

CHRISTOPHER P. KRIEG

Department of Botany, University of Wisconsin
Birge Hall, 430 Lincoln Dr., Madison, Wisconsin 53706
christopher.p.krieg@gmail.com | www.christopherkrieg.com

I. RESEARCH AREAS

Plant physiological ecology, species distribution modeling, polyploid ecology, abiotic stress, functional biogeography, hydraulic vulnerability, conservation physiology, structure & function

II. EDUCATION

- 2019 **University of Florida**, Gainesville FL
 Ph.D., Botany; Advisor: Dr. Emily Sessa
- 2014 **Colgate University**, Hamilton NY
 B.A., Biology; Advisor: Dr. James (Eddie) Watkins

III. PROFESSIONAL APPOINTMENTS

- 2020–2021 NSF Postdoctoral Research Fellow, **University of Wisconsin**, Madison, WI
2018–2019 Visiting University Associate, **University of Tasmania**, Hobart, TAS, Australia
2015–2018 Grinter Graduate Research Fellow, **University of Florida**, Gainesville, FL
2015 Research Technician, **University of California, Davis**, CA
2014 Research Technician, **Florida International University**, Miami, FL
2014 Summer Research Fellow, **Colgate University**, Hamilton, NY

IV. PUBLICATIONS (* mentored undergraduates)

IN PREPARATION

11. **Krieg C**, O’Keefe K, Salvi A, Kluender C*, McCulloh K. Underlying hydraulic traits determine variation in hydroscares in seven fern species, *in prep*
10. **Krieg C**, Treister N*, Zeller Z*, Saunders S*, Bishop G*, Jarnagin K*, Soltis P, Guralnick R, Sessa E. Polyploidy enhances coexistence through trait differentiation and soil niche partitioning in a fern polyploid complex, *in prep*
9. **Krieg C**, Saunders S*, Zeller Z*, Treister N*, Bishop G*, Jarnagin K*, Guralnick R, Soltis P, Sessa E. Broad-scale niche separation and novelty is driven by trait evolution in a fern polyploid complex, *in prep*
8. **Krieg C** & Sessa E. AJB Invited Review on polyploid ecophys, *to be submitted Oct 30*

PEER-REVIEWED PAPERS

7. Marques E, **Krieg C**, Decosta E, Bueno E, Sessa E, Penmetsa RV, von Wettberg EJB. (2020) The impact of domestication on above-and below-ground trait responses to nitrogen fertilization in wild and cultivated genotypes of chickpea (*Cicer sp.*), *in review*
6. Greenlon A *et al.* (#9/26 **Krieg C**). (2019) Global-level population genomics reveals differential effects of geography and phylogeny on horizontal gene transfer in soil bacteria. *Proceedings of the National Academy of Sciences*, 116(30), 15200-15209
5. **Krieg C**, Watkins JE, Jr., McCulloh K. (2019) A new protocol for psychometric pressure-volume curves of fern gametophytes. *Applications in Plant Sciences*, 7(5)
4. **Krieg C**, Valls R*, Vatland S, Gordinier J, Porter S, von Wettberg EJB. (2019) Nitrogen fixation: fixing the gap between concept and evidence-based learning with legume biology. *American Biology Teacher*, 81:4, 245-250
3. von Wettberg EJB *et al.* (#27/49 **Krieg C**). (2018) Ecology and genomics of an important crop wild relative as a prelude to agricultural innovation. *Nature Communications*, 9:649



2. **Krieg C**, Watkins JE, Jr., Chambers S, Husby C. (2017) Sex-specific differences in functional traits and resource acquisition in five cycad species. *AoB Plants*, 9:2
1. Mulualem K, van der Maesen LJG, **Krieg C**, von Wettberg EJB. (2016) Historical and phylogenetic perspectives of pigeonpea. *Legume Perspectives*, 11, 7-9

BOOK CHAPTERS

1. **Krieg C**, Mulualem K, von Wettberg EJB. (2017) Germplasm characterization and trait discovery. In “*The Pigeonpea Genome*”. p65-79, Springer, Cham.

GENERAL AUDIENCE (* mentored undergraduates)

4. Zeller Z*, **Krieg C**. (2019) Spoiled soils and the role of ferns in phytoremediation. *Fiddlehead Forum*, 45, 5
3. Pinson J, **Krieg C**. (2017) Fern foray. *Fiddlehead Forum*, 44, 4-7
2. **Krieg C**, Saunders S*. (2016) Ferns in space. *The Palmetto*, 33, 8-10
1. **Krieg C**, Jimenez S*, Vargas D, Penmetza RV, von Wettberg EJB. (2015) Green chickpeas: bringing Florida a new vegetable from the semi-arid tropics. *The Tropical Garden*, 36-37

V. MAJOR GRANTS

\$ AMOUNT

2020–2021	National Science Foundation Postdoctoral Research Fellowship	138,000
2019–2020	National Geographic Exploration Grant	50,087
	PI Katherine McCulloh (UW Madison), co-Is Christopher Krieg (UW Madison), Adam West (U Cape Town), and Michele Pfab (South African National Biodiversity Institute)	

VI. GRADUATE RESEARCH FUNDING & TRAVEL AWARDS

\$ AMOUNT

2018	NSF Graduate Research Opportunities Worldwide	5,000
2018	Graduate Student Research Award, Botanical Society of America	500
2018	Kelly Botanical Research Fellowship, Montgomery Botanical Center	3,000
2018	Student Travel Grant, Graduate Student Council, University of Florida	350
2018	Graduate Student Training Grant, Torrey Botanical Society	1,000
2018	Australia-Americas PhD Internship, Australia Academy of Sciences	3,500
2018	Carrie Lynn Yoder Scholarship, University of Florida	500
2016	NSF Graduate Research Fellowship (×3 yr funding)	34,000
2016	Student Travel Award, Graduate Student Council, University of Florida	350
2016	Rosemary Graduate Research Grant, Society for the Study of Evolution	2,500
2016	Michael L. May Interdisciplinary Research Grant, University of Florida	1,000
2015	Grinter Graduate Student Fellowship, University of Florida	7,500
2015	Student Travel Award, American Fern Society	550
2015	Organization for Tropical Studies Scholarship	1,000
2014	Student Travel Grant, Picker Science Institute, Colgate University	1,000
2014	Research Fellowship, Picker Science Institute, Colgate University	3,500

VII. PROFESSIONAL PRESENTATIONS († indicates speaker)

INVITED TALKS

- 2020 **Krieg C**†. From Genes to Distributions: physiological ecology as an integrator of polyploid biology. Botany. Bot. Soc. Of Am., virtual conference
- 2019 **Krieg C**†, McCulloh K, Guralnick R, Soltis P, Sessa E. Transgressive physiological traits explain broad-scale niche novelty in an allopolyploid fern complex. Botany. Bot. Soc. of Am., Rochester MN



- 2018 **Krieg C[†]**. New findings in cycad physiology. Montgomery Botanical Center: Mini-Symposium, Miami FL
- 2015 **Krieg C[†]**. Pteridophytes. Audubon Society, Corkscrew Swamp Sanctuary, Immokalee FL

CONTRIBUTED TALKS

- 2018 **Krieg C[†]**, McCulloh K, Sessa E. Polyploidy, traits, and the niche: insights into coexistence mechanisms. Botany. Bot. Soc. of Am., Rochester MN
- 2018 **Krieg C[†]**. The role of serpentine soils in the evolution of a polyploid fern complex. Northeast Natural History Conference. Burlington, VT
- 2017 **Krieg C[†]**. Cycads are weird. PopBio series, Dept. of Biol., Univ. of Florida
- 2016 **Krieg C[†]**. Evolution, and natural selection on ecophysiological traits in polyploid ferns. Whitney Laboratory for Marine Bioscience, St. Augustine FL.

POSTERS

- 2018 **Krieg C[†]**, McCulloh K, Sessa E. Polyploidy enhances coexistence through trait differentiation and niche partitioning. Gordon Research Conference: Multiscale Vascular Plant Biology, Mt. Snow VT
- 2017 **Krieg C[†]**. How understanding niche evolution in cycads can improve the conservation of threatened and endangered species. FMNH, Gainesville FL.
- 2016 **Krieg C[†]**, Watkins JE Jr, Husby C. Sex-specific differences in functional traits and resource acquisition in five cycads. PEPG, Lisbon, Portugal
- 2016 **Krieg C[†]**, Watkins JE Jr, Husby C. Sex-specific differences in functional traits and resource acquisition in five cycads. Botany. Bot. Soc. of Am., Savannah GA
- 2015 **Krieg C[†]**, Watkins JE Jr. Lineage specific responses to sunflecks in ferns, cycads, and angiosperms. Next Generation Pteridology, Washington DC
- 2014 **Krieg C[†]**, Watkins JE Jr. Sunfleck utilization in ferns, cycads, and angiosperms. Botany. Bot. Soc. of Am., Boise ID

VIII. ADVANCED RESEARCH TRAINING & FIELD COURSES

- 2018 Australian Plant Ecology, Victoria, Australia; UW-Madison field course
- 2018 PHYS-fest 2, Holden Arboretum, OH, USA
- 2017 Stable Isotope Biogeochemistry and Ecology (Isocamp), Salt Lake City, UT, USA
- 2016 Plant Environmental Physiology Group Techniques (PEPG), LIS, Portugal
- 2016 Taxonomy & Biology of Ferns & Lycophytes, Eagle Hill Institute, ME, USA
- 2016 PHYS-fest, Konza Biological Field Station, KS, USA
- 2016 LICOR 6400 Workshop, LiCor Biosciences, Lincoln NE, USA
- 2015 Desert Ecology & Evolutionary Biology, CA, USA; UW-Madison field course
- 2015 Ferns & Lycophytes, Organization for Tropical Studies, Costa Rica

IX. TEACHING & MENTORSHIP (Semesters taught: F = Fall, S = Spring, ## = Year)

COURSEWORK IN TEACHING METHODS & PEDEGOGY

University of Wisconsin, DELTA program, CIRTL Network

- F20 Semester course: Equity in STEM for all genders
- F20 Semester course: Evidence-Based Undergraduate STEM Teaching
- F20 Short series: Engaging Students through High-Impact Practices
- F20 Workshop: Bring an Inclusive Mindset to your Teaching

University of Florida, Department of Biology

- F15 ZOO 6927: Biology Laboratory Instructional Methods

COURSE DEVELOPMENT

University of Florida, Department of Biology, Co-developer



S17 BSC 3911: Entering Research in Biology

TEACHING ASSISTANT

Organization for Tropical Studies (OTS), Costa Rica

S17 Graduate level: Ferns & Lycophytes

University of Florida, Department of Biology

S16 PCB 3601C: Plant Ecology

F15 BSC 211L: Integrative Principles of Biology 2

GUEST LECTURER

University of Florida, Department of Biology

S17 BOT 3503: Phys. & Mol. Bio. of Plants, Topic: C3 vs C4 leaf physiology

S16 PCB 3601C: Plant Ecology, Topic: Leaf physiology, acclimation & adaptation

S16 BOT 6935: Plant Phys. Reading Group, Topic: Leaf physiology

RESEARCH MENTORSHIP (* conference presentation, ° published article)

2020 Ayah Amer, University of Wisconsin-Madison

2020 Ellie Coppock, University of Wisconsin-Madison

2020 Sophie Gosetti, University of Wisconsin-Madison

2019 Kerianne Jarnagin, University of Florida

2017–2019 Zachary Zellar**°, University of Florida

2018 Abby Sotomayor*, Colgate University

2018 Marissa Olavarria, Colgate University

2017–2018 Natalie Treister*, University of Wisconsin-Madison

2017 Giovanna Bishop, Wheaton College

2016 Sandy Saunders°, University of Florida

2015 Rebecca Valls*°, Florida International University

X. SERVICE & OUTREACH

SERVICE TO PROFESSION

Grant reviewer: National Science Foundation standard grant proposals

Ad hoc reviewer: New Phytologist, American Fern Journal,
American Journal of Botany, Journal of Agronomy,
Plant Signaling & Behavior, American Biology Teacher,
Plants People Planet, HortScience, PeerJ

2020–*present* **Reviewing Editor**, Applications in Plant Sciences

2020 **Senior Reviewer**, NSF GRFP workshop, Botanical Society of America

2020 **Organizer**, Symposium on polyploid ecology, annual Botany meeting

2019–*present* **Director of Symposia & Colloquia**, Bot. Soc. of America, Physiology Section

2019–*present* **Counsel member**, IUCN Cycad Specialty Group

2019–*present* **Counsel member**, Grants Committee, The Cycad Society

SERVICE TO UNIVERSITY

2020 **Steering Committee Member**, BIPOC Inclusion, Botany Dept., UW-Madison

2017–2019 **Co-Founder & Admin**, Facebook page: UF Biology Undergraduate Researchers

2017 **Co-Developer**, Entering Research in Biology, (BSC 3911), UF Dept. of Biology

2017–2018 **Green Initiatives**, Biology Graduate Student Association, University of Florida

2016–2017 **President**, Biology Graduate Student Association, University of Florida

2016–2017 **Graduate Rep.**, Biology Graduate Student Association, University of Florida

XI. PROFESSIONAL AFFILIATIONS

American Fern Society (member)



Botanical Society of America (member)
Ecological Society of America (member)
Society for the Study of Evolution (member)
Torrey Botanical Society of America (member)
National Association of Biology Teachers (member)
Organization for Tropical Studies (member)
Florida Native Plant Society (member)

The Cycad Society (counsel member)
IUCN Cycad Specialty Group (counsel member)
Australia Academy of Science (research fellow alumnus)
NSF Postdoctoral Research Fellowship Program (research fellow)
NSF Graduate Research Fellowship Program (research fellow alumnus)
Montgomery Botanical Center (research fellow)

