

Clark A. Danderson

Mailing Address

Auburn University at Montgomery
Department of Biology and Environmental Science
Goodwyn Hall 301
P.O. Box 244023
Montgomery, AL 36124

Office Info

Biochemical Building
6680 AUM Drive
Montgomery, AL 36117
(334) 244-3208
cdanders@aum.edu

Primary Education

- Ph.D. University of Illinois Urbana-Champaign, Plant Biology, May 2011
Major Field: Plant Systematics
Dissertation: “A Phylogenetic Study of the *Arracacia* Clade (Apiaceae).”
Advisor: Dr. Stephen R. Downie
- M.S. University of Illinois Urbana-Champaign, Plant Biology, May 2005
Thesis: “The Effects of Herbivory by a Moth (Gelechiidae: *Coleotechnites eryngiella* Bottimer) on Rattlesnake-master (Apiaceae: *Eryngium yuccifolium* Michaux).” Advisors: Drs. Kenneth R. Robertson and Brenda Molano-Flores
- B.S. University of New Hampshire, Plant Biology, *magna cum laude*, May 2002

Other Education

- Grad. Cert. Auburn University, Brewing Science and Operations, May 2021
- Cert. Certified Beer Server, Cicerone Certification Program, February 2020

Teaching Experience

- 2018– Lecturer/Food, Wine, and Beer Fermentation Program Coordinator, Department of Biology and Environmental Science, Auburn University at Montgomery, Montgomery, AL
- Cells, Molecules, and Life (BIOL 1011) – Fall, Spring 2018–
Microbiology (BIOL 3010/3011) – Fall, Spring 2018–
Fundamentals of Microbiology (BIOL 2010/2011—online course) – Fall 2019
Fermentation (BIOL 4043—hybrid course) – Fall 2020
- 2016–2020 Microbiology and Genetics Laboratory Coordinator, Department of Biology and Environmental Science, Auburn University at Montgomery, Montgomery, AL
- Microbiology (BIOL 3010/3011) – Fall, Spring, and Summer 2016–2018
Genetics Laboratory (BIOL 3301) – Spring 2017
Perspectives in Fermentation (BIOL 4803/6800) – Summer 2017
Cells, Molecules, and Life (BIOL 1011) – Spring 2018
Botany Laboratory (BIOL 2021) – Spring 2018

- 2013–2015 Assistant Professor of Biology, Biology Department, Aquinas College, Grand Rapids, MI
- Botany (BY 161) – Fall 2013, 2014, 2015
 Ecology (BY 352) – Fall 2013, 2015
 Plant Taxonomy (BY 264) – Spring 2015
 Principles of Biology Lab (BY 160L) – Fall and Spring 2014–2015
 Biology Seminar (BY 499) – Spring 2014, 2015
 Zoology (BY 162) – Spring 2014, 2015
- 2012–2013 Assistant Professor of Biology, Division of Mathematics and Natural Sciences, Gordon State College, Barnesville, GA
- Introductory Biology I (BIOL 1111) – Fall and Spring 2012–2013
 Plant Biology (BIOL 3600) – Spring 2013
- 2012–2015 Adjunct Instructor, Department of General Education, Kendall College of Art and Design of Ferris State University, Grand Rapids, MI
- Natural Science (KCSC 230) – Spring 2012
 Environmental Science (KCSC 303) – Spring 2012, 2014, 2015
- 2011 Adjunct Instructor, Department of Biological Sciences, Montcalm Community College, Sidney, MI
- Botany (BIOL 110) – Fall 2011
- 2011 Adjunct Instructor, Department of Biological Sciences, Lake Michigan College, South Haven, MI
- General Biology (BIOL 101) – Fall 2011

Invited Lecturer

- 2012 NCBI and DNA Barcoding Labs, BIOL 4500, Division of Mathematics and Natural Sciences, Gordon State College, Barnesville, GA – September 26, October 17, 24, and 31

Professional Experience

- 2020 Brewery Intern, Common Bond Brewers, Montgomery, AL

Performed duties of cellar person and assistant brewer in the production area. Operated brewing platform controls for mash tun and boil and whirlpool kettles. Milled grain and measured out hops, brewing salts, and acid additions on brew day. Filtered and transferred beer from fermentation vessels to brite tanks. Washed and filled kegs. Operated canning machine. Organized kegs in cold storage. Produced SOPs for brew prep day, brew day, and yeast collection. Developed recipes and brewed them on small batch system.

2011 Senior Scientist, DNA Lab, Microbial Insights, Inc., Rockford, TN.

Oversaw day-to-day operations of the DNA lab for an environmental biotechnology company. Reviewed and interpreted quantitative polymerase chain reaction (qPCR), DNA sequences, and plate count data. Produced site reports for clients on microbial communities and remedial options. Contributed to research and development initiatives, designing new qPCR assays. Supervised laboratory technicians for safety and QA purposes. Utilized range of molecular biological tools (MBTs) and lab instruments. Maintained large database of results.

Publications

Haddix, P. L. and C. A. Danderson. 2018. Mutation rate simulation by dice roll: practice with the Drake equation. *Journal of Microbiology and Biology Education*. 19(2): doi:<https://doi.org/10.1128/jmbe.v19i2.1549>.

Danderson, C. A., S. R. Downie, and M. Hermann. 2018. Rampant polyphyly in the *Arracacia* clade (Apiaceae) and an assessment of the phylogenetic utility of 20 noncoding plastid loci. *Molecular Phylogenetics and Evolution* 118: 286–305.

Brullo, C., S. Brullo, S. R. Downie, C. A. Danderson, and G. G. del Galdo. 2013. *Siculosciadium*, a new montotypic genus of Apiaceae from Sicily. *Annals of the Missouri Botanical Garden* 99: 1–18.

Spalik, K., M. Piwczynski, C. A. Danderson, R. Kurzyna-Mlynik, T. S. Bone, and S. R. Downie. 2010. Amphitropic amphiantarctic disjunctions in Apiaceae subfamily Apioideae. *Journal of Biogeography* 37: 1977–1994.

Danderson, C. A., and B. Molano-Flores. 2010. Effects of herbivory and inflorescence size on insect visitation to *Eryngium yuccifolium* a prairie plant. *American Midland Naturalist* 163: 234–246.

Molano-Flores, B., C. A. Danderson, and K. Patel. 2010. Relationship among awn number and seed self-burial, seed germination, and seedling survivorship for a species with hygroscopic awns. *Ecological Restoration* 28: 126–129.

Reduron, J.-P., J. Mathez, S. R. Downie, C. A. Danderson, and T. Ostroumova. 2009. *Pseudoridolfia*, nouveau genre d'Apiaceae découvert au Maroc. *Acta Botanica Gallica* 156: 487–500.

Molano-Flores, B., and C. A. Danderson. 2009. Gynomonoecious individuals in *Lobelia spicata* (Campanulaceae) populations. *Rhodora* 111: 398–402.

Danderson, C. A., B. Molano-Flores, and S. Raghu. 2008. Impact of floral herbivory by *Coleotechnites eryngiella* Bottimer (Lepidoptera: Gelechiidae) on the reproductive output of *Eryngium yuccifolium* Michaux (Apiaceae): a test of the reserve ovary model. *Plant Ecology* 197: 277–284.

Danderson, C. A. 2006. Notes on aspects of the life history and behavior of *Coleotechnites eryngiella* (Gelechiidae). *Journal of the Lepidopterists' Society* 60: 103–106.

Technical Reports

- Danderson, C. and B. Molano-Flores. 2014. Section 11: Insects. Subsection 11A: Lepidoptera. Assessment of Lepidoptera mortality at selected natural areas potentially impacted by the EJ&E line, 2009 and 2010, pgs. 106–114. *In: Heske, E. J. and D. M. Ruffatto (eds.). 2014. Impacts of the Elgin, Joliet, and Eastern Railway Line on Natural Areas in the Western Chicago Metropolitan Area, Vol. 1.* Illinois Natural History Survey, Champaign, IL, U.S.A.
- Molano-Flores, B., C. Helm, A. Wallner, C. Danderson, and D. Ruffatto. 2014. Section 11 Appendices: Insects, pgs. 125–152. *In: Heske, E. J. and D. M. Ruffatto (eds.). 2014. Impacts of the Elgin, Joliet, and Eastern Railway Line on Natural Areas in the Western Chicago Metropolitan Area, Vol. 2.* Illinois Natural History Survey, Champaign, IL, U.S.A.
- Danderson, C. A. 2005. Conservation assessment for sand grape (*Vitis rupestris* Scheele). *Center for Biodiversity Technical Report 2005* (15): 1–23.
- Danderson, C. A. 2005. Conservation assessment for longbeak arrowhead [*Sagittaria australis* (J. G. Smith) Small (= *Sagittaria longirostra* (Micheli) J. G. Smith)]. *Center for Biodiversity Technical Report 2005* (14): 1–21.
- Danderson, C. A. 2005. Conservation assessment for wavy-leaf purple-coneflower (*Echinacea simulata* R. L. McGregor). *Center for Biodiversity Technical Report 2005* (13): 1–23.
- Danderson, C. A. 2005. Conservation assessment for large yellow lady's-slipper (*Cypripedium pubescens* Willd.). *Center for Biodiversity Technical Report 2005* (12): 1–30.
- Danderson, C. A. 2005. Conservation assessment for Hale's corydalis (*Corydalis halei* [Small] Fern. and Schub.). *Center for Biodiversity Technical Report 2005* (11): 1–22.
- Danderson, C. A. 2005. Conservation assessment for American bluehearts (*Buchnera americana* L.). *Center for Biodiversity Technical Report 2005* (10): 1–27.

Popular Publications

- Danderson, C. 2020. "Is it time to revisit Alabama's homebrew law?". Published on the Free the Hops website (freethehops.org), February 26.

Conferences & Symposia [* Indicates Paper]

- Powers, A. and C. A. Danderson. 2015. Plant species diversity at the Karner Blue Nature Sanctuary. 9th Annual West Michigan Regional Undergraduate Science Research Conference, Van Andel Institute Graduate School, Grand Rapids, MI.
- Hyde, C. A., C. A. Danderson, K. Chi, and B. Molano-Flores. 2015. An examination of *Synthyris bullii* and its presence and abundance in Michigan. NE-4 Regional Tri-Beta Conference, Thomas More College, Crestview Hills, KY.

- Hyde, C. A., C. A. Danderson, K. Chi, and B. Molano-Flores. 2014. An examination of *Synthyris bullii* and its presence and abundance in Michigan. 8th Annual West Michigan Regional Undergraduate Science Research Conference, Van Andel Institute Graduate School, Grand Rapids, MI.
- Schluter, T., J. Alexander, J. Stephens, E. Antakikam, M. Babb, C. A. Danderson, and C. Lee. 2013. DNA Barcoding at Gordon State College: A Collaborative Laboratory Project Between Two Undergraduate Courses. 2013 Annual Meeting of the Georgia Academy of Science, Valdosta State University, Valdosta, GA.
- Danderson, C. A., M. Hermann, and S. R. Downie. 2009. Resolving phylogenetic relationships within the *Arracacia* clade (Apiaceae subfamily Apioideae) using cpDNA sequence data. 11th Annual Graduate Student Symposium organized by Graduates in Ecology and Evolutionary Biology, University of Illinois Urbana-Champaign, IL.
- Danderson, C. A., M. Hermann, and S. R. Downie. 2008. Resolving phylogenetic relationships within the *Arracacia* clade (Apiaceae subfamily Apioideae) using cpDNA sequence data. Plant Biology, Botany 2008, University of British Columbia, Vancouver, British Columbia, Canada.
- Molano-Flores, B. and C. A. Danderson. 2008. Does *Eryngium yuccifolium* (rattlesnake master) have a specialized or unspecialized pollinator guild? The Apiaceae dilemma. Ecological Society of America 2008, Milwaukee, WI.
- Danderson, C. A. and S. R. Downie. 2007. Resolving phylogenetic relationships within the apioid superclade (Apiaceae subfamily Apioideae) using cpDNA and nrDNA sequence data. Plant Biology and Botany 2007 Joint Congress, Chicago, IL.
- *Danderson, C. A. and B. Molano-Flores. 2005. The effects of *Coleotechnites eryngiella* Bottimer [Lepidoptera: Gelechiidae] on aspects of the reproductive biology of *Eryngium yuccifolium* Michaux [Apiaceae], Botany 2005 Meetings, Austin, TX.

Colloquia, Faculty Talks, & Seminars

- 2015 Panelist, faculty discussion on how our various academic disciplines come to bear on sustainability, GE 100: First Year Experience: College in the 21st Century, Aquinas College, Grand Rapids, MI – October 28
- 2015 Panelist, “What Is Sustainability?” faculty discussion, Economicology Forum, Center for Sustainability & the Faculty Sustainability Fellows, Aquinas College, Grand Rapids, MI – February 26
- 2014 The *Arracacia* Clade (Apiaceae): Attempting to Bring Order to a Disordered Complex, 8th Annual West Michigan Regional Undergraduate Science Research Conference, Van Andel Institute Graduate School, Grand Rapids, MI – November 15

2013 The *Arracacia* Clade—Attempting to Bring Order to a Disordered Complex, Mathematics and Natural Sciences Seminar, Gordon State College, Barnesville, GA – April 8

Fellowships, Grants, & Other Awards

2015 Engaged Departments Initiative Grant, Aquinas College (co-author)

2014, 2015 Mohler-Thompson Summer Research Grant, Aquinas College

2013 Faculty Development Grant, Gordon State College

Departmental, Professional, and Public Service

2021 Interviewed for a special article in the Montgomery Advertiser about the brewery and the development of the undergraduate certificate program in fermentation at Auburn University at Montgomery, March 11

2020 Attended webinar entitled “Is NH the Next Thing in Barrel Aged Beers?” provided by University of New Hampshire Cooperative Extension, December 10

2020 Developed and brewed a Philadelphia-style porter in collaboration with Common Bond Brewers, Montgomery, AL, November 9

2020 Virtually attended a four-day Craft Brewery Startup Workshop provided by University of New Hampshire Professional Development and Training, October 27 and 39 and November 3 and 5

2020 Designed and developed brewery/fermentation classroom for Auburn University at Montgomery

2020 Participated in a discussion about beer and brewing for the podcast Alternate Appreciation, which is a series of discussions for Art 131 at Alabama State University, April 28 (<https://anchor.fm/windham-graves/episodes/Beer-and-Brewing-With-Clark-Danderson-and-Bo-Henderson-edbvc6>)

2020 Led a beer off-flavors talk and tasting at Henderson Homebrew, Montgomery, AL, March 6

2020 Developed and brewed a barley wine to be barrel-aged in collaboration with Common Bond Brewers, Montgomery, AL, February 29

2020– Serve as member of the Governing Committee for Free the Hops, a consumer led program of the Alabama Brewers Guild

2019 Developed and brewed an English special bitter beer in collaboration with Common Bond Brewers for the Southern Studies Conference, Montgomery, AL, November 21

- 2019 Interviewed by Prof. Nick Thomas (Dept. of Chemistry, Auburn University at Montgomery) for a series on AUM Faculty Research for the Montgomery Independent, July 20
- 2019 Co-developed, with Dr. Laura Whatley (Dept. of Fine Arts), a study abroad trip examining art, fermentation, and monasticism in Belgium from the Middle Ages to present-day, set to run in June and July 2020
- 2019 Interviewed by the Auburn University at Montgomery student paper, The Aumnibus, about the fermentation program on campus, April 25
- 2019 Received Certificate of Completion for Developing and Delivering Online Instruction, Auburn University at Montgomery, Montgomery, AL, April 18
- 2019 Served as co-mentor, with Dr. Ann Marie O'Neill, for a project presented by two students (Natalie Donohoe and Caitlyn James) at the 2019 Undergraduate Research Symposium organized by the Auburn University at Montgomery College of Sciences, Montgomery, AL, April 5
- 2018 Participated in Alabama Brewers Guild Collaboration Brew Day, Common Bond Brewers, Montgomery, AL, December 4
- 2018 Participated in Explore Biology Options event, Auburn University at Montgomery, AL, November 9
- 2018– Member of the Faculty Welfare Committee, Auburn University at Montgomery
- 2018– Serve as coordinator for the Food, Wine, and Beer Fermentation minor in the Department of Biology and Environmental Science, Auburn University at Montgomery
- 2017 Participated in the College of Arts and Sciences Taste of College, Auburn University at Montgomery, Montgomery, AL, November 8
- 2017 Conducted brewing demonstration (with Dr. Chelsea Ward) for Warhawk WoW, Auburn University at Montgomery, Montgomery, AL, August 28
- 2016 Judge, 2016 Undergraduate Research Symposium organized by the Auburn University at Montgomery College of Liberal Arts and Sciences, Montgomery, AL, April 1
- 2015 Served as a panel member in a group discussion about how to better prepare K-12 students interested in pursuing a college degree in science, Learn. Motivate. Focus. Conference at Coopersville High School, Coopersville, MI, July 16
- 2015 Interviewed by a local television station (WZZM13) to discuss the apiary at Aquinas College and colony collapse disorder, May 6

- 2015 Served as a faculty advisor to a student (Casey Wagner) for the Environmental Science Seminar project, Aquinas College
- 2015 Served as a faculty advisor for a student (Chuck Hyde) in the Honors Program, Aquinas College
- 2015 Served as faculty advisor for the St. Francis House LLC, an Aquinas College student organization dedicated to incorporating the proper care and appreciation of plants and animals into the college and the community by educating the surrounding areas on local flora and fauna
- 2014–15 Member of the Aquinas College Advisory Council for General Studies
- 2014–15 Participated in the re-envisioning of the sciences division and the ongoing discussion of the new sciences building
- 2014–15 Member of the Aquinas College Tree Guide Brochure Subcommittee
- 2014 Interviewed for an article, “Sweeter than Honey: AQ Keeping Bees Club Celebrates Successful First Year”, about the apiary at Aquinas College in the Winter 2015 issue of *Aquinas Magazine*
- 2014 Served as a faculty advisor to a student (Nina Diklich) in the Honors Program, Aquinas College
- 2014 Served as a faculty advisor to a student (Chuck Hyde) in the Insignis Program, Aquinas College
- 2014 Participated as a botanist for the 2014 West Michigan Birdathon and Nature Festival, May 17
- 2014, 2015 Served as a faculty member on the Faculty Selection Panel for the first William and Jean Wendover Fellowship
- 2013–15 Served as faculty advisor for the Keeping Bees Club, an Aquinas College student organization dedicated to apiculture and pollinator awareness
- 2013–15 Director of the Aquinas College herbarium (AQC)
- 2013 Provided advice on a student-led project involving the planting of three trees on the Aquinas College campus for the 2013 West Michigan Birdathon and Nature Festival, July and August
- 2013 Spoke to the Gordon State College Biology majors Senior Seminar (BIOL 4000) about the academic and professional experiences that have guided my career path, February 19
- 2013 Judge/volunteer for Forestry knowledge section of Gordon State College Division B Regional Science Olympiad, February 16

2012 Provided questions for an annual academic contest for local high schools that was hosted by Gordon State College, October 16 and 18

Membership in Professional Societies and Associations (date joined)

Beta Beta Beta National Biological Honor Society (2013)
Central Alabama Brewers Society (2017)
American Homebrewers Association (2018)
Alabama Brewers Guild/Free the Hops (2020)
Brewers Association (2021)

Skills

Developing beer recipes across numerous beer styles
Conducting yeast cell viability counts
Producing differential bacterial stains
Culturing bacteria and yeast in the lab and preparing them for long-term storage
Making various selective, differential, and nutrient media for bacteria and yeast
Using aseptic techniques in the lab
Milling grain
Running the mash, lauter/sparge, boil, whirlpool, wort chilling, and wort transfer on commercial 15 BBL system
Brewing on ½ BBL SABCO System
CIP in a brewery system
Transferring of beer between fermenters and brite tanks
Cleaning and filling kegs
Operating beer canning machine
Brewery design and engineering
Developing Standard Operating Procedures for brewing
Maintaining and cleaning draft line system
Food fermentation involving LAB
Experience with various phylogenetic and biogeographic software
Experience with DNA and RNA extraction from plant and bacterial material
Experience with NCBI databases and BLAST searching
Beekeeping