

# Alicia J. Foxx, PhD

*Research Scientist*

1000 Lake Cook Rd • Glencoe, IL, 60022

E: [afoxx@chicagobotanic.org](mailto:afoxx@chicagobotanic.org) • ORCID: <https://orcid.org/0000-0001-5504-2986>

---

## EDUCATION

- 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

- 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-2022-0000>

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

- |                        |   |
|------------------------|---|
| Nov 2021               | Co-moderator of Scientific Computing Initiative (SCINet) and AI Center of Excellence 2021 Fellows conference.   |
| Nov 2020 -<br>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 –<br>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

- |           |  |
|-----------|--|
| 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. |
|-----------|--|

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**

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 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 College Scholarship

#### **SERVICE TO THE FIELD**

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**

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**

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

- 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**

- 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: Giovannie Lanzo

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**

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**

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