. Leaves are



oblong, deeply cut and feathery, arranged in whorls of 4-6 on the stem. Stems can be 5 ft.

long. Emergent leaves are less divided and less green than emersed

leaves. Plants spread vegetatively with fragments, creating dense monocultures that clog waterways, impeding boats, chasing out natives, and provide breeding areas for mosquitos.



- **Callery pear (Bradford pear)** – *Pyrus calleryana*

Originating from China and Vietnam in the 1900s, this plant was brought here to develop a fire blight resistant in common pear, and later gained popularity as an ornamental. Trees go to be 30-50 ft. tall, and young plants can be thorny. Leaves are deciduous, alternate, broad-ovate to ovate, shiny dark green and leathery, have small round-toothed margins, and have purple hues in the fall. White flowers appear before leaves in the spring. Plants spread through copious amounts of seed and vegetative means; a plant can produce a sizeable patch in several years, eliminating natives.



- **Water Spinach** - *Ipomea aquatic*

Native to the West Indies, this is another plant escaped from cultivation in the late 1900s. An aquatic that acts as an herbaceous, trailing vine, it has milky sap. Stems are hollow, rooting at the nodes. Leaves are alternate, with simple, glabrous petioles with blades that are arrowhead shaped but can be variable. Blades are glabrous or rarely pilose, with pointed tips, and are held above the water when stems are floating. Flowers resemble morning glory blooms, solitary or in few-flowered clusters at leaf axils. Petals are white or pink-lilac. Its threat is in the way it creates dense mats, shading out underwater natives and competing with native emergent plants.



- **Sweet autumn virginsbower** - *Clematis terniflora*

A climbing, semi-evergreen vine, this plant was an ornamental introduced from China and Japan. Leaves are opposite, compound (3-5 leaflets), and the margins are entire. Flowers are white, fragrant, and have four petals, appearing late summer through fall. Seeds are numerous and have long, feather-like hairs attached.



Because of its prolific seeding, plants invade forest edges, rights of ways, and disturbed spaces near creeks.



References:

Information gathered informally and from online sources: GADNR, GA Invasive Species Strategy, GA – Exotic Pest Plant Council