

The Quarterly Journal of the Florida Native Plant Society



Palmetto



Save the Date for the 2023 Annual Conference

Life wouldn't be here today without *adaptation*, and we live in an age where change is coming fast and on many fronts. This year's Conference is both an exploration of this theme and a practice of it. We hope you'll join us online for a selection of presentations on how our ecosystems, yards, and we ourselves can change and shift. With the rapid development of Florida, we're fortunate to have two keynote speakers – Doug Tallamy and Jeff VanderMeer – who will delve into the movement to make our home landscapes part of the larger natural landscape. We'll also review changing plant communities, plant evolution, climate effects, wildlife interactions, business developments, emerging research, and collaborate on actions we can take.

FNPS Conferences are a doorway to new research, new ideas, and new people, with a bit of fun and games mixed in. This edition of the *Palmetto* touches on some of what this year's Conference has in store for you. I appreciate the benefits of the virtual conference platform, which has kept us together these last few years, and I'm glad that we've added exciting in-person Field Days this year. I'm also excited to reveal planning is now underway for our dynamic 2024 Conference happening in Gainesville! Thank you for joining us on this journey.

– **Athena Philips, Conference Co-Chair**



New in 2023: In-Person Conference Field Day Events



Tall Timbers Research Station and Land Conservancy. Photo by Shane Wellendorf.

After the virtual conference weekend, participants are invited to enjoy in-person festivities at three different Field Day events. Each is unique, showcasing different Florida habitats and the chapters that make up our Society. This year you can experience the Panhandle, Central Florida and Southwest Florida all in one Conference. Field trips, socializing, lectures, food, plant sales, and more – these events are an opportunity not to be missed!

Trip details are still under development, so visit the FNPS website to find out more and to register for your favorite Field Day: <https://www.fnps.org/conference/register>.

May 6-7: Naples Field Days

In Collier County you can still find the spark of 'Old Florida', where development falls away to majestic cypress domes and awe-inspiring pine flatwoods. Join the Naples Chapter in discovering two such areas. On Saturday, explore mixed wetland hardwoods, cypress, hardwood hammocks, and mesic pine flatwood during a hike at the Dr. Robert H. Gore III Preserve. After the hike enjoy lunch and a presentation by the Florida Wildlife Federation. This trip ends with a tour of Dr. Robert Gore's incredible home by Gore Nature Center staff where you will learn about his vision to maintain southwest Florida's unique flora and fauna.

On Sunday visit the 7,271-acre Collier-Seminole State Park, which contains a mix of both tropical and temperate native plant communities, including a rare stand of royal palm trees. Additional plant communities include mesic pine flatwoods, cypress strand, tropical hardwood hammock, and salt marsh. Choose to either hike the trails or join a hands-on demonstration where you can learn how to make your own pine needle basket with environmental educator Heather Gienapp, using

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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.

MEMBERSHIP

Make a difference with FNPS

Your membership supports the preservation and restoration of wildlife habitats and biological diversity through the conservation of native plants. It also funds awards for leaders in native plant education, preservation and research.

Memberships are available in these

categories: Individual; Multi-member household; Sustaining; Lifetime; Full-time student; Library (*Palmetto* subscription only); Business or Non-profit recognition.

To provide funds that will enable us to protect Florida's native plant heritage, please join or renew at the highest level you can afford.

To become a member:

Contact your local chapter, call, write, or e-mail FNPS, or join online at <https://fnps.org>

The purpose of the Florida Native Plant Society

is to preserve, conserve 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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In Memoriam

Dr. Loran C. Anderson

February 7, 1936 - December 24, 2022



Dr. Loran C. Anderson. Photo by Lilly Anderson-Messec.

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Clockwise, from top left. Coastal Plains Institute, Apalachicola Lowland Preserve, photo by Rebecca Means. *Mcbridea alba*, photo by Ryan Means. *Sarracenia rosea*, photo by David Roddenberry. Tall Timbers Research Station and Land Conservancy, photo by Shane Wellendorf. *Sandhill in Design - Plate II* © 2023, painting by Peter R. Gerbert. Caterpillar of the Polyphemus moth, photo by Marc C. Minno.



Figure 1. A female Polyphemus moth (with rain drops). Note the relatively small antennae.

Figure 2. A male Polyphemus moth showing the magnificent, feathery antennae.

Discovering Host Plants of the Polyphemus Moth in Florida

Article and photos by Marc C. Minno, PhD

More than 3,000 kinds of moths (insect order Lepidoptera) are known to occur in Florida. They range in size from teeny-tiny leaf miners whose adults are just a few millimeters in wingspan to giant silk moths (Family Saturniidae) which may be six inches or more from wingtip to wingtip. A few fly in the daytime, but most sleep by day and become active at night. Whereas butterflies are relatively well-known in Florida, there is much to discover and wonder about moths!

The focus of this article is the Polyphemus moth (*Antheraea polyphemus*), a very large, distinctive, and handsome species of giant silk moth. The wings are a warm brown color with pink and charcoal lines and large owl-like eyespots on the hindwings (Fig. 1). Perhaps you have seen one perched on a porch light or at a gas station at night?

The Polyphemus moth is a common species of forests and woodlands in Florida, except the Keys. It also occurs throughout much of the United States and southern Canada. Although this is one of our largest moths, little is actually known about the Florida population. Adults occur throughout the year but are especially common in spring and late summer into fall.

This may seem odd but Polyphemus

moths are ephemeral and only live for about a week as adults. Pollinator gardens are of no use to these moths because their mouth parts are not functional. Since they cannot eat, the adults are not attracted to flowers. They rely on fat reserves and nutrients acquired during the larval stage. Males are in a hurry to find mates and females to lay eggs. With their large antennae (Fig. 2) the males can find recently emerged females emitting pheromones up to several miles away.

The eggs take two weeks or more

to develop. The first stage caterpillar emerges through a hole it chews in the egg shell. The caterpillars (Fig. 3) eat the leaves of trees and shrubs and go through five larval stages. It takes five or more weeks for the caterpillars to finish feeding and spin cocoons of silk around themselves in which to form the pupal stage. Some Polyphemus moth caterpillars attach the cocoon to a twig with silk (Fig. 4). Others form their cocoons only in leaves and eventually fall to the ground when the leaves are shed.

Which plants do Polyphemus moth caterpillars eat in Florida? I have been trying to answer that question by searching trees and shrubs for cocoons. Cocoons attached to twigs (often on the lower branches of large trees) will hang for months, maybe years, after the adult has emerged.

It is easiest to spot the cocoons in December through February when many woody plants are without leaves. The oval-shaped cocoons are about 1.5 inches in length. In sunshine, the whitish silk stands out from brown leaves making them relatively easy to find with a little practice. I can often spot the cocoons on willows growing in roadside ditches as I'm driving. Other drivers often become annoyed as I yell "Stop! There's a Polyphemus cocoon!"



Figure 3. The last stage caterpillar of the Polyphemus moth (here feeding on oak) seems to glow bright green.

Oaks, river birch, and willows are preferred hosts in Florida, but Heppner et al. (2003) list nearly 40 species of trees and shrubs reported as host plants of the Polyphemus moth from throughout its range. Elsewhere pines, pear, plum, apple, grape, sycamore, sassafras, basswood, black walnut, hickories, tuliptree, loblolly bay, and roses have been reported as hosts. Are these and other plants also eaten in Florida?

I need your help with this project!

If you find a Polyphemus moth cocoon attached to a tree or shrub, I would greatly appreciate the specimen. Just clip the cocoon and twig from the plant and place it in a small plastic bag with a label (include collector's name, date, plant name, and location – Florida county and place). Mail the specimen in a padded envelope to my address below.

The specimens will be donated to the Florida Museum of Natural History in Gainesville for other scientists to study. I am also happy to receive photos of the caterpillars or cocoons with the host plant and other information. I am waiting to see what hosts you will discover!

References

Heppner, J.B. in collaboration with W.L. Adair, Jr., H.D. Baggett, T.S. Dickel, L.C. Dow, T.C. Emmel, and D.H. Habeck. 2003. *Lepidoptera of Florida*. Part 1. Introduction and catalog. Florida Department of Agriculture and Consumer Services, Arthropods of Florida and Neighboring Land Areas 17: x + 670 pp.

About the Author

Marc C. Minno has studied butterflies and moths for most of his life. He received a BS degree in entomology from Purdue University, an MS degree in entomology from the University of California at Davis, and a PhD in zoology from the University of Florida. He is the author of several books including *Florida Butterfly Gardening: A Complete Guide to Attracting, Identifying, and Enjoying Butterflies*, and *Florida Butterfly Caterpillars and Their Host Plants*.

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Figure 4. A spent cocoon of the Polyphemus moth. Upon emergence from the pupa, the adult moth dissolved the silk at the top of the cocoon with special enzymes, then pushed its way out to dry its wings. A hole on the side of the cocoon would indicate bird attack. Smaller holes would be from parasitic wasps.

Field Day Events (CONTINUED FROM PAGE 2)

an age-old technique based on the pine needle crafts made by the Calusa and other indigenous peoples.

May 13-14: Tallahassee Area Field Days

The Magnolia, Sarracenia, and Sweetbay Chapters invite Conference participants to visit restoration successes in the Florida Panhandle. A choice of two field trips are offered each day. On Saturday, visit Helen Roth's 100-acre Spring Canyon property, with steephead ravines and old-growth, cat-faced longleaf pines. More than 50 acres of longleaf pine and wiregrass savannas are being restored here and the 2.5-mile hike around the property involves multiple elevation transitions between upland areas and bridges across seepage streams.

Alternatively, choose a 3-mile wagon tour of Tall Timbers Research Station and Land Conservancy, a former plantation now managed for wildlife and native plant diversity. See mature pine forests and visit Herbert Stoddard's historic fire research plots. After the field trips, enjoy programs and dinner, and socialize with old and new friends.

On Sunday, visit one of two sites in the Apalachicola National Forest (ANF). Hike 3 miles through the Apalachicola



A glorious vista at Spring Canyon. Photo by Helen Roth.

Lowlands Preserve, an 80-acre private inholding within ANF. The preserve is a majestic open-canopy mesic pine flatwoods with a biologically diverse herbaceous groundcover. Seventeen state or federally listed rare or endemic plants species are on the property. Streams, ephemeral wetlands, and seepage slope bogs are embedded within the pinelands.

You may prefer to walk along forest roads through mesic flatwoods and wiregrass savannas in the ANF. Recent prescribed burns have stimulated flowering in these

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Get on the MAP With Homegrown National Park

Eugene Kelly

Imagine you wake up in the morning and decide you'd like to spend some time in a national park. So you climb out of bed, pour a cup of coffee, open your back door – and you're there! This isn't just some whimsical fantasy. I do it myself every morning. That's because my backyard, and my front yard too, are part of the Homegrown National Park (Fig. 1). My small corner of the Park will never rival Yosemite's scenic splendor or the botanical richness of the Great Smoky Mountains. But when I open my back door, the bird song and textured tapestry of green beyond it provide ample testimony that nature resides here too.

Homegrown National Park (HNP) is a non-profit organization co-founded by Doug Tallamy and Michelle Alfandari. It is a science-based, grassroots call-to-action dedicated to addressing the biodiversity crisis and widespread loss of ecosystem function afflicting the United States – one yard at a time – by using native plants in landscaped areas. If you recognize Doug Tallamy's name, it may be because he has served as a keynote speaker at FNPS conferences, or because you've purchased one of his several books that encourage us all to “bring nature home”. And that is the ultimate goal of the HNP; to invite nature to return to our homesites and places of business by simply restoring some of the native plants that nature requires to survive.

Members of the Florida Native Plant Society are pretty well-versed on the many benefits of native plants, relative to their non-native cousins. Many already have yards or landscapes that would qualify to be registered as part of the HNP, and to be on the MAP (<https://map.homegrownnationalpark.org/Plantings/Map>). Yes, there is a map (Fig. 2) and at present, it does not reflect well on Florida. FNPS members can help.

The HNP's team says, “We are thrilled to be connected with the Florida Native Plant Society community and included in this edition of the *Palmetto!* 537 Floridians have become HNP Fireflies and lit up our MAP with a total of 797.03 acres of native plantings. This is a great start, but it presently comes in 33rd in the MAP's state rankings. We need to mobilize millions of people to successfully regenerate biodiversity, so please spread the word about HNP, get on the MAP, and encourage others to do the same. Every square foot of native plants counts!”

What are the requirements for inclusion in the HNP? You must commit to installing native plants, and eliminating or controlling any invasive nonnative plants that may be present. There is no requirement that nonnative plants must be excluded from your landscape. If you live in a condo, and can only



Figure 1: Florida Native Plant Society director at large Eugene Kelly put his yard on the MAP and printed out a sign to share his excitement about being part of Homegrown National Park. Photo by Eugene Kelly.



Figure 2: The Homegrown National Park map. In Florida, fewer than 1,000 acres of native plantings have been added to the map, and Florida is ranked 33rd among the 50 states in total plantings. We encourage all FNPS members to increase these numbers by adding their landscapes. To view the real-time map, visit <https://map.homegrownnationalpark.org/Plantings/Map>.

contribute container-grown plantings, you can still qualify. It just means the planted area you can contribute to the cause will be smaller. As HNP has noted – every square foot counts.

If you have doubts about the potential real-world significance of the HNP project, consider that lawns alone account for a total land area of more than 40 million acres in the United States. That makes lawns our single largest irrigated

crop. Some areas of lawn serve a useful function, perhaps as ball fields or playgrounds. But much of that turf just consumes massive inputs of “maintenance” – fertilizer, pesticides, water, and mowing – while returning little or nothing of ecological value. The current landscaping paradigm is designed essentially to evict nature. HNP promotes its return.

Imagine if just half of that 40 million acres of lawn was converted to plantings that could be incorporated into the HNP. 20 million acres is equivalent to roughly 13 Everglades National Parks. Imagine your neighbor adding their yard to yours as part of the HNP, and your neighborhood eventually becoming a checkerboard of segments of the HNP. Pollinators, other beneficial insects (including many that are yummy to birds) and birds themselves will be able to leap-frog from one inviting yard to another, all across the United States!

The initial HNP goal is to achieve 20 million acres in

plantings, but there are currently fewer than 60,000 acres of HNP plantings nationwide. And in Florida? To reiterate the figures, we are still below 1,000 acres in total plantings and ranked 33rd among the 50 states. We know FNPS members can change that calculus just by going to the HNP website, registering your yards that already qualify for inclusion, and putting yourself on the MAP. If your yard or landscape does not qualify for the HNP, simply commit to planting natives and quantify the land area you will plant. There are no inspections or contracts involved, and it is free! HNP is pure grassroots, sans some of the grass.

We are challenging FNPS members to make their yards part of HNP. To get on the MAP, and make the map of Florida a bit greener. To encourage a new paradigm that will “bring nature home”. And to be part of “the largest cooperative conservation project ever conceived or attempted.”

The Florida Native Plant Society Landscape Awards are Back!

Patricia Burgos

This year saw the revival of the Landscape Committee, with enthusiastic members coming together to realize the FNPS vision to provide education and information about native plant landscapes to the public. Members also recommended merging the Education and Landscape Committees into a single committee, considering their common objectives and projects.

Showcase the Beauty of Native Plants Landscape Awards

The Education and Landscape Committee (ELC) is pleased to announce the new 2023 FNPS Landscape Awards, titled *Showcase the Beauty of Native Plants*. We are seeking applications that will demonstrate the best native landscapes from across the state, from residential to commercial landscapes and from large-scale restoration sites to small-scale wildlife and butterfly gardens. We encourage chapters, businesses, professionals, and individuals to nominate their own landscapes or to seek out showcase landscapes that can highlight the benefits of native plants.

The deadline for submission is August 1, 2023. A link to the applica-

tion and submittal requirements will be posted on the FNPS website, Facebook page and YouTube channel.

Winners will be announced on October 1, 2023, kicking off the FNPS campaign to promote October as Native Plant Month and highlighting events and promotions scheduled for the month at chapters around the state.

Upcoming articles in *Palmetto* will provide a “deep dive” into the Landscape Awards criteria, highlight the Education and Landscape Committee, recall past winners of the Landscape Awards, and describe exciting future projects. Look for more information about the awards on the FNPS website at www.fnps.org!



An example of an award-winning landscape. The City of Sanibel Native Demonstration Garden received an Award of Excellence from the Florida Native Plant Society in 2022. The demonstration garden contains 75 species of Florida native plants. Photo courtesy of the City of Sanibel.

Growing Florida’s Carnivorous Plants

Sarracenia rosea.
Photo courtesy
of Kenny Coogan,
*Florida’s Carnivorous
Plants* (Lanham, MD:
Pineapple Press, 2022).



Currently Florida has 32 species of native carnivorous plants and one non-native species. Some are restricted to the Panhandle, others to the southern tip, and some live within the peninsula. To grow them in your backyard it is best to replicate their natural environment.

Although we have many genera in the state, the plants that are most often grown in cultivation require similar growing conditions. These plants have evolved to live in nutrient poor soils that have pure uncontaminated water. *Sarracenia* species (North American pitcher plants), *Drosera* species (sundews), *Pinguicula primuliflora* and the non-native *Dionaea muscipula* (Venus fly-trap) are commonly found at plant sales and online nurseries.

Use rainwater, distilled water, or reverse osmosis water only. Tap, well and city water is usually not pure enough. If you have a

Growing Guide for Florida Species of Carnivorous Plants				
	Bladderworts <i>Utricularia</i> species	Butterworts <i>Pinguicula</i> species	North American Pitcher Plants <i>Sarracenia</i> species	Sundews <i>Drosera</i> species
Dormancy	May stop flowering in colder months, but do not require a true dormancy.	Do not require dormancy and should be protected from frost to maintain growing year-round.	All require cool temperatures. Reduction in light from Thanksgiving to Valentine's Day allows them to recharge.	Three Florida species (excluding <i>D. brevifolia</i> and <i>D. capillaris</i>) produce hibernacula in winter.
Habitat Range	Found throughout Florida	Found throughout Florida	Found on the east coast of North America from Canada to mid Florida.	Found throughout Florida
Indoors	Aquatic and terrestrial species can be kept indoors but will require a grow light.	Do not do well indoors.	<i>S. rosea</i> could be kept indoors with a grow light. Would still require a dormancy period. Do best outdoors.	Will require grow lights, or bright south facing window.
Light	Full sun	Part sun	Full sun	Full sun
Pots	3-inch plastic or glazed pots for one mature clump of terrestrial species. For aquatic species, the larger the container the more the conditions will be buffered. While I have started small species in glass jars, they do best in one-gallon vessels, while larger species require small ponds or large aquariums averaging 50 gallons or more.	4-6 inch plastic or glazed pots with drainage for one adult plant. Wider pots allow some species, like <i>P. primuliflora</i> to pup out easier. If kept in undrained pots do not inundate.	8-inch plastic or glazed pot for one mature plant. Move them up to larger pots slowly. They can be divided and transplanted every 3-5 years	3-inch plastic or glazed pots with drainage for one adult plant.
Soil	Terrestrial plants can be kept in a rough continuum of one part sphagnum peat moss to one part sand.	Equal parts play sand and sphagnum peat moss. Combinations of peat, sand and perlite are also suitable.	All sphagnum peat moss, or equal parts sphagnum peat moss and sand.	Can be kept in a rough continuum of one part sphagnum peat moss to one part sand, or grown in 100% sphagnum moss.
Water	For terrestrial species use tray method. For aquatic species use pond water with peat moss as a substrate to reduce algae growth. Aquatic <i>Utricularia</i> do well with other aquatic plants which help maintain water parameters.	Use tray method, keeping damp to wet throughout the year.	Keep a dish underneath the pot to keep soil very damp. Have them sit in 1 inch of water during the growing season and less during dormancy.	Use tray method, keeping damp to wet throughout the year.

water test, the reading should be 50 parts per million or less of total dissolved solids. I use rainwater collected off shingled and metal roofs and the measurements are usually 0-10 ppm. Measurements higher than 50 ppm will cause minerals, salts, and contaminants to build up in the soil and kill your plants.

Sarracenia species, naturally occurring hybrids, and man-made hybrids have been popular since the Victorian era. Many non-carnivorous plant vendors purchase them as tissue-cultured plugs and sell them without any growing advice. All except *Sarracenia minor* are restricted to the Panhandle. Large deep pots are best to keep their roots cool, while providing them with enough full sun to keep the top of the plant happy. The best way to grow these (and many of the other native carnivorous plants) is to grow them in large bogs

made from pool liners, kiddie pools or claw footed tubs. If you want to grow them in areas that experience warmer winters than their natural range, digging up mature plants from Thanksgiving to Valentine's Day and placing them in the refrigerator is recommended. Here in Tampa with the Gulf moderating our winter temperatures, I soak them in a fungicide for 20 minutes (follow the instructions) and then place the damp rhizome in a zip-lock bag with a bit of sphagnum moss. They go in the crisper drawer for a few months. My friends who live in Ocala experience enough freezing temperatures for them to grow their plants continually outside. Without dormancy plants gradually decline and they also are more prone to pests and diseases. Young *Sarracenia* plants – like those commonly found at plant sales – can skip dormancy

Table: Kenny Coogan, *Florida's Carnivorous Plants* (Lanham, MD: Pineapple Press, 2022)

Venus Flytrap (NOT NATIVE TO FLORIDA)
Dionaea muscipula

If grown outside, plants will slow down in winter. If kept inside, maintain a 12-16 hour photoperiod and feed often to keep plants healthy.

15 counties in North Carolina and 1 county in South Carolina. Allochthonous population in Liberty County, Florida.

Can be kept indoors, but only if given a grow light.

12-16 hours bright, direct sun/grow lights during growing season.

5-inch plastic or glazed pot for one mature plant. Venus flytraps do best when transplanted into a fresh substrate every 1-2 years to prevent soil from accumulating salts and minerals.

Plants can be kept in a rough continuum of one part sphagnum peat moss to one part sand. Can also be grown in 100% sphagnum moss.

Keep a shallow dish underneath the pot to keep soil damp in the winter months and wet in the summer. Plants should only sit in a little bit of water. Even though they do best wet, Venus flytraps are usually found in areas with low water tables. For plants grown indoors keep the soil damp year round.



Carnivorous plants can be grown in a variety of containers. Photo courtesy of Kenny Coogan, *Florida's Carnivorous Plants* (Lanham, MD: Pineapple Press, 2022).

Editor's Note: When growing native plants in the home landscape, it is best to plant regionally appropriate natives. Ensure plants located outside of their native ranges do not interfere with native populations.

Growing Carnivorous Plants (CONTINUED FROM PAGE 9)

for the first year or two without any harm. Venus flytraps require the same growing conditions as *Sarracenia*.

Pinguicula primuliflora has recently entered tissue culture and is now being mass produced. While some Mexican species of *Pinguicula* do great on windowsills, I found that this native species does better outside. A tall 8-10 inch pot, sitting in 1/4-1/8 inch of water during the summer works well. I keep them a little drier in the winter time. They are prone to root rot, but they produce several pups on each arm. I gently pull these off and start separate pots and colonies to ensure I always have backups. I have grown them successfully in Central Florida without putting them through dormancy for over ten years.

Drosera species that are native to Florida are easy to care for. Some are short lived perennials, so do not be sad if they only live a few years. They flower often and produce seed. In central Florida, *Drosera filiformis*, *D. tracyi* and *D. intermedia* all die back to their hibernacula (winter resting bud) in the fall and winter months regardless of temperatures.

At the 42nd Annual FNPS Conference I will be doing a presentation on how to propagate Florida's native carnivorous plants. I hope to see you (virtually) there!

References

Coogan, Kenny. 2022. *Florida's Carnivorous Plants*. Lanham, MD: Pineapple Press.

About the Author

Kenny Coogan has a Master's Degree in Global Sustainability and is passionate about Florida's wildlife and plants. His professional experience with carnivorous plants started 17 years ago when he cofounded the Western New York Carnivorous Plant Club. He has been in Tampa, Florida for 11 years and has published over 400 articles on livestock and gardening for publications including *Mother Earth News*, *Countryside*, *Hobby Farms*, *Backyard Poultry*, and *Florida Gardening* magazines. He also co-hosts the *Mother Earth News and Friends* podcast and the WMNF 88.5 *Sustainable Living* show. Coogan is an active member with the International Carnivorous Plant Society, currently serving as the education director. He runs a successful carnivorous plant nursery in Tampa, Florida.

To learn more and purchase carnivorous plants visit kennycogan.com
To see what plant sales he will be vending at visit his social media sites:
www.youtube.com/@CritterCompanionsbyKennyCoogan/
www.instagram.com/crittercompanionsbykennycogan
www.facebook.com/CritterCompanions

CONFERENCE PANEL SESSION

Florida's Native Plant Industry: Challenges and Opportunities

Cammie Donaldson, Executive Director, Florida Association of Native Nurseries

In the past 42 years, the Florida Native Plant Society and its like-minded allies have done an amazing job in creating public awareness of native plants and their importance in our lives. This tireless advocacy has contributed mightily to what we see today: more native plants being grown than ever before, demand for the plants at an all time high, and more native plants in landscapes around us. But still, there has not been enough progress to satisfy those of us who comprehend the many environmental problems native plants solve. Too many people still have to drive for hours to find the plants they want. The need for these plants is critical. Why is availability limited?

- What drives the supply of native plants and what constrains it?
- Why does your landscape company say they can't find the plants?
- Why aren't the plants at your local garden center or box store?
- Why aren't growers of non-native plants growing more native plants?

- What is happening to expand access to native plants? What could happen?
- What are the threats and opportunities that face this tiny but vital industry?

Gain insight into these questions and more in a moderated discussion with four members of FANN (Florida Association of Native Nurseries), a trade association for growers, retailers, landscape professionals and others in the business of native plants. Collectively, the panel represents nearly 130 years of professional experience growing and selling native plants. Each panelist operates in a different space in this niche industry, including a large wholesale grower of palms, an urban garden and landscape center, a rural farm supporting pop-up sales, and a nonprofit supplying plants as part of their mission to protect local ecosystems.

Conference attendees can submit questions during the event. If you would like to submit a question in advance for consideration by the moderator, use the contact form at the FANN.org website.



Panelists: Clockwise from top left: Jenny Evans, FNPS Cocoloba Chapter, FANN President, and Native Landscapes and Adult Education Director, Sanibel-Captiva Conservation Foundation; Danny Perkins, FNPS Cocoloba Chapter, owner, Perkins Direct Step (formerly Perkins Nursery); Bruce Turley, FNPS Pinellas Chapter, FANN past president, Native Plant Horticulture Foundation president, former owner of Wilcox Nursery and Landscape; Heather Blake, FNPS Sparkleberry Chapter, Owner of Natural Treasures Farm and Nursery.

2023 FNPS Silent Auction: A Charity Auction Event

The Florida Native Plant Society Silent Auction will be virtual and will be held online at Biddingowl.com. We have a great selection of donated items and more will be added to the list before bidding opens. Here are a few of the items available:

- Three different fine art prints by wildlife artist Peter R. Gerbert.
- Tickets to Zoo Tampa at Lowry Park, Butterfly World in Coconut Creek, the Museum of Science and Industry in Tampa, and the Butterfly Rain forest at the Florida Museum of Natural History in Gainesville.
- Two \$100 gift certificates to Green Isle Gardens in Groveland.
- Two photographs from artist Adam Arendell.
- Two beautiful planters full of native butterfly nectar and host plants donated by Sweet Bay Nursery in Parrish.
- A butterfly rearing cage from Native Nurseries of Tallahassee.
- A kayak trip for two from A Day Away Kayaks in Titusville.
- Gift certificates to Shula's Steakhouse in Naples, Abuela's Mexican Restaurant in Kissimmee, and the St. Augustine Alligator Farm and Zoological Park.



A few of the amazing items up for bid. Left: A fine art print donated by Artist Peter R. Gerbert, *Sandhill in Design - Plate II* © 2023 Peter R. Gerbert. Acrylics. This signed and numbered print includes Florida's official wildflower, *Coreopsis*. Right, top to bottom: Butterfly rearing cage donated by Native Nurseries, photo by Jenny Welch; native nectar and host plants, photo courtesy of Sweet Bay Nursery.



We are still in need of items for the Silent Auction. If you or your chapter would like to donate, please contact Jenny Welch at flnaturegirl@yahoo.com.

Field Day Events (CONTINUED FROM PAGE 5)

biologically diverse grasslands. Plants in bloom may include yellow meadow beauty (*Rhexia lutea*), Tracy's sundew (*Drosera tracyi*), and orchids (*Calopogon tuberosus* and *C. pallidus*). Plants specific to the ANF area that we may see include Chapman's crownbeard (*Verbesina chapmanii*), Gulf purple pitcherplant (*Sarracenia rosea*), and Henry's spiderlily (*Hymenocallis henryae*).

May 19-21: Central Florida Field Days

The FNPS Cuplet Fern Chapter has three days of native plant-focused experiences planned for you. On Friday night, meet at Dees Brothers Brewery for socializing with other native plant enthusiasts, plus drinks, food and fun.

Saturday morning you'll enjoy one of three different field trips. Choose from Bear Creek Nature Trail (for serious hikers), Ed Yarborough Nature Center, or Spring Hammock Preserve. After the field trips meet for a buffet lunch and learn about 'Adaptations' in Seminole County. Presentation topics

include Florida Friendly Landscapes, Seminole County natural lands, and local environmental restoration activities. In the evening move to the nearby Museum of Seminole County History in Sanford for a Plant Sale Soiree, where you can listen to music, enjoy light food and drinks, and shop for native plants.

Sunday morning starts with a short welcome presentation followed by breakfast at Lukas Nursery, where you will tour the new native plant area. Registration includes entry to Lukas Nursery's Butterfly Encounter, a year-round conservatory that lets you mingle with "flying flowers" – butterflies, exotic finches and quail.

To participate in Field Days, you must be registered for the FNPS Conference.

Visit the FNPS website for more detailed information on the Field Days and to register: <https://www.fnps.org/conference/2023>.

Adapting to the Future: Sea Level Rise, Resilience, and Living Shorelines

Marjorie Shropshire and Vincent Encomio

CONFERENCE PRESENTATION

Florida: Setting the Stage for Disaster

Florida has over eighty unique ecosystems and 8,460 miles of tidal shoreline (UF/IFAS Extension 2021). But large parts of the state have been subjected to rampant development without regard to the effects on the natural world. Salt marsh, mangrove, and oyster habitat loss is extensive. For example, according to the Florida Natural Areas Inventory (2010) between 1950 and 1980, nearly half the salt marsh in the Charlotte Harbor and Tampa Bay area was destroyed by development activity, and in the Indian River Lagoon, roughly 70% of mangrove areas have been lost due to mosquito control impoundments built for human use (Dybas 2002). On Florida's west coast, Naples Bay has lost 80% of its oyster reefs since 1950, while oyster reef habitat has decreased by 99% in southeast Florida (Wallace et al. 2022).

Florida is faced with many challenges, and among the most serious is increased coastal development combined with accelerating sea level rise. Although the rate of sea level rise varies geographically, NOAA tidal station data from Key West and Virginia Key indicate that sea levels have increased eight inches since 1950, and the speed of sea level rise has

accelerated to one inch every three years. These problems are not limited to the southern regions of Florida – tidal flooding has increased 352% statewide since 2000. Sea level rise threatens both people and natural ecosystems (SeaLevelRise.org, n.d.).

Armoring the Coast

With increasing coastal development, armored shorelines have become commonplace.

Armoring includes engineered structures like seawalls and bulkheads, as well as riprap (rock material placed on shorelines to reduce erosion). As of 2015, 14% (22,000 km) of the coastline of the United States was armored, and at the rate of about 200 km/year, armored shoreline will double by 2100. Sadly, most armoring has been placed along sheltered shorelines where greener, nature-based solutions could have been implemented (Gittman et al. 2015).

Armoring has significant negative effects on natural systems since it “converts coastal landscapes from a heterogeneous mosaic of natural habitats to human-dominated landscapes with homogenized, fragmented habitat” (Bilkovic et al. 2017). Its major effect is to sever the vital connection between land and water, leading to increased erosion, habitat loss, poor water quality, and increased turbidity due to suspended sediments. It can also reduce the ability of an ecosystem to rebound from disturbance. This loss of resilience is especially troublesome in the face of sea level rise, and it applies to communities as well as habitats.

A Green Approach

As coastal armoring increased, its negative impacts became more profound. Meanwhile, knowledge of the ecosystem services provided by nature grew, as did concern about the extent of habitat loss. Beginning in the 1970s, more natural methods of coastline protection were developed, and the living shoreline concept was born. Initial efforts by W. W. Woodhouse, Edgar W. Garbisch, and others on Maryland's Eastern Shore involved using dredge material combined with smooth cordgrass (*Spartina alterniflora*) and salt meadow cordgrass (*S. patens*) to stabilize a shoreline (Woodhouse et al. 1974, Garbisch et al. 1975). Since then, the concept has become more widely used, and a variety of green infrastructure techniques have been explored.



A failing armored shoreline along the Indian River Lagoon. Photo by Marjorie Shropshire.

Florida, however, is behind the curve in implementing living shorelines, especially at the private landowner level.

Living Shorelines: What Are They?

Living shorelines are human-designed constructs that focus on satisfying human and ecological goals. They incorporate natural materials, and their attributes are based on naturally occurring habitats like mangrove forests, salt marshes, and oyster reefs. Natural systems are dynamic and allow water, sediment, plants, and animals to move freely between land and water. Although living shorelines maintain this natural connectivity, they do not provide the same level of function as natural systems and should never be considered a replacement for natural shorelines.

Types of Living Shorelines

Living shorelines vary according to their location and site parameters. Those in low-energy areas might use vegetation in the intertidal zone to buffer upland areas from small waves. Sites with higher wave energy might require added structures like sills or breakwaters to reduce wave action and aid in sediment retention and accretion. Two types of living shorelines are commonly used – nature-based and hybrid systems. To see a range of shoreline protection techniques in these categories, visit http://www.sagecoast.org/docs/SAGE_LivingShorelineBrochure_Print.pdf.

Nature-Based Living Shorelines

Suitable in protected locations with gradual slopes and small waves, nature-based living shorelines incorporate natural elements like mangroves, smooth cordgrass, and oyster reefs. Depending on the site, simply adding plants may be enough to decrease erosion. As plants and oysters grow, the shoreline becomes more stable and resilient to sea level rise and tidal flooding. As a bonus, sediment may collect on the shoreward side of these living building blocks, essentially growing the shore. Nature-based systems are the easiest to install, and unlike seawalls, they improve over time.

Hybrid Living Shorelines

Hybrid systems combine natural elements with hard infrastructure and are suitable for sites with medium energy

and a less gradual slope. They may be used to retrofit existing seawalls to increase habitat, shore up a failing structure and increase its lifespan, or for aesthetic reasons. A common structural element is coquina riprap, which is natural to Florida and provides habitat for plants and animals, including oysters. Riprap can be placed inshore of oyster reefs and intertidal plants or added to the front of an existing seawall to decrease wave-driven scour that can undermine the structure's base.

Hybrid systems are effective on canal front properties that have limited lateral space, including those with seawalls. Coquina stone can be placed at the base of the seawall or used to construct mangrove planters that are decorative and functional. A hybrid system might also incorporate wall inserts or sculpted panels attached to the face of the seawall. These are aesthetically pleasing, increase surface area for fish and invertebrates, and can retrofit a barren canal front shoreline into a refuge for small creatures.

Building Blocks for Living Shorelines in Florida

MANGROVES: Red mangrove (*Rhizophora mangle*) is adapted to live at the water's edge and is one of nature's best erosion fighters. The tree canopy acts as a windbreak, and the



A living shoreline featuring red mangroves provides protection from erosion and preserves the view for waterfront residents. Photo by Marjorie Shropshire.

Definition of Living Shoreline:

"Living shoreline is a broad term that encompasses a range of shoreline stabilization techniques along estuarine coasts, bays, sheltered coastlines, and tributaries. A living shoreline has a footprint that is made up mostly of native material. It incorporates vegetation or other living, natural "soft" elements alone or in combination with some type of harder shoreline structure (e.g. oyster reefs or rock sills) for added stability. Living shorelines maintain continuity of the natural land–water interface and reduce erosion while providing habitat value and enhancing coastal resilience" (NOAA. 2015).



A living shoreline in Jensen Beach, Florida accumulates sediment and preserves the vital connection between land and water. Photo by Vincent Encomio.

arching root systems stabilize sediment and prevent runoff, helping to preserve water clarity. According to the Nature Conservancy, “Mangroves are most effective in flood risk reduction where they are abundant and located in front of areas with high densities of people and property. In Lee and Collier Counties, closest to where Hurricane Irma made landfall on the Florida mainland, mangroves are estimated to have prevented losses of \$802 million and \$580 million, respectively. In vulnerable Miami-Dade County, urban coastal mangroves protected high-value coastal properties from over \$134 million in potential flood damages” (The Nature Conservancy 2019).

Mangroves are important refuges for wildlife, and at high tide, a close look will reveal a variety of creatures sheltering and feeding among the tangled roots. Game fish including tarpon, snook, snapper, and redfish depend on mangroves during certain life stages, and many other animals use mangroves for food and shelter. Despite popular belief, planting mangroves does not add to the population of biting insects like no-see-ums or mosquitoes, and waterfront views can be preserved by strategic planting and trimming. See trimming guidelines at: <https://floridadep.gov/water/submerged-lands-environmental-resources-coordination/documents/mangrove-trimming-guidelines>.

Due to their historic range and cold-sensitivity, red mangroves are best suited for living shorelines in southern Florida. Marsh grasses will be the primary intertidal vegetation used for living shorelines in the northern part of the state.

MARSH GRASSES: Smooth cordgrass (*Spartina alterniflora*) is the principal species planted on living shorelines in areas with low to moderate wave action. It grows in the intertidal zone and tolerates varying salinities in both estuarine and freshwater environments. The dense root system helps prevent runoff, collects sediment, and has the potential to build shorelines. The stems reduce wave energy, and a relatively narrow planting can slow wave action significantly – Knutson et al. (1982) showed that the first 2.5 meters of smooth cordgrass decreased wave energy by

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“Building high-tech, homogeneous, hard infrastructures in response to climate change is perpetuating the old mythology of technology. Considering drastic sea level rise, recurrent storm events, and other unpredictable impacts from climate change, static infrastructures are proven limited in response to dynamic change. Without implementing soft systems that use biodiversity as a building block, these infrastructures remain inherently unsustainable.”

– Julia Watson and Wade Davis. *Lo-TEK: Design by Radical Indigenism*

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50%. At maturity, it reaches about 1-2 feet above the water, remaining low enough to preserve the view.

Smooth cordgrass offers places to hide and forage for a variety of creatures. Organic matter from the breakdown of its leaves provides food for animals low on the food chain, and these in turn are prey for other animals. Some of the species commonly seen on living shorelines planted with smooth cordgrass are fiddler crabs, mollusks, pinfish, mullet, and wading birds such as egrets and great blue herons.

OYSTER REEFS: Oysters are considered ecosystem engineers, organisms that can change or create habitats. In Florida, the eastern oyster (*Crassostrea virginica*) forms vertical reefs that are effective at absorbing wave energy in low to medium-energy settings. A study using wave tank research showed that when an oyster shell substrate with live oyster recruitment was combined with old one-year-old plantings of smooth cordgrass, wave energy was reduced by 67%. (Manis et al. 2014). Furthermore, according to Rodriguez et al. (2014) “... oysters have been shown to be capable of keeping pace with sea level rise, making them a natural partner for marshes when it comes to providing self-sustaining erosion control.”

Oysters are filter feeders that ingest algae, bacteria, contaminants, and sediment. According to Ehrich and Harris (2015) one adult oyster can filter up to 50 gallons of water a day, improving water clarity. Water that is clear and clean is important for the growth of seagrass, and for critical habitat. Individual oysters stick together to form complicated reef structures, and a square meter of oyster reef can have as much as 50 square meters of surface area ready for a variety of creatures to use (Boswell et al. 2012).

Oysters, especially at high salinities, can benefit from being out of the water a few hours a day, and constructed reefs are placed in the intertidal zone where they will not interfere with boating, access to docks, or paddling and wading. Before installing an oyster reef on a living shoreline, a restoration professional will check the site for evidence of existing oysters. If none are present, the site might not be a good location for an oyster reef.

Effectiveness of Living Shorelines

The concept of living shorelines is based on the premise that human-created systems will fulfill some of the functions

of natural systems, including coastal protection. According to Rodriguez-Calderon (2014), "...living shorelines were estimated to be able to enhance ecosystem services capacity by more than 90% compared to their previous status." Clearly, they are valuable alternatives to armoring, especially in developed areas. Armored shorelines, together with sea level rise, increase flooding and erosion while living shorelines absorb floodwaters and protect the coast from storms. This is largely due to the ability of salt marshes and oyster reefs to capture and retain sediment.

Living shorelines are dynamic and may keep pace with sea level rise if their constructed salt marshes and oyster reefs have enough available sediment. However, their lifespan may be limited by coastal squeeze and the loss of intertidal habitat resulting from rising seas combined with fixed anthropogenic modifications such as buildings or armoring. Even if lateral space is limited, living shorelines are still valuable for their ability to provide ecosystem services and reduce habitat loss. In areas where landward migration of marshes and wetlands is possible, living shorelines will be more successful in the long term, and based on studies by Borsje et al. (2011) and Erwin (2009), they are "one of the only methods that will be able to both adjust to future climate conditions and preserve essential ecological functions."

About the Authors

Dr. Vincent Encomio is Florida Sea Grant agent with UF/IFAS Extension (Martin and St. Lucie counties). He develops educational programming related to coastal habitat restoration, water quality, and enhancing knowledge of local coastal habitats. He also works with local communities to plan, design, and install living shorelines. Vincent has an MS degree from San Francisco State University, and a PhD from the Virginia Institute of Marine Science at the College of William and Mary. He enjoys spending time with his family at the beach and is an avid surfer.

Marjorie Shropshire is an artist, author, and creative director. She has a BFA degree from the University of Miami, Coral Gables, and an MFA from the University of Florida, where her thesis project focused on using design to connect homeowners, contractors and nature through living shorelines. In her spare time, she enjoys sailing, painting, and participating in community science projects.

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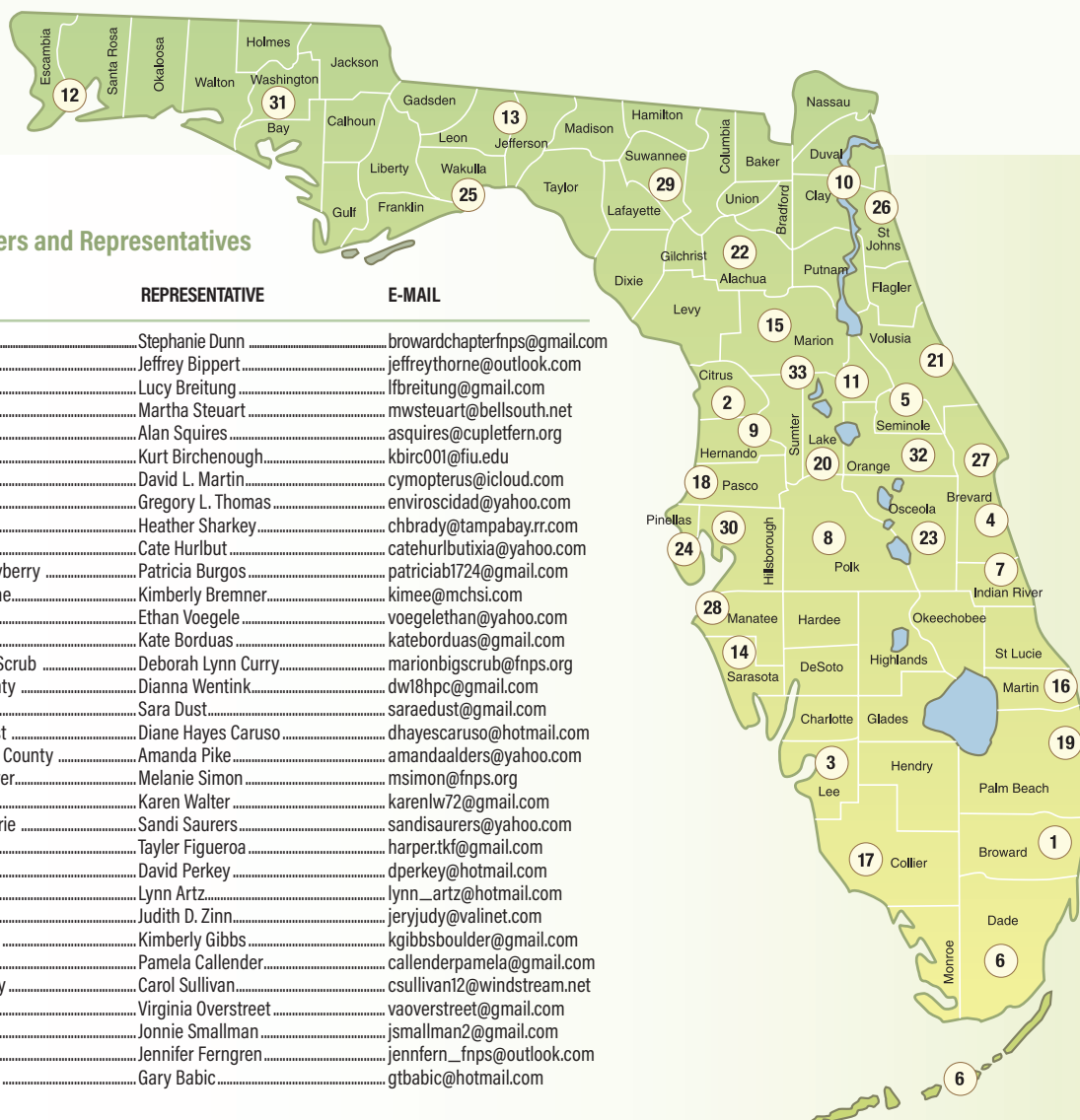
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