# THOMAS A. BYTNEROWICZ

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## EDUCATION & APPOINTMENTS

**University of Texas at Austin, Austin, TX**
Postdoctoral Fellow *2023-current*
Stengl-Wyer Postdoctoral Scholar *2020-2023*

**Columbia University, New York, NY**
PhD, Ecology, Evolution, and Environmental Biology *2020*
MPhil, Ecology, Evolution, and Environmental Biology *2017*
MA, Ecology, Evolution, and Environmental Biology *2016*
Advisor: Duncan Menge
Committee Members: Kevin Griffin, Shahid Naeem, Sonya Dyhrman, and Deren Eaton

**University of California San Diego, San Diego, CA**
ACS Certified BS Environmental Chemistry; Minor: General Biology *2011*

## FELLOWSHIPS & AWARDS

**ESA Early Career Ecologists Outstanding Publication Award** (Honorable Mention) *2022*
**Elizabeth Sulzman Award from ESA Biogeosciences Section** (Honorable Mention) *2022*
For outstanding graduate student publication
**Phys-Fest 3 Travel Award** (Kansas State University, $300) *2021*
**Stengl-Wyer Postdoctoral Fellowship** (University of Texas at Austin, $234,000) *2020*
**Don Jay Melnick Dissertation Award** (Columbia University) *2020*
For outstanding dissertation and other department activities in E3B
**EPA Science to Achieve Results (STAR) Fellowship** ($132,000) *2015*
**NSF Graduate Research Fellowship Program** (Honorable Mention) *2015*
**Dean's Fellowship** (Columbia University, full tuition and stipend) *2014*

## RESEARCH GRANTS

**NSF Division of Integrative Organismal Systems Grant** (Contributing Author) *2021-current*
"Quantifying the temperature responses of symbiotic nitrogen fixation and its carbon cost" (#2129542; $1,245,785)
**E3B Pre-Dissertation Research Grant** (Columbia University, $3,000) *2016*

## PUBLICATIONS

10. **Bytnerowicz, TA**, JL Funk, DNL Menge, SS Perakis, & AA Wolf. 2023. Leaf nitrogen affects photosynthesis and water use efficiency similarly in nitrogen-fixing and non-fixing trees.

*Journal of Ecology*. DOI: 10.1111/1365-2745.14194

9. Mifsud, IEJ, PR Akana, TA Bytnerowicz, SR Davis, & DNL Menge. 2023. Nitrogen fixation in the stag beetle *Ceruchus piceus* (Coleoptera: Lucanidae): Could insects contribute more to ecosystem nitrogen budgets than previously thought? ***Environmental Entomology***. nvad053.
8. Menge, DNL, AA Wolf, JL Funk, SS Perakis, PR Akana, R Arkebauer, TA Bytnerowicz, KA Carreras Pereira, AM Huddell, S Kou-Giesbrecht, & SK Ortiz. 2023. Tree symbioses sustain nitrogen fixation despite excess nitrogen supply. ***Ecological Monographs***. e1562.
7. Bytnerowicz, TA, PR Akana, KL Griffin, & DNL Menge. 2022. Temperature sensitivity of woody nitrogen fixation across species and growing temperatures. ***Nature Plants***. 8: 209–216.
   - Honorable mention for ESA Early Career Ecologists Outstanding Publication Award
   - Honorable mention for Elizabeth Sulzman Award (ESA Biogeosciences)
   - Associated News & Views by Wang & Houlton (2022) *Nature Plants*
6. Bytnerowicz, TA & DNL Menge. 2021. Divergent pathways of nitrogen-fixing trees through succession depend on starting nitrogen supply and priority effects. ***American Naturalist***. 198(6): E198-E214.
5. Kou-Giesbrecht, S, S Malyshev, I Martínez Cano, SW Pacala, E Shevliakova, TA Bytnerowicz, & DNL Menge. 2021. A novel representation of biological nitrogen fixation and competitive dynamics between nitrogen-fixers and non-fixers in a land surface model (GFDL LM4.1-BNF). ***Biogeosciences***. 18: 4143-4183.
4. Bytnerowicz, TA, E Min, KL Griffin, & DNL Menge. 2019. Repeatable, continuous and real-time estimates of coupled nitrogenase activity and carbon exchange at the whole-plant scale. ***Methods in Ecology & Evolution***. 10: 960-970.
3. Menge, DNL, AC MacPherson, TA Bytnerowicz, AW Quebbeman, NB Schwartz, BN Taylor, & AA Wolf. 2018. Logarithmic scales in ecological data presentation may cause misinterpretation. ***Nature Ecology & Evolution***. 2: 1393-1402.
2. Bytnerowicz, TA & RI Carruthers. 2014. Germination characteristics of *Zannichellia palustris* from a Northern California spring-fed river. ***Aquatic Botany***. 119: 44-50.
1. Bytnerowicz, TA & RI Carruthers. 2014. Temperature-dependent models of *Zannichellia palustris* seed germination for application in aquatic systems. ***Environmental and Experimental Botany***. 104: 44-53.

## PhD Dissertation

Bytnerowicz, TA. 2020. Exploring the Mechanisms that Control the Success of Symbiotic Nitrogen Fixers Across Latitude: Temperature, Time-Lags, and Founder Effects. Doctoral Dissertation. Columbia University, NY, NY.

## PRESENTATIONS

### Invited

Bytnerowicz, TA. Talk at Harvey Mudd College (via Zoom). October 2023.
Bytnerowicz, TA. Talk at Wageningen University, FEM group (via MS Teams). July 2023.
Bytnerowicz, TA. Talk at INCyTE (Investigating Nutrient Cycling in Terrestrial Ecosystems) symposium (via Zoom). October 2022.

**Bytnerowicz, TA**. Seminar at Columbia University (via Zoom). December 2020.
**Bytnerowicz, TA**. Seminar at University of Texas at Austin (via Zoom). November 2020.
**Bytnerowicz, TA**, KL Griffin, & DNL Menge. Talk at Ecological Society of America annual meeting. Portland, OR. August 2017.

Contributed

Butler A, DNL Menge, **TA Bytnerowicz**, AA Wolf, KA Carreras Pereira, JL Funk, & SS Perakis. Talk at Ecological Society of America annual meeting. Portland, OR. August 2023.
Menge, DNL, Y Chua, KL Griffin, VM Lau, & **TA Bytnerowicz**. Talk at Ecological Society of America annual meeting. Portland, OR. August 2023.
**Bytnerowicz, TA**. CESM Land Model & Biogeochemistry Winter Working Group Meeting. February 2023.
**Bytnerowicz, TA**, JL Funk, DNL Menge, SS Perakis, & AA Wolf. Talk at Ecological Society of America annual meeting. Montreal, Canada. August 2022.
Lau, VM, BW Radcliffe, **TA Bytnerowicz**, DNL Menge, & KL Griffin. Talk at Ecological Society of America annual meeting. Montreal, Canada. August 2022.
Butler A, AA Wolf, KA Carreras Pereira, **TA Bytnerowicz**, & DNL Menge. Talk at Ecological Society of America annual meeting. Montreal, Canada. August 2022.
**Bytnerowicz, TA**, KL Griffin, & DNL Menge. Poster at American Geophysical Union annual meeting. San Francisco, CA. December 2019.
Menge, DNL, AA Wolf, **TA Bytnerowicz**, & KL Griffin. Talk at American Geophysical Union annual meeting. San Francisco, CA. December 2019.
**Bytnerowicz, TA**. Talk at Columbia, Rutgers, Princeton, Penn & Yale Symposium. Princeton University, Princeton, NJ. May 2019.
**Bytnerowicz, TA**, KL Griffin, & DNL Menge. Talk at American Geophysical Union annual meeting. Washington DC. December 2018.
**Bytnerowicz, TA**, KL Griffin, & DNL Menge. Talk at Ecological Society of America annual meeting. New Orleans, LA. August 2018.
Akana, PR, **TA Bytnerowicz**, KL Griffin, & DNL Menge. Talk at Ecological Society of America annual meeting. New Orleans, LA. August 2018.
**Bytnerowicz, TA**. Talk at Columbia, Rutgers, Princeton, Penn & Yale Symposium. Rutgers University, New Brunswick, NJ. May 2018.
Menge, DNL, AC MacPherson, **TA Bytnerowicz**, AW Quebbeman, NB Schwartz, BN Taylor, & AA Wolf. Talk at Ecological Society of America annual meeting. Portland, OR. August 2017.
**Bytnerowicz, TA** & DNL Menge. Talk at Ecological Society of America annual meeting. Ft. Lauderdale, FL. August 2016.

## TEACHING EXPERIENCE

### Teaching Assistant, Columbia University

Theoretical Ecology (Spring 2017)
Conservation Biology (Spring 2016)
Intro to Statistics for Ecology and Evolutionary Biology (Fall 2015)

Guest Lectures, University of Texas at Austin
Photosynthesis and water use efficiency (Ecosystem Ecology; Fall 2023)
Climate Change in the Anthropocene (Science Literacy and Numeracy: Ecology and Evolution; Fall 2021, Fall 2022)

Guest Lectures, Columbia University
Invasive Species (Conservation Biology; Spring 2016)
Mixed Effects Models (Intro to Statistics for Ecology and Evolutionary Biology; Fall 2015)
Regression (Intro to Statistics for Ecology and Evolutionary Biology; Fall 2015)

Inclusive STEM Teaching Project course. Virtual (2022)

## OTHER PROFESSIONAL APPOINTMENTS

Visiting Student Researcher, P. Homyak Lab, University of California Riverside *2019-2020*
Junior Specialist, B. Grewell & R. Carruthers Labs, University of California Davis *2012-2014*
Native plant dynamics in an invaded CA spring-fed river
Physical Science Technician (GS-5), R. Carruthers Lab, USDA – ARS *2011-2013*
Native plant dynamics in an invaded CA spring-fed river
Undergraduate Research Assistant, K. Prather Lab, University of California San Diego *2010-2011*
Formation and light absorption properties of brown carbon aerosols
Lab Assistant, E. Allen & J. Baird Labs, University of California Riverside *2005-2009*
Drivers and effects of exotic grass invasion in Joshua Tree National Park
Selection of drought-tolerant turf-grass

## OUTREACH

Research mentor for:
Sofia Bautista (InSTInCT REU mentee) *2023-current*
Gayathree Gopi (UT Austin undergraduate) *2023*
Noor Malhi (UT Austin undergraduate) *2023*
Claire Bradley (UT Austin undergraduate) *2023*
Ashley Nguyen (UT Austin undergraduate) *2021-2023*
Vanessa Lau (Columbia MA student) *2021-2022*
Isobel Mifsud (Columbia MA student) *2020-2021*
Livia Martinez (Barnard undergraduate) *2018*
High School Research Internship Program (https://hsrip.wordpress.com/) *2023-current*
Mentor for one high school student from Crockett High School, Austin, TX
Skype a Scientist volunteer *2022-current*
Meet a Scientist speaker *2023*
For five 5$^{th}$ grade classrooms at Vienna International School
Panelist for discussion on "Dos and Don'ts of Successful Grad Studies" *2021, 2023*
(UT Austin course: Research Skills for Graduate Students in Biology)
Reviewer and contributor for Climate Feedback article *2022*

("Yes, plants need carbon dioxide. No, that doesn't mean it's harmless.")

Judge, Ecological Society of America Buell/Braun Awards *2020, 2022*

NY Academy of Sciences STEM Mentor for 20 6th-8th grade students *2015-2016*

Billion Oyster Project and Restoration Ecology (Ann Mersereau MS, Bronx, NY)

Science Fair Judge, Edward M. Downer Elementary Science Fair *2013-2014*

Science Fair Judge, West Contra Costa Science Fair *2013*

Volunteer, USDA Educational Garden *2011-2012*

Camp Counselor/Fundraiser, Camp Kesem UCSD *2009-2011*

Chapter Co-Founder, Food Not Bombs, Riverside, CA *2005-2008*

## PROFESSIONAL CONTRIBUTIONS

Peer Review:

*African Journal of Biotechnology*
*American Naturalist*
*Communications Biology*
*Ecology*
*eLife*
*Environmental Science and Technology*
*Global Ecology and Biogeography*
*Journal of Ecology*
*New Phytologist*
*Oecologia*
*Plant and Soil*
*Trends in Microbiology*
*Western North American Naturalist*

Technical Reviewer, US Geological Survey (2022)

Society Memberships: American Geophysical Union (2018-current), Ecological Society of America (2011-current)

## SYNERGISTIC ACTIVITIES AND PROFESSIONAL DEVELOPMENT

INCyTE working group (Investigating Nutrient Cycling in Terrestrial Ecosystems) *2021-current*

Community Earth System Model Tutorial. NCAR, Boulder, CO *2022*

Community Terrestrial Systems Model Tutorial. Virtual through NCAR *2022*

Phys-Fest 3 Ecophysiology Workshop. Colorado State University Mountain Campus *2021*

LI-COR Photosynthesis Measurement Workshop. Princeton, NJ *2018*

Weekly Ecology and Evolution Discussion Seminar Organizer, Columbia University *2015-2016*

## REFERENCES

1. Duncan Menge, Columbia University (PhD advisor)
   Dept. of Ecology, Evolution & Environmental Biology, New York, NY
   Email: dm2972@columbia.edu, Phone: (212) 854-6889
2. Amelia Wolf, University of Texas at Austin (Postdoc advisor)
   Dept. of Integrative Biology, Austin, TX
   Email: amywolf@utexas.edu
3. Kevin Griffin, Columbia University (PhD committee chair)
   Dept. of Ecology, Evolution & Environmental Biology, New York, NY
   Dept. of Earth & Environmental Sciences, Lamont-Doherty Earth Observatory, Palisades, NY
   Email: griff@ldeo.columbia.edu, Phone: (845) 365-8371 & (212) 854-7566