

# Philip T. Leftwich

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## Education

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

## Qualifications

<b>HEA Fellow</b> HIGHER EDUCATION ACADEMY	York 2016
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## Grants

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

## Teaching

<b>Data Science for Biologists</b> MODULE ORGANISER	University of East Anglia 2020-present
<b>Genetics</b> MODULE ORGANISER	University of East Anglia 2019-present
<b>Genes, Genomes and Genomics</b> LECTURER	University of East Anglia 2019-present
<b>Skills for Biologists</b> TUTOR	University of East Anglia 2019-present

## Medical Entomology

GUEST SPEAKER

LSHTM

2017-2018

## Science Communication

LECTURER

University of East Anglia

2015-present

## Microbiology

LECTURER

University of East Anglia

2015-present

## Field Ecology

FIELDWORK CO-ORDINATOR

University of East Anglia

2015-present

## Biodiversity

MODULE ORGANISER

University of East Anglia

2015-2016

## Evolution, Behaviour and Ecology

MODULE ORGANISER

University of East Anglia

2015-2016

## Evolution, Health and Disease

TUTOR

University of East Anglia

2013-2019

# Presentations

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## CONFERENCES

### UEA CEEC Rebellion

INVITED PLENARY

Online

2021

### OCR Science Forum

INVITED SPEAKER

Online

2021

### Bio-Summit

SPEAKER

Online

2020

### Entomological Society of America

INVITED SPEAKER

Vancouver

2018

### Society of Molecular Biology & Evolution

SPEAKER

Vienna

2015

### Evolution

SPEAKER

Ottawa

2012

## SEMINARS

### Flying through the Gut

INVITED SPEAKER

Online

2021

### Dry Labs Real Science

SPEAKER

Online

2020

### HEA

INVITED SPEAKER

Online

2020

### Department of Genetics

INVITED SPEAKER

Cambridge

2014

## OUTREACH

### Bioinformatics Virtual Coordination Network

INSTRUCTOR

Online

2020

### The Brilliant Club

TUTOR

Norfolk

2014-2016

### Royal Society Summer Science

EXHIBIT

London

2014

### Villier's Park Educational Trust

TUTOR

Cambridge

2010-2012

## SELECTED MEDIA COVERAGE

## **BBC World Service**

INTERVIEW

Radio

2014

## **Motherboard-Vice**

INTERVIEW

Article

2014

## **BBC News**

INTERVIEW

Article

2014

# **Administrative Duties**

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## **Chair of Extenuating Circumstances Panel**

SCHOOL OF BIOLOGICAL SCIENCES

University of East Anglia

2021-present

## **Student Partnership Officer**

SCHOOL OF BIOLOGICAL SCIENCES

University of East Anglia

2019-present

# **Consultancy**

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## **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**

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# Publications

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**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, P.T.**, Clarke, N.V. E., Hutchings, M.I., & 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

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).