

Carl Boettiger

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Davis CA 95616, USA
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Employment University of California, Santa Cruz

Santa Cruz, CA 95064
10/15/2012 - Present

NSF Postdoctoral Researcher
Mentors: Marc Mangel & Stephan Munch

Education University of California, Davis

Davis, CA 95616
Ph.D. 09/18/2012

Ph.D Population Biology
Mentor: Alan Hastings

Princeton University

Princeton, NJ 08544
06/2007

A.B in Physics with Honors
Certificate in Biophysics; Certificate in Applied and Computational Mathematics
Mentors: Stephen Pacala, Simon Levin, David Huse

Publications

11. Boettiger, C., Hastings, A. (2013) "No early warning signals for stochastic transitions: insights from large deviation theory." *Proceedings of the Royal Society B*. doi:10.1098/rspb.2013.1372
10. Boettiger, C.*, Ross, N.*, Hastings, A. (2013) "Early warning signals: The charted and uncharted territories." *Theoretical Ecology* doi:10.1007/s12080-013-0192-6
9. Boettiger, C., Hastings, A. (2013) "Tipping points: From patterns to predictions." *Nature*. 493, 157-158. doi:10.1038/493157a
8. Boettiger, C., Hastings, A. (2012) "Early Warning Signals and the Prosecutor's Fallacy." *Proceedings of the Royal Society B*. 279(1748) 4734-4739. doi: 10.1098/rspb.2012.2085
7. Boettiger, C., Temple-Lang, D., Wainwright, P.C. (2012) "rfishbase: exploring, manipulating and visualizing FishBase data from R" *Journal of Fish Biology*. 81(6) 2030-2039. doi: 10.1111/j.1095-8649.2012.03464.x
6. Boettiger, C., Temple-Lang, D. (2012) "Programmatic access to TreeBASE phylogenies in R." *Methods in Ecology and Evolution* doi: 10.1111/j.2041-210X.2012.00247.x
5. Boettiger, C. Hastings, A (2012) "Quantifying limits to detection of early warning for critical transitions." *Journal of The Royal Society Interface*, 9(75), 2527-2539. doi: 10.1098/rsif.2012.0125.
4. Beaulieu, J.M., Jhvueng, D., Boettiger, C., O'Meara, B. (2012) "Modeling Stabilizing Selection: Expanding the Ornstein-Uhlenbeck Model of Adaptive Evolution," *Evolution*. 66(8) 2369-2383. doi: 10.1111/j.1558-5646.2012.01619.x
3. Boettiger, C., Coop, G., Ralph, P. (2012) "Is your phylogeny informative? Measuring the power of comparative methods." *Evolution*. 66(7) 2240-51. doi: 10.1111/j.1558-5646.2012.01574.x
2. Boettiger, C., Dushoff, J., Weitz, J. S. (2010) "Variation in the phenotypic dynamics of evolving populations," *Theoretical Population Biology* 77, 6-13. doi: 10.1016/j.tpb.2009.10.003
1. Wray, J., Bahcall, N., Bode, P., Boettiger, C., Hopkins, P. (2006) "The Shape, Multiplicity, and Evolution of Superclusters in Λ CDM Cosmology." *Astrophysical Journal* 652, 907. doi: 10.1086/508600

* denotes equal contribution.

Submitted or in preparation 1. Boettiger, C., Mangel, M., Munch, S. "Avoiding tipping points in ecological systems: a Bayesian non-parametric approach to decision making." For *Ecology Letters*.

Presentations

2013 *ESA* Minneapolis, MN
WHOI; Cape Cod, MA **invited speaker**.
 UC Davis Dept of Envir Resources and Econ; Davis, CA **invited speaker**.

2012 *ESA* Portland, OR.
Evolution; Ottawa, CAN. SSB Symposium **invited speaker**.
iEvoBio; Ottawa, CAN.
Computational Science; Washington DC.

2011 *Ecological Society of America*; Austin, TX.
Evolution; Norman, OK.
iEvoBio; Norman, OK.
Science Online; Durham, NC.
Society for Integrative and Comparative Biology. Salt Lake City, UT.

2010/2009 *iEvoBio*; Portland, OR. 2010
Evolution; Portland OR. 2010
University of Tennessee, Knoxville, TN. 2009
IIASA, Vienna; Austria. 2009

Invited Workshops Mathematical Biology Institute (MBI), Columbus, OH 2013
[Sustainable Management of Living Natural Resources](#) Columbus, OH.
 Planning workshops for an NSF software sustainability center 2013
[Institute for Sustainable Earth and Environmental Software](#). Mtgs in Oakland CA and Santa Barbara, CA
 NIMBioS working group 2011-13
[Pretty Darn Good Control](#), Knoxville, TN
 American Institute for Mathematics 2011
[Stochastic and deterministic spatial modeling in population dynamics](#), Palo Alto, CA

Grants NSF Mathematical Biology Postdoctoral Scholar 2013-15
 Management for an uncertain world: robust decision theory in face of regime shifts Grant No: DBI-1306697 (\$138,000)
 Co-PI on Alfred P. Sloan Foundation Grant 2013-15
 For work on the [rOpenSci Project](#) (\$180,000)
 PI 50,000 hrs DOE supercomputing time 2011, renewed 2012
 NERSC center, Department of Energy, Grant No. DE-AC02-05CH11231
 IIASA YSSP fellowship 2009
 award from the National Academy of Sciences, NSF Grant No. OISE-0738129, (\$8,000)
 DOE Computational Science Graduate Fellowship 2008-2012
 Department of Energy, Grant No: DE-FG02-97ER25308, (\$144,000)

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| Honors & Awards | <i>Volterra Award</i> (Best student talk, ESA Theory) | 2011 |
| | <i>Mendeley & PLoS software competition</i> , \$1,000 | 2011 |
| | Elected to Membership in the Society of <i>Sigma Xi</i> | 2007 |
| | <i>Allen G. Shenstone Prize in Physics</i> , Princeton | 2007 |
| | <i>The Class of 1870 Old English Prize</i> , Princeton | 2007 |
| | <i>Kusaka Memorial Prize in Physics</i> , Princeton | 2006 |
| | <i>Plasma Physics Fellow</i> , PPPL | 2006 |
| Authored Software (selected) | wrightscape: Infer adaptive landscapes from phylogenetic trees (2012) | |
| | knitcitations: Dynamic citation manager for R. (2012) | |
| | pmc: Phylogenetic Monte Carlo tools to quantify uncertainty in comparative methods. (2011) | |
| | treeBASE: An R interface to the TreeBASE API (2011) | |
| | rfishbase: An R interface to the fishbase database (2011) | |
| | BranchingTime: Individual based simulations for adaptive dynamics. (2011) | |
| | populationdynamics: Gillespie algorithms for exact simulation of common ecological models (2011) | |
| | More software at http://github.com/cboettig | |
| Reviewer for: | | |
| 2013 | <i>Theoretical Ecology</i> , <i>Francis & Taylor</i> , <i>Ideas in Ecology and Evolution</i> , <i>The R Journal</i> , <i>National Science Foundation</i> , <i>Proceedings of the Royal Society B</i> , <i>Journal of Open Research Software</i> , <i>Canadian Journal of Fisheries and Aquatic Sciences</i> | |
| 2012 | <i>Theoretical Ecology</i> , <i>Evolution</i> , <i>Methods in Ecology and Evolution</i> , <i>Proceedings of the Royal Society B</i> , <i>PLoS ONE</i> , <i>Ecology</i> , <i>Conservation Letters</i> , <i>Ecology Letters</i> | |
| 2011 | <i>Theoretical Ecology</i> , <i>Ecological Modelling</i> , <i>Evolution</i> , <i>Methods in Ecology and Evolution</i> , <i>Ecosphere</i> , | |
| 2010 & prior | <i>Theoretical Ecology</i> , <i>Journal of Mathematical Biology</i> , <i>Ecological Modelling</i> , <i>Ecology</i> | |
| Other Service: | Student member for the CBS Dean search. | 2011 |
| | Co-chaired the student group on Open Science | 2010-12 |
| | Co-chaired the Graduate Teaching Community | 2009-10 |
| | Student member for the CPB program review. | 2010 |
| Teaching Experience | ESA Workshop Instructor | Aug 2012 |
| | Mentor for Google Summer of Code, R-Project | Summer 2012 |
| | Instructor, Bodega Phylogenetics Workshop | Winter 2011 |
| | Student Mentor, CLIMB program | Spring, Summer 2008 |
| | Teaching Assistant: Introductory Zoology | Winter 2008 |
| Interviews | Check Hayden E (2013). "Mozilla Plan Seeks to Debug Scientific Code." Nature , 501, pp. 472-472. doi:10.1038/501472a | |
| | Van Noorden R (2013). "Data-Sharing: Everything on Display." Nature , 500, pp. 243-245. 10.1038/nj7461-243a | |
| | Gershwin, Virginia (2013). "Turning Point: Carl Boettiger" Nature , 493 p 711 10.1038/nj7434-711a | |
| | Wald, Chelsea (2010). "Scientists Embrace Openness" Science . 10.1126/science.caredit.a1000036 | |
| References | Alan Hastings, Dept of Env Sci & Policy, UC Davis amhastings@ucdavis.edu | |
| | Simon Levin, Dept of Ecology & Evolution, Princeton slevin@princeton.edu | |
| | Stephan Munch, Southwest Fisheries Science Center, NOAA steve.munch@noaa.gov | |

