

# Geoffrey L. Zahn, Ph.D.

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## PROFESSIONAL STATUS

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

## EDUCATION

**2015** PhD in Biology – Microbial and Molecular Ecology  
University of Arkansas, Fayetteville, AR, USA

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

## RESEARCH INTERESTS:

Factors that shape microbial community formation and function  
Microbial community responses to climate change  
The ecology and ecosystem services of protists and fungi  
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 4, 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, Comparative metagenomic analyses, IR gas analyses, Stable isotope analyses, Greenhouse management, Field work

## PUBLICATIONS

**Geoffrey Zahn**, Seiichiro Yonemura, Rota Wagai. The effects of amoeboid predators on carbon and nitrogen dynamics depend on temperature and soil structure interactions. *Soil Biology and Biochemistry*. In review, Jan 2015.

**Geoffrey Zahn**, John Shadwick, Fred Spiegel. Protosteloid amoebae as a flagship group for investigating the global distribution of naked amoebae. *Journal of Eukaryotic Microbiology*. In review, August 2015.

**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. (In preparation). Comparative metagenomics reveals temperature- and predator-mediated microbial community shifts correspond to observed carbon and nitrogen dynamics in a forest soil. In prep: *The ISME Journal*

## 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

- 2014**                    Japan Society for the Promotion of Science (JSPS) Alumnus Travel Award
- 2014**                    Dept. of Energy Joint Genome Institute IMG Workshop Registration
- 2013**                    JSPS Summer Research Fellowship
- 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 EXPERIENCE

- 2015**                    Endangered snail and plant conservation – Collaboration with US Army Environmental Division, Hawaii
- 2014 – 2015**           Course Development – Online Biology Lab  
University of Arkansas

**2013** International Research – Soil Physiology and Ecology  
May – Aug. National Institute for Agro-Environmental Sciences, Tsukuba, Japan

**2013 – 2016** IUCN Species Survival Commission – Myxomycete group

**2012** Field Research – Tropical Lichen Ecology  
Jul. – Aug. Organization for Tropical Studies, Costa Rica

**2011 – 2012** National Science Foundation GK12 Teaching Fellow  
Jun. – May University of Arkansas; Owl Creek Middle School, Fayetteville, AR

**2010** Undergraduate Research Assistant – Forest Fire Ecology  
Jan. – Dec. Missouri State University Dept. of Biology

**2009** Undergraduate Research Assistant – Molecular Genetics  
Jan. – Dec. Missouri State University Dept. of Biology

### TEACHING EXPERIENCE

Principles of Biology (Honors Undergraduate)  
Comparative Botany (Graduate level)  
Mycology (Graduate level)  
6<sup>th</sup> Grade Science (NSF GK-12 Teaching Fellow)

### COURSEWORK

-Mycology	-Applied Molecular Genetics
-Myxomycetes	-Microbial Ecology
-Eukaryotic Phylogenetics	-Advanced Light Microscopy
-Biostatistics	-Global Biogeochemistry
-Advanced Experimental Design	-Tropical Lichens and Forest Health (OTS)
-Forest Ecology	

### SYNERGISTIC ACTIVITIES

**2011 – 2015** Judge – NWA Regional Science Fair

**2008 – 2009** James River Basin Partnership Science Committee, Springfield, MO

**2007** Research Technician  
Missouri State University Greenhouse – Managed the horticulture laboratory greenhouse

**2006** Volunteer Ecologist  
Reserva Bosque Nuboso Santa Elena, Costa Rica – Cloud forest avian distribution / Spanish-English translation

### ACADEMIC 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

### LANGUAGES AND PROFICIENCY

English	Native Fluency
German	Elementary Proficiency
Spanish	Working 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