

# Alicia J. Foxx, PhD

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[aliciafoxx.github.io/](https://aliciafoxx.github.io/)

## Research Foci

*Basic plant ecology, applied restoration ecology, synthesis and metascience, diversity, equity, inclusion, accessibility in science*

## Professional Experience

- Conservation Scientist:** Chicago Botanic Garden, March 2023 – present
- Adjunct Faculty** Plant Biology and Conservation, Northwestern University
- Research Scientist:** NSF Biological Integration Institute, New Roots for Restoration: integrating plant traits, communities, and the soil ecosphere to advance restoration and agricultural systems. July 2022 - March 2023
- Postdoctoral Fellow:** Oak Ridge Institute for Science and Education and the USDA-ARS, SciNet Postdoctoral Fellow: Synthesis and metagenomic research in metagenomics and plant-microbe interactions. Mentor: Adam Rivers, PhD. June 2020 – June 2022

## Education

- PhD:** Northwestern University, 2020; Plant Biology and Conservation *Implications of Within-Species Root and Shoot Trait Variation and Plasticity for Species Coexistence*. Advisor: Andrea T. Kramer, PhD
- Graduate certificate** Kellogg School of Management: Management for Scientists and Engineers
- MS:** Northwestern University, 2014; Plant Biology and Conservation *Intraspecific variation in Elymus elymoides root traits and its influence on competitive outcomes*. Advisor: Andrea T Kramer, PhD
- BS:** Elmhurst University, 2012; Biology. Advisor: Paul Arriola, PhD

## Publications

Published | mentee or trainee

1. Rosa, S, Hollis, S, Francia, RM, Renner, A, Johnson, N, Barak, R, Jones, H, Williams, EW, Foxx, AJ. (2024). **Shifting dynamics in restoration ecology: concrete steps toward centering BIPOC communities and perspectives.** *Ecological Solutions and Evidence*; 5(2): e12345.
2. Foxx AJ & Adeniran A (2024). **Virtual conference challenges must be overcome to improve inclusion in science.** *Frontiers in Ecology and the Environment*.
3. De Vitis M, Havens K, Barak R, Egerton-Warburton L, Ernst A, Evans M, Fant J, Foxx AJ, Hadley K, Jabcon J, O'Shaughnessey J, Ramakrishna S, Sollenberger D, Taddeo S, Urbina Casanova R, Lan X, Woolridge C, Zeldin J, & Kramer A. (2022) **Diagnosing and treating causes of dark diversity in restoration.** *Frontiers in Conservation Science*.
4. Foxx AJ. (2022) **Species variability in relative strength of intraspecific and interspecific interactions.** *Folia Oecologica*; 49(2).
5. Foxx AJ, Franco Melendez KP, Hariharan J, Kozik A, Wattenburger C, Godoy-Vitorino F, & Rivers AR (2021) **Advancing Equity and Inclusion in Microbiome Sciences.** *mSystems*; 5(5): e01151-21.
6. Foxx AJ, Wojcik S. (2021) **Plasticity in response to soil texture affects the relationships between a shoot and root trait and responses vary by population.** *Folia Oecologica*; 48(2): 199-204.
7. Foxx AJ. (2021) **Induced plasticity alters responses to conspecific interactions in seedlings of a perennial grass.** *Scientific Reports*; 11: 1-8.
8. Foxx AJ, & Kramer A. (2020). **Hidden variation: cultivars and wild plants differ in trait variation with surprising root trait impacts.** *Restoration Ecology*; 29: e13336.
9. Foxx AJ & Kramer, A. (2020). **Variation in number of root tips influences survival in competition with an invasive grass.** *Journal of Arid Environments*; volume 179.
10. Zeldin J, Lichtenberger T, Foxx AJ, Williams E, & Kramer A. (2020). **Intraspecific functional trait structure of restoration-relevant species: Implications for restoration seed sourcing.** *Journal of Applied Ecology*; 57: 864-874.
11. Foxx AJ, & Fort F. (2019). **Root and shoot competition lead to contrasting competitive outcomes under water stress: A systematic review and meta-analysis.** *PLoS ONE*. 14(12): e0220674.
12. Foxx AJ, Barak R, Lichtenberger T, Richardson L, Rodgers AJ, & Williams EW. (2019). **Evaluating the prevalence and quality of conference codes of conduct.** *Proceedings of the National Academy of Sciences*. 116 (30): 14931-14936.
13. Hintz L, Eshleman M, Foxx AJ, Wood T, & Kramer A. (2016). **Population differentiation in early life history traits of *Cleome lutea* var. *lutea* in the Intermountain West.** *Western North American Naturalist*. 76(1): 6-17.

Submitted | mentee or trainee

1. Foxx AJ, Varrientos G, & Kramer A. **Multigenerational invasive plant competition causes greater root trait shifts in a perennial grass.** *Revisions submitted - Plant Ecology*.
2. Foxx AJ. **Native plants diverge in resource availability response depending on whether they experienced**

- multigenerational invasive interactions. *Under Review - Acta Oecologica*.
3. Foxx AJ, Fort F, & Kramer A. Population and species neighbor identity impact trait-trait relationships and plant performance. *Revisions - Population Ecology*.
  4. Foxx AJ, Rivers AR. A cautionary tale of batch corrections usage when synthesizing imbalanced microbiome community profiles: seed microbiome case study. *Under Review - Biotechnology and Bioengineering*.

## Professional Experiences

2024	Black Earth Restoration Collective (BERC; <a href="https://aliciafoxx.github.io/berc/">aliciafoxx.github.io/berc/</a> ) is a collective that aims to uplift Black, Indigenous, and Latine members and welcomes and respects plant knowledge in the many forms it comes in, including personal, cultural, lived, and professional experience. BERC welcomes anyone who has experience living and working with plants (e.g., agriculture, plant-related research, sustainability).
2021	Co-moderator of Scientific Computing Initiative (SCINet) and AI Center of Excellence 2021 Fellows conference.
Nov 2020 - Feb 2021	Contributions to proposal ideas and writing, with contributions as a research scientist pending funding. BII: New Roots for Restoration: integrating plant traits, communities, and the soil ecosphere to advance restoration of natural and agricultural systems." PI: Allison Miller; Co-PIs: Kay Havens (Chicago Botanic Garden); Sarah Lovell (University of Missouri); Jim Bever (University of Kansas); Kris Callis-Duehl (Danforth Plant Science Center). National Science Foundation Biology Integration Institute. \$12,500,000. Awarded August, 2021.
Feb 2018	Delivered keynote address at inaugural Elmhurst College American Dream Fellowship Competition for first generation college students; Elmhurst, IL.
2015 – 2018	Science journalism collaboration in workshop with journalism students under Dr. Donna Leff, PhD (Medill School of Journalism; Northwestern University).
Feb 2017	Advocated for increased funding for plant restoration research in meetings with Legislative directors and assistants of Colorado Senators and Representatives. Washington, D.C.
Feb 2017	Session moderator at the National Native Seed Conference; Washington, DC
Nov 2016	Addressed Cook County Commissioners during Forest Preserve Budget hearing to increase funding for the Chicago Botanic Garden.
2014 - 2016	ComSciCon Chicago Organizing Committee conference organizer executing fundraising and performed and event responsibilities, Chicago, IL

## Mentoring Experiences

<i>Postdoctoral Researchers</i> Nia Johnson (2024-present)	
<i>PhD and MS students</i> Teagan LeVar (MS, 2023-present) Tayah Carlisle (MS, 2024-present)	
<i>Student Committees</i> Alison Branz (MS, 2023-2024)	
<i>Research Assistants</i>	
Samantha Rosa (2023-present) Amelia Renner (2023-present) Tayah Carlisle (2023-present) Sarah Hollis (2022-present) Rory Schiafo (2024)	Liz Vogel (2023-present) Reg Francia (2022-present) Leah Lenzo (2023-present) Camilla Mancini (2023-present)
<i>Undergraduate mentees</i>	
<i>NSF REU</i> Rachel Warner (2024) Moirra Newman (2024) Kiera Carpenter (2023) Brooke Allen (2017) Giselle Varrientos (2014) Lisa Hintz (2014)	<i>Other Programs</i> Marian Arevalo (2023; NEIU) Anissa Loyola (2018; Lake Forest College) Siobhan Wojcik (2015; Lake Forest College) Osja Brinson (2013; Lake Forest College)
<i>High School mentees</i>	<i>Elementary School mentees</i>
Meah Johnson (2023) Raymond Diaz (2018) Giovannie Lanzo (2017) Breanna Giametta (2016) Elise Miedlar (2016)	Grace Guarraia (2013-2014)

## Grants

May 2024	Buffett Institute for Global Affairs Global collaboration grant: Plants of My Ancestors; \$4,000
Feb 2023	Synthesis Center for Conservation and Restoration (sCORE): Reframing restoration practice, \$23,000
Feb 2023	Synthesis Center for Conservation and Restoration (sCORE) Seedling working group, \$30,000
Sept 2021	NSF BII Grant: New Roots for Restoration. \$12,500,000
Jun 2018	Plant Biology and Conservation Travel Award; Northwestern University

Feb 2017	Plant Biology and Conservation Research Award; Northwestern University
June 2014	Plant Biology and Conservation Travel Award; Northwestern University
Mar 2013	Plant Biology and Conservation Research Award; Northwestern University

### **Fellowships & Commendations**

2020-2022	SCINet Postdoctoral Fellowship; USDA-ARS & ORISE
Feb 2018	Elmhurst University American Dream Fellowship; Honorary Fellowship
Apr 2016	Black Graduate Student Association's 19 <sup>th</sup> Annual Conference; Poster award
May 2012	James F. Berry Biology Chairperson's Award; Elmhurst College
May 2008	Gottlieb Memorial Hospital Scholarship
May 2008	Pepsi Scholarship

### **Teaching Experiences**

Mar 2022	Data Carpentry support staff – R and data management
Apr 2021	Data Carpentry support staff – R and data management
Jan - Apr 2019	Quantitative Methods in Ecology and Conservation. Teaching Assistant Northwestern University. <i>Responsibilities:</i> Graded homework, in-class assistant, held office hours. Instruction using R statistical software.
Mar - Jun 2017	Evolutionary Processes. Teaching Assistant, Northwestern University. <i>Responsibilities:</i> Graded quizzes and tests, in-class assistant, held office hours.
Apr - Jun 2016	Evolutionary Processes. Teaching Assistant, Northwestern University. <i>Responsibilities:</i> Graded quizzes and tests, in-class assistant, held office hours.
Jan - Apr 2013	Health of the Biosphere, Teaching Assistant, Northwestern University. <i>Responsibilities:</i> Graded quizzes and tests, in-class assistant, held office hours.
Jul 2010 & 2012	Math and Science Summer Academy, High school student tutor & lab assistant Elmhurst College, 140 contact hours (2 weeks). <i>Responsibilities:</i> Graded quizzes, tutored, assisted in lab, supported team building.

### **Resources**



foxxlab R package:

[github.com/aliciafoxx/foxxlab/](https://github.com/aliciafoxx/foxxlab/)

## Conference Presentations

*\*mentee coauthor*

2022	Implications of seedling traits and explorations belowground. Foxx, A & Kramer, A. Ecological Society of America
2021	Variability accounting methods in metagenomic and amplicon meta-analyses. Foxx, A & Rivers, A. SCINet fellows conference
2018	Exploring the role of plastic responses in competitive intensity and coexistence. Foxx, A, Allen B*, & Kramer, A. Ecological Society of America
2018	Impact of plasticity on competition and coexistence. Foxx, A, Allen, B*, & Kramer, A. Chicago Botanic Garden
2017	Competitive intensity among and between seedlings: what do the roots tell? Foxx, A. National Native Seed Conference
2017	Rooting Intraspecific variation and plasticity in coexistence. Foxx, A. Chicago Botanic Garden
2016	Impact of intraspecific variation in root traits of a perennial grass on competitive outcomes. Foxx, A & Kramer, A. Black Graduate Student Association Conference
2016	The role of root trait diversity in seedling establishment. Foxx, A. Chicago Botanic Garden.
2016	Seed Bank Germination Report. Foxx, A. Chicago Botanic Garden
2015	Does number of lateral roots in <i>Elymus elymoides</i> populations vary and influence competitive outcomes with cheatgrass? Foxx, A & Kramer, A. National Native Seed Conference
2014	Variation in Intraspecific Root Traits of <i>Elymus elymoides</i> & Implications for water stress tolerance and competition. Foxx, A & Kramer, A. Colorado Plateau Native Plant Program.
2014	Intraspecific variation in <i>Elymus elymoides</i> root traits and its influence on competitive outcomes. Chicago Botanic Garden
2014	Intraspecific variation in <i>Elymus elymoides</i> root traits and its influence on competitive outcomes. Botanical Society of America
2012	The Impact of Weed Competition - Preliminary Studies. Associated Colleges of the Chicago Area Symposium.

## Invited Seminars

Feb 2024	University of Illinois, Chicago: "Exploring plant population trait variation in restoration contexts"
Oct 2023	Morton Arboretum: "Exploring plant population trait variation in restoration contexts"
Jul 2023	Washington University, Tyson Research Center: "Exploring plant population trait variation in restoration contexts"
Apr 2021	Elmhurst University, "Importance Of Native Plant Conservation"

## Service to the Field


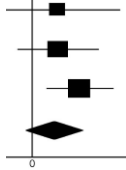


<i>Associate Editor</i>		
Ecological Solutions and Evidence, British Ecological Society		
<i>Manuscript Reviewer</i>		
<i>2020</i> Biological Conservation New Phytologist Ecology	<i>2021</i> Plant Signaling & Behavior Plant Ecology Ecosphere African Journal of Plant Sciences Restoration Ecology Agronomy	<i>2022</i> Agronomy International Journal of Plant Sciences PLoS Computational Biology Annals of the Brazilian Academy of Science PLoS One Soil Systems
<i>2023</i> New Phytologist Ecology and Evolution Plant and Soil	<i>2024</i> Ecological Solutions and Evidence	<i>2025</i>

## Community Service & Outreach

Jul 2024	<i>UIC public health lunch</i>
Mar 2024	<i>Oak Ridge Institute for Science and Education, Career panel</i>
Oct 2023	<i>Elmhurst University, Career panel</i>
Apr 2023	<i>New Roots For Restoration, Salary negotiation panel</i>
Dec 2022	<i>Northwest Compass, Organized food donation and collection</i>
Apr 2019	<i>Northwestern University Service Project, Organized and lead planting of campus native plant garden</i>
May 2019	<i>The Night Ministry, Organized and lead toiletry kit creation and donation for homeless LGBTQ+ youth</i>
Jun 2018	<i>Evanston Scholars, Participated in panel on graduate school experiences for high school students</i>
Apr 2018	<i>Purple Pantry, Participated in food distribution for students in need</i>
Apr 2018	<i>Chicago Botanic Garden Science Festival, lead an activity explaining molecules to children</i>
Apr 2017	<i>The Night Ministry, Organized and lead toiletry kit creation and donation for homeless LGBTQ+ youth</i>
Jun 2016	<i>Stellar Girl Program, delivered a presentation to young girls on my research to encourage their futures in science</i>

May 2016	<i>Northwestern University Service Project</i> , Participated in invasive plant removal as part of the Botany Club
Apr - Jun 2016	<i>STEAM</i> , designed and executed art x science activities for grade school students on drawing the benefits of plant diversity
Mar 2016	<i>Somme Woods, Cook County Forest Preserve</i> , Volunteer to cut trees
Dec 2015	<i>McCutcheon Elementary School Science Fair Judge</i> assessed and scored grade school student's science fair projects.
Nov 2015	<i>LaBagh Woods, Cook County Forest Preserve</i> , Volunteer native seed cleaning
Jul 2015	<i>Elmhurst College</i> , invited outreach speaker to encourage pursuit of secondary education of high school students
Mar - Jun 2015	<i>Northwestern Science Club</i> mentor of elementary students
Jun-Aug 2015	<i>Northwestern Y.O.U. Science Club</i> mentor of elementary students
Jul 2014	<i>Firewise: Botany in Action, Idaho Botanic Garden</i> , brush removal volunteer
Feb - Jun 2014	<i>New Life for Old Bags</i> service project, Organized and lead plastic bag collection and processing for converting to bed mats for homeless people
Jun 2013	<i>World Environment Day, Chicago Botanic Garden</i> , conducted seed and invasive species demonstration and communicated importance of conservation with public
Feb 2013 & 2015	<i>Elmhurst College</i> invited outreach speaker for college students to encourage the pursuit of graduate school.

### Skills

R	Data Synthesis	Python	Bash Scripting
			
Advanced	Advanced	Some	Some

### References

Andrea Kramer, PhD Chicago Botanic Garden & Northwestern University Ph: (847) - 835-6971 <a href="mailto:akramer@chicagobotanic.org">akramer@chicagobotanic.org</a> Reference Type: Supervisor	Adam Rivers, PhD United States Department of Agriculture - ARS E: <a href="mailto:adam.rivers@usda.gov">adam.rivers@usda.gov</a> Reference Type: Supervisor	Kayri Havens, PhD Chicago Botanic Garden Ph: (847) - 467-1266 <a href="mailto:khavens@chicagobotanic.org">khavens@chicagobotanic.org</a> Reference Type: Supervisor
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