

Geoffrey L. Zahn, Ph.D.

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PROFESSIONAL STATUS

Current Postdoctoral Research Associate
University of Hawaii at Manoa – Botany Department
Lab of: Dr. Anthony Amend

EDUCATION

2015 PhD in Biology – Microbial and Molecular Ecology
University of Arkansas, Fayetteville, AR, USA
Dissertation: "The Functional and Distributional Ecology of Mycetozoans under Changing Edaphic and Climatic Dynamics"
Advisor: Dr. Frederick W. Spiegel

2010 Bachelor of Science in Biology – Ecology, Evolution and Systematics
Missouri State University, Springfield, MO, USA

RESEARCH INTERESTS:

Plant-Microbe interactions
Microbial community responses/feedbacks to climate change
The ecology and ecosystem services of protists and fungi
Factors that shape microbial community formation and function
Linking local microbial and molecular dynamics to global biogeochemical cycles

SKILLS

Software: MS Office Suite, Adobe Photoshop, R, Minitab, SPSS, EcoSim, PC-Ord, Phylip, BioEdit, MEGAN, mothur, MG-RAST, ARB, IMG/M (cert. user), JMP, QIIME (cert. user), Basic Perl/Python, Phylip, Galaxy, SigmaPlot, Shell scripting, Git

Techniques: Soil nucleic acid extraction, NG library prep and sequencing, RT-PCR, Fluorescent microscopy, Microbial culture curation, Primer design, Soil microcosms, Cryopreservation, Bioinformatics, IR gas analyses, Stable isotope analyses, Greenhouse management, Field work (Ozarks, Alaska, Costa Rica, Hawaii, Sweden, Japan)

PUBLICATIONS

Geoffrey Zahn, Rota Wagai, Seiichiro Yonemura. 2016. The effects of amoebal bacterivory on carbon and nitrogen dynamics depend on temperature and soil structure interactions. *Soil Biology and Biochemistry*, 94: 133-137. DOI: 10.1016/j.soilbio.2015.11.021

Geoffrey Zahn, Steven L. Stephenson, Frederick W. Spiegel. 2014. Ecological distribution of protosteloid amoebae in New Zealand. *PeerJ* 2:e296; DOI 10.7717/peerj.296

Miriam De Haan, Christine Cocquyt, Alex Tice, **Geoffrey Zahn**, Frederick W. Spiegel. 2014. First records of Protosteloid Amoebae (Eumycetozoa) from the Democratic Republic of the Congo. *Plant Ecology and Evolution*, 147:1, 85-92

Erin R. Murphy, Jacob Boxberger, Robert Colvin, Suk Je Lee, **Geoffrey Zahn**, Fred Loor, Kyoungtae Kim. 2011. Pil1, an eisosome organizer, plays an important role in the recruitment of synaptojanins and amphiphysins to facilitate receptor-mediated endocytosis in yeast. *European Journal of Cell Biology*, 90:10, 825-833

Geoffrey Zahn, Sandeep Sharma, Burt Bluhm. High-throughput sequencing reveals temperature- and predator-mediated microbial community shifts correspond to observed carbon and nitrogen dynamics in a forest soil. In review, August 2016.

Geoffrey Zahn, John Shadwick, Fred Spiegel. Protosteloid amoebae as a flagship group for investigating the global distribution of naked amoebae. In review, August 2016.

Geoffrey Zahn, Anthony Amend. Fungal endophytes restore powdery mildew disease resistance in an

endemic Hawaiian plant (Lamiaceae). In preparation, August 2016.

Geoffrey Zahn, Anthony Amend, Patrick Sheridan, Erin Datlof, Nicole Hynson. A decade of air samples from Mauna Loa Observatory reveal widespread global dispersal patterns in major fungal lineages are correlated with climatic events. In preparation, August 2016.

PRESENTATIONS

Invited Seminars:

- 2015** *"Effects of belowground trophic complexity on carbon cycling under changing climatic and edaphic conditions"*
Joint Genome Institute, Walnut Creek, CA, USA
- 2015** *"The functional and distributional ecology of mycetozoans under changing edaphic and climatic dynamics"*
Climate Impact Research Center, Abisko, Sweden
- 2014** *"Public science literacy and targeted environmental initiatives"* NWA Environmental Programs Symposium
- 2014** *"The functional and distributional ecology of slime molds in a changing climate"* NIAES, Tsukuba, Japan
- 2013** *"The Ecology of Soil Mycetozoa"* Japan Agency for Marine-Earth Science and Technology, Yokosuka, Japan
- 2012** *"The Mycetozoans"* Organization for Tropical Studies, Las Cruces, Costa Rica

Posters and Talks:

- 2014** *"Amoebae in warming soils: interactive effects of the microbial food web and environmental factors on nutrient cycling in a changing climate"* A2C Research Symposium, Fayetteville, AR, USA
- 2014** *"The interactive effects of protozoan predation pressure and environmental factors on carbon and nitrogen cycling in soils under warming conditions"* International Society for Microbial Ecology; Seoul, South Korea
- 2014** *"Application of high-throughput sequencing may explain carbon dynamics under predation and warming gradients via soil community shifts"* JSPS Multidisciplinary Science Forum 4; Washington, D.C., USA
- 2014** *"Using metagenomics and metatranscriptomics to uncover mechanisms of soil communities' effects on carbon cycling under warming conditions"* DOE Joint Genome Institute – Microbial Genomics and Metagenomics Workshop; Walnut Creek, CA, USA
- 2013** *"The Role of Soil Amoebae in Nutrient Cycling on a Warming Planet"* Graduate University for Advanced Studies; Sokendai, Japan
- 2011** *"The Protosteloid Amoebae of New Zealand"* Mycological Society of America; Fairbanks, AK, USA
- 2010** *"Pil1's Role on Regulating Membrane PIP2 Level"* INBRE Conference; Fayetteville, AR, USA
- 2010** *"The Effects of Prescribed Fire on Overwintering Fungal Abundance and Diversity: A Baseline Study"* CNAS Undergraduate Research Symposium; Springfield, MO, USA
- 2009** *"Endocytic Roles of Pil1, the Main Organizer of Eisosomes"* Arkansas INBRE Research Conference; Fayetteville, AR, USA

AWARDS AND FUNDING

- 2016** Mycological Society of America Translational Mycology Award
- 2014** Japan Society for the Promotion of Science (JSPS) Alumnus Travel Award
- 2014** Dept. of Energy Joint Genome Institute IMG Workshop Travel Award
- 2013** JSPS Summer Research Fellowship (JSPS-SP01363)
- 2013** NSF EAPSI Grant (OISE-1308856)
- 2013** Clean Air – Cool Planet Climate Fellowship
- 2011** Mycological Society of America Travel Award
- 2011** NSF GK-12 Fellowship

PROFESSIONAL DEVELOPMENT

2015 -- 2016	Endangered species conservation – Collaboration with US Army Environmental Division and the 'Oahu Natural Resources Program, Hawaii
2014 – 2015	Course Development – Online Biology Lab University of Arkansas
2013 May – Aug.	International Research – Soil Physiology and Ecology National Institute for Agro-Environmental Sciences, Tsukuba, Japan
2013 – 2016	IUCN Species Survival Commission – Myxomycete group
2012 Jul. – Aug.	Field Research – Tropical Lichen Ecology Organization for Tropical Studies, Costa Rica
2011 – 2012 Jun. – May	National Science Foundation GK12 Teaching Fellow University of Arkansas; Owl Creek Middle School, Fayetteville, AR
2010 Jan. – Dec.	Undergraduate Research Assistant – Forest Fire Ecology Missouri State University Dept. of Biology
2009 Jan. – Dec.	Undergraduate Research Assistant – Yeast Genetics Missouri State University Dept. of Biology

TEACHING AND MENTORING EXPERIENCE

Principles of Biology (Honors Undergraduate)
Comparative Botany (Graduate level)
Mycology (Graduate level)
Experimental Design (Undergraduate)
6th Grade Science and Math (NSF GK-12 Teaching Fellow)
Undergraduate student mentor (6 students)
Graduate Student Mentor (4 Masters, 3 PhD)

SYNERGISTIC ACTIVITIES

2016	Research spotlight at 2016 IUCN Congress
2016	Hawaii GENE-ious K-12 Curriculum Development
2014	Ten Thousand Microscopes Beta Tester – K-12 Content Generator
2011 – 2015	Judge – NWA Regional Science Fair
2008 – 2009	James River Basin Partnership Science Committee, Springfield, MO
2007	Research Technician Missouri State University Greenhouse
2006	Volunteer Ecologist Reserva Bosque Nuboso Santa Elena, Costa Rica

ACADEMIC AND OTHER SOCIETIES (Active participant)

International Society for Microbial Ecology
Mycological Society of America
International Society for Fungal Conservation
Japan Society for the Promotion of Science Alumni Association
Young Permafrost Researchers Network
International Union for Conservation of Nature (IUCN) – Species Survival Group (Myxomycetes)

LANGUAGES AND PROFICIENCY

English	Native Fluency
Spanish	Working Proficiency
German	Elementary Proficiency
Japanese	Elementary Beginner

RECENT COLLABORATORS

Burton H. Bluhm
University of Arkansas – Plant Pathology

Anthony Amend
University of Hawaii – Botany

Nicole Hynson
University of Hawaii – Botany

Frederick W. Spiegel
University of Arkansas – Biology

Rota Wagai
NIAES Japan – Carbon and Nutrient Cycling Division

Seiichiro Yonemura
NIAES Japan – Division of Agro-Meteorology

Robert Lücking
Botanic Garden and Botanical Museum Berlin-Dahlem

Joel A. Mercado-Diaz
University of Chicago – Committee on Evolutionary Biology

Patrick Sheridan
National Oceanic and Atmospheric Administration (NOAA) – Aerosol Research Group