

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. A new protocol for psychrometric pressure-volume curves of fern gametophytes. *in revision*
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
	“Using stable isotope ecology to save South Africa’s ‘living fossils’ today and in the future”. PI Katherine McCulloh (UW Madison), co-Is Christopher Krieg (UF) 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

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 poster abstract, ° published article)

Zachary Zellar*°, University of Florida

Natalie Treister*, University of Wisconsin–Madison

Giovanna Bishop, Wheaton College

Sandy Saunders°, University of Florida

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)

