

Kyungjin (KJ) Min

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Education

2017 Ph. D. Ecology, University of Kansas (KU), USA
2010 M.C.P. Environmental Studies, Seoul National University (SNU), Korea
2007 B.S. Life Science, *Magna cum laude*, Pohang University of Science and Technology (POSTECH), Korea

Academic Appointments

2022- Assistant Professor, Department of Agricultural Biotechnology, SNU
2021-2022 UC Merced Chancellor's Postdoctoral Fellow, UC Merced
2020-2021 Assistant Research Professor, Korea Advanced Institute of Science and Technology
2019-2020 Postdoctoral Fellow, UC Merced
2018-2019 Postdoctoral Fellow, Clemson University
2017-2018 Adjunct Researcher, Kansas Biological Survey

Fellowships, Awards, and Honors

2020 UC Merced Chancellor's Postdoctoral Fellowship, UC Merced
2019 Glenadore and Howard L. Pim Postdoctoral Fellowship finalist, Johns Hopkins University
2018 UC President's Postdoctoral Fellowship finalist
2016 Summer Fellowship Award, KU (\$3,500)
2015 Best Graduate Student Mentor Award for REU program, KU (\$100)
Summer Research Fellowship, KU (\$5,000)
Summer Fellowship Award, KU (\$3,000)
2014 Travel Award, KU (\$250)
Graduate Research Scholarship, Association for Women Geoscientists Osage Chapter (\$1,000)
2013 Graduate Scholarly Presentation Travel Award, KU (\$500)
2012 Travel Award, KU (\$300)
Ida H. Hyde Scholarship, KU (\$1,500)
Graduate Research Assistant Fellowship, KU (\$2,000)
Summer Soil Institute Fellowship at Colorado State University, MoBio Inc. (\$1,000)
2009 Alumni Association Scholarship, SNU
2008 Teaching Assistance Fellowship, SNU
2006 Hyogok Scholarship, POSTECH
Regular Scholarship, POSTECH

2005 Study Abroad Scholarship at UC San Diego, POSCO
2003-2004 Regular Scholarship, POSTECH

Grants

2020 Academic Senate Faculty Research Grant, UC Merced (\$15,000)
2016 One University Open Access Author Fund, KU (\$1,500)
2015 Critical Zone Observatory Science Across Virtual Institutes, National Science Foundation (\$3158.9)
Field Station Small Grants, KU (\$500)
Doctoral Student Research Fund, KU (\$2,000)
2014 Graduate Summer Research Fund, KU (\$2,000)
2009 The National Scholarship for Science and Engineering, Korea Student Aid Foundation Scholarship (ca.\$2,000)

Peer-Reviewed Journal Articles

Total 513 citations for 17 published papers; h-index 10 (google scholar as of Mar. 4th, 2023)

Published (* denotes student mentee)

17. **Min K**, Choi M (2022) Resource landscape, microbial activity, and community composition under wintering crane activities in the Demilitarized Zone, South Korea *PLoS ONE* 17, e0268461 <https://doi.org/10.1371/journal.pone.0268461>
16. Longbottom T, Wahab L, **Min K**, Jurusik A, Moreland K, Dolui M, Thao T, Gonzales M, Perez-Rojas Y, Alvarez J, Malone Z, Ghezzehei T, Berhe A (2022) What's soil got to do with climate change? *GSA Today* 32, 4-10. <https://doi.org/10.1130/GSATG519A.1>
15. Oerter E, Slessarev E, Visser A, **Min K**, Kan M, McFarlane K, Saha M, Berhe A, Pett-Ridge J, Nuccio E (2021) Hydraulic redistribution by deeply rooted grasses and its ecohydrologic implications in the Southern Great Plains of North America. *Hydrological Processes* 35, e14366. <https://doi.org/10.1002/hyp.14366>
14. **Min K**, Slessarev E, Kan M, McFarlane K, Oerter E, Pett-Ridge J, Nuccio E, Berhe A (2021) Active microbial biomass decreases, but microbial growth potential remains similar across soil depth profiles under deeply- vs. shallow-rooted plants. *Soil Biology & Biochemistry* 162, 108401. <https://doi.org/10.1016/j.soilbio.2021.108401>
13. Buckeridge KM, Edwards KA, **Min K**, Ziegler SE, Billings SA (2020) Short- and long-term temperature responses of net N₂O efflux rates, inter-profile N₂O dynamics, and microbial genetic potentials. *SOIL* 6, 399-412. <https://doi.org/10.5194/soil-6-399-2020>
12. **Min K**, Suseela V (2020) Plant invasion alters the Michaelis-Menten kinetics of microbial extracellular enzymes and soil organic matter chemistry along soil depth. *Biogeochemistry* 150, 181-196. <https://doi.org/10.1007/s10533-020-00692-5>
11. **Min K**, Berhe AA, Khoi CM, van Asperen H, Six J (2020) Differential effects of wetting and drying on soil CO₂ concentration and flux in near-surface vs. deep soil layers. *Biogeochemistry* 148, 255-269. <https://doi.org/10.1007/s10533-020-00658-7>
10. **Min K**, Buckeridge K, Ziegler S, Edwards K, Bagchi S, Billings SA (2019) Temperature sensitivity of biomass-specific microbial exo-enzyme activities and CO₂ efflux is resistant

- to change across short- and long-term timescales. *Global Change Biology* 25, 1793-1807. <https://doi.org/10.1111/gcb.14605>
9. Billings SA, Hirmas D, Sullivan P, Lehmeier CA, Bagchi S, **Min K**, Richter D, Brecheisen Z, Hauser E, Stair R, *Flournoy R, Richter D (2018) Loss of deep roots limits biogenic agents of soil development that are only partially restored by decades of forest regeneration. *Elementa: Science of the Anthropocene* 6(1):34. <https://doi.org/10.1525/elementa.287>
 8. **Min K**, Lehmeier CA, Ballantyne IV F, Billings SA (2016) Carbon availability modifies temperature responses of heterotrophic microbial respiration, carbon uptake affinity, and stable carbon isotope discrimination. *Frontiers in Microbiology* 7. 2083. <https://doi.org/10.3389/fmicb.2016.02083>
 7. Billings SA, **Min K**, Ballantyne IV F, *Chen Y, *Sellers M (2016) Aging exo-enzymes can create temporally shifting, temperature-dependent resource landscapes for microbes. *Biogeochemistry* 131, 163-172. <https://doi.org/10.1007/s10533-016-0273-x>
 6. Lehmeier CA, Ballantyne IV F, **Min K**, Billings SA (2016) Temperature-mediated changes in microbial carbon use efficiency and ¹³C discrimination. *Biogeosciences* 13, 3319-3329. <https://doi.org/10.5194/bg-13-3319-2016>
 5. **Min K**, Freeman C, Kang H, Choi S (2015) The Regulation by phenolic compounds of soil organic matter dynamics under a changing environment. *BioMed Research International*, Article ID 825098, doi:10.1155/2015/825098. <https://doi.org/10.1155/2015/825098>
 4. Billings SA, Tiemann LK, Ballantyne IV F, Lehmeier CA, **Min K** (2015) Investigating microbial transformations of soil organic matter: synthesizing knowledge from disparate fields to guide new experimentation. *SOIL* 1, 313-330. <https://doi.org/10.5194/soil-1-313-2015>
 3. **Min K**, Lehmeier CA, *Tatarko A, Ballantyne IV F, Billings SA (2014) Differential effects of pH on temperature sensitivity of organic carbon and nitrogen decay. *Soil Biology & Biochemistry* 76, 193-200. <https://doi.org/10.1016/j.soilbio.2014.05.021>
 2. Lehmeier CA, **Min K**, Niehues ND, Ballantyne IV F, Billings SA (2013) Temperature-mediated changes of exoenzyme-substrate reaction rates and their consequences for the carbon to nitrogen flow ratio of liberated resources. *Soil Biology & Biochemistry* 57, 374-382. <https://doi.org/10.1016/j.soilbio.2012.10.030>
 1. **Min K**, Kang H, Lee D (2011) Effects of ammonium and nitrate additions on mineralization of organic carbon in wetland soils. *Soil Biology & Biochemistry* 43, 2461-2469. <https://doi.org/10.1016/j.soilbio.2011.08.019>

In Preparation

Min K, Slessarev E, Kan M, McFarlane K, Oerter E, Pett-Ridge J, Longbottom T, Jurusik A, Nuccio, E. Deeply rooted plants have a modest impact on soil organic carbon dynamics after a decade of growth.

Min K, Bagchi S, Buckeridge K, Ziegler S, Edwards K, Billings SA. Turnover rates of microbial communities across a temperature gradient in boreal forests.

Hicks Pries C, Ghezzehei T, **Min K**, Pett-Ridge J, Ryals B, Torn M, Zhu B, Berhe A. Deep soil organic carbon: the response to global change and management.

Presentations

Invited Talks

6. Can deeply rooted plants help sequester more organic carbon in soil? *Kyung Hee University 2022*
5. Searching for the missing carbon sink: microbially driven soil carbon dynamics under climate change, Graduate School of Environmental Studies, *Seoul National University 2021*
4. Will soil under deeply rooted plants sequester carbon under climate change? Department of Earth System Sciences, *Yonsei University, 2020*
3. Depth gradients in microbial growth kinetics under deeply vs. shallow rooted plants. *Korea Polar Research Institute, 2020*
2. Does time matter?: microbial temperature responses across diverse timescales. *Graduate Student Recruitment Seminar, Department of Ecology and Evolutionary Biology, KU, 2017*
1. Microorganism, tiniest little thing that controls the Earth's climate: effects of temperature and substrate composition on soil microbial carbon transformations. *Graduate Student Recruitment Seminar, Department of Ecology and Evolutionary Biology, KU, 2014*

Conferences (Oral and Poster)

27. Visser A, Zhou T, Simunek J, Oerter E, Slessarev E, **Min K**, Kan M, McFarlane K, Saha M, Berhe A, Pett-Ridge J, Nuccio E (2022) Soil water isotope measurements (tritium, deuterium, oxygen-18) and Hydrus-1D simulations with evaporative fractionation to examine the impacts of deeply rooted switchgrass on soil hydrology. *AGU Annual Meeting (oral)*
26. **Min K**, Slessarev E, Kan M, McFarlane K, Oerter E, Pett-Ridge J, Longbottom T, Jurusik A, Nuccio, E (2022) Deeply rooted plants have a modest impact on soil organic carbon dynamics after a decade of growth. *SSSA Annual Meeting (oral)*
25. Dolui M, Szymanski LM, **Min K**, McMurtry A, Marin-Spiotta E, Mason JA, De Graaff M, Berhe A (2020) Variability in soil organic matter composition in a buried soil: Differences along eroding and depositional transects. *AGU Fall Meeting (poster)*
24. **Min K**, Slessarev E, Kan M, Pett-Ridge J, McFarlane K, Oerter E, Nuccio E, Berhe A (2020) Microbial growth kinetics under deeply- vs. shallow-rooted plants with soil depth profiles. *AGU Fall Meeting (poster)*
23. **Min K**, Bodenheimer J, Suseela V (2019) Plant invasion alters the Michaelis-Menten kinetics of microbial exo-enzymes and soil organic matter chemistry along soil depth. *ESA Annual meeting, Louisville, KY, USA (oral)*
22. **Min K**, Tharayil N, Bhowmik P, Suseela V (2019) Linking the invasion of weedy species to altered functional adaptations of soil microbes. *Weed Science Society of America, New Orleans, LA, USA (oral)*
21. Billings SA, Richter D, Hirmas D, Lehmeier CA, Bagchi S, Brecheisen Z, Sullivan P, **Min K**, Hauser E, Stair R, Flournoy R*, Richter D (2017) Soil weathering agents are limited where deep tree roots are removed, even after decades of forest regeneration. *AGU Fall Meeting, San Francisco, CA, USA (oral)*

20. **Min K**, Buckeridge KM, Ziegler SE, Edwards K, Bagchi S, Billings SA (2016) Biomass-C specific temperature responses of microbial C transformations reveal consistency regardless of microbial community structure across diverse timescales of inquiry. *AGU Fall Meeting*, San Francisco, CA, USA (oral)
19. Lehmeier CA, **Min K**, Good H, Heroneme C, Billings SA (2015) How temperature affects microbial transformations of organic matter – comparing stories told by purified enzyme assays, chemostats, and soil incubations. *AGU Fall Meeting*, San Francisco, CA, USA
18. Billings SA, Wood T, Buckeridge KM, **Min K**, Lehmeier CA, Flournoy R, Huang Z, Ziegler S, Richter D, Pett-Ridge J, Brodie E, Bouskill N (2015) Small-scale experiments in diverse ecosystems highlight intricate linkages between microbial behavior and ecosystem-scale processes. *ESA Annual Meeting*, Baltimore, MD, USA (oral)
17. Lehmeier CA, **Min K**, Billings SA (2015) Is $\delta^{13}\text{C}$ of soil CO_2 dependent on microbial growth rate? Exploring carbon isotope discrimination in soil microbes. *Summer Science Meeting*, Calhoun Experimental Forests, Union Co., SC, USA
16. **Min K**, Flournoy R, Lehmeier CA, deB Richter D, Heine P, Billings SA (2015) How deep and persistent are the influences of aboveground disturbance on soil microbial activities at the Calhoun CZO? *Summer Science Meeting*, Calhoun Experimental Forests, Union Co., SC, USA
15. **Min K**, Buckeridge KM, Edwards K, Ziegler SE, Billings SA (2015) Microorganisms may enhance human-caused warming. *KU Graduate Student Research Competition*, Lawrence, KS, USA
14. Billings SA, Ballantyne IV F, Lehmeier CA, **Min K** (2014) Guiding empirical and theoretical explorations of organic matter decay by synthesizing temperature responses of enzyme kinetics, microbes, and isotope fluxes. *AGU Fall Meeting*, San Francisco, CA, USA (oral)
13. Billings SA, Lehmeier CA, **Min K**, Ballantyne IV F (2014) Temperature and substrate C:N drive microbial carbon use efficiency and ^{13}C discrimination. *Soil Science Society of America Annual Meeting*, Long Beach, CA, USA (oral)
12. Billings SA, **Min K**, Lehmeier CA, Ballantyne IV F (2014) Microbial carbon use efficiency and ^{13}C discrimination with varying temperature and substrate C:N. The Sixth International Workshop on Soil and Sedimentary Organic Matter Stabilization and Destabilization (SOM6), Kiawah Island, SC, USA
11. **Min K**, Lehmeier CA, Chen Y, Sellers M, Ballantyne IV F, Billings SA (2014) Microbial carbon transformations and isotopic fluxes are modified by temperature and substrate stoichiometry. *Goldschmidt 2014*, Sacramento, CA, USA
10. Ballantyne IV F, Billings SA, Lehmeier CA, **Min K** (2014) Using C stable isotopes to infer shifting metabolism in response to variable environmental conditions. *EGU General Assembly 2014*, Vienna, Austria
9. Billings SA, Ballantyne IF F, **Min K**, Lehmeier CA, Ziegler SE (2014) Disentangling the drivers of soil organic matter decay as temperature changes by integrating reductionist systems with soil data. *EGU General Assembly 2014*, Vienna, Austria
8. Kohl L, Lehmeier CA, Laganière J, Edwards K, **Min K**, Ballantyne IV F, Billings SA, van Biesen G, Morrill PL, Ziegler SE (2014) Do variations in the $\delta^{13}\text{C}$ of soil phospholipid fatty

acids (PLFA) indicate changes in substrate use with climate warming? *EGU General Assembly 2014*, Vienna, Austria

7. **Min K**, Lehmeier CA, Chen Y, Sellers M, Ballantyne IV F, Billings SA (2013) Effects of temperature and substrate stoichiometry on microbial specific respiration rate, carbon use efficiency, and ¹³C fractionation. *AGU Fall Meeting*, San Francisco, CA, USA
6. Billings SA, **Min K**, Chen Y, Sellers M, Ballantyne IV F, Lehmeier CA (2013) Aging is a drag: how exo-enzyme age and temperature interact to drive microbial resource availability. *AGU Fall Meeting*, San Francisco, CA, USA (oral)
5. **Min K**, Lehmeier CA, Tatarko A, Ballantyne IV F, Billings SA (2012) Temperature sensitivity of organic substrate decay varies with pH. *AGU Fall Meeting*, San Francisco, CA, USA
4. Lehmeier CA, **Min K**, Felton R, Song C, Shinogle H, Ballantyne IV F, Billings SA (2012) Temperature effects on microbial carbon use efficiency and $\delta^{13}\text{C}$ of respired CO_2 - Assessment with continuous culture and CO_2 -exchange techniques. *AGU Fall Meeting*, San Francisco, CA, USA
3. **Min K**, Lehmeier CA, Ballantyne IV F, Billings SA (2012) C and N flow from soil organic substates varies with temperature and pH. *Graduate Student Organization Annual Retreat*, Department of Ecology and Evolutionary Biology, University of Kansas, Lawrence, KS, USA
2. Kwon M, Seo J, **Min K**, Park S, Jang I, Kang H (2010) Greenhouse gas (CO_2 , CH_4 , and N_2O) fluxes from tidal marsh along with water level gradient. *Spring Academic Conference of Korean Society of Environmental Engineers*, Jeju, Korea
1. Seo J, Kwon M, **Min K**, Park S, Jang I, Kang H (2010) Microbial enzyme activity trends in the Han river estuary. *Spring Academic Conference of Korean Society of Environmental Engineers*, Jeju, Korea

Mentoring and Teaching Experiences

Mentees

2019-2022	Manisha Dolui, UC Merced
2018-2019	Sukhman Kaur Preet, Clemson University
2018-2019	Bhupinder Singh Jatana, Clemson University
2016-2017	Wes Stops, KU
2015-2016	Keelan Barger, KU
2014-2016	Samatha Elledge, KU
2015	Rebecca Flournoy, REU student from Tulane University
2015	Milan Piva, Emporia State University
2015	Holly Good, KU
2014-2015	Carl Heroneme, KU
2013-2015	Mitch Sellers, KU
2013-2014	Yanjun Chen, KU
2013	Francisco Murphy, REU student from Iowa State University
2012	Anna Tartako, KU

Courses, Workshops, and Seminars

- 2020 Designing Pedagogy, Center for Engaged Teaching and Learning, UC Merced
2015 BIOL701 Mentoring Undergraduates, KU
Being an Effective College Teacher, Center for Teaching Excellence, KU

Teaching Assistant

- 2016 Principles of Ecology, KU
Principles of Organismal Biology, KU
Introduction to Biology, KU
2014 Introduction to Biostatistics, KU
2012 Principles of Organismal Biology, KU

Service

Manuscript Review

Global Change Biology, Soil Biology & Biochemistry, Geoderma, Climatic Change, Plant and Soil, Biogeochemistry, Frontiers in Forests and Global Change, Frontiers in Microbiology, Journal of Geophysical Research

University and Department

- 2020-2022 Co-organizer, Enviro-Lunch seminars, UC Merced
2018-2019 Organizer, Weekly Scientific Writing Workshops, Clemson University
2014-2015 Vice-president, Department of Ecology and Evolutionary Biology Graduate Student Organization, KU
2013-2014 Graduate student representative, Department of Ecology and Evolutionary Biology Theoretical Ecologist Search Committee, KU

Professional Experience

Courses, Workshops, and Seminars

- 2016 Cross Critical Zone Observatory/National Ecological Observatory Network
EarthCube Microbial Ecology Workshop, Palais des Congress, Montreal, Canada
2015 Critical Zone Observatory Summer School for Soil Science, University of Western Australia, Australia
2012 Summer Soil Institute, Colorado State University