

Personal Website

Google Scholar Profile

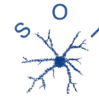
owen.gilbert@utexas.edu

(512)–585–9071

Owen M. Gilbert

The University of Texas
Department of Integrative Biology

1 University Station C0930 Austin, TX 78712



Website

RESEARCH FOCUS

Evolution of social behavior, kin recognition, and individuality, with emphasis on social amoebae as a model for complex trait evolution. Integrates empirical work, population genetics, and evolutionary theory to address major transitions, cooperation, and macroevolutionary innovation.

EDUCATION

- 2011** **Ph. D. Rice University. Department of Ecology and Evolutionary Biology.**
Advisors: Joan E. Strassmann and David C. Queller.
Dissertation: [Kinship and the evolution of altruism in social amoebae and a model for the evolution of kin-limited interactions.](#)
- 2002** **B.S. Yale University. Department of Ecology and Evolutionary Biology.**
Advisor: Leo W. Buss
Thesis Topic: [Individuality and group advantages in the colonial rotifer *Sinantharina socialis*.](#)

SELECTED PUBLICATIONS

- 2007** **Gilbert, O. M.,** Foster, K. R., Mehdiabadi, N. J., Strassmann J. E. and Queller, D. C. [High relatedness maintains multicellular cooperation in a social amoeba by controlling cheater mutants.](#) *Proceedings of the National Academy of Sciences of the United States of America.* 104:21, 8912-8917. (Goymer, P. [Cheating gets you nowhere.](#) *Nature Reviews Genetics.* 8.7 [2007]; [Science Daily](#); cited in Bourke, A. *Principles of Social Evolution* [2011] and Krebs, Davies and West, *An Introduction to Behavioral Ecology*, 4th ed., pp. 310-311 [2012]).
- 2011** Strassmann, J. E., **Gilbert, O. M.,** and Queller, D. C. [Kin discrimination and cooperation in microbes.](#) *Annual Review of Ecology, Evolution, and Systematics.* 65: 349-367.
- 2015** **Gilbert, O. M.** Histocompatibility as adaptive response to discriminatory within-organism conflict: a historical model. *American Naturalist.* 185:2. 228-242.
- 2012** **Gilbert, O. M.,** Strassmann, J.E, and Queller, D.C. [High relatedness in a social amoeba: the role of kin-discriminatory segregation.](#) *Proceedings of the Royal Society B.* 279: 2619-2624.
- 2020** **Gilbert, O. M.** [Natural reward drives the advancement of life.](#) *Rethinking Ecology* 5: 1-35. (11,000+ views; Highlighted on [LaboratoryNews](#), [Phys.org](#), [Eurakalerts](#), and [Evolution News](#)).

- 2015** **Gilbert, O. M.** [Microscale kin discrimination in a famous soil bacterium](#). *Proceedings of the National Academy of Sciences of the United States of America*. 112: 13757-8 (comment on [Stefanic et al. 2015](#)).
- 2009** **Gilbert, O. M.**, Queller, D. C., and Strassmann, J. E. [Discovery of a large clonal patch of a social amoeba: implications for social evolution](#). *Molecular Ecology*. 18:6 1273-1281. (Yoon, C. [Oozing through the Texas soil, a team of amoebae billions strong](#). *The New York Times*. March 24 edition [2007]; NPR radio, *Science Daily*; cited in Bourke, A. *Principles of Social Evolution* [2011] and *The Wall Street Journal*, March 10, 2014).
- 2012** **Gilbert, O. M.**, Kuzdzal-Fick, J. J., Queller, D.C., and Strassmann, J.E. [Mind the gap: a comparative study of migratory behavior in social amoebae](#). *Behavioral Ecology and Sociobiology*. 66:1291–1296.
- 2018** **Gilbert, O. M.** [Altruism or association?](#) *Proceedings of the National Academy of Sciences of the United States of America*. 115:E3069–E3070 (comment on [Wang and Lu 2018](#) and see [Gilbert 2017 preprint](#))

PREPRINTS

- 2019** **Gilbert, O. M.** [Natural reward as the fundamental macroevolutionary force](#). *arXiv preprint arXiv:1903.09567* (this article has been downloaded by 40+ countries on Academia.edu. It expands the theoretical framework underlying *Natural reward drives the advancement of life*).
- 2017** **Gilbert, O. M.** [Association theory: a new framework for analyzing social evolution](#). BioRxiv doi: <https://doi.org/10.1101/197632>. (Framework for unifying kin discrimination and association-based social evolution).

MANUSCRIPTS IN PREP

- Gilbert, O. M.** Disentangling Hamilton's rule from inclusive fitness.
(Theory; population-genetics foundation of social evolution)
- Gilbert, O. M.** How to test Hamilton's rule.
(Statistical and empirical framework for falsifiable kin-selection tests).
- Gilbert, O. M.** How to reward innovation and encourage entrepreneurship in science
(under revision for *Minerva*).

INVITED TALKS (SELECTED)

- 2013** University of Chicago, Department of Ecology and Evolution. "Darwinian gradualism as the key to resolving the paradox of genetic kin recognition." Dec. 16.
- 2011** Kavli Institute for Theoretical Physics, "[A critical look at the field of microbial social evolution](#)." Jan. 22.

- 2015** University of California, Irvine, Department of Ecology and Evolutionary Biology. "What inclusive fitness theory is and how it can be extended." May 6.
- 2018** University of Texas at Austin. "Natural reward as the fundamental macroevolutionary force." Integrative Biology Seminar. Oct. 11, 2018.
- 2023** United States Pentagon. "How to reward innovation and encourage entrepreneurship in US defense research." Feb. 2, 2023.

POSTERS

- 2015** Organismality conference at Washington University, St. Louis. "[A formalization and extension of inclusive fitness theory.](#)"
- 2009** Rice University Institute of Biosciences and Bioengineering Conference. "[The logic of kin association preference and the evolution of genetic kin recognition.](#)"
- 2005** Gordon Conference on Microbial Population Biology. "The control of cheating by relatedness in *Dictyostelium discoideum*."

PROGRAMS AND CONFERENCES

- 2018** Evolution Conference. Montpellier, France. Aug 18-22.
- 2015** Organismality Conference. Washington University, St. Louis. May 21-25.
- 2013** Kavli Institute for Theoretical Physics Program on Cooperation and the Evolution of Multicellularity. Santa Barbara, CA. Jan. 7 – Feb. 8.
- 2011** Evolution Conference. Norman, OK. June 18 – 21.
- 2010** Biocomplexity XI Conference. Bloomington, IN. Dec. 3 – 5.
- 2009** Darwin 2009 Conference. Stony Brook, NY. Nov. 4 – 8.
- 2005** Gordon Conference, Microbial Population Biology. Andover, NH. Jul. 17-22.

TEACHING

- 2020** Evolution discussions for the Fortis Academy "A classic Christian School" in Liberty Hill, TX (via Zoom conferences).
- 2016** Major Transitions in light of Association Theory (Seminar)
- 2010** Section Leader for Freshman Seminar in Ecology and Evolution.
- 2006** Teaching Assistant for Tropical Field Biology.
- 2004, 2005** Teaching Assistant for Evolution.

COURSES PREPARED TO TEACH

Evolutionary Biology; Behavioral Ecology; Social Evolution; Evolutionary Theory; Major Transitions; Philosophy and History of Biology (cross-listed).

SERVICE

Reviewer for PNAS (5), ProcB (2), Evolution; Biological Journal of the Linnean Society; Scientific Reports, Trends in Microbiology, Biological Bulletin, Environmental Microbiology Reports, BioRisk, Academia Letters

Grant Review AXA Research fund, US–Israel Binational Science Foundation (2); UK NERC

2005-2011 Judge for Rice and UHD Undergraduate Research Symposia.

RESEARCH METHODS & SKILLS

- Field and laboratory work with *Dictyostelium sp.* and natural clones
- Kin discrimination assays, mix experiments, segregation assays
- Microsatellite genotyping and relatedness estimation
- Fluorescent labeling and time-lapse videography
- Population-genetic and game-theory modeling
- Evolutionary theory of multicomponent epistatic traits

REFERENCES

Professor Joan E. Strassmann
Washington University in St.
Louis
Department of Biology
Campus Box 1137
One Brookings Drive
St. Louis, MO 63130-4899
Tel: (314)–935–3527
Fax: (314)–935–4432
Email: strassmann@wustl.edu*

Professor Emeritus Leo W.
Buss
Yale University
Department of Ecology and
Evolutionary Biology
P.O. Box 208109
New Haven, CT 06520
Tel: (203)–432–3869
Fax: (203)–432–6988
Email: leo.buss@yale.edu*

Professor Michael J. Ryan
University of Texas at Austin
Department of Integrative
Biology
1 University Station C0990
Tel: (512)–554–2433
Fax: (512)–471–3878
Email: mryan@utexas.edu*