Paul Glaum

Environmental Science and Policy - University of California, Davis, CA

prglaum@ucdavis.edu ResearchGate Google Scholar

Professional Appointments:

2020-present – **University of California, Davis –** Advisor: Prof. Fernanda S. Valdovinos

- Postdoctoral Scholar, Department of Environmental Science & Policy (ESP)

2018-2020 – **University of Michigan –** Advisor: Prof. Fernanda S. Valdovinos

- Postdoctoral Research Fellow, Department of Ecology and Evolutionary Biology (EEB)

Educational Background:

2018 – **PhD**

- University of Michigan EEB, Advisor: Prof John Vandermeer

2014 – **Master of Science**

- University of Michigan EEB, Advisor: Prof John Vandermeer

2007 – **Bachelor of Science, Mathematics & Japanese**

- University of Wisconsin-Madison, Advisor: Prof Anthony Ives

Awards and Fellowships:

2017

- Edwin H. Edwards Scholarship in Biology Fellowship

2015

- Graham Sustainability Institute - Dow Doctoral Sustainability Fellowship
- Helen Olson Brower Memorial Fellowship in Environmental Studies

Research Grants:

2018

- MI Institute for Computational Discovery & Engineering (MICDE) Catalyst Grant - $100,000.00

2017

- University of Michigan - Ecology and Evolutionary Biology Block Grant – $2100.00
- University of Michigan - Ecology and Evolutionary Biology Travel Grant – $250.00
- University of Michigan Rackham Graduate School Travel Grant – $800.00
- University of Michigan Rackham Professional Development Grant - $400.00

2016

- University of Michigan - Ecology and Evolutionary Biology Travel Grant – $250.00
- University of Michigan Rackham Graduate School Travel Grant – $800.00

2015

- Conservation Research at the Matthaei Botanical Gardens & Nichols Arboretum – $3,538.00
- University of Michigan - Ecology and Evolutionary Biology Travel Grant – $250.00
- University of Michigan Rackham Graduate School Travel Grant – $800.00
- University of Michigan - Ecology and Evolutionary Biology Block Grant – $1347.00

2014

- University of Michigan - Ecology and Evolutionary Biology Block Grant – $500.00
- University of Michigan - Rackham Graduate School Pre-Doctoral Research Grant – $1500.00

2013

- University of Michigan - Ecology and Evolutionary Biology Block Grant – $507.00

Publications and Products:

Bold = (co) first author; Underline = senior author; *Italics* = mentored undergraduate author;

- **Glaum, P.R.**, Wood, T.J., Morris, J.R., Valdovinos, F.S. 2021. Phenology and flowering overlap drive specialization in plant-pollinator networks. *Ecology Letters* 24, 2648– 2659. DOI: https://doi.org/10.1111/ele.13884
- **Glaum, P.R.** & Vandermeer, J. 2021. Stage-structured ontogeny in resource populations generates non-additive stabilizing and de-stabilizing forces in populations and communities. *Oikos* 130: 1116–1130. DOI: https://doi.org/10.1111/oik.08099
- **Glaum, P. R.**, Cocco, V., Valdovinos, F.S. 2020. Integrating economic dynamics into ecological networks: The case of fishery sustainability. *Science Advances* 6, eaaz4891. DOI: https://doi.org/10.1126/sciadv.aaz4891
- Fitch, G., Wilson, C., Glaum, P.R., Vaidya, C., Simao, M.C., Jamieson, M. 2019. Does urbanization favor exotic bee species? Implications for the conservation of native bees in cities. *Biology Letters* 15(12): 20190574. DOI: https://doi.org/10.1098/rsbl.2019.0574
- ** Fitch, G., **Glaum, P.R.**, Simao, M.C., Vaidya, C., *Matthijs, J.*, *Iuliano, B.*, Perfecto, I. 2019. Urban development drives changes in observed adult sex ratio in wild bee communities. *Scientific Reports* 9(1): 3767. DOI: https://doi.org/10.1038/s41598-019-39601-8
- * **Glaum, P.R.** & Kessler, A. 2017. Herbivore-Induced Pollinator Limitation: Functional reductions in pollination services and their surprising potential in mutualist communities. *Nature Communications* 8: 2031. DOI: https://doi.org/10.1038/s41467-017-02072-4
- *Iuliano, B.*, Markiewicz, A., Glaum, P.R. 2017. Socio-economic drivers of urban garden properties and their effects on local pollinators. *Michigan Journal of Sustainability* 5(1). DOI: http://dx.doi.org/10.3998/mjs.12333712.0005.103
- **Glaum, P.R.** 2017. A theoretical basis for the study of predatory syrphid fly ecology. *Theoretical Ecology* 10(4): 391–402. DOI: https://doi.org/10.1007/s12080-017-0336-1
- **Glaum, P.R.**, Simao, M.C., Vaidya, C., Fitch, G., *Iuliano, B.* 2017. Big city Bombus: Using natural history and land use history to find significant environmental drivers in bumble bee declines. *Royal Society Open Science* 4: 170156. DOI: http://dx.doi.org/10.1098/rsos.170156
- **Glaum, P.R.** & Vandermeer J. 2015. Potential for and consequences of naturalized Bt products: qualitative dynamics from indirect intransitivities. *Ecological Modelling* 299: 121–129. DOI: https://doi.org/10.1016/j.ecolmodel.2014.12.006
- **Glaum, P.R.** 2013. Dual Invasion Analysis: A general model of novel ecological dynamics due to Bt product and resistant pests in wild Settings. *Theoretical Ecology* 7(2): 181-194. DOI: https://doi.org/10.1007/s12080-013-0209-1
- **Glaum, P.R.**, Ives, A.R., Andow, D.A. 2012. Contamination and management of resistance evolution to high-dose transgenic insecticidal crops. *Theoretical Ecology* 5(2):195-209. DOI: https://doi.org/10.1007/s12080-010-0109-6
- Ives, A.R. Glaum, P.R., Ziebarth, N.L., Andow, D.A. 2011. The evolution of resistance to two-toxin pyramid transgenic crops. *Ecological Applications* 21(2): 503-515. DOI: https://doi.org/10.1890/09-1869.1

Publications in Revisions, Review, Submission, and Preparation

- *Simon, S.M.*, **Glaum, P.R.**, Valdovinos, F.S. 2022. Herbivory of stage-structured plants reveals high degree of interactivity between demographic and ecological rates. In preparation.
- *Iuliano, B.*, Simao, M.C., Vaidya, C., Fitch, G., Glaum, P.R. 2022. Insects and the City: Effects of urbanization on flying insect populations. In preparation.

* UM EEB outstanding paper of the year (2017)
** Recipient of Top 100 downloads (#11) Award 2019 from Nature Research – Scientific Reports (Ecology)

Invited Talks and Presentations:

- **Glaum, P.R.**, Wood, T.J., Morris, J.R., Valdovinos, F.S. 2020. Phenology and flowering overlap drive specialization in pollinator networks. University of Michigan Thursday Seminar: Video. Link.
- **Glaum, P.R.** June 2019. The characteristics and importance of wild bees. Michigan State University – Tollgate Farms Pollinator Day.
- **Glaum, P.R.** March 2018. Parsing the Particulars of Pollinator Populations: Dynamics of Wild Insect Pollinator Communities in Natural and Human Altered Environments. 31st annual Michigan Wildflower Conference. East Lansing, MI. Link
- **Glaum, P.R.**, Fitch, G., Simao, M.C., Vaidya, C., Iuliano, B. October 2017. How natural history characteristics drive changes in sex ratios in wild bee communities across the urban gradient. Protecting Pollinators in Urban Landscapes Conference. Traverse City, MI. Link

Selected Contributed Talks and Presentations (1st authorship only):

- Ecological Society of America 2020 (Abstract available: Link); Ecological Society of America 2018 (Abstract available: Link); Ecological Society of America 2017 (Abstract available: Link); Ecological Society of America 2016 (Abstract available: Link); University of Michigan Ecology and Evolutionary Biology Early Career Scientist Symposium; Ecological Society of America 2015 (Abstract available: Link); Michigan Complexity Mini-Conference Ann Arbor, MI (Abstract available: Link)

Popular Science Writing:

- **Glaum, P.R.** 04-15-2016.Wild Bees and the Pollinator Pantheon. Thought and Awe Blog. Link

Selected Appearances in Popular Media:

- The Scientist Magazine, Michigan Public Radio (NPR Affiliate), Next City, Sierra Club, Science et Vie (French Publication), Detroit Metro Times, PBS News Hour, PLOS Blogs, PNAS News Feature
- Further examples available upon request

Mentoring & Advising:

Undergraduate Student Mentor

– Independent Projects

- **Sophia Simon:** (*2020-present*) Undergraduate research mentor: Plant ontogeny's role in plant-herbivore dynamics, University of California, Davis – ESP Department
- **Joseph Hartet:** (*2018-2020*) Undergraduate honors thesis: Analyzing fifty years of change among bee and plant communities in a Southeast Michigan old field, University of Michigan – EEB Department

– Undergraduate Research Opportunity (UROP) Program mentor

- **Benjamin Iuliano:** *(2014 – 2018)* Undergraduate research mentor: Socio-economic drivers of urban garden plant-pollinator communities (Iuliano et al 2017), University of Michigan – EEB Department
- **Erin Westin:** *(2014 – 2015)* Undergraduate research mentor: Urban pollinator community composition, University of Michigan – EEB Department

– Urban Pollinator Project

- (*2014-2017*) Supervised, co-supervised, and independently funded research experience for 9 additional undergraduates including 4 under-represented racial minority students and 7 female students in graduate student run multi-year urban garden research project. University of Michigan – EEB & SEAS Department

Graduate Student Mentor (GSM) - University of Michigan

- (*2015*) Mentor to first time graduate student instructors. Conducted teaching evaluations/consultations.

Teaching Experience:

Guest Lecturer

- **School for Sustainability and Environment 553 - Diverse Farming Systems (***2017***):** *University of Michigan*
- **Biology/Environment 101 - Principles of Biology (***2013-2014***):** *University of Michigan*

Course Coordinator

September 2012 – December 2014, September 2017 – December 2017

Biology/Environment 101 (Principles of Bio) Course Coordinator: *University of Michigan*

- Co-developed course material, schedule, & exams. Ran course website, organized accommodations for students with special needs, taught multiple sections.

Graduate Student Instructor

January 2013 – April 2013

Biology 173 (Intro to Biology Lab): *University of Michigan*

- Led discussion sections. Proctored/graded exams, essays, daily work.

September 2011 – April 2012

Biology 171 (Intro to EEB): *University of Michigan*

- Planned/led discussion sections. Proctored/graded exams, essays, daily work.

Primary & Secondary Education

2007 – 2010

JET Program Assistant Language Teacher (ALT): *Japan, Shimane Prefecture, Masuda City*

- Certified Level 2 fluency by the Japanese Language Proficiency Test (second highest out of five), January 2010. JET Program Certified Advanced Level Japanese Ability.
- Team taught with various teachers in a multi-language environment in as many as eight schools, created and implemented course material, proctored exams, etc.
- Individual-level tutoring: Coached multiple students to top-3 performances in regional English speech and spelling bee competitions.
- Outreach activities: planned and ran city-wide language and cultural learning events, wrote Japanese op-eds in local newspaper, etc.

Museum Curatorial Experience:

January 2015 – April 2015

Ruthven Natural History Museum Graduate Student Curatorial Assistant: *University of Michigan*

- Assisted in managing collections in the Bird Division, managing incoming and outgoing loans, prepping birds for processing, assisted in data management of projects to be sent for publication, etc.

2018

Museum Collection Contribution

- Donated multiple years of specimens from Urban Pollinator Project to University of Michigan Museum – Insect Collection

Selected Service and Outreach:

K-12 Educational Outreach:

- **Greenhills School Service Learning Day:** (2021) Created and led visiting classroom lecture and hands-on activities for students in grades 6 through 12.
- **D-town Farms Bioblitz:** (2015-2019) Served on the planning committee and implemented an educational biological survey event for under-privileged students associated with the Detroit Black Community Food Security Network and the Detroit-based NGO Voices for Earth Justice. https://www.youtube.com/watch?time_continue=58&v=6ITXCHrL4Q0
- **Ann Arbor STEAM Elementary School Scientist Visitor:** (2016) Participated in a visiting scientist event, talking to multiple classrooms and leading activities.
- **EEB Ann Arbor Summerfest Kids' Table:** (2016-2017) Held a hands-on learning table for children and families using UMMZ and personal research specimens.
- **Brightmoor Foodway Pollinator Sampling Day:** (2015) Led a group of Detroit students from the Brightmoor neighborhood on insect catching and identification field trip with colleagues.
- **Behind the Scenes Day-University of Michigan Ruthven Natural Science Museum:** (2015) Lead tours and activities during annual open house event which attracts hundreds of visitors
- **International Instructor:** (2011) Volunteered at Baan Unrak Orphanage and School in Shangklaburi, Thailand. Taught English and assisted the development of a waste management system.

Community and Broader Outreach:

- **Associate Film Producer:** THE SHAPE OF THINGS GONE MISSING, THE SHAPE OF THINGS TO COME, Documentary Feature, High Plains Films, 2022 (post-production)
- **Outreach to Michigan urban gardeners/farmers:** (2014-2019) Multiple invited talks focusing on general ecology education and the results of our research. Insect identification services for head bee keeper in Detroit Black Community Food Security Network.
- **Other invited popular science lectures:** UM Bees semester meeting (2016), Washtenaw County Food Policy Council (2016), Oakland County Audubon Society (2015 & 2017), Michigan Botanical Club (2018), Biology on Tap (2019), Southeastern Michigan Bees (2019), Bee Walk at Lafayette Greens-Detroit (2019).

Professional Service:

- **Michigan University Sustainability and Environment (MUSE) Conference Planning Committee:** (2016-2017) Serving on planning committee, doing advertising and abstract vetting.
- **Departmental Committees:** Elected to represent graduate students in the Ecology and Evolutionary Biology Departmental Executive Committee (2014-2015) & the Graduate Affairs Committee (2015-2016) at University of Michigan.
- **Academic Journal Guest Editor**: Southeastern Naturalist
- **Academic Journal Reviewer**: Ecology Letters, Ecological Modeling (x3), Journal of Apicultural Research, Urban Ecology, Biological Invasions

Additional:

- Programming languages: Matlab, R, Mathematica, Java (Repast), Python, C++
- Conversationally fluent in Japanese.
- Traveled internationally: traveled extensively in Japan as well as Taiwan, Cambodia, Thailand, Korea, India, Malaysia, Singapore, the Philippines, China, Peru, the United Kingdom, Ireland, Germany, Italy, The Netherlands, and France. Traveled solo as well as planned trips for multiple travelers.
- Self-taught bassist.