Justin D. Yeakel

Current Positions

University of California, Merced, Merced, CA
Assistant Professor — **January, 2016 - present**
Assistant Research Scientist — **2015 - present**

Santa Fe Institute, Santa Fe NM
Omidyar Fellow — **June, 2014 - present**

Contact Information

Science & Engineering 1, 288
Life & Environmental Sciences
University of California, Merced
Merced, CA 95340, USA

Voice: (209) 285-9571
E-mail: jdyeakel@gmail.com
Web: http://jdyeakel.github.io

Research Interests

Paleoecology, Food webs, Stable isotopes, Foraging dynamics, Niche construction, Community assembly, Ecosystem engineering, Human evolution

Past Positions

Santa Fe Institute, Santa Fe, NM USA
Omidyar Fellow — **June, 2014 - present**

Simon Fraser University, Vancouver, BC Canada
Postdoctoral researcher — **June, 2012 - 2014**

Education

University of California, Santa Cruz, Santa Cruz, CA USA

Ph.D. Ecology & Evolutionary Biology — **2006 - 2012**

- Dissertation Topic: "The structure of mammalian food webs: Interpreting, predicting, and updating estimates of species interactions in paleontological and modern communities"
- Advisor troika: Paul L. Koch, Marc Mangel, James A. Estes
  External committee member: Paulo R. Guimarães Jr.

Kent State University, Kent, OH USA

B.S. Biological Anthropology (Biology minor), May, 2004 — **1999 - 2004**
Summa cum laude

Fellowships & Grants

- National Science Foundation, NRT: *Unraveling the response of mammalian communities to grassland expansion: A neural network approach to resolving past and present food webs* 2018. $323,260. *Status: In Review.*
- National Science Foundation, LTER: *Sevilleta (SEV) Site: Climate Variability at Dryland Ecotones.* 2017. Collaborator with J. Rudgers et al. *Status: Awarded*
- National Science Foundation, SGP-Sedimentary Geology & Paleobiology: *Assessing millennial-scale community stability using highly-resolved mammal and vegetation food webs.* 2016. co-PI with Jacquelyn Gill and Jessica Blois. $431,800. *Status: Awarded*
- Omidyar Postdoctoral Fellowship, Santa Fe Institute; 2014. $210,000
- Regents Fellowship (UCSC): Awarded 2011. $30000
- UCSC Dissertation-Year Fellowship: Runner-Up. 2011.
- Deans Fellowship (UCSC). 2010. $30000

- Institute of Geophysics and Planetary Physics (IGPP) Grant. 2008. $5,000
- Society of Vertebrate Paleontology Travel Award. 2007. $300
- 2007 UCSC Graduate Research Symposium: Honorable Mention
- Committee on Research Grant- SRG (ghostwriter w/ PL Koch). 2007. $11,960
- Committee on Research Grant- FRG (ghostwriter w/ NJ Dominy). 2007. $2,500
- Friends of Long Marine Lab Research Grant. 2006. $800
- Department of Anthropology Internal Research Grant. 2006. $800
- National Science Foundation Graduate Research Fellowship. 2006. $90000

Publications

28. Gibert J. P., **Yeakel, J. D.** (In prep) *Crossing the Turing Bifurcation: revisiting Levin 1974 and some of the consequences of spatial structure and movement for ecological dynamics.* In prep.
27. de Aguiar M. A. M., Newman E. A., Pires M., **Yeakel J. D.** Fortin M. A., Guimarães Jr P. R., Gravel D., Hembry D.H., Burkle L., Poisot T., O'Donnell J. *Revealing biases in the sampling of large-scale ecological networks.* ArXiv. doi:https://arxiv.org/abs/1708.01242.
26. Delmas E., Besson M., Brice M.-H., Burkle L., Dalla Riva G. V., Fortin M.-J., Gravel D., Guimarães Jr. P. R., Hembry D., Newman E., Olesen J. M., Pires M., **Yeakel J. D.**, Poisot T. 2018. *Analyzing ecological networks of species interactions.* BioRxiv. doi:https://doi.org/10.1101/112540.
25. **Yeakel J. D.**, Gibert J. P., Gross T., Westley P. A. H., Moore J. W. 2018. *Eco-evolutionary dynamics, density dependent dispersal, and collective behaviour: implications for salmon metapopulation robustness.* Philosophical Transactions of the Royal Society B: Biological Sciences. doi:10.1098/rstb.2017.0018
24. **Yeakel J. D.**, Kempes C. P., Redner S. 2018. *The dynamics of starvation and recovery.* Nature Communications. doi:0.1038/s41467-018-02822-y.
23. Dominy N. J., **Yeakel J. D.** 2017. *Frankenstein and the horrors of competitive exclusion.* Bioscience. doi:10.1093/biosci/biw133.
22. Novak M., **Yeakel J. D.**, Noble A. E., Doak D. F., Emmerson M., Estes J. A., Jacob U., Tinker M.T., Wootton J.T. 2016. *Characterizing species interactions: What is the community matrix?* Annual Review of Ecology, Evolution, and Systematics, 47, 409-432.
21. Dominy N. J., **Yeakel J. D.**, Bhat U., Ramsden L., Wrangham R. W., Lucas P. W. 2016. *How chimpanzees integrate sensory information to select figs.* Journal of the Royal Society Interface Focus, 6, 20160001.
20. **Yeakel J. D.**, Bhat U., Elliott Smith E. A., Newsome S. D. 2016. *Exploring the isotopic niche: isotopic variance, physiological incorporation, and the temporal dynamics of foraging.* Frontiers in Ecology and Evolution, 4, 2188.
19. Crowley B., Melin A. D., **Yeakel J. D.**, Dominy N. J. 2015. *Oxygen isotope values reflect the ecology and physiology of Neotropical mammals.* Frontiers in Ecology and Evolution, 3, 1-8.
18. Galetti M., Guevara R., Neves C. L., Rodarte R. R., Bovendorp, R. S. Moreira M., Hopkins III, J. B., **Yeakel J. D.** 2015. *Defaunation affects the populations and diets of rodents in Neotropical rainforests.* Biological Conservation, 190, 2-7.
17. **Yeakel J. D.**, Dunne, J. A. 2015. *Modern lessons from ancient food webs.* American Scientist, 103, 188-195.
16. Moore J. W., Beakes M., Nesbitt H. K., **Yeakel J. D.**, Patterson D., Thompson L., Phillis C., Braun D., Favaro C., Scott D., Carr-Harris C., Atlas W. 2015. *Emergent stability in a large free-flowing watershed.* Ecology, 96(2), 340-347. doi:10.1890/14-0326.1

15. **Yeakel J. D.**, Pires, M. M., Rudolf, L., Dominy, N. J., Koch, P. L., Guimarães, P. R., Jr, & Gross, T. 2015. *Recovering ecological pattern and process in Ancient Egypt.* Proceedings of the National Academy of Sciences, pg 201422546. doi:10.1073/pnas.1422646112.

14. **Yeakel J. D.**, Pires, M. M., Rudolf, L., Dominy, N. J., Koch, P. L., Guimarães, P. R., Jr, & Gross, T. 2014. *Collapse of an ecological network in Ancient Egypt.* Proceedings of the National Academy of Sciences, 111(40), 1447214477. doi:10.1073/pnas.1408471111

13. Moore, J. W., **Yeakel J. D.**, Peard, D., Lough, J., & Beere, M. 2014. *Life-history diversity and its importance to population stability and persistence of a migratory fish: steelhead in two large North American watersheds.* Journal of Animal Ecology doi:10.1111/1365-2656.12212

12. **Yeakel J. D.**, Moore, J. W., Guimarães, P. R., Jr, & de Aguiar, M. A. M. 2014. *Synchronisation and stability in river metapopulation networks.* Ecology Letters 17(3), 273283. doi:10.1111/ele.12228

11. **Yeakel J. D.**, & Mangel, M. 2014. *A generalized perturbation approach for exploring stock recruitment relationships.* Theoretical Ecology 113. doi:10.1007/s12080-014-0230-z

10. **Yeakel J. D.**, Dominy, N. J., Koch, P. L., & Mangel, M. 2014. *Functional morphology, stable isotopes, and human evolution: a model of consilience.* Evolution 68, 190203. doi:10.1111/evo.12240

9. **Yeakel J. D.**, Guimarães, P. R., Jr, Bocherens, H., & Koch, P. L. 2013. *The impact of climate change on the structure of Pleistocene food webs across the mammoth steppe.* Proceedings of the Royal Society of London Series B-Biological Sciences 280(1762), 2013023920130239. doi:10.1016/j.cub.2007.09.059

8. **Yeakel J. D.**, Guimarães, P. R., Jr, Novak, M., Fox-Dobbs, K., & Koch, P. L. 2012. *Probabilistic patterns of interaction: the effects of link-strength variability on food web structure.* Journal of the Royal Society Interface 9(77), 32193228. doi:10.1073/pnas.192407699

7. Moritz, G. L., Fourie, N., **Yeakel J. D.**, Phillips-Conroy, J. E., Jolly, C. J., Koch, P. L., & Dominy, N. J. 2012. *Baboons, water, and the ecology of oxygen stable isotopes in an arid hybrid zone.* Physiological and Biochemical Zoology 85(5), 421430. doi:10.1086/667533

6. Newsome, S. D., **Yeakel J. D.**, Wheatley, P. V., & Tinker, M. T. 2012. *Tools for quantifying isotopic niche space and dietary variation at the individual and population level.* Journal of Mammalogy 93(2), 329341.

5. **Yeakel J. D.**, Novak, M., Guimarães, P. R., Jr, Dominy, N. J., Koch, P. L., Ward, E. J., et al. 2011. *Merging resource availability with isotope mixing models: the role of neutral interaction assumptions.* PLoS ONE 6(7), e22015. doi:10.1371/journal.pone.0022015.t002

4. **Yeakel J. D.**, Stiefs, D., Novak, M., & Gross, T. 2011. *Generalized modeling of ecological population dynamics.* Theoretical Ecology 4(2), 179194. doi:10.1007/s12080-011-0112-6

3. **Yeakel J. D.**, Patterson, B. D., Fox-Dobbs, K., Okumura, M., Cerling, T., Moore, J., et al. 2009. *Cooperation and individuality among man-eating lions.* Proceedings of the National Academy of Sciences of the USA 106, 1904019043. doi:10.1073/pnas.0905309106

2. Dominy, N. J., Vogel, E. R., **Yeakel J. D.**, Constantino, P. J., & Lucas, P. W. 2008. *Mechanical properties of plant underground storage organs and implications for dietary models of early hominins.* Evolutionary Biology 35(3), 159175. doi:10.1007/s11692-008-9026-7

1. **Yeakel J. D.**, Bennett, N. C., Koch, P. L., & Dominy, N. J. 2007. *The isotopic ecology of African mole rats informs hypotheses on the evolution of human diet.* Proceedings of the Royal Society of London Series B-Biological Sciences 274(1619), 17231730. doi:10.1098/rspb.2007.0330

Mentorship Activities

- Uttam Bhat (Postdoctoral advisor) 2017-present
- Jean Philippe Gibert (Postdoctoral advisor) 2016-present
- Jack Hopkins III (Postdoctoral advisor) 2016
- Taran Rallings (Primary PhD advisor) 2016-present
- Ritwika VPS (PhD co-advisor) 2016-present
- Megha Suswaram (PhD committee chair) 2017-present
- Natalie Graham (PhD committee member; UC Berkeley) 2016-present
- Nathaniel Fox (PhD committee member) 2016-present
- Jon Nye (PhD committee member) 2016-present

Invited Seminars

- University of Nebraska, Lincoln. March, 2017.
- University of Alaska, Fairbanks. February, 2017.
- Santa Fe Institute Complex Systems Summer School. Ecological networks. July, 2016.
- University of New Mexico. Exploring the isotopic niche. September, 2015.
- Santa Fe Institute Complex Systems Summer School. Modern lessons from ancient food webs. July, 2015.
- University of California, Merced. Ecological networks over time and space: from species interactions to community dynamics. March 2014.
- University of New Mexico. Ecological networks over time and space: from species interactions to community dynamics. February 2014.
- Santa Fe Institute. The emergence and evolution of food webs over space and time. January 2014.
- Oregon State University. Collapse of an ecological network: reconstructing the decline of an Ancient Egyptian food web. January 2014.
- University of Wyoming. Synchronization, stability, and flow in structured metapopulations. December 2013.
- University of Chicago. Collapse of an Ancient Egyptian food web. December 2013. Washington State University, Pullman. Ecological networks over time and space: from species interaction to community dynamics. June, 2013.
- University of California, Santa Cruz. Estimating the degree of compensation from short-term fluctuations in fish biomass. November, 2012.
- University of Wyoming. Unraveling an ecological network: Reconstructing the decline of ancient Egyptian food webs. September, 2012.
- Simon Fraser University. The structure of Mammoth-Steppe food-webs: ecological coherence and the dietary habits of Neanderthals. November, 2011.

Workshops & Internships

- Predicting the response of host-associated microbiomes to disturbance. Jessica Green & Ashkaan Fahimipour (Organizers). Santa Fe Institute, August 2016.
- Coupled grassland and mammalian community dynamics over ecological and evolutionary timescales II. Justin Yeakel & Nathaniel Dominy (Organizers). Dartmouth College, May 2016.
- Complex Life Investment Strategies. Eric Libby & Justin Yeakel (Organizers). Santa Fe Institute, Oct. 2015.
- Coupled grassland and mammalian community dynamics over ecological and evolutionary timescales I. Justin Yeakel & Nathaniel Dominy (Organizers). Santa Fe Institute, Sept. 2015.
- NIMBioS: Spatiotemporal variation and dynamics in ecological networks I,II,III. Knoxville, TN, June 2015, December 2015, November 2016.
- Gradient-Based Ecological Network Research II. Jennifer Dunne (Organizer). Santa Fe Institute, March 2015.
- Dynamics On and Of Networks. Jennifer Dunne & Cris Moore (Organizers). Santa Fe Institute, December 2014.
- Networks on Networks workshop. Thilo Gross, Barbara Drossel and Ulrich Bröse (Organizers). Max Planck Institute for the Physics of Complex Systems (MPIPKS), Dresden Germany, September 2014.
- Les Ecologists Seminar Series, Simon Fraser University (Organizer). 2013-2014.
- ESPCA Sao Paulo School on Ecological Networks, Sao Paulo, Brazil, September 16-23 2011
- Max Planck Institute for the Physics of Complex Systems (MPIPKS), Dresden Germany Host: Dr. Thilo Gross and the Dynamics of Biological Networks lab, August 2010.

Conference Presentations

- QSB Symposium; University of California, Merced. October 2016.
- IDEAS Symposium; Simon Fraser University. January 2014.
- Ecological Society of America Annual Meeting. August 2013.
- IDEAS Symposium; Simon Fraser University. December 2012.
- Ecological Society of America Annual Meeting. August 2012.
- Ecological Society of America Annual Meeting. August 2011.
- American Fisheries Society. September 2011.
- 2010 Species Interaction Workshop; Santa Cruz, CA. December 2010.
- UCSC Graduate Research Symposium. May 2006, 2007, 2008, 2009, 2010, 2011.
- 2009 Species Interaction Workshop; Stanford CA. December 2009.
- Carnivore Conference; Defenders of Wildlife. November 2009.
- Ecological Society of America Annual Meeting. August 2009.
- 26th Annual Physiological Ecology Meeting. June 2008.
- American Association of Physical Anthropologists. April 2008.
- Society of Integrative and Comparative Biology. Jan. 2008.
- Society of Vertebrate Paleontology. Oct. 2007.
- American Association of Physical Anthropologists. March 2007.
- UCSC Plant Sciences Symposium. Feb. 2007, 2009.
- Applications of Stable Isotope Techniques to Ecological Studies. August 2006.
- Society of Vertebrate Paleontology. Oct. 2005.

Service – Refereed Journals	Science, Nature Communications, Ecology Letters, Proceedings of the National Academy of Sciences, Proceedings of the Royal Society B: Biological Sciences, Environmental Modelling & Software, Fisheries Research, Theoretical Ecology, Ecology and Evolution, Biological Conservation, IMA Journal of Applied Mathematics, Current Anthropology, Methods in Ecology and Evolution, Quaternary Science Reviews, Ecography, Oecologia, Oikos, Canadian Journal of Zoology, Geochimica et Cosmochimica Acta, PloS One, Journal of Archaeological Science
Service – Refereed Grant Agencies	National Science Foundation-DEB (2016) European Research Council (2014)
Teaching Experience	Ecological Dynamics (2017) Ecology (2017) Natural History of Dinosaurs (2010, 2012, 2016)
	Teaching Assistant Conservation Biology; Dept. Environmental Sciences, UCSC (2011), Behavioral Ecology; Dept. Ecology and Evol. Biology, UCSC (2010), Ecology; Dept. Ecology and Evol. Biology, UCSC (2010, 2011), Introduction to Biology; Dept. Ecology and Evol. Biology, UCSC (2009), Human Functional Anatomy; Dept. Anthropology (2007), Human Ecology; Dept. Anthropology (2006), Natural History of Dinosaurs; Dept. Earth and Planetary Sciences, UCSC (2006), Ecology and Evolution; Dept. Ecology and Evol. Biology, UCSC (2005), Animal and Plant Physiology; Dept. Ecology and Evol. Biology, UCSC (2005)
	Teaching Education/Training LongAcre Expeditions (Trip Leader) 2003-2004, National Outdoor Leadership School Graduate: Alaska, 2001
Press	**Print** National Geographic (July, 2015), Nature News: (2013) "Ancient art fills in Egypts ecological history", (2009) "Lions taste for human flesh dissected", (2007) "Human ancestors went underground for dinner", Science News: (2009) "A body count for two man-eating lions", (2014) "Clues to animal extinctions found on the walls of Egyptian tombs", (2009) "A body count for two man-eating lions", Smithsonian (2014) "Egypts mammal extinctions tracked through 6000 years of art", NBC News (2014) "Ancient Egyptian art opens window on mammal extinctions", Popular Archeology (2014) "Study shows how ecology transformed through 6000 years of Egyptian history", Discovery News, Chicago Sun Times, Chicago Tribune, Science Daily, Telegraph (UK), San Francisco Chronicle (2007) "UC student roots out clues to pre-human species diet", Archaeology Magazine, Christian Science Monitor,
	Radio National Public Radio: All Things Considered, CBC Radio: As It Happens, Santa Cruz KZSC
Public Outreach	Co-founder of the podcast: *Science... Sort of*: *Science... Sort of* is a podcast that discusses "things that are science, things that are sort of science, and things that wish they were science". The podcast is designed to introduce and discuss science-based topics in a way that is accessible to both scientists and non-scientists, and has a weekly audience of ca. 2000-5000 listeners.