

CURRICULUM VITAE

JAMES R. WALTERS

Ecology & Evolutionary Biology, University of Kansas
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Education

- Ph.D. Cornell University, Ithaca, NY
 Ecology & Evolutionary Biology, 2009
- B.A. Bowdoin College, Brunswick, ME
 Biology, Departmental Honors, *Summa Cum Laude*, 2000

Appointments

- 2013 Assistant Professor – Kansas University, Ecology & Evolutionary Biology
- 2013 Postdoctoral Researcher – Stanford University, Biology
- 2010-2012 U.S. National Science Foundation Bioinformatics Post-Doctoral Fellow
- 2012 Visiting Fellow – Stanford University, Biology Dept.
- 2010-2011 Visiting Fellow – Cambridge University, Zoology Dept.
- 2010-2011 Post-Doctoral Research Associate – St. John’s College, Cambridge University
- 2009 Research Associate – Cornell University, Ecology & Evolutionary Biology
- 2002-2009 Doctoral Student – Cornell University, Ecology & Evolutionary Biology
- 2001-2002 Research Technician – University of Maryland, Biology Dept.

Publications

- Martin SH, Dasmahapatra KK, Nadeau NN, Salazar C, **Walters JR**, Blaxter M, Manica A, Mallet J, and Jiggins CD. 2013. Genome-wide evidence for speciation with gene flow in *Heliconius* butterflies. *Genome Research*.
- Briscoe AD, Munos AM, Kozak KM, **Walters JR**, Yuan F, Jamie GA, Martin SH, Jacquin-Joly E, and Jiggins CD. 2013. Female behavior drives expression and evolution of gustatory receptors in butterflies. *Plos Genetics*, 9, e1003620
- Walters JR**, Stafford C, Hardcastle, TJ & Jiggins, C.D. 2012. Evaluating female remating rates in light of spermatophore degradation in *Heliconius* butterflies: pupal-mating monandry versus adult-mating polyandry. *Ecological Entomology*, 37, 257–268.
- Heliconius* Genome Consortium. 2012. (K Dasmahapatra & **JR Walters**, shared first-authorship, with 78 co-authors). A butterfly genome reveals promiscuous exchange of mimicry adaptations among species. *Nature*, 487, 94–98.
- Walters JR**, Stafford C, Hardcastle J, and Jiggins CD. 2012. Evaluating female remating rates in light of spermatophore degradation in *Heliconius* butterflies: pupal-mating monandry versus adult-mating polyandry. *Ecological Entomology*, 37:4, 257–268. **Distinguished as *Editor’s Choice* for issue
- Walters JR** and Harrison RG. 2011. Decoupling of rapid and adaptive evolution among seminal fluid proteins in *Heliconius* butterflies with divergent mating systems. *Evolution*, vol. 65 (10) pp. 2855-71

- Walters JR** and Hardcastle TH. 2011. Getting a full dose? Reconsidering sex chromosome dosage compensation in the silkworm, *Bombyx mori*. *Genome Biology and Evolution* vol. 3 pp. 491-504
- Walters JR** and Harrison RG. 2010. Combined EST and Proteomic Analysis Identifies Rapidly Evolving Seminal Fluid Proteins in *Heliconius* Butterflies. *Molecular Biology and Evolution* vol. 27 (9) pp. 2000-2013
- Maroja LM, Andres JA, **Walters JR**, and Harrison RG. 2009. Multiple barriers to gene exchange in a field cricket hybrid zone. *Biological Journal of the Linnean Society*. 97(2):390-402.
- Walters JR** and Harrison RG. 2008. EST analysis of male accessory glands from *Heliconius* butterflies with divergent mating systems. *BMC genomics*, 9: 593.
- Papa R, Morrison CM, **Walters JR**, Counterman BA, Chen R, Halder G, Roberts L, Kapan DD, Jiggins CD, Reed RD, McMillan WO. 2008. Highly conserved gene order and numerous novel repetitive elements in genomic regions linked to wing pattern variation in *Heliconius* butterflies. *BMC Genomics* 9: 345.
- Wright TF, Johns PM, **Walters JR**, Lerner AP, Swallow JG and Wilkinson GS. 2004. Microsatellite variation among divergent populations of stalk-eyed flies, genus *Cyrtodiopsis*. *Genetical Research* 84(1) 27-40
- Graustein A, Gaspar JM, **Walters JR**, Palopoli MF. 2002. Levels of DNA polymorphism vary with mating system in the nematode genus *Caenorhabditis*. *Genetics*. 161 (1) 99-107.

Fellowships, Awards, & Grants

Fellowships

- 2010-2012 U.S. National Science Foundation Bioinformatics Post-Doctoral Fellowship
 2002-2004 U.S. National Science Foundation Graduate Research Fellowship
 1999 Surdna Foundation Undergraduate Research Fellowship

Awards

- 2009 Outstanding Teaching Service, Ecology & Evolutionary Biology, Cornell
 2009 Society for Molecular Biology & Evolution Graduate Student Travel Award
 2003 'Best Talk by a First Year Student' in EEB Graduate Student Symposium [Cornell]
 2000 Macomber Prize for outstanding senior majoring in biology [Bowdoin]
 1999 Moulton Prize for outstanding junior majoring in biology [Bowdoin]
 1999 Phi Beta Kappa [Bowdoin]

Research Grants

- 2010 **Capacity Challenge Grant, The Genome Analysis Center** [Norwich, UK]: *RNAseq transcriptome analysis of adaptively divergent phenotypes in Passion-flower butterflies (Genus: Heliconius)* (£40,000 equivalent in sequencing services; JRW primary author, PI: Chris Jiggins)
- 2010 **John Fell Fund, Oxford University**: *Molecular evolution of sex-linked and sex-biased genes in moths and butterflies* (£42,450; JRW primary author, PI: Judith Mank)
- 2006 **National Science Foundation Doctoral Dissertation Improvement Grant**: *Effects of mating system on accessory gland evolution in Heliconius butterflies* (\$11,970)

Smaller Research Grants (less than \$2000)

2011	Weis-Fogh Trust Fund [Cambridge]
2004-2007	Andrew W. Mellon Foundation [Cornell] (3x)
2005-2008	Cornell University Sigma Xi (3x)
2007	Orenstein Award [Cornell]
2004-2008	Cornell Graduate School Travel Grant (3x)

Research experience

- 2013 Post-doctoral research Stanford University, Palo Alto, CA
- Population genomic analysis of genomic imprinting in mouse and humans, synthesizing genome-wide allele-specific expression and population-resequencing data to address patterns of adaptation and diversity at imprinted loci.
- 2010-2012 Post-doctoral research Cambridge University, Cambridge, UK
- Genomic analyses of sex-chromosome evolution in Lepidoptera using microarrays, RNA-seq, and genome re-sequencing to address dosage compensation, molecular adaptation, and expression divergence.
 - Leading researcher in *Heliconius melpomene* genome project, coordinated research consortium and implemented gene predictions. Active contributor to *Manduca sexta* genome project.
- 2011 Post-doctoral research European Bioinformatics Institute, Hinxton, UK
- Automated gene prediction of *Heliconius melpomene* genome and quality assessment of draft genomic assemblies. 6-month appointment.
- 2009 Research Associate Cornell University, Ithaca, NY
- Grant writing and project development for a population genomic analysis of the amphibian-killing chytrid fungus. 4-month appointment.
- 2002-2009 Doctoral research Cornell University, Ithaca, NY
- Discovery, characterization, and molecular evolution of seminal fluid proteins in *Heliconius* butterflies achieved via a synthesis of tropical field work, EST libraries, proteomics, phylogenetics, and bioinformatics.
- 2001-2002 Laboratory Technician University of Maryland, College Park, MD
- Tissue collection and RNA-isolation for cDNA libraries. Optimized microsatellite primers for high-throughput genotyping. 10 month appointment.
- 1999-2000 Undergraduate Thesis Bowdoin College, Brunswick, ME
- Molecular evolutionary analysis of a *C. elegans* sperm protein; PCR, cloning, sequencing.
- 1998 Research Assistant Missouri Ozark Forest Ecosystem Project
- Mist-netting, nest-searching, and spot-mapping song birds. 3-month appointment.

Research Training

- 2011 European Bioinformatics Institute, Hinxton, NC
- *Advanced RNA-seq analysis*: 2-day course covering quality control and genome-wide differential gene expression analysis using RNA-seq data.
- 2008 National Evolutionary Synthesis Center (NESCent), Raleigh, NC
- *Computational Phyloinformatics Workshop*: 10-day course focused on writing custom BioPerl scripts and testing molecular evolutionary hypotheses.
- 2007 Woods Hole Marine Biological Laboratory, Woods Hole, MA

- *Workshop on Molecular Evolution*. 2-week intensive course on computational methods and analyses used in molecular evolutionary research.

Teaching and Leadership

2002-2009 *Teaching Assistant* Ecology & Evolutionary Biology, Cornell University

- Special Assistant to curriculum/lecture revision team for Intro Evolutionary Biology
- Evolutionary Biology: *Writing in the Majors*, a selective writing-intensive section of the introductory course for which I independently developed the curriculum
- Topics in Ecology and Evolution, the first-year grad student core course
- Macroevolution
- Speciation

2002-2008 *Whitewater Kayak Instructor* Cornell Outdoor Education

- Taught introductory and intermediate whitewater kayaking skills to students and community members; organized and led groups of 10-15 people on multi-day kayaking/camping trips.

2003-2004 *Co-President of EEB Graduate Student Association* Cornell University

- Coordinated meetings and committees guiding student activities; Liaison between students and faculty/administration; Managed association's charter, funding, and budgeting.

2000-2001 *Manager and Instructor* Valley Mill Kayak School, Germantown, MD

- Managed field and administrative operations of whitewater kayak school. Primary organizer and co-leader of a 12-person week-long expedition on the Rio Grande river, TX.
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Presentations and Seminars

Invited Seminars

2013 University of Edinburgh, Institute of Evolutionary Biology
 2013 University of California, Berkeley, Museum of Vertebrate Zoology
 2012 Kansas University, Lawrence, KS
 2009 Bowdoin College, Brunswick, ME
 2009 Ecology and Evolutionary Biology, Cornell University
 2008 Department of Biology, Duke University

Conference Presentations

2012 Society for the study of evolution, Ottawa, Ontario, Canada
 2011 Society for the study of evolution, University of Oklahoma, Norman
 2010 Unifying behavioural & genomic in sexual selection research, University of Bath, UK
 2009 Society for molecular biology and evolution, University of Iowa
 2008 Society for the study of evolution, University of Minnesota
 2008 Ecology and evolution graduate student symposium, Cornell University
 2007 Eastern great lakes molecular evolution, University of Toronto
 2006 Society for the study of evolution, SUNY Stony Brook
 2006 Ecology and evolution graduate student symposium, Cornell University
 2003 Ecology and evolution graduate student symposium, Cornell University

Conference Posters

2012 Ecological Genomics, Kansas State University
 2011 Ecological & Evolutionary Genomics, Gordon Conference, University of New England
 2011 Arthropod Genomics Symposium, Kansas State University

2010 Arthropod Genomics Symposium, Kansas State University
2007 Society for molecular biology and evolution, Dalhousie University
1999 Eastern great lakes molecular evolution, SUNY Albany

Other Activities

Referee Service

Molecular Biology and Evolution, PNAS, PLoS ONE, Molecular Ecology Resource, Proceedings of the Royal Society B, Journal of Molecular Evolution, Insect Biochemistry and Molecular Biology, Insect Molecular Biology, Invertebrate Development and Reproduction

Society Memberships

Society for the Study of Evolution, Society for Molecular Biology and Evolution, Genetics Society