

# Quentin D. Read

Using big open data to understand how humans influence the natural world

## Contact information

SESYNC  
1 Park Place, Suite 300  
Annapolis, MD 21401 USA

**Email:** qdr@msu.edu  
**Website/Blog:** quentinread.com  
**GitHub, StackOverflow:** qdread  
**Twitter:** @QuentinDRead

## Postdoctoral research

**National Socio-Environmental Synthesis Center (SESYNC)**, Annapolis, MD *2018-present*  
Socio-Environmental Immersion Postdoctoral Fellowship  
“Food waste and the Environment”  
Mentor: Dr. Mary Muth (RTI International, Research Triangle Park, NC)

**Michigan State University**, East Lansing, MI *2016-2018*  
Department of Forestry; Ecology, Evolutionary Biology, & Behavior Program  
Funded by NSF EAGER grant: “Intraspecific trait variation and community structure at a continental scale”  
Advisors: Dr. Phoebe Zarnetske (MSU) and Dr. Sydne Record (Bryn Mawr College)

## Education

**University of Tennessee**, Knoxville, TN *2011-2016*  
Ph.D., Ecology and Evolutionary Biology  
Advisor: Dr. Nathan Sanders  
**University of North Carolina**, Chapel Hill, NC *2005-2009*  
B.S. with highest distinction, Environmental Science

## Skills

Processing and analyzing data in R, including STAN, JAGS, GIS libraries, and Rmarkdown  
Working knowledge of Python  
Parallel computing in Unix environment  
Using GitHub for collaborations  
Synthesizing data and theory, both in ecology and beyond  
Fluent in spoken and written German; communicate effectively in spoken and written Spanish

## Publications

Zarnetske, P. L., **Q. D. Read**, S. Record, K. Gaddis, S. Pau, M. Hobi, S. L. Malone, J. K. Costanza, K. M. Dahlin, A. Latimer, A. M. Wilson, J. M. Grady, S. Ollinger, A. O. Finley. 2019. Towards connecting biodiversity and geodiversity across scales with satellite remote sensing. *Global Ecology and Biogeography*. DOI: 10.1111/geb.12887.  
Henning, J. A., **Q. D. Read**, N. J. Sanders, and A. T. Classen. 2019. Fungal colonization of plant roots is resistant to nitrogen addition and resilient to dominant species losses. *Ecosphere*. DOI: 10.1002/ecs2.2640.  
Grady, J. M., **Q. D. Read**, S. Record, P. L. Zarnetske., B. Baiser, K. Thorne, and J. Belmaker. 2018. Size, niches, and the latitudinal diversity gradient. *Teaching Issues and Experiments in Ecology*, Vol. 14, Figure Set 1.

[http://tiee.esa.org/vol/v14/issues/figure\\_sets/grady/abstract.html](http://tiee.esa.org/vol/v14/issues/figure_sets/grady/abstract.html)

- Read, Q. D.**, J. M. Grady, P. L. Zarnetske, S. Record, B. Baiser, J. Belmaker, M.-N. Tuanmu, A. Strecker, L. Beaudrot, and K. M. Thibault. 2018. Among-species overlap in rodent body size distributions predicts species richness along a temperature gradient. *Ecography*. DOI: 10.1111/ecog.03641
- Read, Q. D.**, B. Baiser, J. M. Grady, P. L. Zarnetske, S. Record, and J. Belmaker. 2018. Tropical bird species have less variable body sizes. *Biology Letters* 20170453. DOI: 10.1098/rsbl.2017.0453
- Read, Q. D.**, J. A. Henning, A. T. Classen, and N. J. Sanders. 2018. Aboveground resilience to species loss but belowground resistance to nitrogen addition in a montane plant community. *Journal of Plant Ecology*. DOI: 10.1093/jpe/rtx015
- Welshofer, K. B., P. L. Zarnetske, N. K. Lany, and Q. D. Read. 2018. Short-term responses to warming vary between native vs. exotic species and with latitude in an early successional plant community. *Oecologia*. DOI: h10.1007/s00442-018-4111-9
- Read, Q. D.**, J. A. Henning, and N. J. Sanders. 2017. Intraspecific variation in traits reduces ability of trait-based models to predict community structure. *Journal of Vegetation Science*. DOI: 10.1111/jvs.12555
- Hendershot, J. N.\*, **Q. D. Read**, J. A. Henning, N. J. Sanders, and A. T. Classen. 2017. Consistently inconsistent drivers of patterns of microbial diversity and abundance at macroecological scales. *Ecology*. DOI: 10.1002/ecy.1829
- Butler, E. E., A. Datta, ..., **Q. D. Read**, ..., and P. B. Reich. 2017. Mapping local and global variability in plant trait distributions. *Proceedings of the National Academy of Sciences*. DOI:10.1073/pnas.1708984114
- Read, Q. D.**, S. M. Hoban, M. B. Eppinga, J. A. Schweitzer, and J. K. Bailey. 2016. Accounting for the nested nature of genetic variation across levels of organization improves our understanding of biodiversity and community ecology. *Oikos* 125:895-904. DOI: 10.1111/oik.02760 *Editor's Choice*.
- Van Nuland, M. E., R. C. Wooliver, A. A. Pfennigwerth, **Q. D. Read**, I. M. Ware, L. Mueller, J. A. Fordyce, J. A. Schweitzer, and J. K. Bailey. 2016. Plant-soil feedbacks: connecting ecosystem ecology and evolution. *Functional Ecology*. DOI: 10.1111/1365-2435.12690
- Yoon, S. A.\* and **Q. D. Read**. 2016. Consequences of exotic host use: impacts on Lepidoptera and a test of the ecological trap hypothesis. *Oecologia*. DOI: 10.1007/s00442-016-3560-2
- Schussler, E. E., **Q. D. Read**, G. Marbach-Ad, K. Miller, and M. Ferzli. 2015. Preparing biology graduate teaching assistants for their roles as instructors: an assessment of institutional approaches. *CBE-Life Sciences Education* 14:1-11. DOI: 10.1187/cbe.14-11-0196
- Read, Q. D.**, L. C. Moorhead, N. G. Swenson, J. K. Bailey, and N. J. Sanders. 2014. Convergent effects of elevation on functional leaf traits within and among species. *Functional Ecology* 28:37-45. DOI: 10.1111/1365-2435.12162 *nominated for the British Ecological Society's Haldane Prize for Young Investigators*
- Gorman, C. E., **Q. D. Read**, M. E. Van Nuland, and others. 2013. Species identity influences belowground arthropod assemblages via functional traits. *Annals of Botany Plants* plt049. DOI: 10.1093/aobpla/plt049 *Editor's Choice*.
- Van Nuland, M. E., E. N. Haag, J. A. Bryant, **Q. D. Read**, and others. 2013. Fire promotes pollinator visitation: implications for ameliorating declines of pollination services. *PloS One* 8:e79853. DOI: 10.1371/journal.pone.0079853
- Clark, J. S., B. D. Soltoff, A. S. Powell, and **Q. D. Read**. 2012. Evidence from individual inference for high-dimensional coexistence: long term experiments on recruitment response. *PLoS One* 7:e30050. DOI: 10.1371/journal.pone.0030050

\* first author is an undergraduate whom I mentored

## **In review/revision/accepted**

- Record, S., K. M. Dahlin, P. L. Zarnetske, **Q. D. Read**, S. L. Malone, K. Gaddis, J. M. Grady, J. Costanza, M. Hobi, A. Latimer, S. Pau, A. M. Wilson, A. O. Finley, and S. Ollinger. Remote sensing of geodiversity and biodiversity. Book chapter *in* Remote Sensing of Biodiversity: Using spectral signals to understand the biology and biodiversity of plants, communities, ecosystems and the tree of life. J. Cavender-Bares, J. Gamon, and P. Townsend, eds. Accepted.
- Dahlin, K. M., P. L. Zarnetske, **Q. D. Read**, L. Twardochleb, A. Kamoske, K. S. Cheruvilil, and P. Soranno. Interactions between biodiversity and ecosystem function among terrestrial and aquatic realms. *Frontiers in Ecology and the Environment*, in revision.
- Read, Q. D.**, P. L. Zarnetske, S. Record, J. M. Grady, A. M. Wilson, A. O. Finley, A. Latimer, J. K. Costanza, K. Gaddis, K. M. Dahlin, M. Hobi, S. Ollinger, S. Malone, and S. Pau. Beyond counts and averages: relating geodiversity to dimensions of biodiversity. *Global Ecology and Biogeography*, in review.

## **In preparation**

- Muth, M. K., C. Birney, A. Cuéllar, ..., **Q. D. Read**, T. Smith, K. A. Weitz, and S. Zoubek. A framework for assessing food loss and waste interventions in the United States. *Science of the Total Environment*, in prep.
- Read, Q. D.**, J. A. Gephart, A. Cuéllar, S. Finn, E. Meyer, K. A. Weitz, J. N. Galloway, and M. K. Muth. The effect of interventions to reduce food loss and waste in the United States. MS in prep.
- Prager, C. M., J. A. Henning, X. Jing, **Q. D. Read**, N. J. Sanders, and A. T. Classen. The interaction between climate and multiple dimensions of plant diversity regulates ecosystem carbon exchange along an elevational gradient. *Journal of Ecology*, in prep.
- Chisholm, C., **Q. D. Read**, D. Dimitrov, C. Antón-Fernández, R. Astrup, C. Rahbek, and N. J. Sanders. Functional traits predict growth response and competition in Norwegian boreal forests. MS in prep.
- Grady, J. M., **Q. D. Read**, N. Rüger, P. L. Zarnetske, and S. Record. Asymmetric competition and energy equivalence in forests. MS in prep.

## **Teaching, curriculum development, and mentoring**

### **Co-Instructor**, Michigan State University

Fisheries & Wildlife 893: Metacommunity Ecology

Spring 2017

### **Graduate Teaching Assistant**, University of Tennessee

Ecology & Evolutionary Biology 406: Models in Biology

Spring 2016

Ecology & Evolutionary Biology 484: Conservation Biology

Spring 2015, Spring 2016

Biology 250: General Ecology

Fall 2012, Spring 2013, Spring 2014

Biology 130: Introduction to Biodiversity

Fall 2011, Spring 2012

### **Guest lectures and workshops**

#### **Michigan State University**

Designed graduate teaching module:

“Using NEON data to test macroecological hypotheses.”

Spring 2018

#### **Rocky Mountain Biological Laboratory**

Designed and led workshop on graphing with R and ggplot2

July 2015

Co-led panel discussion on writing scientific papers

July 2015

Designed and led workshops on advanced topics in statistics with R

July 2014

#### **University of Tennessee**

Guest lecture (led a mock trial), Conservation Biology

Spring 2015

Guest lecture on biogeochemistry, General Ecology

*Fall 2012 and Spring 2014*

Guest lecture on climate change and communities, General Ecology

*Spring 2013*

## **Curriculum development**

***Research assistantship, University of Tennessee***

*Fall 2013*

Assisted Dr. Elisabeth Schussler creating recommendations to improve training and professional development for graduate teaching assistants, leading to a publication.

***Curriculum Reform in Undergraduate Biology Education, University of Tennessee 2013-2014***

Member of panel developing and reforming curriculum of undergraduate introductory biology courses

## **Mentoring**

***Michigan State University***

Mentored 4 undergraduates through Summer Research Opportunities Program and High Performance Computing Center

*Summer 2017 & 2018*

***Rocky Mountain Biological Laboratory***

Mentored 8 undergraduates through RMBL and NSF programs

*2012-2015*

***University of Tennessee***

Mentored 3 undergraduate laboratory assistants

*2013-2015*

## **Honors and awards**

University of Tennessee Science Alliance graduate award

*2015 (\$3000)*

Outstanding Outreach and Community Service award, UT-Knoxville Department of Ecology and Evolutionary Biology (awarded for leadership of Darwin Day)

*2014*

Dr. Jean H. Langenheim Endowed Graduate Fellowship in the Ecology and Evolution of Plants, Rocky Mountain Biological Laboratory

*2013-2014 (\$6000)*

Honorable Mention, National Science Foundation Graduate Fellowship

*2013*

Dr. Lee R. G. Snyder Memorial Fellowship, Rocky Mountain Biological Laboratory

*2012 (\$700)*

## **Travel awards**

NSF travel grant to deliver biology education seminar at Notre Dame

*2015 (\$500)*

UTK Graduate Student Senate and EEB departmental travel awards to attend short course in Sweden

*2013 (\$500)*

## **Conference presentations**

**Read, Q. D.**, S. Record, K. M. Dahlin, P. L. Zarnetske, and others. 2018. "Measuring geodiversity to explain biodiversity: what is the effect of spatial grain and spatial 'consciousness?'" US-International Association of Landscape Ecology, Chicago, IL.

**Read, Q. D.**, J. M. Grady, P. L. Zarnetske, S. Record, and others. 2017. "Intraspecific variation reflects drivers of rodent community assembly across the National Ecological Observatory Network." Ecological Society of America, Portland, OR.

"Challenges and opportunities for investigating ecological communities across space and time: insights from coordinated research networks." 2017. Organized Oral Session, Ecological Society of America, Portland, OR (served as co-organizer of session).

**Read, Q. D.**, N. J. Sanders, and A. T. Classen. 2015. "A globally replicated experiment shows that long-term environmental filters constrain plant response to increased temperature and loss

of foundation species.” Ecological Society of America, Baltimore, MD.

## **Invited talks**

“Food waste impacts on biodiversity.” Commission on Environmental Cooperation Food Loss and Waste Measurement Experts Group Meeting, Arlington, VA, October 2018.

“Intraspecific variation and community assembly.” National Ecological Observatory Network, Boulder, CO, January 2017. (talk co-delivered with John Grady)

“Individual variation in organismal traits: predicting patterns in space and time from local to global scales.” Michigan State University Department of Forestry, Hanover Forest Science Seminar Series, East Lansing, MI, September 2016.

“C3UBE undergraduate biology curriculum reform.” University of Notre Dame, Biology Education Seminar, Notre Dame, IN, March 2015.

“Roots, leaves, and soils facing global change.” Rocky Mountain Biological Laboratory Seminar, Gothic, CO, June 2014.

“Plant traits & interactions altered by warming at different elevations.” Oak Ridge National Laboratory, Environmental Sciences Division, Oak Ridge, TN, January 2014.

## **Short courses**

Boreal Forest Ecology, Swedish University of Agricultural Sciences, Umeå, Sweden	<i>June 2013</i>
Fundamentals of Ecosystem Ecology, Cary Institute of Ecosystem Studies, Millbrook, NY	<i>January 2012</i>

## **Reviewer experience**

Review panelist, SESYNC immersion postdoctoral fellowship program	<i>February 2019</i>
---	----------------------

Peer reviewer for the following journals: *Energies*, *Nature Climate Change*, *Journal of Biogeography*, *Oikos*, *Ecological Applications*, *Ecology*, *Journal of Ecology*, *Global Ecology and Biogeography*, *Plant Ecology*, *Ecological Monographs*, *Ecology Letters*, *Annals of Botany Plants*, *Methods in Ecology and Evolution*, *Ecography*, *Biotropica*, *Functional Ecology* (3 times), *Journal of Plant Ecology*, *PeerJ* (2 times), *Ecology and Evolution*, *PLoS One* (2 times), *Ecosphere*, *New Phytologist* (2 times), *Global Change Biology* (3 times)

## **Volunteering and outreach**

### ***Michigan State University***

Organized event and gave presentation on citizen science opportunities for MSU Science Festival	<i>2018</i>
--	-------------

Gave public research talk, Biology On Tap	<i>2017</i>
---	-------------

### ***Rocky Mountain Biological Laboratory***

Volunteered at Kids Nature Camp	<i>2015</i>
---------------------------------	-------------

### ***University of Tennessee***

Volunteered at Tennessee State Science Olympiad	<i>2015</i>
---	-------------

Led Darwin Day, student-run science education event	<i>2014</i>
---	-------------

Coordinated advertising for Darwin Day	<i>2013</i>
--	-------------

Discussed my research and assisted 7 <sup>th</sup> -grade students with climate change research projects	<i>2012, 2013</i>
---	-------------------

Volunteered at Boo at the Zoo, a public outreach event	<i>2011, 2012</i>
--	-------------------

Created a field guide with 2 <sup>nd</sup> -grade students	<i>2011</i>
--	-------------

## **Relevant work experience**

**Wildlife Office, Kaibab National Forest, USDA Forest Service, Williams, AZ**  
Wildlife intern *May 2011-July 2011*

**Institute for Tropical Ecosystem Studies, UPR-Rio Piedras, Puerto Rico**  
Seedling census volunteer *January 2011-April 2011*

**Jim Clark Lab, Duke University, Durham, NC**  
Research technician *Summer 2008 and May 2010-January 2011*

**Smithsonian Conservation Biology Institute, Front Royal, VA**  
Ecology intern *January-April 2010*

**North Carolina Botanical Garden, Chapel Hill, NC**  
Conservation and Land Management intern *June-November 2009*

**Morehead Planetarium and Science Center, UNC-Chapel Hill, Chapel Hill, NC**  
Summer camp counselor, educator, exhibit staffer *May 2006-May 2008*

## **Undergraduate research**

**Biology Department, University of North Carolina** *Spring 2009*  
“Morphological and anatomical characteristics of a *Pertica*-like plant of the Lower Devonian of northern New Brunswick, Canada,” with Dr. Patricia Gensel

**Coweeta Hydrologic Laboratory, U.S. Forest Service LTER site** *Fall 2008*  
project conducted for undergraduate field site program at Highlands Biological Station  
“Soil and tree ring chemistry changes in an oak forest,” with Dr. Jennifer Knoepp

## **Undergraduate honors and awards**

LeClair Award for excellence in plant studies, May 2009  
Phi Beta Kappa, Spring 2008