

## Carl Boettiger

### Work:

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### Home:

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### Employment University of California, Santa Cruz

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

NSF Postdoctoral Researcher  
Mentors: Marc Mangel & Stephen 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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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  $\Lambda$  CDM Cosmology." *Astrophysical Journal* 652, 907. doi: [10.1086/508600](https://doi.org/10.1086/508600)

\* denotes equal contribution.

## Presentations

2013	ESA Minneapolis, MN WHOI; Cape Cod, MA <b>invited speaker</b> .
2012	ESA Portland, OR. <i>Evolution</i> ; Ottawa, CAN. SSB Symposium <b>invited speaker</b> . <i>iEvoBio</i> ; Ottawa, CAN. <i>Computational Science</i> ; Washington DC.
2011	<i>Ecological Society of America</i> ; Austin, TX. <i>Evolution</i> ; Norman, OK. <i>iEvoBio</i> ; Norman, OK. <i>Science Online</i> ; Durham, NC. <i>Society for Integrative and Comparative Biology</i> . Salt Lake City, UT.
2010/2009	<i>iEvoBio</i> ; Portland, OR. 2010 <i>Evolution</i> ; Portland OR. 2010 <i>University of Tennessee</i> , Knoxville, TN. 2009 <i>IIASA</i> , Vienna; Austria. 2009

Workshops	MBI <b>invited speaker</b>	2013
	<a href="#">Sustainable Management of Living Natural Resources</a> Columbus, OH.	
	NIMBioS working group	2011-13
	<a href="#">Pretty Darn Good Control</a> , Knoxville, TN	
Grants	American Institute for Mathematics	2011
	<a href="#">Stochastic and deterministic spatial modeling in population dynamics</a> , Palo Alto, CA	
	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 <b>Alfred P. Sloan Foundation</b> Grant	2013-15
	For work on the <a href="#">rOpenSci Project</a> (\$180,000)	
	PI 50,000 hrs <b>DOE</b> supercomputing time	2011, renewed 2012
	NERSC center, Department of Energy, Grant No. DE-AC02-05CH11231	
	<b>IIASA</b> YSSP fellowship	2009
	award from the National Academy of Sciences, <b>NSF</b> Grant No. OISE-0738129, (\$8,000)	
Honors & Awards	<b>DOE</b> Computational Science Graduate Fellowship	2008-2012
	Department of Energy, Grant No: DE-FG02-97ER25308, (\$144,000)	
	<i>Volterra Award</i> (Best student talk, ESA Theory)	2011
	<i>Mendeley &amp; 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
Authorized Software (selected)	<i>Plasma Physics Fellow</i> , PPPL	2006
	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, Francis &amp; Taylor, Ideas in Ecology and Evolution, The R Journal, National Science Foundation, Proceedings of the Royal Society B, Journal of Open Research Software, Canadian Journal of Fisheries and Aquatic Sciences</i>
2012	<i>Theoretical Ecology, Evolution, Methods in Ecology and Evolution, Proceedings of the Royal Society B, PLoS ONE, Ecology, Conservation Letters, Ecology Letters</i>
2011	<i>Theoretical Ecology, Ecological Modelling, Evolution, Methods in Ecology and Evolution, Ecosphere,</i>
2010 & prior	<i>Theoretical Ecology, Journal of Mathematical Biology, Ecological Modelling, Ecology</i>

<b>Other Service:</b>	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

<b>Teaching Experience</b>	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](https://doi.org/10.1038/501472a)

Van Noorden R (2013). "Data-Sharing: Everything on Display." **Nature**, 500, pp. 243-245. [10.1038/nj7461-243a](https://doi.org/10.1038/nj7461-243a)

Gershwin, Virginia (2013). "Turning Point: Carl Boettiger" **Nature**, 493 p 711 [10.1038/nj7434-711a](https://doi.org/10.1038/nj7434-711a)

Wald, Chelsea (2010). "Scientists Embrace Openness" **Science**. [10.1126/science.caredit.a1000036](https://doi.org/10.1126/science.caredit.a1000036)

**References**

Alan Hastings, Dept of Env Sci & Policy, UC Davis [amhastings@ucdavis.edu](mailto:amhastings@ucdavis.edu)

Simon Levin, Dept of Ecology & Evolution, Princeton [slevin@princeton.edu](mailto:slevin@princeton.edu)

Stephan Munch, Southwest Fisheries Science Center, NOAA [steve.munch@noaa.gov](mailto:steve.munch@noaa.gov)