

KELLEY MEINHARDT

UNIVERSITY OF WASHINGTON, CIVIL AND ENVIRONMENTAL ENGINEERING
616 NE NORTHLAKE PLACE, BENJAMIN HALL IDR BUILDING 476, SEATTLE, WA 98105
(206) 616-6985 • KELM@UW.EDU

EDUCATION

Northern Arizona University Flagstaff, AZ 86001	M.S. Environmental Sciences and Policy	2008-2010
Northern Arizona University Flagstaff, AZ 86001	B.S. Environmental Sciences, emphasis biology Minor in Biology, <i>Summa Cum Laude</i>	2005-2008

RESEARCH AND WORK EXPERIENCE

Research Scientist

University of Washington, Seattle, WA 98105

April 2012-present

Supervisors: David Stahl, Ph.D. and Mari Winkler, Ph.D.

- ~ Characterization of nitrifying soil microbial communities via PCR, qPCR, RT-qPCR, clone library construction, and sequencing.
- ~ Sanger and Illumina sequence analysis and primer design.
- ~ Field work, including experimental design, treatment application, soil and gas sample collection and processing, and crop harvesting for biomass and ethanol yield calculations.
- ~ Soil chemical analysis (ammonium, nitrate, and metal concentrations, C:N, pH, EC).
- ~ Greenhouse experiments focusing on CO₂ and N₂O gas emissions from a fertilized bioenergy crop species using real-time gas monitoring systems and automatic chamber units.
- ~ Soil, groundwater, and culture headspace gas analysis via GC-ECD, GC-FID, and GC-TCD.
- ~ Microbial activity assays using chemical inhibitors.
- ~ Media preparation and bacterial and archaeal cell culturing, including in chemostats.

Laboratory Coordinator

Roadrunner Genomics Laboratories, New Mexico State University, Las Cruces, NM 88003

January 2011-March 2012

Supervisors: Peter Houde, Ph.D. and Brook Milligan, Ph.D.

- ~ Shotgun, amplicon, and cDNA library preparation, emulsion PCR, bead recovery, and sequencing setup on the Roche 454 GS FLX + platform.
- ~ DNA extraction and quantification, PCR, multiplex PCR, qPCR, gel electrophoresis, cloning, restriction digests, and plasmid mini- and maxi-preps, as necessary for sample preparation and protocol development.
- ~ Inventory and order lab supplies, create service quotes for clients, maintain and troubleshoot laboratory instrumentation.
- ~ Train and mentor student researchers working in the lab.

Graduate student

Northern Arizona University, Flagstaff, AZ 86001

August 2008-December 2010

Advisor/supervisor: Catherine A. Gehring, Ph.D.

- ~ Examination of the disruption of cottonwood-mycorrhizal mutualisms by exotic tamarisk (thesis work).
- ~ CTAB and kit DNA extractions from plant material, DNA quantification, PCR, gel electrophoresis, gel extractions, Sanger DNA sequencing and analysis.
- ~ Developed protocols and master data sheets for field sample collection.
- ~ Media and reagent preparation, culturing and maintenance of terrestrial, ectomycorrhizal, and endophytic fungi.
- ~ Clearing and staining of plant roots for visualization of internal fungal structures. Extensive dissecting and compound microscope analysis of fungal structures and tissues.
- ~ Instructed research assistants in laboratory techniques and the use of field equipment, managed and directed the activities of assistants in the field, greenhouse, and lab.
- ~ Provided feedback on presentations and reviewed manuscripts for colleagues.

Field Intern

Grand Canyon National Park Service Vegetation Program, Flagstaff, AZ 86001

July 2009-October 2009

Supervisors: Talise Dow and Lori Makarick,

- ~ Invasive plant species identification and removal. Obtained USDA Herbicide Safety and Applicator's Certification.
- ~ Development of outreach materials/information about common invasive plant species and how to reduce their spread in the Canyon.
- ~ Coordinated a three-day volunteer tamarisk removal trip in the Grand Canyon and participated in a week-long invasives control trip through the Canyon.

TEACHING EXPERIENCE

Teaching Assistant, Northern Arizona University, Flagstaff, AZ 86011

ENV 490C – Senior Seminar in Environmental Sciences. Spring semester 2009.

ENV 101 Lab – Introduction to Environmental Sciences. Spring semester 2009.

ENV 230 Lab – Foundations of Environmental Sciences. Fall semester 2008.

- ~ Created lesson plans, quizzes, and laboratory exercises individually and with colleagues. Graded assignments and held office hours for students needing assistance.
- ~ Coordinated field and overnight trips for up to 60 students, including assessing field equipment needs, renting gear, preparing menus and buying food, camp set-up, and obtaining transportation.

FELLOWSHIPS, SCHOLARSHIPS, AND GRANTS

- 2010 Ecological Society of America Southwest Chapter Student Travel Grant
2010 Northern Arizona University Vice President for Research Student Travel Grant
2009 Doris Duke Conservation Fellowship
2009 Follett's Scholarship
2008 Western Mycorrhizal Meeting Student Travel Award
2007 Hooper Undergraduate Research Award (HURA)
2007 Integrative Graduate Education and Research Traineeship (IGERT) Grant for Undergraduates
2007 Charles Dunson Environmental Science Scholarship
2006 Federal Science and Mathematics Access to Retain Talent (SMART) Grant (GPA-based)
2005 Sam Walton Community Scholarship
2005 The Charter Fund Educational Grant
2005 Cedaredge Rotary Club Scholarship
2005 Eckert Presbyterian Church Scholarship
2005 Rocky Mountain Electrical League Foundation Scholarship

AWARDS

- 2008 Outstanding Student in Environmental Sciences
2005 Colorado Endowment for the Humanities Honorable Mention
2005-2010 NAU Dean's List

PUBLICATIONS

- Qin, W., **Meinhardt, K. A.**, Moffett, J. W., Devol, A. H., Virginia Armbrust, E., Ingalls, A. E., & Stahl, D. A. 2017. Influence of oxygen availability on the activities of ammonia-oxidizing archaea. *Environmental Microbiology Reports* 9:250-256.
- Bertagnolli, A. D., McCalmont, D., **Meinhardt, K. A.**, Fransen, S. C., Strand, S., Brown, S., & Stahl, D. A. 2016. Agricultural land usage transforms nitrifier population ecology. *Environmental Microbiology* 18:1918-1929.
- Bertagnolli, A. D., **Meinhardt, K. A.**, Pannu, M., Brown, S., Strand, S., Fransen, S. C., & Stahl, D. A. 2015. Influence of edaphic and management factors on the diversity and abundance of ammonia-oxidizing thaumarchaeota and bacteria in soils of bioenergy crop cultivars. *Environmental Microbiology Reports* 7:312-320.
- Meinhardt, K. A.**, Bertagnolli, A., Pannu, M. W., Strand, S. E., Brown, S. L., & Stahl, D. A. 2015. Evaluation of revised polymerase chain reaction primers for more inclusive quantification of ammonia-oxidizing archaea and bacteria. *Environmental Microbiology Reports* 7:354-363.
- Meinhardt, K. A.** and Gehring, C. A. "Tamarix and Soil Ecology." *Tamarix: A case study of ecological change in the American West*. A. A. Sher and M. F. Quigley, editors. Oxford University Press, USA. 2013. 225-239.
- Meinhardt, K. A.** and Gehring, C. A. 2012. Disrupting mycorrhizal mutualisms: A potential mechanism by which exotic tamarisk outcompetes native cottonwoods. *Ecological Applications* 22:532-549.

Kane, J. M., **Meinhardt, K. A.**, Chang, T., Cardall, B. L., Michalet, R., & Whitham, T. G. 2011. Drought-induced mortality of a foundation species (*Juniperus monosperma*) promotes positive afterlife effects in understory vegetation. *Plant Ecology* 212:733-741.

SPECIAL TRAINING

Leadership – Theory into Action Symposium

April 2010, High Country Conference Center at Northern Arizona University, Flagstaff, AZ 86001

Doris Duke Conservation Fellows Retreat

September 2009, National Conservation Training Center, Shepherdstown, WV 25443

SERVICE

Youth group leader, The Vine Baptist Church, Seattle, WA. August 2013 – October 2016.

Mesilla Park Community Church outreach activities, Las Cruces, NM. October 2010 – March 2012.

Judge for the DeMiguel Elementary School Science Fair, Flagstaff, AZ. March 2009 and 2010.

MEMBERSHIPS

Ecological Society of America, 2010-2016.

Society of Environmental Communicators, 2005-2007.