

Curriculum Vitae

**Megan Saunders**

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**CURRENT POSITION**

**Postdoctoral fellow**, University of California Santa Cruz (2009-present),  
with GS Gilbert and IM Parker (advisors)

**EDUCATION**

**Ph.D.** Department of Ecology and Evolutionary Biology, University of Toronto (2003-2009)  
“Biotic filters in fungal endophyte community assembly”, with LM Kohn (advisor)

**B.Sc.** Ecology, The Evergreen State College, USA. (1997-2001)  
Specialization: Vascular Plant Ecology

**PUBLICATIONS**

**2009** **Saunders M** and LM Kohn. Evidence for alteration of fungal endophyte community assembly by host defense compounds. *New Phytologist*. 182: 229-238.

**2008** **Saunders M** and LM Kohn. Host-synthesized secondary compounds influence the in vitro interactions between fungal endophytes of maize. *Applied and Environmental Microbiology*. 74(1): 136-142.

**In review** **Saunders M**, Glenn AE and LM Kohn. Exploring the evolutionary ecology of fungal endophyte communities in agricultural systems: Using functional traits to reveal mechanisms in community processes. *Evolutionary Applications* (**Invited**).

**Saunders M**, Glenn AE and LM Kohn. Production of defense compounds by plant neighbors decreases fungal endophyte abundance and diversity in maize roots.

**Saunders M**, Glenn AE, Snook M, Mitchell T and LM Kohn. Host defense compounds and the seed endophyte, *Fusarium verticillioides*, as filters in fungal endophyte community assembly.

**In prep.** **Saunders M**, Abbas HK and LM Kohn. Influence of benzoxazinoid production on accumulation of *Fusarium* mycotoxins in maize.

**AWARDS**

**2009** National Science Foundation: Ecological Biology Cluster. Rare-species advantage: consequences of phylogenetic and numerical rarity of hosts for disease pressure and pathogen communities. GS Gilbert (Co-PI), IM Parker (Co-PI) and M Saunders (Postdoctoral researcher). DEB- 0842059. (\$583,349)

- 2009 Mycological Society of America Graduate Student Fellowship Award (\$1000)  
 2008 E.L. Rice Most Outstanding Student Paper Award, 5<sup>th</sup> International Allelopathy Congress, Saratoga Springs, NY  
 2008 Mycological Society of America Travel Grant (\$500)  
 2008 Fungal Environmental Sampling and Informatics Network Travel Grant (\$750)  
 2003 - 2008 Univ. of Toronto Fellowship (\$14,800/year)  
 2003 & 2007 Lillian Elfleda Darker “Excellence in Mycology” Award (\$500)  
 2003 - 2007 Travel Grant, Dept. of Ecology and Evolutionary Biology, Univ. of Toronto (\$400/year)  
 2003 National Science Foundation: Institute in Statistical Genetics at NC State Univ. (\$1200)  
 1996 Provost Freshman Scholarship, Univ. of Northern Colorado (\$3000)

### **RESEARCH EXPERIENCE**

**2001-2003, Curatorial Associate of Cryptogamic Herbarium**, Duke Univ., Biology, F Lutzoni and KM Pryer (Paid)

- NSF funded project- “Assembling the Fungal Tree of Life”. Skills: voucher, culture and information management: taxonomic identification of lichen specimens, molecular identification of specimens (DNA extraction, PCR, sequencing, phylogenetic analyses), establishment of teaching collection of herbarium specimens teaching collection for “Intro. to Plant Diversity”.

**2001-2002, Research Assistant**, Duke Univ., Biology, D Armaleo (Volunteer)

- Project Title: “What are the effects of elevated atmospheric CO<sub>2</sub> on lichen biochemistry, morphology and anatomy?”. Skills: quantitative biochemistry (thin layer chromatography, high pressure liquid chromatography, spectrophotometry, analysis of lichen micro-anatomy fluorescence microscopy, scanning electron microscopy, freezing microtome).

**2000 Vermont State Forest Service** (Volunteer)

- Survey and identification of calcareous lichens on Mt. Horrid, Goshen, VT, (Volunteer)

**2000 The Evergreen State College**, Botany, A Wiedemann (Volunteer)

- Characterization of community composition of vascular plants in five Washington State habitats

**1999 The Evergreen State College**, Botany, R Murphy (Volunteer)

- Evaluation of vascular plant succession in a Douglas fir dominated forest

### **GRADUATE COURSES AND TRAINING**

**International *Fusarium* Laboratory Workshop**, Forestry and Agricultural Biotechnology Institute, Univ. of Pretoria, South Africa, 2004, DM Geiser, JF Leslie, WFO Marasas, JP Rheeder, B Summerell, B Wingfield (short course)

**Advanced Methods of Applied Statistics**, Univ. of Toronto, 2005, J Brunner

**Evolutionary Ecology**, Univ. of Toronto, 2004, L Rowe, J Thaler, JD Thompson

**Advanced genetics**, Univ. of Toronto, 2004, JB Anderson (audited course)

**Conceptual and Practical Problems in Ecological/Evolutionary Research**, Univ. of Toronto, 2003, N Collins, H Rodd, D Jackson, K Mims

**Phylogenetic Analysis** Summer Institute in Statistical Genetics, North Carolina State Univ., 2003, J Thorn (short course)

**Population Genetic Data Analysis**, Summer Institute in Statistical Genetics, North Carolina State Univ., 2003, B Weir, K Holsinger, S Browning (short course)

**Probability and Statistical Inference**, Summer Institute in Statistical Genetics, North Carolina State Univ., 2003, DD Boos, JM Hughes-Oliver (short course)

**Biochemistry**, Duke Univ., 2002, R Webster (audited course)

**North American Lichen Taxonomy and Ecology**, Humboldt Field Research Institute, 2001, D Richardson (short course)

**Tropical Plant Systematics Field Course in Costa Rica**, Univ. of Vermont, 2001, D Barrington

**Plant Physiology**, Univ. of Vermont, 2001, TD Perkins

**Mineral Nutrition of Higher Plants**, Univ. of Vermont, 2001, G Olivetti

### **TEACHING EXPERIENCE**

**Ecology**, Teaching Assistant, Univ. of Toronto (2007)

**Mycology**, Guest Lecturer and Teaching Assistant, Univ. of Toronto (2005-06)

**Diversity of Organisms**, Teaching Assistant, Univ. of Toronto (2005-08)

**Introduction to Evolution and Evolutionary Genetics**, Teaching Assistant, Univ. of Toronto (2003-04)

### **EDUCATION OUTREACH AND PUBLIC SERVICE (*All positions served on a volunteer basis*)**

**Program developer and Teacher- Lets Talk Science**, Ontario (2005-2007)

Focused on outreach to under-funded high schools. Developed a curriculum entitled “DNA fingerprinting in forensic science” and trained undergraduate students to teach in local high schools.

**Laborer- Habitat for Humanity**, Durham, NC (2002)

**Teacher- science and math**, Maya Centre School, Belize (2000)

Worked as a volunteer and helped to prepare students for the entrance exam required for admittance to high school.

**Program developer and Teacher- Artistic Design**, Rain Song Art Gallery (1997-1999)

Offered classes for free or at a reduced rate to students unable to afford instruction in the arts.

**Tutor- Music composition, theory, and method**, Otter Valley Union High School (1988-1994)

Offered free private instruction to students unable to afford music education.

### **SERVICE TO SCIENCE**

**Invited reviewer**, *Microbial Ecology, Organisms Diversity and Evolution, Journal of Food Protection*

**Session moderator**, Canadian Society of Ecology and Evolution, Toronto (2007)

**Co-organizer, Biology Dept Seminar Series**, Univ. of Toronto at Mississauga (2006-2007)

### **CONTRIBUTED PRESENTATIONS**

**2010 Saunders M.** “Habitat filters and species interactions in the assembly of fungal endophyte communities”, Ecology and Evolutionary Biology Seminar, University of California Santa Cruz, CA (**Invited**)

**2009 Saunders M, Glenn AE and LM Kohn.** “Habitat filtering in fungal endophyte communities”, Meeting of the Mycological Society of America and the Botanical Society of America, Snowbird, UT (**Invited**)

**2008 Saunders M, Glenn AE and LM Kohn.** “Biotic filters in fungal endophyte community assembly”, 5<sup>th</sup> International Allelopathy Congress, Saratoga Springs, NY

- 2008** Saunders M, Glenn AE and LM Kohn. “The influence of habitat filtering and species interactions in fungal endophyte community assembly”, Annual Meeting of the Mycological Society of America, State College, PA
- 2008** Saunders M, Glenn AE and LM Kohn. “Elucidating biotic factors that influence fungal endophyte communities”, Annual Meeting of the Ecological Society of America, Madison, WI
- 2008** Saunders M, Glenn AE and LM Kohn. “Habitat filtering and species interactions in fungal endophyte community assembly”, Annual Great Lakes Mycology Meeting, Toronto, ON
- 2007** Saunders M and LM Kohn. “What is the influence of phytoanticipin production on fungal endophyte community structure?”, Annual Meeting of the Ecological Society of America, San Jose, CA
- 2007** Saunders M and LM Kohn. “Phytoanticipin production influences community structure of fungal endophytes of maize”, Annual Meeting of the Canadian Society of Ecology and Evolution, Toronto, ON
- 2006** Saunders M and LM Kohn. “Production of secondary metabolites by corn increases the frequency of colonization by *Fusarium* species”, Joint meeting of the Mycological Society of America, American Society of Phytopathology and Canadian Society of Phytopathology, Quebec, QC
- 2005** Saunders M and LM Kohn. “*Fusarium verticillioides* enhances the growth of other *Fusarium* species in the presence of phytoanticipins produced by maize”, Annual Meeting of the American Phytopathological Society, Austin, TX
- 2005** Saunders M and LM Kohn. “*Fusarium verticillioides* in maize: does this fungal endophyte enhance the growth of other fungi?”, Annual Great Lakes Winter Mycology Conference, McMaster Univ.

#### **PROFESSIONAL AFFILIATIONS**

- International Association for Lichenology (2002-present)
- Mycological Society of America (2002-present)
- American Phytopathological Society (2004-present)
- Ecological Society of America (2006-present)
- International Allelopathy Society (2008-present)