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## employment

- 2015 Assistant Professor, Department of [Environmental Science, Policy and Management, University of California Berkeley](#)
- 2013-2015 NSF Post-doctoral Scholar in the Department of [Applied Mathematics and Statistics](#) at the [University of California, Santa Cruz](#) Mentors: [Marc Mangel](#), [Stephan Munch](#)

## education

- 2012 Ph.D Population Biology, [University of California, Davis](#). Mentor: [Alan Hastings](#)
- 2007 A.B in Physics [Princeton University](#), with honors and certificates in *biophysics* and *applied and computational mathematics*.

## publications

1. James J. Wray, Neta A. Bahcall, Paul Bode, **Carl Boettiger**, Phillip Hopkins. (2006) The Shape, Multiplicity, and Evolution of Superclusters in Lambda-CDM Cosmology, *The Astrophysical Journal* 652 (2) 907-916. [doi:10.1086/508600](#) ([arXiv](#))
2. **Carl Boettiger**, Jonathan Dushoff, Joshua S Weitz (2010) Fluctuation domains in adaptive evolution, *Theoretical Population Biology* 77 (1) 6-13. [doi:10.1016/j.tpb.2009.10.003](#) ([arXiv](#)) ([GitHub](#)) ([data](#))
3. **Carl Boettiger**, Graham Coop, Peter Ralph (2012) Is your phylogeny informative? Measuring the power of comparative methods, *Evolution* 66 (7) 2240-51. [doi:10.1111/j.1558-5646.2011.01574.x](#) ([arXiv](#)) ([GitHub](#)) ([data](#))
4. Jeremy M. Beaulieu, Dyueng-Chwuan Jhwueng, **Carl Boettiger** and Brian O'Meara, (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](#) ([CRAN](#))
5. **Carl Boettiger** and Alan Hastings (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](#) ([arXiv](#)) ([GitHub](#))
6. **Carl Boettiger**, Duncan Temple Lang (2012). Treebase: An R package for discovery, access and manipulation of online phylogenies, *Methods in Ecology and Evolution* 3 (6) 1060-1066. [doi:10.1111/j.2041-210X.2012.00247.x](#) ([preprint](#)) ([GitHub](#)) ([CRAN](#))
7. **Carl Boettiger**, Duncan Temple Lang, Peter Wainwright (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](#) ([preprint](#)) ([GitHub](#)) ([CRAN](#))
8. **Carl Boettiger**, Alan Hastings (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](#) ([arXiv](#)) ([GitHub](#)) ([data](#))
9. **Carl Boettiger**, Alan Hastings (2013). Tipping points: From patterns to predictions, *Nature* 493, 157-158. [doi:10.1038/493157a](#)

10. **Carl Boettiger\***, Noam Ross\*, Alan Hastings. (2013) Early warning signals: The charted and uncharted territories. *Theoretical Ecology* doi:10.1007/s12080-013-0192-6 ([arXiv](#)) ([GitHub](#))
11. **Carl Boettiger**, Alan Hastings. (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 ([arXiv](#)) ([GitHub](#))
12. **Carl Boettiger**, Marc Mangel, Stephan Munch. (2015) Avoiding tipping points in fisheries management through Gaussian process dynamic programming. *Proceedings of the Royal Society B* 282(1801), 8–11. doi:10.1098/rspb.2014.1631 ([arXiv](#)) ([GitHub](#)) ([data](#))
13. **Carl Boettiger**. (2015) An introduction to Docker for reproducible research. ACM SIGOPS Operating Systems Review, Special Issue on Repeatability and Sharing of Experimental Artifacts. 49(1), 71-79. doi:10.1145/2723872.2723882 ([arXiv](#))
14. **Carl Boettiger**, Scott Chamberlain, Rutger Vos and Hilmar Lapp. (2015) RNeXML: a package for reading and writing richly annotated phylogenetic, character, and trait data in R. *Methods in Ecology and Evolution*. doi:10.1111/2041-210X.12469 ([arxiv](#)) ([GitHub](#)) ([CRAN](#))
15. **Carl Boettiger**, Scott Chamberlain, Edmund Hart, Karthik Ram. (2015) Building Software, Building Community: Lessons from the rOpenSci Project. *Journal of Open Research Software* 3: e8, doi:10.5334/jors.bu
16. **Carl Boettiger**, Michael Bode, James N. Sanchirico, Jacob LaRiviere, Alan Hastings, and Paul Robert Armsworth. (2015) Optimal management of a stochastically varying population when policy adjustment is costly. *Ecological Applications* 26 (3) 808-817. doi:10.1890/15-0236 ([arXiv](#)) ([GitHub](#))

## grants

1. Computational Science Graduate Fellowship (2008). Department of Energy, #DE-FG02-97ER25308, \$149,000. ([proposal](#))
2. IIASA YSSP fellowship (2009). National Academy of Sciences, OISE-0738129, \$8,000. ([proposal](#))
3. Supercomputing grant (2011). DOE #DE-AC02-05CH11231. 50,000hrs.
4. [rOpenSci Project](#) (2013, Co-PI). Alfred P. Sloan Foundation \$180,000.
5. [NSF Biology Post-doc](#) (2013). NSF #DBI-1306697, \$138,000. ([proposal](#))
6. [rOpenSci Project](#), phase II. (2014, Co-PI). Alfred P. Sloan Foundation \$300,000.
7. Codemeta project (2015). NSF EAGER, #1549758 \$165,782. ([proposal](#))
8. [rOpenSci Project](#) (2015-2018, Co-PI). Helmsley Trust \$2,900,000.

## invited talks

### 2015

- [Empirical Dynamical Modeling and Forecasting in Nonlinear Systems](#), NTU, Taiwan.

### 2014

- Berkeley Initiative for Global Change Biology (student organized), UC Berkeley, CA.
- [DIMACS](#) Global Change, Berkeley CA.
- Zoology Seminar, University of Wisconsin, Madison, WI.
- ESPM Seminar, UC Berkeley, CA.

### 2013 & prior

- MBI speaker, [Sustainable Management of Living Natural Resources](#), Columbus, OH.
- WHOI Seminar speaker, Woods Hole, MA.
- UC Davis Dept of Environmental Resources and Economics; Davis, CA.
- SSB Symposium speaker, Evolution Conference, Ottawa, CAN.

### invited workshops

#### 2016

- [Force16 Codemeta Workshop](#), Portland OR (organizer)
- [CodeMeta NSF Workshop](#) Portland, OR (organizer)
- [rOpenSci unconference](#), San Francisco, CA

#### 2015

- Moore-Sloan Data Science Environments: Second Annual Data Science Summit
- [Data Intensive Training Workshop](#), NCEAS, Santa Barbara, CA
- [NSF Big Data Hubs](#) Design Charette, Western Region.
- [rOpenSci unconference](#), San Francisco CA.
- PDGC Workshop, NIMBIOS, Knoxville TN

#### 2014

- [rOpenSci unconference](#), San Francisco CA.
- [Reproducible Science: Curriculum & Workflow](#), NESCent, Durham, NC.
- [WSSSPE 2.0](#). New Orleans, LA.
- Workflows Working Group, NCEAS, Santa Barbara, CA.

### 2013 & prior

- [Sustainable Management of Living Natural Resources](#), MBI Columbus, OH.
- Academic software & workforce development, [ISEES](#). Oakland, CA.
- Software Lifecycle, [ISEES](#), Santa Barbara, CA.
- [Pretty Darn Good Control](#), NIMBIOS, Knoxville, TN
- [Stochastic spatial modeling in population dynamics](#), AIM, Palo Alto, CA.

### theses

1. Carl Boettiger, David Huse (2006) Clonal Interference Models in Population Genetics. *Princeton Physics Dept.* [doi:10.6084/m9.figshare.678305](#)
2. Carl Boettiger, Joshua Weitz, Simon Levin (2007) Adaptive Dynamics: Branching Phenomena and the Canonical Equation *Princeton Physics Dept.* [doi:10.6084/m9.figshare.678306](#)
3. Carl Boettiger, Stephen Pacala, David Huse (2007) Ensemble Behavior from Individual Dynamics in Multispecies Forest Populations. *Princeton Physics Dept.* [doi:10.6084/m9.figshare.678304](#)
4. Carl Boettiger (2012). Regime shifts in ecology and evolution (PhD Dissertation). [doi:10.6084/m9.figshare.97218](#)

### awards

- 2011 *Volterra Award* (Best student talk, ESA Theory Section)
- 2007 Elected to Membership in the Society of *Sigma Xi*
- 2007 Allen G. Shenstone Prize in Physics, Princeton University
- 2007 The Class of 1870 Old English Prize, Princeton University
- 2006 Kusaka Memorial Prize in Physics, Princeton University
- 2006 Plasma Physics Fellow, PPPL

## service

- NCEAS Scientific Advisory [Board](#)
- [rOpenSci Leadership team](#)
- Jestream NSF cloud computing Stakeholder Advisory Board

## Campus:

- Berkeley Research Computing Advisory Committee
- Data Science Education Committee

## Reviewer for:

- **2015** Proceedings of the National Academy of Sciences, Journal of Statistical Software, Bioinformatics, Chapman & Hall, Ecology Letters, Ecology, PeerJ, F1000 Research, Journal of Librarianship & Scholarly Communication, Nature Communications, Theoretical Ecology, Trends in Ecology & Evolution, Grid Computing
- **2014** Theoretical Ecology, Biodiversity Data Journal, Ecology Letters, Journal of Theoretical Biology, American Naturalist, Proceedings of the National Academy of Sciences, Proceedings of the Royal Society B
- **2013** Theoretical Ecology, Francis & 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
- **2012** Theoretical Ecology, Evolution, Methods in Ecology and Evolution, Proceedings of the Royal Society B, PLoS ONE, Ecology, Conservation Letters, Ecology Letters
- **2011** Theoretical Ecology, Ecological Modelling, Evolution, Methods in Ecology and Evolution, Ecosphere
- **2010 & prior** Theoretical Ecology, Journal of Mathematical Biology, Ecological Modelling, Ecology

## selected software

- Carl Boettiger, Scott Chamberlain, Rutger Vos and Hilmar Lapp. (2015) RNeXML: a package for reading and writing richly annotated phylogenetic, character, and trait data in R. On [CRAN](#)
- Carl Boettiger (2013). knitcitations: Dynamic citations for dynamic documents. On [CRAN](#).
- Carl Boettiger, Scott Chamberlain, Karthik Ram, Edmund Hart (2013). rfigshare: Programmatic access to the figshare data repository. On [CRAN](#).
- Carl Boettiger (2012). pmc: Phylogenetic Monte Carlo. On [CRAN](#).
- Carl Boettiger & Duncan Temple Lang (2011). treebase: An R interface to TreeBASE. On [CRAN](#).
- Carl Boettiger (2011). rfishbase: Programmatic access to FishBase. On [CRAN](#).

I am also a founding member of the [rOpenSci project](#). My software impact is also measured relative to other academics by [depsy.org](#)

## media interviews

- Tachibana, C. (2014). “The paperless lab” *Science* 345(6195) pp. 468-470. [10.1126/science.opms.p1400087](#)
- Mascarelli, A. (2014) “Research tools: Jump off the page.” *Nature* 507, 523–525. [doi:10.1038/nj7493-523a](#)
- 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. [doi:10.1038/nj7461-243a](https://doi.org/10.1038/nj7461-243a)
- Gewin, Virginia (2013). “Turning Point: Carl Boettiger” *Nature*, 493 p 711 [doi:10.1038/nj7434-711a](https://doi.org/10.1038/nj7434-711a)
- Wald, Chelsea (2010). “Scientists Embrace Openness” *Science*. [doi:10.1126/science.caredit.a1000036](https://doi.org/10.1126/science.caredit.a1000036)