

Emily L. Behrman

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EDUCATION

- Ph.D. Biology**, *University of Pennsylvania* 2011-17
Dissertation: The genetic architecture underlying rapid seasonal adaptation in natural populations of *Drosophila melanogaster*
Advisor: Dr. Paul Schmidt
- B.A. Biology (Highest Honors)**, *Williams College* 2005-09
Honors Thesis: Hierarchical population structure of Western Chorus Frog (*Pseudacris triseriata*) at Isle Royale
Advisor: Dr. David Smith
- African Ecology and Conservation**, *Organization for Tropical Studies* 2008

PROFESSIONAL EXPERIENCE

- Postdoctoral Associate** – *Janelia Research Campus* 2017-present
Behavior evolution in Drosophilids. Advisor: Dr. David Stern
- Visiting Researcher** - *University of Lausanne* 2015, 2017
Learning in *Drosophila melanogaster*. Advisor: Dr. Tadeusz Kawecki
- Laboratory Technician** - *University of Pennsylvania* 2009-11
Adaptation in wild *Drosophila*. Advisor: Dr. Paul Schmidt
- Research Assistant** - *Williams College* 2007
Macronuclear organization in *Tetrahymena*. Advisor: Dr. Marsha Altschuler
- Research Assistant** - *Marine Biology Laboratory* 2006
EvoDevo in gastropods. Advisor: Dr. Robert Savage

RESEARCH GRANTS

- Dissertation Completion Fellowship, *University of Pennsylvania* (\$26,700) 2016
- Peachy Environmental Biology Award, *University of Pennsylvania* (\$2,000) 2015
- Teece Dissertation Research Fellowship, *University of Pennsylvania* (\$9,900) 2014
- Rosemary Grant Research Award, *Society for the Study of Evolution* (\$2,000) 2012
- Graduate Research Fellowship, *National Science Foundation* (\$136,000) 2011

AWARDS AND FELLOWSHIPS

- W.D. Hamilton Award for Best Graduate Student Talk 2017
Society for the Study of Evolution
- Ruth Shaw Award for Best Graduate Student Poster, Honorable Mention 2017
American Society of Naturalists
- Young Investigator Travel Award 2017
Society of Molecular Biology and Evolution
- Dean's Travel Subvention 2017
School of Arts and Sciences, University of Pennsylvania
- James F. Crow Early Career Award Finalist 2016
Genetics Society of America

- DeLill Nasser Award for Professional Development in Genetics 2016
Genetics Society of America
- Tefler Travel Award 2015
Department of Biology, University of Pennsylvania
- Outreach Award 2014
Society for the Study of Evolution
- Travel Award 2014
School of Arts and Sciences, University of Pennsylvania
- Travel Award 2012-16
Graduate & Professional Student Association, University of Pennsylvania
- President Gutmann Leadership Award 2012
University of Pennsylvania
- Sigma Xi Honor Society 2009
Williams College
- Summer Research Fellowship 2007-08
Williams College
- 1960s Scholar for Biochemistry and Molecular Biology 2007
Williams College
- Summer Science Research Fellowship 2006
Howard Hughes Medical Institute

PUBLICATIONS (H-Index=8)

In preparation (*manuscript available upon request*)

Behrman, EL, AO Bergland, DA Petrov, P Schmidt Intragenic epistasis in *couch potato* and its effect on climatic adaptation in natural populations of *Drosophila melanogaster*.

Preprints

Behrman, EL, T Kawecki, PS Schmidt. Natural variation in *couch potato* mediates rapid evolution of learning and reproduction in natural populations of *Drosophila melanogaster*. BioRxiv (doi: <https://doi.org/10.1101/288696>)

In review

HE Machado, AO Bergland, R Taylor, S Tilk, **EL Behrman**, K Dyer, DK Fabian, T Flatt, J González, TL Karasov, I Kozeretska, BP Lazzaro, TJS Merritt, JE Pool, K O'Brien, S Rajpurohi, PR Roy, SW Schaeffer, S Serga, P Schmidt, D Petrov. Broad geographic sampling reveals predictable and pervasive seasonal adaptation in *Drosophila*. BioRxiv (doi: <https://doi.org/10.1101/337543>)

AW Walters, MK Matthews, RC Hughes, J Malcolm, **EL Behrman**, KR O'Brien, S Rudman, PD Newell, AE Douglas, PS Schmidt, JM Chaston. The microbiota influences the *Drosophila melanogaster* life history strategy.

Peer reviewed publications

12. **Behrman, EL**, VM Howick, F Staubach, AO Bergland, DA Petrov, BP Lazzaro, and PS Schmidt. 2018. Genetic basis of seasonal change in innate immune response in *Drosophila melanogaster*. *Proceedings of the Royal Society B*, 285: 20172599 (doi: [10.1098/rspb.2017.2599](https://doi.org/10.1098/rspb.2017.2599))

11. Cogni, R, C Kuczynski, S Koury, E Lavington, **E Behrman**, K O'Brien, P Schmidt, and W Eanes. 2017. On the long term stability of clines in *Drosophila melanogaster*. *Scientific Reports*, 7. (doi:10.1038/srep42766) (cited by 2)
10. Rajpurohit, S, R Hanus, V Vrkoslav, **EL Behrman**, J Cvacka and PS Schmidt. Adaptive dynamics of cuticular hydrocarbons in *Drosophila*. 2017. *Journal of Evolutionary Biology*, 30(1):66-80. doi:10.1111/jeb.12988 (cited by 8)
9. Machado, H, AO Bergland, KR O'Brien, **EL Behrman**, P Schmidt and D Petrov. 2016. Comparative population genomics of latitudinal variation in *Drosophila simulans* and *Drosophila melanogaster*. *Molecular Ecology*, 5(3):723-40. doi:10.1111/mec.13446 (cited by 26)
8. Zhao, X, AO Bergland, **EL Behrman**, BD Gregory, DA Petrov and PS Schmidt. 2016. Global transcriptional profiling of diapause and climatic adaptation in *Drosophila melanogaster*. *Molecular Biology & Evolution*, 33 (3): 707-720. doi:10.1093/molbev/msv263 (cited by 14)
7. **Behrman, EL**, S Watson, KR O'Brien, MS Heshel and PS Schmidt. 2015. Seasonal life history adaptation in two species of *Drosophila*. *Journal of Evolutionary Biology*, 28 (9) 1691-1704. doi:10.1111/jeb.12690 (cited by 21)
6. Cogni, R, K Kuczynski, E Lavington, S Koury, **EL Behrman**, KR O'Brien, PS Schmidt, and WF Eanes. 2014. Variation in *Drosophila melanogaster* central metabolic genes appears driven by natural selection both within and between populations. *Proceedings of the Royal Society B: Biological Sciences*, 282 (1800), art. no. 20142688, 7. doi:10.1098/rspb.2014.2688 (cited by 21)
5. Paaby, AB, AO Bergland, **EL Behrman** and PS Schmidt. 2014. An amino acid polymorphism in the *Drosophila* insulin receptor demonstrates pleiotropic and adaptive function in life history traits. *Evolution*. 68(12)3395-3409. doi:10.1111/evo.12546 (cited by 30)
4. Bergland, AO, **EL Behrman**, KR O'Brien, PS Schmidt and DA Petrov. 2014. Genomic evidence of rapid and stable adaptive oscillations over seasonal time scales in *Drosophila*. *PLoS Genetics* 10(11), 19p. doi:10.1371/journal.pgen.1004775 (cited by 146)
3. Lavington, E, R Cognai, C Kuczynski, S Koury, **EL Behrman**, KR O'Brien, PS Schmidt and W Eanes. 2014. A small system – high resolution study of metabolic adaptation to temperate climates in *Drosophila melanogaster*. *Molecular Biology and Evolution*, 31 (8) 2032-2041. doi:10.1093/molbev/msu146 (cited by 26)
2. Cogni, R, C. Kuczynski, S Koury, E Lavington, **E Behrman**, K O'Brien, P Schmidt, and W Eanes. 2013. The intensity of selection acting on the couch potato gene –spatial-temporal variation in a diapause cline. *Evolution*. (68) 538-548. 10.1111/evo.12291. Epub 2013 Nov 8. (cited by 26)
1. Dean, D, C Himes, **E Behrman**, and R Savage. 2009. Hunchback-like Protein in Ciliary Structures of Gastropod Veliger Larvae. *Biological Bulletin* (217) 189-201. doi:10.1086/BBLv217n2p189 (cited by 2)

PRESENTATIONS

Invited Presentations

- Duke University, Durham, NC 2017
- University of Virginia, Charlottesville, VA 2017
- Canadian Society of Ecology and Evolution, Victoria, BC 2017
- Janelia Research Campus, Ashburn, VA 2016

Contributed Talks (⊛ Selected talk)

- ⊛ Evolution Conference, Portland, OR **Hamilton Award Winner** 2017
- ⊛ 58th *Drosophila Research Conference*, San Diego, CA. 2017
- ⊛ *Allied Genetics Conference: Population, Evolutionary and Quantitative Genetics*, Orlando, FL **James F. Crow Early Career Award Finalist** 2016
- *Evolution Conference*, Austin, TX 2016
- ⊛ *Evolution Conference*, Sao Paulo, BZ **Hamilton Award Finalist** 2015
- *American Society of Naturalists*, Asilomar, CA 2014
- *Evolution Conference*, Raleigh, NC 2014
- *Evolution Conference*, Snowbird, UT 2013
- ⊛ *Evolution Conference*, Ottawa, ON **Hamilton Award Finalist** 2012
- *Penn Princeton Rutgers Columbia (PPRC) Graduate Research Conference*, Philadelphia, PA 2012
- ⊛ 53rd *Drosophila Research Conference*, Chicago, IL 2012
- *Evolution Conference*, Norman, OK 2011
- *Evolution Conference*, Portland, OR 2010

Poster Presentations

- *Evolution Conference*, Portland, OR **Ruth Patrick Award Honorable Mention** 2017
- *Society of Molecular Biology and Evolution*, Austin, TX 2017
- *Allied Genetics Conference: Drosophila Research Conference*, Orlando, FL 2016
- *Evolution Conference*, Austin, TX 2016
- *Evolution Conference*, Raleigh, NC 2014
- 55th *Drosophila Research Conference*, San Diego, CA 2014
- *Evolution Conference*, Snowbird, UT 2013
- 54th *Drosophila Research Conference*, Washington, DC 2013
- Biodiversity: from Evolutionary Origins to Ecosystems Function Bicentennial Symposium of the Academy of Natural Sciences, Philadelphia, PA 2012
- *Evolution Conference*, Moscow, ID 2009

TEACHING EXPERIENCE

- Certificate of Teaching Excellence 2016
Center for Teaching and Learning, University of Pennsylvania

Guest lectures

- Evolutionary Biology, *University of Pennsylvania* 2013, 2016
- Humans in a Microbial World, *University of Pennsylvania* 2013
- Humans and their Environment, *University of Pennsylvania* 2013

Teaching assistant

- Humans and their Environment, *University of Pennsylvania* 2013
- Evolutionary Biology, *University of Pennsylvania* 2013
- Genomics and Genome Science, *University of Pennsylvania* 2012
- Introduction Biology: The Cell, *Williams College* 2007

Research mentorship

- Trained 14 undergraduate and 10 high school students in the Schmidt Lab, *University of Pennsylvania* 2009-17

EDUCATION OUTREACH

- Raising Excitement for Science, Engineering & Technology (RESET) Volunteer 2018-present
- DC Science Tent at County Fairs 2017-present
- Science Fair Judge, Penn Alexander School 2015
- Early Access to Graduate Research (EAGR) Volunteer 2013
- Philadelphia Area Girls Enjoying Science (PAGES) Volunteer 2012-14
- Biology Undergraduate Mentor, University of Pennsylvania 2012-14
- High School Science Day Lab Leader, University of Pennsylvania 2011-16
- Professional Development workshops for Philadelphia high school teachers, University of Pennsylvania 2011-16
- Science Talks, Merion Elementary School 2011
- Biology Majors Advisory Committee, Williams College 2008-09
- Biology Mentor, Williams College 2008-09
- Student science teacher, Williamstown Elementary School 2006-07

ACADEMIC SERVICE

- Organizer of oral and poster presentation archiving for Evolution Conference 2016-17
- Founder and leader of the Philadelphia Evolution Group 2016-17

Conferences and symposia organized:

- Telfer Student Invited Lecture, University of Pennsylvania 2017
- Evolution in Philadelphia Conference (EPIc) 2017
 - Regional Meeting Award, American Society of Naturalists
 - Trainee Organized Symposium Award, Genetics Society of America
- Ecolunch Symposium, University of Pennsylvania 2012-15
- Penn Princeton Rutgers Columbia Research Conference 2012

Panel participant:

- Biology Graduate Student Panel, Williams College 2014
- Graduate School 101, Genetics Society of America 2012-13

Departmental Service:

- Janelia Association of Research Scientists officer 2018 - present
- President of the Biology Graduate Student Group 2016-17
- Graduate student panel for Ecology Faculty Job Search Committee 2015
- Careers in Academia workshop organizer 2012
- Graduate Student Interview Day Committee 2011-17

Reviewer:

- Journals: PeerJ (2017), Molecular Ecology (2017)
- Grants: NSF Graduate Research Program (2018)

Society Memberships: American Society of Naturalists, Genetics Society of America, Society for the Study of Evolution