Christopher A. Klausmeier
School of Biology
Georgia Institute of Technology
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Research Interests

Theoretical population, community and ecosystem ecology, particularly aquatic systems

Educational History

1995–2000 University of Minnesota, Ph.D. in Ecology, Evolution and Behavior
Advisors: Drs. Claudia Neuhauser and David Tilman
Thesis: *The Role of Spatial Heterogeneity in Ecological Communities*

1991–1995 Harvey Mudd College, B.S. in Mathematics

Awards and Honors

2000–2001 NSF International Research Fellowship

1995–1996 University of Minnesota Graduate School Fellowship

1991 National Merit Scholar

Professional Experience

2003– Assistant Professor, Georgia Institute of Technology, School of Biology
Classes taught: Mathematical Biology, Theoretical Ecology

2001–2002 Postdoctoral Researcher, Princeton University (with Simon Levin)
Developed models of phytoplankton stoichiometry and community structure

2000–2001 Research Fellow, Swiss Federal Institute for Environmental Science & Technology (with Peter Bossard and Taddeusz Kawecki, University of Basel)
Developed models of plankton community assembly

2000 Research Assistant, University of Minnesota (with David Tilman)
Developed and analyzed models of patch dynamics in heterogeneous environments

1998, 1999 Visiting Researcher, University of Maryland (with Peter Abrams)
Developed and analyzed models of adaptive predator switching

1996–1999 Teaching Assistant, University of Minnesota
Introduction to Biology, Evolution, Theoretical Population Ecology

Grants

2005–2008 QEIB: Novel Approaches to Plankton Seasonal Succession ($350,000)
PI: C.K., co-PIs: Elena Litchman and Leonid Bunimovich
NSF, Ecology Program

2005–2008 Vertical Distribution of Phytoplankton ($350,000)
PI: Elena Litchman, co-PI: C.K.
NSF, Ecology Program

Pending Multivariate and Nonlinear Approaches to Thresholds in Plankton Communities
PI: C.K., co-PI: Elena Litchman
Submitted to EPA STAR June, 2004

Publications*

De Leenheer, P., S. A. Levin, E. D. Sontag, and C. A. Klausmeier. *Accepted, pending minor revisions.* Global stability in a chemostat with multiple nutrients. Journal of Mathematical Biology.

Schade, J. D., J. F. Espeleta, C. A. Klausmeier, M. E. McGroddy, S. A. Thomas, and L. Zhang. *In press.* A conceptual framework for ecosystem stoichiometry: balancing resource supply and demand. Oikos.

Klausmeier, C. A., E. Litchman, T. Daufresne, and S. A. Levin. 2004. Optimal nitrogen-to-phosphorus stoichiometry of phytoplankton. Nature 429: 171–174.

Klausmeier, C. A., E. Litchman, and S. A. Levin. 2004. Phytoplankton growth and stoichiometry under multiple nutrient limitation. Limnology and Oceanography 49: 1463–1470.

Litchman, E., C. A. Klausmeier, and P. Bossard. 2004. Phytoplankton nutrient competition under dynamic light regimes. Limnology and Oceanography 49: 1457–1462.

Klausmeier, C. A., and D. Tilman. 2002. Spatial models of competition. pp. 43–78 in eds. U. Sommer and B. Worm, *Competition and Coexistence*, Springer-Verlag.

van de Koppel, J., and 11 others. 2002. Spatial interaction and vegetation collapse. American Naturalist 159: 209–218.

Klausmeier, C. A., and E. Litchman. 2001. Algal games: the vertical distribution of phytoplankton in poorly-mixed water columns. Limnology and Oceanography 46: 1998–2007.

Litchman, E., and C. A. Klausmeier. 2001. Competition of phytoplankton under fluctuating light. American Naturalist 157: 170–187.

Klausmeier, C. A. 2001. Habitat destruction and extinction in competitive and mutualistic metacommunities. Ecology Letters 4: 57–63.

Klausmeier, C. A. 1999. Regular and irregular patterns in semiarid vegetation. Science 284: 1826–1828.

Klausmeier, C. A. 1998. Extinction in multispecies and spatially explicit models of habitat destruction. American Naturalist 152: 303–310.

∗ Reprints available at `http://twofish.biology.gatech.edu/~klaus/reprints`

Manuscripts in Review

Litchman, E., C. A. Klausmeier, J. R. Miller, O. M. Schofield, and P. G. Falkowski. Resource-based models of present and future oceanic phytoplankton communities. Submitted to *Global Change Biology*, 12/24/03.

Non-Peer Reviewed Papers

Litchman, E., C. Klausmeier, D. Steiner, D. Hohmann, and P. Bossard. 2002. Wie die Tageslänge bei Phosphorknappheit die Lebensgemeinschaften von Algen in Seen beeinflussen kann. EAWAG Jahresbericht 2001.

Papers Presented at Meetings (* denotes invited talk)

Klausmeier, C. A., E. Litchman, T. Daufresne, and S. A. Levin. Phytoplankton N:P stoichiometry. Gordon Research Conference on Metabolic Basis of Ecology 2004, Lewiston, ME.

Klausmeier, C. A., and E. Litchman. Seasonal succession in plankton communities. Ecological Society of America Annual Meeting 2003, Savannah, GA.

Litchman, E., C. A. Klausmeier, O. Schofield, and P. G. Falkowski. Resource-based niches of phytoplankton functional groups. Ecological Society of America Annual Meeting 2003, Savannah, GA.

Klausmeier, C. A., E. Litchman, S. A. Levin, and T. Daufresne. Optimal N:P stoichiometry of phytoplankton. American Society of Limnology and Oceanography Meeting 2003, Salt Lake City, UT.

Litchman, E., C. A. Klausmeier, B. van de Schootbrugge, O. M. Schofield, and P. G. Falkowski. Applying phytoplankton community models to understanding phytoplankton distributions in the paleoocean. American Society of Limnology and Oceanography Meeting 2003, Salt Lake City, UT.

* Klausmeier, C. A., E. Litchman, S. A. Levin, and T. Daufresne. Functional stoichiometry. Biodiversity of Planktonic Communities: Scaling Up and Down, October 2002, Ann Arbor, MI.

* Litchman, E., C.A. Klausmeier and P. Bossard. 2002. Phytoplankton nutrient competition and stoichiometry under dynamic light regimes. Biodiversity of Planktonic Communities: Scaling Up and Down, October 2002, Ann Arbor, MI.

Litchman, E., C. A. Klausmeier, B. van de Schootbrugge, O. Schofield, and P.G. Falkowski. Applying phytoplankton community models to understanding phytoplankton distributions in the paleoocean. JGOFS Synthesis and Modeling Project Workshop, July 2002, Woods Hole, MA.

* Klausmeier, C. A. Theoretical approaches to plankton community ecology. Biodiversity and Ecosystem Functioning, NERC-NSF-JSPS Joint Trilateral Program Workshop, July 2002, Sapporo, Japan.

Klausmeier, C. A., and T. Daufresne. Functional stoichiometry. Biocomplexity^2 Meeting Spring 2002, Princeton, NJ.

Klausmeier, C. A., and D. Tilman. Competition in heterogeneous landscapes. Ecological Society of America Annual Meeting 2001, Madison, WI.

Litchman, E., P. Bossard and C. A. Klausmeier. Phytoplankton resource competition: effects of variable nutrient uptake rates. American Society of Limnology and Oceanography Annual Meeting 2000, Copenhagen, Denmark.

Klausmeier, C. A. Regular and irregular patterns in semiarid vegetation. NATO-ASI on Mathematical Problems Arising from Biology, June, 1999, Toronto, Ontario.

Klausmeier, C. A. Pattern formation in semiarid vegetation. Institute for Mathematics and its Applications, Workshop on Local Interaction and Global Phenomena in Vegetation and Other Systems, April 23, 1999, Minneapolis, MN.

Klausmeier, C. A., and E. Litchman. Phytoplankton competition for light and nutrient in unmixed and partially mixed water columns. Ecological Society of America Annual Meeting 1999, Spokane, WA.

Fargione, J. E., C. A. Klausmeier, and C. L. Lehman. Community invasibility is increased by habitat destruction. Ecological Society of America Annual Meeting 1999, Spokane, WA.

Litchman, E., and C. A. Klausmeier. Competition and coexistence under fluctuating light: model analysis. American Society of Limnology and Oceanography / American Geophysical Union Ocean Sciences Meeting 1998, San Diego, CA.

Klausmeier, C. A. Pattern formation in semiarid vegetation: tiger bush. Gordon Research Conference on Theoretical Biology and Biomathematics 1998, Tilton, NH.

Klausmeier, C. A. Pattern formation in semiarid vegetation: tiger bush. Ecological Society of America Annual Meeting 1998, Baltimore, MD.

Klausmeier, C. A. Extinction in multispecies and spatially-explicit models of habitat destruction. Ecological Society of America Annual Meeting 1997, Albuquerque, NM.

Seminars

November 16, 2004. Theoretical approaches to plankton community ecology. Indiana University, Department of Biology.

November 11, 2004. Theoretical approaches to plankton community ecology. University of Guelph, Department of Zoology.

October 7, 2004. Past and future research. University of Oxford, Department of Zoology.

September 21, 2004. Theoretical approaches to plankton community ecology. University of Toronto, Department of Zoology.

September 14, 2004. Theoretical approaches to plankton community ecology. Georgia Institute of Technology, Department of Mathematics.

March 8, 2004. Theoretical approaches to plankton community ecology. McGill University, Department of Biology.

February 26, 2003. Theoretical approaches to plankton community ecology. Georgia Institute of Technology, BiComB Seminar Series.

December 4, 2001. Dynamic models of ecological landscapes. Georgia Institute of Technology, Department of Biology.

May 31, 2001. Dynamic models of ecological landscapes. University of California, Los Angeles, Department of Organismic Biology, Ecology, and Evolution.

February 1, 2001. Dynamic models of ecological landscapes. University of Texas, Austin, Department of Integrative Biology.

January 22, 2001. Dynamic models of ecological landscapes. EAWAG, Kastanienbaum, Switzerland.

November 6, 2000. Models of plankton community assembly. University of Amsterdam, Aquatic Microbial Ecology.

November 1, 2000. The spatial ecology of semi-arid vegetation. University of Basel, Zoological Institute.

August 24, 2000. Models of plankton community assembly. University of Basel, Zoological Institute.

June 1, 2000. The role of spatial heterogeneity in ecological communities. Ph.D. defense seminar, University of Minnesota, Department of Ecology, Evolution, and Behavior.

December 3, 1999. Phytoplankton competition for nutrients and light in stratified water columns. University of Minnesota, Department of Mathematics.

November 23, 1998. Pattern formation in semi-arid vegetation: models of plant and water dynamics. Rice University, Department of Ecology and Evolutionary Biology.

November 21, 1997. Spatial models of habitat destruction and tiger bush. University of Minnesota, Department of Ecology, Evolution and Behavior.

May 4, 1995. A simple model of species response to climate change. Harvey Mudd College.

Service

2004–	Advisor, Biology Graduate Student Association, Georgia Institute of Technology
2004–2005	Seminar Coordinator, School of Biology, Georgia Institute of Technology
2004	Member, Bioinformatics Search Committee, Georgia Institute of Technology
2002	Co-organizer, Biocomplexity^2 Meeting

Reviewer: American Naturalist, Bioscience, Ecology, Ecology Letters, Evolutionary Ecology, Global Change Biology, Israeli Science Foundation, Journal of Marine Research, Journal of Mathematical Biology, Journal of Theoretical Biology, Limnology and Oceanography, Oikos, Proceedings of the National Academy of Sciences, PLoS Biology, Science, Theoretical Population Biology

Students Supervised

Graduate students:

Liliana Lettieri (Biology Ph.D. student, Georgia Tech)

Jarad Mellard (Biology Ph.D. student, Georgia Tech)

Undergraduate students:

Wes Angel (Biology/ISyE major, Georgia Tech)

Julie Bjornstad (Mathematics major, Georgia Tech)

Leo Dachevsky (Electrical and Computer Engineering major, Georgia Tech)

Professional Affiliations

American Society of Naturalists, American Society of Limnology and Oceanography, Ecological Society of America