

# 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.

Benjamin Wainwright, **Geoffrey Zahn**, Heather Spalding, Alison Sherwood, Celia Smith, Anthony Amend. Fungal associations with mesophotic macroalgae from the 'Au'au Channel, west Maui. In review, January 2017.

**Geoffrey Zahn**, Anthony Amend. Total foliar microbiome transplants confer disease resistance and survival to a critically-endangered Hawaiian endemic. In review, January, 2017.

In preparation  
(manuscript  
drafts available  
on request)

**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, January 2016.

## TECHNICAL REPORTS

Geoffrey Zahn, Anthony Amend. 2017. Role of fungal endophytes and epiphytes in endangered species conservation. O'ahu Army Natural Resources Program Year-End Report ([PDF LINK](#))

Geoffrey Zahn, Anthony Amend. 2016. Molecular assessment of wild *Achatinella mustelina* diet. O'ahu Army Natural Resources Program Year-End Report ([PDF LINK](#))

Geoffrey Zahn, Anthony Amend. 2015. Molecular assessment of wild *Achatinella mustelina* diet. O'ahu Army Natural Resources Program Year-End Report ([PDF LINK](#))

## CODE CONTRIBUTIONS AND TUTORIALS

<https://github.com/gzahn/tools>

<http://geoffreyzahn.com/blog-archive>

## 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"
2015	Oahu Army Natural Resources Program Rare Plant Management (\$40,500) Co-Investigator and Writer - "Restoration of critically endangered Hawaiian native plants by understanding and manipulating foliar microbial symbionts"
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	<i>Clean Air – Cool Planet</i> 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 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 GK-12 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

## MENTORING AND TEACHING EXPERIENCE

Mentorship	Undergraduate student mentor (7 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**

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