

Michelle L. Gaynor

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Education

Expected Ph.D., Botany 2018 – 2023
University of Florida, Gainesville, FL; Advisor: Dr. Pamela S. Soltis

B.S., Biology 2014 – 2018
University of Central Florida, Orlando, FL; Advisor: Dr. Eric A. Hoffman

Publications

2. **Gaynor ML**, Marchant DB, Soltis DE, and Soltis PS. 2018. Climatic niche comparison among ploidal levels in the classic autopolyploid system, *Galax urceolata* (Diapensiaceae). *American Journal of Botany*, 105(10): 1–12. doi: 10.1002/ajb2.1161.
1. **Gaynor ML**, Ng J, and Laport RG. 2018. Phylogenetic structure of plant communities: Are polyploids distantly related to co-occurring diploids? *Frontiers in Ecology and Evolution*, 6(52): 1-14. doi: 10.3389/fevo.2018.00052.

In review or preparation:

Gaynor ML, Walters LJ, and Hoffman EA. Assessing genetic diversity within natural populations of smooth cordgrass to ensure effective restoration efforts. *In Review for Restoration Ecology*.

An H, Qi X, **Gaynor ML**, Hao Y, Gebken SC, Mabry ME, Conant GC, Barker MS, Fu T, Yi B, Pires JC. Transcriptome and organellar genome sequencing elucidate the origin and diversification of allotetraploid *Brassica napus*. *In Review for Nature Communications*.

Gaynor ML, Lim-Hing S, Mason CM. Genome duplication impact on secondary metabolite composition in non-cultivated species: A systematic meta-analysis. *In prep for New Phytologist*.

Non-peer reviewed publications:

Gaynor ML and Lim-Hing S. 2018. Establishing a BSA Student Chapter at our University. *Plant Science Bulletin*.

Gaynor ML. 2018. Making the most out of summer off-campus research experiences. *University of Central Florida Office of Undergraduate Research*, [Student Blog](#).

Research Experience

University of Florida Botany Research Assistantship
Dr. Pamela S. Soltis and Dr. Douglas E. Soltis
Florida Museum of Natural History, University of Florida

Aug. 2018 – Present

Undergraduate Researcher
Dr. Eric A. Hoffman and Dr. Linda J. Walters
Department of Biology, University of Central Florida
Assessing genetic diversity within natural populations of smooth
cordgrass to ensure effective restoration efforts.

Jan. 2015 – Aug. 2018

NSF-funded Undergraduate Research Experience (REU)
Dr. J. Chris Pires
Division of Biological Sciences, University of Missouri
Unraveling the origins of allotetraploid *Brassica napus*.

May 2017 – Aug. 2017

iDigBio NSF-funded Research Internship
Dr. Pamela S. Soltis and Dr. Douglas E. Soltis
Florida Museum of Natural History, University of Florida
Absence of niche divergence among ploidal levels in a classic
autopolyploid system, *Galax urceolata*.

May 2017

NSF-funded Undergraduate Research Experience (REU)
Dr. Julianne Ng and Dr. Robert G. Laport
Ecology & Evolutionary Biology, University of Colorado-Boulder
The influence of genome duplication on Brassicaceae and Rosaceae
communities across the United States.

May 2016 – Aug. 2016

**Research Assistant and Student Science Training Program
Scholar**
Dr. Kevin Kenworthy
IFAS Department of Agronomy, University of Florida
Rooting characteristics of elite Zoysiagrass genotypes.

May 2013 – Aug. 2013

Grants (Total ~ \$4505)

2018	American Society of Plant Taxonomist Travel Award for Botany 2018. (\$335)
2018	Student Undergraduate Research Council Research Funding, University of Central Florida. (\$300)
2017	NSF-sponsored REU Travel Grant Program for Botany 2017. Rocky Mountain Biological Laboratory. (\$1000)
2017	The Botanical Society of America Undergraduate Student Research Award. (\$200)
2017	Undergraduate Travel Award for Botany 2017, Student Undergraduate Research Council, University of Central Florida. (\$300)
2016	Undergraduate Student Travel Award for Botany 2016, Office of Undergraduate Research, University of Central Florida. (\$300)
2016	Sigma-Xi Grant-in-Aid for Research. (\$1000)
2016	Florida Undergraduate Research Conference Travel Grant, Office of Undergraduate Research, University of Central Florida. (\$70)
2016	Undergraduate Research Grant, Office of Undergraduate Research, University of Central Florida. (\$500)
2015	Undergraduate Research Grant, Office of Undergraduate Research, University of Central Florida. (\$500)

Fellowships (Total ~\$15600)

2018 – 21	Grinter Fellowship Award, University of Florida. (\$6000)
2016 – 18	Research and Mentoring Program (RAMP) Scholar, University of Central Florida. (\$5600)
2016 – 17	Boeing Inc. Undergraduate Research Fellow, University of Central Florida. (\$2000)
2016	NSF-funded Undergraduate Research Experience Fellow, University of Central Florida. (\$1000)
2015	Summer Undergraduate Research Fellow, University of Central Florida. (\$1000)

Honors and Awards

2018	Young Botanist Award, Botanical Society of America.
2018	Honorable Mention, Graduate Research Fellowship Program, National Science Foundation.
2017	Winter Park Garden Club Scholarship. (\$1500)
2016 – 18	President's Honor Roll, University of Central Florida.
2016	Golden Opportunity Scholars with the American Agronomy Society, Crop Science Society of America, and Soil Science Society of America.
2014 – 18	Florida Bright Future Scholarship. (\$8547)
2014	EXCEL Program Scholar, University of Central Florida.

Presentations

Oral (Total = 7)

- 2018 **Gaynor ML**, Walters LJ, and Hoffman EA. Assessing genetic diversity within natural populations of smooth cordgrass to promote effective restoration efforts. *Botany 2018*. Rochester, MN.
- 2017 **Gaynor ML**. Student scholarship recipient speaker. *University of Central Florida College of Science Scholarship Luncheon*. Orlando, FL.
- 2017 **Gaynor ML**, Walters LJ, and Hoffman EA. Assessing genetic diversity within natural populations of smooth cordgrass to promote effective restoration efforts. *2017 ASA, CSSA, and SSSA International Annual Meeting*. Tampa, FL.
- 2017 **Gaynor ML**, Laport RG, and Ng J. The influence of genome duplication on Brassicaceae and Rosaceae communities across the United States. *Botany 2017*. Fort Worth, TX. **Best Ecology Undergraduate Presentation. (\$100)**
- 2017 **Gaynor ML**, Walters LJ, and Hoffman EA. Assessing genetic diversity within natural populations of smooth cordgrass to promote effective restoration efforts. *Eureka*. University of Central Florida. Orlando, FL. **1st Place Student Presenter Award.**
- 2015 **Gaynor ML**, Walters LJ, and Hoffman EA. Assessing genetic diversity within natural populations of smooth cordgrass to ensure effective restoration efforts. *Summer Undergraduate Research Presentation*. University of Central Florida, Orlando, FL.
- 2013 **Gaynor ML**, and Kenworthy KE. Rooting characteristics of elite Zoysiagrass genotypes. *Student Science Training Program Presentation*. University of Florida, Gainesville, FL.

Poster (Total = 16)

- 2018 **Gaynor ML**, Marchant DB, Soltis DE, and Soltis PS. 2018. Climatic niche comparison among ploidal levels in the classic autopolyploid system, *Galax urceolata* (Diapensiaceae). *Science by the Shore*. St. Augustine, FL.
- 2018 **Gaynor ML**, Lim-Hing S, and Mason CM. Genome duplication impact on secondary metabolite composition in non-cultivated species. *Botany 2018*. Rochester, MN.
- 2018 **Gaynor ML**, Walters LJ, and Hoffman EA. Assessing genetic diversity within natural populations of smooth cordgrass to promote effective restoration efforts. *Showcase of Undergraduate Research Excellence*. University of Central Florida. Orlando, FL. **Life Science Judges' Choice Award. (\$500)**
- 2018 **Gaynor ML**, Walters LJ, and Hoffman EA. Assessing genetic diversity within natural populations of smooth cordgrass to promote effective restoration efforts. *Indian River Lagoon Symposium*. Florida Atlantic University's Harbor Branch Oceanographic Institute. Fort Pierce, FL.
- 2017 **Gaynor ML**, Walters LJ, and Hoffman EA. Assessing genetic diversity within natural populations of smooth cordgrass to promote effective restoration efforts. *Plants Beyond Limits*, University of Central Florida. Orlando, FL. **2nd Place Undergraduate Award. (\$200)**
- 2017 **Gaynor ML**, An H, and Pires JC. Unraveling the origins of allotetraploid *Brassica napus*. *University of Missouri Summer Research Forum*. Columbia, MO.

- 2017 **Gaynor ML**, Marchant DB, Soltis DE, and Soltis PS. Absence of clear niche divergence among ploidal levels in a classic autopolyploid system, *Galax urceolata*. *Botany 2017*. Fort Worth, TX.
- 2017 **Gaynor ML**, Walters LJ, and Hoffman EA. Assessing genetic diversity within natural populations of smooth cordgrass to promote effective restoration efforts. *American Society of Plant Biologist Southern Sectional*. Orlando, FL. **2nd Place Undergraduate Poster Award. (\$70)**
- 2017 **Gaynor ML**, Walters LJ, and Hoffman EA. Assessing genetic diversity within natural populations of smooth cordgrass to promote effective restoration efforts. *Showcase of Undergraduate Research Excellence*. University of Central Florida. Orlando, FL.
- 2017 **Gaynor ML**, Walters LJ, and Hoffman EA. Assessing genetic diversity within natural populations of smooth cordgrass to promote effective restoration efforts. *Indian River Lagoon Symposium*. Florida Atlantic University's Harbor Branch Oceanographic Institute. Fort Pierce, FL.
- 2016 **Gaynor ML**, Laport RG, and Ng J. The influence of genome duplication on Brassicaceae and Rosaceae communities across the United States. *2016 ASA, CSSA, and SSSA International Annual Meeting*. Phoenix, AZ.
- 2016 **Gaynor ML**, Laport RG, and Ng J. The influence of genome duplication on Brassicaceae and Rosaceae communities across the United States. *Botany 2016*. Savannah, GA. **Genetics Section Student Award. (\$250)**
- 2016 **Gaynor ML**, Walters LJ, and Hoffman EA. Assessing genetic diversity within natural populations of smooth cordgrass to ensure effective restoration efforts. *Showcase of Undergraduate Research Excellence*. University of Central Florida. Orlando, FL.
- 2016 **Gaynor ML**, Walters LJ, and Hoffman EA. Assessing genetic diversity within natural populations of smooth cordgrass to ensure effective Restoration Efforts. *Southeastern Ecology and Evolution Conference*. Florida State University. Tallahassee, FL.
- 2016 **Gaynor ML**, Walters LJ, and Hoffman EA. Assessing genetic diversity within natural populations of smooth cordgrass to ensure effective restoration efforts. *Florida Undergraduate Research Conference*. University of Tampa, FL.
- 2013 **Gaynor ML**, and Kenworthy KE. Rooting characteristics of elite Zoysiagrass genotypes. *Student Science Training Program Poster Showcase*. University of Florida, Gainesville, FL.

Co-author presentations (Total = 4)

- 2018 **Gaynor ML**, Laport RG, and Ng J. Waves or ripples? Whole genome duplication and plant community structure. *Ecological Society of America Annual Meeting*. New Orleans, LA.
- 2018 An H, Qi X, **Gaynor ML**, Hao Y, Gebken SC, Mabry ME, Conant GC, Barker MS, Fu T, Yi B, and Pires JC. Transcriptome and organellar genome sequencing elucidate the origin and diversification of allotetraploid *Brassica napus*. *Brassica 2018*. Saint-Malo, France.
- 2018 An H, **Gaynor ML**, Gebken SC, and Pires JC. Origin(s) of a hybrid: history of allopolyploid *Brassica napus* using genome-wide data. *Botany 2018*. Rochester, MN.
- 2018 An H, **Gaynor ML**, Gebken SC, and Pires JC. Origin(s) of a hybrid: history of

allopolyploid *Brassica napus* using genome-wide data. *Life Science Week*.
University of Missouri, Columbia, MO.

Synergistic Activities and Outreach

- 2018 – Present iDigBio, University of Florida
Assisted at community outreach events including WeDigBio at the Florida Museum of Natural History
- 2018 – Present Girls Who Code, Eastside High School.
Instructor for local high school club, which meets once a week.
- 2018 Class Guest, University of Missouri
Guest in class to discuss NSF-REU opportunities with Makenzie Mabry.
- 2017 – 18 Botanical Society of the University of Central Florida
Founding member and Vice President. Aims to create a community for students interested in plant science at our university. Helped organize a plant symposium during Fall 2017 and organized networking events.
- 2017 – 18 S.T.E.A.M, University of Central Florida.
Collaborated with a digital design student to create a research poster to display at UCF and the Orlando Science Center.
- 2016 – 18 Student Undergraduate Research Council Member
Devoted to exposing students to the different aspects of science and helping them pursue research positions at the University of Central Florida. Presented to classes and workshops on the benefits of being involved in undergraduate research
- 2015 – 17 Girls Excelling in Math and Science (GEMS), University of Central Florida.
Served as a mentor for eight freshmen women majoring in biology through the GEMS (Girls EXCELing in Math and Science) program for two years.
- 2015 – 17 The Mad Scientist Research Society, University of Central Florida.
Founding Member, Vice President (2015-16), and Director of Professional Development (2016-17). Aimed to create a community for undergraduate researchers at our university. Led the formation of the Seedlings mentoring program.

Professional Affiliations

- 2017 – Present American Society of Plant Taxonomist
- 2017 – Present American Society of Plant Biologist Southern Section
- 2016 – Present Botanical Society of America
- 2016 – Present Sigma Xi Associate Member
- 2013, 2016 American Society of Agronomy (ASA)
- 2013, 2016 Soil Science Society of America (SSSA)
- 2013, 2016 Crop Science Society of America (CSSA)

Scientific Workshop Organization

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| 2018 | ADBC Summit. iDigBio. Analytical Tools: Ecological Niche Modeling. Instructor. |
| 2017, 2018 | Botany 2017 and 2018. iDigBio - Using Digitized Herbarium Data in Research: Applications for Ecology, Phylogenetics, and Biogeography. Assistant instructor. |

Media Coverage

- 2018, [Research spotlight video](#), Research Week 2018, University of Central Florida.
- 2017, [Media coverage](#), University of Central Florida. “College of Science celebrates scholarships.”
- 2017, [Media coverage](#), University of Central Florida. “Student researches Roses and Cabbage.”
- 2017, [Media coverage](#), iDigBio. “Research experiences for undergraduates in digitized collections data.”
- 2017, [Media coverage](#), University of Central Florida. “Student’s award-winning restoration research.”
- 2016, [Media coverage](#), University of Central Florida. “Biology student receives golden opportunity.”

Analytical Skills and Training

- Molecular laboratory techniques including experience with reagent preparation, Serapure DNA extractions, CTAB extractions, Urea DNA extractions, Polymerase Chain Reactions (PCRS), PCR troubleshooting, primer design, and gel electrophoresis.
- Geneious experience with contig assembly of sequence data, and transcriptome annotation.
 - Attended Next-Generation Sequencing Workshop at Botany 2016. Worked with raw Illumina data and learned short read mapping, reference guide assembly, and hyb-seq exon assembly.
- R programming including metadata analysis, phylogenetic community analysis, basic statistical analysis, and tree annotation.
- Basic coding skills in Bash, Perl, and Python.
- Experience with Git, GitPages, HTML, and CSS.
- Experience working with genome survey sequence data.
- Phylogenetic tree assembly with RAxML.
- Population genetics analysis using microsatellite markers.
- Experience with ecological niche modeling and analysis.

References

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Dr. Douglas E. Soltis

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