



Nicholas T. Glass

Curriculum Vitae

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School of Life Sciences

Arizona State University

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EDUCATION

University of Illinois - Chicago, Department of Biological Sciences

Fall 2017- Fall 2022

- Ph.D. in Biological Sciences in the lab of Dr. Miquel Gonzalez-Meler

Eckerd College, St. Petersburg, FL

Fall 2009- Spr. 2013

- B.A. in Environmental Studies, Biology Minor
- Awarded Dean's Scholarship-4 year academic award

James Cook University, Cairns, Queensland

Spr. 2012

- Field/Lab Environmental Research Methods and Geomorphological Studies

ACADEMIC RESEARCH

***Sustainable Futures of the Southwest*, Tempe, AZ**

11/2022- present

- Co-PIs Dr. Osvaldo Sala and Dr. Gary Dirks
- Conducted scenario planning for the U.S.A. Southwest water and energy sustainability

***LTER Long-Term Research at the Jornada Basin (LTER VII), collaborating with USDA Agricultural Research Service and New Mexico State University*, Las Cruces, AZ**

11/2022- present

- Co-PIs Dr. Osvaldo Sala, Dr. Niall Hanan, and Dr. Brandon Bestelmeyer
- Investigated interactive effects of grazing and drought on grass decline and recovery
- Examined drivers of critical thresholds for ecosystem state transitions

***Machine Learning-Informed Functional Data Analysis for ELM Biomass Partitioning, collaborating with Argonne National Laboratory*, Lemont, IL**

06/2021- 10/2021

- Co-PIs Dr. Beth Drewniak, Dr. Julie Bessac, and Dr. Emil Constantinescu
- Utilized two databases to incorporate >10,000 observations on plant biomass partitioning
- Determined environmental effects on plant types with machine learning algorithms

Machine Learning-Informed Functional Data Analysis for ELM Biomass Partitioning, collaborating with Argonne National Laboratory, Lemont, IL

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Land-Use effect on Root Decomposition in a National Tallgrass Prairie, collaborating with USDA Forest Service and DOE Office of Science, Chicago, IL

10/2019- present

- Co-PIs Dr. Christopher Whelan, Dr. Beth Drewniak, and Dr. Miquel Gonzalez-Meler
- Identified land use disturbance effects on root decomposition
- Quantified precipitation effect on litter decomposition in the E3SM earth system model with researchers from Argonne National Laboratory

Soil effect on White Cedar germination, collaborating with University of Illinois at Urbana-Champaign, Chicago, IL

10/2018- present

- Co-PI Dr. Brenda Molano-Flores, Dr. Stefan Green, Dr. Miquel Gonzalez-Meler
- Assessed soil microbial diversity and environmental effects on White Cedar germination
- Utilized 16S rRNA sequencing to identify microbial taxa

Land-Use effect on a Decade of Soil Carbon Accrual in a National Tallgrass Prairie, collaborating with USDA Forest Service, Chicago, IL

09/2018- 07/2021

- Co-PIs Dr. Christopher Whelan and Dr. Miquel Gonzalez-Meler
- Use of GIS, soil elemental analysis, and 19th-20th century publicly available land use records to analyze land use effects on soil
- Collaborated with the USDA Forest Service and researchers from Argonne National Laboratory and METER Group Inc, USA

Drivers of absorptive root variation: An analysis of root functional traits from the TRY Plant Database, Chicago, IL

02- 08/2018

- Database analysis of tree root architectural traits using R programming

Climate adaptation and sustainability in switchgrass: exploring plant-microbe-soil interactions across continental scale environmental gradients, funded by DOE APRA-E, Chicago, IL

09/2017- present

- Collaborated with researchers from Argonne National Laboratory LLC, Danforth Plant Science Center, University of Florida, University of Missouri, and Washington State University
- Measured root traits using WinRHIZO analysis and root system modeling

Osprey Monitoring Research, St. Petersburg, FL

02- 05/2013

- Research Assistant for Dr. Elizabeth Forsys
- Conducted weekly behavioral observations of over 80 osprey nests in Pinellas County

Tourism Impact Assessments in National Parks, Queensland, Australia

03- 05/2012

- Conducted environmental impact assessments of tourism in National Parks, AU
- Reported on the effectiveness of mitigation measures

INDEPENDENT RESEARCH

Litter Impacts on Terrestrial Ecosystems of Urban Taiwan, New Taipei City, Taiwan

10/2015- 02/2017

- Field research on effects of cigarette-derived leachants on soil composition and plant health
- Assayed impacts of litter on plant growth, soils and wildlife behavior in restored wetland
- Presented results in publicly available blog

Environmental Impacts of Remote Settlements on Alaskan Wilderness, Halibut Cove, AK

07- 10/2014

- Assessment of environmental impacts of land management, oyster farming, and boat traffic of township on ecosystem functioning and wildlife populations within Kachemak Bay State Park
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EMPLOYMENT AND SERVICE

Postdoctoral Research Associate, Arizona State University, Tempe, AZ

11/2022- present

- Conducted research for National Science Foundation's LTER Network in Jornada Basin
- Collaborated with ASU humanists and scientists for Sustainability Scenario Planning in the USA SW

Teaching Assistant, University of Illinois - Chicago, Chicago, IL

08/2017- 08/2022

- Managed labs in Biology for Non-majors and Populations and Communities
- Engaged with diverse populations of students, often from marginalized communities

Naturalist and Cabin Leader, Arrowhead Ranch Outdoor Science School, Lake Arrowhead, CA

08- 11/2013, 02- 07/2017

- Prepared environmental lessons in outdoor settings to students grades 5th through 8th
- Led nine educational hikes per week, including night hikes, with 20+ students

Volunteer Soil and Water Quality Assessor, Rome ECO Center, Rome, GA

07/2016- 02/2017

- Developed and managed volunteer-based water quality program
- Creation of online database for water records and soil nutrient map

English Tutor, English Language Institute Help 4 English, Bangkok, Thailand

03/2016- 06/2016

- Private tutor for Thai speaking adults

English Teacher, Shane English School, Taipei, Taiwan

09/2015- 01/2016

- Substitute teacher, designed learning activities for students ranging from kindergarten to young adult

Tour Guide, Old South Carriage Company, Charleston, SC

02- 09/2015

- Developed historic tours based on national education standards with emphasis on diversity

Historical Interpreter/Educator, Drayton Hall Historic Trust, Charleston, SC

09/2014- 03/2015

- Creatively executed rapid workshop stations on 18th century history
- Engaged in diverse student and adult groups with tours through historic plantation house

Land Management, Ridgewood Wilderness Lodge, Halibut Cove, AK

06- 08/2014

- Mapped remote wilderness areas using GPS and satellite imagery for landscape assessment and navigation
- Multi-night solo expeditions working solitary to accomplish trip objectives

Server, Saffron Restaurant & Bakery, Charleston, SC

01- 05/2014

- Focused on engagement with customers

Dishwasher, Octobachi Gastropub, Charleston, SC

01- 05/2014

- Focused on efficiency and organization

Land Management Intern, Boyd Hill Nature Preserve, St. Petersburg, FL

01/2011- 05/2013

- Volunteered 200+ hours improving land management and environmental practices
- Engaged general public in environmental awareness and conservation management
- Conducted prescribed burns and invasive species removal

General Assistant, Mark Law Studios, Rome, GA

03/2006- 01/2008

- Provided organization, filing, and customer services
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SKILLS

- **Skills:** Earth system modeling, Soil physical and chemical analysis, Soil Microbial sampling, Vegetation health assessment, Respiration measurements, Environmental Impact assessments, Biodiversity assessments, Water Quality assessments, Stream-Gauging, basic Carpentry
 - **Equipment:** Isotope Ratio Mass Spectrometry, LiCor Photosynthesis System, Picarro Isotope Analyzer
 - **Software:** Linux, Git, Matlab, RStudio, ArcGIS, WinRhizo
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AWARDS AND HONORS

- **Graduate Research Award**, Department of Biological Sciences, UIC Liberal Arts and Sciences, 2022
 - **Graduate Teaching Award**, Department of Biological Sciences, UIC Liberal Arts and Sciences, 2021
 - **Certification of Ecologist in Training**, Board of Professional Certification, ESA, 2019
 - **“Honoring Our Professors’ Excellence” HOPE Award**, UIC Housing, 2018
 - **Certificate of Completion of the National Homeless Challenge**, National Coalition for the Homeless, 2011
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PUBLICATIONS

Glass, N., Molano-Flores, B., Dias de Oliveira, E., Meraz, E., Umar, S., Whelan, C.J., Gonzalez-Meler, M.A., 2021. Does pastoral land-use legacy influence topsoil carbon and nitrogen accrual rates in tallgrass prairie restorations? *Land* 10, 735. doi: 10.3390/land10070735.

Johnson, S.A., Janssen, E., **Glass, N.**, Dickerson, P., Whelan, C.J., Molano-Flores, B. The role of environmental stressors on reproduction, seed morphology, and germination: A case-study of Northern White Cedar, *Thuja occidentalis* L. *Botany*. Just-IN <https://doi.org/10.1139/cjb-2022-0007>

Glass, N., Dias de Oliveira, E., Matamala., R, Yun, K., Kim, S., Gonzalez-Meler, M.A. Increased lateral root branching is unimportant for water acquisition in perennial grass. In preparation for *Frontiers in Plant Science*.

Glass, N., Dias de Oliveira, E., Drewniak, B., Matamala., R, Whelan, C.J., Gonzalez-Meler, M.A. Root litter decomposition rates and impacts of drought are regulated by ecosystem legacy. Submitted to *Applied Soil Ecology*.

Dias de Oliveira, E., **Glass, N.**, Yun, K., Habermann, E., Matamala, R., Zare, A., Kim, S., Gonzalez-Meler, M. Connecting architectural and functional root phenotypes in response to Phosphorus. In preparation for *New Phytologist*.

PROFESSIONAL SUPPORT (~\$90,000 to date)

- **ESA Soil Ecology Section Registration Award - \$60**, Soil Ecology Section, ESA, 2021
 - **DOE Office of Science Graduate Student Research (SCGSR) Program award- \$15000**, DOE Office of Science, 2021
 - **ESA Soil Ecology Section Registration Award - \$60**, Soil Ecology Section, ESA, 2020
 - **Elmer Hadley Graduate Research Grant - \$3960**, Department of Biological Sciences, UIC, 2020
 - **Elmer Hadley Graduate Assistantship - \$6809**, Department of Biological Sciences, UIC, 2020
 - **ESA Soil Ecology Section Travel Award - \$300**, Soil Ecology Section, ESA, 2019
 - **Elmer Hadley Graduate Research Grant - \$2955**, Department of Biological Sciences, UIC, 2019
 - **LAS Travel Award - \$174**, College of Liberal Arts & Sciences, UIC, 2019
 - **BioSci Departmental Award - \$600**, Department of Biological Sciences, UIC, 2018
 - **Dean's Scholarship Award - ~\$60000**, Eckerd College, 2009
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PRESENTATIONS

- **Glass NT**, Dias de Oliveira E, Drewniak B, Matamala R, Whelan CJ, Gonzalez-Meler MA. 2021. Root litter decomposition rates and impacts of drought are regulated by ecosystem legacy. Oral presentation at [2021 ESA Annual Meeting](#) (virtual).
 - **Glass NT**, Dias de Oliveira E, Kyungdahm Y, Kim SH, Matamala R, Gonzalez-Meler MA. 2020. Root response to resource partitioning in a perennial grass. Oral presentation at [2020 ESA Annual Meeting](#) (virtual).
 - **Glass NT**, Molano-Flores B, Dias de Oliveira E, Whelan CJ, Gonzalez-Meler MA. 2019. Soil carbon stock dynamics in six land use types at a national tallgrass prairie. Oral presentation at [2019 ESA Annual Meeting](#), Louisville, KY.
 - **Glass NT**, Dias de Oliveira E, Gonzalez-Meler MA. 2018. Drivers of absorptive root variation: An analysis of root functional traits from the TRY Plant Database. Poster presented at [2018 ESA Annual Meeting](#), New Orleans, LA.
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REFERENCES

- 1) Dr. Osvaldo Sala, Regents and Foundations Professor and Global Institute of Sustainability and Innovation Center Director, Arizona State University. Email: osvaldo.sala@asu.edu. Phone: (480) 965-4120
- 2) Dr. Miquel Gonzalez-Meler, Professor and Director of Undergraduate Studies, University of Illinois at Chicago. Email: mmeler@uic.edu. Phone: (312) 355-3928
- 3) Dr. Christopher Whelan. Adjunct Research Associate Professor, University of Illinois at Chicago. Ecologist, H. Lee Moffitt Cancer Center & Research Institute. Email: virens@darwiniandynamics.org. Phone: (312) 355-0990