

Curriculum Vitae
Steve E. Bellan

Center for Computational Biology and Bioinformatics
1 University Station, C0930
Austin, TX, 78712, USA
office: +1 512-471-0877

steve.bellan@gmail.com
cell: +1-626-201-4307
[http://cnr.berkeley.edu/getzlab/
people/steve_bellan.html](http://cnr.berkeley.edu/getzlab/people/steve_bellan.html)

EDUCATION

Ph.D. - University of California, Berkeley, 2012

Department of Environmental Science, Policy and Management

Applications of Data-driven Modeling to Infectious Diseases in Africa:

Anthrax in Wildlife and HIV in Humans

Committee: Wayne Getz (advisor), Justin Brashares, Perry de Valpine, Alan Hubbard

M.P.H. - University of the California, Berkeley, 2008

School of Public Health, Division of Epidemiology

Assessing mathematical models of dengue and chikungunya control when mosquitoes senesce

Advisor: Alan Hubbard

B.A. - Princeton University, 2006

Honors Thesis: *Reproductive behavioral ecology of the fiddler crab Uca terpsichores*

Ecology and Evolutionary Biology, High Honors

GRANTS & AWARDS

- National Institutes of Health, Ecology & Evolution of Infectious Diseases Program (PI Wayne Getz, co-authored grant), 2007-2011 (~\$1.7 million)
- Bob Lane Endowed Graduate Student Award, 2011 (\$1000)
- Chang-Lin Tien Environmental Fellowship, 2009-2010 (\$47,000)
- Rocca Center for African Studies Fellowship, 2009, 2010 (\$12,000)
- Envir Sci, Pol & Mgmt Travel Grant, 2007, 2010-12 (\$4200)
- Entomology Student Organization Travel Grant, 2007, 2009, 2010, 2011 (\$2300)
- Tanada Entomology Fellowship, 2008 (\$1000)
- Behavior Thesis Award, Princeton University, 2006
- Anthony B. Evnin Thesis Research Grant, 2006 (\$1500)
- Princeton Environmental Institute Research Grant, 2005 (\$500)

WORK EXPERIENCE

Post-Doctoral Researcher *University of Texas at Austin, 2012-present*

- Applying statistical and mathematical models to better understand infectious disease burden and transmission dynamics with a focus on HIV in sub-Saharan Africa and anthrax and rabies epizootology in Namibian wildlife.

Consultant *University of Florida at Gainesville, 2012-present*

- Co-organizing and teaching the International Clinics on Infectious Disease Dynamics and Data and developing course material for publication and distribution.

Ph.D. Candidate *University of California at Berkeley and Etosha National Park, Namibia, 2006-2012*

- Conducting doctoral research developing data-driven models of anthrax and HIV surveillance to understand various aspects of their dynamics and implications for disease control.

M.P.H. Candidate *University of California at Berkeley, 2007-2008*

- Conducted Master's research on how age dependent mortality in mosquito populations affects the predicted effectiveness of mosquito control measures in reducing transmission of arboviruses.

Independent Undergraduate Research, *Princeton U. and Smithsonian Tropical Res. Inst, Panama, 2005-2006*

- Conducted Honor's research investigating why male fiddler crabs (*Uca terpsichores*) display aggressive threat behavior towards females during courtship behavior.

Field Assistant *Princeton U., (Supervisor: Martin Wikelski, Princeton U.) Summer 2004*

- Conducted density estimation and radio-tracking of periodical cicadas.

Field Assistant *Princeton U. and Laidlaw Res. Facility, Davis, CA (Supervisor: Claire Kremen), Summer 2003*

- Assisted graduate student research on native bee ecology and behavior in agricultural and wild lands.

TEACHING AND MENTORSHIP EXPERIENCE**Organizer, Instructor, Mentor**, *African Institute for Mathematical Sciences, Cape Town, May-June 2009-present*

- At *Meaningful Modeling of Epidemiological Data Clinics*, lectured and mentored participants on statistics, epidemiology of infectious diseases, and on how and when mathematical models can yield more insight from epidemiological data than statistical models.
- See http://lalashan.mcmaster.ca/theobio/mmed/index.php/Main_Page for more details.

Instructor, Mentor, *African Institute for Mathematical Sciences, Cape Town, May 2010-present*

- Co-taught weeklong preparatory programs (*Topics in Biomedical Sciences*) for B.Sc. Honours students in Biomathematics at the University of Stellenbosch aimed at providing participants with the background necessary to attend the *Meaningful Modeling of Epidemiological Data Clinic*.
- See http://lalashan.mcmaster.ca/theobio/mmed/index.php/Honours_Course for more details.

Instructor, Mentor, *South African Wildlife College, Mpumalanga, South Africa, July-August 2010*

- Mentored student projects and lectured on disease ecology and population dynamics at two week institute and follow-up workshop on quantitative conservation biology (*Advanced Study Institute on Conservation Biology*).

Mentor of undergraduate and master's students, *University of California at Berkeley, 2007-2011*

- Trained and supervised an undergraduate student (Caroline Jablonicky) on her honor's thesis: *Temporal niche partitioning of scavengers at carcasses in Etosha National Park, Namibia*.
- Trained and supervised a master's student (Matthieu Sales) on his thesis: *The effects of demography and distance to rest camps on black-backed jackal utilization of anthropogenic resources*.
- Mentored an undergraduate student (Melissa Chun) in Environmental Science, Policy & Management through the Undergraduate Mentorship Program (2007-2008).

Field mentor of master's and undergraduate students and volunteers

- Trained and supervised students as field technicians (2006-2009), including students from Namibia (Martina Küsters, Heniritha Sibanda, Zepee Havarua) and a student from the US (Carolyn Kobervig).
- Developed and gave short course on statistics to field technicians (Feb-April, 2009).

Graduate Student Instructor, *University of California at Berkeley, January-May 2007*

- Led computer lab and discussion component of upper level course in statistics and experimental design (ESPM 174). Majority of students were PhD students in the life sciences.

Private Tutor, *Berkeley, California, September 2007 – May 2008*

- Tutored high school students in Spanish, biology, math and world geography.

PEER-REVIEWED PUBLICATIONS

Publications available at http://nature.berkeley.edu/getzlab/people/steve_bellan.html#Peer

- Bellan SE**, Fiorella KJ, Melesse DY, Getz WM, Williams BG, Dushoff J (*in press*). The role of extra-couple HIV transmission in sub-Saharan Africa: a mathematical modelling study of survey data. *Lancet*.
- Bellan SE**, O Gimenez, R Choquet, WM Getz (2013). A Hierarchical Distance Sampling Approach to Estimating Mortality Rates from Opportunistic Carcass Surveillance Data. *Methods in Ecology and Evolution*. DOI: 10.1111/2041-210x.12021.
- Bellan SE**, JRC Pulliam, J Scott, TC Porco, J Dushoff and the MMED Organizing Committee (2012). How to Make Epidemiological Training Infectious. *PLoS Biology* 10(4): e1001295.
- Bellan SE**, CA Cizauskas, J Miyen, K Ebersohn, M Küsters, KC Prager, CT Sabeta, M van Vuren, WM Getz (2012). Black-backed jackal exposure to rabies virus, canine distemper virus, and *Bacillus anthracis* in Etosha National Park, Namibia. *Journal of Wildlife Diseases* 48: 371-81.
- Beyer W, **SE Bellan**, G Eberle, HH Ganz, WM Getz, R Haumacher, KA Hilss, W Kilian, J Lazak, WC Turner, PCB Turnbull (2012). Distribution and molecular evolution of *Bacillus anthracis* genotypes in Namibia. *PLoS Neglected Tropical Diseases* 6: e1534.
- Tambling CT, SD Laurence, **SE Bellan**, EZ Cameron, JT du Toit, WM Getz (2011). Estimating carnivoran diets using a combination of carcass observations and scats from GPS clusters. *Journal of Zoology*.
- Bellan SE** (2010). The Importance of Age Dependent Mortality and the Extrinsic Incubation Period in Models of Mosquito-Borne Disease Transmission and Control. *PLoS ONE* 5(4): e10165.
doi:10.1371/journal.pone.0010165

MANUSCRIPTS IN REVIEW

- Bellan SE**, PCB Turnbull, W Beyer, WM Getz. Effects of experimental exclusion of scavengers from anthrax-infected herbivore carcasses on *Bacillus anthracis* sporulation, survival and distribution. *Applied and Environmental Microbiology*.

MANUSCRIPTS IN PROGRESS

- Bellan SE**, O Gimenez, R Choquet, O Spiegel, W Beyer, R Nathan, A Galvani, WM Getz, LA Meyers. A wildlife disease surveillance system using multispecies scavenger movement data.
- Cizauskas CA, **SE Bellan**, WC Turner, WM Getz. The ecological immunology of anthrax in an endemic system: Do wild herbivores experience sublethal anthrax infection?

OTHER PUBLICATIONS

- Bellan SE** (2011). Counting wildlife carcasses: Anthrax surveillance in Etosha National Park, Namibia. *South African Centre for Epidemiological Modelling and Analysis Quarterly* (3).
- Bellan SE**, JRC Pulliam, J Hargrove, B Williams, F Roberts, J Dushoff (2010). Building Capacity for Meaningful Epidemiological Modeling. *South African Centre for Epidemiological Modelling and Analysis Quarterly* (2).

Pulliam JRC, **SE Bellan**, J Hargrove, B Williams, F Roberts, J Dushoff (2010). Building Capacity for Meaningful Modeling: A first step. *Society for Mathematical Biology Newsletter* 23(1): 6-7.

PROFESSIONAL ACTIVITIES & SERVICE

Organizer of Meaningful Modeling of Epidemiological Data Clinics, Cape Town, May-June 2009-2011

- Organize annual two week short courses (*Meaningful Modeling of Epidemiological Data Clinics*) that train participants ranging from honors students to professors in data-driven mathematical modeling with a focus on applied questions concerning infectious diseases in Africa. Next clinic to be held May, 2012.

Evolutionary Dynamics in Cancer: from mathematical models to clinical therapies, Almagro, Spain, Sep 2010

- Attended James S. McDonnell Foundation workshop intended to bring mathematical approaches from evolution, ecology and epidemiology to cancer treatment research.

Advanced Study Institute on Mathematical Modeling of Infectious Diseases in Africa, May 2007, 2008

- Attended workshops on mathematical modeling in epidemiology.

Manuscript Reviewer. *African Journal of Ecology, Biological Conservation, Conservation Biology, Ecology, Environmental Modeling and Assessment, Koedoe, Journal of Animal Ecology, PLoS One.*

PRESENTATIONS

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| • NSF Ecology and Evolution of Infectious Diseases Conf, Berkeley, USA (talk & poster) | 2012 |
| • NSF Ecology and Evolution of Infectious Diseases Conf, Madison, USA (talk & poster) | 2011 |
| • Workshop on Conservation Biology, South African Wildlife College, RSA (invited talk) | 2010 |
| • Meaningful Modeling of Epidemiological Data Clinic, Cape Town, RSA (invited talk) | 2010/11 |
| • Etosha Ecological Institute, Etosha National Park, Namibia (talk) | 2009/10/11 |
| • Namibian Environment & Wildlife Society, Windhoek, Namibia (invited talk) | 2010 |
| • ASI on Mathematical Modeling of Infectious Diseases, Cape Town, RSA (invited talk) | 2009 |
| • Envir Sci, Pol & Mgmt Graduate Student Research Symposium, UC Berkeley (talk) | 2008 |

COMPUTER SKILLS

Expert: 'R', ArcGIS, Quantum GIS, Microsoft Excel, WinBUGS, JAGS, Amazon Cloud Computing

Intermediate: Microsoft Access

LANGUAGES

Fluent: English, French

Intermediate: Spanish

REFERENCES

Name: Professor Wayne Getz
Relationship: Ph.D. advisor
Office phone: +1 510 642 8745
Email: wgetz@berkeley.edu

Name: Professor Lauren Meyers
Relationship: Post-doctoral supervisor
Office phone: +1 512 471 4950
Email: laurenmeyers@austin.utexas.edu

Name: Professor Jonathan Dushoff
Relationship: collaborator
Office phone: +1 905 525 9140 x26313
Email: dushoff@mcmaster.ca

Name: Professor Art Reingold
Relationship: M.P.H. Mentor
Office phone: +1 510 643 5163
Email: reingold@berkeley.edu