

**BIOGRAPHICAL SKETCH**

Provide the following information for the Senior/key personnel and other significant contributors.  
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Noam Ross

eRA COMMONS USER NAME (credential, e.g., agency login):

POSITION TITLE: Disease Ecologist

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Brown University	B.S.	05/2006	Environmental Science
University of California-Davis	Ph.D.	09/2015	Ecology

**A. Personal Statement**

The Mantle project's goal is to create an open-source, open-access platform for the collection and sharing of biosurveillance data to improve the detection and study of emerging infectious diseases. My background in computational disease ecology and open-source development and training allows me to support this project in several ways. My recent dissertation research consisted of developing and analyzing models for emerging fungal diseases in both plants and wildlife, and importantly, the creation of methods and open-source tools for simulating, fitting, and performing optimization using such models. As a contributor and review board member of the ROpenSci project, I develop and review open-source software packages for scientists that interface with a diverse set of online data sources and services. This gives me experience with the complexity of the task of working with varied data standards and formats, standardizing and testing tools, and best practices in open-source collaborative development. My experience working with field scientists on computational skills will allow me to support the project in creating user-friendly interfaces and training modules. I am a workshop instructor for the Software and Data Carpentry foundations, and the founder of the Davis R Users' group, a statistical computing training network with more than 400 members. This experience will allow me to support this project in designing tools to the needs and technical skills of a broad variety of field and lab researchers. In summary, the Mantle project is a natural fit for my research, development, and teaching experience.

**B. Positions and Honors****Positions and Employment**

2015- Disease Ecologist, EcoHealth Alliance, New York, NY  
 2010-2015 Graduate Researcher, University of California-Davis  
 2007-2009 Senior Analyst, Corporate Environmental Strategy and Governance, GreenOrder, New York, NY  
 2006-2007 Analyst, Corporate Environmental Strategy and Governance, GreenOrder, New York, NY  
 2006 Contract Researcher: Energy Efficient Products Initiative, Wal-Mart, Providence, RI

**Other Experience and Professional Memberships**

2015- Instructor, Software Carpentry Foundation  
 2015- Instructor, Data Carpentry Foundation

2015-	Review Board Member, ROpenSci
2014-	Contributor, ROpenSci
2013-	Member, Ecological Society of America
2012-2015	Founder and Organizer, Davis R Users' Group
2012-2013	Member, NSF IGERT.org advisory board

#### Awards and Fellowships

2012	Don Dahlsten Memorial Grant, California Forest Pest Council
2012	NSF IGERT Bridge Fellowship
2010	NSF IGERT Traineeship in Rapid Environmental Change
2010	UC Davis Graduate Ecology Fellowship

### **C. Contribution to Science**

My recent dissertation addressed modeling emerging fungal disease epidemics using a framework traditionally used for parasites of stable populations. While the mathematical basis of these models for populations at or approximately at equilibrium is well established, their dynamic properties are less well known due to analytical intractability, and this they are little-used in emerging diseases and epidemics. My work showed how and where these models diverged from other, traditional models in their dynamical properties, and identified statistical patterns that could be used to identify where these models are appropriate. I developed numerical tools for their simulation, modeling and control.

1. **Noam Ross** (in prep), Fungal Disease and Stage Structure: Modeling Short and Long-Term Dynamics
2. **Noam Ross**, James N. Sanchirico and Alan Hastings (in prep) Optimal control for Individual-Based Models of Disease
3. **Noam Ross** (in prep), Modeling dynamics of dispersion in macroparasite epidemics with the Conway-Maxwell-Poisson distribution
4. cmp: a package for fitting under- and over-dispersed data with the Conway-Maxwell-Poisson distribution. [github.com/noamross/cmp](https://github.com/noamross/cmp)

Another forthcoming manuscript describes a new mathematical method, and open-source code, to calculate establishment and extinction probabilities for small populations with continuous traits such as size structure or disease load.

5. Sebastian Schreiber and **Noam Ross** (in prep) Individual-Based Integral Projection Models: The Role of Size-Structure on Extinction Risk And Establishment Success

Through the Software Carpentry (SWC) and Data Carpentry foundations I have led training workshops in computational skills and data science for field and lab researchers in a variety of disciplines. I have also been a contributor to SWC's curricula and its open-source platform for developing, testing, and disseminating materials and best pedagogical practices for these topics via a large community of contributors.

6. Gabriel Devenyi and Christina Koch (eds), 63 authors including **Noam Ross**. Software Carpentry: The Unix Shell. Software Carpentry Foundation, Version 5.3, May 2015, [10.5281/zenodo.27355](https://doi.org/10.5281/zenodo.27355)

#### Other Publications:

7. Carl Boettiger\*, **Noam Ross**\*, Alan Hastings (2013) Early Warning Signals: The Charted And Uncharted Territories. Theoretical Ecology <http://dx.doi.org/10.1007/s12080-013-0192-6> (**\*Co-equal authors**)
8. Kate Fuller, David Kling, Kaelin Kroetz, **Noam Ross**, and James N. Sanchirico (2013) Economics and Ecology of Open-Access Fisheries. In: Shogren, J.F., (ed.) Encyclopedia of Energy, Natural Resource, and Environmental Economics, Vol. 2 Encyclopedia of Energy, Natural Resource, and Environmental Economics p.39-49. Amsterdam: Elsevier. <http://dx.doi.org/10.1016/B978-0-12-375067-9.00114-5>

#### **D. Research Support**

W911NF-13-1-0305 Hastings (PI) 9/1/13-8/31/16  
Army Research Office Mathematical Sciences Core Program  
Dynamics at Intermediate Time Scales and Management of Ecological Populations  
Role: Supported Graduate Student

EF-0622770 Rizzo (PI) 8/23/06-8/31/11  
NSF Ecology of Infectious Disease Program  
Collaborative Research: Sudden Oak Death: Feedback Between a Generalist Pathogen, Hosts, and  
Heterogeneous Environments at Multiple Spatial and Temporal Scales  
Role: Supported Graduate Student