

# Margaret Kosmala

Harvard University  
Department of Organismic and Evolutionary Biology  
Harvard University Herbaria, 22 Divinity Avenue  
Cambridge MA 02138

612-598-2129  
kosmala@fas.harvard.edu  
www.margaretkosmala.com

## EDUCATION

- Ph.D. (2013) University of Minnesota; Ecology, Evolution, and Behavior  
*Dissertation:* Effects of human actions on four ecological systems, with a focus on trophic relationships. *Advisors:* David Tilman and Craig Packer. *Committee:* Elizabeth Borer and George Heimpel
- B.S. (2000) Brown University; Computer Science (*magna cum laude*)

## EMPLOYMENT

- 2014 - present Postdoctoral Fellow, Department of Organismic and Evolutionary Biology, Harvard University, Cambridge, MA
- 2012 - 2013 Predoctoral Fellow, National Museum of Natural History, Smithsonian Institution, Washington, DC
- 2011 - 2012 Visiting Researcher, Department of Integrative Biology, University of Texas, Austin, TX
- 2007 - 2013 Graduate Fellow, Department of Ecology, Evolution, and Behavior, University of Minnesota, St. Paul, MN
- 2007 Junior Research Scientist, Department of Ecology, Evolution, and Behavior, University of Minnesota, St. Paul, MN
- 2006-2007 Research Assistant, Department of Ecology, Evolution, and Behavior, University of Minnesota, St. Paul, MN
- 2006-2007 Information Specialist, Children's Cancer Research Fund, Minneapolis, MN
- 2005 Organic Vegetable Farm Intern, Foxtail Farm, Osceola, WI
- 2003-2004 Communications Intelligence Analysis Engineer, U.S. National Security Agency
- 2002-2003 Adjunct Faculty, U.S. National Cryptologic School, Fort Meade, MD
- 2000-2002 Computer Systems Researcher, U.S. National Security Agency

## GRANTS IN SUPPORT OF RESEARCH (\$347,990 TOTAL)

- 2015 National Science Foundation, Division of Environmental Biology: "EAGER-NEON: Scaling up terrestrial plant phenology from individuals to continental scale," conceived of, written by, and in support of Margaret Kosmala; P.I. Andrew Richardson, \$298,641.

- 2013 Crowdfunding: “Save Snapshot Serengeti,” using the Indiegogo platform, in collaboration with Alexandra Swanson and Craig Packer. 701 individual donors worldwide, \$36,324.
- 2013 University of Minnesota: James W. Wilkie Fund for Natural History Fellowship, Bell Museum of Natural History. “Effects of Warming on a Grassland Insect and Spider Community,” \$1,025.
- 2008 University of Minnesota: Consortium on Law and Values in Health, Environment & the Life Sciences. “Effect of Climate Change on Wildebeest-Human Relations,” \$7,000.
- 2008 University of Minnesota: Office of International Programs. “Effect of Climate Change on Wildebeest-Human Relations,” \$5,000.

**MAJOR FELLOWSHIPS (\$261,550 TOTAL)**

- 2012-2013 CIC - Smithsonian Institution Predoctoral Fellowship, National Museum of Natural History, Smithsonian Institution; (\$30,000 one year full fellowship, tuition, \$550 research grant)
- 2008-2012 NSF Graduate Research Fellowship, National Science Foundation; (\$90,000 three years full fellowship, plus tuition)
- 2007-2010 Graduate School Fellowship, Graduate School, University of Minnesota; (\$45,000 two academic-years fellowship, plus tuition)
- 1996-2000 UTP Merit College Scholarship, U.S. National Security Agency; (\$96,000 four years full undergraduate tuition)

**OTHER AWARDS , GRANTS, AND FELLOWSHIPS (\$9,650 TOTAL)**

- 2011, 2013 EEB Travel Awards, College of Biological Science, University of Minnesota; (\$500 each year partial funding for presentation at a conference)
- 2011, 2013 Scholarly Travel Grants, Graduate and Professional Student Assembly, University of Minnesota; (\$150 each year partial funding for presentation at a conference)
- 2009 Carol H. and Wayne A. Pletcher Graduate Fellowship, College of Biological Science, University of Minnesota; (\$2,500 summer fellowship)
- 2008 Denneth & Joan Dvergsten Itasca Summer Scholarship, College of Biological Science, University of Minnesota; (\$2,500 tuition for summer course)
- 2007 Sigerfoos Fellowship, Department of Ecology, Evolution, and Behavior, University of Minnesota; (\$3,350 tuition and travel funds for intensive field course in Costa Rica)
- 2004 Galileo Awards Honorable Mention, U.S. Director of Central Intelligence; commendation for a white paper on future intelligence challenges.
- 2001-2003 Awards for Excellence (three awards), U.S. National Security Agency
- 1998-1999 All-Ivy Academic Honors (two years), The Ivy League

## PUBLICATIONS

- Kosmala, M.**, A. Wiggins, A. Swanson, B. Simmons. Assessing data quality in citizen science. *Frontiers in Ecology and the Environment*, *in press*.
- Swanson, A., **M. Kosmala**, C. Lintott, C. Packer. (2016) A generalized approach for producing, quantifying, and validating citizen science data from wildlife images. *Conservation Biology*, 30(3): 520-531. doi:10.1111/cobi.12695
- Kosmala, M.**, P. Miller, S. Ferreira, P. Funston, D. Keet, C. Packer. (2016). Estimating wildlife disease dynamics in complex systems using approximate Bayesian computation models. *Ecological Applications*, 26(1): 295-308. doi:10.1890/14-1808
- Swanson, A., **M. Kosmala**, C. Lintott, R. Simpson, A. Smith, C. Packer. (2015). Snapshot Serengeti: high-frequency annotated camera trap images of 40 mammal species in Serengeti National Park. *Scientific Data*. doi:10.1038/sdata.2015.26
- Mosser, A., **M. Kosmala**, C. Packer. (2015). Landscape heterogeneity and behavioral traits drive the evolution of lion group territoriality. *Behavioral Ecology*, 26(4): 1051-1059. doi:10.1093/beheco/arv046
- Hines, G., A. Swanson, **M. Kosmala**, C. Lintott. (2015). Aggregating User Input in Ecology Citizen Science Projects. In *Proceedings of Innovative Applications of Artificial Intelligence 2015 (IAAI 15)*. Association for the Advancement of Artificial Intelligence, Austin, TX, January 2015.
- Cusack, J., A. Swanson, T. Coulson, C. Packer, C. Carbone, A. Dickman, **M. Kosmala**, C. Lintott, J.M. Rowcliffe. (2015) Applying a random encounter model to estimate lion density from camera traps in Serengeti National Park, Tanzania. *Journal of Wildlife Management*, 79(6): 1014–1021. doi:10.1002/jwmg.902
- Packer, C., **M. Kosmala**, H.S. Cooley, H. Brink, L. Pintea, D. Garshelis, G. Purchase, M. Strauss, A. Swanson, G. Balme, L. Hunter, K. Nowell. (2009). Sport Hunting, Predator Control and Conservation of Large Carnivores. *PLoS ONE*. 4(6): e5941. doi:10.1371/journal.pone.0005941
- Charniak E., Y. Altun, R. de Salvo Braz, B. Garrett, **M. Kosmala**, T. Moscovich, L. Pang, C. Pyo, Y. Sun, W. Wy, Z. Yang, S. Zeller, L. Zorn. (2000). Reading comprehension programs in a statistical-language-processing class. In *ANLP/NAACL Workshop on Reading Comprehension Tests as Evaluation for Computer-Based Language Understanding Systems*.

## PRESENTATIONS

### Invited Talks

- 2016 Arnold Arboretum, Boston, MA. Botany Blast: Observing nature for citizen science.
- 2015 ComSciCon National Workshop on Science Communication, Cambridge, MA. Panelist for Multimedia Communication for Scientists.
- 2014 Smithsonian Institution, National Museum of Natural History, Department of Entomology, Washington, D.C. Effects of experimental warming on a grassland insect and spider community.

- 2013 Adler Planetarium, Chicago, IL. From lions to black holes: How citizen scientists are changing the face of research.
- 2011 American Association of Zoo Veterinarians Annual Conference, Kansas City, MO. Disease risk assessment of *Mycobacterium bovis* in African lions.
- 2011 University of Texas, Department of Integrative Biology, Eco-lunch Seminar, Austin, TX. Modeling tuberculosis spread in lions and implications for conservation.

### Conference Talks

- 2015 **Kosmala, M.**, A.D. Richardson. Plants, Canopies, Landscapes: Plant phenology across scales. Ecological Society of America, Baltimore, MD.
- 2014 Richardson, A.D., D. Aubrecht, K. Hufkens, S. Klosterman, **M. Kosmala**, T. Milliman, S. Henderson. Development, maintenance, and processing of a large and ever-expanding digital image archive to support phenological research. Ecological Society of America, Sacramento, CA.
- 2014 **Kosmala, M.** Citizen science for natural history data processing. Northeast Natural History Conference, Springfield, MA.
- 2013 **Kosmala, M.**, D. Tilman. Effects of experimental warming on a grassland insect and spider community. Ecological Society of America, Minneapolis, MN.
- 2012 **Kosmala, M.**, G. Heimpel, D. Tilman. Biological control of annual crop pests provided by mixed prairie of varying diversity. Ecological Society of America, Portland, OR.
- 2012 Swanson, A., **M. Kosmala**, C. Packer. Serengeti Live: Engaging the public in science through exploration and discovery. Ecological Society of America, Portland, OR.
- 2012 Cowles, J.M., A.T. Clark, **M. Kosmala**, H.R. Whittington, P.D. Wragg, A.J. Wright, J.S. Powers, D. Tilman. Interactive effects of warming and diversity on grassland community composition and ecosystem productivity. Ecological Society of America, Portland, OR.
- 2011 **Kosmala, M.**, C. Packer, P.S. Miller, D. Armstrong, J.P. Pollack, B. Daly, D. Keet, P. Funston, R. Bengis, S. Ferreira, M. Hofmeyr, P. Buss. Modeling the spread of bovine tuberculosis in lions in Kruger National Park. Ecological Society of America, Austin, TX.
- 2009 Mosser, A., **M. Kosmala**, C. Packer. The evolution of group territoriality: The emergence of sociality in a heterogeneous landscape. Ecological Society of America, Albuquerque, NM.

### Other Presentations

- 2015 **Kosmala, M.**, K. Bennett, K. Bevington, S. Henderson, A.D. Richardson. Season Spotter: Keep an eye on changing seasons. Poster. National Association of Biology Teachers Professional Development Conference, Providence, RI.

2015 **Kosmala, M.**, R. Cheng, S. Henderson, A.D. Richardson. Citizen science facilitates analysis of network-level data sets: PhenoCam as a case study. Poster. Ecological Society of America, Baltimore, MD.

## TEACHING EXPERIENCE

2002 Introduction to Voice over Internet Protocol, National Cryptologic School, Fort Meade, Maryland

## SERVICE AND OUTREACH

### *Membership in Professional Societies*

Ecological Society of America

### *Journal Reviews*

The American Naturalist, Scientific Data, Agricultural and Forest Meteorology, Biological Conservation

### *Outreach*

#### Citizen Science

Co-creator of **Snapshot Serengeti** ([www.snapshotserengeti.org](http://www.snapshotserengeti.org)), a **citizen science project** that asks 39,000+ registered volunteers to classify African animals. I communicate regularly with volunteers via an online forum, a blog, and social media: 8,000+ readers of our blog from 116 countries, 4,000+ fans on Facebook from 45+ countries, and 500+ followers on Twitter. Snapshot Serengeti has been featured by *BBC News*, *New York Times*, *Washington Post*, *Newsweek*, *LA Times*, *the Daily Mail*, *the New Yorker*, *International Business Times*, *PBS Newshour*, *Public Radio International*, *Discovery News*, *WIRED*, *Discover Magazine*, *Science Daily*, *Scientific American*, *National Geographic*, *Smithsonian News*, *Huffington Post*, *Wildlife Society*, and many others, including in multiple languages in overseas media outlets in Europe, Asia, and South America.

Creator of **Season Spotter** ([www.seasonspotter.org](http://www.seasonspotter.org)), a **citizen science project** on the Zooniverse platform launched in July 2015 that asks volunteers to classify images of vegetated landscapes across North America to enable phenology research. I communicate regularly with volunteers via an online forum, a blog, and social media. The project has recorded more than 150,000 classifications and has been featured by *Scientific American*.

#### Blogging

I write **blog posts for Dynamic Ecology** ([dynamicecology.wordpress.com](http://dynamicecology.wordpress.com)) and **Ecology Bits** ([ecologybits.com](http://ecologybits.com)), ecology blogs that foster conversations about the practice and culture of professional ecology. In particular, I advocate for early career women ecologists and ecologists with babies and young children. One example is my six-part series of posts on the state of postdoctoral parental leave in academia and government in the U.S.:

<https://dynamicecology.wordpress.com/2015/01/26/parental-leave-beyond-the-numbers-guest-post/>