

# Geoffrey L. Zahn, Ph.D.

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<http://geoffreyzahn.com>

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## PROFESSIONAL STATUS

**Current** Postdoctoral Research Associate  
University of Hawaii at Manoa – Department of Botany  
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

## 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

In review **Geoffrey Zahn**, Sandeep Sharma, Burt Bluhm. Top-down control of soil bacterial communities by amoebal predation is influenced by warming. 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, July 2016.

In preparation (manuscript drafts available on request) **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:

- 2016**                    "Fungal endophytes and pathogens in endangered hawaiian endemics: Plant conservation from a microbial perspective" Mycological Society of America, Berkeley, CA, USA
- 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 (\$2,500)  
"Plant conservation from a microbial perspective"
- 2014**                    Japan Society for the Promotion of Science (JSPS) Alumnus Travel Award (\$750)
- 2014**                    Dept. of Energy Joint Genome Institute IMG Workshop Travel Award (\$425)
- 2013**                    JSPS Summer Research Fellowship (JSPS-SP01363) (\$12,500)  
Co-P.I. - "The Importance of Microbial Interactions to Soil Carbon Cycling on a Warming Planet"
- 2013**                    NSF EAPSI Grant (OISE-1308856) (\$5,070)  
P.I. - "The Importance of Microbial Interactions to Soil Carbon Cycling on a Warming Planet"
- 2013**                    *Clean Air – Cool Planet* Climate Fellowship (\$5,000)
- 2011**                    Mycological Society of America Travel Award (\$350)

**2011** NSF GK-12 Fellowship (\$30,500)  
"Inquiry and Innovative Thinking by Design"

## **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** 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 GK-12 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 – Yeast Genetics  
Jan. – Dec. Missouri State University Dept. of Biology

## **MENTORING AND TEACHING EXPERIENCE**

Mentorship Undergraduate student mentor (6 students)  
Graduate Student Mentor (4 Masters, 3 PhD)

Courses Online Biology Lab (Non-majors) - Developed Course / Instructor of Record  
Principles of Biology (Honors Undergraduate) - Teaching Assistant  
Comparative Botany (Graduate level) - Teaching Assistant  
Mycology (Graduate level) - Teaching Assistant  
Experimental Design (Undergraduate) - Instructor  
6<sup>th</sup> Grade Science and Math (NSF GK-12 Teaching Fellow)

## **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  
International Union for Conservation of Nature (IUCN) – Species Survival Group (Myxomycetes)

## **SYNERGISTIC ACTIVITIES**

**2016** Research spotlight at 2016 IUCN Congress - "Using fungi to save endangered plants"

**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