

# Helen M. Kurkjian

Updated: March 17, 2023

Department of Aquatic Ecology  
Eawag  
Überlandstrasse 133  
8600 Dübendorf

Phone: +41799144758  
Email: helen.kurkjian@eawag.ch

---

<b>Research Appointments</b>	2021 - present	Postdoctoral Researcher, <b>Eawag</b> , Aquatic Ecology Mentor: Dr. Luis Gilarranz
	2018 - 2021	Postdoctoral Researcher, <b>Boston College</b> , Biology Mentor: Dr. Babak Momeni
<b>Education</b>	2018	PhD, <b>University of California, Berkeley</b> , Integrative Biology Dissertation Title: <i>Metapopulations in miniature: connectivity, subpopulation extinction, and recovery in microbial microcosms</i> Advisor: Dr. Ellen Simms Date Granted: May 11, 2018  Certificate of Teaching and Learning in Higher Education, <b>UC Berkeley</b>
	2012	Master of Science, <b>Humboldt State University</b> , Biology Thesis Title: <i>A population viability analysis of the Lassics lupine</i> Advisor: Dr. Erik S. Jules
	2007	Bachelor of Arts, <b>New York University</b> , Individualized Major, <i>cum laude</i>
<b>Classroom Teaching Experience</b>	2019	Instructor, <b>Boston College</b> Plant Biology, Spring 2019
	2018 – 2012	Graduate Student Instructor, <b>UC Berkeley</b> <ul style="list-style-type: none"><li>• General Biology (Bio 1B) Lab: Spring 2018, Spring 2017, Fall 2015, Spring 2014, Spring 2013, Fall 2012</li><li>• Ecology (IB 153) Discussion Sections: Fall 2017, Fall 2013</li><li>• Teaching Colloquium (IB 303): Fall 2016</li><li>• Methods in Population and Community Ecology (!B 170LF): Spring 2015</li><li>• Ecological Genetics (IB 162): Fall 2014</li></ul>
	2011 - 2009	Teaching Associate, <b>Humboldt State University</b> <ul style="list-style-type: none"><li>• Introduction to Ecology Lab: Spring 2011, Fall 2010</li><li>• Plant Taxonomy Lab: Spring 2010, Fall 2009</li></ul>
<b>Other Teaching Experience</b>		Curriculum Development Graduate Student Instructor, General Biology (Bio 1B) Lab, Organismal Diversity (Plant Biology) Module, UC Berkeley, Spring 2016
		Discipline-Cluster Leader, Biological Sciences, UC Berkeley Teaching Conference for First-Time GSIs: Fall 2016, Spring 2016, Fall 2015
		Co-facilitator, Fostering Critical Reading Wksp, UC Berkeley GSI Center, March 10, 2016

---

Focus Session Leader, Facilitating Laboratory Sections, UC Berkeley Teaching Conference for First-Time GSIs, Fall 2014

Volunteer, Introduction to California Plant Families Workshop, Jepson Herbarium, August 8-10, 2014

---

**Research Interests** Role of connectivity in metapopulation dynamics, Allee effects, early warning signals of population collapse, population and community ecology, intra- and inter-specific facilitation and competition, ecology of rare and endangered plants, dynamics of extinction

---

**Research Experience**

2021-2023	Bacterial Genetics in Spatial Networks, Eawag
2018-2021	Fungal-Bacterial Interactions, Boston College
2013-2018	Network Heterogeneity in Bacterial Metapopulations, UC Berkeley
2012-2014	Seed Predation in California Endemic Lupines, UC Berkeley
2009-2012	Master's Thesis Research, Humboldt State University
2011-2012	Research Associate, Humboldt State University
2011-2012	Database Developer, California Native Plant Society
2009	Research Associate, Great Basin Institute
2008	Vegetation Technician, Oregon State University
2007-2008	Field Technician, Colorado Division of Wildlife
2007	Field Technician, Utah State University
2007	Wildlife Technician, Kansas State University
2006	Field Assistant Intern, Student Conservation Association

---

**Publications**

Lobanov, A., S. Dyckman, **H. Kurkjian**, B. Momeni. in review. Spatial structure favors microbial coexistence except when slower mediator diffusion weakens interactions. Preprint: <https://doi.org/10.1101/2022.08.01.502385>

**Kurkjian, H.M.** in review. Dispersal corridor clustering in metapopulations leads to higher rates of recovery following subpopulation extinction. Preprint: <https://biorxiv.org/cgi/content/short/2020.01.29.925529v1>

**Kurkjian, H.M.**, M.J. Akbari, B. Momeni. 2021. The impact of interactions on invasion and colonization resistance in microbial communities. *PLOS Computational Biology* 17(1): e1008643. <https://doi.org/10.1371/journal.pcbi.1008643>

**Kurkjian, H.M.** 2019. The metapopulation microcosm plate: A modified 96-well plate for use in microbial metapopulation experiments. *Methods in Ecology and Evolution*, 10(2): 162-168. <https://doi.org/10.1111/2041-210X.13116>

---

**Kurkjian, H.M.**, Carothers, S.K. and Jules, E.S. 2017. Seed predation has the potential to drive a rare plant to extinction. *Journal of Applied Ecology*, 54: 862–871. doi:10.1111/1365-2664.12808

Jules, E.S., J.I. Jackson, R.J. Butz, **H.M. Kurkjian**. 2017. Population structure and site characteristics of the rare Shasta snow-wreath (*Neviusia cliftonii*). *Madroño* 64(4):116-123. doi: 10.3120/0024-9637-64.4.116

---

**Contributed Talks**

Kurkjian, H. M., J. Jimenez-Martinez, L. Gilarranz. Genetic differentiation on modular fragmented landscapes. Intecol 2022, Geneva, Switzerland.

Kurkjian, H.M. Metapopulation corridor position and subpopulation connectivity affect recovery following subpopulation extinction. Ecological Society of America 2018, New Orleans, LA.

Kurkjian, H. M. Metapopulation connectivity and persistence in *Pseudomonas syringae*. Ecological Society of America 2017, Portland, OR.

Kurkjian, H. M., S. K. Carothers, E. S. Jules. Seed predation reduces the fecundity of a rare plant and leads to population decline. Ecological Society of America 2012, Portland, OR.

Kurkjian, H., S. Carothers, E. Jules. A population viability analysis of the Lassics lupine. California Native Plant Society 2012, San Diego, CA.

---

**Contributed Posters**

Kurkjian, H. M., J. Jimenez-Martinez, L. Gilarranz. Genetic differentiation on modular fragmented landscapes. International Symposium on Microbial Ecology 2022, Lausanne, Switzerland.

Kurkjian, H.M. and B. Momeni, *Candida albicans* biofilm pore size and shape affect pore pH. MIT Quantitative Ecology 2020.

Kurkjian, H.M. and B. Momeni, Effects of spatial patterns in *Candida albicans* hyphal growth on *Staphylococcus aureus* growth and dispersal. Ecological Society of America 2019.

Kurkjian, H.M. and B. Momeni, *Candida albicans-Staphylococcus aureus* interactions altered by pH-induced changes to biofilm architecture. Gordon Research Conference on Microbial Population Biology 2019.

Kurkjian, H. M., Network heterogeneity in *Pseudomonas syringae*: an empirical test of a new method for bacterial metapopulation experiments. American Society of Naturalists 2016. Abstract P6.

Kurkjian, H. M., Network heterogeneity and metapopulation persistence in *Pseudomonas syringae*. ESA 2015. Annual Meeting Abstracts. Bulletin of the Ecological Society of America 96 (4).

---

**Published Data Packages**

Kurkjian, H. M. 2018. Data from: The Metapopulation Microcosm Plate: a modified 96-well plate for use in microbial metapopulation experiments. Dryad Digital Repository. <https://doi.org/10.5061/dryad.dq335ff>

Kurkjian, H. M., S. K. Carothers, E. S. Jules. 2016. Data from: Seed predation has the potential to drive a rare plant to extinction. Dryad Digital Repository. doi:10.5061/dryad.mq3mq

<b>Publications, Non-refereed</b>	Kurkjian, H.M. 2012. Lassics Lupine Seed Production Study, 2010-2011. Report to the United States Fish and Wildlife Service, Arcata Field Office. 10 pgs.
	Kurkjian, H.M. 2010. Seed Predation Study on Mount Lassic. Report to the United States Fish and Wildlife Service, Arcata Field Office. 6 pgs.
<b>Relevant Coursework</b>	Population & Community Ecology, Plant-Animal Interactions, Intermediate Statistics, Forest Pathology, Ascomycetes & Basidiomycetes, Field Lab in Ecology, Ecology & Environmental Thought, Evolution, Microbiology & Microbial Genomics, Rethinking the Bio Sciences, Intro to GIS, AIC Model Selection, Modern Statistical Modeling, Hierarchical Statistical Modeling, Plant Physiological Ecology
<b>Awards</b>	Outstanding Graduate Student Instructor Award, UC Berkeley, 2014
	Gregory Mark Jennings Award for Botany, Humboldt State University, 2012
<b>Other Education</b>	<p>Boston College Research and Scholarship Integrity Program 2019-2020</p> <p>Santa Fe Institute, Massively Open Online Courses  Introduction to Complexity, Completed: June 29, 2013  Mathematics for Complex Systems, in progress</p> <p>Joint 2013 MBI-NIMBioS-CAMBAM Summer Graduate Wksp: Connecting Biological Data with Mathematical Models at the National Institute for Mathematical and Biological Synthesis</p> <p>UC Berkeley GSI Teaching and Research Center Workshops Attended  Peer Exchange of Statements of Teaching Philosophy, Spring 2016  Grading and Assessment, Fall 2015  Strategies for Teaching and Learning, Spring 2015  Syllabus and Course Design, Fall 2014  How Students Learn, Fall 2013  Developing a Statement of Teaching Philosophy, Spring 2013</p>
<b>Grants &amp; Funding</b>	<p>2016      Doctoral Dissertation Improvement Grant: Network heterogeneity and metapopulation persistence in <i>Pseudomonas syringae</i>  National Science Foundation, \$20,396</p> <p>2015      Reshetko Family Scholarship of the College of Letters and Sciences, \$3011</p> <p>2014      Sigma Xi National, Network Heterogeneity in Bacterial Metapopulations, \$672</p> <p>2014      Roy Leeper Scholarship for the Biological Sciences, \$1700</p> <p>2013      Sigma Xi, UC Berkeley, Seed Predation on California Endemic Lupines, \$466</p> <p>2013      Lawrence R. Heckard Endowment Fund of the Jepson Herbarium  Seed Predation on <i>Lupinus</i> species of northern California, \$4466</p> <p>2012      USFWS, Arcata Field Office, Lassics Lupine Seed Production Study, \$2287</p> <p>2011/10   Humboldt State University, Dept of Biological Sciences, Master's Student Grant</p>

---

2010	USFWS, Arcata Field Office, Seed Predation Study on Mount Lassic, \$1000
2009	Six Rivers NF, USFS, Estimate of <i>Lupinus constancei</i> Seed Production, \$2000

---

**Professional & Community Service**

Boston College Evaluation of Departmental Environment for Biology Postdoctoral Researchers and Senior Research Associates, Fall 2019

Be A Scientist Mentor to sixth-grade students' independent projects, Fall 2017, Spring 2016

Co-chair Queer Grads and Organizer of LGBT Science Reception, UC Berkeley, 2015-2016

Dept of Integrative Biology Delegate to the UC Berkeley Graduate Assembly, 2014 – 2016

Laboratory Safety Officer, Simms Lab, UC Berkeley, Fall 2013 – Spring 2018

Review Services, New Phytologist, Nature Communications

Treasurer, Biology Graduate Students Association, HSU, 2010-2011

Volunteer Docent, Friends of the Dunes, Arcata, CA

---

**Professional Societies**

Ecological Society of America, International Society for Microbial Ecology

**Professional References**

---

Dr. Luis Gilarranz	Postdoctoral Research Mentor	luis.gilarranz@eawag.ch
Dr. Joaquin Jimenez-Martinez	Collaborator	joaquin.jimenez@eawag.ch
Dr. Babak Momeni	Postdoctoral Research Mentor	momeni@bc.edu