# Samuel C. Evans, M.Sc.

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## Skills Overview

Biologist and statistical programmer. Conceptual strengths in behavior, ecology, and evolutionary theory. Comfortable in a laboratory setting and experienced in a variety of techniques (e.g. biomechanical testing, DNA extraction, PCR). Proficient in data organization, analyses, and visualization via R and Python languages. Detail-oriented and committed to producing consistent results in a well-controlled and disciplined manner.

## Education

**University of British Columbia**, Vancouver, BC, Canada *2014 – present*
PhD Zoology (on leave as of 1 Jan 2017)
Dissertation: systematics and phylogenomics of jumping spiders

**University of Akron**, Akron, OH *2010 – 2013*
M.Sc. Biology
Thesis: biomechanics and evolutionary ecology of prey capture by spider orb-webs
Graduate coursework focused on evolutionary theory, computational biology

**Miami University**, Oxford, OH *2005 – 2010*
B.Sc. Zoology, Environmental Science; minor in Statistical Methods
Capstone courses: Data Analysis Practicum, Winter Biology
Graduate-level courses: Community Ecology, Bioinformatics

**The School for Field Studies' Centre for Wildlife Management**, Karatu, Tanzania *2008*
field courses abroad in wildlife ecology, management, and socioeconomic policy

## Professional Experience

**Graduate Research and Teaching Assistant** *2014 – 2016*
Department of Zoology, University of British Columbia, Vancouver, BC, Canada
- Developed R and Python scripts to organize and analyze genomic and transcriptomic sequence data
- Followed protocols to properly preserve specimens for subsequent DNA/RNA extractions
- Conducted DNA extractions, PCR, gel electrophoresis, and sample quality control procedures
- Performed basic morphotyping of spider specimens for species descriptions and genus revision
- Traveled throughout western North America to collect jumping spider specimens for phylogenetic studies
- Volunteered in the Beaty Biodiversity Museum's Spencer Entomological Collection, identifying spider specimens, organizing collections, and participating in local biodiversity surveys
- Taught eight terms of evolutionary biology (tutorial supplement to lecture), 15-45 students/term

**Graduate Research and Teaching Assistant** *2010 – 2013*
Department of Biology, University of Akron, Akron, OH
- Developed Java and R scripts to execute individual-based models simulating spider web mechanics
- Measured mechanical properties of spider silk using sensitive tensile testing equipment (Nano Bionix$^{(R)}$)
- Maintained lab populations of orb-weaving (Araneoidea) and black widow (*Latrodectus* spp.) spiders
- Mentor for STEM Tiered-Mentoring and Research Experience for Undergraduates programs
- Served one semester as coordinator for the Department of Biology Ecolunch seminar series
- Taught five terms of introductory biology laboratory, 120 students per term

**Research Technician** *2012*
Ecology and Evolutionary Biology Department, Rice University, Houston, TX
- Managed a joint lab headed by two principal investigators
- Solely responsible for watering, weeding, and transplanting regimes of greenhouse plant populations

– Prepared and applied pyrethroid pesticides to control greenhouse aphid infestations
– Worked with maintenance staff to troubleshoot various greenhouse climate control system issues
– Traveled to field sites throughout eastern Texas to collect data, set up/take down experimental plots
– Frequently performed 12-hour days of fieldwork exposed to the summer elements of eastern Texas
– Performed data entry and maintained organized binders of hard-copy backups and original datasheets
– Managed undergraduate assistants to assist with several graduate student projects
– Managed payroll for undergraduate assistants and communicated with departmental administration to ensure student wages and lab equipment costs were paid for by the appropriate grants

**Research Associate and Laboratory Manager** *2006 – 2010*

Department of Biology, Miami University, Oxford, OH

– Designed and conducted laboratory experiments investigating the separate and combined effects of glyphosate-based herbicide and predator chemical cues on wolf spider and carabid beetle behavior
– Introduced a study species novel to the lab (the carabid beetle *Scarites quadriceps*) and developed protocols to collect specimens from the field and maintain populations in the lab
– Reared and maintained lab populations of wolf spiders, cellar spiders, and carabid beetles
– Prepared and applied glyphosate-based herbicide solutions as appropriate for experiments
– Maintained lab populations of fruit flies, crickets, collembolans used to feed research specimens
– Trained and supervised new undergraduate assistants
– Organized field trips to collect specimens necessary for field and lab research
– Designed and constructed arenas for mate choice and activity quantification trials
– Devised a handbook of protocols for all lab operations, still in use to date
– Designed and updated the laboratory's website
– Operated landscape management equipment (riding mowers, compact utility vehicles)
– Earned the Howard Hughes Medical Institute's Summer Scholars undergraduate research grant
– One of only six students awarded the 2007 Barrett Award for Excellence in Undergraduate Research

**Undergraduate Assistant (prairie vole behavior and neurobiology)** *2008*

Department of Biology, Miami University, Oxford, OH

– Assisted a graduate student in field experiments investigating the relationship between MC1R genetic variaton and social monogamy in prairie voles (*Microtus ochragaster*)
– Followed protocols to trap and handle voles in field enclosures, recording demographic data
– Conducted radio telemetry to identify locations of radio-collared individuals relative to marked nests
– Frequently worked late evening hours to complete field data collection as dictated by weather conditions

**Undergraduate Assistant (insect landscape ecology)** *2006*

Department of Biology, Miami University, Oxford, OH

– Assisted graduate students post-docs in lab and field studies on insect landscape ecology
– Identified, organized, and mounted representatives of insects sampled from experimental plots
– Performed vacuum sampling (D-Vac) of insects from experimental plots

## OUTREACH

Guest, *The Sound of Ideas* science and technology radio program, WCPN 90.3 FM *2011*
(http://www.ideastream.org/programs/sound-of-ideas/science-cafe-the-fantastic-world-of-spider-silk)

Guest Lecturer, Science Café Cleveland public lecture series (attendance: 197) *2011*

Volunteer Educator, Miami University High School Outreach Program *2010*

Volunteer for wetland restoration, Banrock Station Wine and Wetland Centre, South Australia *2007*

## PUBLICATIONS

**Evans SC**, WP Maddison. In prep. A genome-wide phylogeny of the jumping spiders (Araneae: Salticidae) via anchored hybrid enrichment. To be submitted to *ZooKeys*.

**Evans SC**, TA Blackledge. In prep. A model integrating the ecology and biomechanics of prey capture by spider orb webs suggests foraging success hinges on capturing rare, large prey. To be submitted to *Journal of Theoretical Biology*.

Rittman S, KM Wrinn, **SC Evans**, AW Webb, AL Rypstra. 2013. Glyphosate-based herbicide has contrasting effects on prey capture by two co-occurring wolf spider species. *Journal of Chemical Ecology* 39:1247-1253.

Wrinn KM, **SC Evans**, AL Rypstra. 2012. Predator cues and an herbicide affect activity and emigration in an agrobiont wolf spider. *Chemosphere* 87:390-396.

Griesinger LM, **SC Evans**, AL Rypstra. 2011. Effects of a glyphosate-based herbicide on mate location in a wolf spider that inhabits agroecosystems. *Chemosphere* 84:1461-1466.

**Evans SC**, EM Shaw, AL Rypstra. 2010. Exposure to a glyphosate-based herbicide affects agrobiont predatory arthropod behaviour and long-term survival. *Ecotoxicology* 19:1249-1257.

## PRESENTATIONS

Evans SC, WP Maddison. 2016. Resolving deep relationships within jumping spiders. 20th annual International Congress of Arachnology meeting, Golden, CO.

Evans SC, WP Maddison, CA Hamilton, JE Bond, AR Lemmon, EM Lemmon. 2015. A genome-wide phylogeny of the jumping spiders (Araneae: Salticidae) using anchored enrichment. 39th annual American Arachnological Society meeting, Mitchell, SD.

Evans SC, TA Blackledge. 2015. Orb spider foraging success hinges on capturing rare large prey, even when small prey are biomass-dominant. 39th annual American Arachnological Society meeting, Mitchell, SD.

Evans SC, D Piorkowski, TA Blackledge. 2011. Does the orb weaving spider *Argiope trifasciata* alter silk investment and web architecture based on proximity to starvation? University of Akron Biology Research Symposium, Akron, OH. (2nd place in student poster comp.)

Evans SC, TA Blackledge. 2011. Can orb-weaving spiders adaptively alter web area in response to hunger level? Predictions of a simulation model. 35th annual American Arachnological Society meeting, Portland, OR.

Evans SC, LM Griesinger, AL Rypstra. 2010. Effects of a glyphosate-based herbicide on mate location in the wolf spider *Pardosa milvina*. 95th annual Ecological Society of America meeting, Pittsburgh PA.

Evans SC, LM Griesinger, AL Rypstra. 2010. Effects of a glyphosate-based herbicide on mate location in the wolf spider *Pardosa milvina*. 34th annual American Arachnological Society meeting, Greenville, NC.

Evans SC, KM Wrinn, EM Shaw, AL Rypstra. 2009. Predatory agrobiont arthropod behavior and interactions as influenced by a glyphosate-based herbicide. 94th annual Ecological Society of America meeting, Albuquerque, NM.

Evans SC, KM Wrinn, EM Shaw, AL Rypstra. 2009. Predatory agrobiont arthropod behavior and interactions as influenced by a glyphosate-based herbicide. 33rd annual American Arachnological Society meeting, Russellville, AR. (1st place in student poster competition)

Evans SC, KM Wrinn, EM Shaw, AL Rypstra. 2009. Influences of an herbicide on predatory agrobiont arthropod activity and interactions. Entomological Society of America north-central branch meeting, St. Louis, MO.