

2022 Abbreviated curriculum vitae

NAME: Laura Catherine Harrington
DEPARTMENT/UNIT: Entomology
TITLE: Professor
CAMPUS ADDRESS: 3138/2130 Comstock Hall
PHONE: 255-4475
EMAIL: lch27@cornell.edu
WEB PAGE: <http://blogs.cornell.edu/harrington/>

BACKGROUND

EDUCATION:

<u>Year</u>	<u>Degree</u>	<u>Institution</u>
2001	Post-doctoral	University of California, Davis, CA
1999	Ph.D.	University of Massachusetts, Amherst, MA
1993	M.S.	North Carolina State University, Raleigh, NC
1990	B.S.	St. Lawrence University, Canton, NY

PROFESSIONAL BIO, OVERVIEW AND OBJECTIVES

Dr. Harrington is a Professor in the Department of Entomology at Cornell University and Director of the Northeast Regional Center for Excellence in Vector Borne Diseases. She earned her MS from North Carolina State University and then worked in industry as an agricultural biologist developing bio-rational pesticides for BASF. She went on to complete her PhD in Entomology with a focus on mosquito biology and public health from the University of Massachusetts and she completed her postdoctoral training at the University of California at Davis. Professor Harrington's research focuses on the biology, ecology and behavior of mosquitoes and ticks that transmit human diseases. Her current projects address feeding and mating behavior of the mosquito vectors of dengue, Zika and chikungunya viruses. She also investigates tick biology and control, acoustic behavior and flight range of disease vectors, human-mosquito interactions, and the role of climate change and globalization on emerging vector borne diseases. She is an award-winning mentor and teacher, offering courses at Cornell University in the fields of vector biology and global health. Harrington has published over 90 peer reviewed articles and 3 book chapters. She frequently serves as an expert resource for the media; her work has been featured on the NBC nightly news, NPR, New York Times, USA Today, Washington Post, BBC and Time Magazine. Her research has been supported by funding from the NIH/NIAID, Gates foundation, USDA, DOD, NOAA, and CDC. More information is available on her websites <http://blogs.cornell.edu/harrington/> and <http://neregionalvectorcenter.com/>.

ACADEMIC RANK:

Professor: 2013 to present

PRIMARY DEPARTMENTAL / Unit PROGRAM AREA: Medical entomology/Vector biology, 65% research and 35% teaching

GRADUATE FIELDS: Entomology, Ecology and Evolutionary Biology, Biomedical and Biological Sciences, Public Health and Planetary Health

AREAS OF EXPERTISE: Medical entomology, vector biology, global health, mosquito ecology and behavior, tick ecology, epidemiology, disease evolution and ecology

PROFESSIONAL EXPERIENCE

<u>Year</u>	<u>Experience</u>
2013- Present	Professor, Department of Entomology, Cornell University, New York
2017- Present	Director, Northeast Regional Center for Excellence in Vector-Borne Diseases
2013- 2016	Chair, Department of Entomology, Cornell University, New York

HONORS AND AWARDS (since 2010)

Donald C. Burgett Distinguished Advisor Award. Selected by the Cornell CALS senior class for outstanding undergraduate advising, 2020.

Recognition Award in Medical, Urban, & Veterinary Entomology, Entomological Society of America 2019

Stephen H. Weiss Presidential Fellow, for outstanding contributions to undergraduate education at Cornell. 2016-present

North Carolina State University Outstanding Alumna Award 2015

Eastern Branch ESA Distinguished Achievement Award in Teaching 2012, 2013

Provosts Award for Distinguished Scholarship, Cornell University 2010

ACTIVE GRANT SUPPORT-past year

Harrington (PI) W911QY1910006 Department of Defense DWFP “Novel Evaluation of control and prevention strategies for ticks”	6/01/2019-05/31/2022
Harrington (PI), Fonseca Co-PI CDC- Supplemental grant “Risk and Ecological Assessment for Management of the Asian longhorned Tick, <i>Haemaphysalis longicornis</i> , in the Northeastern US”.	12/31/2018-07/31/2021
Harrington (PI) U01CK000509 “CDC Center of Excellence in Vector-Borne Diseases” The goal of this project is to form the Northeast Regional Center for Excellence in Vector-Borne Diseases (NEVBD) (https://www.neregionalvectorcenter.com/).	12/31/2016-07/31/2021
Harrington/Wolfner (Co-PIs) NIH R01AI095491 “New Targets for Reproductive Control of Mosquito Vectors”	05/31/2017-05/30/2022
Harrington (co-PI), Munoz PI (Columbia Univ) National Oceanic and Atmospheric Administration	1/31/2019-07/31/2021

“The Development of Climate-Informed Decision-Support Tools for the Prevention and Control of Aedes-Borne Diseases in the Us and Transboundary Regions.”

TEACHING

Undergraduate Courses

ENTOM 4520 Introduction to Disease Vectors Lecture and Lab, every Fall (2018-present) 3 cr, with ENTOM 4521 laboratory (1 cr)

ENTOM 3520 Medical and Veterinary Entomology Lecture, Fall (2002-2012, 2017), 4 cr.

ENTOM 3530 Advanced Laboratory in Medical and Veterinary Entomology, Even fall (except 2010, 2014-2016), 1 cr.

ENTOM 2100/BIO&SOC2100 Plagues and People. Odd Fall (2003-2011, 2019) Even Fall (2014) Spring (2016). 2-3 cr. Co-taught with M. Caillaud starting 2014.

NS 2060 Introduction to Global Health 3 cr. Malaria Module, Spring 2007- 2009, 2011-2016, 2018-2021 (WASH and Lymphatic filariasis in latter offerings)

NTRES 4940 Conservation with Communities for One Health, Spring 2016, lectures on vector biology

ENTOM 4100 &4101 Malaria Interventions in Ghana, Fall and Spring 2 cr., 2007 to 2011

ENTOM 4110 Health Programs in Honduras, Spring 2008 2 cr.

Graduate Courses

ENTOM 6540 Vector Biology in Practice, every Spring (2020-present) 2 cr

ENTOM 6530 Control of Disease Vectors Seminar, every other Spring (2019-present) 2 cr

ENTOM 6520: Malaria Biology and Control, every other Spring (2019-present) 2 cr

ENTOM 6900 Ecology and Evolution of Infectious Diseases, 1 cr (2012 to 2013) co-taught with EEID faculty)

ENTOM 767 Special Topics in Entomology. Fall 2004, Spring 2005, 1 cr. (co-taught with Ann Hajek), Guest lectures each year 2007 to present (excluding 2010)

INVITED PRESENTATIONS (all presented by Harrington past 3 years)

Hearing: a novel sensory frontier for understanding mosquito behavior? New Jersey Mosquito Control Association Annual meeting. March 17-18, 2021

NEVBD Applied Research: Tackling Vector-Borne Disease Threats in the Northeast US. January 27, 2020

Monitoring Tick Resistance to Acaricides. SUNY Lyme meeting. January 11, 2021

Mosquitoes and Arboviral Diseases. Vector-borne Disease Risk and Prevention for the Clinician. American Society for Tropical Medicine and Hygiene Annual Meeting November 2020.

Brief review pesticide resistance monitoring survey findings for the NEVBD region. CDC DVBZD Vector Week National meeting. Ft. Collins, CO, February 2000.

Seminal influences: how male mosquitoes directly alter female physiology, fitness, and behavior. NIH Twinbrook Seminar Series. Rockville, MD, February 2000.

The role of *Aedes* male seminal fluid on female behaviors. Mosquito sensory biology symposium. University College London, September 2019.

Updates from the Northeast Regional Center for Excellence in Vector-Borne Diseases. NACCHO Vector Summit. Pittsburg, PA. April 2019.

Tick Control and Surveillance Programs in the United States.* American Mosquito Control Association Meeting. Orlando FL. February 2019. (*co-authors Emily Mader and Annie Geiger)

RESEARCH PUBLICATIONS (selected from the past 5 years of over 100; full list here <https://scholar.google.com/citations?user=DXjBcwsAAAAJ&hl=en>)

- League, Ethan C. Degner, Sylvie A. Pitcher, Yassi Hafezi, Erica Tennant, Priscilla C. Cruz, Raksha S. Krishnan, Stefano S. Garcia Castillo, Catalina Alfonso-Parra, Frank W. Avila, Mariana F. Wolfner and Laura C. Harrington. 2021. The impact of mating and sugar feeding on blood-feeding physiology and behavior in the arbovirus vector mosquito *Aedes aegypti*. *PLOS Neglected Tropical Diseases* 15 (9), e0009815
- Fikrig K, Peck S, Deckerman P, Dang S, St Fleur K, Goldsmith H, Qu S, Rosenthal H and LC Harrington. 2021 The effects of host availability and fitness on *Aedes albopictus* blood feeding patterns in New York. *American Journal of Tropical Medicine and Hygiene*.
- McMillan, Christina A Harden, James C Burtis, Mallery I Breban, John J Shepard, Tanya A Petruff, Michael J Misencik, Angela B Bransfield, Joseph D Poggi, Laura C Harrington, Theodore G Andreadis, Philip M Armstrong. 2021. The community-wide effectiveness of municipal larval control programs for West Nile virus risk reduction in Connecticut, USA. *Pest Management Science*
- League, LC Harrington, SA Pitcher, JK Geyer, LL Baxter, J Montijo, Rowland JG, Murdock CC and LJ Cator. 2021. Sexual selection theory meets disease vector control: Testing harmonic convergence as a “good genes” signal in *Aedes aegypti* mosquitoes *PLoS neglected tropical diseases* 15 (7), e0009540
- Fikrig K and LC Harrington. Understanding and interpreting mosquito blood feeding studies: the case of *Aedes albopictus*. *Trends in Parasitology*
- Reitmayer CM, Pathak AK, LC Harrington, Brindley MA, Cator LJ and CC Murdock. 2021. Sex, Age, and Acoustic Mating Interactions Affect the Immunity of *Aedes aegypti* Offspring. *Communications Biology*. *Commun Biol* 4, 723
<https://doi.org/10.1038/s42003-021-02236-5>
- Mader, C Ganser, A Geiger, LC Harrington, J Foley, RL Smith, ... 2021. A survey of tick surveillance and control practices in the United States. *Journal of medical entomology* 58 (4), 1503-1512
- Burtis JC, Poggi J, Payne B, Campbell SR, and **LC Harrington**. 2021. The susceptibility of *Ixodes scapularis* collected from a long-term 4-poster treatment area on Shelter Island, Long Island NY. *J Med Entomol*
- Cator L.C, Wyer CAS and **L.C Harrington**. 2021. Mosquito sexual selection and reproductive control programs. *Trends in Parasitology*. <https://doi.org/10.1016/j.pt.2020.11.009>
- Burtis JC, Poggi JD, McMillan JR, Crans SC, Campbell SR, Isenberg A, Pulver J, Casey P, White K, Zondag C, Badger JR, Berger R, Betz J, Giordano S, Kawalkowski M, Petersen GL, Williams G, Andreadis TG, Armstrong PM, and **LC Harrington**. 2020. NEVBD Pesticide Resistance Monitoring Network: Establishing a Centralized Network to Increase Regional Capacity for Pesticide Resistance Detection and Monitoring. *Journal of Medical Entomology*, <https://doi.org/10.1093/jme/tjaa236>
- Harrington L.C.**, Foy B and M. Bangs. 2020. Considerations for the use of Human Blood Feeding and Arthropod Exposure in Vector Biology Research: An Essential Tool for

- Investigations and Disease Control. Vector-Borne and Zoonotic Diseases.
<https://doi.org/10.1089/vbz.2020.2620>
- Munoz AG, Chourio X, Riviere-Cinamond A, Diuk-Wsser M, Kache P, Mordecai E, **Harrington LC** and MC Thompson. 2020. AeDES: A Next-Generation Monitoring and Forecasting System for Environmental Suitability of *Aedes*-borne Disease Transmission. *Scientific Reports* 10: 12640.
- Case E, Shragai T, Morreale SJ, **Harrington LC** and D. Erickson. 2020 Low-cost unmanned aerial vehicles (UAVs) for Asian tiger larval habitat surveillance. *Journal of Medical Entomology*. <https://doi.org/10.1093/jme/tjaa078>
- Noble JM, Degner EC, Kourkoutis FW and **L.C. Harrington**. 2019. Cryo-electron microscopy reveals that sperm modification coincides with female fertility in the mosquito *Aedes aegypti*. *Scientific Reports*. 9, 18537.
- Shragai T, **Harrington LC**, Alfonso-Parra C and F Avila. 2019. Oviposition site attraction of *Aedes albopictus* to sites with con- and heterospecific larvae during an ongoing invasion in Medellin, Colombia. *Parasites and Vectors*. 12:455
- League GP, Baxter LL, Wolfner MF, and **LC Harrington**. 2019. Male accessory gland molecules inhibit harmonic convergence in the mosquito *Aedes aegypti*. *Current Biology*. 29(6): R196-R197.
- Sanchez I, **Harrington LC**, Black IV WC and K.E. Olson. 2019. Analysis of salivary glands and saliva from *Aedes albopictus* and *Aedes aegypti* infected with chikungunya viruses. *Insects*. 10(2), 39; doi:10.3390/insects10020039
- Degner, E., Ahmed-Braimah, Y., Borziak, K., Wolfner, M.F. **Harrington, LC** and Dorus, S. 2019. Proteins, transcripts, and genetic architecture of seminal fluid and sperm in the mosquito *Aedes aegypti*. *Molecular and Cellular Proteomics*. 18 (Supplement 1) S6-S22; <https://doi.org/10.1074/mcp.RA118.001067>.
- Ledesma NA, Kaufman PE, Xue RD, Leyend C, Macapagal M, Winokur OC and **LC Harrington**. 2019. Entomological and socio-behavioral components of dog heartworm (*Dirofilaria immitis*) prevalence in two Florida communities. *Journal of the American Veterinary Medical Association*. Vol 254 (1): 93-103.
- Shragai, T and **L.C. Harrington**. 2019. *Aedes albopictus* (Diptera: Culicidae) on an Invasive Edge: Abundance, Spatial Distribution, and Habitat Usage of Larvae and Pupae Across Urban and Socioeconomic Environmental Gradients. *Journal of Medical Entomology*. 56(2): 472-482.
- Irma Sánchez-Vargas, **Laura C. Harrington**, Jeff Doty, William C. Black 4th and Ken E. Olson. 2018. Demonstration of efficient vertical and venereal transmission of dengue virus type-2 in a genetically diverse laboratory strain (GDLS) of *Aedes aegypti*. *PLoS NTD*. *PLoS Negl Trop Dis* 12(8): e0006754.*co-first authors.
- Villarreal SM, Pitcher S, Helinski MEH, Johnson L, Wolfner MF, **Harrington LC**. 2018. Male contributions during mating increase female survival in the disease vector mosquito *Aedes aegypti*. *Journal of Insect Physiology*. 108: 1-9.
- Shragai T, Tesla B, Murdock C and **Harrington LC**. 2017. Zika and Chikungunya: mosquito-borne viruses in a changing world. *Annals of the New York Academy of Sciences*. doi: 10.1111/nyas.13306. ***One of the top downloaded articles in journal's history as of year end 2017***

- Degner, EC and **LC Harrington**. 2016. A mosquito sperm's journey from male ejaculate to egg: mechanisms, molecules and methods for exploration. *Molecular Reproduction and Development*. Volume 83, (10): 897-911
- Alfonso-Parra C, Ahmed-Braimah YH, Degner E.C., Avila FW, Villarreal SM, Pleiss JA, Wolfner MF and **LC. Harrington**. 2016. Mating-Induced Transcriptome Changes in the Reproductive Tract of Female *Aedes aegypti*. *PLOS Neglected Tropical Diseases*. 10(2): e0004451. <https://doi.org/10.1371/journal.pntd.0004451>
- Degner, EC and **LC Harrington**. 2016. Polyandry depends on post-mating time interval in the dengue vector *Aedes aegypti*. *American Journal of Tropical Medicine and Hygiene*. doi: 10.4269/ajtmh.15-0893. 94 (4) 780-785.
- Ledesma, N and **LC Harrington**. Fine-scale temperature fluctuation and modulation of *Dirofilaria immitis* larval development in *Aedes aegypti*. 2015. *Veterinary Parasitology*, 209(1-2):93-100.
- Alfonso-Parra, CA; Deewatthanawong, P; Avila. FW, Sirot, LK, Wolfner, MF; **Harrington, L.C.** 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*. 70:117-24
- Harrington LC**, Fleisher A, Ruiz-Moreno D, Vermeyleylen F, Wa, C, Poulson RL, Edman JD, Clark JM, Jones JW, Kitthawee S, and Scott TW. 2014. Heterogeneous feeding patterns of the dengue vector, *Aedes aegypti*, on individual human hosts in rural Thailand. *PLoS Neglected Tropical Diseases*. 10.1371/journal.pntd.0003048. 8 (8), e3048
- Ruiz-Moreno D, Vargas IS, Olson KE and **LC Harrington**. 2012. Modeling Dynamic Introduction of Chikungunya Virus in the United States. *PLoS Negl Trop Dis* 6(11): e1918. doi:10.1371/journal.pntd.0001918.
<http://www.plosntds.org/article/info%3Adoi%2F10.1371%2Fjournal.pntd.0001918>
- Helinski MEH, Deewatthanawong P, Sirot LK, Wolfner MF and **LC Harrington**. 2012. Duration and dose-dependency of female sexual receptivity responses to seminal fluid proteins in *Aedes albopictus* and *Ae. aegypti* mosquitoes. *J Insect Phys*. 58(10):1307–1313
- Helinski MEH, Valerio L, Facchinelli L, Scott TW, Ramsey J and **LC Harrington**. 2012. Evidence of polyandry for *Aedes aegypti* in semi-field enclosures. *Journal of the American Society of Tropical Medicine and Hygiene*. 86(4):635-41.
- EXTENSION PUBLICATIONS**
- Insect Repellent Essentials: A Brief Guide**. 2019. Northeast Regional Center for Excellence in Vector-Borne Diseases. <https://hdl.handle.net/1813/66722>
- Life Cycle of the Blacklegged tick**. 2019 Northeast Regional Center for Excellence in Vector-Borne Diseases. <https://hdl.handle.net/1813/66916>
- Tick Surveillance and Control: Summary of Program Operations for Northeast States**. 2019. Northeast Regional Center for Excellence in Vector-Borne Diseases. <https://hdl.handle.net/1813/65688>
- Asian Tiger Mosquito Information and Trap Instructions**. 2019. Northeast Regional Center for Excellence in Vector-Borne Diseases. <https://hdl.handle.net/1813/66662>
- Egg Identification Guide for *Aedes albopictus* in the Northeast, USA**. 2018. Shragai, Talya; Mader, Emily; Harrington, Laura. <https://hdl.handle.net/1813/60750>