Lauren Jennie Cator

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BACKGROUND

**Education**

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| 2011 | Ph.D. in Entomology, Cornell University |
| 2006  | B.A. with Distinction in Biology and Minor in Anthropology, The Colorado College |

**Professional Employment**

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| 2018-present | Senior Lecturer (UK equivalent to Associate Professor): Department of Life Sciences, Imperial College London, UK |
| 2013- 2018 | Lecturer (UK equivalent to Assistant Professor): Department of Life Sciences,Imperial College London, UK  |
| 2011- 2013 | Postdoctoral Researcher: Centre for Infectious Disease Dynamics,The Pennsylvania State University, USA |
| 2006- 2011 | Research Assistant: Department of Entomology, Cornell University, USA |

GRANT SUPPORT

**Pending Funding:**

**Cator (PI),** Pawar, Pearse, White, England, Sanders, Vineer, and Jones (Co-Is) 2023-2026

 £1.5 M

Biotechnology and Biological Science Research Council Award

***Defra-UKRI One Health VBD Hub.*** Responses to vector-borne diseases (VBDs) require a One Health approach that integrates data on pathogens, animals, and humans with environmental data. In the next 20 years the UK is predicted to experience an increased threat from both endemic and invasive VBDs driven by changes in climate, land use, and biodiversity. UKRI and Defra recently invested over £7M in projects designed to improve our baseline understanding of mosquito and tick-borne diseases in the UK. This proposal is the product of a consultation with the larger UK VBD community about the resources required to enhance the links between data collection, analysis, and policy making. The Defra-UKRI One Health VBD Hub will provide infrastructure to enhance access and sharing of data on pathogens, vectors, and hosts, tools for linking these data to environmental data for forecasting applications, and visualisations and summaries to inform policy. Alongside these tools the project will deliver virtual and in person training and networking opportunities for the community. This project builds on existing UKRI as well as international investments in VBD repositories to deliver and maintain critical capacity and networks for the UK to respond to VBD threats. The Hub will form the basis for UK research community to develop future surveillance, advanced analytics, modelling, and simulation to support evidence-based decision making.

**Current Funding:**

**Harrington (PI),** Wolfner (Co-I) 2023-2024

 $55,200

NIH R01- Subaward

***New Targets for Reproductive Control of Mosquito Vectors.*** During mating, male mosquitoes transfer a cocktail of proteins (seminal fluid proteins, SFPs) to females. These compounds are produced in the male accessory glands and trigger cascades within the female that render them refractory to future matings as well as stimulate egg production and changes in bloodfeeding behavior. In collaboration with researchers at Cornell University, we are investing the role of genes found in our previous work to evolve in response to sexual selection in male pre- and post-copulatory fitness using reverse genetics approaches combined with behavioral and life history measures. Through the project we will gain a deeper understanding of mating behavior and identify new targets for reproductive control programmes.

**Completed Funding:**

**Cator (PI)**, Johnson (Co-PI) 2015-2021

 $1.1 M

NIH/BBSRC Ecology and Evolution of Infectious Diseases Collaborative Award

***Vector Behavior in Transmission Ecology (VectorBiTE).*** Vector behaviors such as biting rate, host preference, dispersal, and the effects of these behaviors on vector mortality and population growth have long been considered important drivers of VBD dynamics. Yet the role of vectors in models of disease dynamics is often distilled to simple measures of vector traits. Cooperation between modeling and data collection parties will lead to more detailed and targeted models which can better inform control strategies and policies, while also highlighting key experiments to fill critical gaps in our understanding. The VectorBiTE is a collaborative network of researchers working on VBDs interested in developing tools and resources to better understand and explore how variation in vector behavior and life history drive transmission dynamics ([www.vectorbite.org](http://www.vectorbite.org)). The main products of the network to date are two large databases for consolidating data on vector abundances and traits. These databases are complemented by open access online training tools for working with these types of data.

**Cator (PI)** 2016-2019

 £481,289

Biotechnology and Biological Science Research Council New Investigator Award

***Does acoustic signalling predict mating success in mosquito lines?*** Several new reproductive and genetic control strategies will require the release of laboratory reared male mosquitoes which are able to successfully mate with field populations. In order to meeting the applied goals of rearing successful lines and developing robust, accurate methods for predicting male fitness, we must first better understand how environmental conditions affect mating success and the relative contribution of acoustic signalling to total male fitness. Using a combination of detailed laboratory studies and fieldwork we have characterized the role of acoustic signals in male mating success and investigated the role of laboratory rearing practices on success. Our results indicate that acoustic signals are a reliable indicator male success, that male mating success is relatively unaffected by immature diet, and the laboratory selective environment could greatly impact the success of release lines through selection.

**Cator (PI),** Harrington (Co-I), Murdock (Co-I) 2016-2018

 $386, 923

NIH R21 Exploratory Award

***The Role of Acoustics in the Mating Behavior of Aedes aegypti****.* In this project we addressed a critical knowledge gap in the arbovirus vector, *Aedes aegypti*, by investigating acoustic signals as a mechanism of female choice. Our overall aim was to determine whether acoustic signals are a cue by which females distinguish between males offering different genetic quality. Our results align with previous work demonstrating that males exhibiting certain signaling characteristics are more likely to mate, but expand our understanding of how these signals may function in the mating system. The signaling behavior of fathers was predictive of one measure male offspring flight performance and two measures of male immune function. Using experimental infections with dengue virus, we also found differences between midgut stage infections in female offspring. Together, these findings suggest that acoustic signals may be an indicator of male genetic quality and that sexually selected traits may have implications for the evolution of traits critical to immune function and vectorial capacity.

**Cator (PI)** 2010-2011

 $35,000

Dissertation Award, CDC National Center for Zoonotic, Vector-Borne, and Enteric Diseases

***Acoustic Signaling in the Mating Systems of Medically Important Mosquitoes-*** This project funded by the CDC was focused on characterizing the role of flight tone signaling in the mating systems of *Ae. aegypti* and *Anopheles gambiae*. This project included laboratory and field based studies utilizing acoustic playback, behavioral observation, and development of equipment for recording flight tone in naturally forming field swarms.

JOURNAL ARTICLES- [Google Scholar Profile](https://scholar.google.com/citations?hl=en&user=lsW1yp0AAAAJ&view_op=list_works&sortby=pubdate) (trainees; \*undergraduate researchers, +Authors contributed equally to this work):

38. Wyer CAS, Trajanovikj V, Hollis B, & Cator LJ. *In Review.* Evidence for Significant Skew and Low Heritability of Competitive Male Mating Success in the Yellow Fever mosquito Aedes aegypti

37. Pawar S, Huxley PJ, Smallwood TRC, Nesbit ML, Chan AHH, Shocket MS, Johnson LR, Kontopoulos DG, & **Cator LJ.** *In Revision.* Variation in temperature of peak trait performance will constrain adaptation of arthropod populations to climatic warming. *Nature Ecology and Evolution.* Preprint available: <https://doi.org/10.1101/2023.01.18.524448>

36. Wyer CAS, **Cator LJ**+, & Hollis B+. 2023*.* Release from sexual selection leads to rapid genome-wide evolution in *Aedes aegypti*. *Current Biology.* 33, 1–7.

35. Qureshi A, Keene E, Brown G, & **Cator LJ.** 2023*.* The size of larval rearing container modulates the effects of diet amount and density on larval development in *Aedes aegypti. PLoS ONE*. 18 (1), e0280736.

34. Montoya LF, Alafo C, Martí-Soler H, Máquina M, Comiche K, Cuamba I, Munguambe K, **Cator LJ,** Aide P, Galatas B. Cuamba B, Marrenjo D, Rabinovich R, Alanso P, Saúte F, Paaijmans K. 2022*.* Overlaying human and mosquito behavioral data to estimate residual exposure to host-seeking mosquitoes and the protection of bednets in a malaria elimination setting where indoor residual spraying and nets were deployed together. *PLoS ONE*. 17 (9), e0270882.

33. Russell MC & **LJ Cator**. 2022*.* No impact of biocontrol predator on development time or size of surviving *Aedes albopictus* under optimal nutritional availability. *Insects.*13(2):155.

32. Gregory N, Ewers R, Chung A, & **Cator LJ**. 2022. Oil palm expansion increases the vectorial capacity of dengue vectors in Malaysian Borneo. *PLoS Neglected Tropical Diseases.* 16(3):e0009525.

31. Huxley P, Murray K, **Cator LJ**, & Pawar S, 2022*.* Competition in depleting resource environments shapes the thermal response of mosquito population fitness. *Communications Biology*. 5(1):66.

30. League GP, Harrington LC, Pitcher SA, Geyer1 JK, Baxter LL, Montijo J, Rowland JG, Johnson LM, Murdock CM, and **Cator LJ**. 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

29. Huxley P, Murray K, Pawar S, **Cator LJ**. 2021. The effect of resource limitation on temperature dependence of mosquito population fitness. *Proceedings of the Royal Society B.* 288 (1949), 20203217.

28. Reitmeyer CM, Harrington LC, Brindley MA, **Cator LJ**. Pathak AK, & Murdock CM. 2021*.* Female mate selection in *Aedes aegypti* determines immune performance in their offspring. *Communications Biology.* 4(1):723.

27. Russell MC, Qureshi A, Wilson CG, & **Cator LJ**. 2021. Size, not temperature, drives cyclopoid copepod predation of invasive mosquito larvae. *PLoS ONE* 16(2): e0246178.

26. **Cator LJ**, Wyer CAS, Harrington LC.2021. Mosquito sexual selection and reproductive control programs. *Trends in Parasitology.* *https://doi.org/10.1016/j.pt.2020.11.009.*

25. Andrés M,Su MP, Albert J, **Cator LJ.**2020. Buzzkill: Targeting the mosquito auditory system. *Current Opinion in Insect Science*. 40:11-17.

24. **Cator LJ**, Johnson LR, Mordecai EA, El Moustaid F, Smallwood T, La Deau S, Johansson M, Hudson PJ, Boots M, Thomas MB, Power AG, & Pawar S. 2020. The role of vector trait variation in vector-borne disease dynamics. *Frontiers in Ecology and Evolution*. 189.

23. Aldersley A, Pongsiri A, Qureshi A, Harrington LC, Ponlawat A, & **Cator LJ**. 2019. Too “sexy” for the field? Paired measures of laboratory and semi-field performance highlight variability in the apparent mating fitness of *Aedes aegypti* transgenic strains. *Parasites and Vectors* 12:357.

22. Qureshi A, Aldersley A, Hollis B, Ponlawat A & **Cator LJ**. 2019. Male competition and the evolution of mating and life-history in experimental populations of *Aedes aegypti*. *Proceedings of the Royal Society B*. 286 (1904):20190591.

21. Rund SSC, Braak K, **Cator LJ**, Copas K, Emrich SJ, Giraldo-Calderόn GI, Johansson MA, Heydari N, Hobern D, Kelly SA, Lawson D, Lord C, MacCallum RM, Roche DG, Ryan SJ, Schigel D, Vandergrift K, Watts M, Zaspel JM, & Pawar P. 2019. MIReAD, a minimum information standard for reporting arthropod abundance data. *Scientific Data* 6 (1):40.

20. Gregory N, Ewers R, Chung AYC, & **Cator LJ**. 2019. El Niño drought and tropical forest conversion synergistically determine mosquito development rate. *Environmental Research Letters*. 14(3): 035003.

19. Aldersley A & **Cator LJ**. 2019. Female resistance and harmonic convergence influence male mating success in *Aedes aegypti*. *Scientific Reports* 9:2145.

18. Lang B, Igdobe S, McManus K\*, Qureshi A & **Cator LJ**. 2018. The effect of larval diet on adult survival, swarming activity, and copulation success in male *Aedes aegypti* (Diptera: Culicidae). *Journal of Medical Entomology* 55(1):29-35.

17. Lefévre T, Ohm J, Dabiré K, Cohuet A, Choisy M, Thomas M, & **Cator LJ**. 2018. Transmission traits of malaria parasites within the mosquito: relative importance of genetic variation and phenotypic plasticity with consequences for control. *Evolutionary Applications* 11(4): 456-469.

16**. Cator, LJ**. 2017. Malaria altering host attractiveness and mosquito feeding. *Trends in Parasitology* 17: S1471-4992.

15. **Cator, LJ.** 2017. Host attractiveness and malaria transmission to mosquitoes. *The Journal of Infectious Diseases* 216 (3): 289-290.

14. Murdock CC, Luckhart S, & **Cator LJ**. 2017. Immunity and host physiology, and behavior in infected vectors. *Current Opinion in Insect Science* 20:28-33.

13. **Cator LJ** & Z. Zanti. 2016. Size, sounds, and sex: interactions between body size and harmonic convergence determine mating success in *Aedes aegypti*. *Parasites and Vectors* 9 (1):622.

12. Ohm J, Nielsen W, Read AF, Thomas MB, & **Cator LJ**. 2016. The effect of feeding and immune challenge on the reproductive fitness of *Anopheles stephensi*. *Parasites and Vectors*. 9 (113):1-10.

11. **Cator LJ**+, Pietri JE+, Murdock CC, Ohm J, Lewis E, Read AF, & Luckhart S, Thomas MB. 2015. Immune Response and insulin signaling alter feeding in the malaria vector *Anopheles stephensi*. *Scientific Reports* 5 (11947): 1-10.

10. **Cator LJ**, Lynch PA, Thomas MB & Read AF. 2014. Alterations in mosquito behavior by malaria parasites: potential impact on force of infection. *Malaria Journal* 13: 164.

9. **Cator LJ**+, George J+, Blanford S, Murdock CC, Baker TC, Read AF, & Thomas MB. 2013. ‘Manipulation’ without the parasite: altered feeding behavior of mosquitoes is not dependent on infection with malaria parasites. *Proceedings of the Royal Society B.* 280 (1763): 1-7.

8. Paaijmans KP, **Cator LJ** & Thomas MB. 2013. Temperature-dependent pre-bloodmeal period and temperature-driven asynchrony between parasite development and mosquito biting rate reduce malaria transmission intensity. *PLoS One* 8 (1): e55777.

7. **Cator LJ**, Thomas S, Paaijmans KP, Sangamithra R, Justin NAJA, Mathai MT, Read AF, Thomas MB, & Eapen A. 2013. Characterizing the thermal environment in malaria transmission settings in urban Chennai, India. *Malaria Journal* 12 (1): 84-93.

6. **Cator LJ**, PA Lynch, AF Read, & MB Thomas. 2012 Do malaria parasites manipulate mosquitoes? *Trends in Parasitology* 28 (11): 466-470.

5. Das, A, Anvikar AR, **Cator LJ**, Dihman RC, Eapen A, Mishra N, Nagpal BN, Nanda N, Raghavendra K, Read AF, Sharma SK, Singh OP, Singh V, Sinnis P, Srivastava HP, Sullivan SA, Sutton PL, Thomas MB, Carlton JM & Valecha N. 2012. Malaria in India: The Center for the Study of Complex Malaria in India. *Acta Tropica* 121 (3): 267-273.

4. **Cator LJ** & Harrington LC. 2011. Harmonic convergence and sexy sons: Indirect benefits associated with acoustic signals in the dengue vector. *Animal Behavior* 82 (4): 627-633.

3. **Cator LJ**, Arthur BJ, Ponlawat A, & Harrington LC, 2011. Behavioral observations and sound recordings of free-flight mating swarms of *Ae. aegypti* in Thailand. *Journal of Medical Entomology* 48 (4):941-9461.

2. **Cator LJ**, Ng'Habi KR, Hoy RR, & Harrington LC. 2010. Sizing up a mate: variation in production and response to acoustic signals in *Anopheles gambiae*. *Behavioral Ecology* 21 (5): 1033-1039.

1. **Cator LJ**+, Arthur BJ+, Harrington LC, & Hoy RR. 2009. Harmonic convergence in the love songs of the dengue vector mosquito. *Science* 323 (5917): 1077-1079.

BOOK CHAPTER

1. **Cator LJ.** Altered feeding behaviors in disease vectors. In: Ezenwa VO, Altizer S, Hall RJ, editors. Animal Behavior and Parasitism. Oxford University Press, 2022. DOI: 10.1093/oso/9780192895561.003.0013

AWARDS AND HONORS

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| 2022 | Outstanding Teaching Award, Student Union, Imperial College  |
| 2016 | Excellence in Teaching Award, Faculty of Natural Sciences, Imperial College |
| 2011 | Finalist, Director's Early Independence Award, National Institutes of Health |
| 2010 | Young Investigator Award, American Society of Tropical Medicine and Hygiene |
| 2010 | Outstanding Graduate Teaching Award, Cornell University |
| 2009 | Travel Award, American Committee of Medical Entomology ($5,000)  |
| 2009 | Young Investigator Award, American Society of Tropical Medicine and Hygiene |
| 2008 | Griswold Memorial Research Fund, Cornell University ($5,000) |
| 2008 | Rawlins Memorial Research Fund, Cornell University ($1,200) |

TEACHING AND ADVISING RESPONSIBILITIES

**Teaching:**

***Undergraduate Courses***

**Disease Ecology and Epidemiology**, Final Year Undergraduate, Sole Instructor, [23 1hr Lectures, Computer practical, coursework, essay exam] Imperial College London, 2019, 2021, 2022, 2023

**Population and Community Ecology**, Final Year Undergraduate, Sole Instructor [26 1 hr Lectures, Computer practical, coursework, essay exam] Imperial College London, 2015

**Behavioral Ecology**, 2nd Year Undergraduate, Course contributor [2 lectures, coursework and exam marking], Imperial College London, 2016-2019

***Graduate Courses***

**Co-convenor of Masters in Ecological Applications**, I was responsible for co-organizing and administration of a graduate level program. This includes development of curriculum, organizing all lectures, putting together two essay exams, acting as internal project advisor to all students and ensuring compliance with UK education standards. Cohorts of students range from 10-15 depending on the year. I coordinate within Imperial College London and outside partners such as Syngenta, CABI, Thompson Ecology, and Surrey Wildlife Trust to deliver and assess the course. 2018-2020

**Behavioral Ecology**, Masters Level Module, [10 lectures, 2 practical sessions, essay exam] Imperial College London, 2015-2023

**Integrated Pest Management**, Masters Level Module [5 lectures. Essay question], Co-taught with CABI, Imperial College London, 2016-2023

**Graduate Seminar in Ecology of Infectious Disease** [400 level, 1 credit seminar], Pennsylvania State University 2013

***Guest Lecturer***

Global Health, Senior Year Course, Lafayette College, 2013 *Introduction to medical entomology*

Global Health, Senior Year Course, Lafayette College, 2012, *What is a medical entomologist?*

Medical and Veterinary Entomology, Undergraduate, Cornell University, 2011, *Mosquito behavior*

Pest Management for the Practitioner, Undergraduate, Cornell University, 2010, *The control of medically important insect species*

Plagues and People, Undergraduate (non-majors), Cornell University, 2009, *Emerging infectious disease*

Pest Management for the Practitioner, UG, Cornell University, 2008, *Medical Entomology*

Plagues and People, UG, Cornell University, 2007, *Why are vector-borne diseases increasing?*

**Pedagogical Training:**

Imperial College London Learning and Development Program completed 2016- included coursework on student mentors, classroom teaching, assessment, and broadening participation. Cumulated with reflective teaching statement.

Cornell University “Writing the in Majors” Teaching Assistant Program Graduate 2010

**Other Training:**

Unconscious Bias, Bullying Prevention Training, Active Bystander Training. Mental Health Awareness.

**Supervision:**

Postdoctoral Researchers Supervised:

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| 2016-2019 | **Dr. Andrew Aldersley**, currently working as data analyst for private industry |

Doctoral Students Directed:

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| 2015-2020 | **Nichar Gregory**, Imperial College London, Science and Solutions for a Changing Planet Doctoral Training Programme (SSCP-DTP), *Vectorial capacity of Aedes albopictus across an environmental gradient.* (Co-Advised R Ewers), currently EcoHealth Alliance  |
| 2016-2021 | **Paul Huxley**, Imperial College London, SSCP-DTP, *The interactive effects of temperature, diet, and density on the fitness of Aedes aegypti.* (Co-Advised S Pawar, K Murray), currently Postdoc at Quantitative Ecology Lab at Virginia Tech.  |
| 2017-2021 | **Marie Russell**, Imperial College London, Presidential Fellow, *The potential of local copepods to control invading Asian Tiger Mosquitoes in the UK,* currently Postdoc at US Environmental Protection Agency |
| 2019-2023 | **Claudia Wyer**, Imperial College London, SSCP-DTP, *Sexually selected traits in the Yellow Fever Mosquito.* Undertaking postdoc as part of NIH project in Cator Lab |

Masters Student Projects Supervised:

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| 2015 | **Elizabeth Psomos**- The effect of microclimate on the development of mosquito in Malaysian Borneo [currently accreditation officer at Royal Society of Biology] **Stefano Igdobe**- The effect of larval diet, adult sugar feeding, and mating status on mosquito survival [PhD from Manchester University 2019]**Zacharo Zanti**- Investigating the effect of larval diet on the acoustic signals of *Aedes aegypti.* |
| 2016 | **Bethan Lang**- The effect of larval diet on male mosquito mating success in *Aedes aegypti* [pursuing PhD from James Cooke University]**Samuel Pownall**- Mosquito behaviour in Mozambique and its implications for vector control |
| 2017 | **Mhairi Miller**- The effect of frequency on the behavioral and acoustic responses of male mosquitoes [pursuing PhD at University of Southampton]**Jacob Cohen**- The effect of individual variation on measurements of mosquito fecundity [currently in industry-corporate security] **Joanna Clarke**- Method in motion tracking for mosquito swarms [pursuing PhD at University of Bristol]Natcha Dankittipong- Incorporating thermal performance into insect fitness projections (Co-Advised with S Pawar) |
| 20192020 | **Lizzie Keene**- The effect of container size on the performance of *Aedes aegypti* [Industry position with Oxitec Ltd]**Maisie Vollans**- The availability of larval habitats in human settlements and natural sites during an El Niño drought, in Malaysian Borneo [starting PhD at Oxford University]**Mia Williams**- Tracking mosquitoes through development with the use ofMicroplastics**Kyle Smith**- The effect of immature diet composition on the mating success of *Culex pipiens***Deraj Wilson-Agarwal**- Evaluating the Effect of Temperature and Precipitation onDisease Vector Abundances [in PhD programme at Imperial College London]**George Brown**-Analysis of the spatial distribution of the mosquito larvae **Tong Li**- The effect of body size on longevity and fecundity of *Aedes aegypti*  **Shun, Cheung**- Meta-analysis on intraspecific density dependence of mosquito larvae **Anne-Marie Saunders**- Temporal resolution and generalisability of climate-based ­­\_\_models of mosquito abundance |

2021 **Yuming Shi-** Genomic signatures of laboratory selection in *Ae. aegypti*

 **Shasha Zou-** Sexy fathers, sexy sons?: Heritability of mating success in *Ae. aegypti*

 **Chengyuan Liu-** The effect of temperature and reproductive rate on longevity in *Ae. aegypti*

 **Benjamin Wilson-** *Listronotus elongatus* as a biocontrol agent for *Hydrocotyle ranuculoides*

 **Yinan Sang**- Selection of *Beauveria* and *Metarhizium* isolates for developing biopesticides

 **Vladimir Trajanovikj -**Heritability of mating success in the yellow fever mosquito.​

 **Jasmine Hull**- *Microterys* species as biological control of brown soft scale on Tristan da Cunha

 **Craig Forbes-** Assessing the Impact of Asymmetric Warming on Host-seeking Behaviour in

 *Ixodes ricinus* (sheep tick) Larvae.

 **Aaron Sambrook** **-** The Effect of Land Use and Environmental Variables on Tick

 Abundance and Infection with *Borrelia burgdorferi sensu lato* in Berkshire

 **Simeon Barendse -** The Effect of Land Use and Environmental Variables on Tick Populations in

 Berkshire, England

**Leqi Zhang-** Development of a mass production method for the smut fungus *Doassansia niesslii*, a potential biological control agent of the invasive weed *Butomus umbellatus*

2022 **Chenrui Zhang-** Behaviour mechanisms of interspecific mating resistance in *Ae. aegypti*

 **Yuyang Wu-** Exploring Rhodamine B Marking Strategies in *Ae aegypti.*

Undergraduate Student Projects Supervised:

2015 **Sarah Warwicker**-Can we catch the yellow fever mosquito with yeast?

2016 **Douglas Rees**- A comparative laboratory study on the reaction of Aedes aegypti to different yeast species.

 **Celia Lutrat**- Indirect benefits in Aedes aegypti

 **Kirelle MacManus**- The effect of diet on the swarming Behavior of Aedes aegypti.

**Olivia Bates**-Undergraduate Research Opportunity Placement- The effect of time and cage size on insemination rate of Aedes aegypti

**Florence Drury**-Undergraduate Research Opportunity Placement- The effect of diet and dust colour on male mating success

2017 **Sina Lari**- The effect of diet on the fecundity of Aedes aegypti

 **Dina Binti Md Sukor**- The role of vector biting rate in transmission of VBDs

2019 **Tara Patel**- The effect of a transgene of fitness of the Yellow Fever mosquito

2020 **Heysen Ho**- The effect of genetic background and laboratory colonization in post matting responses in *Aedes aegypti.*

**Billy Lam-** Evaluation of biting frequency and fecundity between genetically different *Aedes aegypti*.

 **Alicia Suen-** The thermal performance of life history traits in the Yellow Fever mosquito.

 **Selina Kim**- Understanding drivers of host-seeking behaviour in the malaria mosquito.

2021 **Zoe Cheah**- Undergraduate Research Opportunity Placement- The effect of resource limitation on the projected distribution of *Aedes aegypti* with climate change

2022 **Ernest Chin-** The effect of sugar sources on mosquito swarming

 **Natasha Bennett**- Harnessing evolution to improve genetic control of mosquitoes

 **Matthew Grainger**- Evidence of laboratory adaptation in mosquito swarming

 **Navisha Ramkhelawon**- The effect of age on swarming mosquito swarming responses

PROFESSIONAL ACTIVITIES

**External PhD Examiner**

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| 2015201620172019 | Bristol University Keele UniversityUniversity of GlasgowOxford UniversityLondon School of Tropical Medicine and Hygiene Oxford University  |

**Invited Presentations**

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| 2022202120202019201820172016201520142013201120102009 | ***More than a bite: Mosquito ecology, transmission, and control of disease***Department of Entomology, Pennsylvania State University***Mosquito behaviour, ecology, and transmission***Department of Entomology, University of Wisconsin***Mosquito behavioural ecology and malaria transmission***CIID, Heidelberg University Hospital***The behavioural ecology of mosquitoes***CIDD, Pennsylvania State University***Altered feeding behaviors in disease vectors***Research Frontiers in Animal Behavior and Parasitism***Are changes associated with malaria infection mosquito or parasite driven?***Animal Behavior Society***Mosquito behaviour and the transmission and control of disease*** JUGATAE invited speaker, Department of Entomology, Cornell University***Setting the mood: sexual selection in mosquitoes***American Society of Tropical Medicine and Hygiene Annual Meeting***The behavioural ecology of mosquitoes***Workshops in Ecology and Behaviour, University of Bristol ***Environmental and genetic determinants of mating success in Aedes aegypti***BBSRC International Partnering Symposium: From Sensory Biology to Vector Control, UCL Ear Institute***Infection and mosquito behavior***Vector-borne Diseases in the UK, Invited Speaker***Sex in a swarm***University College London***The behavioral ecology of mosquitoes***Oxford University, Edward Grey Field Institute,***The role of sound in mosquito mating behavior***Royal Society of Entomology, Invited Speaker***Mosquito mating behavior: the role of sound***London School of Tropical Medicine and Hygiene, Invited Speaker***Methods in mosquito acoustic research***Behavioral Ecology Methods Workshop, Invited Speaker, Pennsylvania State University***The effect of malaria infection on mosquito host-seeking***Wellcome Trust Sanger Institute, Institute Seminar***The Behavioral ecology of mosquitoes***Pirbright Institute, Institute Seminar***Sickness, Sound, and Sex in Swarms***University of Georgia, Department of Infectious Diseases***The effect of immune challenge on mosquito feeding behavior***International Congress of Entomology, Invited Speaker***Sound and sex in a swarm***Bristol University. Life Sciences Department***Adventures in mosquito ecology***Sheffield University, Life Sciences Department***The behavior of infected mosquitoes***Keele University, School of Life Sciences***The behavioral ecology of mosquitoes***Edinburgh University, Center for Immunity, Infection, and Evolution***The role of host immune response in mosquito feeding behaviors***American Society of Tropical Medicine and Hygiene, Invited Speaker***The role of infection in mosquito behavior***Pennsylvania State University, Department of Ecology***The behavior of medically important mosquitoes***Laussane University, Life Sciences Seminar***Mosquito behavior, transmission, and control***Imperial College London, Life Sciences Seminar***Manipulation, but not as we know it: malaria infection and mosquito behavior***American Society of Tropical Medicine and Hygiene***The effect of malaria infection on mosquito behavior***Pennsylvania State University, Centre for Infectious Disease Dynamics***The role of sound in mosquito mating***Indian National Academy of Vector Borne Disease Symposium on Vectors and Vector-Borne Diseases***Indirect benefits in the mating success of the yellow fever mosquito***American Society of Tropical Medicine and Hygiene ***The role of acoustics in mosquito mating behavior***American Society of Tropical Medicine and Hygiene***Size matters: the effect of body size on mosquito flight tone***International Congress of Vector Ecology, Invited Student Speaker |

**Symposia Organized**

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| 20132019 | The ins and outs of mosquito feeding behavior and malaria transmission. Co-organized with MB Thomas, American Society of Tropical MedicineMosquito love, naturally. Co-chaired with LC Harrington, American Society of Tropical Medicine |

**Leadership**

2019-present Co-lead, Imperial College London Centre of Excellence in Malaria Research

 2020-present Board member, VectorByte Database Resource

 2020-2024 Executive council, American Committee of Medical Entomology

**Meeting Organization**

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| 20212019201820172016 | VectorBiTE: Training and Network Meeting, VirtualVectorBiTE: Training and Network Meeting, Lead Organizer and Chair, Trento, ItalyVectorBiTE: Training and Network Meeting, Asilomar, USAVectorBiTE: Training and Network Meeting, Lead Organizer and Chair, London, UK VectorBiTE: Training and Network Meeting, Tampa, USA, 2016 |

**Reviewer For**

Journal of Medical Entomology, American Journal of Tropical Medicine and Hygiene, Evolution. Proceeding of the Royal Society B, Journal of Insect Behavior, Memòrias do Instituto Oswaldo Cruz, Biology Letters, Scientific Reports, Parasites and Vectors, Journal of Insect Behavior, Evolutionary Applications, PLoS Neglected Tropical Diseases

SERVICE

 2023-present Department of Life Sciences, Undergraduate Education Committee

 2021-present Imperial Institute of Infection, Champion for Infection on a Changing Planet

 2022-2023 Department of Life Sciences, Deputy Postgraduate Senior Tutor

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| 2019 | Department of Life Sciences Faculty Recruitment, Chair for Ecology and Evolution |
| 2015- 2017 | Department of Life Sciences Equal Opportunities Committee, Member |
| 2015-2016 | Silwood Park Campus Management Committee, Member |
| 2014-2016 | Silwood Park Campus Health and Safety Committee, Chair |

OUTREACH AND COMMUNICATION

**Public Outreach**

|  |  |
| --- | --- |
| 202320222021202020192016, 2018 | Mozzie Music Interactive Event, Exhibition Road FestivalMozzie Music Interactive Event, Imperial LatesPanellist, “Climate Change Bites”, BBSRC Webinar in honour of COP26Mosquito mating behavior display and booth for Imperial College FestivalVector-Borne Diseases in the UK display and booth for Bugs, Birds, and Beasts outreach event at Silwood ParkMake your own mossie! Outreach booth (Aimed at under 12s) Silwood Park Open Day |
| 2016 | “A Mosquito’s World” Pint of Science public lecture in a pub in London  |
| 2011 | “Listening to Mosquitoes”, public lecture, Museum of the Earth, Ithaca New York |

**Resources for media**

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| --- | --- |
| 202320172009200920092009 | [A Male Mosquito's Hairy Ears Tune into Mates](https://www.npr.org/sections/goatsandsoda/2023/08/18/1194390459/hairy-ears-of-male-mosquitoes-help-them-find-the-ladies-can-we-disrupt-their-hea) By Max Barnhart, Goats and Soda[The Parasite that Lures Mosquitoes to Humans](https://www.theatlantic.com/science/archive/2017/02/malaria-mosquitoes-behavior/515886/) by Sarah Zhang, The Atlantic[Field Notes: Meddling With Mosquito Romance in the Name of Public Health](http://discovermagazine.com/2009/dec/20-field-notes-meddling-with-mosquito-romance-in-name-public-health) by Dava Sobel Discover Magazine[Whining and Dining: Love Mosquito Style](https://www.wired.com/2009/01/mosquitowings/) by Michael Wall, Wired MagazineLive Interview with Canadian Broadcasting Company. 2009.[Mosquito love songs: How do they find mates](https://www.open.edu/openlearn/nature-environment/natural-history/mosquito-love-songs-how-do-they-find-their-mates)?, The Naked Scientists, 2009. |
| 2014-2016 | Contributor- [Bug Bitten](http://blogs.biomedcentral.com/bugbitten/) Blog, Biomed Central  |

PROFESSIONAL BIO, OVERVIEW AND OBJECTIVES

Dr. Cator is a Senior Lecturer in the Department of Life Sciences at Imperial College London. She earned her PhD in Entomology with a focus on mosquito behavior and control of mosquito-borne diseases from Cornell University in 2011. She went on complete postdoctoral training as part of Center for Infectious Disease Dynamics at Pennsylvania State University before moving to a faculty position at Imperial College London in 2014. Dr. Cator’s research focuses on the behavior of mosquitoes and the feedbacks between behavior and transmission dynamics. The laboratory’s current projects focus on using sexual selection theory to improve the implementation of new control tools and using informatic tools to enhance vector borne zoonotic disease prevention and control. She also investigates how the environment and infection can alter mosquito life history and disease transmission. Dr. Cator has conducted field work in Mexico, India, Thailand, and Tanzania and is currently working in Thailand and Malaysia. She is an award-winning teacher, offering courses at Imperial College London and working through the VectorBiTE network to make open-access online training tools. Cator has published over 30 peer reviewed articles. Her research has been supported by funding from the NIH/NIAID, UK-BBSRC, and CDC. More information is available on her website: [www.thecatorlab.com](http://www.thecatorlab.com).