Andrew J. Rominger

Omidyar Postdoctoral Fellow at the Santa Fe Institute

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Education

2016 **University of California Berkeley** Ph.D. Environmental Science, Policy and Management
Committee: Rosemary Gillespie, John Harte, Charles Marshall
Dissertation: The statistical mechanics of biodiversity

2009 **Stanford University** B.S. Biological Sciences
Advisors: Elizabeth Hadly, Rodolfo Dirzo
Honors thesis: Both neutral and deterministic processes drive community structure

Appointments

2017-2018 **Omidyar Fellow**, Santa Fe Institute

2016 **Postdoctoral Fellow**, Berkeley Initiative in Global Change Biology, UC Berkeley

2010 **Fulbright Scholar**, Pontificia Universida Católica de Chile

Publications

in revision **Rominger, A.J.** et al. (in revision). Linking evolutionary and ecological theory illuminates non-equilibrium biodiversity. Trends in Ecology and Evolution, preprint: arxiv.org/abs/1705.04725.

Rominger, A.J., Fuentes, M.A. & Marquet, P. (in revision). Punctuated non-equilibrium and niche conservatism explain biodiversity fluctuations through the Phanerozoic. Science Advances, preprint: arxiv.org/abs/1707.09268.

2017 Harte, J., Newman, E.A. & **Rominger, A.J.** (2017). Metabolic partitioning across individuals in ecological communities. Global Ecology and Biogeography, 26(9), 993–997.

Krehenwinkel, H., Wolf, M., Lim, J.Y., **Rominger, A.J.**, Simison, W.B. & Gillespie, R.G. (2017). Estimating and mitigating amplification bias in qualitative and quantitative arthropod metabarcoding. Scientific Reports, 7(1), 17668.

O'Dwyer, J.P., **Rominger, A.J.** & Xiao, X. (2017). Reinterpreting maximum entropy in ecology: a null hypothesis constrained by ecological mechanism. Ecology Letters, 20(7), 832–841.

Rominger, A.J. & Merow, C. (2017). meteR: an R package for testing the maximum entropy theory of ecology. Methods in Ecology and Evolution, 8(2), 241–247.

Stegner, M.A., Karp, D.S., **Rominger, A.J.** & Hadly, E.A. (2017). Can protected areas really maintain mammalian diversity? Insights from a nestedness analysis of the Colorado Plateau. Biological Conservation, 209, 546–553.

2016 **Rominger, A.J.** (2016). Ecological Theories in Biogeography. In: Kliman, R.M. (ed.), Encyclopedia of Evolutionary Biology, 145-148. Academic Press, Oxford.

Rominger, A.J. et al. (2016). Community assembly on isolated islands: macroecology meets evolution. Global Ecology and Biogeography, 25(7), 769–780.

Sardiñas, H.S., Tom, K., **Rominger, A.J.**, Andrew & Kremen, C. (2016). Sunflower (Helianthus annuus) pollination in California's Central Valley is limited by native bee nest site location. Ecological applications: a publication of the Ecological Society of America, 26(2), 438–447.

2015 Harte, J., **Rominger, A.J.** & Zhang, W. (2015). Integrating macroecological metrics and community taxonomic structure. Ecology Letters, 18(10), 1068–1077.

2013 Harte, J., Kitzes, J., Newman, E.A. & **Rominger, A.J.** (2013). Taxon Categories and the Universal Species-Area Relationship: (A Comment on Šizling et al.,"Between Geometry and Biology: The Problem of Universality of the Species-Area Relationship"). The American Naturalist, 181(2), 282–287.

Maurer, B.A., Kembel, S.W., **Rominger, A.J.** & McGill, B.J. (2013). Estimating metacommunity extent using data on species abundances, environmental variation, and phylogenetic relationships across geographic space. Ecological Informatics, 13, 114–122.

2012 Karp, D.S., **Rominger, A.J.**, Zook, J., Ranganathan, J., Ehrlich, P.R. & Daily, G.C. (2012). Intensive agriculture erodes β-diversity at large scales. Ecology Letters, 15(9), 963–970.

2009 **Rominger, A.J.**, Miller, T.E.X. & Collins, S.L. (2009). Relative contributions of neutral and niche-based processes to the structure of a desert grassland grasshopper community. Oecologia, 161(4), 791–800.

Authored Software

2016 **Rominger, A.J.** (2016). pika: An R package for testing and visualization macroecology. github.com/ajrominger/pika

2015 **Rominger, A.J.** & Merow, C. (2015). meteR: Testing the Maximum Entropy Theory of Ecology. R package version 1.0. cran.r-project.org/package=meteR

Grants

2016 **NSF Biocollections Postdoctoral Fellow**, University of Florida. (declined)

NIMBioS Postdoctoral Fellow, University of Tennessee. (declined)

2015 **Philomathia Graduate Student Fellowship**, UC Berkeley.

2012-2017 **National Science Foundation Grant DEB 1241253**, Community level approach to understanding speciation in Hawaiian arthropod lineages. As a graduate student I contributed to the design and writing of this grant.

2011-2015 **Graduate Research Fellowship**, National Science Foundation.

Walker Fund for Entomology, Essig Museum of Entomology.

Awards & Honors

2015 **Outstanding GSI Award**, University of California, Berkeley

Usinger Award in Entomology, University of California, Berkeley

2009 **Kennedy Prize for Outstanding Honors Thesis**, Stanford University. Given to one thesis in the Natural Sciences

Firestone Medal for Excellence in Undergraduate Research, Stanford University. Given to ten finishing students in the Department of Biology

Award for Excellence in Teaching, Stanford University

Organized Working Groups

2018 **Extending the Reach of Info-Metrics to Dynamics and Non-Hierarchical Systems**, Santa Fe Institute.

2017 **The Nexus of Ecology and Evolution in Space and Time**, Santa Fe Institute.

2014 **Big ecological questions, diverse data, new methods**, Berkeley Initiative in Global Change Biology, University of California Berkeley.

2013 **Global change biogeography**, University of California Berkeley.

Invited Talks

2018 **Rominger, A.J.** (2018). The statistical mechanics of biodiversity in evolving systems. German Center for Integrative Biodiversity Research, Leipzig, Germany.

2016 **Rominger, A.J.** (2016). Isolated islands untangle universal patterns at the nexus of macroevolution and macroecology. Island Biology 2016. Terceira Island, Azores, Portugal.

Rominger, A.J. (2016). The statistical mechanics of biodiversity in evolving island communities. University of Michigan Department of Ecology and Evolutionary Biology Early Career Scientists Symposium. University of Michigan.

2015 **Rominger, A.J.** (2015). Community assembly on isolated islands: Macroecology meets evolution. Evolution 2015. Sao Palo, Brazil.

2014 **Rominger, A.J.** (2014). Theory based perspectives on global change biology. Berkeley Initiative in Global Change Biology site visit by the Moore Foundation.

2013 **Rominger, A.J.** (2013). Evolutionary constraints and information entropy in ecology. 98th Ecological Society of America Annual Meeting. Minneapolis, MN, USA.

2012 **Rominger, A.J.** (2012). Specimen-based biogeography: Imperfect detection and biased sampling. 6th Biannual Meeting of the International Biogeography Society. Miami, FL, USA.

2011 **Rominger, A.J.**, Gruner D., Harte J. & Gillespie R.G. (2011). Making and 2011 breaking a new ecological theory. Evolution of the Pacific. Honolulu, HI, USA.

Selected Conference Presentations

2016 **Rominger, A.J.** (2016) How to be happy when your data are SAD. 101st Ecological Society of America Annual Meeting. Ft. Lauderdale, FL, USA.

2015 **Rominger, A.J.** & Gillespie, R.G. (2015). Macroevolutionary signals of insular adaptive radiations: Synthesizing across island systems with a novel statistical method. 7th Biannual Meeting of the International Biogeography Society. Bayreuth, Germany.

2014 **Rominger, A.J.**, Maher, S.P., Iknayan, K.J., Chang, L., Rapacciuolo, G. & Holroyd, P. (2014). Estimating community change from sporadic data: A novel statistical technique sheds light on continental-scale ecology of the Pleistocene-Holocene transition. 99th Ecological Society of America Annual Meeting. Sacramento, CA, USA.

2012 **Rominger, A.J.**, Gruner, D., Harte, J. & Gillespie, R.G. (2012). Making and breaking a new ecological theory. 97th Ecological Society of America Annual Meeting. Portland, OR, USA.

2011 **Rominger, A.J.**, Fuentes, M.A. & Marquet, P.A. (2011). Volatility of clade-specific random walks evolves across lineages and drives complex diversification patterns through geologic time. 96th Ecological Society of America Annual Meeting. Austin, TX, USA.

2007 **Rominger, A.J.**, Miller, T.E.X. & Collins, S.L. (2007). Dispersal, determinism and the structure of a local grasshopper community. 92nd Ecological Society of America Annual Meeting. San Jose, CA, USA.

Teaching Experience

2018 **Instructor**, Santa Fe Institute Complexity Explorer
Complexicon: Keystone species

2014 **Graduate Student Instructor**, UC Berkeley
ESPM 174: Design and Analysis of Ecological Studies
Instructor: Perry de Valpine

Graduate Student Instructor, UC Berkeley
INTEGRATIVE BIOLOGY 166: Evolutionary Biogeography
Instructor: Anthony Barnosky

2009 **Teaching Assistant**, Stanford University
BIOLOGY 121: Biogeography
Instructor: Elizabeth Hadly

Mentoring Experience

2017-2018 **Dissertation committee member** for Isaac Overcast, City University of New York

2013-2018 **Undergraduate research mentor** for 8 undergraduate students, UC Berkeley.
Topics include phylogenetics of Hawaiian arthropod lineages, soundscape ecology, and scientific computation, including student-lead creation of open source R packages.

Outreach

2018 **Board president**, Juniper Hill Center, Las Vegas, NM, USA

2013-2014 **Board member**, Talking Talons Youth Leadership Community Fund, Tijeras, NM, USA

2009-2018 **Community speaker**,
Present about science, conservation and environmental education at youth and environmental group meetings including Central New Mexico Audubon Society and Pacific Internship Programs for Exploring Science.

Professional Service

Special issue editor for:

Entropy	Frontiers in Ecology and Evolution

Referee for:

The American Naturalist	Global Ecology and Biogeography	PLoS ONE
Biological Invasions	Journal of Theoretical Biology	Proceedings of the Royal Society B
Ecography	Oecologia	
Ecology		
Ecology Letters		