

**Laura King Sirot**


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**CURRENT POSITION**

**Associate Professor** 2016-present  
 Dept. of Biology, College of Wooster

**Assistant Professor** 2010- 2016  
 Dept. of Biology, College of Wooster

**EDUCATION**

<b>Ph.D.</b>	Zoology	University of Florida	2004
<b>M.Sc.</b>	Zoology	University of Florida	1999
<b>M.A.</b>	Anthropology	University of Michigan	1993
<b>B.Sc.</b>	Anthropology & Mathematics	University of Michigan	1992

**RESEARCH EXPERIENCE****Current Research**

- Functional analysis of seminal fluid proteins in the mosquito, *Aedes albopictus*
- Identification of seminal fluid proteins in the Mexican fruit fly, *Anastrepha ludens*
- Feeding ecology of mosquitoes in Costa Rica
- Evolutionary approaches to understanding human infertility

**Post-doctoral Research**, with Mariana Wolfner and Laura Harrington

Dept. of Molecular Biology and Genetics and Dept. of Entomology, Cornell University  
 Research Associate: 2008-2010  
 NIH NRSA Post-doctoral Fellow: 2005-2008

- Influence of male seminal fluid proteins on female behavior in *Drosophila melanogaster* and the dengue and yellow fever mosquito, *Aedes aegypti*
- Causes and consequences of variation in seminal fluid protein transfer in *Drosophila*

**Ph.D. Research**, with H. Jane Brockmann, Dept. of Zoology, University of Florida 1999-2004

- Post-copulatory sexual selection in the beetle, *Diaprepes abbreviatus*  
 (Research conducted in part with Stephen Lapointe at USDA-ARS USHRL, Ft. Pierce, FL)

**M.Sc. Research**, with H. Jane Brockmann, Dept. of Zoology, University of Florida 1996-1999

- Intersexual conflict and mating avoidance in the damselfly, *Ischnura ramburi*

**Post-Undergraduate Research**, with Dr. Susan Boinski, Dept. of Anthropology, University of Florida 1993-1995

- Conservation status of Costa Rican Squirrel Monkeys

**Undergraduate Research**, with Dr. Susan Perry, Department of Anthropology, University of Michigan 1991

- Social cognition of White-faced capuchins

**Undergraduate Research**, with Dr. John Berard, University of Puerto Rico, Cayo Santiago Primate Research Center 1990

- Reproductive strategies of female Rhesus macaques

**GRANTS AND FELLOWSHIPS (LAST FIVE YEARS)**

National Institutes of Health, R15, \$323,000	2019-2022
Henry Luce III Fund for Distinguished Scholarship Award	2018
Henry Luce III Fund for Distinguished Scholarship Award	2017
Hamburger Endowed Fund Award	2017
College of Wooster William H. Wilson Fund Award	2017
GLCA Expanding Collaboration Initiative \$15,000	2016-2018
Fulbright-Garcia Robles Scholarship	2013-2014
Henry Luce III Fund for Distinguished Scholarship Award	2014
National Institutes of Health, Sub-contractor on R01, \$362,000	2011-2016
National Institutes of Health, Sub-contractor on R15, \$36,000	2012-2014

**PEER-REVIEWED JOURNAL ARTICLES**

- Siro, L.K. 2019. Modulation of seminal fluid molecules by males and females. *Curr Opin Insect Sci* 35: 109-116.
- Siro, L.K. 2019. On the evolutionary origins of insect seminal fluid proteins. *Gen Comp Endocrinol* 278: 104-111.
- Gilkey P.L. \*\*, D.T. Bolshakov\*\*, J.G. Kowala\*\*, L.A. Taylor\*\*, S. O'Donnell, D.R. Marena, & **L.K. Siro**. 2018. Lethal effects of erythritol on the mosquito *Aedes aegypti* Linnaeus (Diptera: Culicidae). *J Applied Entomol* 142:873–881.
- Wigby, S. \*, Y.H. Kim \*\*, J. Perry, & **L.K. Siro** \*. 2016. Developmental environment mediates male seminal protein investment in *Drosophila melanogaster*. *Functional Ecology*, 30: 410-419.
- Joseph, P.N.\*\* , R.K. Sharma, A. Agarwal, & **L.K. Siro**. 2015. Men ejaculate larger volumes of semen, more motile sperm, and more quickly when exposed to images of novel women. *Evolutionary Psychological Science*, DOI 10.1007/s40806-015-0022-8.
- Boes, K.E., J.M.C. Ribeiro, A. Wong, L.C. Harrington, M.F. Wolfner, & **L.K. Siro**. 2014. Identification and characterization of seminal fluid proteins in the Asian tiger mosquito, *Aedes albopictus*. *PLoS NTD*, 8:e2946.
- Vogel, A., H. Jocque \*\*, **L.K. Siro**, & A.C. Fiumera. 2014. Effects of atrazine exposure on male reproduction in *Drosophila melanogaster*. *Journal of Insect Physiology*, 72C:14-21.
- Alfonso-Parra, C., F.W. Avila, P. Deewatthanawong, **L.K. Siro**, M.F. Wolfner, & L.C. Harrington. 2014. Synthesis, depletion and cell-type expression of a protein from the male accessory glands of the dengue vector mosquito *Aedes aegypti*. *Journal of Insect Physiology*, 70:117-124.
- Siro, L.K.** \*, G. Findlay \*, J. Sitnik \*, D. Frasher, F. Avila, & M.F. Wolfner. 2014. Molecular characterization and evolution of a gene family encoding both female- and male-specific reproductive proteins in *Drosophila*. *Molecular Biology and Evolution*. 31:1554-1567.
- Perry, J.C., **L.K. Siro**, and S. Wigby. 2013. The seminal symphony: How to compose an ejaculate. *Trends in Ecology and Evolution*, 28: 414-422.
- Smith, D. T., **L.K. Siro**, M.F. Wolfner, D.J. Hosken, & N. Wedell. 2012. The consequences of genetic variation in male sex peptide gene-expression levels for SP retention and egg laying in female *Drosophila*. *Heredity*, 109, 222-225.
- Helinski, M.E.H., P. Deewatthanawong, **L.K. Siro**, M.F. Wolfner, & L.C. Harrington. 2011. Duration and dose dependence of female sexual receptivity in *Aedes albopictus* and *Ae. aegypti* mosquitoes. *Journal of Insect Physiology*, 58: 1307-1313.
- Siro, L.K.**, M.C. Hardstone, M.E.H. Helinski, J.M.C. Ribeiro, M. Kimura, P. Deewatthanawong, M.F. Wolfner, & L.C. Harrington. 2011. Towards a semen proteome of the Dengue vector mosquito: Protein identification and potential functions. *PLoS Neglected Tropical Diseases*, 5:e989.
- Siro, L.K.**, M.F. Wolfner, & S. Wigby. 2011. Protein-specific manipulation of ejaculate composition in response to female mating status in *Drosophila melanogaster*. *Proceedings of the National Academy of Sciences*, 108:9922-9926.

- South, A., **L.K. Sirot**, & S.M. Lewis. 2011. Identification of predicted seminal fluid proteins in *Tribolium castaneum*. *Insect Molecular Biology*, 20:447-456.
- Avila, F.W., **L.K. Sirot**, B.A.L. LaFlamme, D.C. Rubinstein, & M.F. Wolfner. 2011. Insect seminal fluid proteins: identification and function. *Annual Review of Entomology*, 56: 21-40.
- Sirot, L.K.**<sup>\*</sup>, B.A. LaFlamme<sup>\*</sup>, J. Sitnik, C.D. Rubinstein, F.W. Avila, C.Y. Chow, & M.F. Wolfner. 2009. Molecular social interactions: *Drosophila* seminal fluid proteins as a case study. *Advances in Genetics*, 68:23-56.
- Sirot, L.K.**, N.A. Buehner, A.C. Fiumera, & M.F. Wolfner. 2009. Seminal fluid protein depletion and replenishment in the fruit fly, *Drosophila melanogaster*: an ELISA-based method for tracking individual ejaculates. *Behavioral Ecology and Sociobiology* 63: 1505-1513.
- Wigby, S.<sup>\*</sup>, **L.K. Sirot**<sup>\*</sup>, J. Linklater, F.C.F. Calboli, N. Buehner, A. Bretman, M.F. Wolfner, & T. Chapman. 2009. Seminal fluid protein allocation and male reproductive success. *Current Biology* 19: 751-757.
- Sirot, L.K.** & S.L. Lapointe. 2008. Patterns and consequences of mating behavior of the *Diaprepes* root weevil *Diaprepes abbreviatus* (Coleoptera: Curculionidae) in the field. *Florida Entomologist*. 91: 400-406.
- Sirot, L.K.**, R.L. Poulson, M.C. McKenna, H. Girnary<sup>\*\*</sup>, M.F. Wolfner, & L.C. Harrington. 2008. Identity and transfer of male reproductive gland proteins of the yellow fever mosquito (*Aedes aegypti*). *Insect Biochemistry and Molecular Biology*, 38:176-89.
- Drosophila 12 Genomes Consortium. 2007. Evolution of genes and genomes on the *Drosophila* phylogeny. *Nature*, 450, 203-218.
- Haerty, W., S. Jagadeeshan, R.J. Kulathinal, A. Wong, K. Ravi Ram, K., **L.K. Sirot**, L. Levesque, C.G. Artieri, M.F. Wolfner, A. Civetta, A., & R.S. Singh. 2007. Evolution in the fast lane: Rapidly evolving sex-related genes in *Drosophila*. *Genetics*, 177: 1321–1335.
- Sirot, L.K.**, H.J. Brockmann & S.L. Lapointe. 2007. Male post-copulatory reproductive success in the beetle, *Diaprepes abbreviatus*. *Animal Behaviour*, 74: 143-152.
- Ram, K.R., **L.K. Sirot** & M.F. Wolfner. 2006. A predicted seminal astacin-like protease is required for the processing of reproductive proteins in *Drosophila melanogaster*. *Proceedings of the National Academy of Sciences*, 103: 18674-18679.
- Sirot, L.K.**, S.L. Lapointe, R. Shatters, & M. Bausher. 2006. Transfer and fate of seminal fluid molecules in the beetles, *Diaprepes abbreviatus*: Implications for the reproductive biology of a pest species. *J. Insect Physiology*, 52: 300-308.
- Sirot, L.K.**, H.J. Brockmann, C. Marinis<sup>\*\*</sup>, & G. Muschett<sup>\*\*</sup>. 2003. Maintenance of a female-limited polymorphism in *Ischnura ramburi* (Zygoptera: Coenagrionidae). *Animal Behaviour*, 66: 763-775.
- Sirot, L.K.** 2003. The evolution of insect mating structures through sexual selection. *Florida Entomologist*, 86: 124-133.
- Sirot, L.K.** & H.J. Brockmann. 2001. Costs of sexual interactions to females in Rambur's fork-tail damselfly, *Ischnura ramburi* (Zygoptera: Coenagrionidae). *Animal Behaviour*, 61: 415 -424.
- Boinski, S. & **L. Sirot**. 1997. Uncertain conservation status of squirrel monkeys in Costa Rica, *Saimiri oerstedii oerstedii* and *Saimiri oerstedii citrinellus*. *Folia Primatologica* 68: 181-193.

## CONTRIBUTIONS TO BOOKS

- Sirot, L.K.** & M.W. Wolfner. 2015 Who's zoomin' who? Seminal fluid proteins and cryptic female choice in diptera. Chapter In Cryptic Female Choice in Arthropods: Patterns, Mechanisms, and Prospects; A. Aisenberg and A. Peretti, eds., Springer Press.
- Sirot, L.K.**, A. Wong, T. Chapman, & M.F. Wolfner. 2014. Sexual conflict and seminal fluid proteins: a dynamic landscape of sexual interactions. Chapter In Sexual Conflict; W. Rice and S. Gravrilets, eds., Cold Spring Harbor Laboratory Press.
- Wong, A.<sup>\*</sup>, **L.K. Sirot**<sup>\*</sup>, & M.F. Wolfner. 2010. Are Acps potential molecular agents of intersexual cooperation, conflict or both? Invited brief-review In Social Behaviour: genes, ecology, and evolution; T. Szekely, A. Moore, and J. Komdeur, eds., Cambridge University Press: Cambridge.

Putz, F.E., **L.K. Sirot**, & M.A. Pinard. 2001. Tropical forest management and wildlife: silvicultural effects on forest structure, fruit production, and locomotion of arboreal mammals, Chapter In The Cutting Edge: Conserving Wildlife in Logged Tropical Forests; Robert A. Fimbel, John G. Robinson, and Alejandro Grajal, eds. Columbia University Press: New York, New York, pp. 11-35.

#### COMMENTARY

**Sirot, L.K.** 2015. Ask not (only) what proteomics can do for behavior, but (also) what behavior can do for proteomes: a comment on Valcu and Kempenaers. *Behavioral Ecology*, 26, 17.

\* Equal contributors; \*\* Undergraduate student

#### INVITED TALKS (LAST FIVE YEARS):

University of Georgia, Athens, Georgia	2017
Centro de Investigación Enfermedades Tropicales, Universidad de Costa Rica	2017
Westminster College, New Wilmington, Pennsylvania	2017
Cleveland Clinic Center for Reproductive Medicine	2015
International Society for Behavioral Ecology, New York, NY	2014
Instituto de Ecología, Xalapa, Mexico	2014
Universidad Veracruzana, Xalapa, Mexico	2014

#### PRESENTATIONS (LAST FIVE YEARS):

<b>Sirot, L.K.</b> Seminal fluid derived adipokinetic hormone in <i>Aedes</i> mosquitoes. Insect Reproductive Molecules Meeting, Groningen, The Netherlands	2018
<b>Sirot, L.K.</b> Mosquito-monkey interactions: a preliminary report of findings from a collaboration initiated at the 2016 OARDC Mosquito Conference, Wooster, OH	2018
<b>Sirot, L.K.</b> The role of seminal fluid proteins in mediating feeding and reproduction of <i>Aedes</i> mosquitoes. Wooster Area Molecular Biology Association, Wooster, OH.	2017
<b>Sirot, L.K.</b> , K. Coyne**, S. Yossef**. <u>C.R.E.A.T.-ing an animal behavior course through use of primary literature</u> , Animal Behavior Society, Columbia, MO	2016
<b>Sirot, L.K.</b> and H. Zimmler-Lorenzo. <u>Case-study based module teaching</u> , Animal Behavior Society, Columbia, MO	2016
<b>Sirot, L.K.</b> <u>Origin and function of seminal fluid derived adipokinetic hormone in <i>Aedes aegypti</i> mosquitoes</u> , International Congress of Entomology, Orlando, FL	2016
<b>Sirot, L.K.</b> <u>Reproductive proteins and post-mating response in <i>Aedes</i> mosquitoes</u> , OARDC Mosquito Research Conference, Wooster, OH	2016
Joseph, P.N.**, <b>L.K. Sirot</b> , R. Sharma, A. Agarwal <u>Ejaculate tailoring in humans in response to images of novel women</u> Poster, Animal Behavior Society, Anchorage, AK.	2015
<b>Sirot, L.K.</b> , G. Findlay, K. Boes, S. Villareal, L. Harrington, M. Wolfner <u>Integrative studies of ejaculate-mediated traits in <i>Diptera</i></u> . Talk, International Society For Behavioral Ecology, New York, NY.	2014
Boes, K. & <b>L. K. Sirot</b> . <u>Functions of seminal fluid molecules in <i>Aedes mosquitoes</i></u> Insect Reproductive Molecules, Ithaca, NY.	2014

\*\* Undergraduate student

**SERVICE, PROFESSIONAL INVOLVEMENT, AND OUTREACH (LAST FIVE YEARS):****College of Wooster****College-wide**

Fulbright Committee	2018-2020
STEM Zone, Chair	2018-2020
Minorities in STEM, Faculty Advisor	2018-2020
STEM Zone Advisory Board	2014-2020
Neuroscience Curriculum Committee	2017
Conference With Trustees	2015-2017
Zumba Club adviser	2015-2017
Emergency Steering Committee	2014-2016
Kendall-Rives Committee	2014-2016
Integrated Life Sciences Facility Committee	2012-2016
Liaison with Duke Marine Laboratory	2011-2016

**Biology Department**

Seminar Planning Committee	2016-2017, 2019-2020
Tri-Beta/Biology Club adviser	2012-2013, 2014-2017
Departmental faculty searches	2011-present

**Outside College of Wooster: Academic**

Reviewer for many journals including: *Advances in the Study of Behavior*, *American Naturalist*, *Animal Behaviour*, *Behavioral Ecology*, *Ethology*, *Journal of Insect Behavior*, *Florida Entomologist*, *Behavioral Ecology and Sociobiology*, *Molecular Biology and Evolution*, *Molecular and Cellular Genomics*, *Naturwissenschaften*, *Behaviour*, *Neotropical Entomologist*, *Journal of Evolutionary Biology*, *Journal of Insect Science*, *Behaviour*, *Proceedings of the National Academy of Sciences*, *Insect Biochemistry and Molecular Biology*, *Proteomics*, *German Research Foundation (grant reviewer)*

Member of the Education Workshop sub-committee, Animal Behavior Society	2018-present
Co-coordinator of GLCA Workshop on Teaching Animal Behavior	2018
Taught graduate seminar on Scientific Communication, INECOL, Xalapa, Mexico	2014
Poster Judge, Animal Behavior Society	2013
Member of the Education Resources and Innovations sub-committee, Animal Behavior Society	2013-2018

Member of International Society of Behavioral Ecology; Animal Behavior Society; Sigma Xi; Entomological Society of America

**Outside College of Wooster: Non-Academic**

Wooster Science Café, co-founder and co-organizer, Wooster, OH	2013-present
Cornerstone Elementary Reading Program, Wooster, OH	2012-2016