

David Allen Wickell

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EDUCATION:

Doctorate in Plant Biology , <i>Cornell University</i> ; Ithaca, NY	2018 - 2023
Master of Science in Biology , <i>Wichita State University</i> ; Wichita, KS	2013 - 2015
Bachelor of Science in Biology , <i>Wichita State University</i> ; Wichita, KS	2008 - 2013

RESEARCH EXPERIENCE:

Postdoctoral research:

<i>University of Connecticut</i> – Multi-omics comparative analysis of CAM and C3 photosynthetic pathways in <i>Yucca</i> (PI: Karolina Heyduk)	2023 - present
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Graduate Research Assistant:

<i>Cornell University</i> – Genomic/transcriptomic analysis of <i>Isoetes taiwanensis</i> including transcriptomic analysis of CAM related genes; Comparative genomics of seed free plants; Allopolyploid speciation in <i>Isoetes appalachiana</i> species complex (PI: Fay-Wei Li).	2018 - 2023
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<i>Wichita State University</i> – Asexual biogeography of dry-adapted fern <i>Myriopteris gracilis</i> (PI: James Beck)	2013 - 2015
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Undergraduate Research Assistant:

<i>Wichita State University</i> – Used molecular data to establish a phylogeny of the genus <i>Mimeoma</i> and related species (PI: Mary Liz Jameson).	2012 - 2013
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TEACHING EXPERIENCE:

Concepts and Techniques in Computational Biology – <i>Cornell University</i> ; Graduate TA	Spring 2022 & 2023
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Vascular Plant Systematics (lab) – <i>Cornell University</i> ; Graduate TA (2020), Invited guest lecturer for pteridophyte lab (2022)	Spring 2020 & Fall 2022
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Introductory Plant Diversity and Evolution (lab) – <i>Cornell University</i> ; Graduate TA	Fall 2019
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Introduction to Biology I & II (lab) - <i>Wichita State University</i> ; Adjunct instructor	Fall 2018
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Human Anatomy and Physiology - Wichita State University; Graduate TA

Spring 2015

General Ecology - Wichita State University; Graduate TA

Spring 2014

Introduction to Biology I – Wichita State University; Graduate TA

Fall 2013 & 2014

PUBLICATIONS:

Suissa, J.S., G.Y. De La Cerda, L.C. Graber, C. Jelley, **D.A. Wickell**, et al. 2023. Comparative phylogenomic analyses of SNP versus full locus datasets: insights and recommendations for researchers. *Applications in Plant Science*, submitted.

Wickell, D.A., J.B. Landis, E.A. Zimmer, F.W. Li. 2023. Population genomics of the *Isoetes appalachiana* (Isoetaceae) complex supports a ‘diploids-first’ approach to conservation. *Annals of Botany*, in review.

Li*, C., **D.A. Wickell***, L-Y. Kuo, X. Chen, et al. 2023. Extraordinary preservation of gene collinearity over three hundred million years revealed in homosporous lycophytes. *PNAS*, in review. <https://doi.org/10.1101/2023.07.24.548637>

*Equally contributed.

Huang*, X., W. Wang*, T. Gong*, **D.A. Wickell***, et al. 2022. The flying spider-monkey tree fern genome: Insights into fern evolution and arborescence. *Nature Plants*, 8(5): 500-512. <https://doi.org/10.1038/s41477-022-01146-6>

*Equally contributed; Featured in [New York Times](#) and [Scientific American](#)

Wickell, D.A., L.Y. Kuo, H.P. Yang, A.D. Ashok. et al. 2021. Underwater CAM photosynthesis elucidated by *Isoetes* genome. *Nature Communications* 12(1): 1-3. <https://doi.org/10.1038/s41467-021-26644-7>

Wickell, D.A. and F.W. Li. 2020. On the evolutionary significance of horizontal gene transfers in plants. *New Phytologist*. 225(1):113-117 <https://doi.org/10.1111/nph.16022>

Wickell, D.A., M.D. Windham, X. Wang and J.B. Beck. 2017. Can asexuality confer a short term advantage? Investigating apparent biogeographic success in the apomictic triploid fern *Myriopteris gracilis* (Pteridaceae). *American Journal of Botany*. 104.8: 1254-1265. <https://doi.org/10.3732/ajb.1700126>

Moore, M.R., C.F. Beza Beza, **D.A. Wickell**, J.B. Beck and M. Jameson. 2015. Molecules, morphology, and *Mimeoma Scarabs*: evolutionary implications for a palm-associated scarab group. *Systematic Entomology*. 40: 891-900. <https://doi.org/10.1111/syen.12139>

PRESENTATIONS:

Seed-free Synteny: A history of genomic stasis in homosporous ferns and lycophytes. **Botany 2023**, Boise, ID, July 2023.

Syntenic Analysis of Seed-Free Plant Genomes Reveals Evolutionary Stasis over Hundreds of Millions of Years. **PAG 30**, San Diego, CA, January 2023.

Allopolyploid speciation in the enigmatic quillworts of the Appalachian plateau. **Botany 2022**, Anchorage, AK, July 2022.

The convergent evolution of aquatic CAM in Isoetes. **LUOMUS seminar series**, invited speaker, presented remotely at the Finnish Museum of Natural History for the University of Helsinki, April 2022

Gene fractionation and differential expression of homoeologues following whole genome duplication in the tree fern *Alsophila spinulosa*. **Botany 2021**, virtual meeting July 2021

The life aquatic: Genomic and transcriptomic insights into crassulacean acid metabolism in *Isoetes*. **Botany 2020**, virtual meeting, July 2020.

CAM photosynthesis in the aquatic lycophyte *Isoetes taiwanensis*. **Botany 2019**, Tucson AZ, July 2019.

Does asexuality confer a short term evolutionary advantage?: a case study of the asexual fern *Myriopteris gracilis*. - Presented at "Next Generation Pteridology" the **13th Smithsonian Botanical Symposium**, Smithsonian Institution, June 2015 and at the **Kansas Academy of Science**, Pittsburg KS, March 2015

Molecules, morphology, and *Mimeoma scarabs*: evolutionary implications for a palm-associated scarab group. Presented at **89th Kansas (Central States) Entomological Society meeting**, Pittsburg KS, April 2013 and at **Wichita State Undergraduate Research and Creative Activities Forum**, Wichita KS, March 2013.

AWARDS and ACHIEVEMENTS:

Cornell - CALS Outstanding Teaching Assistant (2023)

Cornell - SIPS Barbara McClintock Award (2023)

Washington Biologists Field Club Research Award (2022)

American Fern Society - Edgar T. Wherry Award (2021)

Smithsonian Institution 10-week Graduate Student Fellowship (PI: Liz Zimmer; 2021)

Schmittau-Novak Integrative Plant Science Grant (2021)

American Society of Plant Taxonomists Graduate Student Research Grant (2014)

VOLUNTEER/OUTREACH EXPERIENCE:

In Defense of Plants Podcast – Invited guest, [Episode 331 Unraveling Quillwort Mysteries](#) (2021)

Free Science Workshop; Ithaca, NY (2019 - Present)

Physics Bus STEM outreach program; Ithaca, NY (2019 - Present)

Diversity Preview Weekend; Cornell University (2019)

Judy's Day Family Learning Festival: Lycophyte booth; Cornell University (2018)

Expanding Your Horizons, STEM careers workshop; Wichita State University (2015)

Science Olympiad State Competition: Heredity; Wichita State University (2014)

Exploration Place: Insect exhibit in Kansas pavilion; Wichita, KS (2012)

MEMBERSHIP in PROFESSIONAL SOCIETIES:

Botanical Society of America
American Fern Society

REFERENCES:

Fay-Wei Li (Boyce Thompson Institute/Cornell University), fl329@cornell.edu 607-254-1244

Jeff Doyle (Cornell University), jjd5@cornell.edu 607-255-7972

James Beck (Wichita State University), james.beck@wichita.edu 316-978-6063