

Philip T. Leftwich

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Education

PhD	Norwich
UNIVERSITY OF EAST ANGLIA	2009 - 2013
• Thesis: Male Reproductive Success and Population Control in the Mediterranean Fruit Fly.	
BSc (Hons) / Zoology	Durham
DURHAM UNIVERSITY	2004 - 2008

Qualifications

HEA Fellow	York
HIGHER EDUCATION ACADEMY	2016

Grants

BBSRC	University of East Anglia
GIFTS THAT KEEP ON GIVING: MATERNAL EFFECTS AND INSECT PEST CONTROL	2020
• PhD studentship • Co-supervisor • Funding amount 100,000 GBP	
BBSRC	University of East Anglia
CRISPR CAS9 BASED SEX-CONVERSION GENE DRIVES FOR PEST INSECT MANAGEMENT	2019
• PhD studentship • Co-supervisor • Funding amount 100,000 GBP	
Entomological Society of America	Pirbright Institute
ENTOMOLOGY PROGRAM ENHANCEMENT	2018
• Travel • Funding amount 1000 GBP	
Infravec	Pirbright Institute
INTRODUCTION TO BIOINFORMATICS RESOURCES FOR VECTOR GENOMICS STUDIES	2018
• Training • Funding amount 460 GBP	
BBSRC	University of East Anglia
COLONIZATION, DOMESTICATION AND POPULATION CONTROL IN PEST INSECTS	2012
• Research grant • Researcher Co-I • Funding amount 376,000 GBP	

Teaching

Module organiser	Data Science for Biologists; Genetics Genes, Genomes and Genomics; Science Communication; Skills for Biologists;
Lecturer	Microbiology; Biodiversity; Evolution, Behaviour and Ecology; Medical Entomology (LSHTM)
Tutor	Field Ecology; Evolution, Health and Disease

Presentations

CONFERENCES

UEA CEEC Rebellion	Online
INVITED PLENARY	2021
OCR Science Forum	Online
INVITED SPEAKER	2021
Bio-Summit	Online
SPEAKER	2020
Entomological Society of America	Vancouver
INVITED SPEAKER	2018
Society of Molecular Biology & Evolution	Vienna
SPEAKER	2015
Evolution	Ottawa
SPEAKER	2012

SEMINARS

Flying through the Gut	Online
INVITED SPEAKER	2021
Dry Labs Real Science	Online
SPEAKER	2020
HEA	Online
INVITED SPEAKER	2020
Department of Genetics	Cambridge
INVITED SPEAKER	2014

OUTREACH

Bioinformatics Virtual Coordination Network	Online
INSTRUCTOR	2020
The Brilliant Club	Norfolk
TUTOR	2014-2016
Royal Society Summer Science	London
EXHIBIT	2014
Villier's Park Educational Trust	Cambridge
TUTOR	2010-2012

SELECTED MEDIA COVERAGE

BBC World Service	Radio
INTERVIEW	2014
Motherboard-Vice	Article
INTERVIEW	2014
BBC News	Article
INTERVIEW	2014

Administrative Duties

Chair of Extenuating Circumstances Panel	University of East Anglia
SCHOOL OF BIOLOGICAL SCIENCES	2021-present
Statistician - Animal Welfare Ethical Review Body	University of East Anglia
FACULTY OF SCIENCE	2021-present
Student Partnership Officer	University of East Anglia
SCHOOL OF BIOLOGICAL SCIENCES	2019-present

Consultancy

OCR

PROGRAMME DEVELOPER

- Maths for Biology

Oxford

2020-present

Benchling

RESOURCE DEVELOPER

- <https://www.benchling.com/educators/>

San Francisco

2020-present

Physalia Courses

INSTRUCTOR

- Introduction to Population Genomics

Online

2019

OUP

AUTHOR

- Maths Skills for A-level Biology

Oxford

2018

OUP

EDITING & PROOFING

- Populations, population growth and the species concept; Genetics and Evolution

Oxford

2016-2019

OCR

RESOURCE DEVELOPER

- Maths for Biology-Online

Oxford

2016

Professional Service

Article reviews

Behavioural ecology and sociobiology; BMC biology; Insects; Journal of Evolutionary Biology; Phil. Transactions of the Royal Society; PLoS Genetics; Proceedings of the Royal Society; Molecular Ecology

Grant reviews

BBSRC Fellowships; GWIS National Fellowships

Professional memberships

Genetics Society

Publications

h-index: 9, Number of Publications: 19

REFEREED JOURNAL PAPERS

Leftwich, P., Spurgin, L., Harvey-Samuel, T., Thomas, C., Paladino, L., Edgington, M., & Alphey, L. (2021). Genetic pest management and the background genetics of release strains. *Philosophical Transactions of the Royal Society B*, 376(1818).

Anderson, M., Purcell, J., Verkuijl, S., Norman, V., **Leftwich, P.**, Harvey-Samuel, T., & Alphey, L. (2020). Expanding the CRISPR toolbox in Culicine mosquitoes: In vitro validation of pol III promoters. *ACS Synthetic Biology*, 9(3), 678–681.

Leftwich, P., Edgington, M., & Chapman, T. (2020). Transmission efficiency drives host–microbe associations. *Proceedings of the Royal Society B*, 287(1934).

Tng, P., Paladino, L., Verkuijl, S., Purcell, J., Merits, A., **Leftwich, P.**, Fragkoudis, R., Noad, R., & Alphey, L. (2020). Cas13b-dependent and Cas13b-independent RNA knockdown of viral sequences in mosquito cells following guide RNA expression. *Communications Biology*, 3(1), 1–9.

Leftwich, P., Nash, W., Friend, L., & Chapman, T. (2019). Contribution of maternal effects to dietary selection in Mediterranean fruit flies. *Evolution*, 73(2), 278–292.

Redford, K., Brooks, T., Macfarlane, N., Adams, J., Alphey, L., Bennet, E., Delborne, J., Eggermont, H., Esvelt, K., Kingirl, A., Kokotovich, A., Kolodziejczyk, B., Kuiken, T., Mead, A., Oliva, M., Perello, E., Slobodian, L., Thizy, D., Tompkins, D., Winter, G., Campbell, K., Elsensohn, J., Holmes, N., Farmer, C., Keitt, B., **Leftwich, P.**, Maloney, T., Masiga, D., Newhouse, A., Novak, B., ... Oppen, M. (2019). *Genetic frontiers for conservation: An assessment of synthetic biology and biodiversity conservation*.

Leftwich, P., & Chapman, T. (2018). Testing for assortative mating by diet in *Drosophila melanogaster*. *Bio-Protocol*, 8(20).

Leftwich, P., Clarke, N., Hutchings, M., & Chapman, T. (2018). Gut microbiomes and reproductive isolation in *drosophila* (vol 114, pg 12767, 2017). *Proceedings of the National Academy of Sciences*, 115(10).

Leftwich, P., Clarke, N., Hutchings, M., & Chapman, T. (2018). Reply to obadia et al.: Effect of methyl paraben on host–microbiota interactions in *Drosophila melanogaster*. *Proceedings of the National Academy of Sciences*, 201805499.

Leftwich, P., Edgington, M., Harvey-Samuel, T., Paladino, L., Norman, V., & Alphey, L. (2018). Recent advances in threshold-dependent gene drives for mosquitoes. *Biochemical Society Transactions*, 46(5), 1203–1212.

Leftwich, P., Hutchings, M., & Chapman, T. (2018). Diet, gut microbes and host mate choice: Understanding the significance of microbiome effects on host mate choice requires a case by case evaluation. *Bioessays*, 40(12).

Leftwich, P., Clarke, N., Hutchings, M., & Chapman, T. (2018). Reply to rosenberg et al.: Diet, gut bacteria, and assortative mating in *Drosophila melanogaster*. *Proceedings of the National Academy of Sciences*, <https://doi.org/10.1073/pnas.1805499115>.

Leftwich, P., Nash, W., Friend, L., & Chapman, T. (2017). Adaptation to divergent larval diets in the medfly, *Ceratitis capitata*. *Evolution*, 71(2), 289–303.

Longdon, B., Day, J., Schulz, N., **Leftwich, P.**, Jong, M., Breuker, C., Gibbs, M., Obbard, D., Wilfert, L., Smith, S., McGonigle, J., Houslay, T., Wright, L., Livraghi, L., Evans, L., Friend, L., Chapman, T., Vontas, J., Kambouraki, N., & Jiggins, F. (2017). Vertically transmitted rhabdoviruses are found across three insect families and have dynamic interactions with their hosts. *Proceedings of the Royal Society B: Biological Sciences*, 284(1847).

Leftwich, P., Bolton, M., & Chapman, T. (2016). Evolutionary biology and genetic techniques for insect control. *Evolutionary Applications*, 9(1), 212–230.

Leftwich, P., Koukidou, M., Rempoulakis, P., Gong, H.-F., Zacharopoulou, A., Fu, G., Chapman, T., Economopoulos, A., Vontas, J., & Alphey, L. (2014). Genetic elimination of field-cage populations of Mediterranean fruit flies. *Proceedings of the Royal Society B: Biological Sciences*, 281(1792).

Alphey, L., Ant, T., Koukidou, M., **Leftwich**, P., Rempoulakis, P., Vontas, J., Economopoulos, A., & Chapman, T. (2012). Genetic improvements to sterile-male control of tephritid fruit flies. *Tephritid Workers of Europe and Middle East (TEAM)*, <https://Nucleus.iaea.org> ..., 201, 2.

Leftwich, P., Edward, D., Alphey, L., Gage, M., & 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*, 25(9), 1732–1740.

WORKING PAPERS UNDER REVISION OR REVIEW

Darrington, M., **Leftwich**, P., Holmes, N., Friend, L., Clarke, N., Worsley, S., Margaritopolous, J., Hogenhout, S., Hutchings, M., & Chapman, T. (2021). Characterisation of the symbionts in the Mediterranean fruitfly gut. *bioRxiv*.

Tully, B., Buongiorno, J., Cohen, A., Cram, J., Garber, A., Hu, S., Krinos, A., **Leftwich**, P., Marshall, A., Sieradzki, E., Speth, D., Suter, E., Trivedi, C., Valentin-Alvarado, L., Weissman, J., Lee, M., Alexander, H., Collins, R., Pachiadaki, M., Rhodes, A., & Decatur, W. (2021). The Bioinformatics Virtual Coordination Network: An open-source and interactive learning environment. *Frontiers in Education - In Review*.

Harvey-Samuel, T., Xu, X., Lovett, E., Dafa'alla, T., Walker, A., Norman, V., Carter, R., Teal, J., Akilan, L., **Leftwich**, P., & Alphey, L. (2020). Engineered expression of the invertebrate-specific scorpion toxin AaHIT reduces adult longevity and female fecundity in the diamondback moth *Plutella xylostella*. *bioRxiv - Accepted in Pest Management Science*.

BOOKS

Penny, J., & **Leftwich**, P. (2018). *Maths skills for A-level biology* [Book]. OUP (Oxford).