**C. Benton Willis**

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2523 Fifield Hall

2550 Hull Rd

Gainesville, FL 32611

**Research Interests**

Mycology, Plant pathology, evolution and systematics, insect interactions, molecular ecology

# Education

# University of Florida Gainesville, FL

*Doctor of Philosophy in Plant Pathology August 2022 - Present*

* Expected graduation: May 2026
* GPA: 4.0
* Relevant Coursework: Intro. Plant Pathology, Fungal Biology, Fungal Plant Pathogens, Bacterial Plant Pathogens, Applied Bioinformatics, Plant Disease Diagnosis, Insect Ecology, Microbial Ecology, Applied Population Genetics of Microbes, Future of Forest Health

# Davidson College Davidson, NC

*Bachelor of Science in Biology, English Minor May 11, 2021*

* Major GPA 3.78, Overall GPA 3.78
* Relevant Coursework: Microbiology, Genetics, Biochemistry, Introduction to Organic Chemistry, Plant Adaptations, Bioinformatics, Vertebrate Zoology, Biostatistics for Life Scientists, Ind. Research in Biology

**Fellowships, Grants, and Awards**

* 2024 NSF Graduate Research Fellowship Program Honorable Mention
* 2022-2024 Florida Museum of Natural History Fungarium Fellow
* 2024 Azalea Society of America Research Grant
* 2023 and 2024 Mycological Society of America Edward E. Butler Travel Award
* 2022-2023 and 2023-2024 Grinter Graduate School Fellowship Awardee

# Work and Research Experience

**Plant Pathology Department – University of Florida Gainesville, FL**

*Mycology Technician January 2022 – August 2022*

* Collected and identified Florida fungi for biodiversity surveys: specimen photography and preservation, DNA extraction and PCR for ITS rDNA barcoding, and sequence analysis
* Carried out field and laboratory protocols for collaborative experiments with other scientists across the country
* Spore trap technician, responsible for deploying and collecting field equipment to collect eDNA from spore samples
* Cultured and isolated fungi from environmental samples for taxonomic study

**The Jones Center at Ichauway Newton, GA**

*Plant Conservation Technician II May 2021 – November 2021*

* Identified rare and common plants native to longleaf pine habitat using a variety of sources, such as dichotomous keys; assisting in the building of a Georgia and globally rare seed bank, plus yearly and project-based vegetation monitoring
* Carried out viability and germination tests to estimate viability of rare seeds, maternal-line tracking
* CTAB DNA extractions to sequence and determine the sex chromosome system of *Lindera melissafolia*, a federally endangered shrub, working on a project funded by the Georgia Botanical Society
* Identified and preserved macrofungi found on Ichauway, contributing to the center’s fungal herbarium
* Designed an independent project to survey and micropropagate *Asplenium heteroresiliens*, an endemic and globally rare fern

**Georgia Southern University Statesboro, GA**

*Research Experience for Undergraduates Intern May 2019 – July 2019*

* A 10-week long intensive program funded by the NSF, working in a population genetics lab as an independent undergraduate researcher
* Responsible for designing, executing, and presenting an original experiment in collaboration with faculty advisor
* Multitasked on multiple projects: investigated the temperature effects of *Wolbachia*-infected brown widow spiders, affirmed a molecular genotyping method for verifying *Megabalanus coccopoma* and another unknown species of barnacle, and sequenced genomes for entomological forensics
* Worked 40+ hours each week, conducting experiments, carrying out protocols, and maintaining the lab

# Davidson College Biology Department – On Campus Employment Davidson, NC

*Synthetic Biology Research Intern May 2018 – July 2018*

* A 10-week long intensive program as an undergraduate co-researcher in synthetic biology lab, responsible for designing and experimenting with DNA constructs for in vitro protein production and presenting research
* Collaborated with co-researchers based at Davidson College and Missouri Western State University, innovating DNA fitness modules for programmed evolution, communicating ideas and solutions across campuses, gathering and analyzing data, conducting and troubleshooting experiments
* 40+ hours worked each week, designing and testing an in vitro fitness module, during the semester (Fall 2018 and Spring 2019); this research was continued as an independent study as 12-hour work weeks (BIO 371 and 372)

**Publications**

# Owen Koucky\*, Jacob Wagner\*, Sofia Aguilera\*, Benjamin Bashaw\*, Queena Chen\*, Anthony Eckdahl\*, Elise Edman\*, Paul Gomez\*, Nick Hanlan\*, Nick Kempf\*, Devin Mattoon\*, Sam McKlin\*, Christopher Mazariegos\*, Alex Morehead\*, Shi Qing Ong\*, Andy Peterson\*, Maria Rojas\*, Kyla Roland\*, Kaitlyn Schildknecht\*, Haley Seligmann\*, Kaden Slater\*, Ali Tauchen\*, Raechel Tittor\*, Tatianna Travieso\*, Dannie Urban\*, Caroline Willis\*, John Zhou\*, Nicole L. Snyder, Laurie J. Heyer, Jeffrey L. Poet, Todd T. Eckdahl, & A. Malcolm Campbell. 2020. [Synthetic Biology Bicistronic Designs Support Gene Expression Equally Well in vitro and in vivo](http://www.ajuronline.org/uploads/Volume_17_1/AJUR_Vol_17_Issue_1_June_2020_p13.pdf). American Journal of Undergraduate Research. Vol 17(1): 13 - 20.  doi.org/10.33697/ajur.2020.012

# PRESENTATIONS

* **C. Benton Willis,** Matthew E. Smith (2024), *Exobasidium* fungi on *Lyonia* species:
* **Caroline “Caro” Willis,** Matthew E. Smith, Marin T. Brewer, Cynthia Childs, Elizabeth “Beth” Richardson (2023), *Exobasidium florifolium* nom. prov.: An emerging fungal pathogen on native azaleas (Rhododendron spp.) in the southeastern US. MSA 2023 Poster Session, Flagstaff, AZ.

# Caroline Willis, Matthew Smith, Laurel Kaminsky (2022), Fungarium in the Swamp: Wrangling the Fungal Specimens of the University of Florida Campus. MSA 2022 Poster Session, Gainesville, FL.

# Tatianna Travieso, Caroline Willis, Maria Rojas, Anthony Eckdahl, Kyla Roland, Elise Edman, Sofia Aguilera, Nick Hanlan, Shi Qing Ong, Jacob Wagner, Jeffrey L. Poet, Todd T. Eckdahl, Laurie J. Heyer, A. Malcolm Campbell (2019), Optimization of Cell Free Protein Synthesis: Development of a Fusion Protein Fitness Strategy. Experimental Biology Conference 2019 Poster Session, Orlando, FL.

**Laboratory and Software Skills**

**Molecular/Cell Biology:** Genome assembly, DNA extractions (CTAB, extraction kits), Sanger sequencing, PCR, quantitative PCR, cell culture and transformation, spectrophotometry, Golden Gate Assembly (GGA)

**Study Systems:** *Exobasidium* spp. *Colletotrichum* spp., *Pestalotia* spp., *L. geometricus* (brown widow spider), *M. coccopoma* (titan acorn barnacle), *Asplenium* spp., *E. coli*, mammalian cell lines, *in vitro* protein production

**Software:** Linux, Python, R Project, ArcGIS, ApE, SnapGene, Sequencher, Microsoft Office

# Outreach & Education

* Florida Academic Lichen and Fungi Enthusiasts League (FALAFEL)
* Plants Get Sick Too! Teacher Workshop
* Fungal Biology 101 Workshop with Alachua County Library
* Mushrooms, Fungi, and the UF Herbarium with W.T. Brand Public Library
* MFA program Art and Technology Mushroom Walk

**Teaching & Mentorship Experience**

* Jan. – Jun. 2023 **Camila Nunez (UF Undergraduate)** – culturing and storage, molecular lab work techniques
* 2023 **Forest Sheffer (UF alumni, volunteer)** – museum collections and accessions, molecular techniques
* Aug. – Dec. 2023 **Greg Traub (MSc Student)** – museum collections and accessions
* Aug. 2023 – present **Tiffany Wei, Ansley Burtch, Mason Rowe –** museum collections and accessions
* Spring 2024 Fungal Plant Pathogens Teaching Assistant
* March – August 2024 **Gabriel Fuentes (UF Undergraduate)** – culturing and molecular techniques
* Fall 2024 – Fungal Biology Teaching Assistant

# Leadership and Other Experiences

**Florida Native Plant Society (FNPS) Gainesville, FL**

*Board Member November 2023 – present*

* Facilitated and organized outreach and service events for Chapter members
* Assisted with social media and technology for increasing impact and engagement during meetings

**American Conservation Experience (ACE) Asheville, NC**

*Americorps Volunteer July 2020 – December 2020*

* 900-hour volunteer service and conservation organization, in National Parks, Forests, and other public lands
* Maintained wilderness land, working under physically demanding and changing field conditions as a team
* Performed an archaeological trail survey, excavating in diverse terrains, matching soil types, operating Trimble GeoXT GPS for positive sites, identifying projectile point pieces, debitage, and other artifacts

# Center for Learning and Teaching – Davidson, NC Davidson, NC

*Writing Center Tutor August 2018 – May 2021*

* Specialized in scientific writing but assisted in many disciplines depending on the needs of individual students
* Engaged students in writing and editing essays, educated students in patterns of grammatical errors, advised plans of action for writing and reconstructing essays, aided in communicating ideas

# References

**Dr. Matthew Smith** (research mentor and instructor, supervisor)

Professor of Fungal Biology, University of Florida

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Gainesville, FL 32611

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**Dr. Malcolm A. Campbell** (research mentor and instructor, academic advisor)

Professor of Biology, Davidson College

Box 7118, Davidson, NC 28035-2345

macampbell@davidson.edu, 704-894-2692

**Dr. Kier Klepzig** (supervisor)

Director and Research Scientist, The Jones Center at Ichauway

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