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Andrew Giguere

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Education

Ph.D. Soil Science, Oregon State University	2017
B.S. Environmental Science and Management, University of Rhode Island Minor: Geographical Information Systems and Remote Sensing	2011

Research and Employment Experience

<u>Principal Investigator/Post-doctoral Researcher</u> , Centre for Microbiology and Environmental Systems Science, Division of Microbial Ecology, University of Vienna, Vienna, Austria.	2020-present
<u>Post-Doctoral Researcher</u> , Faculty of Engineering and Science, Aalborg University Aalborg, Denmark. PIs: Per Halkjær Nielsen, Michael Wagner	2019-2020
<u>Post-Doctoral Researcher</u> , Division of Microbial Ecology, University of Vienna, Vienna, Austria. PI: Dagmar Woebken.	2017-2019
<u>Graduate Research Assistant/ Provost Graduate Fellow</u> , Laboratory of Environmental Microbiology, Oregon State University, Corvallis, OR PIs: Peter Bottomley, David Myrold.	2012- 2017
<u>National Science Foundation/Japan Society for the Promotion of Science Fellow</u> Chuo University, Tokyo, Japan. PI: Yuichi Suwa.	2014
<u>Undergraduate Research Assistant</u> , Laboratory of Soil Ecology and Microbiology, University of Rhode Island, Kingston, RI. PI: Jose Amador.	2010 - 2012
<u>Environmental Assistant</u> , Rhode Island Department of Transportation, Providence, RI	2011

Refereed Journal Publications

Giguere A.T*, Eichorst S.E*, Meier D., Herbold C., Richter A., Greening C., Woebken D. 2021
 Acidobacteria are active and abundant members of diverse atmospheric H₂-oxidizing communities detected in temperate soils. ISME J 15, 363-376.

- Sedlacek C.J*., **Giguere A.T***., Dobie M.D., Mellbye M.L., Sayavedra-Soto L.A., Bottomley P.J., Wagner, M., Daims H., Pjevac P. 2020. Transcriptomic response of *Nitrosomonas europaea* transitioned from ammonia- to oxygen-limited steady-state growth. *mSystems* 5, e00562-19.
- Mellbye B.L., **Giguere A.T.**, Chaplen F., Bottomley P.J., Sayavedra-Soto L.A. 2018. Modeling biotic and abiotic nitric oxide(s) and nitrous oxide production from single and co-cultures of *N. europaea* and *N. winogradskyi*. *mSystems* 3: e0070-17
- Giguere A.T**§., Taylor A.E., Myrold D.D., Bottomley P.J., 2018. Nitrite-oxidizing activity responds to nitrite accumulation in soil. *FEMS Microbial Ecology* 94, 1-9.
- DeCrappeo N. D., DeLorenze E. J. D., **Giguere A.T.**, Pyke D.A., Bottomley P. J. 2017. Fungal and bacterial contributions to nitrogen cycling in cheatgrass-invaded and uninvaded native sagebrush soils of the western USA. *Plant and Soil* 416, 271-281.
- Giguere A.T**§., Taylor A.E., Myrold D.D., Bottomley P.J., 2017. Uncoupling of ammonia oxidation from nitrite oxidation: impacts upon nitrous oxide production in non-cropped Oregon soils. *Soil Biology and Biochemistry* 104, 30-38.
- Taylor A.E., **Giguere A.T.**, Zoebelin C. Myrold D.D., Bottomley P.J., 2016. Modeling of soil nitrification responses to temperature reveals thermodynamic differences between ammonia-oxidizing activity of archaea and bacteria. *ISME J.*, 11, 896-908.
- Mellbye B.L., **Giguere A.T.**, Bottomley P.J., Sayavedra-Soto L.A. 2016. Quorum quenching of *Nitrobacter winogradskyi* suggests quorum sensing regulates fluxes of nitrogen oxide(s) during nitrification. *mBio* 7, 1-9.
- Mellbye B.L., **Giguere A.T.**, Chaplen F., Bottomley P.J., Sayavedra-Soto L.A. 2016. Steady state growth under inorganic carbon limitation increases energy consumption for maintenance and enhances nitrous oxide production in *Nitrosomonas europaea*. *Applied and Environmental Microbiology* 81, 5917-5926.
- Giguere A.T.**, Taylor A.E., Myrold, D.D., Bottomley P.J., 2015. Nitrification responses of soil ammonia-oxidizing archaea and bacteria to ammonium concentrations. *Soil Science Society of America Journal* 79, 1366-1374. (Featured Article in CSA News).
- Taylor A.E., Vajrala N., **Giguere A.T.**, Gitelman A.I., Arp, D.J., Myrold D.D., Sayavedra-Soto L., Bottomley, P.J., 2013. Use of aliphatic n-alkynes to discriminate soil nitrification activities of ammonia-oxidizing thaumarchaea and bacteria. *Applied and Environmental Microbiology* 79, 6544-6551 (AEM Spotlight, Nov 2013 issue).

* indicates equal contribution

§ indicates corresponding author

Manuscripts in Preparation

- Giguere A. T.**, Pjevac P., Jørgensen V. J., Nielsen P.H., Wagner M. Activity and community composition of ammonia oxidizers in a long-term agricultural fertilization experiment (202X)
- Rojas P. A., Fuchslueger L., Pjevac P., Prommer J., Sedlacek C. J., **Giguere A. T.**, Uncovering biological nitrification inhibitors and their efficacy in different soil types (202X)
- Merl T., Sedlacek C. J., Pjevac P. Fuchslueger L., Koren K., **Giguere A. T.**, Application of NH₃ and pH optodes to quantify NH₃ production and diffusion from fertilizer (202X)

Other Publications

Sedlacek C. J., **Giguere A.T.**, Pjevac P. 2019. Is Too Much Fertilizer a Problem? *Frontiers for Young Minds*.

Projects Funded

Young Independent Research Group (Zukunftskollegs). Interplay between Biological Nitrification Inhibitors, Nitrogen Cycling and Agronomic Nitrogen Use Efficiency (playNICE). Fonds zur Förderung der wissenschaftlichen Forschung (Austrian Science Fund, FWF) € 499,215.14 (Total: €2,555,460). 2020-2025. PIs: A.T Giguere, P. Pjevac, C. J. Sedlacek, L. Fuchslueger, C. Bueshl.

Hochschuljubiläumsstiftung/ City of Vienna Grant: Can soil help the city breathe? The potential of urban green areas to serve as an atmospheric trace gas sink. 2018. PIs: A.T. Giguere and P. Pjevac. €12,000

National Science Foundation/ Japan Society for the Promotion of Science: Contributions of microorganisms to greenhouse gas emissions from volcanic soils prevalent in the Pacific Rim region. Award Abstract #1414921, 2014. PI: A.T. Giguere. (\$5,000 + ¥500,000)

Invited Conference Presentations

Uncoupling of ammonia oxidation from nitrite oxidation, and its impact upon nitrous oxide production in a grassland soil. 2015. Soil Science Society of America meeting, Minneapolis, MN.

How meaningful are taxonomic subdivisions of Andisols for soil biology? 2014. Oregon Society of Soil Scientists Winter Meeting, Astoria, OR.

Conference Presentations

Activity and community composition of ammonia oxidizers in a long-term agricultural fertilization experiment. 2022. Ecology of Soil Microorganisms, Prague, Czechia.

Activity and community composition of ammonia oxidizers in a long-term agricultural fertilization experiment. 2021. International Conference on Nitrification, Online meeting.

Transcriptomic response of *Nitrosomonas europaea* transitioned from ammonia- to oxygen-limited steady-state growth. 2019. Innovative Techniques in Microbial Ecology meeting, Aarhus, Denmark.

Uncoupling of ammonia oxidation from nitrite oxidation: Impact upon nitrous oxide production in non-cropped Oregon soils, 2016. Soil Science Society of America Meeting, Phoenix, AZ.

Uncoupling of ammonia oxidation from nitrite oxidation, and its impact upon nitrous oxide production in a grassland soil, 2015. International Conference on Nitrification, Edmonton, Canada.

Nitrification responses of ammonia-oxidizing bacteria and archaea to ammonia additions in cropped and non-cropped soils. 2013. International Conference on Nitrification, Chuo University, Tokyo, Japan.

Ad-hoc Reviewer Duties

ISME Journal, Soil Biology and Biochemistry, European Journal of Soil Science, FEMS Microbial Ecology, FEMS Microbiology Letters, Frontiers in Environmental Science, Environmental Science and Technology, Geoderma, Scientific Reports, Applied Soil Ecology

Teaching Experience

Guest lecturer (Upper level undergrad/grad soil biology)	2016
Graduate teaching assistant (Introduction to soils)	2013

Awards

Austrian Research Promotion Agency (FFG) Career Relocation Grant (2017): €2,000
 Oregon State University, Department of Crop and Soil Science Travel Award (2015): \$250
 Oregon Lottery Scholarship (2014): \$2550
 Provosts' Distinguished Doctoral Fellowship (2012): \$56,000
 Oregon State University Graduate Student Travel Award for International Conference on Nitrification, Tokyo, Japan (2013): \$1000
 Writters Fund Travel Award for International Conference on Nitrification, Tokyo, Japan (2013): \$250
 Undergraduate Research Initiative: Award for Scholarly Projects Grant (2011): \$953

Memberships and Other Activities

Soil Science Society of America
 Nitrification Network
 Session Chair: Cultivation in the age of culture independent studies. The 11th Innovative Techniques in Microbial Ecology Meeting, Aalborg, Denmark 2017

Leadership Experience

Faculty Liaison: Association of Soil Science Graduate Students	2014-2015
Treasurer: Association of Soil Science Graduate Students	2013-2014

Extension and Outreach

KinderUni 2018: Conducting laboratory demonstrations with children (7-9 yrs)
 KinderUni 2017: Conducting laboratory demonstrations with children (7-9 yrs)

University Service

Member, Search Committee, Pedologist/Soil Taxonomist, Oregon State University, Dept. of Crop Soil Science Winter/Spring 2015

Student Member, Promotion and Tenure Committee, Oregon State University, Dept. of Crop and Soil Science Fall 2014