

Jeff Powell

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Education

Sept. 03- present

- **Ph.D. candidate** in Integrative Biology, University of Guelph, Guelph, ON
- Thesis topic: *Effects of a genetically modified, herbicide tolerant cropping system on soil and root-associated microorganisms, soil fauna, and soil functioning.*

Sept. 99- Feb. 03

- **M.Sc.** in Biological Sciences, Simon Fraser University, Burnaby, BC
- Thesis title: *Interguild antagonism between biological controls: combined use of entomopathogenic nematodes and Aphidoletes aphidimyza in pest management*

Sept. 95- May 99

- **B.Sc.** (First Class Honours) in Zoology, University of Manitoba, Winnipeg, MB
- Thesis title: *Effects of local mate competition, mating delays, and host deprivation on Urolepis rufipes (Hymenoptera: Pteromalidae) offspring sex ratios*

Scholarly Contributions

Journal publications/Book chapters (12)

D.J. Levy-Booth, R.G. Campbell, R.H. Gulden, M.M. Hart, **J.R. Powell**, J.N. Klironomos, K.P. Pauls, C.J. Swanton, J.T. Trevors, and K.E. Dunfield, 200x, "Cycling of extracellular DNA in the soil environment", **Soil Biology and Biochemistry** (accepted 18 June 2007)

J.R. Powell, 200x, "Linking soil organisms within food webs to ecosystem functioning and environmental change", **Advances in Agronomy** 96: (in press)

J.R. Powell, R.H. Gulden, M.M. Hart, R.G. Campbell, D.J. Levy-Booth, K.E. Dunfield, K.P. Pauls, C.J. Swanton, J.T. Trevors, and J.N. Klironomos, 2007 "Mycorrhizal and rhizobial colonization of genetically-modified and conventional soybeans", **Applied and Environmental Microbiology** 73: 4365-4367 (<http://dx.doi.org/10.1128/AEM.00594-07>)

R.H. Gulden, D. Levy-Booth, R. Campbell, **J.R. Powell**, M.M. Hart, J.T. Trevors, K.P. Pauls, J.N. Klironomos, and C.J. Swanton, 2007, "An empirical approach to absolute target DNA quantification in environmental samples using single polymerase chain reactions", **Soil Biology and Biochemistry** 39: 1956-1967 (<http://dx.doi.org/10.1016/j.soilbio.2007.02.014>)

J.R. Powell and K.E. Dunfield, 2007, "Non-target impacts of genetically-modified, herbicide-tolerant crops on soil microbial and faunal communities", pages 127-137 in **The First Decade of Herbicide-Resistant Crops in Canada, Topics in Canadian Weed Science**, vol. 4 (R.H. Gulden and C.J. Swanton, Eds), Canadian Weed Science Society – Société canadienne de malherbologie: Sainte Anne de Bellevue, QC

- J.R. Powell** and J.N. Klironomos, 2007, "The ecology of plant-microbial mutualisms", Chapter 10 in **Soil Microbiology, Ecology, and Biochemistry**, 3rd ed. (E.A. Paul, Ed.), Academic Press (http://www.elsevier.com/wps/find/bookdescription.cws_home/708941/description)
- K.A. Stinson, S.A. Campbell, **J.R. Powell**, B.E. Wolfe, R.M. Callaway, G.C. Thelen, S.G. Hallett, D. Prati, J.N. Klironomos, 2006, "Invasive plant suppresses the growth of native tree seedlings by disrupting belowground mutualisms", **PLoS Biology** 4: 727-731 (<http://dx.doi.org/10.1371/journal.pbio.0040140>)
- J.N. Klironomos, M.F. Allen, M.C. Rillig, J. Piotrowski, S. Makvandi-Nejad, B.E. Wolfe, and **J.R. Powell**, 2005, "Abrupt rise in atmospheric CO₂ overestimates community response in a model plant-soil system", **Nature** 433: 621-624 (<http://dx.doi.org/10.1038/nature03268>)
- R.H. Gulden, S. Lerat, M.M. Hart, **J.R. Powell**, J.T. Trevors, K.P. Pauls, J.N. Klironomos, and C.J. Swanton, 2005, "Quantitation of transgenic plant DNA in leachate water: real-time PCR analysis", **Journal of Agricultural and Food Chemistry** 53: 5858-5865 (<http://dx.doi.org/10.1021/jf0504667>)
- J.R. Powell** and J.M. Webster, 2004, "Interguild antagonism between biological controls: impact of entomopathogenic nematode application on an aphid predator, *Aphidoletes aphidimyza* (Diptera: Cecidomyiidae)", **Biological Control** 30: 110-118 (<http://dx.doi.org/10.1016/j.biocontrol.2003.09.006>)
- J.R. Powell** and J.M. Webster, 2004, "Target host finding by *Steinernema feltiae* and *Heterorhabditis bacteriophora* in the presence of a non-target insect host", **Journal of Nematology** 36: 285-289 (http://fulltext10.fcla.edu/DLData/SN/SN0022300X/0036_003/285.pdf)
- J.R. Powell**, L.C. Graham, and T.D. Galloway, 2003, "Development time of *Urolepis rufipes* (Hymenoptera: Pteromalidae) and effect of female density on offspring sex ratio and reproductive output", **Proceedings of the Entomological Society of Manitoba** 59: 16-20 ([http://www.uoguelph.ca/~jnklab/Library/Powell et al 2003 \(Proc ESM\).pdf](http://www.uoguelph.ca/~jnklab/Library/Powell%20et%20al%202003%20(Proc%20ESM).pdf))

Submitted manuscripts (1)

- J.R. Powell**, and C.J. Swanton, "A critique of studies evaluating glyphosate effects on *Fusarium* spp."

Technical reports (2)

J.R. Powell and C.J. Swanton, "Is there potential for glyphosate to enhance crop diseases associated with *Fusarium* spp.?" Report prepared for The Ontario Wheat Producers' Marketing Board, March 2006

R. Gulden, S. Lerat, M. Hart, R. Campbell, **J. Powell**, P. Pauls, J. Klironomos, C. Swanton, and J. Trevors, "Tracking plant transgenes in soil – where do they go?" ISB News Report, May 2005: 8-9 (<http://www.isb.vt.edu/news/2005/news05.may.html> - may0504)

Published abstracts (3)

J.R. Powell, M. Lin, and J.M. Webster, 2003, "Effect of extrinsic factors on the behaviour of steinernematid and heterorhabditid infective juveniles", *Journal of Nematology* 35(3): 359-360

J.R. Powell and J.M. Webster, 2001, "Evaluating the potential for antagonism between an aphid predator and entomopathogenic nematodes", *Phytopathology* 91(6): S141

J.R. Powell and J.M. Webster, 2000, "Susceptibility of aphid midges, *Aphidoletes aphidimyza* (Diptera: Cecidomyiidae), to entomopathogenic nematode infection", *Journal of Nematology* 32(4): 455

Presentations (20; presenting author*)

J.R. Powell*, M.M. Hart, M.C. Rillig, and J.N. Klironomos, "Life history strategies, foraging patterns, and host plant benefit in the arbuscular mycorrhizal symbiosis", Eleventh Biennial Soil Ecology Society Conference, 29 April-2 May 2007, Moab, UT

J.R. Powell*, R.H. Gulden, M.M. Hart, R.G. Campbell, D.J. Levy-Booth, K.E. Dunfield, K.P. Pauls, C.J. Swanton, J.T. Trevors, and J.N. Klironomos, "Crop litter decomposition in Roundup Ready® and conventional cropping systems", Eleventh Biennial Soil Ecology Society Conference, 29 April-2 May 2007, Moab, UT

J.R. Powell*, P.M. Antunes, R.H. Gulden, M.M. Hart, R.G. Campbell, D.J. Levy-Booth, K.E. Dunfield, K.P. Pauls, C.J. Swanton, J.T. Trevors, and J.N. Klironomos, "Herbicide effects on mycorrhizal and rhizobial symbioses in a genetically-modified crop", Fourth Annual Ontario Pest Management Conference, 9 November 2006, Guelph, ON

J.R. Powell, P.M. Antunes, L. Carvalho, G. De Deyn, A. Fisher, J. Klironomos, J. Rodrigues, and B.A. Sikes*, "Finding your niche in mycorrhizal research", Fifth International Conference on Mycorrhiza, 23-27 July 2006, Granada, Spain

J.R. Powell*, P.M. Antunes, R.H. Gulden, M.M. Hart, R.G. Campbell, D.J. Levy-Booth, K.E. Dunfield, K.P. Pauls, C.J. Swanton, J.T. Trevors, and J.N. Klironomos, "Herbicide effects on mycorrhizal and rhizobial symbioses in a genetically-modified crop", Fifth International Conference on Mycorrhiza, 23-27 July 2006, Granada, Spain

- J.R. Powell***, P. Antunes, S. French, and J.N. Klironomos, "Soil biota respond to GM crops: 'Hell no!' or so-so?", Highlighted Symposium, Second Annual College of Biological Sciences Graduate Student Symposium, University of Guelph, 5-6 January 2006, Guelph, ON
- J.R. Powell***, "Non-target effects of a Roundup-Ready® cropping system on soil food webs", 59th Annual Meeting of the Canadian Weed Science Society, Plenary Session: "Transgenic Herbicide Tolerant Crops: Agronomy, Environment and Beyond" (invited), 27-30 November 2005, Niagara-on-the-Lake, ON
- J.R. Powell***, S. French, E. Kuczynski, and J.N. Klironomos, "Genetically-modified, herbicide-tolerant cropping systems: is there potential for mycorrhizal fungi in production agriculture?", 90th Annual Meeting of the Ecological Society of America and the Ninth International Congress of Ecology (Joint Meeting), 7-12 August 2005, Montréal, QC
- K.A. Stinson*, S.A. Campbell, **J.R. Powell**, B.E. Wolfe, R.M. Callaway, G.C. Thelen, S.G. Hallett, D. Prati, and J.N. Klironomos, "Exotic plant invasion degrades local mycorrhizal association, alters community succession, and limits restoration", 90th Annual Meeting of the Ecological Society of America and the Ninth International Congress of Ecology, 7-12 August 2005, Montréal, QC
- E. Kuczynski, S. French, **J.R. Powell***, and J.N. Klironomos, "Effects of a genetically-modified, herbicide-tolerant cropping system on beneficial and pathogenic fungi", Tenth Biennial Meeting of the Soil Ecology Society, Argonne National Laboratory, 22-25 May 2005, Argonne, IL
- B.E. Wolfe*, **J.R. Powell**, J.J. Wells, D.L. Mummey, M.C. Rillig, and J.N. Klironomos, "Properties of arbuscular mycorrhizal fungal communities of alvar grasslands and abandoned limestone quarries: implications for ecosystem restoration", Tenth Biennial Meeting of the Soil Ecology Society, Argonne National Laboratory, 22-25 May 2005, Argonne, IL
- B.E. Wolfe, **J.R. Powell***, J.J. Wells*, M.C. Rillig, and J.N. Klironomos, "Properties of arbuscular mycorrhizal fungal communities of alvar grasslands and abandoned limestone quarries: implications for ecosystem restoration", First Annual College of Biological Sciences Graduate Student Symposium, University of Guelph, 6-7 January 2005, Guelph, ON
- J.R. Powell***, "Non-target impacts in a genetically modified cropping system: does glyphosate affect the structure and functioning of fungal communities?", PhD Research Proposal, Department of Botany, University of Guelph, 29 September 2004, Guelph, ON
- J.R. Powell**, M. Lin, and J.M. Webster*, "Effect of extrinsic factors on the behaviour of steinernematid and heterorhabditid infective juveniles", 43rd Annual Meeting of the Society of Nematologists, 12-17 July 2003, Ithaca, NY
- J.R. Powell*** and J.M. Webster, "Non-target mortality by and host searching behaviour of *Heterorhabditis bacteriophora* (Nematoda) in the presence of an aphid predator,

Aphidoletes aphidimyza", Tenth International Congress of Parasitology, 3-9 August 2002, Vancouver, BC

J.R. Powell* and J.M. Webster, "Evaluating the potential for antagonism between an aphid predator and entomopathogenic nematodes", 2001 Fall Meeting of the British Columbia Parasitologists, 26 October 2001, Nanaimo, BC

J.R. Powell* and J.M. Webster, "Evaluating the potential for antagonism between an aphid predator and entomopathogenic nematodes", Joint Annual Meeting of the American Phytopathological Society, Mycological Society of America, and Society of Nematologists, 25-29 August 2001, Salt Lake City, UT

J.R. Powell* and J.M. Webster, "Evaluating the potential for antagonism between an aphid predator, *Aphidoletes aphidimyza*, and entomopathogenic nematodes", 2001 Pacific Ecology Conference, 16-18 February 2001, Bamfield Marine Station, BC

J.R. Powell* and J.M. Webster, "Susceptibility of aphid midges, *Aphidoletes aphidimyza* (Diptera: Cecidomyiidae), to entomopathogenic nematode infection", 39th Annual Meeting of the Society of Nematologists, 24-28 June 2000, Quebec City, QC

J.R. Powell*, "Effects of local mate competition and host deprivation on the sex ratio of *Urolepis rufipes* (Hymenoptera: Pteromalidae)", 1999 Fall Meeting of the British Columbia Parasitologists, 29 October 1999, Nanaimo, BC

Scholarships and Awards (total value of accepted awards: Cdn\$134,367 + US\$975)

2007

- Best Student Poster Presentation (second place), Soil Ecology Society Biennial Meeting, Moab, UT (US\$75)
- Parkinson Student Travel Award, Soil Ecology Society Biennial Meeting, Moab, UT (US\$400)

2006

- University Graduate Scholarship, U of G (\$2000)
- College of Biological Science Scholarship – Tri-Council Top Up Award, U of G (\$6,667)

2005

- Canada Graduate Scholarship D2, Natural Sciences and Engineering Research Council of Canada (\$70,000/2yr)
- Ontario Graduate Scholarship (\$15,000; declined)
- Botany Graduate Student Travel Award, U of G (\$100)

2004

- Ontario Graduate Scholarship (\$15,000)
- University Graduate Scholarship, U of G (\$2000)

2003

- Latornell Graduate Travel Scholarship, U of G (\$600)

2002

- Ontario Graduate Scholarship (\$15,000; declined)
- Graduate Fellowship, SFU (\$4500)
- Dean of Graduate Studies/NSERC Graduate Student Travel Support Award, SFU (declined)

2000

- Postgraduate Scholarship A, Natural Sciences and Engineering Research Council of Canada (\$33,000/2yr)
- Travel Grant, 39th Annual Meeting of the Society of Nematologists, Quebec City, QC (US\$500)

Pre-2000

- Dean's Honour List, U of M (1997-1999)
- Chown Annual Entrance Scholarship, U of M (\$500)

Courses and Workshops

“Northeastern Weed Science Society Collegiate Competition”, Landisville, PA (26 July, 2005).

“Computation of Nematode Community Indices”, Estes Park, CO (2 August, 2004).

“Identification of Plant-parasitic Secernentea”, University of California, Riverside, CA (31 July - 4 August, 2001).

Recent Work Chronology

- Teaching Assistant
 - Ecological Methods (BIOL*4110, U of G), Drs John Klironomos and Beren Robinson
 - Ecology (BIOL*2060, U of G), Dr. Hafiz Maherali
 - Biology 1 (BIOL*1030, U of G), Dr. Dawn Larson
 - Invertebrate Biology (BISC 306, SFU), Drs Guy Martel and Stephanie Zaklan-Duff
 - Introduction to Experimental Techniques (BISC 329, SFU), Dr. Margo Moore
 - General Biology (BISC 102, SFU), Joan Sharp
- Various Research Assistanceships
 - Graduate Service Assistant (GSA-2), Department of Plant Agriculture, U of G (Nov. 05- May 06)
 - Research Assistant/Technician, Department of Biological Sciences, SFU (Jan. 03- Apr. 03)
 - Graduate Research Assistant, SFU (May 02- Aug. 02)
 - Co-op Work Report Grader, SFU (May 02, Sept. 02)
 - Research Assistant, Department of Zoology, U of M (Oct. 98- Aug. 99)
- Non-academic
 - Information Research Assistant, Ontario Agricultural Value-Added Innovation Network, Guelph, ON (Apr. 03- Aug. 03; view contributions at <http://www.aginnovation.ca/resource2.html>)
 - Lawn Technician, Nutri-lawn, Winnipeg, MB (Apr. 98- Aug. 98)

Recent Volunteer Chronology

- Peer-reviewer
 - Weed Research
 - Ecology Letters
 - Acta Oecologia
 - Journal of Insect Science
 - Journal of Invertebrate Pathology
 - Soil Sampling and Methods of Analysis (book)
- Meeting Organizer
 - Co-organizer, Organized Oral Session, Ecological Society of America Annual Meeting, Montreal, QC (Aug. 05; <http://www.esa.org/program/oos3.html>)
 - Co-organizer, 2002 British Columbia Parasitologists Fall Meeting, SFU (Oct. 02- Nov. 02)
 - Volunteer, Tenth International Congress of Parasitology, Vancouver, BC (Aug. 02)
 - Co-organizer, 2000 Biological Sciences Graduate Student Symposium, SFU (Sept. 00)
- Committees
 - Integrative Biology Undergraduate Curriculum Committee, U of G (Feb. 05- Jun. 06)
 - Botany Seminar Committee, U of G (Sept. 04- Apr. 05)
 - Botany Departmental Planning and Research Committee, U of G (Oct. 03- Dec. 04)
 - Committee to Review University Admissions, SFU (Mar. 00- May 02)
 - Biological Sciences Departmental Seminar Committee, SFU (Jul. 01- Apr. 02)
 - Senate Library/Library Penalties Appeal Committees, SFU (Mar. 00- May 01)
- Other
 - Sergeant-at-Arms/Vice President (Membership), Burnaby Mountain Toastmasters (Jan. 02- Nov. 02)
 - Let's Talk Science Partnership Program, SFU (Sept. 00- Sept. 02)
 - Shed Manager, Northeast Burnaby Community Organic Garden, Burnaby, BC (Jan. 00- Dec. 01)