Quentin D. Read

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

USDA Agricultural Research Service
N.C. State University Plant Sciences Building
840 Oval Drive
Raleigh, North Carolina 27606

Email: quentin.read@usda.gov
Website: quentinread.com
GitHub: qdread
ORCID: 0000-0003-4315-5582

Professional appointments

2021– **Agricultural Research Service, U.S. Department of Agriculture**, Raleigh, NC
Applied consulting statistician, Southeast Area

2018-2021 **National Socio-Environmental Synthesis Center**, Annapolis, MD (University of Maryland)
2019–2021 Data scientist
2018-2020 Postdoctoral fellowship: "Food waste and the environment"
Mentor: Dr. Mary Muth (RTI International, Research Triangle Park, NC)

2016-2018 **Michigan State University**, East Lansing, MI
Postdoctoral researcher, Department of Forestry; Ecology, Evolutionary Biology, & Behavior Program
"Intraspecific trait variation and community structure at a continental scale"
Advisors: Dr. Phoebe Zarnetske (MSU) and Dr. Sydne Record (Bryn Mawr)
Visiting scholar, University of Notre Dame, laboratory of Jason McLachlan

Current roles and responsibilities

- Support USDA researchers in the Southeast area by designing experiments, processing and visualizing data, and doing statistical analyses
- Develop and teach statistics and data science lessons in virtual and in-person format: see SEAStats training page for lesson text and slides
- Promote modern statistical approaches and best practices for open and reproducible science at USDA
- Co-write manuscripts and presentations; formally review five-year plans of all research units in the Southeast area

Education

2011-2016 **University of Tennessee**, Knoxville, TN
Ph.D., Ecology & Evolutionary Biology
Dissertation: "Individual variation in plant traits drives species interactions, ecosystem functioning, and responses to global change"
Advisor: Dr. Nathan Sanders

2005-2009 **University of North Carolina**, Chapel Hill, NC
B.S. with highest distinction, Environmental Science

Skills and languages

- Data processing, visualizing, and analysis in R, including tidyverse and data.table
- Developing R packages
- Bayesian modeling with Stan and brms
- Geospatial data processing and modeling with GDAL and R
- Statistical analysis with SAS 9
- Working knowledge of Python and Julia
- Bash scripting

- Creating static webpages with Markdown and Jekyll
- High-performance parallel computing using Linux server
- Using git/GitHub for version control and remote collaborations
- Fluent in spoken and written German; communicate effectively in spoken and written Spanish

Grants

2019	"Connecting local, regional, and continental scale drivers to biodiversity across NEON through the lens of intraspecific trait variation and disturbance." NSF Macrosystems Biology, NEON-Enabled Science (senior personnel)	$536,800

Publications

OA = open access; * = first author is an undergraduate whom I mentored

2024

Copes, W. E., **Q. D. Read**, and B. J. Smith. Environmental influences on drying rate of spray applied disinfestants from horticultural production services. 2024. *PhytoFrontiers*: PHYTOFR-03-24-0019-R. DOI: 10.1094/PHYTOFR-03-24-0019-R.

Mulakala, B. K., M. Salinas, J. Rearick, B. Onyekweli, M. Gurung, M. Ruebel, J. Dada-Fox, J. Zeledon, R. Talatala, L. Davidson, R. Chapkin, **Q. D. Read**, S. Donovan, and L. Yeruva. 2024. Human milk oligosaccharides and Bifidobacteria Infantis interactively shape mouse splenic immune responses. *Current Developments in Nutrition* 8: 103429. DOI: 10.1016/j.cdnut.2024.103429. (OA)

Owens, P. R., M. Mancini, H. E. Winzeler, **Q. D. Read**, N. Sun, J. Blackstock, and Z. Libohova. 2024. Simulating water dynamics related to pedogenesis across space and time: implications for four-dimensional digital soil mapping. *Geoderma* 447: 116911. DOI: 10.1016/j.geoderma.2024.116911.

Elkins, B. H., M. Portilla, K. C. Allen, N. S. Little, R. M. Mullen, R. T. Paulk, and **Q. D. Read**. 2024. Sublethal effects of a commercial Bt product and Bt cotton flowers on the bollworm (*Helicoverpa zea*) with impacts to predation from a lady beetle (*Hippodamia convergens*). *PLoS One* 19(5): e0302941. DOI: 10.1371/journal.pone.0302941. (OA)

Rering, C. C., A. B. Rudolph, Q.-B. Li, **Q. D. Read**, P. R. Muñoz, J. Ternest, and C. T. Hunter. 2024. A quantitative survey of the blueberry (*Vaccinium* spp.) nectar microbiome: variation between cultivars, locations, and farm management approaches. *FEMS Microbiology Ecology* 100(3): fiae020. DOI: 10.1093/femsec/fiae020. (OA)

Gurung, M., B. T. Schlegel, D. Rajasundaram, R. Fox, L. Bode, T. Yao, S. R. Lindemann, T. LeRoith, **Q. D. Read**, C. Simecka, L. Carroll, A. Andres, and L. Yeruva. 2024. Microbiota of infants consuming secretors' or non-secretors' mother's milk impacts the gut and immune system in mice. *mSystems* e00294-24. DOI: 10.1128/msystems.00294-24. (OA)

Mengistu, A., **Q. D. Read**, V. Sykes, H. Kelly, T. Kharel, and N. Bellaloui. 2024. Cover crop and crop rotation effects on tissue and soil population dynamics of *Macrophomina phaseolina* and yield under no-till system. *Plant Disease* 108: 302-310. DOI: 10.1094/PDIS-03-23-0443-RE.

Koebernick, J., A. Gillen, R. Fett, S. Patel, B. Fallen, V. Pantalone, G. Shannon, Z. Li, A. Scaboo, W. Schapaugh, R. Mian, and **Q. D. Read**. 2024. Soybean test weight in relation to genotype, environment, and genotype × environment interaction in the southern USA. *Agronomy Journal*. DOI: 10.1002/agj2.21551.

Heintzman, L. J., N. E. McIntyre, E. J. Langendoen, and **Q. D. Read**. 2024. Cultivation and dynamic cropping processes impart land-cover heterogeneity

within agroecosystems: a metrics-based case study in the Yazoo-Mississippi Delta (USA). *Landscape Ecology* 39:29. DOI: 10.1007/s10980-024-01797-0. (OA)

Shanahan, M., M. Simone-Finstrom, P. Tokarz, F. Rinkevich, **Q. D. Read**, and M. Spivak. 2024. Thinking inside the box: Bringing tree cavity textures to beehive design to stimulate propolis collection and support honey bee health. *PLoS One* 19:e0291744. DOI: 10.1371/journal.pone.0291744. (OA)

Safaee, S., Z. Libohova, E. J. Kladivko, A. Brown, H. E. Winzeler, **Q. D. Read**, S. Rahmani, and K. Adhikari. Influence of sample density, model selection, and land use on prediction accuracy of soil properties. *Geoderma Regional* 36:e00766. DOI: 10.1016/j.geodrs.2024.e00766. (OA)

Shults, D. D., M. L. Reba, J. Nowlin, J. Massey, and **Q. D. Read**. 2024. Extending irrigation reservoir histories for improved groundwater modeling and conjunctive water management in two Arkansas critical groundwater areas. *Agricultural Water Management* 293:108678. DOI: 10.1016/j.agwat.2024.108678. (OA)

Grady, J. M., **Q. D. Read**, S. Record, N. Rüger, P. L. Zarnetske, A. I. Dell, S. P. Hubbell, S. T. Michaletz, and B. J. Enquist. 2024. Life history scaling in a tropical forest. *Journal of Ecology*. DOI: 10.1111/1365-2745.14245.

Little, N. S., B. H. Elkins, M. Portilla, K. C. Allen, **Q. D. Read**, and R. T. Paulk. 2024. Field evaluation of biological and conventional insecticides for managing multiple insect pests in cotton. *Journal of Entomological Science*. DOI: 10.18474/JES23-37.

2023 Martin Ewert, A., M. Simone-Finstrom, **Q. D. Read**, C. Husseneder, and V. Ricigliano. 2023. Effects of ingested essential oils and propolis extracts on honey bee (Hymenoptera: Apidae) health and gut microbiota. *Journal of Insect Science* 23(6):15. DOI: 10.1093/jisesa/iead087.

Halbritter, D. A., E. Kariuki, G. S. Wheeler, M. B. Rayamajhi, C. Minteer, and **Q. D. Read**. Changes in plant architecture in Brazilian peppertree damaged by the biological control agent, *Pseudophilothrips ichini* Hood (Thysanoptera: Phlaeothripidae). *Biological Control* 188, 105414. DOI: 10.1016/j.biocontrol.2023.105434.

Penn, H. J. and **Q. D. Read**. 2023. Stem borer herbivory dependent on interactions of sugarcane variety, associated traits, and presence of prior borer damage. *Pest Management Science*. DOI: 10.1002/ps.7843.

Cho, S., L. M. Hiott, **Q. D. Read**, J. Damashek, J. Westrich, M. Edwards, R. F. Seim, D. A. Glinski, J. M. Bateman McDonald, E. A. Ottesen, E. K. Lipp, W. M. Henderson, C. R. Jackson, and J. G. Frye. 2023. Distribution of antibiotic resistance in a mixed-use watershed and the impact of wastewater treatment plants on antibiotic resistance in surface water. *Antibiotics* 12(11):1586. DOI: 10.3390/antibiotics12111586.

Osei-Owusu, K. A., **Q. D. Read**, and M. Thomsen. 2023. Potential energy and environmental footprint savings from reducing food loss and waste in Europe: a scenario-based multiregional input–output analysis. *Environmental Science & Technology*. DOI: 10.1021/acs.est.3c00158. (OA)

Balkcom, K. S., **Q. D. Read**, and A. V. Gamble. 2023. Rye planting date impacts biomass production more than seeding rate and nitrogen fertilizer. *Agronomy Journal*. DOI: 10.1002/agj2.21418. (OA)

de Gracia Coquerel, M., A. McAuley, J. Wegerif, **Q. D. Read**, N. Chowdhury, K. C. Jeong, J. G. Morris, S. J. Martins, E. M. Goss, and M. S. Ascunce. 2023. Preliminary assessment of bacterial antibiotic resistance and *Candidatus* Liberibacter asiaticus titer in three Florida commercial citrus groves. *Crop Protection* 172:106350. DOI: 10.1016/j.cropro.2023.106350.

Taliercio, E., D. Eickholt, **Q. D. Read,** T. Carter, N. Waldeck, and B. Fallen. 2023. Parental choice and seed size impact the uprightness of progeny from interspecific *Glycine* hybridizations. *Crop Science*. DOI: 10.1002/csc2.21015.

Yeh, H.-Y., J. G. Frye, C. R. Jackson, **Q. D. Read**, J. E. Line, and A. Hinton. 2023. Use of automated capillary immunoassay for quantification of antibodies in chicken sera against recombinant *Salmonella enterica* serotype Heidelberg proteins. *Journal of Microbiological Methods*. DOI: 10.1016/j.mimet.2023.106757.

Jia, Y. and **Q. D. Read**. 2023. Bacteria disinfection of rice seeds by ultraviolet light irradiation in a biosafe flow cabinet. *Plant Health Progress*. DOI: 10.1094/PHP-02-23-0017-RS.

Cowger, C., **Q. D. Read**, L. Clark, and Y. Dong. 2023. Optimal timing of fungicide application to manage *Fusarium* head blight in winter barley. *Plant Disease*. DOI: 10.1094/PDIS-01-23-0021-RE. *Editor's Pick*.

Fett, R., A. M. Gillen, **Q. D. Read**, S. Patel, and J. Koebernick. 2023. Evaluating the accuracy and efficiency of test weight instruments for soybean (*Glycine max* L.) research. *Agrosystems, Geosciences & Environment*. DOI: 10.1002/agg2.20354. (OA)

Mengistu, A., J. D. Ray, H. M. Kelly, **Q. D. Read,** R. J. Smith, N. Bellaloui, and L. A. Schumacher. 2023. Charcoal rot severity and soybean yield responses to planting date, irrigation, and genotypes. *Plant Disease*. DOI: 10.1094/PDIS-06-22-1329-RE.

Adeli, A., J. P. Brooks, D. Miles, T. Misna, **Q. D. Read**, and J. N. Jenkins. 2023. Effectiveness of combined biochar and lignite with poultry litter on soil carbon sequestration and soil health. *Open Journal of Soil Science* 13:124-149. DOI: 10.4236/ojss.2023.132006. (OA)

Zollota, S., P. Perez, J. Allen, T. Argenti, **Q. D. Read**, and M. S. Ascunce. 2023. Are ants good organisms to teach elementary students about invasive species in Florida? *Insects* 14:118. DOI: 10.3390/insects14020118. (OA)

Nestle, R., J. Palacios, A. S. David, **Q. D. Read**, and G. S. Wheeler. 2023. The Brazilian peppertree biological control agent *Pseudophilothrips ichini* (Thysanoptera: Phlaeothripidae) displays a flexible feeding strategy between foliage and reproductive tissues. *Biological Control* 105159. DOI: 10.1016/j.biocontrol.2023.105159.

Gurung, M., F. Rosa, B. Yelvington, N. Terry, **Q. D. Read**, B. D. Piccolo, B. Moody, P. Tripp, H. E. Pittman, B. L. Fay, T. J. Ross, J. D. Sikes, J. B. Flowers, R. Fox, T. LeRoith, R. Talatala, F. Bar-Yoseph, and L. Yeruva. 2023. Evaluation of a plant-based infant formula containing almonds and buckwheat on gut microbiota composition, intestine morphology, metabolic and immune markers in a neonatal piglet model. *Nutrients* 15:383. DOI: 10.3390/nu15020383. (OA)

McMillan, E. A., M. E. Berrang, **Q. D. Read**, S. Ramasetti, A. K. Richards, N. W. Shariat, and J. G. Frye. 2023. Buffered peptone water formulation does not influence growth of pESI positive *Salmonella* serovar Infantis. *Journal of Food Protection* 86:100033. DOI: 10.1016/j.jfp.2022.100033.

2022 Allan, M. C., **Q. D. Read**, and S. D. Johanningsmeier. 2022. Impact of sweetpotato starch structures, thermal properties, and granules sizes on sweetpotato fry textures. *Food Hydrocolloids* 2022:108377. DOI: 10.1016/j.foodhyd.2022.108377.

Winzeler, H. E., P. R. Owens, **Q. D. Read**, Z. Libohova, A. Ashworth, and T. Sauer. 2022. Topographic wetness index as a proxy for soil moisture in a hillslope catena: flow algorithms and map generalization. *Land* 11:2018. DOI: 10.3390/land11112018. (OA)

Prager, C. M., A. T. Classen, … **Q. D. Read,** … and N. J. Sanders. 2022. Integrating natural gradients, experiments, and statistical modelling in a distributed network experiment: an example from the WaRM Network. *Ecology and Evolution* 12:e9396. DOI: 10.1002/ece3.9396. (OA)

Islam, Md. S., P. McCord, **Q. D. Read**, L. Qin, A. E. Lipka, S. Sood, J. Todd, and M. Olatoye. 2022. Accuracy of genomic prediction of yield and sugar traits in *Saccharum* spp. hybrids. *Agriculture* 12:1436. DOI: 10.3390/agriculture12091436. (OA)

Zimba, K. J., **Q. D. Read**, M. Haseeb, R. L. Meagher, and J. C. Legaspi. 2022. Potential of silicon to improve biological control of fall armyworm (*Spodoptera frugiperda*) on maize. *Agriculture* 12:1432. DOI: 10.3390/agriculture12091432. (OA)

Swanwick, R. H., **Q. D. Read**, S. M. Guinn, M. A. Williamson, K. L. Hondula, and A. J. Elmore. 2022. Dasymetric population mapping based on US Census data and 30-m gridded estimates of impervious surface. *Scientific Data* 9:523. DOI: 10.1038/s41597-022-01603-z. (OA)

Kamoske, A. G., K. M. Dahlin, **Q. D. Read,** S. Record, S. P. Serbin, S. C. Stark, and P. L. Zarnetske. 2022. Towards mapping biodiversity from above: Can fusing lidar and hyperspectral remote sensing predict taxonomic, functional, and phylogenetic tree diversity in temperate forests? *Global Ecology and Biogeography*. DOI: 10.1111/geb.13516.

McIntyre, J. S., C. L. Butts, and **Q. D. Read**. 2022. Computational fluid dynamics modeled air speed through in-shell peanuts in drying wagons compared to experimentally measured air speed. *Journal of the American Society of Agricultural and Biological Engineers* 38:489-507. DOI: 10.13031/aea.14771.

Mason, R. E., J. M. Craine, N. K. Lany, … **Q. D. Read,** … and A. J. Elmore. 2022. Evidence, causes, and consequences of a global decline in terrestrial ecosystem nitrogen availability. *Science* 376:eabh3767. DOI:10.1126/science.abh3767

Featured in >40 news outlets (see Altmetric page)

Response by Olff et al. DOI: 10.1126/science.abq7575

Rebuttal to response DOI:10.1126/science.abq8690

Read, Q. D., K. L. Hondula, and M. K. Muth. 2022. Biodiversity effects of food system sustainability actions from farm to fork. *Proceedings of the National Academy of Sciences* 119, e2113884119. DOI:10.1073/pnas.2113884119.

featured in New Scientist, Medium, Anthropocene Magazine, and La Presse

Sthapit Kandel, J., G. V. Sandoya, W. Zhou, **Q. D. Read**, B. Mou, and I. Simko. 2022. Identification of quantitative trait loci associated with bacterial leaf spot resistance in baby leaf lettuce. *Plant Disease*. DOI: 10.1094/PDIS-09-21-2087-RE.

Rewcastle, K. E., J. A. Henning, **Q. D. Read**, R. E. Irwin, N. J. Sanders, and A. T. Classen. 2022. Plant removal across an elevational gradient marginally reduces rates, substantially reduces variation in mineralization. *Ecology* 103, e03546. DOI: 10.1002/ecy.3546.

2021 Dahlin, K. M., P. L. Zarnetske, **Q. D. Read,** L. Twardochleb, A. G. Kamoske, K. S. Cheruvelil, and P. A. Soranno. 2021. Linking terrestrial and aquatic biodiversity to ecosystem function across scales, trophic levels, and realms. *Frontiers in Environmental Science,* 9, 217. DOI:10.3389/fenvs.2021.692401. (OA)

Prager, C. M., X. Jing, J. A. Henning, **Q. D. Read**, P. Meidl, S. Lavorel, N. J. Sanders, M. Sundqvist, D. A. Wardle, and A. T. Classen. 2021. Climate and multiple dimensions of plant diversity regulate ecosystem carbon exchange along an elevational gradient. *Ecosphere*. DOI:10.1002/ecs2.3472. (OA)

Marston, L. T., **Q. D. Read**, S. Brown, and M. K. Muth. 2021. Reducing water scarcity by reducing food loss and waste. *Frontiers in Sustainable Food Systems* 5. DOI:10.3389/fsufs.2021.651476. (OA)

Read, Q. D. and M. K. Muth. 2021. Cost-effectiveness of four food waste interventions: is food waste reduction a "win-win?" *Resources, Conservation & Recycling* 168, 105448. DOI:10.1016/j.resconrec.2021.105448.

Metson, G. S., A. Chaudhary, X. Zhang, B. Houlton, A. Oita, N. Raghuram, **Q. D. Read**, L. Bouwman, H. Tian, A. Uwizeye, and A. J. Eagle. 2021. Nitrogen and the food system. *One Earth* 4:3-7. DOI:10.1016/j.oneear.2020.12.018.

2020 **Read, Q. D.**, S. Brown, A. D. Cuéllar, S. M. Finn, J. A. Gephart, L. T. Marston, E. Meyer, K. A. Weitz, and M. K. Muth. 2020. Assessing the environmental impacts of halving food loss and waste along the food supply chain. *Science of the Total Environment* 712:136255. DOI:10.1016/j.scitotenv.2019.136255. (OA)

Read, Q. D., P. L. Zarnetske, S. Record, J. M. Grady, A. M. Wilson, A. O. Finley, A. M. Latimer, J. K. Costanza, K. D. Gaddis, K. M. Dahlin, M. L. Hobi, S. V. Ollinger, S. L. Malone, and S. Pau. 2020. Beyond counts and averages: relating geodiversity to dimensions of biodiversity. *Global Ecology and Biogeography*. DOI: 10.1111/geb.13061.

Record, S., K. M. Dahlin, P. L. Zarnetske, **Q. D. Read**, S. L. Malone, K. D. Gaddis, J. M. Grady, J. Costanza, M. L. Hobi, A. M. Latimer, S. Pau, A. M. Wilson, S. V. Ollinger, A. O. Finley, and E. Hestir. 2020. Remote sensing of geodiversity as a link to 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. Springer International. DOI: 10.1007/978-3-030-33157-3.

2019 Muth, M. K., C. Birney, A. Cuéllar, S. M. Finn, M. Freeman, J. N. Galloway, I. Gee, J. A. Gephart, K. Jones, L. Low, E. Meyer, **Q. D. Read**, T. Smith, K. A. Weitz, and S. Zoubek. 2019. A systems approach to assessing environmental and economic effects of food loss and waste interventions in the United States. *Science of the Total Environment* 685:1240-1254. DOI:10.1016/j.scitotenv.2019.06.230. (OA)

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. (OA)

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. (OA)

2018 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 (OA)

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montane plant community. *Journal of Plant Ecology*. DOI:10.1093/jpe/rtx015.

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2017 **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. (OA)

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.

2016 **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.

2015 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. (OA)

2014 **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*

2013 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*. (OA)

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. (OA)

2012 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. (OA)

Accepted/in revision/in review/submitted

Oakley, B. A., T. R. Mitchell, **Q. D. Read**, G. T. Hibbs, T. T. Baldwin, S. E. Gold, and A. E. Glenn. Identification of a key genetic target for eliminating agricultural emissions of nitrous oxide. *Science Advances*, in review.

Safaee, S., Z. Libohova, E. J. Kladivko, A. Brown, **Q. D. Read**, H. E. Winzeler, S. R. Rahmani,

and K. Adhikari. Enhancing soil property prediction: exploring the impact of spatial resolution, model selection, and land use. *Soil Science Society of America Journal*, in review.

Kannan, N., **Q. D. Read**, and W. Zhang. A natural polymer material as a pesticide adjuvant for mitigating off-target drift and protecting pollinator health. *Heliyon,* in revision.

Jeffers, D., J. S. Smith, E. D. Womack, **Q. D. Read**, and G. L. Windham. Comparison of in-field and laboratory-based inoculation methods for evaluation of aflatoxin accumulation in maize inbred lines. *Plant Disease*, in revision.

Toomer, O. T., P. Maharjan, K. L. Harding, T. C. Vu, R. Malheiros, R. Mian, M. Joseph, **Q. D. Read**, E. O. Oviedo-Rondon, and K. E. Anderson. Effects of full-fat high-oleic soybean meal in layer diets on performance, egg quality and chemical composition. *Poultry Science*, accepted.

Kim, S.-B., K.-T. Kim, S. In, G.-W. Lee, A. Rogers, N. Jaiswal, H.-K. Ahn, S. Jung, M. Helm, H.-Y. Lee, **Q. D. Read**, J. Woo, K. L. Holan, S. A. Whitham, J. D. G. Jones, D. Choi, R. Dean, E. Park, and P. Balint-Kurti. Use of the *Puccinia sorghi* haustorial transcriptome to identify and characterize AvrRp1-D recognized by the maize Rp1-D resistance protein. *PLoS Pathogens*, in revision.

McMillan, E., E. Adams, T. Mitchell, J. Hawkins, **Q. D. Read**, A. Pokoo-Aikins, M. Berrang, C. Harris, M. Hughes, A. Glenn, and R. Meinersmann. Susceptibility of pESI positive Salmonella to treatment with biocide chemicals approved for use in poultry processing as compared to Salmonella without the pESI plasmid. *Letters in Applied Microbiology*, accepted.

Amiri, E., H. Abou-Shaara, S. Mehrparvar, **Q. D. Read**, and J. Chen. Impact of commercial plastic queen cell cups on rearing success and development of honey bee queens. *Journal of Apicultural Research*, in revision.

Frazier, S., S. M. Brown, **Q. D. Read**, A. L. Jacobson, K. Conner, C. Escalante, and K. S. Balkcom. Cotton stalk management and a cover crop produce minimal effects on cotton leafroll dwarf virus. *Agronomy Journal,* submitted.

Adeli, A., J. P. Brooks, D. M. Miles, **Q. D. Read**, G. Feng, and J. N. Jenkins. Integrated effects of tillage and fertilizer sources with cover crop on dryland cotton. *Agronomy Journal*, in revision.

Pokoo-Aikins, A., C. M. McDonough, T. R. Mitchell, J. A. Hawkins, L. F. Adams, **Q. D. Read**, X. Li, R. Shanmugasundaram, E. Rodewald, P. Acharya, A. E. Glenn, and S. E. Gold. Mycotoxin contamination and the nutritional content of corn targeted for animal feed. *Poultry Science*, submitted.

Safaee, S., Z. Libohova, E. Kladivko, A. Brown, E. Winzeler, **Q. D. Read,** S. Rahmani, and K. Adhikari. Soil property prediction: exploring the impact of pixel resolution, model selection, topography, and their interactions. *International Journal of Machine Learning and Cybernetics*, submitted.

Yeh, H.-Y. and **Q. D. Read**. Immune responses of chickens against recombinant *Salmonella enterica* serotype Heidelberg FimA and FimW fimbriae and FliD and FlgK flagellar proteins. *Veterinary Immunology and Immunopathology*, submitted.

Media articles

Read, Q. D.; J. Pitt, editor. 2022. Extinction on our plates. 360info Special Report from Covering Climate Now's joint coverage week on Food & Water. DOI: 10.54377/42f4-f24c.

Teaching and curriculum development

2024 Designed and taught two-day workshop for USDA researchers: "R for SAS Users"

Designed and taught one-day workshop for USDA researchers: "A smorgasbord of options for multiomics data analysis"

	Designed and presented lectures for USDA researchers on interpreting statistical interactions, means comparison tests, dealing with common errors in statistical model fitting, and analyzing categorical phenotype data
2023	Designed and taught lessons for USDA researchers: "Bayesian mixed models with brms," "Data visualization basics with R and ggplot2"
2022	Designed and taught two-day workshop for USDA researchers: "A practical toolkit for mixed models in R"
2021	Co-designed curriculum for day-long geospatial data analysis workshop for postdocs and grad students; taught introductory lesson and lesson on geospatial statistics with vector data
2020	Co-designed and co-taught day-long whirlwind data science class for SESYNC postdoctoral researchers
2020-2021	Co-taught SESYNC 2020 and 2021 Computational Summer Institute, a week-long online data science course
	Designed and led workshop on best practices for collaboration with GitHub
2018	Designed graduate teaching module: "Using NEON data to test macroecological hypotheses"
2017	Co-instructor of record, Metacommunity Ecology, MSU
2016	Graduate teaching assistant, Models in Biology, UT-Knoxville
2015-2016	Graduate teaching assistant, Conservation Biology, UT-Knoxville
2015	Designed and led workshop on graphing with R and ggplot2
2014	Designed and led workshops on introductory statistics with R
2013-2014	Member of panel developing and reforming curriculum of undergraduate introductory biology courses, UT-Knoxville
2012-2014	Graduate teaching assistant, General Ecology, UT-Knoxville
2011-2012	Graduate teaching assistant, Introduction to Biodiversity, UT-Knoxville

Mentoring

2021	Mentored student team in University of Maryland Data Challenge; team won grand prize in a 75-team competition
2020	Remotely mentored two Bryn Mawr College undergraduates on an R package development project, funded by NSF Macrosystems Biology grant
2017-2018	Mentored 4 undergraduates through Summer Research Opportunities Program and High Performance Computing Center, MSU
2012-2015	Mentored 8 undergraduate field and lab assistants, Rocky Mountain Biological Laboratory
2013-2015	Mentored 3 undergraduate lab assistants, UT-Knoxville

Fellowships and awards

2024	USDA-ARS Southeast Area Annual Employee Recognition Program: award for Customer Service and Technical Expertise	
2018	NSF SESYNC postdoctoral immersion fellowship	$160,000
2015	University of Tennessee Science Alliance graduate award	$3000

	NSF travel grant to deliver biology education seminar at Notre Dame	$500
2014	Outstanding Outreach and Community Service award, UT-Knoxville Department of Ecology and Evolutionary Biology	
2013	Dr. Jean H. Langenheim Endowed Graduate Fellowship in the Ecology and Evolution of Plants, Rocky Mountain Biological Laboratory	$6000
	UTK Graduate Student Senate travel award	$500
	Honorable Mention, National Science Foundation Graduate Fellowship	
2012	Dr. Lee R. G. Snyder Memorial Fellowship, Rocky Mountain Biological Laboratory	$700

Invited talks

V = virtual

2024	"Doing more with less: using prior knowledge and creative experimental design to get more results from fewer animals." USDA ARS 2024 IACUC workshop, Stuttgart, AR (V)
	"Analyzing ordered categorical phenotypes: challenges and pitfalls." USDA ARS SIBS Phenomics working group meeting, Raleigh, NC
	"Troubleshooting common errors and warnings in (G)L(M)Ms." USDA ARS Honey Bee Lab, Baton Rouge, LA
	"Statistical interactions: what are they and what do they mean, anyway?" USDA ARS Southern Regional Research Center, New Orleans, LA
	"Everything you ever wanted to know about means comparisons but were afraid to ask." USDA ARS Dale Bumpers National Rice Research Center, Stuttgart, AR
	"A smorgasbord of options for multiomics data analysis." USDA ARS and Arkansas Children's Nutrition Center, Little Rock, AR
2023	"Structural equation modeling in food science." USDA ARS Food Science & Market Quality & Handling Research Unit lab meeting, Raleigh, NC
	"Power analysis: bureaucratic busywork or critical step in the scientific method?" USDA ARS 2023 IACUC workshop, Athens, GA (V)
2022	"Reducing food waste from farm to fork to benefit biodiversity." North Carolina State University, Plant & Microbial Biology department seminar, Raleigh, NC
2020	"Reducing food waste to benefit environment and society: how, why, and in what context?" Duke University Program in Ecology seminar series, Durham, NC (V)
2018	"Food waste impacts on biodiversity." Commission on Environmental Cooperation Food Loss and Waste Measurement Experts Group Meeting, Arlington, VA
2017	"Challenges in the functional trait approach to community ecology (and ways to overcome them)." German Centre for Integrative Biodiversity Research (iDiv), Leipzig, Germany
	"Intraspecific variation and community assembly." National Ecological Observatory Network, Boulder, CO (talk co-delivered with John Grady)
2016	"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

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

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

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

Conference presentations

2024 **Read, Q. D.** and F. Breidt. "Exploring the options for quantifying uncertainty in derivatives of splines." NCCC-170 meeting, Mayagüez, PR

2023 **Q. D. Read** and H. J. Penn. "'Boring' for insights in a 28-year sugarcane insect herbivory dataset." AgStats, West Lafayette, IN

2019 **Read, Q. D.**, J. A. Gephart, A. D. Cuéllar, … and M. K. Muth. "Which supply chain stages should we target to reduce food loss and waste and benefit the environment?" Ecological Society of America-United States Society for Ecological Economics, Louisville, KY

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

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

2015 **Read, Q. D.**, N. J. Sanders, and A. T. Classen. "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

Guest lectures

2023 Food waste, Global Environmental Issues (undergraduate course), William Peace University, Raleigh, NC

Ethical and responsible statistical practices, Bioethics (graduate/undergraduate course), N.C. State University

2022 Food waste, Agroecology (undergraduate course), University of Maryland

2021 Food waste, People, Land and Food (undergraduate course), George Washington University, Washington, DC

2020 Data synthesis in food-energy-water nexus research, Global Stewards (graduate seminar), University of Maryland

2015 Mock trial activity, Conservation Biology, UT-Knoxville

2013 Climate change and communities, General Ecology, UT-Knoxville

2012 Biogeochemistry, General Ecology, UT-Knoxville

Software

2022 Weinroth, M. and **Q. D. Read.** 2022. epi2me2r: Process Nanopore EPI2ME Output for Use in R. R package version 0.1.0. https://mweinroth.github.io/epi2me2r/.

2021 **Read, Q. D.**, A. Yue, I. E. Fluck, B. Baiser, J. M. Grady, P. L. Zarnetske, and S. Record. 2021. Ostats: O-stats, or pairwise community-level niche overlap

statistics. R package version 0.1.1. https://neon-biodiversity.github.io/Ostats/. DOI:10.5281/zenodo.5706470.

2020 Brunson, J. C. and **Q. D. Read.** 2020. ggalluvial: Layered Grammar for Alluvial Plots. R package version 0.12.2.0001. https://corybrunson.github.io/ggalluvial/.

2019 Marchand, P., I. T. Carroll, M. Smorul, R. E. Blake, and **Q. D. Read.** 2019. rslurm: Submit R Calculations to a 'Slurm' Cluster. R package version 0.6.1. https://sesync-ci.github.io/rslurm. DOI:10.5281/zenodo.5705430.

Online content

2019-2021 Blog posts on the SESYNC Cyberhelp blog (https://sesync-ci.github.io/blog)

- "Making a fifty-state USA map, 2021 edition"
- "Making free maps with R, ggspatial, and Mapbox"
- "Goodbye %>%, hello := (Using R data.table to speed up my data science)"
- "How open reproducible methods benefit the research community: a shiny story"
- "The carbon footprint of R code, and how to reduce it"
- "Resources to help you learn GitHub Pages"
- "Tips for a smooth R(Studio) workflow and reproducible R code"
- "How do I resolve merge conflicts in git/GitHub/GitLab?"
- "Using the rslurm package to run code in parallel"
- "ggplot tricks not to forget about"

2021 Marchand, P., I. T. Carroll, and **Q. D. Read**. "Introduction to Geospatial Data." Jul. 2021, SESYNC Cyberhelp online lesson. https://sesync-ci.github.io/geospatial-packages-in-R-lesson/

2020 **Read, Q. D.** "Advanced git Techniques." Sep. 2020, SESYNC Cyberhelp online lesson. https://sesync-ci.github.io/advanced-git-lesson/

Read, Q. D. and I. T. Carroll. "Online Data with R." Jul. 2020, SESYNC Cyberhelp online lesson. https://sesync-ci.github.io/online-data-with-R-lesson/

Muth, M. K. and **Q. D. Read.** "Effects of COVID-19 meat and poultry plant closures on the environment and food security." 7 Jul. 2020, RTI Insights blog. https://www.rti.org/insights/covid-19-effect-meat-supply-chain

Blake, R. E., R. Beilinson, N. Motzer, K. L. Hondula, and **Q. D. Read.** "Resources and tips for elevating your team science in an all-virtual world." Mar. 2020. https://www.sesync.org/resources-and-tips-for-elevating-your-team-science-in-an-all-virtual-world

Professional service

2024– Member, NCCC-170 "Research Advances in Agricultural Statistics" research coordinating committee

2024– Member, USDA SciNet (high-performance computing network) Advisory Committee; chair of Education subcommittee

2020– Peer reviewer of R packages for RopenSci.org: *pixelclasser*, *birdsize*

2019–2023 Maintainer of the R package *rslurm* (current URL earthdatascience.org/rslurm)

2019 Review panelist, SESYNC immersion postdoctoral fellowship program

2017 Co-organizer of oral session at Ecological Society of America meeting: "Challenges and opportunities for investigating ecological communities across space and time: insights from coordinated research networks."

2013– Peer reviewer for the following journals: *Agronomy Journal, Laboratory Animals, International Journal of Agricultural Sustainability, Annals of the Entomological Society of America, Annals of the American Association of Geographers, Poultry Science, Cleaner Waste Systems* (2×), *Healthcare, Sustainable Environment, Agriculture, Food Policy, Anthropocene, Journal of Animal Ecology, Science of the Total Environment, Scientific Reports, Biogeosciences, Remote Sensing of Environment, Systematic Biology, Resources Conservation & Recycling* (2×), *Annals of Botany, Molecular Ecology, Energies, Nature Climate Change, Journal of Biogeography, Oikos* (2×), *Ecological Applications, Ecology, Journal of Ecology* (2×), *Global Ecology and Biogeography* (3×), *Plant Ecology, Ecological Monographs, Ecology Letters* (2×), *Annals of Botany Plants, Methods in Ecology and Evolution, Ecography* (2×), *Biotropica, Functional Ecology* (3×), *Journal of Plant Ecology, PeerJ* (3×), *Ecology and Evolution, PLoS One* (3×), *Ecosphere* (3×), *New Phytologist* (2×), *Global Change Biology* (3×)

Community outreach

2016– Maintain a personal science blog (blog.quentinread.com)

Answer community programming questions on StackOverflow

2023 Panelist, federal careers discussion panel, NC State University biotechnology undergraduate course

2021 Interviewed on food waste for SESYNC podcast (anchor.fm/sesync-communications)

2018 Organized event and gave presentation on citizen science opportunities, MSU Science Festival

2017 Gave public research talk, MSU Biology On Tap

2014 Organized and coordinated Darwin Day Tennessee

2013 Coordinated advertising for Darwin Day Tennessee

2012 Discussed my research and assisted 7th-grade students with climate change projects

2011-2015 Volunteered at kids' science education events at the University of Tennessee and the Rocky Mountain Biological Laboratory

Professional training

2024 Bayesian Procedures in SAS training course

2021 SAS for R Users training course

2020 ReproHack reproducible science workshop, SESYNC

2019 Google Earth Engine workshop, SESYNC

Ecosystem services valuation workshop, USDA, Washington, DC

2018 Data to Motivate Synthesis workshop, SESYNC

2018-2020 SESYNC postdoctoral immersion series, including multiday workshops on interdisciplinary techniques, team science, socio-environmental hydrology, land system science, methods in social science, ecology, environmental policy, and public health

2014 Structural equation modeling workshop with Dr. Jim Grace, Knoxville, TN

2013 Short course: Boreal Forest Ecology, Swedish University of Agricultural Sciences, Umeå, Sweden

2012 Short course: Fundamentals of Ecosystem Ecology, Cary Institute of Ecosystem Studies, Millbrook, NY