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

Data Science for Biologists — *University of East Anglia*

Module Organiser — *2020-present*

Genetics — *University of East Anglia*

Module Organiser — *2019-present*

Genes, Genomes and Genomics — *University of East Anglia*

Lecturer — *2019-present*

Skills for Biologists — *University of East Anglia*

Tutor — *2019-present*

Medical Entomology *LSHTM*
Guest Speaker *2017-2018*

Science Communication *University of East Anglia*
Lecturer *2015-present*

Microbiology *University of East Anglia*
Lecturer *2015-present*

Field Ecology *University of East Anglia*
Fieldwork co-ordinator *2015-present*

Biodiversity *University of East Anglia*
Module Organiser *2015-2016*

Evolution, Behaviour and Ecology *University of East Anglia*
Module Organiser *2015-2016*

Evolution, Health and Disease *University of East Anglia*
Tutor *2013-2019*

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*

Student Partnership Officer *University of East Anglia*

School of Biological Sciences *2019-present*

Consultancy

OCR *Oxford*

Programme Developer *2020-present*

- Maths for Biology

Benchling *San Francisco*

Resource Developer *2020-present*

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

Physalia Courses *Online*

Instructor *2019*

- Introduction to Population Genomics

OUP *Oxford*

Author *2018*

- Maths Skills for A-level Biology

OUP *Oxford*

Editing & Proofing *2016-2019*

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

OCR *Oxford*

Resource Developer *2016*

- Maths for Biology-Online

Professional Service

Publications

h-index: 9, **Number of Publications: 19**, **Citations: 306**

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, PT., Clarke, NV. E., Hutchings, MI., & 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*.

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, Ma., 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

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).