Philip T. Leftwich
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Education and career

- Lecturer in Biological Sciences, 2019-*present*. University of East Anglia
- Postdoctoral Researcher/Project manager, 2016 – 2019. Team leader on "Developing methods for driving beneficial genetic traits into vector populations". The Pirbright Institute
- Lecturer in Ecology and Biodiversity, 2015-2016. Module co-ordinator for *Biodiversity*. University of East Anglia
- Postdoctoral Researcher – Researcher Co-I, 2012-2015. "Colonization, Domestication and Population control in pest insects" University of East Anglia
- PhD, University of East Anglia (2013) CASE Award with Oxitec Ltd. *"Genetic population control in the Mediterranean Fruit Fly"*
- BSc, Durham University (2008) Zoology

Funding

- **£1000** (2018) Entomology Program Enhancement Fund – Entomological Society of America
- **£460** Infravec Travel Grant (2018)
- **£376,000** **Researcher Co-I** on successful BBSRC Post-doctoral grant application (2012) "Colonization, Domestication and Population control in pest insects"

Publications

18. Philip T. Leftwich*, Lewis G Spurgin, Tim Harvey-Samuel, Callum Thomas, Leonela Carabajal Paladino, Matthew P. Edgington and Luke S Alphey (In Press) *Genetic pest management and the background genetics of release strains.* Philosophical Transactions of the Royal Society B.(***corresponding author**)

17. Philip T. Leftwich*, Matthew P. Edgington, Tracey Chapman (2020) *Transmission efficiency is a primary driver of host-microbe associations.* Proceedings of the Royal Society B. **(*corresponding author)**

16. Priscilla Y. L. Tng, Leonela Carabajal Paladino, Sebald Verkuijl, Jessica Purcell, **Philip T. Leftwich**, Rennos Fragkoudis, Rob Noad, Luke Alphey (2020) *Cas13b-dependent and -independent RNA knockdown of viral sequences in mosquito cells following guide RNA expression.* Comms Biology

DOI:10.1038/s42003-020-01142-6

15. Michelle A. E. Anderson, Jessica Purcell, Sebald A. N. Verkuijl, Victoria Norman, **Philip T. Leftwich**, Tim Harvey-Samuel, Luke S. Alphey (2020) *Expanding the CRISPR toolbox in Culicine mosquitoes: in vitro validation of Pol III promoters* ACS Synthetic Biology DOI: 10.1021/acssynbio.9b00436t

14. Kent Redford, Thomas M Brooks, Nicholas B W Macfarlane, Jonathan S Adams, Luke Alphey, Elizabeth Bennet, Jason Delborne, Hilde Eggermont, Kevin Esvelt, Ann KinGirl, Adam Kokotovich, Bartomiej Kolodziejczyk, Todd Kuiken, Nicholas BW Macfarlane, Aroha Mead, Maria Julia Oliva, Edward Perello, Lydia Slobodian, Delphine Thizy, Daniel M. Tompkins, Gerd Winter, Karl Campbell, Johanna E Elsensohn, Nick D. Holmes, Chris Farmer, Bradford S. Keitt, **Philip Leftwich**, Tom Maloney, Daniel Masiga, Andrew E. Newhouse, Ben Novak, Ryan Phelan, William A. Powell, Louise Rollins-Smith, Madeline van Oppen (2019) *Genetic frontiers for conservation An assessment of synthetic biology and biodiversity conservation* DOI: 10.2305/IUCN.CH.2019.05.en

13. Philip T. Leftwich, William Nash, Lucy Friend & Tracey Chapman (2019) *Contribution of maternal effects to dietary selection in Mediterranean fruit flies.* Evolution DOI: 10.1111/evo.13664

12. Philip T Leftwich & Tracey Chapman (2018) *Testing for Assortative Mating by Diet in Drosophila melanogaster.* Bio-Protocol DOI: 10.21769/BioProtoc.3057

11. Philip T. Leftwich, Matt Hutchings & Tracey Chapman (2018) *Diet, Gut Microbes and Host Mate Choice.* BioEssays DOI: 10.1002/bies.201800053

10. Philip T Leftwich, Matthew P Edgington, Tim Harvey-Samuel, Leonela Z Carabajal Paladino, Victoria C Norman & Luke Alphey (2018) *Recent advances in threshold dependent gene drives.* Biochemical Society Transactions DOI: 10.1042/BST20180076

9. PT Leftwich, NVE Clarke, MI Hutchings, T Chapman (2018) *Reply to Obadia et al: Effect of methyl paraben on host–microbiota interactions in Drosophila melanogaster* Proceedings of the National Academy of Sciences DOI: 10.1073/pnas.1805499115

8. PT Leftwich, NVE Clarke, MI Hutchings, T Chapman (2018) *Reply to Rosenberg et al: Diet, gut bacteria and assortative mating in Drosophila melanogaster.* Proceedings of the National Academy of Sciences DOI: 10.1073/pnas.1721804115

7. PT Leftwich, NVE Clarke, MI Hutchings, T Chapman (2017) *Gut microbiomes and reproductive isolation in Drosophila*. Proceedings of the National Academy of Sciences DOI: 10.1073/pnas.1708345114

6. Philip T. Leftwich, William Nash, Lucy Friend & Tracey Chapman (2017) *Adaptation to divergent larval diets in the medfly, Ceratitis capitata.* Evolution DOI: 10.1111/evo.13113

5. Ben Longdon, Jonathan P Day, Nora Schulz, **Philip T Leftwich**, Maaike A de Jong, Casper J Breuker, Melanie Gibbs, Darren J Obbard, Lena Wilfert, Sophia CL Smith, John E McGonigle, Thomas M Houslay, Lucy I Wright, Luca

Livraghi, Luke C Evans, Lucy A Friend, Tracey Chapman, John Vontas, Natasa Kambouraki, Francis M Jiggins (2017) *Vertically transmitted rhabdoviruses are found across three insect families and have dynamic interactions with their hosts.* Proceedings of the Royal Society B. DOI: 10.1098/rspb.2016.2381

4. Philip T. Leftwich, Michael Bolton & Tracey Chapman (2016) *Evolutionary biology and genetic techniques for insect control*. Evolutionary Applications DOI: 10.1111/eva.12280

3. Philip T. Leftwich, Martha Koukidou, Polychronis Rempoulakis, Hong-Fei Gong, Antigoni Zacharopolou, Guoliang Fu, Tracey Chapman, Aris Economopolous, John Vontas and Luke Alphey (2014) *Genetic Elimination of field-cage populations of Mediterranean Fruit Flies*. Proceedings of the Royal Society B. DOI: 10.1098/rspb.2014.1372

2. Leftwich PT, Edward DA, Alphey L, Gage MJG & Chapman T. (2012) *Variation in adult sex ratio alters the association between courtship, mating frequency and paternity in the lek-forming fruitfly Ceratitis capitata*. Journal of Evolutionary Biology. DOI:10.1111/j.1420-9101.2012.02556.x

1. Luke Alphey, Thomas H. Ant , Martha Koukidou, **Philip Leftwich**, Polychronis Rempoulakis, John Vontas, Aris Economopoulos, Tracey Chapman (2012). *Genetic improvements to sterile-male control of tephritid fruit flies*. Invited paper for TEAM (Tephritid Workers of Europe, Africa and Middle East) Newsletter

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Talks

Conferences

- **Invited Speaker** Entomological Society of America (2018) Vancouver, Canada
- Society of Molecular Biology & Evolution (2015) Vienna, Austria
- Evolution (2012) Ottawa, Canada

Invited Seminars

- Dry Labs - Real Science (2020) 'Benchling: A Molecular Biology Suite for Research & Teaching'
- Higher Education Academy (2020) 'Synchronous on-line teaching in the biomedical sciences: qPCR tests for a novel coronavirus'
- LSHTM MSc talks day (2018) Pirbright Institute
- Department of Genetics, University of Cambridge (2014)
- Centre for Ecology, Evolution and Conservation annual conference, UEA (2013)
- University of Crete (2011)
- Edward Grey Institute, Oxford University (2010)

Postgraduate Supervision

- Reza Nourani (2020-present) *"Gifts that keep on giving: maternal effects and insect pest control"* UEA PhD Student

- Alex Sidall (2019-present) *"CRISPR/Cas9 sex-conversion gene drives for insect pest management"* UEA PhD student
- Ozmen Cobanoglu (2018-2019) *"The role of the microbiome in vector capacity in Aedes aegypti"* Pirbright ERASMUS MSc
- Michael Darrington (2016-2019) *"Genetic tools for the control of insect pests"* UEA PhD student
- Michael Bolton (2012-2016) *"Novel routes for environmentally benign control of agricultural food insects"* UEA PhD student

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Professional Service

- **Wageningen Food Safety Research (WFSR) Consultant** 2019 – Developing Gene drive technology in food producing organisms
- **Grant reviewer** for French National Research Agency - ANR (France), Graduate Women in Science (USA), BBSRC (UK)
- **Manuscript Reviewer** PLoS One, PLoS Genetics, Behavioral Ecology and Sociobiology, FEMS Microbiology Letters, Journal of Insect Science, Journal of Biological Education, Journal of Applied Ecology, Nature Ecology & Evolution, Insects, Proceedings of the Royal Society B, Wiley Ecology and Evolution, Philosophical Transactions B.

Teaching

Undergraduate Teaching

- 2020 - *present* Data Science for Biologists *UEA*
- 2019 - *present* Molecules, Genes and Cells *UEA* 4013Y
- 2019 - *present* Genes, Genomes, Genomics *UEA 6013Y*
- 2019 - *present* Genetics *UEA* 5009A
- 2019-*present* Skills for Biologists *UEA 4008Y/10Y*
- 2015-*present* Science Communication UEA 6018Y
- 2015- *present* Microbiology UEA 5015B
- 2015- *present* Field Ecology UEA 5013A
- 2013 - *present* Evolution, Health & Disease UEA 6017A
- 2017-2018 Medical Entomology *LSHTM*
- 2015-2016 Biodiversity *UEA 4001A*
- 2015-2016 Evolution, Behaviour & Ecology *UEA 4002B*

PUBLICATIONS

- James Penny & **Philip Leftwich** *Maths Skills for A-level Biology 2nd Edition,* 2018, Oxford University Press ISBN: 978-0-19-842899-2

- **Book Editing and Proofing:** Oxford University Press: Populations, population growth and the species, Oxford University Press: Genetics and Evolution
- **OCR CPD Programme developer** -2020 - Maths for Biology
- **OCR Resource developer** 2016 - Maths for Biology Online Resources
- Physalia courses 2019 - Population Genomics
- **https://biovcnet.github.io/_pages/people/**

Administrative Duties

- Student Partnership Officer, *Biological Sciences, University of East Anglia* (2019-present)

Outreach

- The Brilliant Club - Scholars programme tutor (2014-2016)
- The Royal Society Summer Science Exhibition (2014)
- "*Introduction to Evolution and Ecology*" (2010 - 2012) Five day residential course for A-level students at Villier's Park Educational Trust.

Media Coverage

- **"**World Service" interview on BBC Radio, 18th August 2014
- **"**A Bioengineered solution to crop-killing fruit flies" *Motherboard.vice.com* August 2014
- **"**Genetically modified flies 'could save crops'" BBC News Online August 2014