Carl Boettiger

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Education

University of California, Davis — Davis, CA 95616
9/07 – current

Ph.D candidate, Population Biology Program
Adviser: Professor Alan Hastings

Princeton University — Princeton, NJ 08544
9/03 – 6/07

A.B in Physics with Honors
Certificate in Biophysics, Certificate in Applied and Computational Mathematics
Thesis Adviser: Stephen Pacala

Publications

Boettiger, C. Hastings, A (2012) "Quantifying limits to detection of early warning for critical transitions." *Journal of The Royal Society Interface*, 1-29. doi: 10.1098/rsif.2012.0125.

Beaulieu, J.M., Jhwueng, D., Boettiger, C., O'Meara, B. (2012) "Modeling Stabilizing Selection: Expanding the Ornstein-Uhlenbeck Model of Adaptive Evolution," *Evolution*. doi: 10.1111/j.1558-5646.2012.01619.x)

Boettiger, C., Coop, G,. Ralph, P. (2012) "Is your phylogeny informative? Measuring the power of comparative methods." *Evolution*. doi: 10.1111/j.1558-5646.2012.01574.x

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

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

Submitted Manuscripts

Boettiger, C., Temple-Lang, D., Wainwright, P.C. "rfishbase: exploring, manipulating and visualizing FishBase data from R" Accepted pending minor revision at *Journal of Fish Biology*

Boettiger, C., Temple-Lang, D. "Programmatic access to TreeBASE phylogenies in R." Accepted pending minor revision at *Methods in Ecology and Evolution*

Boettiger, C., Hastings, A. "Early Warning Signals and the Prosecutor's Fallacy." Submitted to *Proceedings of the Royal Society B*

Presentations

2012 — Detecting evolutionary regime shifts with comparative phylogenetics. *Evolution*; Ottawa, CAN. SSB Symposium **invited speaker**.

2011 — Limits to Detection for Early Warning Signals. *Ecological Society of America*; Austin, TX.

A general model of continuous character evolution. *Evolution*; Norman, OK.

Using Treebase from R. *iEvoBio*; Norman, OK.

Integrating Open Lab Notebooks with Online Databases. *Science Online*; Durham, NC.

Is your phylogeny informative? *Society for Integrative and Comparative Biology.* Salt Lake City, UT.

2010 My experiment with open science. *iEvoBio*; Portland, OR.

Detecting niches and transitions with continuous characters. *Evolution*; Portland OR.

2009 Inferring Adaptive Landscapes from Phylogenetic Trees. *University of Tennessee*, Knoxville, TN.

The Evolutionary Seesaw: Origins of Biodiversity? *IIASA*, Vienna; Austria.

Grants

Short-term visitor grant to NIMBioS 2012
for research on optimal control theory and applications to policy.

PI on 50,000 hr supercomputing grant 2011,2012
for research on early warning signals, NERSC, Dept. of Energy Grant No. DE-AC02-05CH11231

Young Scientist's Summer Program, International 2009
Institute for Applied Systems Analysis
National Academy of Sciences under NSF Grant No. OISE-0738129, **$8,000**

Computational Science Graduate Fellowship 2008-2012
Department of Energy, Grant No: DE-FG02-97ER25308, **4 yrs** $\times$ **$36,000/yr**

Honors & Awards

Third place in software development competition 2011
Mendeley & PLoS API Binary Battle, $1000 prize.

Volterra Award 2011
for best student talk in theory section at the annual meeting of the Ecological Society of America.

Elected to Membership in the Society of 2007
Sigma Xi

Allen G. Shenstone Prize in Physics, 2007
Princeton Physics Department

The Class of 1870 Old English Prize, 2007
Princeton English Department

Kusaka Memorial Prize in Physics, 2006
Princeton Physics Department

Plasma Physics Fellow, 2006
Princeton Plasma Physics Laboratory

Authored Software

`earlywarning`: tools for the detection of early warning signals of regime shifts (2012)
`wrightscape`: Infer adaptive landscapes from phylogenetic trees (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)
`RMendeley`: Implementation of the Mendeley API in R (2011)
`BranchingTime`: Individual based simulations for adaptive dynamics. (2011)
`knitcitations`: Dynamic citation manager for R. (2012)
`populationdynamics`: Gillespie algorithms for exact simulation of continuous time Markov processes of common ecological models (2011)

More software at http://carlboettiger.info/software.html

Service

Reviewer for: *Theoretical Ecology*, *Journal of Mathematical Biology*, *Ecological Modelling*, *Evolution*, *Methods in Ecology and Evolution*, *Ecosphere*, *Proceedings of the Royal Society B*, *Journal of*

Theoretical Biology, *Ecology*

Teaching Experience

Mentor for Google Summer of Code Student	Summer 2012
Instructor, Bodega Phylogenetics Workshop	Winter 2011
Student Mentor, CLIMB program	Spring, Summer 2008
Teaching Assistant: Introductory Zoology	Winter 2008

References

Alan Hastings, Dept of Env Sci & Policy, UC Davis amhastings@ucdavis.edu
Sebastian Schreiber, Dept of Evolution & Ecology, UC Davis sschreiber@ucdavis.edu
Jim Sanchirico, Dept of Env Sci & Policy, UC Davis jsanchirico@ucdavis.edu
Peter Wainwright, Dept of Evolution & Ecology, UC Davis pcwainwright@ucdavis.edu
Simon Levin, Dept of Ecology & Evolution, Princeton slevin@princeton.edu
Brian O'Meara, Dept of Ecology & Evolution, Knoxville, TN bomeara@utk.edu