

# Marissa Childs

Emmett Interdisciplinary Program in Environment and Resources, Stanford University  
473 Via Ortega Road, Y2E2 Building Suite 226, Stanford, CA 94305

Email: [marissac@stanford.edu](mailto:marissac@stanford.edu)

Web: [marissachilds.com](http://marissachilds.com)

[Google Scholar profile](#)

## EDUCATION

- Whitman College** (Walla Walla, WA) 2012 – 2016  
*Summa cum laude* (GPA: 3.93)  
B.A. in Mathematics with honors  
Thesis: Topological graph theory and graphs of positive combinatorial curvature  
B.A. in Economics-Environmental Studies with honors  
Thesis: In medias res: benefit-cost analysis of the Enterprise School District biomass thermal energy project  
Scholarships: Alexander J. Anderson Merit Scholarship, National Merit Scholarship
- Budapest Semesters in Mathematics** (Budapest, Hungary) Spring 2015
- Stanford University** (Palo Alto, CA) 2016 – present  
PhD Student, Emmett Interdisciplinary Program in Environment and Resources  
Illich-Sadowsky Interdisciplinary Graduate Fellow  
Fields of Inquiry: Disease ecology and applied econometrics  
Advisors: Erin Mordecai (Biology) and Marshal Burke (Earth System Science)

## PUBLICATIONS

1. Nova, Nicole, Ethan R. Deyle, Marta S. Shocket, Andrew J. MacDonald, Marissa L. Childs, Martin Rypdal, George Sugihara, and Erin A. Mordecai. 2021. "Susceptible Host Availability Modulates Climate Effects on Dengue Dynamics." Edited by Tim Coulson. *Ecology Letters* 24 (3): 415–25. <https://doi.org/10.1111/ele.13652>.
2. Kain, Morgan P.\*, Marissa L. Childs\*, Alexander D. Becker, and Erin A. Mordecai. 2021. "Chopping the Tail: How Preventing Superspreading Can Help to Maintain COVID-19 Control." *Epidemics* 34 (March): 100430. <https://doi.org/10.1016/j.epidem.2020.100430>.
3. Athni, Tejas S., Marta S. Shocket, Lisa I. Couper, Nicole Nova, Iain R. Caldwell, Jamie M. Caldwell, Jasmine N. Childress, et al. 2021. "The Influence of Vector-borne Disease on Human History: Socio-ecological Mechanisms." Edited by Jonathan Chase. *Ecology Letters* 24 (4): 829–46. <https://doi.org/10.1111/ele.13675>.
4. Shocket, Marta S., Christopher B. Anderson, Jamie M. Caldwell, Marissa L. Childs, Lisa I. Couper, Songhee Han, Mallory J. Harris, Meghan E. Howard, Morgan P. Kai, and Andrew J. MacDonald. 2020. "Environmental Drivers of Vector-Borne Diseases." In *Population Biology of Vector-Borne Diseases*, 85–118. Oxford University Press.

5. Washburne, Alex D., Daniel E. Crowley, Daniel J. Becker, Kezia R. Manlove, Marissa L. Childs, and Raina K. Plowright. 2019. "Percolation Models of Pathogen Spillover." *Philosophical Transactions of the Royal Society B* 374 (1782): 20180331.
6. Childs, Marissa L., Nicole Nova, Justine Colvin, and Erin A. Mordecai. 2019. "Mosquito and Primate Ecology Predict Human Risk of Yellow Fever Virus Spillover in Brazil." *Philosophical Transactions of the Royal Society B* 374 (1782): 20180335.
7. Huber, John H., Marissa L. Childs, Jamie M. Caldwell, and Erin A. Mordecai. 2018. "Seasonal Temperature Variation Influences Climate Suitability for Dengue, Chikungunya, and Zika Transmission." *PLoS Neglected Tropical Diseases* 12 (5): 1–20.  
<https://doi.org/10.1371/journal.pntd.0006451>.

\* indicates equal authorship

## PAPERS IN REVIEW

Childs, Marissa L., Morgan P. Kain, Mallory J. Harris, Devin Kirk, Lisa I. Couper, Nicole Nova, Isabel Delwel, Jacob Ritchie, Erin A. Mordecai. The impact of long-term non-pharmaceutical interventions on COVID-19 epidemic dynamics and control.

Couper, Lisa I., Johanna E. Farner, Jamie M. Caldwell, Marissa L. Childs, Mallory J. Harris, Devin G. Kirk, Nicole Nova, Mallory S. Shocket, Eloise B. Skinner, Lawrence H. Uricchio, Moises Exposito-Alonso, Erin A. Mordecai. How will mosquitoes adapt to climate change?

Childs, Marissa L., Erin A. Mordecai, Marshall Burke. Small-scale gold mining increases malaria risk in the Brazilian Amazon.

## TECHNICAL REPORTS

Childs, M.L., T. Pulliam, and D. Jespersen. June 2014. "OVERFLOW Turbulence Model Resource Verification Results." *NAS Technical Report: NAS-2014-03*.  
<http://www.nas.nasa.gov/publications/reports/2014/2014.html>

Jespersen, D., T. Pulliam, and M.L. Childs. August 2016. "OVERFLOW Turbulence Modeling Resource Validation Results." *NAS Technical Report: NAS-2016-01*.  
<https://www.nas.nasa.gov/publications/reports/2016/2016.html>

## HONORS AND AWARDS:

Academic Distinction, Whitman College	2012 – 2016
Jan Mejer Award for the Best Essays in Environmental Studies, Whitman College	2016
James F. Shepherd Award for Outstanding Economics Graduate, Whitman College	2016
Laura and John Hook Family Mathematics Award, Whitman College	2016
Phi beta kappa	2016
American Committee on Arthropod-Borne Viruses Travel Grant	2019

## ACADEMIC EXPERIENCE:

### **Summer Mathematics Program for Women** (Carleton College) Summer 2014

- Studied Lie theory and topology over a four week period culminating in the presentation of a student-led group research project for both courses
- Attended daily course lectures, biweekly colloquium lectures, and weekly group problem-solving sessions

### **Semester in the West** (Whitman College) Fall 2014

- Engaged in an intensive semester-long field program studying environmental issues and public lands conservation through field work, presentations, and discussions with various scientists, writers, activists, ranchers, and public officials working in the interior American West

### **Eco-System Informatics Summer Institute** (Oregon State University) Summer 2015

- Collected data in the H.J. Andrews Experimental Forest in Oregon for the long-term plant-pollinator data set
- Analyzed data using the R programming language and summarized findings in a final report “Predicting plant-pollinator interactions using flower abundance” available at the program website [http://eco-informatics.engr.oregonstate.edu/previous/2015/Childs\\_final\\_paper.pdf](http://eco-informatics.engr.oregonstate.edu/previous/2015/Childs_final_paper.pdf)

### **Summer Institute in Statistics and Modeling in Infectious Diseases** (University of Washington) 2017, 2018

- Attended modules entitled “Simulation-based Inference for Epidemiological Dynamics” and “Spatial Statistics in Epidemiology and Public Health”

### **Spillover Workshop** (Bozeman, MT) 2018

- Participated in working group on spillover prediction funded by DARPA and hosted by Raina Plowright at Montana State University

## PROFESSIONAL EXPERIENCE:

### **NASA Ames Research Center** (Mountain View, CA)

2013 – 2014, 2016

- Ran turbulence model verification cases on the computation fluid dynamics solver OVERFLOW with the use of programs and scripts and utilized LaTeX to compile the results into a reports published as two NAS technical papers
- Implemented method of manufactured solutions for the computation fluid dynamics solver EDDY using the C programming language to verify solver implementation, and presented results at a poster session

### **Whitman College** (Walla Walla, WA)

2013 – 2016

- Writing Fellow: Collaborated with a professor to design and implement writing workshops to help students refine their understanding of texts and improve their analytic writing skills
- Economics Tutor: Conducted twice weekly macroeconomics tutoring sessions to serve as a resource for students with questions or desiring extra practice with concepts outside of macroeconomics class
- Math Department Tutor: Tutored students desiring additional support in a math class with the goal of increasing students’ understanding of mathematical concepts and confidence in their mathematical abilities

## **BROADER IMPACTS**

### **Campus Climate Challenge**

2012 – 2016

- Led the planning, funding, and advertising for movies, speakers, and college events as a part of an organization focused on relevant environmental issues on campus, in the greater Washington area and nationally

### **Cool the Schools**

2013-2016

- Developed a climate change curriculum in coordination with local teachers and other students and taught the material to 7<sup>th</sup> graders in the Walla Walla, WA area

### **Classroom Connections**

2015-2016

- Interacted with high school students to provide weekly tutoring support and discuss college opportunities