# Alicia J. Foxx, PhD

*Research Scientist*

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## EDUCATION

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| **PhD** | **Northwestern University, 2020. Plant Biology and Conservation** Dissertation: *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** Thesis: *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 |

## PROFESSIONAL POSITIONS

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| **Research Scientist** | **NSF Biological Integration Institute**: **New Roots for Restoration:** integrating plant traits, communities, and the soil ecosphere to advance restoration of natural and agricultural systems. Jul 2022 - present |
| **Postdoctoral Fellow** | **Oak Ridge Institute for Science and Education Post-doctoral Fellowship with the USDA-ARS** Synthesis and applied machine learning research in genomics and bioinformatics for plant-microbe interactions with Adam Rivers, PhD. Jun 2020 – Jun 2022 |

## PUBLICATIONS

*Published* | ***undergraduate mentee***

1. **Foxx A.J.** (2022) Species variability in relative strength of intraspecific and interspecific interactions. ***Folia Oecologica***; 49(2). https://doi.org/10.2478/foecol-2022-0019

2. **Foxx A.J.,** Franco Melendez K.P, Hariharan J., K., Kozik A., Wattenburger C., Godoy-Vitorino F., & Rivers A.R. (2021) Advancing Equity and Inclusion in Microbiome Sciences. ***mSystems***; 5(5): e01151-21. https://doi.org/10.1128/mSystems.01151-21
3. **Foxx A.J.,** 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. https://doi.org/10.2478/foecol-2021-0020
4. **Foxx A.J.** (2021) Induced plasticity alters responses to conspecific interactions in seedlings of a perennial grass. ***Scientific Reports****;* 11: 1-8. https://doi.org/10.1038/s41598-021-93494-0
5. **Foxx A.J.**, & Kramer A. (2020). Hidden variation: cultivars and wild plants differ in trait variation with surprising root trait impacts. ***Restoration Ecology***; 29: e13336. https://doi.org/10.1111/rec.13336
6. **Foxx A. J.** & Kramer, A. (2020). Variation in number of root tips influences survival in competition with an invasive grass. ***Journal of Arid Environments***; volume 179. https://doi.org/10.1016/j.jaridenv.2020.104189
7. Zeldin J., Lichtenberger T., **Foxx A.J.**, 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. https://doi.org/10.1111/1365-2664.13603
8. **Foxx A.J.**, & 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. https://doi.org/10.1371/journal.pone.0220674
9. **Foxx A.J.**, Barak R., Lichtenberger T., Richardson L., Rodgers A.J., & Williams E. W. (2019). Evaluating the prevalence and quality of Conference Codes of Conduct. ***Proceedings of the National Academy of Sciences***. 116 (30): 14931-14936. https://doi.org/10.1073/pnas.1819409116
10. Hintz L.*****, Eshleman M., **Foxx A.J.**, 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. https://doi.org/10.3398/064.076.0103

*Submitted*

1. De Vitis, K., Havens, M, Barak, R., Egerton-Warburton, L., Ernst, A., Evans, M., Fant, J. **Foxx, A.J.**, Hadley, K., Jabcon, J., O'Shaughnessey, J., Ramakrishna, S., Sollenberger, D., Taddeo, S., Urbina Casanova, Lan, X., R., Woolridge, C., Zeldin, J., & Kramer. Diagnosing and treating causes of dark diversity in restoration. *Revisions submitted*.
2. **Foxx A.J.**, Fort F., & Kramer A. Trait and performance outcomes from intraspecific plant population mixtures can deviate from interspecific and monoculture interactions. *Under review.*

*In advanced preparation*

1. **Foxx A.J.**, Varrientos G.*, & Kramer A. Invasive plant exposure causes greater trait shifts belowground than aboveground. *Revise and Resubmit: Annals of Botany*.

2. **Foxx A.J.**, Rivers A.R. Comparing batch effects correction methods implemented in R on microbiome community profiles. *In prep*.
3. **Foxx A.J.**, Rivers A.R. Metascience of the microbiome: synthesizing meta-analyses on microbial communities reveals the need to account for study variability. *In prep.*
4. **Foxx A.J.** & Adeniran A. Overcoming challenges of virtual conferences to continue to reap inclusion benefits after the COVID-19 pandemic. *In prep.*
5. **Foxx A.J.** Invasive exposure leads to more plastic root allocation in native plants. *In prep.*

## PROFESSIONAL EXPERIENCE

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| Nov 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 participation 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 2017 | Science policy advocacy for increased funding for plant restoration research to 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 | Science policy advocacy for funding to Cook County Commissioners during Forest Preserve Budget hearing to increase funding for the Chicago Botanic Garden. |
| 2014 - 2016 | ComSciCon Chicago conferences inaugural and year two organizing committee, executing fundraising and performed and event responsibilities, Chicago, IL. |
| Jun 2013 – Aug 2019 | Graduate Housing Assistant, Northwestern University; Live-in position where I organized and hosted 175 events to build community and serve as a student liaison for graduate students. |

## GRANTS

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| Sept 2021 | 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. Submitted January 27, 2021. |

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| 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

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|---|---|
| 2013; 2018; 2019 | Graduate Housing Assistant Excellence Award; Northwestern Residential Services |
| Feb 2018 | Elmhurst University American Dream Fellowship; Honorary Fellowship |
| Apr 2016 | Black Graduate Student Association's 19th Annual Conference; Poster award |
| May 2012 | James F. Berry Biology Chairperson's Award; Elmhurst College |
| May 2008 | Gottlieb Memorial Hospital Scholarship |
| May 2008 | Pepsi College Scholarship |

## SERVICE TO THE FIELD

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| 2020 – Present | Associate Editor: Ecological Solutions and Evidence, British Ecological Society |
| Manuscript Reviews | 2020: Biological Conservation \| New Phytologist \| Ecology \| |
| | 2021: Plant Signaling & Behavior \| Plant Ecology \| Ecosphere \| African Journal of Plant Sciences \| Restoration Ecology |

## INVITED SPEAKING ENGAGEMENTS

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| Apr 2021 | Elmhurst University, Importance of Native Plant Conservation |
| Feb 2018 | Keynote address delivery at inaugural Elmhurst College American Dream Fellowship Competition for first generation college students; Elmhurst, IL. |

## CONFERENCE PRESENTATIONS

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| 2022 | Implications of seedling traits and explorations belowground. Foxx, A & Kramer, A. Ecological Society of America |

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| 2021 | Variation accounting methods in metagenomic and amplicon meta-analyses. Foxx, A & Rivers, A. Scientific Computing Initiative and AI center of Excellence 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. Foxx, A. Chicago Botanic Garden |
| 2015 | Does number of lateral roots in *Elymus elymoides* populations vary and influence competitive outcomes with cheatgrass? Foxx, A & Kramer, A. National Native Seed Conference |
| 2014 | Variation in Intraspecific Root Traits of *Elymus elymoides* & Implications for water stress tolerance and competition. Foxx, A & Kramer, A. Colorado Plateau Native Plant Program. |
| 2014 | Intraspecific variation in *Elymus elymoides* root traits and its influence on competitive outcomes. Chicago Botanic Garden |
| 2014 | Intraspecific variation in *Elymus elymoides* 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. |

**MENTOR EXPERIENCES**

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| Oct - Dec 2018 | Lake Forest College Internship mentor: Anissa Loyola |
| Jul - Dec 2018 | High school science fair project mentor with experiment work: Raymond Diaz |
| Jul - Sept 2017 | College First high school mentor: Giovanie Lanzo |

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| Jun - Sept 2017 | NSF REU mentor: Brooke Allen |
| Apr - May 2016 | Mentor Matching Engine mentor with data interpretation: Breanna Giametta |
| Feb - May 2016 | Mentor Matching Engine mentor: Elise Miedlar |
| Nov - Dec 2015 | Lake Forest College Internship mentor: Siobhan Wojcik |
| Jun - Aug 2015 | Y.O.U. Summer Science Club mentor of children, 2.5 hours per week |
| Apr - Jun 2015 | Science Club mentor with grade school children, 2.5 hrs/wk |
| Jun - Sept 2014 | NSF REU mentor: Giselle Varrientos |
| Jun - Sept 2014 | NSF REU co-mentor with data analysis and interpretation: Lisa Hintz |
| Nov - Dec 2013 | Lake Forest College Internship mentor: Osja Brinson |
| Jul 2013 & 2014 | Mentor to grade school student on root trait measurements: Grace Guarraia |

**TEACHING EXPERIENCES**

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| 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. *Responsibilities:* Graded homework, in-class assistant, held office hours. Instruction using R statistical software. |
| Mar - Jun 2017 | Evolutionary Processes. Teaching Assistant, Northwestern University. *Responsibilities:* Graded quizzes and tests, in-class assistant, held office hours. |
| Apr - Jun 2016 | Evolutionary Processes. Teaching Assistant, Northwestern University. *Responsibilities:* Graded quizzes and tests, in-class assistant, held office hours. |
| Jan - Apr 2013 | Health of the Biosphere, Teaching Assistant, Northwestern University. *Responsibilities:* 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). |

*Responsibilities:* Graded quizzes, tutored, assisted in lab, supported team building.

## VOLUNTEER & OUTREACH

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| Sept 2022 | *Northwest Compass, Inc.* food donation collection service |
| Apr 2019 | *Northwestern University Service Project*, organized native plant garden |
| 2019 & 2017 | *The Night Ministry*, organized toiletry kit donations for homeless LGBTQ+ youth |
| Jun 2018 | E*vanston Scholars,* panel on graduate school experiences for high school students |
| Apr 2018 | *Purple Pantry*, food distribution for students in need |
| Apr 2018 | *Chicago Botanic Garden Science Festival,* science activities with children |
| Jun 2016 | *Stellar Girl Program,* presentation to young girls to encourage futures in science |
| May 2016 | *Northwestern University Service Project*, campus invasive plant removal |
| Apr - Jun 2016 | *STEAM,* designed and executed art x science activities for grade school student |
| Mar 2016 | *Somme Woods, Cook County Forest Preserve,* Volunteer to cut trees |
| Dec 2015 | *McCutcheon Elementary School Science Fair Judge*, evaluated student's projects. |
| Nov 2015 | *LaBagh Woods, Cook County Forest Preserve,* volunteer native seed cleaning |
| Jul 2015 | *Elmhurst College*, invited outreach speaker for high school students |
| Jul 2014 | *Firewise: Botany in Action, Idaho Botanic Garden,* brush removal volunteer |
| Feb - Jun 2014 | *New Life for Old Bags*, organized bag collection/prep to beds for homeless people |
| Jun 2013 | *World Environment Day, Chicago Botanic Garden,* invasive species demo |
| Feb 2013 & 2015 | *Elmhurst College* invited outreach speaker for college students |