

# CHRISTOPHER P. KRIEG

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## I. RESEARCH INTERESTS

Plant physiological ecology, species distribution modeling, trait evolution, niche evolution, stress responses, hydraulic vulnerability to drought, conservation, functional biogeography

## II. EDUCATION

- 2020 ~ **University of Florida**, Gainesville FL  
Ph.D., Botany  
Dissertation: *Trait evolution and niche expansion in polyploid ferns*  
Advisor: Dr. Emily Sessa
- 2014 **Colgate University**, Hamilton NY  
B.A., Biology  
Thesis: *Sunfleck utilization in ferns, gymnosperms, and angiosperms*  
Advisor: Dr. James (Eddie) Watkins

## III. PROFESSIONAL APPOINTMENTS (– on-going)

- 2018– University Associate, **University of Tasmania**, Hobart, TAS, Australia  
2015– 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  
2013–14 Undergraduate Researcher, **Colgate University**, Hamilton, NY

## IV. PUBLICATIONS (‡ equal contributions, \* mentored undergraduates)

### IN PREPARATION

8. **Krieg C**‡, Marques E‡, von Wettberg EJB. Adaptive trait differentiation in wild genotypes of chickpea as selective targets for agricultural innovation, *in preparation*
7. **Krieg C**, McCulloh K, Sessa E. Polyploidy enhances coexistence through trait differentiation and niche partitioning in a *Polystichum* polyploid complex, *in preparation*
6. **Krieg C**, O’Keefe K, Salvi A, Sessa E, McCulloh K. Diverse strategies related to plant water status regulation in six fern species, *in preparation*

### PEER-REVIEWED PAPERS

5. **Krieg C**, Watkins JE, Jr., McCulloh K. (2019) A new protocol for psychometric pressure-volume curves of fern gametophytes. *Applications in Plant Sciences*, *in press*
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, Special Issue, Ecology & the Environment*, *in press*
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. Muluaem 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**, Muluaem 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*, in press
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

2019–2020	National Geographic Exploration Grant	50,087
	PI Katherine McCulloh (UW Madison), co-Is <b>Christopher Krieg</b> (UF) Adam West (U Cape Town), and Michele Pfab (South African National Biodiversity Institute).	

## VI. GRADUATE RESEARCH FUNDING &amp; 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

## TALKS

- 2018 **Krieg C**, McCulloh K, Sessa E. Polyploidy, traits, and the niche: insights into coexistence mechanisms. Bot. Soc. of Am., Rochester MN
- 2018 **Krieg C**. New findings in cycad physiology. Montgomery Botanical Center: Mini-Symposium, Miami FL
- 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.
- 2015 **Krieg C**. Pteridophytes. Audubon Society, Corkscrew Swamp Sanctuary, Immokalee 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. 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. Bot. Soc. of Am., Boise ID

**VIII. ADVANCED 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*)

## 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 (\* published abstract, ° published article, – current)

2017– Zachary Zellar\*°, University of Florida

2017–18 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** (– on-going)

### SERVICE TO PROFESSION

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

### SERVICE TO UNIVERSITY

2017 – Improving greenhouse teaching tools, Dept. of Biology, University of Florida  
2017 – **Co-Founder & Admin**, Facebook page: UF Biology Undergraduate Researchers  
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 (member)

Australia Academy of Science (research fellow)  
NSF Graduate Research Fellowship Program (research fellow)  
Montgomery Botanical Center (research fellow)

