Katherine Carter Wynne

Michigan State University
Department of Plant Biology
Ecology, Evolution, and Behavior Program
Plant Biology Building
East Lansing, MI 48823

Phone: (972) 834-3067
PID: 181277104
Email: Wynnekat@msu.edu

Education

Expected 2024 — **Ph.D. in Plant Biology**
Ph.D. in Ecology, Evolution, and Behavior
Michigan State University, East Lansing, MI
Transferred Fall 2022
Advisor: Dr. Lauren Sullivan

2019 - 2022 — *__Division of Biological Sciences__,
University of Missouri, Columbia, MO.
Advisor: Dr. Lauren Sullivan

2017 — **B.A. in Biology** with *Honors*, Kalamazoo College, Kalamazoo, MI.
Minor in Chinese Language
Summa cum laude

Senior Individualized Project: "No niche overlap between a co-occurring native dune thistle (*Cirsium pitcheri*) and non-native invader (*Centaurea stoebe*)" with *Honors*
Advisor: Dr. E. Binney Girdler

2015 - 2016 — **Study abroad** with CET Academic Programs at Capital Normal University, Beijing, China

*Transferred Ph.D. programs due to advisor moving to another university.

Research Positions

Apr. 2018 – May 2019 **Prairie Restoration Research Assistant**
University of Texas, Austin, TX
Supervisor: Elinor Lichtenberg

Conducted flowering plant and pollinator surveys across the Cross Timbers ecoregion (TX and OK) to evaluate the effects of prescribed fire on plant and pollinator communities in restored grasslands

Jun. – Sept. 2017 **Aquatic Research Technician**
University of Arkansas, Fayetteville, AR
Cooperative Fish and Wildlife Research Unit
Supervisor: Daniel D. Magoulick

Conducted an observational study on the species-environmental relationships, distribution, and morphology of two subspecies of invasive crayfish (*Faxonius neglectus neglectus* and *F. n. chaenodactylus*) in the Boston Mountains and Ozarks Highlands ecoregions (AR, MO, and OK)

Jun. – Aug. 2016 **Botany Field Assistant**
Kalamazoo College, Biology Department, Kalamazoo, MI
Supervisor: E. Binney Girdler

Conducted an observational study on the plant-plant interactions between a federally threatened (*Cirsium pitcheri*) and an invasive plant species *(Centaurea stoebe*) in Michigan dune systems

Dec. 2015 – Jan. 2016 **Research Intern**
World Wildlife Fund for Nature, Beijing, China

Publications

2022 Magoulick, D. D., **Wynne, K. C.**, and Clark, J. Morphological traits related to potential invasiveness of two subspecies of the crayfish *Faxonius neglectus*. *River Research and Applications* doi.org/10.1002/rra.4024

2021 Rivera*, B. J., **Wynne*, K. C.**, and Girdler, E. B. 2021. Large scale presence determinants do not necessarily predict individual growth of an imperiled dune thistle (*Cirsium pitcheri*). *Great Lakes Botanist*, 60(3-4): 97-109

In prep ‡ Parker-Smith, M. J., **Wynne, K. C.**, and Sullivan, L. L. An all-consuming conundrum: The relationship between post-dispersal seed predation and plant community diversity in tallgrass prairies.

In prep ‡ **Wynne, K. C.**, Parker-Smith, M. J., Eyerly, E. M., and Sullivan, L. L. Quantifying seed rain patterns in a remnant and a chronosequence of restored tallgrass prairies in north central Missouri. *In Preparation for: Journal of Applied Ecology*

In prep ‡ **Wynne, K. C.**, and Sullivan, L. L. The role of temporal dispersal patterns in building diverse tallgrass prairie plant communities. *In Preparation for: Journal of Applied Ecology*

*****Indicates equal author contribution
‡ Preprints available upon request

Fellowships, Grants, and Travel Awards (> $60,500)

2023	**College of Natural Science Outstanding Scholar Fellowship** Michigan State University ($7,500)
2023	**Paul Taylor Award** Department of Plant Biology, Michigan State University ($6,800)
2023	**Natural Science Collections Summer Internship Fellowship** Michigan State University Herbarium ($6,000)
2023	**North American Prairie Conference Student and Young Professional Scholarship** Iowa Prairie Network ($50)
2023	**EEB Professional Horizon Fellowship** Michigan State University ($500)
2021 – 2023	**Prairie Fork Conservation Area Research Grant** *The role of temporal dispersal patterns in building diverse tallgrass prairie plant communities* Prairie Fork Charitable Endowment Trust ($20,269) Lead-PI: **K. C. Wynne**, Co-PI: L. L. Sullivan
2020 – 2021	**Prairie Fork Conservation Area Research Grant** *Assessing soil seed banks in north-central Missouri remnant prairies and a chronosequence of restored prairies* Prairie Fork Charitable Endowment Trust ($10,558) Lead-PI: **K. C. Wynne**, Co-PI: L. L. Sullivan
2020	**Division of Biological Sciences Travel Support** University of Missouri ($500)
2020	**Douglas D. Randall Young Scientists Development Fund Travel Award** University of Missouri ($500)
2019	**Supplemental Graduate Fellowship** University of Missouri ($5,000)
2016	**William Randolph Hearst Undergraduate Research Fellowship**, *No niche overlap between a co-occurring native dune thistle (Cirsium pitcheri) and non-native invader (Centaurea stoebe)* Kalamazoo College ($3,000)

Honors and Awards

2023	**EEB Notable Dissertation Speaker** Ecology, Evolution, and Behavior Program, Michigan State University
2017 – present	**Phi Beta Kappa** academic honor society
2017	**William E. Praeger Prize** for most outstanding senior major in Biology, Kalamazoo College
2017	**Diebold Scholar Award** for excellence in presentation of thesis, Kalamazoo College
2017	**Chinese Outstanding Achievement Award** for excellence in Chinese language and China related studies, Kalamazoo College

Presentations

Jun. 2023	**Wynne, K. C.**, and L. L. Sullivan. "The role of temporal dispersal patterns in building diverse tallgrass prairie plant communities". North American Prairie Conference (Altoona, IA). Oral presentation.
Aug. 2022	**Wynne, K. C**., M. J. Parker-Smith, E. Eyerly, L. L. Sullivan. "Seed rain and seed bank dynamics in a remnant and chronosequence of tallgrass prairie restorations". Ecological Society of America (Montreal, Canada). Poster.
Aug. 2021	**Wynne, K. C.,** M. J. Parker-Smith, L. L. Sullivan. "Quantifying patterns of seed rain in a remnant prairie and a chronosequence of restored tallgrass prairies in north-central Missouri". Ecological Society of America (Virtual). Oral presentation.
Mar. 2020	**Wynne, K. C.**, M. J. Parker-Smith, L. L. Sullivan. "Quantifying seed rain patterns in a remnant and a chronosequence of tallgrass prairies". Frugivores and Seed Dispersal (Uttarakhand, India). Oral presentation.
Feb. 2020	**Wynne, K. C.**, M. J. Parker-Smith, L. L. Sullivan. "Quantifying seed rain patterns in a remnant and a chronosequence of restored north-central Missouri tallgrass prairies". Missouri Natural Resources Conference (Lake of the Ozarks, MO). Oral presentation.
Aug. 2018	**Wynne, K. C.**, B. J. Rivera, and E. B. Girdler. "Relative influence of environmental factors in determining distribution of an imperiled dune thistle (*Cirsium pitcheri*) on Great Lakes shorelines. Ecological Society of America (New Orleans, LA). Poster.
May 2017	**Wynne, K. C.** "No niche overlap between a co-occurring native dune thistle (*Cirsium pitcheri*) and non-native invader (*Centaurea stoebe*)". Diebold Symposium (Kalamazoo, MI). Oral presentation.

Mar. 2017	**Wynne, K. C.**, and E. B. Girdler. "No niche overlap between a co-occurring native dune thistle (*Cirsium pitcheri*) and non-native invader (*Centaurea stoebe*)". Michigan Academy of Science, Arts, and Letters (Kalamazoo, MI). Poster.

Teaching Positions

Fall 2020, 2021	**Laboratory Teaching Assistant for General Ecology Lab** University of Missouri, Division of Biological Sciences, Columbia, MO
Jan. – May 2020	**Laboratory Teaching Assistant for Introduction to Biological Systems** University of Missouri, Division of Biological Sciences, Columbia, MO
Apr. – Jun. 2017	**Grader for Biostatistics** Kalamazoo College, Math Department, Kalamazoo, MI
Apr. 2017	**Grader for Honors Biology** Kalamazoo Area Mathematics and Science Center, Kalamazoo, MI
Sep. – Nov. 2016	**Grader for Applied Statistics I** Kalamazoo College, Math Department, Kalamazoo, MI
Sep. – Nov. 2014	**Laboratory Teaching Assistant for Composition and Structure** Kalamazoo College, Chemistry Department, Kalamazoo, MI

Mentorship

Past

Erica Eyerly	Undergraduate Student	*Current: Environmental Health Technician at University of Missouri*
Maya Parker-Smith	Undergraduate Student.	*Current: Data scientist at Denison University*
Danielle Gafford	Undergraduate Student.	*Current: University of Missouri graduate*
Savana Presson	Undergraduate Student.	*Current: University of Missouri undergraduate*

Outreach and Community Involvement

2018 – present	**iNaturalist –** Online, username: kwynne Made 1,000+ observations and provided 2900+ species identifications for users, specializing in grassland plants (TX, OK, MO). Created and continue to manage the Flora of Tucker Prairie project.
2023	**Kellogg Biological Station BioBlitz** – Kellogg Bird Sanctuary, Augusta, MI Registered participants and made natural history observations of organisms found in the Kellogg Bird Sanctuary.

2022	**Columbia Young Scientist Fair** – University of Missouri, Columbia, MO Judged K – 2 science fair projects. Hosted by MU Connector for homeschooled students in Columbia, MO.
2022	**Prairie Restoration Event** – Rock Bridge High School, Columbia, MO Spoke to high school students about prairie restoration and then assisted them with seeding their own restoration. Event hosted by the Wildlife and Fisheries Sciences Graduate Student Organization at the University of Missouri.
2021	**Tucker Prairie Clean Up –** Callaway County, MO Removed trash and building debris from the remnant tallgrass prairie, Tucker Prairie, in conjunction with the Missouri Master Naturalists and Missouri Department of Conservation.
2019	**Youth Monarch Conservation Program –** Callaway County, MO Conducted an informal seminar about conservation and remnant tallgrass prairie ecosystems at Tucker Prairie for a juvenile court youth group.
2014 – 2015	**Kalamazoo River Guardians** – Kalamazoo Nature Center, Kalamazoo, MI Sampled benthic macroinvertebrates in the Kalamazoo River to monitor water quality and river health.

Quantitative Skills and Training

Graduate Coursework **(18 credit hours)**

Fall 2019	**Applied Statistical Models I** Regression, ANOVA, logistic regression, discriminant analysis, tree-based methods, semi-parametric regression, support vector machines, and unsupervised learning methods including principal component and clustering analysis.
Spring 2020	**Applied Statistical Models II** Generalized linear models and random effects models, focusing on linear and generalized linear mixed models, repeated measures, and longitudinal data.
Spring 2020	**Advanced Quantitative Methods in the Biological Sciences** Tidyverse, mixed-effects models, and multivariate data analysis and visualization methods including MANCOVA, PERMANOVA, PCA, NMDS, and PCoA.
Spring 2021	**Applied Spatial Statistics** Spatial random processes, spatial point patterns, kriging, simultaneous and conditional autoregression, and spatial data analysis using R and RStudio.

Fall 2021	**Landscape Ecology and GIS II** Principles and applications of landscape ecology, focusing on learning spatial analysis techniques using GIS.
Spring 2022	**Introduction to Bayesian Data Analysis** Bayes formulas, choices of prior, empirical Bayesian methods, hierarchal Bayesian methods, statistical computation, Bayesian estimation, model selection, predictive analysis, applications, JAGS software.

Course Development

Summer 2020	**General Ecology Lab** University of Missouri, Division of Biological Sciences, Columbia, MO Co-developed coursework with Dr. Lauren Sullivan that introduced undergraduate students to foundational ecological principles, sampling methods (e.g., quadrats, transects, pitfall traps, mesocosms, etc.), and data analysis and visualization using R and RStudio.

Languages and Software

R, RStudio, JAGS, ArcGIS, ImageJ, SQL

Professional Development and Organizations

2023	**Symposium on Anti-racist Community Engagement** University of Massachusetts Dartmouth (Virtual)
2019 – 2022	**Dataphiles – University of Missouri** Active participant in Dataphiles, a forum for University of Missouri graduate students and faculty to discuss and provide guidance on data-related issues and analysis.
2020 – 2021	**Graduate Student Inclusion and Equity Reading Group** – Division of Biological Sciences, University of Missouri
2021	**Prairie Flora Workshop**, near Springfield, MO Institute of Botanical Training