Kimberly O'Keefe, *Curriculum Vitae* (updated January 2022)

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Research Interests

plant biology, plant physiology, ecosystem ecology, climate change biology, plant responses to stress, grasslands / savannas, fire ecology, woody encroachment, stable isotope ecology, ecohydrology

Appointments

2021 – Present **Assistant Professor**
Department of Biological Sciences, Saint Edward's University

2021 **Postdoctoral Research Associate**
Department of Ecosystem Science and Management, University of Wyoming

2017 – 2021 **Postdoctoral Research Associate**
Department of Botany, University of Wisconsin-Madison

Education

2012 – 2016 **Kansas State University, PhD Biology**
Advisor: Jesse B. Nippert
Dissertation: "Patterns and ecological consequences of water uptake, redistribution, and loss in tallgrass prairie"

2010 – 2012 **Saint Joseph's University, MS Biology**
Advisor: Clint J. Springer
Thesis: "Influences of local adaptation and genome size on *Panicum virgatum* (switchgrass) responses to variable precipitation timing"

2006 – 2010 **The College of New Jersey, BS Biology (Fine Arts Minor)**
Advisors: Howard K. Reinert and Janet Morrison
Thesis: "Habitat utilization by the northern pine snake (*Pituophis m. melanoleucus*) in the New Jersey Pine Barrens"

Teaching Experience

2021 – Present **Assistant Professor,** Saint Edward's University
BIOL 2427: Terrestrial Plant Ecology (Spring 2022)

BIOL 1308: General Biology II (Spring 2022)

BIOL 2423: Environmental Conservation and Climate Change (Fall 2021)

BIOL 3353: Geographic Information Systems (Fall 2021)

2017 **Co-Instructor,** University of Wisconsin-Madison
BOT 950: Stable Isotope Ecology, Taught with Kate McCulloh (1 semester)
Designed syllabus and lecture materials; presented lessons;
evaluated graduate student projects

2012 – 2016 **Graduate Teaching Assistant,** Kansas State University
BIO 501: Plant Physiology (3 semesters)
Taught senior-level plant physiology laboratory; advised small group
independent projects; evaluated student research papers

BIO 198: Principles of Biology (3 semesters)
Team-taught introductory biology course; led Plant Ecology / Physiology
"module"; provided feedback for students as they completed laboratory materials

2014 – 2015 **NSF GK-12 Resident Scientist**, Kansas State University and
Junction City High School
Freshman Physical Science (2 semesters)
Taught physics and chemistry to high school freshman; developed active-learning
"modules" based off my own research; led laboratory and field trip activities

2010 – 2012 **Service Learning Teacher,** Saint Joseph's University and
Samuel Gompers Elementary School
Service Learning Science Education Program
Led science classroom activities in 3rd – 4th grade classrooms

2007 – 2008 **Teaching Assistant**, Long Beach Island Foundation of Arts and Sciences
Elementary Science Education Program
Assisted with marine biology / coastal ecology program for children
(Kindergarten – 4th grade)

Students Mentored

2022 – Present Alecia Becker; undergraduate student at SEU
2022 – Present Annie Dale; undergraduate student at SEU
2022 – Present Isabela Sanfeliz; undergraduate student at SEU
2019 – 2020 Megan Grejczyk: Senior Thesis undergraduate student at UW-Madison
2019 – 2020 Andres Paredes-Vincent: Undergraduate Research Scholar at UW-Madison
2018 – 2019 Chad Kluender: Honor's Thesis undergraduate student at UW-Madison
2018 – 2019 James Hart: Honor's Thesis undergraduate student at UW-Madison
2017 – 2019 Kevin Hobbins: Honor's Thesis undergraduate student at UW-Madison
Summer 2017 Sam Jaeger: UW-Madison undergraduate student
Summer 2015 Braden Hoch: REU student at Konza LTER
Summer 2014 Andy Muench: REU student at Konza LTER
2013 – 2016 Rachel Lease: KSU undergraduate student
2012 – 2014 Ben Ketter: KSU undergraduate student

Grants and Fellowships

2021 **NSF Integrative Research in Biology:** Collaborative Proposal: Integrating trait diversity across hierarchical scales to predict biological resilience in an era of extreme environmental change. Total award of $1,402,568; Subaward amount of $341,093 to O'Keefe; grant period 2021-2026.

2018 **Lakeshore Nature Preserve Research Grant**, University of Wisconsin-Madison
Awarded $1500

2015 **Sigma Xi Grants in Aid of Research**, Kansas State University
Awarded $200

2014 **NSF GK-12 Teaching Fellowship**, Kansas State University
Awarded $30,000, plus tuition and health benefits; included teaching appointment, participation in summer teaching workshop, and weekly teaching seminars

2014 **Prairie Biotic Research Grant,** Small Grants Program
Awarded $1000

2013 **KSU Biology Graduate Student Association Research Grant**
Awarded $500

2013 **DOE Flux Course Fellowship**
Awarded $2500 to attend the 6th Annual Summer Course in Flux Modeling and Advanced Measurements at the University of Colorado Mountain Research Station

2012 **Sigma Xi Student Research Grant,** Saint Joseph's University
Awarded $200

2009 **Mentored Undergraduate Summer Experience Research Fellowship,**
The College of New Jersey
Awarded $1000

Travel Awards

2020 **Joint International Grassland / International Rangeland Congress Travel Grant,** Forage and Grassland Foundation and IGIR Congress
Awarded $2300 total

2014 – 2016 **Biology Graduate Student Travel Grant,** Kansas State University
Awarded $2000

College of Arts and Sciences Travel Award, Kansas State University
Awarded $2200

Graduate Student Council Travel Award, Kansas State University
Awarded $1500

Awards

2016	**Michael Scott Watkins Award for Excellent Graduate Student Teaching,** Kansas State University, Division of Biology
2016	**Chris Edler Award for Outstanding Research on Konza Prairie** Kansas State University, Division of Biology
2016	**John C. Frazier Award for Excellence in Graduate Research in Plant Biology,** Kansas State University, Division of Biology
2015	**Best Short Talk,** Kansas State University, Division of Biology
2015	**Graduate Oral Presentation (2nd Place),** Kansas State University Awarded $250
2013	**Graduate Oral Presentation (1st Place),** ESA MA Conference Awarded $650
2009	**NSF Graduate Research Fellowship** Honorable Mention

Publications (*indicates undergraduate student)

14. **O'Keefe K,** Bachle S, Keen R, Tooley EG, Nippert JB (2021) Root traits reveal safety and efficiency differences in grasses and shrubs exposed to different fire regimes. Functional Ecology. https://doi.org/10.1111/1365-2435.13972

13. Wedel ER, **O'Keefe K**, Nippert JB, Hoch B*, O'Connor RC (2021) Spatio-temporal differences in leaf physiology are associated with fire, not drought, in a clonally integrated shrub. AoB PLANTS. https://doi.org/10.1093/aobpla/plab037

12. Berry CZ, Ávila-Lovera E, De Guzman ME, **O'Keefe K**, Emery NC (2021) Beneath the Bark: Assessing Woody Stem Water and Carbon Fluxes and Its Prevalence Across Climates and the Woody Plant Phylogeny. Frontiers in Forests and Global Change. DOI=10.3389/ffgc.2021.675299

11. **O'Keefe K**, McCulloh KA (2020) Do invasive jumping worms impact sugar maple (*Acer saccharum*) functioning during a novel invasion of a temperate forest? *Biological Invasions*. DOI: 10.1007/s10530-020-02360-z

10. **O'Keefe K**, Bell DM, McCulloh KA, Nippert JB (2020) Bridging the flux gap: sap flow measurements reveal species-specific patterns of water-use in a tallgrass prairie. *JGR Biogeosciences*. DOI: 10.1029/2019JG005446

9. Hart J*, **O'Keefe K**, Augustine S, McCulloh KA (2020) Physiological responses of germinant *Pinus palustris* and *P. taeda* seedlings to water stress and the significance of the grass-stage. *Forest Ecology and Management*. DOI: 10.1016/j.foreco.2019.117647

8. **O'Keefe K**, Nippert JB, McCulloh KA (2019) Plant water uptake along a diversity gradient provides evidence for complementarity in hydrological niches. *Oikos*. DOI: 10.1111/oik.06529

7. **O'Keefe K**, Nippert JB (2018) Drivers of nocturnal water flux in a tallgrass prairie. *Functional Ecology*. DOI: 10.1111/1365-2435.13072

6. **O'Keefe K**, Nippert JB (2017b) An assessment of diurnal water uptake in a mesic prairie: evidence for hydraulic lift? *Oecologia* DOI: 10.1007/s00442-017-3827-2

5. **O'Keefe K,** Nippert JB (2017a) Grazing by bison is a stronger driver of plant ecohydrology in tallgrass prairie than fire history. *Plant and Soil* DOI: 10.1007/s11104-016-3048-1

4. Muench AT*, **O'Keefe K**, Nippert JB (2016) Comparative ecohydrology between *Cornus drummondii* and *Solidago canadensis* in upland tallgrass prairie. *Plant Ecology*. DOI: 10.1007/s11258-016-0567-z

3. **O'Keefe K**, Swemmer A, Nippert JB (2016) Savanna tree seedlings are physiologically tolerant to nighttime freeze events. *Frontiers in Plant Science* 7:46. DOI: 10.3389/fpls.2016.00046

2. **O'Keefe K**, Del Cid C, Arango CP, Puetz W*, Springer CJ (2013) Elevated [CO_2] does not ameliorate the negative consequences of infection with the xylem-limited bacteria *Xylella fastidiosa* in *Quercus rubra* seedlings. *Castanea* 78(3):216-226. DOI: 10.2179/12-040

1. **O'Keefe K**, Tomeo N, Nippert JB, Springer CJ (2013) Population origin and genome size do not impact *Panicum virgatum* (switchgrass) responses to variable precipitation. *Ecosphere* 4(3):37. DOI: 10.1890/ES12-00339.1

Edited Book Chapters

1. **O'Keefe K**, Springer CJ, Grennell J, Davis S (2014) Biofuel Development from Cellulosic Sources. *in:* The Plant Sciences – Ecology & the Environment, ed: Russel Monson, Springer Reference Series, Springer-Verlag Berlin Heidelberg. 2013-12-01 19:08:16 UTC

Invited Talks

O'Keefe K (2021) Using plant traits to understand tallgrass prairie community and ecosystem dynamics in a changing world. **Saint Edward's University**, Austin, TX (virtual).

O'Keefe, K (2021) Plant hydraulic traits that influence grassland communities. **Lunch with a Scientist at Cedar Creek LTER**, Bethel, MN (virtual).

O'Keefe K (2020) Using plant traits to understand tallgrass prairie community and ecosystem dynamics in a changing world. **St. Mary's College of Maryland**, St. Mary's City, MD (virtual).

O'Keefe K. (postponed from 2020 to 2022) Linking aboveground and belowground traits to understand shrub encroachment in a changing climate. **Multiscale Plant Vascular Biology (GRS)**, Newry, ME.

O'Keefe K (2020) Using plant traits to understand tallgrass prairie community and ecosystem dynamics in a changing world. **Eastern Connecticut State University**, Willimantic, CT.

O'Keefe K, McCulloh KA (2018) Effects of invasive jumping earthworms on sugar maple functioning. **Upper Midwest Invasive Species Conference**, Rochester, MN.

O'Keefe K, Nippert JB, McCulloh KA (2017) Ecohydrology of biological invasions in two contrasting ecosystems. **Cedar Creek Ecosystem Science Reserve**, Bethel, MN.

Talks (first authored only)

O'Keefe K, Keen R, Tooley E, Bachle S, Nippert JB, McCulloh K. (2021) Hydraulic Responses of Shrubs and Grasses to Fire Frequency and Drought in a Tallgrass Prairie Experiencing Bush Encroachment. **International Grassland / International Rangeland Congress**, Nairobi, Kenya (virtual).

O'Keefe K, McCulloh KA (2019) How do drought and fire impact water-use traits in a common grassland shrub? **University of Wisconsin Postdoc Symposium**, Madison, WI.

O'Keefe K, Nippert JB, McCulloh KA (2018) Plant water uptake along a diversity gradient: Evidence for complementarity in hydrological niches? **Ecological Society of America Annual Meeting**, New Orleans, LA.

O'Keefe K, McCulloh KA (2018) Plant water uptake along a diversity gradient: Evidence for complementarity in hydrological niches? **University of Wisconsin Postdoc Symposium**, Madison, WI.

O'Keefe K, McCulloh KA (2017) When earthworms invade! Effects of invasive jumping earthworms on sugar maple functioning at the UW Arboretum**. University of Wisconsin Postdoc Symposium**, Madison, WI.

O'Keefe K, Nippert JB (2015) Nocturnal transpiration is highly variable within a tallgrass prairie community. **Ecological Society of America Annual Meeting**, Baltimore, MD.

O'Keefe K, Swemmer A, Nippert JB (2015) Physiological mechanisms of drought and cold tolerance in coexisting woody species from South African savannas. **Annual Savanna Science Networking Meeting**, Skukuza, South Africa.

O'Keefe K, Nippert JB (2014) Grazing impacts on hydraulic lift in a tallgrass prairie. **Ecological Society of America Annual Meeting**, Sacramento, CA

O'Keefe K, Nippert JB, Springer CJ (2013) Population-level adaptation and genome size do not influence *Panicum virgatum* (switchgrass) responses to variable precipitation timing. **Mid-Atlantic Ecological Society of America Meeting,** Dover, DE.

O'Keefe K, Nippert JB, Springer CJ (2012) Influences of local adaptation and genome size on *Panicum virgatum* (switchgrass) responses to variable precipitation timing. **Ecological Society of America Annual Meeting**, Portland, OR

Poster Presentations (*indicates undergraduate student)

O'Keefe K, R Keen, JB Nippert, KA McCulloh (2019) Hydraulic responses of *Cornus drummondii* to fire frequency and drought in a tallgrass prairie. **American Geophysical Union Annual Meeting**, San Francisco, CA.

O'Keefe K, McCulloh KA (2018) Effects of invasive jumping earthworms on sugar maple hydraulics at the UW-Madison Arboretum. **UW-Madison Arboretum Science Day**, Madison, WI.

O'Keefe K, Nippert JB (2016) Tallgrass prairie ecohydrology: Implications for a changing climate. **ILTER Open Science Meeting**, Skukuza, South Africa

O'Keefe K, O'Connor R, Hoch B,* Nippert JB (2015) Does size matter? Size class differences in *Cornus drummondii* physiology. **American Geophysical Union Annual Meeting**, San Francisco, CA.

O'Keefe K, Nippert JB (2015) Up All Night: Nocturnal water-use in a tallgrass prairie. **LTER All Scientists Meeting**, Estes Park, CO.

O'Keefe K, Nippert JB (2014) Nighttime transpiration is highly variable within a tallgrass prairie community. **American Geophysical Union Annual Meeting**, San Francisco, CA.

O'Keefe K, Nippert JB (2013) Local adaptation, plasticity and physiological stress tolerance among five perennial grasses. **Ecological Society of America Annual Meeting**, Minneapolis, MN

O'Keefe K, Nippert JB, Springer CJ (2012) "Population-level adaptation and genome size do not influence *Panicum virgatum* (switchgrass) responses to variable precipitation timing" **LTER All Scientists Meeting**, Estes Park, CO.

O'Keefe K, Nippert JB, Springer CJ (2012) Genome size as an indicator of plastic responses to drought stress in *Panicum virgatum* L. (switchgrass) exposed to variable precipitation timing. **Annual Meeting of the American Society of Plant Biology,** Austin, TX**.**

O'Keefe K, Nippert JB, Springer CJ (2012) Genome size as an indicator of plastic responses to drought stress in *Panicum virgatum* L. (switchgrass) exposed to variable precipitation timing. **23rd Annual Sigma Xi Student Research Symposium**, Philadelphia, PA.

O'Keefe K, Nippert JB, Springer CJ (2012) Phenotypic responses of switchgrass (*Panicum virgatum* L.) to simulated climate change. **Grasslands in a Global Context Symposium**, Manhattan, KS.

Service

2021 – Present	**Manager,** Saint Edward's University SEU Greenhouse and Herbarium
2021 – Present	**Committee Member,** Saint Edward's University Tree Campus USA Committee, NSCI social committee
2021	**McNair Journal Faculty Reviewer,** Saint Edward's University
2020 – Present	**Botany Diversity and Inclusion Working Group**, University of Wisconsin-Madison Focus group to foster equitable merit, promotion, and evaluation processes
2020 – Present	**Botany Informal Talk Series**, University of Wisconsin-Madison Co-Organizer
2020 – Present	**Wisconsin Ecology Committee**, University of Wisconsin-Madison Postdoc Chair Representative
2018 – Present	**Data Carpentry Workshop**, University of Wisconsin-Madison Developed advanced data analysis workshop for plant scientists Taught "Visualization in R" lessons for 2-day data carpentry workshops
2018 – Present	**Wisconsin Institutes for Discovery**, University of Wisconsin-Madison Volunteered at a variety of science outreach events for K-12 students
2018 – Present	**Skype A Scientist**, Nationwide Video chatted with K-12 students about my research and being a scientist
2018	**Research Mentor Training Workshop**, University of Wisconsin-Madison Facilitated a 5-week mentoring workshop for post-docs and graduate students
2015 – 2016	**Konza Prairie Docent**, Konza Environmental Education Program Led educational tours of Konza Prairie to K-12 groups and the public
2012 – 2016	**Konza Prairie Volunteer**, Konza Prairie Biological Station Assisted with bison roundup and annual prescribed burning

2014	**Ecological Consultant,** EPA RainWorks Challenge Acted as an ecological consultant for undergraduate students as they developed EPA grant proposals
	Biology Graduate Student Association, Kansas State University Vice President
	Graduate Student Recruitment Committee, Division of Biology, KSU Student Representative,
2009	**Herpetological Survey**, New Jersey Audubon Society Surveyed Pine Snake nesting habitat in the New Jersey Pine Barrens

Professional Development / Training

2021	**PhysFest III: Short course in plant ecophysiology,** Instructor, CSU Mountain Campus
2019	**Data Carpentry Instructor Training,** UW-Madison
2018	**PhysFest II: Short course in plant ecophysiology,** Holden Arboretum, Kirkland, OH
2018	**Software Carpentry workshop,** UW-Madison
2018	**Data Carpentry workshop,** UW-Madison
2018	**Research Mentor Training – Instructor Training,** UW-Madison
2018	**Research Mentor Training Workshop,** UW-Madison
2018	**The Learning Environments and Pedagogics (LEaP) Institute,** UW-Madison
2018	**The Morgridge Entrepreneurial Bootcamp,** UW-Madison
2016	**PhysFest I: Short course in plant ecophysiology,** Konza Prairie LTER
2015	**Konza Prairie Docent Training Workshop,** Konza Prairie LTER
2014	**NSF GK-12 Summer Teaching Workshop,** KSU
2013	**Flux Course,** Rocky Mountain Field Station Training in Eddy Flux and Remote Sensing techniques
2013	**Isotopes and Paleoenvironments Workshop,** KS

Research Societies

American Geophysical Union, Beta Beta Beta Biological Honor Society, Ecological Society of America, Sigma Xi Scientific Research Society (Full Member)

Journals Reviewed For

American Journal of Botany, Agricultural and Forest Meteorology, Biological Invasions, Ecohydrology, Ecosphere, Frontiers in Plant Science, Functional Ecology, Journal of Botany, New Phytologist, Oecologia, Photosynthesis Research, Plant Cell & Environment, Tree Physiology