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#### **RESEARCH INTERESTS**

I am interested in research addressing the molecular systematics of the Kingdom Fungi, specifically the basal fungal lineages (Phyla Chytridiomycota and Cryptomycota), but also including various insect-associated (Phyla Ascomycota and Basidiomycota) and entomopathogenic (Phylum Ascomycota) fungi. I isolate pure cultures of fungi, from which I amplify molecular sequence data and observe developmental morphology by light microscopy, along with comparisons of ultrastructural features by transmission electron microscopy for selected taxa. With these data, I have correlated morphological characters to molecular phylogenies. I have revised the taxonomy of fungal organisms to reflect a more natural phylogenetic history than classical taxonomic systems, which relied on morphology of thalli on natural substrates as detected by light microscopy. By these methods, I have additionally described new taxa with modern phylogenetic tools to promote universal taxon concepts.

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#### **EDUCATION**

**Ph.D. in Biological Sciences earned May 2012, GPA 3.89**  
University of Maine, Orono, ME, USA

**M.S. in Botany and Plant Pathology earned May 2007, GPA 3.85**  
University of Maine, Orono, ME, USA

**B.S. in Biological Sciences earned May 2004, GPA 3.63**  
University of Virginia's College at Wise, Wise, VA, USA

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#### **PROFESSIONAL EXPERIENCE**

**Postdoctoral Fellow**, Jan 2017 – Present  
Ecology and Evolutionary Biology, College of Literature, Science, and the Arts,  
University of Michigan, Ann Arbor, MI, USA  
Supervisor: Dr. Timothy Y. James  
Systematics of the Chytridiomycota and Cryptomycota, and  
curation and cryopreservation of the JEL Chytridiomycota fungal  
culture collection

**Postdoctoral Research Associate**, Aug 2016 – Nov 2016  
School of Biology & Ecology, University of Maine, Orono, ME, USA  
Supervisors: Drs. Frank Drummond, Eleanor Groden, Joyce E. Longcore  
Assessment of microsatellite markers in *Beauveria bassiana* and  
*Vaccinium angustifolium*, and molecular systematics of the  
Cladochytriales (Chytridiomycetes)

- Postdoctoral Research Associate**, Oct 2014 – Aug 2016  
 School of Forest Resources and Conservation, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL, USA  
 Supervisor: Dr. Jiri Hulcr  
 Novel interaction of a basidiomycetous mycosymbiont with wood boring ambrosia beetles, description of a new species in Polyporales, and systematics of Ophiostomatales fungi associated with wood boring beetles
- Postdoctoral Fellow & Program Director**, Sep 2013 – Oct 2014  
 School of Biology & Ecology, University of Maine, Orono, ME, USA  
 Co-mentors: Dr. Eleanor Groden (University of Maine)  
 Dr. Richard A. Humber (USDA-ARS Collection of Entomopathogenic Fungal Cultures)  
 Systematics of *Hirsutella*, a fungal genus of potential insect biocontrol agents, and teaching a systematic approach to identify plant pests
- Postdoctoral Research Associate**, May 2012 – Aug 2013  
 School of Biology & Ecology, University of Maine, Orono, ME, USA  
 Supervisor: Dr. Eleanor Groden  
 Description of a novel *Ophiocordyceps* species (Ophiocordycipitaceae; Hypocreales) infecting invasive *Myrmica rubra* in Maine
- Ph.D. Student**, May 2007 – May 2012  
 School of Biology & Ecology, University of Maine, Orono, ME, USA  
 Advisor: Dr. Joyce E. Longcore  
 Systematics of the Powellomycetaceae fam. nov. and the detection of spizellomycetalean chytrids from manure and soil substrates
- M.S. Student**, Jan 2005 – May 2007  
 School of Biology & Ecology, University of Maine, Orono, ME, USA  
 Advisor: Dr. Joyce E. Longcore  
 Systematics of the Lobulomycetales, a new order within the Chytridiomycota
- Research Assistant**, May 2004 – Dec 2004  
 Department of Natural Sciences, University of Virginia's College at Wise, Wise, VA, USA  
 Advisor: Dr. Kevin G. Jones, Ret.  
 Myxomyceticolous fungi in the Appalachian Mountains of southwest Virginia

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## AWARDS AND GRANTS

- 2013 USDA Agriculture and Food Research Initiative: National Institute of Food and Agriculture Postdoctoral Fellowship Grant No. 2013-67012-21115 (**\$128,321**)
- 2012 University of Maine Fay Hyland-Hilborn Prize in Plant Biology for Ph.D. dissertation (**\$500**)
- 2011 University of Maine School of Biology & Ecology Graduate Student Travel Award (**\$250**)
- 2008 Mycological Society of America Mentor Student Travel Award (**\$500**)
- 2007 University of Maine Fay Hyland-Hilborn Prize in Plant Biology for M.S. thesis (**\$500**)
- 2004 University of Virginia's College at Wise Fellowship in the Natural Sciences Research Grant (**\$2000**)

**PEER REVIEWED PUBLICATIONS (CITATIONS: 405)**

- 19) Letcher PM, Longcore JE, James TY, Leite DS, **Simmons DR**, Powell MJ. 2018. Morphology, ultrastructure, and molecular phylogeny of *Rozella multimorpha*, a new species in Cryptomycota. *Journal of Eukaryotic Microbiology* 65: 180–190. <http://dx.doi.org/10.1111/jeu.12452>
- 18) Li Y, Bateman CC, Skelton J, Jusino MA, Nolen ZJ, **Simmons DR**, Hulcr J. 2017. Wood decay fungus *Flavodon ambrosius* (Basidiomycota: Polyporales) is widely farmed by two genera of ambrosia beetles. *Fungal Biology* 121: 984–989. <http://dx.doi.org/10.1016/j.funbio.2017.08.004>
- 17) Bateman C, Huang Y-T, **Simmons DR**, Kasson MT, Stanley EL, Hulcr J. 2017. Ambrosia beetle *Premnobius cavipennis* (Scolytinae: Ipini) carries highly divergent ascomycotan ambrosia fungus, *Afroraffaelea ambrosiae* gen. et sp. nov. (Ophiostomatales: Ophiostomataceae). *Fungal Ecology* 25: 41–49. <http://dx.doi.org/10.1016/j.funeco.2016.10.008>
- 16) **Simmons DR**, De Beer ZW, Huang Y-T, Bateman C, Campbell AS, Dreaden TJ, Li Y, Ploetz RC, Black AW, Li H-F, Chen C-Y, Wingfield MJ, Hulcr J. 2016. New *Raffaelea* species (Ophiostomatales) from the USA and Taiwan associated with ambrosia beetles and plant hosts. *IMA Fungus* 7: 265–273. <http://dx.doi.org/10.5598/imafungus.2016.07.02.06>
- 15) **Simmons DR**, Li Y, Bateman CC, Hulcr J. 2016. *Flavodon ambrosius* sp. nov., a basidiomycetous mycosymbiont of *Ambrosiodmus* ambrosia beetles. *Mycotaxon* 131: 277–285. <http://dx.doi.org/10.5248/131.277> (**Selected for issue cover figure**)
- 14) Kasson MT, Wickert KL, Stauder CM, Macias AM, Berger MC, **Simmons DR**, Short DPG, DeVallance DB, Hulcr J. 2016. Mutualism with aggressive wood-degrading *Flavodon ambrosius* (Polyporales) facilitates niche expansion and communal social structure in *Ambrosiophilus* ambrosia beetles. *Fungal Ecology* 23: 86–96. <http://dx.doi.org/10.1016/j.funeco.2016.07.002>
- 13) Longcore JE, **Simmons DR**, Letcher PM. 2016. *Synchytrium microbalum* sp. nov. is a saprobic species in a lineage of parasites. *Fungal Biology* 120: 1156–1164. <http://dx.doi.org/10.1016/j.funbio.2016.06.010>
- 12) **Simmons DR**, Kepler RM, Rehner SA, Groden E. 2015. Phylogeny of *Hirsutella* species (Ophiocordycipitaceae) from the United States: remedying the paucity of *Hirsutella* sequence data. *IMA Fungus* 6: 345–356. <http://dx.doi.org/10.5598/imafungus.2015.06.02.06>
- 11) Li Y, **Simmons DR**, Bateman CC, Short DPG, Kasson MT, Rabaglia R, Hulcr J. 2015. New fungus-insect symbiosis: culturing, molecular, and histological methods determine saprophytic Polyporales mutualists of *Ambrosiodmus* ambrosia beetles. *PLoS ONE* 10: e0137689. <http://dx.doi.org/10.1371/journal.pone.0137689>
- 10) **Simmons DR**, Lund J, Levitsky T, Groden E. 2015. *Ophiocordyceps myrmicarum*, a new species infecting invasive *Myrmica rubra* in Maine. *Journal of Invertebrate Pathology* 125: 23–30. <http://dx.doi.org/10.1016/j.jip.2014.12.010>
- 9) Hajek AE, Longcore JE, **Simmons DR**, Peters K, Humber RA. 2013. Chytrid mycoparasitism of entomophthoralean azygospores. *Journal of Invertebrate Pathology* 114: 333–336. <http://dx.doi.org/10.1016/j.jip.2013.10.002>
- 8) **Simmons DR**, Longcore JE. 2012. *Thoreauomyces* gen. nov., *Fimicolochytrium* gen. nov. and additional species in *Geranomycetes*. *Mycologia* 104: 1229–1243. <http://dx.doi.org/10.3852/12-015>
- 7) Longcore JE, **Simmons DR**. 2012. The Polychytriales ord. nov. contains chitinophilic members of the rhizophlyctoid alliance. *Mycologia* 104: 276–294. <http://dx.doi.org/10.3852/11-193>

- 6) **Simmons DR**, Letcher PM, Powell MJ, Longcore JE. 2012. *Alogomyces tanneri* gen. et sp. nov., a chytrid in Lobulomycetales from horse manure. *Mycologia* 104: 157–163. <http://dx.doi.org/10.3852/11-043>
- 5) Steiger RA, **Simmons DR**, Longcore JE. 2011. *Cylindrochytridium johnstonii* is a member of the Cladochytriales. *Mycotaxon* 118: 293–302. <http://dx.doi.org/10.5248/118.293>
- 4) **Simmons DR**. 2011. Phylogeny of Powellomycetaceae fam. nov. and description of *Geranomyces variabilis* gen. et comb. nov. *Mycologia* 103: 1411–1420. <http://dx.doi.org/10.3852/11-039>
- 3) Freeman KR, Martin AP, Karki D, Lynch RC, Mitter MS, Meyer AF, Longcore JE, **Simmons DR**, Schmidt SK. 2009. Evidence that chytrids dominate fungal communities in high-elevation soils. *Proceedings of the National Academy of Sciences* 106: 18315–18320. <http://dx.doi.org/10.1073/pnas.0907303106>
- 2) Mozley-Standridge SE, Letcher PM, Longcore JE, Porter D, **Simmons DR**. 2009. Cladochytriales — a new order in Chytridiomycota. *Mycological Research* 113: 498–507. <http://dx.doi.org/10.1016/j.mycres.2008.12.004>
- 1) **Simmons DR**, James TY, Meyer AF, Longcore JE. 2009. Lobulomycetales, a new order in the Chytridiomycota. *Mycological Research* 113: 450–460. <http://dx.doi.org/10.1016/j.mycres.2008.11.019>

#### INVITED BOOK CHAPTERS

- 2) Longcore JE, **Simmons DR**. 2012. Blastocladiomycota (8 pp.). In: *Encyclopedia of Life Sciences*. John Wiley & Sons, Ltd: Chichester. [www.els.net. http://dx.doi.org/10.1002/9780470015902.a0000349.pub3](http://dx.doi.org/10.1002/9780470015902.a0000349.pub3)
- 1) Longcore JE, **Simmons DR**. 2012. Chytridiomycota (11 pp.). In: *Encyclopedia of Life Sciences*. John Wiley & Sons, Ltd: Chichester. [www.els.net. http://dx.doi.org/10.1002/9780470015902.a0023623](http://dx.doi.org/10.1002/9780470015902.a0023623)

#### INVITED TALKS

- 2015 Journey through the Kingdom: chytrids, insect pathogens, and a novel beetle symbiont. **Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria, Pretoria, Gauteng, South Africa.** Sep 2015
- 2015 Chytrids, amphibian chytridiomycosis, & a novel ant pathogen in *Ophiocordyceps*. **National Chung Hsing University, Dept. of Plant Pathology, Taichung City, Taiwan.** Mar 2015
- 2009 Chytridiomycota: thallus development. *In symposium: Teaching with basal fungal lineages.* **2009 Mycological Society of America Annual Meeting**, Snowbird, Utah, USA.

#### PAPERS AND PRESENTATIONS

- 2016 Increasing diversity of ambrosia beetle mycosymbionts emphasizes dynamic field of plant-animal-fungus symbioses. **2016 Mycological Society of America Annual Meeting**, Berkeley, California, USA. Simmons DR, De Beer ZW, Huang Y-T, Bateman C, Storer CG, Dreaden TJ, Li Y, Ploetz RC, Kasson MT, Hulcr J; contributed talk.
- 2016 New *Raffaelea* species (Ophiostomatales) from the United States and Taiwan associated with ambrosia beetles and plant hosts. **2016 Mycological Society of America Annual Meeting**, Berkeley, California, USA. Simmons DR, De Beer ZW, Huang Y-T, Bateman C, Campbell AS, Dreaden TJ, Li Y, Ploetz RC, Wingfield MJ, Hulcr J; poster presentation.

- 2015 New fungus-insect symbiosis: molecular and histological methods determine hyphal Polyporales symbionts of *Ambrosiodmus* ambrosia beetles. **2015 Mycological Society of America Annual Meeting**, Edmonton, Alberta, Canada. Simmons DR, Li Y, Bateman CC, Short DPG, Kasson MT, Hulcr J; contributed talk.
- 2014 *Hirsutella* species are polyphyletic in Ophiocordycipitaceae. **2014 Mycological Society of America Annual Meeting**, East Lansing, Michigan, USA. Simmons DR, Groden E; poster presentation.
- 2012 *Hirsutella myrmicarum* nom. prov. (Ophiocordycipitaceae; Hypocreales), a new species infecting invasive *Myrmica rubra* in Maine. **2012 MassMyco Meeting**, Worcester, Massachusetts, USA. Simmons DR, Lund J, Levitsky T, Groden E; poster presentation.
- 2011 Phylogeny of Powellomycetaceae fam. nov. in Spizellomycetales. **2011 Mycological Society of America Annual Meeting**, Fairbanks, Alaska, USA. Simmons DR, Longcore JE; contributed talk.
- 2010 Molecular and ultrastructural evidence from additional isolates support elevation of the *Polychytrium* clade (Chytridiomycetes) to ordinal status. **2010 Mycological Society of America Annual Meeting**, Lexington, Kentucky, USA. Simmons DR, James TY, Longcore JE; poster presentation.
- 2008 Diversity within the genus *Powellomyces* (Spizellomycetales, Chytridiomycota). **2008 Mycological Society of America Annual Meeting**, State College, Pennsylvania, USA. Simmons DR, Chambers JG, Churchill PF, Wakefield WS; poster presentation.
- 2006 Genetic and zoospore ultrastructural data support a new chytrid genus. **2006 Mycological Society of America Annual Meeting**, Quebec City, Quebec, Canada. Simmons DR, Longcore JE, James TY; poster presentation.

## TEACHING EXPERIENCE

- Guest Instructor** – Biology of the Fungi, Fall 2017  
University of Michigan, Ann Arbor, MI, USA  
Instructor: Dr. Timothy Y. James
- Guest Instructor** – Fungal Biology, Fall 2014, 2015  
University of Florida, Gainesville, FL, USA  
Instructor: Dr. Matthew E. Smith
- Guest Instructor** – Biology of the Fungi, Fall 2009, 2011, 2013  
University of Maine, Orono, ME, USA  
Instructor: Dr. Seanna L. Annis
- Course Coordinator and Laboratory Instructor** – Basic Biology Summer Course and Laboratory, Summer 2013  
University of Maine, Orono, ME, USA
- Co-Instructor** – Evolution, Spring 2013  
University of Maine, Orono, ME, USA
- Teaching Assistant** – Basic Biology Laboratory, Fall 2011, Spring & Fall 2012  
University of Maine, Orono, ME, USA  
Supervisor: Kevin Tracewski
- Teaching Assistant** – Physiology of Plants and Animals Laboratory, Spring 2007  
University of Maine, Orono, ME, USA  
Supervisor: Kevin Tracewski

## STUDENT MENTORING

- 2014 **Mattie Viola Paradise (University of Maine, BS with Honors)** – effects of flooding on the microbial communities of sparrow eggs in a temperate Maine salt marsh.

**WORKSHOPS AND TRAINING SESSIONS ATTENDED**

- 2015 Phylogeny and biology of Ophiostomatales fungi (Ascomycota; Sordariomycetes)  
**Forestry and Agricultural Biotechnological Institute (FABI), University of Pretoria,**  
Pretoria, Gauteng, South Africa. Sep 18 – Oct 22  
Instructor: Dr. Z. Wilhelm de Beer
- 2008 Advanced mycology: freshwater and marine ascomycetes  
**Humboldt Field Research Institute,** Eagle Hill, Steuben, ME, USA. Sep 28 – Oct 4  
Instructors visiting from **University of Illinois at Urbana-Champaign:**  
Drs. Carol Shearer and Huzefa Raja
- 2005 Polymerase chain reaction and molecular analyses instruction for chytrid fungi  
**Duke University,** Raleigh, NC, USA. June – July  
Instructor: Dr. Timothy Y. James
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**PROFESSIONAL AFFILIATION**

Mycological Society of America

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**ACADEMIC SERVICE**

**Ad hoc reviewer – National Science Foundation**

**External examiner**

**Forestry and Agricultural Biotechnological Institute (FABI), University of Pretoria,** Pretoria, Gauteng, South Africa.

**Reviewer for 9 journals (Total reviews: 16)**

*BMC Evolutionary Biology* (2), *Diseases of Aquatic Organisms* (1), *Florida Entomologist* (1), *Fungal Biology* (1), *Fungal Ecology* (1), *Insectes Sociaux* (1), *Journal of Eukaryotic Microbiology* (1), *Mycologia* (5), *Nova Hedwigia* (3)