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## Education

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2003-2007: **PhD (Zoology), Univ. of Cambridge, UK**

*The evolution of parental care in insects. Advisers: T. Clutton-Brock, A. Manica*

1999-2002: **BA (Zoology 1<sup>st</sup> class), Univ. of Cambridge, UK**

## Employment

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2015-: • **Lecturer in Zoology, University of Hull, UK**

2012-2015: • **Marie Curie International Outgoing Fellow;**

• **University of Sussex, UK (visiting University of Sydney 2012-2014)**

○ *Do nutritionally poor environments promote sociality? Testing a long-standing hypothesis in two socially plastic insect groups. Mentor: Jeremy Field*

2011-2012: • **Postdoctoral Research Associate, University of Sydney (2011-2012)**

○ *Nutrition and sociality in Acacia thrips. Mentor: Stephen Simpson*

2010-2011: • **Associate Lecturer, University of Derby, UK (part time; see Teaching)**

2010-2011: • **Lab technician, University of Cambridge, UK (part time; Insect husbandry)**

2007-2009: • **Postdoctoral Research Associate, Univ. of Maryland, USA**

○ *Evolutionary/proteomic implications of nitrogen limitation. Mentor: Bill Fagan*

## Research

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### Recent highlight

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In a recent paper in *Evolution* (Gilbert & Manica 2015), I used a comparative-phylogenetic approach to test among multiple long-standing hypotheses of the evolution of parental care in insects. The study was the first of its kind in insects, and sets the stage for future broad-scale investigations into the evolution of parental care and life history in this group.

### Selected publications since 2010

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*In review:* • Gilbert FS, Gilbert JDJ. On the evolution of higher taxa via chromosomal reorganization. In review at *Systematic Biology*.

• Gilbert JDJ, Wells A, Simpson SJ. Skew in ovarian activation depends on domicile size in a facultatively social thrips. In review at *Scientific Reports*. Preprint available at *bioRxiv*, doi:[10.1101/038414](https://doi.org/10.1101/038414).

2016: • 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. *Biological Review*, [online early view](https://doi.org/10.1111/brv.12303) (doi: 10.1111/brv.12303)

- 2015:
- Field J, Shreeves G, Kennedy M, Stimmler C, **Gilbert JDJ**, Brace S. 2015. Sex-biased parental care and sexual size dimorphism in a provisioning arthropod. *Behav. Ecol. Sociobiol.* 69:1897–1906
  - Grinsted L, Bilde T, **Gilbert JDJ**. 2015. Questioning the evidence for group selection in social spiders. *Nature* 524(7566), E1-E3. (doi:10.1038/nature14595)
  - **Gilbert JDJ**, Manica A. 2015. Evolution of parental care in insects: a test of current hypotheses. *Evolution* 69(5):1255-1270. (doi:10.1111/evo.12656).
- 2014:
- **Gilbert JDJ**. 2014. Thrips domiciles protect against desiccation in an arid environment. *Behavioral Ecology* 25(6):1338-1346.
  - Vahed K, **Gilbert JDJ**, Weissman D, Barrientos-Lozano L. 2014. Functional equivalence of grasping cerci and nuptial food gifts in promoting ejaculate transfer in katydids. *Evolution* 68(7): 2052–2065. (doi:10.1111/evo.12421).
- 2013:
- Thompson CE, **Gilbert JDJ**, Brooke M de L. 2013. Cytochrome *b* Divergence between Avian Sister Species is Linked to Generation Length and Body Mass. *PLoS ONE*, 9(2): e85006. (doi:10.1371/journal.pone.0085006)
  - **Gilbert JDJ**, Acquisti C, Martinson HM, Elser JJ, Kumar S, Fagan WF. 2013. GRASP [Genomic Resource Access for Stoichio-proteomics]: atomic content of 12 *Drosophila* proteomes. *BMC Genomics*, 14:599. (doi:10.1186/1471-2164-14-599).
  - **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**. 2013. "Evolution of Parental Care." In: **Oxford Bibliographies Online: Ecology**. Ed. David Gibson. New York: Oxford University Press. Invited contribution.
- 2012:
- **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**. 2012. "Reproductive Allocation in Animals." In: **Oxford Bibliographies Online: Ecology**. Ed. David Gibson. New York: Oxford University Press. Invited contribution.
- 2011:
- **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.
  - Vahed, K, Lehmann, G, **Gilbert JDJ**, Lehmann, A. Increased copulation duration is associated with larger spermatophores, and male genital titillators, across bushcricket taxa. *J. Evol. Biol.*, 24(9):1960-1968.
- 2010:
- **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.

- In prep, late stage:*
- Gilbert JDJ. *Space to breed: subfertile helpers in small nests of Dunatothrips aneurae (Thysanoptera: Phlaeothripinae)*. For *Proceedings B*.
  - Gilbert JDJ, Simpson SJ. *Nutritional correlates of joint nesting in Dunatothrips aneurae (Thysanoptera: Phlaeothripinae)*. For *Behav. Ecol.*
  - Cotter SC, Gilbert JDJ, Ward RA, Kilner RM. *Lifelong benefits of parental care in the burying beetle, Nicrophorus vespilloides*. For *Evolution*.

## Popular articles

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- Gilbert JDJ. 2016. Why protective parenting is key for the survival of tropical insects. *The Conversation (theconversation.com)*, 2 November
- Gilbert JDJ. 2016. Reality bites: giant-penised fleas are invading our tabloids. *The Conversation (theconversation.com)*, 3 October
- Gilbert JDJ. 2015. This Father's Day, be grateful your dad is a human. *The Conversation (theconversation.com)*, 20 June
- Gilbert JDJ. 2015. Secrets of the orchid mantis revealed – it doesn't mimic an orchid after all. *The Conversation (theconversation.com)*, 27 January.
- Gilbert JDJ. 2014. From monogamous termites to male-eating spiders, an insect ecologist explains. *The Conversation (theconversation.com)*, 4 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 insect reproductive behaviour. *Reddit (reddit.com)*, 3 June.
- Gilbert JDJ. 2014. Handcuffs, traps and spikes shed light on the sex lives of insects. *The Conversation (theconversation.com)*, 27 May.
- Gilbert JDJ. 2014. Invertebrates inject a bit of romance during sex – by stabbing each other. *The Conversation (theconversation.com)*, 11 March.
- Gilbert JDJ. 2014. Even among ants, size matters more than shape. *The Conversation (theconversation.com)*, 13 Jan.
- Gilbert JDJ. 2013. I bet it's biased: one easy step to squash expert opinions. *The Conversation (theconversation.com)*, 17 June.

## Teaching

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- Undergrad:*
- Module coordination:** 58405 Concepts in Ecology (L6) (co-coordinating)
- Lecturing:** 58135 Ecology and Evolution (L4)  
58279 Behavioural Ecology (L5)  
58377 Topics in Biodiversity (L6)  
58405 Concepts in Ecology (L6)  
50033 Introduction to using R (L7)
- Mentoring/supervising:** 58400 Reviews in Biology (L6)  
20-credit Research Project (L6)
- Fieldwork & Practicals:** 58135 Ecology and Evolution (L4)  
58405 Concepts in Ecology (L6)  
50033 Introduction to using R (L7)
- Tutorials:** L4 and L5 tutorials

- PhD:* 2015-2018: Currently **supervising a PhD student** (Alexander Austin) on nutritional factors affecting parental care behaviour in *Osmia bicornis* bees.  
2016-2018: Co-supervising a PhD student (Catherine Carrick, with Lesley Morell) on ecology of farmland aphids

## Teaching employment and experience prior to Hull

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- Masters:* 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%.

*Undergrad:* 2010-2011: **Assoc. Lecturer**, Derby. Wrote, taught, marked syllabi for:

- Behavioural Ecology 3rd yr (inc. lab practicals, field trip)
- Ecological Entomology 3rd yr (inc. lab practicals, field trip)
- Invertebrate Biology 3rd yr (inc. lab practicals)
- Biological Basis of Animal Behaviour 2nd yr (inc. lab practicals)
- Human Evolution 1st yr

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-university:* 2007-2010: **Zoology teacher, The Cambridge Tradition** ([www.oxbridgeprograms.com](http://www.oxbridgeprograms.com)). Four years' experience writing, teaching and assessing annual intensive summer courses in Zoology for pre-university US students (28h/wk teaching; see *Teaching summary*).

2010-present: **20+ invited talks, primary/secondary schools** in UK/Australia.

### Grants, fellowships and awards obtained independently

- 2015: • ASAB research grant (£5440)
- 2012: • Marie Curie International Outgoing Fellowship (€282800/36 months)
- 2009: • Balfour-Browne Fund grant (£1000)
- 2007: • Balfour-Browne Fund grant (£1000)
- 2006: • Chibnall Travelling Scholarship (£500)
- Hanne & Torkel Weis-Fogh Fund grant (£500)
- Balfour-Browne Fund grant (£1000)
- 2005: • Research Award, Board of Graduate Studies, Univ. of Cambridge (£1500)
- Cambridge Philosophical Society Studentship (£1500)
- 2003: • BBSRC PhD studentship (36 months)
- 1997: • Nuffield Foundation Bursary (£800)

### Selected talks since 2010: conferences (oral presentations) and recent seminars

- 2016: • *Macroecology of parental care: what affects the benefits of parental care worldwide?* Royal Entomological Society Annual Meeting (ENTO '16), Harper Adams University
- *Nutrition and sociality: adventures in non-model study systems.* Departmental Seminar, University of Leeds
- 2015: • *Cooperation, competition and skew in a tiny outback insect.* British Ecological Society Annual Conference, Edinburgh
- *Birds do it – bees do it – now even Acacia thrips do it: Cooperation, competition and*

- *skew in a tiny communal insect*. Departmental Seminar, University of Hull
- *Birds do it – bees do it – now even Acacia thrips do it: Cooperation, competition and skew in a tiny communal insect*. Departmental Seminar, University of Cambridge
- 2014: • *Division of labour (or not) in communal thrips nests*. International Union for the Study of Social Insects (IUSI) conference, London
- *Crickets help us understand sex*. **TEDx talk** based on our paper (Vahed et al 2014) given at TEDxSussexUniversity, University of Sussex (link: <http://tedxtalks.ted.com/video/Crickets-Help-Us-Understand-Sex>)
- 2012: • *Copulatory spermatophore guarding is associated with smaller nuptial gifts and modifications in the form and/or use of the male's cerci in bushcrickets*. Symposium at Intl Congress of Entomology, Daegu, Korea
- *Natural history and cooperation in Acacia thrips*. Presented (and chaired session) at Intl Congress of Entomology, Daegu, Korea
- 2011: • *Evolutionary transitions in insect parental care: who cares, and what does it matter?* Australasian Evolution Society Conference, Townsville, Australia

### Professional activities, relevant skills

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<i>Membership</i>	British Ecological Society, Association for the Study of Animal Behaviour, Ecological Society of America, American Society of Naturalists, Royal Entomological Society
<i>Peer review</i>	<i>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</i> ; reviewed a chapter of <i>The Evolution of Insect Mating Systems</i> , eds. Shuker D, Simmons L (2014). <b>Invited to guest edit</b> upcoming issue of <i>Evol. Ecol.</i> (forthcoming)
<i>Lab methods</i>	Phylogeny construction; Insect culture and husbandry; collection and curation of insect collections; Ultramicrotomy, TEM.
<i>Fieldwork methods</i>	Mark-release-recapture experimental design and implementation Biological and biodiversity sampling techniques; Insect field sampling and identification; Ecological experimental design
<i>Statistical methods (in R)</i>	Linear, mixed and phylogenetic modelling; Information-theoretical model selection; Meta-analysis; Bioinformatics, MySQL and large genome-scale dataset studies; Bayesian implementations of linear, animal and mixed models; Monte Carlo simulations; ANOSIM; biodiversity indices, comparisons such as $\chi^2$ distances
<i>Computer programs</i>	R (teaching undergrads and graduates, code development); Program MARK for mark-release-recapture; Phylogenetic analysis (e.g. BayesTraits); Sequence alignment e.g. MEGA, Clustal, BLAST, etc.
<i>New methods</i>	New method for measuring insect dry weight (Gilbert 2011); Submitted code to be included in "ape", a phylogenetics package for R