

The Quarterly Journal of the Florida Native Plant Society

Palmetto





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Questions regarding the grant programs should be sent to info@fnps.org

Application deadline is March 4, 2011.



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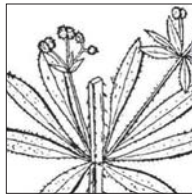
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Palmetto



ON THE COVER:

Muhly grass (*Muhlenbergia capillaris*) shimmers in the sunlight at PEAR Park's viewing pavilion. See story on page 12.

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Two species of non-native climbing ferns threaten many of Florida's natural communities. Learn why these two ferns are so troublesome, and about the efforts to control their spread. Article by Rosalind Rowe and Chris Lockhart.

8 Hunting Wildflowers at Tosohatchee WMA

A profusion of wildflowers graces Tosohatchee WMA and wildflower hunter extraordinaire Dr. Walter Taylor is the perfect guide to this beautiful natural area. Tag along as he tells the tale of "Field Trip G".

10 Stickywilly, North Florida's Winter Hobo

Stickywilly, (*Galium aparine*) hitches a ride any way it can as it travels from place to place on animal fur, pants legs, or skin. Discover how this pesky plant gets around. Article by Fritz Wettstein.

12 2011 "Design With Natives" Landscape Awards, Part II

Winners of this year's non-residential landscape awards include projects that restore, beautify, provide habitat, and enhance the human experience. See the winning designs, and discover what makes them special.

Palmetto seeks articles on native plant species and related conservation topics, as well as high-quality botanical illustrations and photographs. Contact the editor for guidelines, deadlines and other information at pucpuggy@bellsouth.net, or visit www.fnps.org and follow the links to Publications/Palmetto.

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Editorial Content: We have a continuing interest in articles on specific native plant species and related conservation topics, as well as high-quality botanical illustrations and photographs. Contact the editor for submittal guidelines, deadlines and other information.

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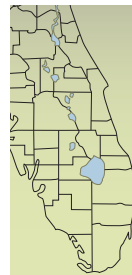
Trellising Old World climbing fern covering cypress wetlands near Lake Placid, Highlands County. This patch participated in a wildfire in 2009. SFWMD 2007.

The Invasion of the Non-native Climbing Ferns

By Rosalind Rowe and Chris Lockhart

Florida contends with over 145 plant species and 50 animal species that did not “grow up” and develop with other Florida plants and animals over the ages. Perhaps that’s why they never learned to play nice here. Although not all non-native species behave badly, the ones that do become serious invasive threats and cost Floridians a bundle – in dollars spent (over \$100 million in 2002), in native diversity lost, and in the hazards of the actual on-the-ground control work. Successful control requires knowledge of the species’ biology and behaviors. It also requires cooperative efforts across the same public and private land ownership boundaries that the species cross.

Among the Florida Natural Areas Inventory lists of the state’s top ten worst invasive plants there are two species of non-native climbing ferns that threaten our natural communities. Old World climbing fern, *Lygodium microphyllum*, was first recorded as a naturalized non-native plant in Martin County by John Beckner in 1966 (Beckner 1968). It has spread across the south and into central Florida, with the capacity to grow as far north as Georgia (Volin and others 2004). The first Florida record of Japanese climbing fern, *Lygodium japonicum*, was in 1932 on the banks of the Apalachicola River (Small 1938), and has since extended south into most of Florida’s counties. Both *Lygodium* species are listed as noxious weeds by the Florida Department of Agriculture and Consumer Services (FDACS Rule 5B-57 FAC). It is unlawful to introduce, cultivate, transport or release living stages of either fern without a permit.



View distribution maps for *Lygodium* in Florida:

Early Detection & Distribution Mapping System, The University of Georgia, Center for Invasive Species and Ecosystem Health.

Japanese climbing fern (*Lygodium japonicum*)

www.eddmaps.org/distribution/viewmap.cfm?sub=3045

Old world climbing fern (*Lygodium microphyllum*)

www.eddmaps.org/florida/distribution/viewmap.cfm?sub=3046

All climbing ferns have underground stems or rhizomes; what you see above ground are the leaves, or, since they are ferns, the fronds. The frond development in *Lygodium* is unusual among the ferns: it grows with a twisting motion that enables it to twine and climb; it has continuous apical growth; it has leaf buds within the first leaflet, or pinna, just below the apex (Mueller 1983), and the leaf buds in turn become apical tissue, and thus secondary rachis, if the frond’s currently active apex is removed. With this capability, the frond cannot only grow to great lengths, but its compound structure can sometimes be a little tricky to decipher, as the secondary rachises create additional branching within the frond. A plant old enough to generate reproductive spores will have dimorphic pinnae – the fertile and sterile pinnae are on the same frond.

Currently, there are no native climbing ferns in Florida. The American climbing fern, *Lygodium palmatum*, was reported once, in the late 1800s (location unspecified), but it is more

commonly found in states further north, such as Kentucky, Tennessee, and the Carolinas (Nelson 2000).

Old World Climbing Fern

Old World climbing fern (OWCF) is a long-lived, perennial fern with bright yellow-green fronds that can grow 90 to 125 feet, giving the appearance of a vine with many pinnate leaves. The non-fertile sub-leaflets, or pinnules, are simple, entire, and oblong to elliptic with cordate bases, on stalks that remain on the rachis after the pinnule has fallen off. The fertile pinnules are more ovate, but deeply fringed with a single row of spore cases along the margins. A fertile pinnule carries tens of thousands of spores. By the time dimorphism appears in the fronds, usually within the first year of growth, the underground portion of the plant is well established. A single spore can produce a



Above: Close-up of dimorphic pinnae, using a hand to show relative size; pinna on left is fertile. K. Serbesoff-King 2005. Below: A few Old World climbing fern fronds together, four to six months old. R.Rowe/TNC 2007.



Left: Old World climbing fern being poodle-cut and treated. The trellising fronds were cut at about chest height, leaving a 10-12" gap to be sure all the rachis was cut; the lower portion is sprayed. R.Rowe/TNC 2007.

viable plant if it lands in the right conditions, and OWCF spores retain 1% viability after eight years (Hutchinson and Langeland 2006). This plant does best in wetland areas where there is broken sunlight. It is often found along the bases of cypress and other trees growing in shallow wet areas.

As the plant thrives, the rachises “trellis” and layer into dense mats up to a meter thick, under which nothing can grow. Trellising OWCF can suffocate entire forests, and is doing so over thousands of acres in numerous areas of south Florida. In addition, the rachis is highly flammable and carries fire into tree canopies and wetlands – both of which have been generally exempt from Florida’s natural fire-adapted system. The burning rachis also can break off and be carried by the wind to expand the fire. OWCF itself is fire-adapted in its native ranges of Australia and Indonesia, as the underground structures remain viable after fire and quickly send out new fronds.

Using fire as an analogy for the invasive spread of OWCF, the heart of the fire is now burning hotly in the significant wetlands of south Florida – tree islands in the Everglades, swamps and creek beds at Jonathan Dickinson State Park, and cypress wetlands near Lake Placid in Highlands County. The outside edge of the fire is in central Florida, roughly from Hillsborough County to central Volusia County, with occasional “escape flares” just north of that edge.

At the heart of the invasion, the best we can hope for is control; that is, to push back enough on the growth to minimize spore production, halt the spread and minimize the damage to listed species. Here, treatment often requires other techniques to support the on-the-ground work, such as aerial treatments and long-term biocontrol development. Biocontrol methods do not come easy. They require a lot of research and quarantine testing. Setbacks lead to new studies, and so on. At present, the brown *Lygodium* moth, *Neomusotima conspurcatalis* (see www.ars.usda.gov/research/projects) is promising, reducing foliage and, thereby, some of OWCF’s competitive edge over the native plants.

Along the edges of the invasion, treatment is more on-the-ground, with workers scrambling through tough brush and mucking through varying (and often unknown) depths of water and mud, wielding machetes and backpack sprayers, to make “poodle cuts” of the trellising plants and spray the foliage at the bases. The herbicide most often sprayed is the aquatic-labeled version of glyphosate (similar to Round-Up), a metsulfuron methyl product such as Escort, or a combination of these. Re-treatment within six to eight months is optimum.

Continued on page 6



Left: TNC, powered by ESRI, 2010. An interactive map, showing the Central Florida Lygodium Strategy plan for an Old World climbing fern "fire-break," is available at online at <http://maps.tnc.org/CFLSMapInit/>

Along the outside edge of the fire there is still the possibility of local eradication, creating a "fire break" against further spread. To that end, the Central Florida Lygodium Strategy (CFLS) was formed. A cooperative agency effort currently being administered through The Nature Conservancy, CFLS is attempting to create this barrier by addressing the infestations on private properties while working with public landowners to coordinate treatment work. In this way, CFLS has "drawn a line on the vine." (See <http://tinyurl.com/CFLygodium> for more information about CFLS, especially if you own property in central Florida and have OWCF).

Japanese Climbing Fern

Japanese climbing fern (JCF) holds many of the same characteristics as other members of the *Lygodium* genus, with a twining, wiry brown rachis capable of indeterminate growth to 30 meters, about 90 feet (Langeland and Burks 1998). JCF is unique with its deeply lobed or dissected leaf margins. Young pinnae display the typical yellowish-green appearance characteristic of OWCF, but this coloring darkens over time to a deep green. The mature pinnule develops an extended terminal lobe, as if pointing where it wishes to go next, giving the pinnae an overall triangular appearance. JCF has two rows of sporangia along the margins of the fertile pinnae and more leaf margin length. When the pinnules of JCF drop, they take their stalks with them. The rhizomes are dark brown and tend to extend deeper than those of OWCF, helping this perennial temperate species to over-winter. The plant communities that JCF prefers are mesic flatwoods to wetland ecotones, and seasonal and floodplain wetlands.

Once considered a northern Florida problem, JCF has breached the central Florida limits of its distribution. Isolated populations have popped up in southwest Florida (Collier County), and at least one location in each of St. Lucie, Palm Beach, and Miami-Dade counties since 2005 (Florida Natural Areas Inventory Invasive Plants Geodatabase 2010). Early detection and rapid response has been implemented for many of these southern populations. JCF was discovered on private land adjacent to Fairchild Tropical Garden in 2006. The property owner kindly agreed to eradication treatments and it is currently gone. Aggressive treatment efforts at Picayune Strand State Forest have killed the populations there. Other isolated infestations in southern Florida have been targeted for treatment as funding and

staff time allow. Land managers remain on high alert, however, as the impact of a second invasive *Lygodium* could be very detrimental. In the absence of frost, there would be little to slow down the stealthy spread of JCF.

JCF has posed a significant problem in both natural areas and pine plantations of northern Florida. Because Japanese climbing fern sometimes appears as a contaminant in pine straw bales and other planted materials, enforcement of the FDACS Rule in response to violations depends on staff availability. Training on plant identification and invasive plant management are tools being used with the pine straw industry to aid in compliance with the Rule (VanLoan 2006).

Some of the insects used for biocontrol of OWCF also will feed on JCF. This is true of the brown *Lygodium* moth. The down side is that JCF is a temperate species. Use of temperate biocontrol agents are limited due to the impact it may have on the American climbing fern, also a temperate species.



Japanese climbing fern at Goethe State Forest. Note the light green, small, new leafy fronds, the dark, lobed mature fronds in the upper right and the few fertile fronds with spore-bearing finger-like projections along the margins. C. Lockhart/FNAI 2005.

Treatment for JCF has been challenging. Glyphosate-based products like Roundup and Rodeo generally provide good initial results at a solution rate of 2% to 3%, but since it is a non-selective herbicide, it kills many other plants as well. A recent study by Minogue and others (2010) found that the metsulfuron methyl or imazapyr (such as in Arsenal) in combination with glyphosate had similar effectiveness to that of glyphosate alone. Escort is preferred by some land managers because it generally results in less non-target damage, particularly on woody species (Lockhart, 2007). The addition of a rainfast surfactant is very helpful, particularly on those muggy days with the threat

of rain. Also, buffering the spray solution to an acidic pH <6 improves the kill at lower rates (Suarez 2010, personal communication). The key in any of these types of treatments is to monitor for regrowth and re-treat before plants become reproductive. As with OWCF, fire in conjunction with herbicide use is helpful for thicker infestations, improving access and reducing herbicide quantities needed.

Addressing Boundaries

It takes a complex combination of efforts to address invasive species in Florida. The work requires a united front across the fence lines that separate property ownerships, including the sharing of experiences and data. The CFLS mentioned earlier is one such effort. Other examples include the Florida Exotic Pest Plant Council (FLEPPC), the University of Florida's Institute for Food and Agricultural Science (UF IFAS), and recently developing regional cooperative management efforts. FLEPPC not only keeps us informed of what is invasive in the natural areas in Florida, but it also publishes management plans for the most problematic invasive species. FLEPPC has published a management plan for OWCF and is now in the process of creating one for JCF. UF IFAS provides treatment information for invasive species, including the climbing ferns. Groups known variously as CISMAs (Cooperative Invasive Species Management Areas), PRISMs (Partnerships for Regional Invasive Species Management), or CWMAs (Cooperative Weed Management Areas), are the products of agencies and individuals getting together to build the infrastructure necessary to fight invasives effectively. These public/private partnerships share training, outreach efforts, inventory and mapping data, and even workdays. To learn about CISMAs in Florida and find the one nearest you, visit www.floridainvasives.org.

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Japanese climbing fern, climbing in a pine plantation in the Florida panhandle, near Florida River Island and the Apalachicola National Forest. C. Lockhart/FNAI 2007.

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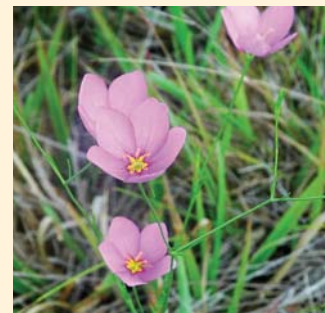
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Rosalind Rowe managed the The Nature Conservancy's Central Florida *Lygodium* Strategy for several years. She now serves on the steering committee of the Suncoast CISMA and participates in plant survey work in Sarasota and Manatee Counties. Contact info: rozroxrowe@gmail.com; (941) 320-4363.

Hunting Wildflowers at Tosohatchee WMA

Walter Kingsley Taylor

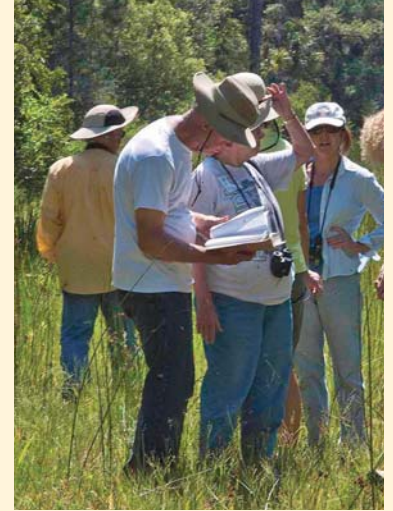


Above, first row, top to bottom:
Bacopa caroliniana; *Hypericum myrtifolium*; *Polygala cymosa*.

Second row, top to bottom:
Dr. Walter Taylor (photo by Vince Lamb); *Sabatia calycina*; *Sabatia grandiflora*; *Rhexia alifanum*.
Plant photos by Walter K. Taylor.



Right: Checking the book.
Photo by Vince Lamb.



The long-anticipated day had arrived. It was Thursday, May 19, and the 31st Annual Conference of the Florida Native Plant Society was a reality. The fruits of labor from all the planning, numerous meetings held, and emails exchanged would come to fruition. Field trip “G” to the Tosohatchee Wildlife Management Area (TOS) near Christmas, Orange County, Florida, was about to roll. Just a few days earlier, the new Taylor Creek Road bridge was finished and opened for traffic. This cut traveling miles for the 20 folks scheduled to come on trip “G”, and the other TOS FNPS field trip led by Katherine Bowman and Pete Dunkelberg.

The weather was perfect. Fortunately, the area had recently received a needed rain and I knew the plants would be perked-up and ready to show off their colors. About a week before this gorgeous day, Karin and I motored to the TOS to survey things only to find the ground to be quite dry with many plants drooping.

As we drove through the TOS main gate, there were our good friends Ray Jarrett, Sid Taylor, and Rita Grant, and a few other attendees to greet us. Ray had his boots on and was ready to go. He had directed the first vehicles to the appropriate parking area. He’s a fine fellow and good organizer. With the anticipated 35-40 vehicles showing up for the two trips, there was concern about parking, so things had to be organized.

It wasn’t long until the vehicles began rolling in the place. I could tell folks were excited with high spirits – there were so many smiling faces! The many familiar faces that Karin and I hadn’t seen in a while included Sid and Rita from Citrus and Hernando counties, Cindi and David Stewart from Jackson County, Katy Roberts from Pinellas County, Betty Wargo and Carmel vanHoek from Hillsborough County, Lassie Lee from Duval County, Vince Lamb from Brevard County, Ray Jarrett from Volusia County, and Sharon Lynch from Seminole County. The rest of the group came mostly from beyond the central Florida boundaries: Allen Burdett, Ina Crawford, Dottie Hanna, Peter Moeller, Jon Pospisil, Susan Rang, Sandra Saurers, and Janet Thome. Ina Crawford of Panama City had traveled the longest distance. She and her sister, Lassie use the FNPS conference for their annual visits. I could not have asked for a better group of folks. I was excited!

We were honored to have Friday’s keynote speaker, Rick Darke along. I had been told he wanted a workout, and I was

determined not to disappoint him. I was impressed how well Rick related the TOS flora of wildflowers to those found in his northern neck-of-the-woods. If he didn't get the species, he knew the genus. At the time, we didn't know that Rick would feature our field trip in his Friday presentation, *Livable Florida: Native by Design*.

After signing the register and paying the entrance fee, Ray and I continued to get the vehicles parked, and it wasn't long until a carpool of 5 vehicles was formed. It was a pleasure to have folks so willing to cooperate and make logistic matters smooth.

Our first stop was on St. Nicholas Road. Because of the profusion of wildflowers always at this site, we spent over an hour here. We found eastern false dragonhead (*Physostegia purpurea*), fourpetal St. John's-wort (*Hypericum tetrapetalum*), orange milkwort (*Polygala lutea*), starrush whitetop (*Rhynchospora colorata*), and many others too numerous to list. Next we took off to the wetter areas of the TOS on Beehead Road (Ranch Road) to see the hand fern (*Ophioglossum palmatum*). The TOS is famous for having the rare fern, and folks always want to see it. After locating the ferns we checked out a nearby wet area where we found several blooming coastal rosegentians (*Sabatia calycina*), axillflowers (*Mecardonia acuminata*), Baldwin's eryngo

(*Eryngium baldwinii*), lemon bacopa (*Bacopa caroliniana*), dwarf St. John's-wort (*Hypericum mutilum*), and scores of others.

As noon was approaching, we headed to the Powerline Road disturbed area that always supports a profusion of blooming May wildflowers including many yellow colic-roots (*Aletris lutea*), largeflower rosegentian (*Sabatia grandiflora*), pineland chaffhead (*Carphephorus carnosus*), and the rare (for Central Florida) Savannah meadowbeauty (*Rhexia alifanus*). At the pitcherplant bog, surrounded by a large pine flatwoods, there were several blooming milkworts (tall pinebarren, *Polygala cymosa*, orange, *P. lutea*), the beautiful myrtleleaf St. John's-wort (*Hypericum myrtifolium*), sandweeds (*Hypericum fasciculatum*), and hooded pitcherplants (*Sarracenia minor*) that had just finished blooming. Here we crossed paths with Catherine and Pete's group.

Now it was hot as the sun's rays beamed on us, and it was approaching 1 p.m. Folks were ready for the box lunches and a place to sit and talk, so off to the Youth Camp we headed. Here under large oaks we used the picnic tables for our outdoor feast of sandwiches, drinks, cookies, and chips. After we finished eating and Vince Lamb took the group picture, Field Trip "G" was officially terminated. Yes, it was a great time together. We had fun, sweated, saw a lot of wildflowers, and made good memories.



Above: Hand fern (*Ophioglossum palmatum*).

Above right: Field trip participants. (Back row, left to right) Rick Darke, Sharon Lynch, Cindi Stewart, David Stewart, Jon Pospisil, and Susan Rang. (Middle row, left to right) Janet Thome, Rita Grant, Sandra Saurers, Carmel vanHoek, Karin Taylor, Betty Wargo, Lassie Lee, Katy Roberts, Ina Crawford, Burdett Allen, Dottie Hanna, and Sid Taylor. (Front row, kneeling) Walter Taylor, Ray Jarrett. Not pictured, Peter Moeller. Photo by Vince Lamb.

About the Author:

Dr. Walter K. Taylor, a native of Kentucky, has lived in central Florida for over 42 years. After 35 years of continuous service, Professor Taylor retired from the University of Central Florida, where he taught a variety of biology courses including General Zoology, Ornithology, Biodiversity, Florida Natural History, Local Flora, and Florida Wildflowers. Upon retirement in 2004, Dr. Taylor was named Professor Emeritus of U.C.F.

Taylor has led numerous field trips on wildflower identification and given a variety of talks on Florida natural history to various organizations. He has written two widely used books on Florida wildflowers: *The Field Guide to Florida Wildflowers* (Taylor Publ. Co., Dallas, 1992), and *Wildflowers in Their Natural Communities* (Univ. Press of Florida, Gainesville, 1998). In the spring of 2002, his book *André Michaux in Florida, An Eighteenth-Century Botanical Journey* (Univ. Press of Florida, Gainesville, 2002), coauthored with Dr. Eliane M. Norman, was published. His most recent book, *A Guide to Florida Grasses* was published in 2009 (Univ. Press of Florida, Gainesville).

Further Reading:

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Stickywilly, North Florida's Winter Hobo

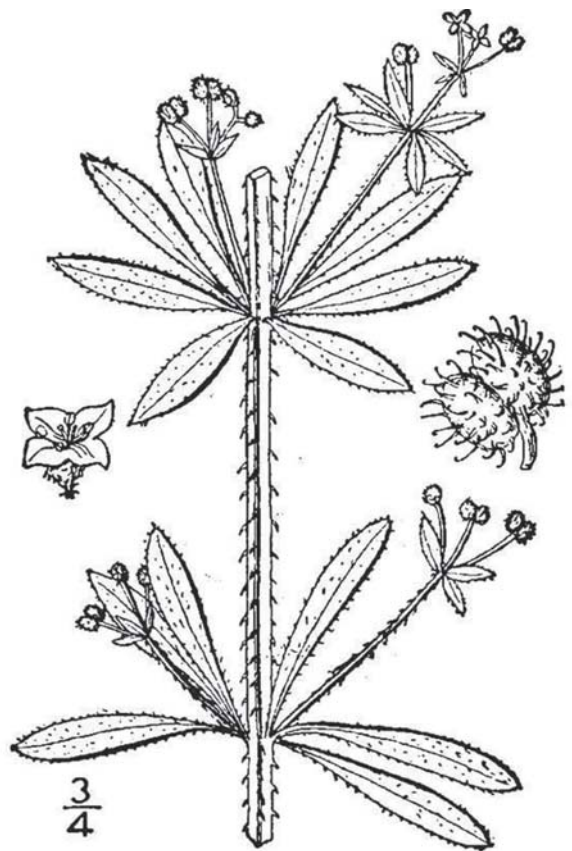
Fritz Wettstein

Stickywilly lounges in an area of my backyard which deserves the sign "Under Construction". He camps there with his green companions, Crane's Bill, Wood Sorrel, Violet, Poke and Rattlesnake Weed in the dappled late winter shade of a declining water oak. Stickywilly is an annual winter weed that grows as low mats of sprawling green stems and whorled leaves out by the back fence in rich soils, not too wet and not too dry, and fertilized by our dogs, Hannah and Marybelle. Stickywilly is the winter hobo of my unkempt North Florida backyard. He shows up when the other migrants have left with the frost. He spreads a mass of tangled stems, puts out tiny white flowers, goes to seed and disappears for the long hot humid summer. If you live in the humid temperate climates of North America or Europe, and have a fallow garden patch or plant bed under construction, stickywilly probably stops by your yard too.

Stickywilly is an annual herb found across the temperate zones of North America and Eurasia. It has been named goosegrass, cleavers, catchweed and numerous other common names. Carolus Linnaeus, the great Swedish taxonomist, named it *Galium aparine* in 1753. *Galium* is the genus name for a group of closely related herbaceous plants that are members of the madder plant family, known as the Rubiaceae. The madder family includes several showy small American trees such as the pink flowered *Pinckneya bracteata*, or fever tree, and *Cephalanthus occidentalis*, the swallowtail attracting buttonbush of Florida swamps. The madder family also includes the coffee plant, *Coffea arabica*, whose beans share coffee's aromatic flavor with the small seeds of *Galium*. Many more madders are inconspicuous herbaceous groundcovers. Two found in North American woodlands are *Hedyotis procumbens*, a diminutive plant called innocence, and *Mitchella repens*, called partridge berry or twinberry for its unique Siamese twin-like fruit. Most members of the madder plant family, including stickywilly, innocence and partridge berry have small, white star shaped flowers.

Members of the *Galium* genus that are native to Florida are easily identified by the distinctive sets of whorled leaves on the low clambering herbs. Four to eight strap shaped leaves radiate from growing points or nodes spaced fairly equidistant along lax, bright green square stems, giving the plant the look of having sprung from the pages of a Dr. Seuss book. Eight species of bedstraw occur in Florida, ranging from North Florida bluffs to peninsular Florida coastal hammocks and marshes.

As reflected in their names, *Galium* species have had a long, curious association with people. Collectively referred to as



Source: USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. An illustrated flora of the northern United States, Canada and the British Possessions. 3 vols. Charles Scribner's Sons, New York. Vol. 3: 259.

bedstraws, their natural history includes Stone Age European farmers, early Spanish missions in North Florida, Edwardian herbalists, American settlers and modern gardeners. The *Galium* genus is named after "gala," the Greek word for milk. To make cheese, herders strained goat or camel milk through baskets fashioned from *Galium* stems, which was believed to help curdle the milk. "Gala," as in the Milky Way Galaxy, is also used in the name of the milkwort genus of *Polygala*. Whether bedstraw curdles milk, or milkwort sweetens milk may be merely plant lore. Still, since an Internet search of *Galium* reveals a host of sites attributing medicinal attributes to the herb, there is probably something to it. These experiments are best left to the herbalists.

Stickywilly, with the scientific name of *Galium aparine*, is distinguished from other *Galium* species by its stickiness. Common names "stickywilly," "catchweed," and "cleavers" as well as the specific epithet *aparine*, refer to the plant's ability to latch onto to a passing trouser leg or shoe. Cleavers, in the sense of cleave as "to adhere to," and *aparine*, a Greek term for "to seize," both reflect the effect of the numerous curved stiff hairs on the leaves and stems and bristles on the leaves. The fruits especially bear these prickles, perhaps passing on the hitchhiking trait to the leaves and stems. Botanists refer to this trait as "retroscely scabrous." Maybe not as aggressively as the

yellow flowered herb of south Florida called beggar's patch, *Mentzelia floridana*, once stickywilly gets a handle, it keeps a retrorsely scabrous hold, sticking to skin, clothes or hair.

My first encounter with bedstraw was in graduate studies of the North Carolina Outer Banks maritime hammocks. In field botany, students learn the scientific names of plants along with identifying characteristics and anecdotes that create memorable impressions. Botanists, probably much as the herders, witch doctors, shamans or village elders before them, develop stories to make the subject more relevant, telling of a medicinal or other utility of the plant, or including in a plant's name a description of its unique features or growing conditions. Nobody forgets *Ilex vomitoria*, the scientific name for yaupon holly named for the effect of the "black drink" brewed from it. It was easy for me to consider the term "bedstraw" and imagine the industriousness of early settlers gathering up enough of the sprawling stems to stuff a mattress, but the plant hardly appears robust or dominant enough to be a harvestable resource. Its occurrence in scattered low patches made it difficult to conceive – "gee, I can gather up a bunch of these plants, dry them, and stuff mattresses," – unlike the Spanish moss that blankets maritime hammock branches. Yes, one could envision folks raking Spanish moss from low overhanging branches and piling it up for processing, but bedstraw? Not so easy.

Compounding my skepticism for bedstraw actually being used as bedding are the traits of stickywilly, the most common *Galium* species encountered. It is hard to imagine it as the right stuff for bedding, unless, somehow, the cleaving of the material reduces mattress memory.

The Internet search referenced earlier gave additional pause regarding bedstraw's utility as bedding material. In addition to the sites extolling bedstraw's medicinal virtues, numerous sites, including Dave's Garden, offered testimony to negative weedy characteristics. Methods of weed control ranged from mowing it down to eating it. Unfortunately for most, the best control methods probably do not involve not touching the plant. Some gardeners reported suffering rashes and small boils when pulling it from their parts of the garden under construction. Although the Internet search was enough to deter thoughts of an experimental bedstraw mattress, it did encourage further research into bedstraw's natural history.

As it turns out, bedstraw refers to the more polite members of the *Galium* genus, as opposed to the disreputable stickywilly. Unlike the native bedstraws of Florida and the Southeastern United States, like the shy *G. uniflorum* which hides in the leaf litter of our forests, many of the genus have showy flowers or glamorous traits that would earn a page, photograph or drawing in a roadside wildflower or native garden book. Several species seem useful as ornamental bedding plants in dryer, poor soils out West. Many in the blogosphere tout the benefits of creating herbal medicines from marsh bedstraw, *G. tinctorium*, as remedies for various maladies. With a little reading it also becomes much easier to envision stuffing beds

with lady's bedstraw, *G. triflorum*, which dried has the sweetly scented grassy smell of dried hay. Legend has it that the Virgin Mary lay the Christ Child on bedstraw in the manger, "and it is told, 'Our Lady's Bedstraw has bloomed gold e're since.'"¹ The trouble is that these nice plants have not made it to my backyard. Good members of their native plant communities, they either have to be sought out in natural areas beyond the fenceline, or in the memories of folklorists.

No, stickywilly probably wandered from afar to my backyard on a path similar to many Eurasian plant and animal species. A capable hitchhiker very well adapted to new ground disturbed by the plow or herd, he had crossed Russia, taken the British Isles and left his footprint all over the Northern Hemisphere. His seeds, sifted from the long cold fires of north Florida Spanish missions, and distinctive with their hooked bristles, have given evidence that his roots in the New World may trace back to a Spanish conquistador's pants legs or baskets of winter wheat. For all his travels and conquests, his variable, cosmopolitan tastes earned stickywilly the title "Major Arable Weed (Especially of Cereal Crops)."² Fame or infamy found the black sheep wanderer of the bedstraw family.

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(<http://www.essortment.com/ladys-bedstraw-myth-behind-it-64791.html>)

² "Biological Flora of the British Isles No. 207: *Galium aparine* L." K. Taylor. *Journal of Ecology*. 1999. 87. 713-730.

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Call for Research Papers and Poster Presentations for the 2012 FNPS Conference

The Florida Native Plant Society Annual Conference will be held at the John R. Trinkle Center, Hillsborough Community College, Plant City, Florida, May 17-20, 2012

The Research Track of the Conference will include presented papers on Friday, May 18 and Saturday, May 19. Posters will be on display on Friday and Saturday and the poster session will be on Saturday afternoon.

Researchers are invited to submit abstracts on research related to native plants and plant communities of Florida including preservation, conservation, and restoration. Presentations are planned to be 20 minutes in total length (15 min. presentation, 5 min. questions).

Abstracts of not more than 200 words should be submitted as a MS Word file by email to Paul A. Schmalzer paul.a.schmalzer@nasa.gov by February 1, 2012. Include title, affiliation, and address. Indicate whether you will be presenting a paper or poster.

2011 Landscape Awards

PART 2: NON-RESIDENTIAL LANDSCAPES



Clockwise from top: Muhly grass blooms at PEAR Park; native landscaping beautifies the 836 Welcome Gateway in Miami; low maintenance native plants line a roadside at Cotanchobee Fort Brooke Park; urban planting of natives at USF Park in downtown Tampa.



Each year, the Florida Native Plant Society honors the use of native plants through the *Design With Natives* program, which gives professional and amateur landscape designers an opportunity to share their efforts and be commended for their achievements at the FNPS Annual Conference.

This year's winning designs in the non-residential category included projects that restored grazing lands, beautified roadsides, provided habitat, and created attractive vistas for human visitors. *See story on page 14.*

LANDSCAPES TRANSFORMED: BEFORE & AFTER



Above: PEAR Park's pavilion before restoration. After the installation of native plants, visitors enjoy seeing plants and animals up close.
Below: The 'Outback' site before and after restoration. An unattractive drainage area surrounded by turf grass has been transformed into a haven for wildlife.



2011 Landscape Awards

PART 2: NON-RESIDENTIAL LANDSCAPES

Ecosystem Restoration Landscape Award Winner

Award of Excellence: Gardens Pavilion, Palatka Environmental and Agricultural Reserve (PEAR) Park, Lake County, Florida

Operator/Owner: Lake County/State of Florida

Designer: Ron Plakke

Installation: Ron Plakke and Peg Urban

Maintenance: Volunteers of PEAR Park Association, Inc.

The fifty-acre Florida Scrub Jay Habitat Restoration area at the Palatka Environmental and Agricultural Reserve (PEAR) Park includes a beautiful hexagon-shaped viewing pavilion, built on what was originally grazing land. Prior to construction, the site was cleared of non-native invasive plants such as Bahiagrass, (*Paspalum notatum*), Bermudagrass (*Cynodon dactylon*), hairy indigo (*Indigofera hirsuta*), Mexican clover (*Richardia* sp.), and Mexican tea (*Chenopodium ambrosioides*). Invasive plant removal was accomplished by a combination of mowing, disking, hand pulling, and judicious herbicide use.

After site preparation was complete, PEAR volunteers installed a garden of native Florida species surrounding the pavilion. Ground cover plants include coontie (*Zamia pumila*), Elliott's and purple love grasses (*Eragrostis* spp.), wiregrass (*Aristida stricta* var. *beyrichiana*, and pink Muhly grass (*Muhlenbergia capillaris*).

Yaupon holly (*Ilex vomitoria*) and Simpson's stopper (*Myrcianthes fragrans*) were planted adjacent to pavilion supports. These fruit-producing shrubs attract wildlife to the pavilion, where they can be easily seen by visitors.

Institutional Non-Profit Landscape Award Winner

Award of Excellence: Tampa Bay Water Outback, Clearwater, Florida

Owner: Tampa Bay Water

Design, installation and maintenance: Water & Air Research, Inc.

Located at Tampa Bay Water's administration building, the site locally known as the Outback was so extensively dominated by an overgrowth of Brazilian pepper it was difficult to locate an existing retention pond.

Before replanting, much of the vegetation choking the site was removed, until only the retention pond, a few upland areas, and a small, excessively-drained cypress dome remained. A berm was constructed around the remnant cypress dome, and stormwater from the building's roof and parking lot was

routed into it to restore some degree of hydroperiod to the wetland. The eastern portion of the berm was planted with dwarf forms of Walter's viburnum and wild coffee. Drier portions of the berm were planted with more drought tolerant species of clumping grasses such as muhly grass, dwarf Fakahatchee grass, and love grass.

Canopy and second story species are represented at upland, mesic and hydric levels throughout the site. Pond cypress are located at the edge of the pond, and the transitional/mesic zone of the pond slope was planted with flowering broadleaf hardwoods including southern magnolia, sweetbay, loblolly bay, and swamp dogwood. The upland zone canopy hosts live oak, cabbage palm, south Florida slash pine, and tough bully. In addition to canopy and second story species, slopes, transitional edges and hydric zones of the pond have been planted with various shrubs, grasses and beneficial herbaceous species.

Many types of wildlife have been observed using the Outback. Otters regularly visit the pond, as do opossum. All of the usual suburban mammals are resident or frequently seen. Reptiles and amphibians include slider, cooter, softshell, and snapping turtles; cottonmouth, watersnake, and other water-loving snakes; and various frogs and toads. Since otters have removed all large fish, bullfrogs and their tadpoles make up a large part of the pond animal biomass.

Approximately 75 species of birds have been observed in the Outback including a variety of cavity nesters, waders (little blue heron, roseate spoonbill and woodstork), waterfowl (hooded merganser and mottled duck), warblers (palm and yellow-rumped), vireos, and flycatchers. Summer residents include bluejay, mockingbird, mourning dove, and cardinal. Many migratory birds (hawks, buntings, crows, and waxwings) use the Outback as a place to rest and grab a snack. This diversity is perhaps the best indication that the design and implementation at Tampa Bay Water's Outback is achieving its goals.

Institutional Non-Profit Landscape Award Winner

Award of Honor: Cotanchobee Fort Brooke Park, Tampa, Florida

Owner: City of Tampa, Department of Parks & Recreation

Designer: Hardeman Kempton & Associates, LandEscapes, LLC

Installation: Valley Crest, W.G. Mills, Inc.

Maintenance: City of Tampa, Department of Parks & Recreation

This 6.5 acre park provides a stunning connection to the waterfront, connecting the downtown core with green space,

the Tampa Riverwalk, the Convention Center and the new Tampa Bay History Center.

The most prominent elements in the park are the extension of the Riverwalk system and the restoration of a natural shoreline. A concrete seawall and dock were removed, and the bank was re-graded and restored to an undulating, natural shoreline along its entire length. Buffers were created through the use of rip-rap, oyster shell mounds, and native wetland plantings to establish the shoreline and provide estuary and wildlife habitat. A dock overlook with a floating kayak launch provides access to the water and allows visitors to experience the shoreline. Fish, birds, dolphins and a variety of marine life can be observed from this location.

The park is predominantly planted with native trees, shrubs, grasses, and groundcovers. These create interesting vistas, provide habitat, and reduce the maintenance costs of the park. Strategically located drainage swales contain native wetland plants and grasses, and serve as water collection areas. The swales and their plantings provide natural filtering systems for stormwater before it enters Tampa Bay.

Shade trees and benches line walkways, and give visitors year round comfort and relief from the Florida heat. The park also serves as a living demonstration of the benefits of using native plants to create a successful urban park.

Institutional Non-Profit Landscape Award Winner

Award of Merit: USF Park, Tampa, Florida

Owner: City of Tampa, Department of Parks & Recreation

Designer: Phil Graham & Company

Installation: R.M. Williams

Maintenance: City of Tampa, Department of Parks & Recreation

The design for this environmentally-friendly park includes USF Plaza, a Riverwalk segment, passive use areas, and shoreline restoration along the east bank of the Hillsborough River. USF Plaza was designed to honor the local university's contributions to the city as an institution of higher learning. The Riverwalk connection allows visitors to walk from the west side of the Convention Center all the way to the Channelside district. The remainder of the park incorporates seating along undulating walks, surrounded by a mostly native plant palette providing shade and interest along with views of the shoreline.

A concrete seawall was replaced with an undulating, natural shoreline, including a shoreline buffer of rip-rap, oyster shell mounds, and native wetland plantings to re-establish estuarine and wildlife habitat. Fish, birds, and other marine life can be observed from the Riverwalk level, where informational plaques describing ecological aspects of the site are displayed for visitors.

The park is planted with upland native trees, shrubs, grasses, and wetland plant materials. The native plantings create habitat, control erosion, and reduce the overall maintenance

costs of the park. The terraced area along the river is planted with native wetland plants including grasses and mangroves, and serves as a natural filtering system for stormwater. The Riverwalk and upland passive use areas are enhanced by the planting of trees, shrubs and grasses creating a naturalized effect. USF Park serves as a great example of restoring a small urban site to a naturalized setting while re-creating a connection to the river in downtown Tampa.

Transportation: Landscape Award Winner

Award of Honor: State Road 836 Welcome Gateway, Miami, Florida

Owner: Dade Expressway Authority

Designer: Leticia Fernandez-Beraud, Fernandez-Beraud, Inc.

Installation: Arazoza Brothers Corporation

Maintenance: Arazoza Brothers Corporation

The 50 acre Welcome Gateway is sited on 1,200 linear feet of the inter-median, and the north and south right-of-ways of State Road 836 in Miami-Dade County, roughly two miles west of Miami International Airport.

The right-of-ways are engineered as dry pond detention areas, serving as collection basins for rainwater and runoff from the roadways and their surrounding tributary areas. As a result, no artificial irrigation of the site is needed. Ground conditions are similar to some found in the natural Everglades habitats which the project's design elements mimic and express. Among the plant combinations in the landscape palette are large fields of muhly and Fakahatchee grasses, integrated with various palms and native tree species.

Underlying the development of the landscape plan are principles and directives taken from the Expressway Authority's Aesthetic Guidelines. These Guidelines clearly define the Authority's intention for developing enhanced roadways that offer a more appreciable experience for those who travel upon them. Enhancements include right-of-way beautification, noise mitigation, landscape improvements, large-scale sculptural works, novel architectural approaches, greenways, bike paths and roadside parks. The Welcome Gateway satisfies several of these principles, and also promotes landscape concepts that define the South Florida Region. Among these concepts are the use of indigenous plants appropriate to the environmental conditions of the roadways, native tree canopies, Xeriscape planting principles that conserve water, and an increase of natural masses of native trees, shrubs and groundcovers.

To participate in the 2012 *Design With Natives* program, visit www.fnps.org.

Click on the [Awards and Grants](#) link, and navigate to [Landscape Awards](#) to download the [Landscape & Restoration Awards Application](#).



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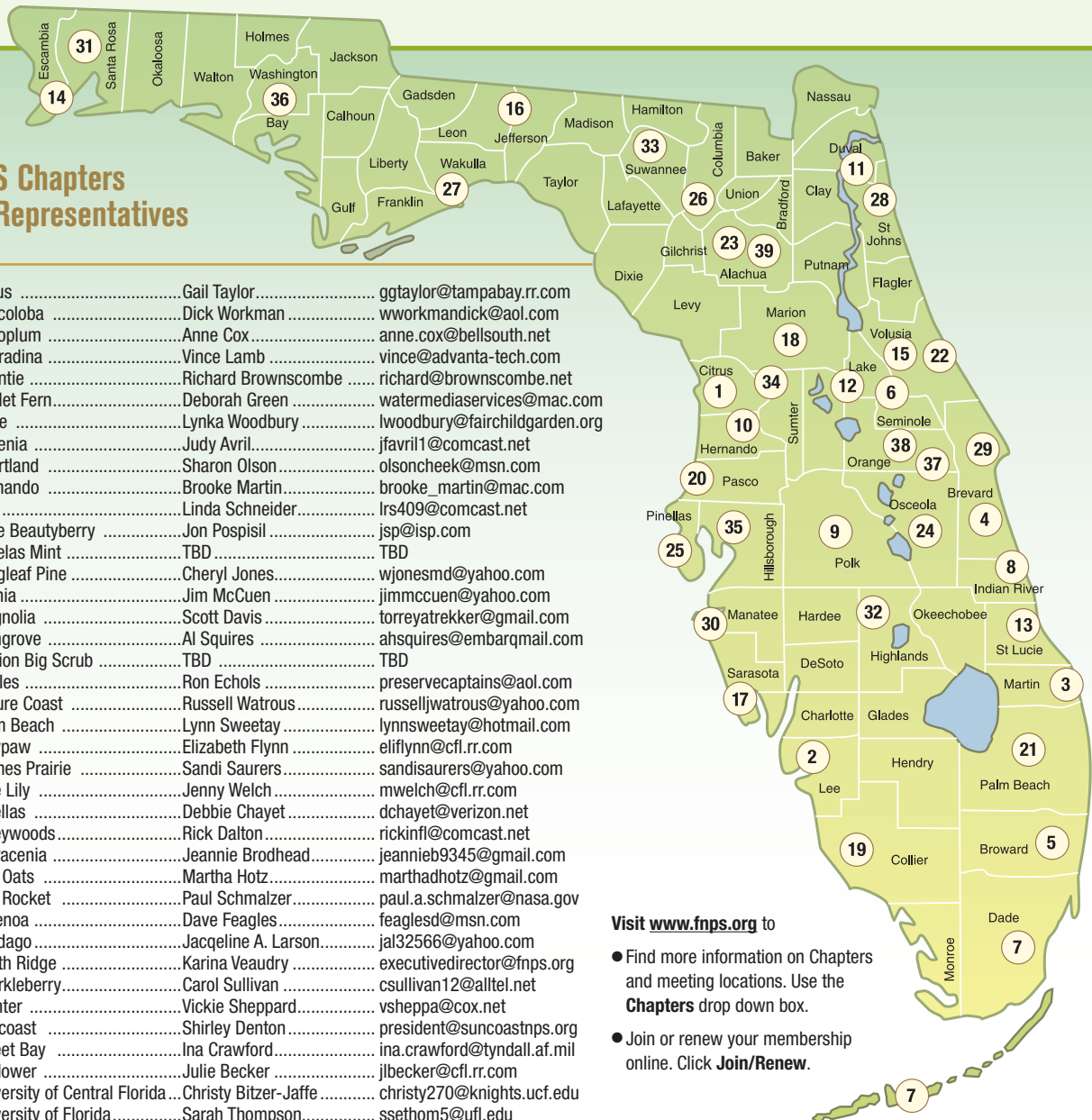
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The Palmetto

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Editorial Content

We welcome articles on native plant species and related conservation topics, as well as high-quality botanical illustrations and photographs. Contact the editor for guidelines, deadlines and other information.

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The purpose of the Florida Native Plant Society is to conserve, preserve, and restore the native plants and native plant communities of Florida.

Official definition of native plant:

For most purposes, the phrase Florida native plant refers to those species occurring within the state boundaries prior to European contact, according to the best available scientific and historical documentation. More specifically, it includes those species understood as indigenous, occurring in natural associations in habitats that existed prior to significant human impacts and alterations of the landscape.

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