[Like us on Facebook and Check out our YouTube Channel] –

New Videos now available

For Covid19 Update from UF and IFAS please visit these links:
http://www.ufl.edu/health-updates/

As of today, February 26, 2021 GCREC remains closed to the public. Our research continues with a limited number of essential staff, and we are so grateful for their continued dedication. For information contact Christine Cooley ccooley@ufl.edu. Administrative staff is on site every day, so please call if you need assistance 813-419-6670.

Give Back - Want to support Gulf Coast Research and Education Center? Consider making an online gift today! Questions can be directed to Cody Helmer at (352) 392-1975 or chelmer@ufl.edu.

GCREC Virtual Field Day Brings Research into the Digital World

As we continue to navigate through the Covid-19 pandemic, our faculty and staff developed the first GCREC Virtual Field Day held earlier this month. All the best research updates just as if they were in person! If you missed any of the presentations, no worries – all the presentations are posted on our YouTube Channel:
https://www.youtube.com/playlist?list=PLk3py1RNkc1WcU27pXVoo6D3PXup2f7l1
Your comments and suggestions are welcome as we plan more crop-specific field days in the future. Thanks to all the GCREC Faculty who participated along with Lisa Hickey, Manatee Co. Extension Service and Craig Frey, Hendry Co. Extension Service, both who assisted in moderating and coordinating the CEU and CCA credits.

20-Questions Faculty Profile – Meet Dr. Nathan Boyd, Associate Professor and Associate Center Director

This feature is included to provide readers some insight both academically and personally on our amazing faculty. Dr. Nathan Boyd, Associate Professor and Associate Center Director at GCREC. So let's get started – here are his answers to our 20-Questions request.

Where were you born and what led you to Florida? *I was born Feb 20, 1974 in Sussex, NewBrunswick and moved to Florida for my current position at GCREC.*

When did you first feel inspired to work in a science field? *When I was in high school I wanted to become a marine biologist.*

What was your first paying job? *A paper route when I was in grade 5 but I started working on dairy farms when I was 12.*

What's your perfect pizza? *Hawaiian*

When you were a kid, what did you want to be when you grew up? *It changed every week, but I wanted to be a pilot the most.*

When you're not working on your research, what do you enjoy doing? *Kayaking, hiking, surfing, anything my kids are currently into.*

What's your go-to breakfast food? *Oatmeal*

Mountains or beach? *Mountains but only because I get to the beach more than the mountains.*

What are you most proud of? *My kids.*

A hobby we might not know about? *I enjoy wood working but also writing and hope to publish some children's books someday.*

If you could back five years in your life, what advice would you give yourself? *Spend more time on the things that really matter to you. Spend more time creating memories with the people you love.*

What is your main research focus right now? *Use of AI for precision agriculture.*

What is the best part about working at GCREC? *The people.*

What do you believe is the greatest challenge facing Florida agriculture today? *The loss of agricultural land to development.*

How do you deal with negative emotions or stress? *I am a passionate Christian and prayer and time alone help me deal with stress.*

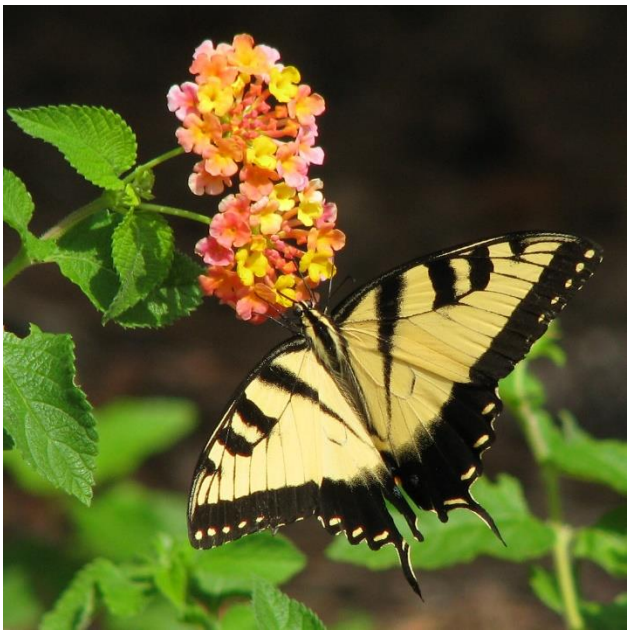
PC or Mac? *PC*

What would you name the autobiography of your life? *How did I get here.*

What is the most significant development you see coming out of your research area in the coming years? *Autonomous robotic technology*.

If you could give just one piece of advice to GCREC students, what would it be? *Work on what you love and you will love to come to work.*

What is something you learned in the last week? *Took a training course on personality evaluation and learned a lot about myself and how I interact with others.*



"Male Tiger in the lantana" by Vicki's Nature

New Tools to Identify Native Lantana and Porterweed from Introduced Species for Protection and Preservation

Brooks Parrish and Zhanao Deng, GCREC Environmental Horticulture

Lantana and porterweed are favorite plants for butterfly gardens as both attract numerous species of butterflies and other plant pollinators. They are also important to Florida ornamental plant nurseries and landscapers. Lantana and porterweed have low maintenance characteristics and flower prolifically almost year-round. You can often find these colorful flowers in containers, hanging baskets, or people's yards. A problem that both genera are facing is invasion of non-native species. Pineland lantana or rockland shrubverberna (*Lantana depressa*) and jamaican porterweed (*Stachytarpheta jamaicensis*) are native to Florida. The former is endangered by the category I

invasive species *Lantana camara*, and the latter is threatened by nettleleaf porterweed (*Stachytarpheta cayennensis*), a category II invasive species. Both invasive plant species have the potential to mate with our native species, contaminating their gene pool. In most instances, differentiating within these two genera just by appearance or morphology can be challenging. Our team set out to find new tools to help identify these species, assist in protection and preservation of the native species, and facilitate future breeding efforts toward developing new sterile varieties.


"Gulf Fritillary rests on Blue Porterweed" by USFWS/Southeast

First, we used a flow cytometer to calculate the mass of all DNA in the nucleus of one cell for several species in each genus. Next, we used chromosome-squashing techniques to condense and stain the individual chromosomes in cells for counting. By knowing the DNA content and the number of chromosomes in a plant, we can make inferences on the number of chromosome sets (or ploidy level) that an unknown plant has based on its nuclear DNA content alone. This is an important comparison to establish because flow cytometry can be completed in just a few minutes, while chromosome squashing is a multi-day procedure. We found out that the invasive nettleleaf porterweed is a tetraploid with four sets of chromosomes and the native species Jamaican porterweed is a hexaploid with six sets of chromosomes, making distinguishing between the two very easy by comparing DNA contents. Differences in lantana species were not as drastic as in the porterweeds, but clear differentiating factors can be observed when the chromosomes are lined up next to each other to form a karyotype. To be more effective in identifying native species from introduced species, we are also developing DNA fingerprinting techniques. We hope that knowledge of the ploidy level of lantana and porterweed will guide breeding effort to produce new sterile varieties. Development and use of sterile varieties that do not mate with native species and do not produce seed like a seedless banana or watermelon will also assist in the protection and preservation of our native plant species.

On behalf of the Gulf Coast Post-doc and Student Association (GCPSA), please note a recent announcement of newly elected GCPSA representatives for the 2021 - 2022 period.

GCREC in the News – GCREC Grad Student Award Winner

Student with Dr. Mary Lusk's program.

Latest Publications

Si, Qianyao; Lusk, Mary G.; Inglett, Patrick W. 2021. "Inorganic Nitrogen Production and Removal along the Sediment Gradient of a Stormwater Infiltration Basin" Water 13, no. 3: 320. https://doi.org/10.3390/w13030320

Parrish, S.B., R. Qian, and Z. Deng. 2021. Genome size and karyotype studies in five species of lantana (Verbenaceae). HortScience. https://doi.org/10.21273/HORTSCI15603-20

Qian, R., S.B. Parrish, S.B. Wilson, G.W. Knox, and Z. Deng. 2021. Morphological and cytological characterization of fiver porterweed (Stachytarpheta) selection. HortScience. https://doi.org/10.21273/HORTSCI15594-20

EDIS: https://edis.ifas.ufl.edu/pdffiles/SS/SS70000.pdf Private Wells 101: Bacterial Contamination and Shock Chlorination

Social Media

GCREC is dedicated to make sure we share our amazing research with everyone – worldwide. One lesson we have learned during the last year is social media is something to embrace and certainly an easy way to disseminate information. You can find us on the following social media outlets:
YouTube.com
Facebook
UF/IFAS Blogs

Here are a few new social media highlights:

How to prune and prep hops for the spring season in Florida, https://youtu.be/yyMyN117eO4

How to grow hops in the subtropics, https://youtu.be/P0PBiDb8s4U

Facebook

Horticultural Crop Physiology Lab updates, https://www.facebook.com/UFHortLab

Hops research updates, https://www.facebook.com/UFHops

Hop and Artichoke Research Updates

The spring season of hops started in the week of February 15th. They are growing many new shoots called bines, which will grow up to 18 feet in 6 weeks. Artichoke harvest began also in the week of February 15th. Florida does not provide enough winter chill for the vernalization (induction of the flowering process) in artichoke plants. We are studying the vernalization method using the plant hormone gibberellic acid, so we can produce artichokes without winter chill.