2-page CV Dr James Gilbert DOB: 23-01-1980 | Age: 42

Qualifications and Career

- **Lecturer in Zoology, University of Hull, UK,** 2015-present
  - Programme director (Zoology) since 2018
- **Marie Curie International Outgoing Fellow,** 2012-2015**;**
  - USussex, UK (visiting USydney 2012-2014)
- **Postdoctoral Research Associate**, USydney, 2011-2012
- **Associate Lecturer**, University of Derby, UK (part time), 2010-2011
- **Lab technician**, University of Cambridge, UK (part time; Insect husbandry), 2010-2011
- **Postdoctoral Research Associate,** U Maryland, USA, 2007-2009
- **PhD (Zoology),** University of Cambridge, UK, 2003-2007
  - *The evolution of parental care in insects.*
  - *Advisers: T. Clutton-Brock, A. Manica*
- **MA Cantab** (Zoology 1st class), Univ. of Cambridge, UK, 1999-2002

Research summary

I am interested in the evolution of insect social, parental and reproductive behaviour – especially how these crucial animal interactions shape, and are shaped by, nutritional environments. In the most spectacularly social or parental species (or groups of species), these behaviours are obligatory and complex, which gives little insight into their evolution. Instead, I focus on simple behaviours and evolutionary origins, using field and lab experiments as well as comparative analyses. Finally, I am interested in how these factors play out in the wild – and the unforeseen pressures exerted upon parental, social and nutritional interactions by anthropogenic change. My work has been cited in top journals such as *Science*, *Nature*, *Nature Reviews*, *Biological Reviews*, *Trends in Ecology and Evolution*, *Trends in Cognitive Science*, *Proceedings B* and *Current Biology*, but also by a very wide range of high-ranking journals from diverse disciplines, e.g. *Journal of Animal Ecology*, *Molecular Ecology*, *Global Change Biology*, *Biogeochemistry*, *Limnology and Oceanography*, *Soil Biology and Biochemistry*, *New Phytologist* and *Hippocampus*. My research group currently comprises 1 PhD students and 3 MSc students.

Recent highlight

In Austin & Gilbert 2021 we used nutritional experiments to investigate for the first time how dependent young manage to achieve a balanced diet. The study subjects, solitary bee larvae, kept a tight watch on their carbohydrate intake, but tolerated wide variation in protein – unusual for a herbivore. They are important pollinators, so this surprising result carries messages for conservation and agriculture.

Grants, fellowships and awards

2019: *NERC Standard grant (as PI, unsuccessful; rated 8)*
2018: *NERC Standard grant (as PI, unsuccessful; rated 8);*
2017: *Leverhulme Research Project Grant (as CoI, unsuccessful)*
2012-15: Marie Curie International Outgoing Fellowship (€282800/36 months).
2014: ASAB research award (£5440). Title: Do bees regulate the composition of food they give their offspring, and does it matter? (2015-2019).
Pre-2012: Balfour-Browne Fund (£2000); Chibnall Travelling Scholarship (£500); Hanne & Torkel Weis-Fogh Fund (£500); Research Award, Board of Graduate Studies, U Cambridge (£1500); Nuffield Foundation Bursary (£800); Cambridge Philosophical Society (£1500)

Selected peer-reviewed publications

- Austin A, **Gilbert JDJ**. 2021. Solitary bee larvae prioritize carbohydrate over protein in parentally provided pollen. *Functional Ecology,* 35(5): 1069-80.
- Tainsh F, Woodmansey S, Austin A, Bagnall T, **Gilbert JDJ.** 2020. Sporopollenin as a dilution agent in artificial diets for solitary bee larvae. ***Apidologie***, 52, 101–112.
- Feeney W, Brooker R, Johnston L, **Gilbert, JDJ**, and 5 others. 2019. Predation drives recurrent convergence of an interspecies mutualism. ***Ecology Letters*** 22(2): 265-264.

- **Gilbert JDJ**, Wells A, Simpson SJ. 2018. Skew in ovarian activation depends on domicile size in a facultatively social thrips. ***Scientific Reports*** 8:3597.
- Nicholls E, Fowler R, Niven JE, **Gilbert JDJ**, Goulson D. 2017. Larval exposure to field-realistic concentrations of clothianidin has no effect on development rate, over-winter survival or adult metabolic rate in a solitary bee, *Osmia bicornis*. ***PeerJ***, 5:e3417.
- Lehmann GUC, **Gilbert JDJ**, Vahed K, Lehmann AW. 2017. Male genital titillators and the intensity of postcopulatory sexual selection across bushcrickets. ***Behav. Ecol.*** 28(5):1198-1205.
- Lindstedt C, Boncoraglio G, Cotter S, **Gilbert JDJ**, Kilner RM. 2017. Aposematism in the burying beetle? Dual function of anal fluid in parental care and chemical defense. ***Behav. Ecol.*** 28(6):1414-1422
- Santos ESA, Bueno PP, **Gilbert JDJ**, Machado G. 2016. Macroecology of parental care in arthropods: higher mortality risk leads to higher benefits of offspring protection in tropical climates. ***Biol. Rev.*** 92(3):1688-1701
- **Gilbert JDJ**, Manica A. 2015. Evolution of parental care in insects: a test of current hypotheses. ***Evolution*** 69(5):1255-1270.
- Grinsted L, Bilde T, **Gilbert JDJ**. 2015. Questioning the evidence for group selection in social spiders. ***Nature*** 524(7566), E1-E3.
- **Gilbert JDJ**. 2014. Thrips domiciles protect against desiccation in an arid environment. ***Behav. Ecol.*** 25(6):1338-1346.
- Vahed K, **Gilbert JDJ**, et al. 2014. Functional equivalence of grasping cerci and nuptial food gifts in promoting ejaculate transfer in katydids. ***Evolution*** 68(7): 2052–2065.
- **Gilbert JDJ**, Simpson SJ. 2013. Natural history of *Dunatothrips aneurae* (Thysanoptera: Phlaeothripinae), a species with facultative pleometrosis. ***Biol. J. Linn. Soc.,*** 109(4):802-816.
- **Gilbert JDJ**, Mound LA, Simpson SJ. 2012. Biology of a new species of socially parasitic thrips (Thysanoptera: Phlaeothripidae) inside *Dunatothrips* domiciles, with evolutionary implications for inquilinism in *Acacia* thrips. ***Biol. J. Linn. Soc.,*** 107: 112-22.
- **Gilbert JDJ**, Fagan WF. 2011. Contrasting mechanisms of proteomic nitrogen thrift in *Prochlorococcus*. ***Mol. Ecol.,*** 20(1):92-104.
- **Gilbert JDJ.** 2011. Insect dry weight: shortcut to a difficult quantity using museum specimens. ***Fla. Ent.***, 94(4):964-970.
- **Gilbert JDJ**, Manica A. 2010. Parental care trade-offs and life history relationships in insects. ***Am. Nat.***, 176(2):212-226.
- Vahed K, Parker D, **Gilbert JDJ**. 2010. Larger testes are associated with higher levels of polyandry, but smaller ejaculate volumes, across bushcricket species (Tettigoniidae). ***Biol. Lett.,*** 7(2):261-264**.**
- **Gilbert JDJ**, Thomas LK, Manica A. 2010. Quantifying the benefits and costs of parental care in assassin bugs. ***Ecol. Entomol.*** 35(5):639-651.
- **Gilbert JDJ**, Manica A. 2009. Brood conspicuousness and clutch viability in male-caring assassin bugs (*Rhinocoris tristis*). ***Ecol. Entomol****.* 34 (2): 176-182.
- Hambäck PA, **Gilbert JDJ**, et al. 2009. Effects of body size, trophic mode and larval habitat on dipteran stoichiometry: A regional comparison. ***Oikos*** 118: 615-623.
- Martinson HM, Schneider K, **Gilbert JDJ,** et al. 2008. Detritivory: stoichiometry of a neglected trophic level. ***Ecol. Res.*** 23: 487-491

In review

- Gilbert FS, Gilbert JDJ. On the evolution of higher taxa via chromosomal reorganization. In review at *Systematic Biology*.
- Gilbert JDJ. No division of labour, and subfertile foundresses, in a phyllode-gluing Acacia thrips. In review at *J. Anim. Ecol*.
- Lindstedt C, Cotter SC, Gilbert JDJ, Boncoraglio G, Kilner RM. Parental care shapes evolution of aposematism and provides lifelong protection against predators. In review at *Evolution Letters*.

Preprints

- Austin A, Lawson Handley L, Gilbert JDJ. Plugging the hunger gap: Organic farming supports more abundant nutritional resources for bees at critical periods. *bioRxiv*, doi.org/10.1101/837625v1
- Howard CE, Austin A, Gilbert JDJ. Differential effects of farming practice on cuckoo bumblebee communities in relation to their hosts. *bioRxiv*, doi.org/10.1101/774406

In prep

- Austin A, Lawson Handley L, Gilbert JDJ. Bees use different farmland plants when foraging for young, and on organic farms. For submission to *Ecology Letters*.
- Howard CE, Austin A, Gilbert JDJ. Moving Targets: Nutritional geometry of development in solitary bee, Osmia bicornis. For submission to *Functional Ecology*.
- Gilbert JDJ, Howard E, Craig-Jackson J, Gilbert FS, Morrell L. Behavioural mimicry of flower choice by syrphid flies. For submission to *Proceedings B*.

Professional membership and activities

- 2020-present: External examiner, subject and course level, Harper Adams University
- 2017: Guest associate editor, Ecological Entomology
- Membership: British Ecological Society, Association for the Study of Animal Behaviour, Royal Entomological Society, International Society for Behavioural Ecology
- Peer review: Anim Behav, Am Nat, Behav Ecol, Ecol Entomol, Evol Ecol, Ethology, Funct Ecol, J Anim Ecol, Mar Biol, Mol Ecol, Methods Ecol Evol, Nature Comms, Nature Methods, Oikos, PLoS One, Proceedings B; reviewed a chapter of The Evolution of Insect Mating Systems, eds. Shuker D, Simmons L (2014).

Teaching

PhD:

- 2022-present: Jamie Smith: [NERC Panorama DTP] Nutrigenomics and resilience of bees in changing climates
- 2017-2022: Yannis Dimopoulos [U Hull]: Evolution of parental care and nesting behaviour in insects
- 2015-2018: Alexander Austin [U Hull]: Nutritional ecology of farmland bees.

MSc:

- 2020-present: Fiona Tainsh: overwintering ecology of red mason bees *Osmia bicornis*
- 2020-present: Caitlin Flynn: evolution of parental provisioning in insects
- 2019-20: Charlotte Howard: nutritional ecology of red mason bees *Osmia bicornis*
- 2018-19: Toby Bagnall: nutritional ecology and climate resilience of *Osmia bicornis*
- 2007: Host supervisor for MSc. project internship (Aurore Malapert; ENS, Paris, France) on parental care in burying beetles, at University of Cambridge.

Honours:

- 2014-2015: Honours student (Emma Trusler, Deakin University, Australia) co-supervised with L. Rollins. Emma graduated with 81%.

At University of Hull (2015-present)

- **Programme Director for Zoology** (2018-2022)
- Led: L7 Statistical programming in R, L6 Insect Biology
- Co-led: L6 Sex and Social Behaviour, L6 Concepts in Ecology,
- Contributed: L6 Wildlife Management, L6 Topics in Biodiversity & Evolution, L6 Reviews in Biology, L6 20- and 40-credit Research Projects, L5 Professional Skills for Biosciences (taught experimental design), L5 Behavioural Ecology, L4 Skills for Biology (taught L4 statistics), L4 Ecology and Evolution

At University of Derby (2010-11, Assoc. Lecturer, sabbatical cover):

- Taught: L6 Behavioural Ecology, L6 Ecological Entomology, L6 Invertebrate Biology, L5 Biological Basis of Animal Behaviour, L4 Human Evolution

Undergraduate teaching prior to lectureship

- 2001-2011: 10 years tutoring small groups (1-4) of undergrads, all years, within Natural Sciences Tripos, University of Cambridge, UK.
- 2009: Supervised final-year undergraduate field project at University of Cambridge, UK (with independently obtained funding)
- 2005: Supervised final-year undergraduate projects on the Evolutionary Ecology field course (in Egypt) at University of Nottingham, UK.

Pre-undergraduate teaching

- 2007-2010: Zoology teacher, The Cambridge Tradition (www.oxbridgeprograms.com). Four years' experience writing, teaching and assessing annual intensive summer courses in Zoology

for pre-university US students (28 contact hours per week, not incl. preparation).
- 2010-present: Invited talks at primary/secondary schools in UK and Australia.

Outreach
- Convenor, Royal Entomological Society Special Interest Group on e-Ecology (Online, 2020)
- Convenor, Royal Entomological Society Special Interest Group on Insect Data (U Hull, 2018)
- Convenor, Royal Entomological Society Annual Meeting (Ento17; U Newcastle 2017)
- Convenor, Pint of Science - city-wide science festival across Hull (2016, 2017)

As well as invited talks and chairing sessions at many international conferences and seminars, I have given a TEDx talk, public "Ask Me Anything" on *Reddit* on the site's front page; radio interviews, guest lessons in schools and various science festivals. My articles for *The Conversation* have nearly 1m hits, having "gone viral" on *IFL Science, Ars Technica* and *slate.com*. My work has had international coverage on major news outlets e.g. The Guardian's "Top Ten Discoveries of the Year"; also TV quiz show "QI", BBC's "Nature table" and *Bizarre* magazine.

Selected popular articles

Gilbert, JDJ. 2021. Baby bees love carbs – here's why that matters. *The Conversation*, *20th April.*
Gilbert, JDJ. 2017. A game of drones: why some bees slay queens. *The Conversation*, *18th Sept.*
Gilbert, JDJ. 2015. This Father's Day, be grateful dad is a human. *The Conversation*, *20th June.*
Gilbert, JDJ. 2014. Science AMA Series: Hi! I'm James Gilbert, a post-doctoral fellow studying insect evolution and behaviour at the University of Sussex. Ask me anything about weird insect reproductive behaviour. ***Reddit (reddit.com)***, *3rd June*.
Gilbert, JDJ. 2014. Handcuffs, traps and spikes shed light on the sex lives of insects. *The Conversation*, *27th May*. Interview on CBC radio, republished on *Slate*, *Ars Technica*, *IFL Science*

Departmental and other activities
- Shortlisting and interview panels for Lectureships and PhD students
- Athena SWAN committee member (2016-17)
- Organizing annual seminar series (at Hull), and extracurricular seminars (Cambridge, Sydney and Sussex), in each case involving faculty-wide advertising.
- Recruited several sets of project students and field assistants via department-wide and public (online and physical) advertisements and formal interviews.
- Chaired session at International Congress of Entomology, Daegu, Korea, 2012.