Botany Department

*Curriculum vitae of*

**Geoffrey L. Zahn, Ph.D.**

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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

**SKILLS**

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

Techniques: Soil nucleic acid extraction, NG library prep and sequencing, RT-PCR, Fluorescent microscopy, Microbial culture curation, Primer design, Soil/Plant 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, SeiichiroYonemura. 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 **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 not correlated with climatic events. In preparation, August 2016.

Benjamin J. Wainwright, **Geoffrey Zahn**, Heather S. Spadling, Alison R. Sherwood, Celia M. Smith, Anthony S. Amend. First report of algal host and fungal interactions from Hawaiian Mesophotic Coral Ecosystems. In preparation, Decenber 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

**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** 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

Principles of Biology Lab (Honors Undergraduate) - Teaching Assistant

Online Biology (Non-majors) - Instructor

Comparative Botany (Graduate level) - Teaching Assistant

Mycology (Graduate level) - Teaching Assistant

Experimental Design (Undergraduate) - Instructor

6th 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

**LANGUAGES AND PROFICIENCY**

English Native Fluency

Spanish Working Proficiency

German Elementary Proficiency

Japanese Elementary Beginner