

# Robin Elizabeth Snyder

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## Positions Held

- 1/1/2004–Present: Assistant Professor of Biology, Case Western Reserve University
- 7/2001–12/31/03: Postdoctoral Researcher with Peter Chesson at University of California, Davis.

## Education

- Ph.D. in statistical physics, June 2001. Dissertation title: “The Effects of Spatial Correlations and Demographic Stochasticity on Population Dynamics.” Advisors: Roger Nisbet and Jim Langer.
- Certificate of Postgraduate Study in physics, 1993, Cambridge University.
- B.A. “with high honors” in physics, 1992, Oberlin College.

## Honors and Awards

- UCSB Louis and Winifred Lancaster Award for the Best Dissertation in the Biological Sciences, 1999-2001
- Research Training Grant in Spatial Ecology—three years support plus travel and equipment money, 1998.
- Eugene Cota-Robles Fellowship—two years support, 1993.
- Physics Department Dupont Fellowship, 1993.
- Churchill Scholar—one year graduate fellowship at Cambridge University, 1992.

- Sigma Xi, Associate Member, 1992.
- Phi Beta Kappa, 1991.

## Grant proposals

### Funded

- (NSF) UBM: Undergraduate research at the interface of mathematics and biology, 9/2/06, \$239,995, PI.

### Pending

- CAREER: Transient dynamics of communities exposed to altered environment variation, \$570,726, PI.
- COLLABORATIVE RESEARCH (QEIB): Modeling the effects of environmental variability on multi-species interactions in streams and rivers, \$203,140. Co-PI.

## Refereed journal publications

- **Snyder, Robin E.**; When is an ecological system likely to be reactive? *In review*.
- **Snyder, Robin E.**; Transient dynamics in altered disturbance regimes: recovery may start quickly, then slow. *Theoretical Ecology*. Online at <http://dx.doi.org/10.1007/s12080-008-0030-4>
- **Snyder, Robin E.**; When does environmental variation most influence species coexistence?. *Theoretical Ecology*. 2008, **1**(3), 129–139. *A Faculty of 1000 paper* (<http://www.f1000biology.com/article/id/1104456>).
- **Snyder, R.E.**; Spatiotemporal population distributions and their implications for species coexistence in a variable environment, *Theoretical Population Biology*, 2007, **72**(1), 7–20.
- Schoolmaster, D. and **Snyder, R.E.**; Invasibility in a spatiotemporally fluctuating environment is determined by the periodicity of fluctuations and resident turnover rates, *Proceedings of the Royal Society B — Biological Sciences*, 2007, **274**(1616), 1429–1435.

- **Snyder, Robin E.** Multiple risk mechanisms: can dormancy substitute for dispersal? *Ecology Letters*, 2006, **9**, 1106–1114.
- **Snyder, Robin E.**; Borer, Elizabeth T.; Chesson, Peter. Examining the relative importance of spatial and nonspatial coexistence mechanisms. *The American Naturalist*, 2005, **166**(4), E75–E94, <http://www.journals.uchicago.edu/cgi-bin/resolve?AN40838>. *A Faculty of 1000 paper* (<http://www.f1000biology.com/article/id/1028960>).
- **Snyder, Robin E.**; Chesson, Peter L. How the spatial scales of dispersal, competition, and environmental heterogeneity interact to affect coexistence. *The American Naturalist*, 2004, **164**(5), 633–650.
- **Snyder, Robin E.**; Chesson, Peter L. Local dispersal can facilitate coexistence in the presence of permanent spatial heterogeneity. *Ecology Letters*, 2003, **6**(4), 301–309.
- **Snyder, Robin E.** How demographic stochasticity can slow biological invasions. *Ecology*, 2003, **84**(5), 1333–1339.
- **Snyder, Robin E.**; Nisbet, Roger M. Spatial structure and fluctuations in the contact process and related models. *Bulletin of Mathematical Biology*, 2000, **62**(5), 959–975.
- Nisbet, Roger M.; de Roos, Andre M.; Wilson, William G.; **Snyder, Robin E.** Discrete consumers, small scale resource heterogeneity, and population stability. *Ecology Letters*, 1998, **1**, 34–37.
- **Snyder, R.E.**; Ball, R.C. Self-organized criticality in computer models of settling powders. *Physical Review E*, Jan. 1994, **49**(1), 104–9.
- **Snyder, R.**; Pergellis, A.N.; Graham, P.A.; Yurke, B. Light-transmission study of coarsening in a nematic liquid crystal. *Physical Review A*, 15 Feb. 1992, **45**(4), R2169–72.

## Non-refereed publications

- **Snyder, R.E.** Symposium: Transient Dynamics and their Implications for Ecological Theory, *Bulletin of the Ecological Society of America*, in press.
- **Snyder, R.E.** Spatial correlations in the contact process: a step toward better ecological models. *Unifying Themes in Complex Systems: Proceedings of the First International Conference on Complex Systems* (Edited by Yaneer Bar-Yam), Sept. 1997, Nashua, New Hampshire, Perseus Books.

## **Teaching — CWRU**

- Developed and taught Biology 384, Reading and Writing Like an Ecologist, a SAGES Departmental Seminar
- Developed and taught Biology 306, Dynamics of Biological Systems II: Tools for Mathematical Biology
- Developed and taught Biology 455, Coexistence in a Variable Environment

## **Teaching — Short courses**

- Developed and taught an intensive one-week summer course on theoretical population biology for the Enhancing Linkages between Mathematics and Ecology program at Kellogg Biological Station, 2005, 2006, 2007, 2008.
- Taught a 1-week course, “Species coexistence in a variable environment” to mathematics graduate students as part of the Helsinki Summer School on Mathematical Ecology and Evolution, 2008.

## **Professional and Departmental Service**

- Vice-chair of the Theory Section of the Ecological Society of America
- Organized a symposium on transient dynamics for the 2008 annual meeting of the Ecological Society of America
- Serve as Academic Representative and Contact for First Year Students/Advisors for the Systems Biology degree program, a program I am helping to develop.
- Co-developed and co-administer Research at the Interface of the Biological and Mathematical Sciences (RIBMS), a program which supports teams of biology, mathematics, and statistics majors working on research problems at the intersections of their disciplines (<http://www.case.edu/artsci/ribms/ribms.html>).
- Co-organized a new interdisciplinary seminar series, the Biomath Forum, as a way of bringing together researchers interested in mathematical biology. Both students and faculty participate, and participants have come from the College of Arts and Sciences, School of Medicine, and School of Engineering.

- Have served on an NSF DEB grant review panel.
- Serve as a referee for the NSF's Division of Environmental Biology, the U.S.-Israel Binational Science Foundation, and for various ecology journals, including *Ecology Letters*, *Theoretical Population Biology*, *Journal of Theoretical Biology*, and *American Naturalist*.
- Committee for Graduate Affairs, Biology Dept., 2005, 2006
- Curriculum Committee, Biology Dept., 2008

### **Professional Society Memberships**

- Ecological Society of America
- Society for Mathematical Biology