

## Christopher Ryan Stieha

Department of Biology · Case Western Reserve University  
DeGrace Hall · 2080 Adelbert Road · Cleveland, OH 44106  
stieha@hotmail.com · stieha.com · (859) 420 – 1775

### Education

---

2014-present	Research Associate, Biology	Case Western Reserve University, Cleveland, OH
2012-2014	Postdoctoral Researcher, Entomology	Cornell University, Ithaca, NY
2012	Ph.D. in Biology	University of Kentucky, Lexington, KY
2008	Masters in Biology	University of Kentucky, Lexington, KY
2003	B.S. Biology, B.A. Chemistry	University of Kentucky, Lexington, KY

### Grants, Fellowships, and Awards

---

2010	Finalist, University of Kentucky Provost Teaching Award
2010	Rural Letter Carriers Scholarship
2009	College of Arts and Sciences Certificate of Outstanding Teaching
2008	Northern Kentucky Alumni Fellowship
2007	Accomplished Teaching Assistant Award, Biology Lab for Non-majors
2006-2007	Fulbright Fellowship for research in Trinidad and Tobago “Aggressive Interactions Between Two Plant Species”
2004-2005	Wethington Fellowship for Graduate Study
2004	Best Themed Poster, Electrical and Computer Engineering (ECE) Day, Kentucky “ $\alpha$ -helix Protein Structure Prediction using Genetic Programming”

### Publications (\* denotes undergraduate coauthor)

- 
- Stieha, C.R., Abbott, K, and Poveda, K. *in press*. The Effects of Plant Compensatory Regrowth and Induced Resistance on Herbivore Population Dynamics. *American Naturalist*.
- Stieha, C.R. and Poveda, K. 2015. Tolerance responses to herbivory: implications for future management strategies in potato. *Annals of Applied Biology*. 166: 208-217.
- Stieha, C., Montovan, K, and Castillo-Guajardo, D. 2014. A Field Guide To Programming: A Tutorial for Learning Programming and Population Models. *CODEE Journal*. URL: <http://www.codee.org/ref/CJ14-0876>
- Stieha, C.R., Middleton, A.\*, Stieha, J.\*, Trott, S.\*, and McLetchie, D.N. 2014. The dispersal process of asexual offspring and the contribution to population persistence. *American Journal of Botany*. 101(2): 348-56.
- Rohr, J.R., Sesterhenn, T., Stieha, C. 2011. Will climate change reduce the effects of a pesticide on amphibians?: Partitioning effects on exposure and susceptibility. *Global Change Biology*. 17:657-666, doi: 10.1111/j.1365-2486.2010.02301.x
- Groen, K.E.\*, Stieha, C., Crowley, P.H., and McLetchie, D.N. 2010a. Sex-specific plant responses to light and canopy openness: Implications for spatial segregation of the sexes. *Oecologia*. 162(3): 561-570.
- Groen, K.E.\*, Stieha, C., Crowley, P.H., and McLetchie, D.N. 2010b. Sex-specific plant responses to two light levels in the liverwort *Marchantia inflexa*. *Bryologist*. 113(1): 81-89.

García-Ramos, G., Stieha, C., McLetchie, D.N., and Crowley, P. 2007. Metapopulation Sex Ratio Dynamics and Coexistence of the Sexes under Asymmetrical Competition. *J. Ecology*. 95:937-950

Crowley, P.H., Stieha, C.R., and McLetchie, D.N. 2005. Overgrowth Competition, Fragmentation and Sex-Ratio Dynamics: A Spatially Explicit, Sub-Individual Based Model. *J. Theor. Biol.* 233:25-42.

*Submitted or being revised, manuscript available upon request*

Brzyski, J.R., Stieha, C.R., McLetchie, D.N. *Submitted to Molecular Ecology*. Evidence of gene flow via sexual and asexual reproduction between small and large populations.

Cilles, S., Coy, G.\*, Stieha, C.R., Cox, J., Crowley, P.H., Maehr, D. *In revision to be resubmitted to American Midland Naturalist*. Seed predation, seed dispersal, and seedling herbivory of oak and hickory in a Bluegrass savanna: implications for regeneration

Stieha, C.R., García-Ramos, G., McLetchie, D.N., and Crowley, P. *In revision*. Maintenance of the sexes and persistence of a clonal organism in spatially complex metapopulations.

*In preparation, manuscript available upon request*

Barraquand, F. et al. *In prep*. Current challenges in the modeling of population cycles.

López-Urbe M.M., Crawford J., Stieha C., Cardinal S.C., Bogdanowicz S.M., Soro A., Paxton R., Danforth B.N. *In prep*. Transcriptome-wide SNP variation in a socially polymorphic sweat bee, *Halictus rubicundus* (Hymenoptera: Halictidae), indicates substantial genetic differentiation among solitary and social populations.

Moore, C.M., Stieha, C.R., Nolting, B.C., Cameron, M.K., and Abbott, K.C. *To be submitted to The R Journal*. QPot: An R package for stochastic differential equation quasi-potential analysis

Stieha, C.R., Bowman, A.\*, Crowley, P.H., and McLetchie, D.N. *In prep*. Maintenance of the sexes: a field test of the effects of population size and distance to nearest neighbor in a clonal plant.

Stieha, C.R., Mattei, N.S., and Wheelwright, N.T. *In prep*. The Effects of Asymmetrical Information on Mating Decisions.

## **Mentored Students**

---

2015-present	Ryan Rego, Case Western Reserve University
2012, Spring	Courtney Ethington, University of Kentucky
2011, Summer	Alexandra Weiser, University of Kentucky
	Howard Hughes Medical Institute Georgetown College Program to Accelerate Learning in the Sciences (GC-PALS), 1 <sup>st</sup> place presentation for Botany at Kentucky Academy of Science
2011, Spring	Elizabeth Mattei & Jonathan Moore, University of Kentucky
	Reproductive decisions: Finding the best blend of sex and asex
2006-2007	Amy Bowman, Ribble Undergraduate Scholar, University of Kentucky
	Kentucky Young Scientists Summer Research Participant 2007
2005-2006	Leslie Campbell, University of Kentucky

## Teaching Experience

---

### Teaching Materials Developed

- Stieha, C., Montovan, K, and Castillo-Guajardo, D. 2014. A Field Guide To Programming: A Tutorial for Learning Programming and Population Models. *CODEE Journal*. URL: <http://www.codee.org/ref/CJ14-0876>
- Stieha, C. and McLetchie, D.N. 2012. Degradation of a Tropical Stream. EcoEd Digital Library. <http://esa.org/ecod/folders/0250/degradationofatropicalstream>

### Teaching Assistantships and Experience

- |                      |  |
|----------------------|--|
| 2011-2012            | <i>Evolution</i> , University of Kentucky                                |
| 2011-2012            | <i>The Geography of Biomes</i> , non-profit MacPherson Academy           |
| 2011, Spring         | <i>Ecology Lecture and Lab</i> , University of Kentucky                  |
| 2008-2010, 2004-2006 | <i>Introductory Biology Laboratory for Non-majors</i> , University of KY |
| 2003-2004            | <i>Bioexcel</i> Leader, University of Kentucky                           |
| 2002-2003            | <i>English Teacher</i> in Kirchheim, Germany Elementary School           |
| 2001-2002            | <i>ChemExcel</i> Leader, University of Kentucky                          |

### Workshops and Outreach

- 2013 *Open Lab: Light to Sound Converter Circuit*  
Ithaca Generator Makerspace, Ithaca, NY, all ages
- 2013 *Herbivores, Plant responses, and Mathematical Models: Understanding Pest Outbreaks*  
Snodwiggs Undergraduate Entomology Club, Cornell University
- 2013 *Cosmos and the Game of Life: Science in Art Workshop*  
Ithaca Generator Makerspace, Johnson Museum of Art, Ithaca, NY, all ages,  
co-lead with Victor Aprea and Claire Fox
- 2012 *Modeling Grass-Tree Dynamics: An Introduction to Modeling and Programming*  
NSF-REU Workshop, University Of Kentucky, Undergraduate students, June 18 and 19
- 2011 *The Geography of Biomes*  
non-profit MacPherson Academy, Lexington, KY. K-5, August to January.
- 2011 *DNA for the 21st Century*  
Upward Bound Program. Dr. Charlene Walker, sponsored by Bluegrass Community and Technical College, University of Kentucky, High School students, June 30
- 2006 *Some salamanders metamorphose, some don't*  
Glendover Elementary Science Day, Lexington, KY, K-1, co-lead with T. Sesterhenn
- 2005 *Metamorphosis: Life from a Tadpole to Bullfrog*  
Glendover Elementary Science Day, Lexington, KY, K-1, co-lead with T. Sesterhenn

### Guest Lecturer & Guest Teaching Assistant

- 2015 Graduate-level Ecology, Dr. Karen Abbott, Case Western Reserve University  
Is an herbivore just a predator whose prey happens to be a plant?
- 2015 Quantitative Biology Lab, Dr. Sarah Diamond, Case Western Reserve University  
co-lead discussion on work flow, data management, and repeatability of analyses
- 2015 Quantitative Biology Lab, Dr. Sarah Diamond, Case Western Reserve University  
Statistical significance versus biological significance

- 2014 Applied Statistics, Dr. Kathryn Montovan, Bennington College  
The dispersal process of asexual propagules in the clonal plant *Marchantia inflexa*
- 2012 Theory Group, Dr. Karen Abbott, Iowa State University  
The Effects of Plant Defense Traits on Herbivore Population Dynamics
- 2011 Circuits and Bits Class, Dmitry Strakovsky, Dept of Fine Arts, University of Kentucky  
What happens when you give a graphic designer, an engineer, a pseudo-engineer, and a drummer a bourbon barrel? It becomes an instrument.
- 2011 Conceptual Methods in Ecology, Dr. Phil Crowley, University of Kentucky  
Competition, Predator-Prey, and Mutualism Models
- 2006 Population and Community Ecology, Dr. Scott Gleeson, University of Kentucky  
Effects of Spatial Structure on Sex Ratio Dynamics: An Introduction to Metapopulations
- Leader for Single Experiments in Undergraduate Ecology Laboratory, University of Kentucky  
Designed and Implemented single class experiments (\*with undergraduate student helper)
- |  |             |
|--|-------------|
| Introduction to Population Dynamics and Computer Programming       | Spring 2011 |
| Sunlight Effects on Morphology and Physiological Traits of Plants* | Spring 2011 |
| The Causes and Consequences of Urban Forests*                      | Spring 2010 |
| Light versus Shade Morphology Differences in 3 Plants Species*     | Spring 2009 |
| Competition Dynamics in 3 Protist Species, Co-Leader               | Spring 2009 |
| Effects of Group Size on Predator Avoidance*                       | Spring 2008 |

### Research Meeting Presentations and Invited Talks

(\* denotes undergraduate presenter, bold denotes presenter)

#### Invited Presentations

- 2014 *Plant responses to herbivory and their effects on herbivore population dynamics*  
September 4, Case Western Reserve University, Department of Biology
- 2014 *The interactive effects of plant defenses on herbivore population dynamics*  
March 21, Bennington College, Bennington, VT
- 2013 *Plant Responses to Herbivory Reduce Population Cycles*  
Current Challenges for Mathematical Modeling of Cyclic Populations  
Banff, Canada, 10 November – 15 November
- 2007 *Sex Ratio Dynamics of a Liverwort: From a patch model to metapopulation*  
Department of Biology, University of the West Indies, Trinidad and Tobago

#### Research Meetings, since 2006

- 2014 Trade-offs between Colorado potato beetle resistance and late blight resistance in commercial potato varieties  
November 16-19, Entomological Society of America meeting  
**Christopher Stieha**, Sara Cilles, Etzel Garrido, William Fry, Katja Poveda
- 2013 *Plant responses to herbivores and their effects on pest outbreaks*  
Ecological Society of America Meeting, Minneapolis, MN  
**Christopher Stieha**, Karen Abbott, Katja Poveda
- 2012 *The Effects of Spatial Configuration of Populations on the Maintenance of the Sexes*  
University of Kentucky CEEB Symposium, Lexington, KY  
**Christopher Stieha**, Amy Bowman, Philip Crowley, Nicholas McLetchie

- 2012 *Morphological Character Evolution in Complex Thalloid Liverworts*  
University of Kentucky CEEB Symposium, Lexington, KY  
**Courtney Ethington\***, Christopher Stieha, Nicholas McLetchie
- 2011 *Maintenance of Two Sexes in a Clonal Organism: Nature vs. Mathematical Models*  
Biomathematics and Ecology: Education and Research Symposium, Portland, OR  
**Christopher Stieha**, D. Nicholas McLetchie, Philip Crowley
- 2011 *Reproductive Decisions: Finding the Best Blend of Sex and Asex*  
International Conference on Comparative Decision Making, Lexington, KY  
**Christopher Stieha**, Elizabeth Mattei, Jonathan Moore, Philip Crowley
- 2011 *Effects of population size and spatial configuration on the maintenance of the sexes in a clonal organism*  
Ecological Society of America Meeting, Austin, TX  
**Christopher Stieha**, Amy Bowman, Philip Crowley, D. Nicholas McLetchie
- 2011 *Plasticity and habitat differences in photosystem and growth responses to sunflecks in a tropical plant*  
Kentucky Academy of Science, First Place Award for a presentation in Botany  
**Alexandra Weiser\***, Nicholas McLetchie, Christopher Stieha
- 2011 *Open Source Data Logger: How to Cheaply Collect Environmental Data*  
University of Kentucky CEEB Symposium, Lexington, KY  
**Christopher Stieha** and Paul Eberhart
- 2008 *Sex-specific plant responses to light: Implications for spatial segregation of the sexes.*  
Association of Southeastern Biologists, Spartanburg, SC  
**Kristin Groen\***, Christopher Stieha, Philip Crowley, Nicholas McLetchie
- 2008 *Causes of change in spatial segregation of two plant species along a light gradient*  
University of Kentucky Undergraduate Showcase, Lexington, KY  
**Kaitlyn Smith\***, Christopher Stieha, D. Nicholas McLetchie
- 2007 *The relationship of habitat size and sex bias in a tropical plant*  
Kentucky Young Scientists Summer Research Program  
**Amy Bowman\***, Christopher Stieha, D. Nicholas McLetchie
- 2007 *The relationship of habitat size and sex bias in a tropical plant*  
University of Kentucky Undergraduate Showcase, Lexington, KY  
**Amy Bowman\***, Christopher Stieha, D. Nicholas McLetchie
- 2007 *Sex Expression in response to environmental factors in non-vascular plants*  
National Convention of Undergraduate Research, Dominican University of California  
**Deric Miller\***, Heather Gale, Chris Stieha, Nicholas McLetchie
- 2006 *The Effects of Spatial Structure on Sex Ratio Dynamics*  
American Botanical Society Meeting, Chico, CA  
**Christopher Stieha**, Nicholas McLetchie, Philip Crowley
- 2006 *Do previous experiences affect morphological responses?*  
American Botanical Society Meeting, Chico, CA  
**Leslie Campbell\***, Christopher Stieha, Nicholas McLetchie
- 2006 *The Effects of Spatial Structure on Sex Ratio Dynamics*  
University of Kentucky CEEB Symposium, Lexington, KY  
**Christopher Stieha**, Nicholas McLetchie, Philip Crowley

### **Reviewer of Journal Articles and Grants**

---

- 2015 Grants for Source of Undergraduate Research & Creative Endeavors, CWR University;  
Oikos  
2009 Behavioral Ecology and Sociobiology  
2007 The American Naturalist

### **Community Service**

---

- 2015 Cleveland Animal Care & Control Volunteer Dog Walker, OH  
2013 Member of Education Committee, Ithaca Generator Makerspace, non-profit, NY  
2010-2011 Organizer of Technical Book Club, Collexion, non-profit, Lexington KY  
2011 Flora Cliff Nature Sanctuary Volunteer, KY  
2010-2011 Nature Preserve Monitor for Tom Dorman Nature Preserve, KY  
2009-2011 Lexington Humane Society Volunteer, KY  
2009 Twelve Note Musical Bourbon Barrel  
Fundraiser for School of Music, University of Kentucky  
2009 “Ode To Joy” Musical Bourbon Barrel  
Spirits of Giving Fundraiser, Lexington, KY  
2005-2006 Ecolunch Seminar Coordinator, University of Kentucky