

Alan O. Bergland

Department of Biology
University of Virginia
485 McCormick Rd, PO Box 400328
Charlottesville, VA 22904

aob2x@virginia.edu
<http://bergland-lab.org>

POSITIONS

Assistant Professor Department of Biology	University of Virginia 2016 - current
Research Associate Petrov Lab, Department of Biology	Stanford University 2014 - 2015
Post-doctoral Fellow Petrov Lab, Department of Biology	Stanford University 2010 - 2014

EDUCATION

Ph.D. Tatar Lab, Dept. of Ecology and Evolution	Brown University 2004 - 2010
B.S. with Honors Bradshaw-Holzapfel Lab, Dept. of Biology	Univ. of Oregon 2000-2004
B.S. Dept. of Philosophy	Univ. of Oregon 2000-2004

GRANTS AND AWARDS

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- 2013:** Stanford Center for Computational, Evolutionary and Human Genomics trainee research grant, “Physiological mechanisms underlying rapid adaptive evolution”
 - 2012:** NESCent Catalysis meeting grant, “Tracking the biotic response to global climate change through genomic analysis;” Co-PI along with D. Petrov & P. Schmidt
 - 2011 – 2014:** NIH NRSA post-doctoral fellowship, “Genomics of Natural Populations”
 - 2007 – 2008:** Oliver Cromwell Gorton Arnold Biological Fellow, Brown Univ.

PUBLISHED ARTICLES († = undergraduate mentee)

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- Tuttle EA*, **Bergland AO***, Gonser R, Karody M, Lear T, Houck M, Ryder O, Romanov M, Warren WC, Balakrishnan CN*. The birth and death of a polymorphic supergene. *Current Biology*, doi:10.1016/j.cub.2015.11.069.
- Machado, HE, **Bergland AO**, O’Brien K, Behrman EL, Schmidt PS, Petrov DA. Comparative population genomic analysis of latitudinal variation in *D. simulans* and *D. melanogaster*. *Molecular Ecology*, doi: 10.1111/mec.13446

- Bergland AO**, Tobler R, González J, Schmidt P & Petrov D. Secondary contact and local adaptation contribute to genome-wide patterns of clinal variation in *Drosophila melanogaster*. *Molecular Ecology*, doi: 10.1111/mec.13455
- Zhao X, Behrman EL, **Bergland AO**, Gregory BD, Petrov DA, Schmidt PS. Global transcriptional profiles of diapause in *Drosophila melanogaster* reveal evidence of seasonal adaptation. *Molecular Biology and Evolution*, doi: 10.1093/molbev/msv263
- Bergland AO**, E Behrman, K O'Brien, P Schmidt & D Petrov, 2014. Genomic evidence of rapid and stable adaptive oscillations over seasonal time scales in *Drosophila*. *PLoS Genetics* 10(11): e1004775. doi:10.1371/journal.pgen.1004775
- Paaby AB, **Bergland AO**, Behrman EL, Schmidt PS, 2014. An amino acid polymorphism in the *Drosophila* Insulin Receptor demonstrates pleiotropic and adaptive function in life-history traits. *Evolution* (68): 3395-3409
- Adrion J, Pascual M, Burrack H, Haddad N, **Bergland AO**, Machado H, Sackton T, Schlenke T, Watada M & Singh N, 2014. Reconstructing the invasion history of *Drosophila suzukii* using multilocus sequence data. *Molecular Biology Evolution*: doi:10.1093/molbev/msu246
- Feder A[†], Petrov D & **Bergland AO**, 2012. LDx: Estimation of linkage disequilibrium from high-throughput pooled resequencing data. *PLoS ONE* 7(11): e48588
- Zhu Y, **Bergland AO**, Gonzalez-Perez J & Petrov D, 2012. Empirical validation of pooled whole genome population re-sequencing in *Drosophila melanogaster*. *PLoS ONE* 7(7): e41901
- Bergland AO**, Chae HS, Kim YJ & Tatar M, 2012. Fine scale mapping of natural variation in fly fecundity identifies neuronal domain of expression and function of an aquaporin. *PLoS Genetics* 8(4): e1002631
- Bergland AO**. Mechanisms and ecological genetics of reproduction in Dipteran insects, 2011. In *Molecular mechanisms of life history evolution*, eds. Flatt, T. & A. Heyland. Oxford University Press, Oxford, UK
- Bergland AO**, Genissel A, Nuzhdin SV & Tatar M, 2008. Quantitative trait loci affecting phenotypic plasticity and the allometric relationship of ovariole number and thorax length in *Drosophila melanogaster*. *Genetics* 180: 576-582
- Bergland AO**, Agotsch M, Mathias D, Bradshaw WE & Holzapfel CM, 2005. Factors influencing the seasonal life history of the pitcher plant mosquito, *Wyeomyia smithii*. *Ecological Entomology* 30:129-137

ARTICLES IN PREPARATION (* = equal contribution; † = undergraduate mentee)

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- Bergland AO**, King F[†], Akhund-Zade J[†], Munroe Z[†] & Petrov D. High resolution QTL mapping using bulk-segregant analysis of multi-way advanced intercross populations: Application to the genetic basis of seasonal variation in stress tolerance in *D. melanogaster* and *D. simulans*.
- Bergland AO**, Reger J, Beckerman A. Heterogeneous predator-prey interactions promote predictable, multi-locus adaptive evolution of life-history traits in *Daphnia pulex*.
- Taylor R^{*}, **Bergland AO**^{*}, Schmidt PS, Petrov D. Predictable adaptive oscillations in *D. melanogaster* collected across two continents.

INVITED PRESENTATIONS (* = departmental seminar; † = conference)

- 2015:** Institut Jacques Monod, Université Paris Diderot, Paris, France*
 Indiana State University (Double Helix Speaker)*
 University of Sheffield, Sheffield, United Kingdom*
 Universitat Pompeu Fabra, Barcelona, Spain*
 University of Kansas*
 University of Virginia*
- 2014:** Entomological Society of America, Portland, OR†
- 2012:** Bay Area Population Genetics VI, Univ. of California, Davis†
 rEvolution, Stanford University†
- 2011:** University of Pennsylvania*
- 2008:** Uppsala University, Uppsala, Sweden*
 Interdisciplinary Graduate Student Seminar Series, Brown University†

SELECTED SUBMITTED PRESENTATIONS (6 of 17 total; * = platform talk)

- 2014***: “Genomic evidence of rapid and stable adaptive oscillations over seasonal time scales in *Drosophila*.” SMBE, San Juan, Puerto Rico.
- 2014:** “Genomic basis of parallel seasonal variation in stress tolerance traits in *Drosophila melanogaster* and *D. simulans*.” *Drosophila* Research Conference, San Diego, CA.
- 2014***: “Selective and demographic determinants of latitudinal variation in allele frequency in North American *Drosophila melanogaster*.” Dros. Res. Conf., San Diego, CA.
- 2014***: “Genomic evidence of rapid and stable adaptive oscillations over seasonal time scales in *Drosophila*.” American Society of Naturalists, Asilomar, CA.
- 2013***: “Genomic evidence of rapid and stable adaptive oscillations over seasonal time scales in *Drosophila*.” Evolution, Snowbird, UT.
- 2011***: “From QTL to neuron: mapping natural variation in fecundity to an underlying mechanism.” *Drosophila* Research Conference, San Deigo, CA.

TEACHING († = primary teacher; * = teaching assistant; ◇ = guest lecture)

- 2013†, '14†:** *Evolutionary Genetics Directed Reading*, Dept. of Biology, Stanford Univ.
- 2009†:** *Mycology Group Independent Study*, Dept. of Ecology and Evolution, Brown Univ.
- 2009◇:** *Experimental Design*, Dept. of Ecology and Evolution, Brown Univ.
- 2009◇:** *Introductory Genetics*, Dept. of Sci. and Technology, Bryant Univ.
- 2006*, '07*:** *Ecology*, Dept. of Ecology and Evolution, Brown Univ.
- 2006*:** *Genetics*, Dept. of Biology, Brown Univ.

2004*, **'05***[◇], **'06***, **'07[◇]**, **'08***[◇]: *Evolution*, Dept. of Ecology and Evolution, Brown Univ.

2005*: *Insect Biology*, Dept. of Ecology and Evolution, Brown Univ.

2004*: *Organismal Biology*, Dept. of Biology, Univ. of Oregon

2003*: *Biochemistry and Genetics*, Dept. of Biology, Univ. of Oregon

DEPARTMENTAL & PROFESSIONAL SERVICE

2014, 2015, 2016: NSF DEB pre-, full-, and GRFP proposal panels

2015: Genetics Society of America 100 Year Anniversary committee

2013 – 2014: Post-doc representative, Genetics Society of America Awards committee

2009 – 2010: Graduate student liaison to the Graduate Curriculum Committee, Brown Univ.

2007 – 2008: Organizer, Graduate student invited speaker series, Brown Univ.

2006 – 2007: Graduate student liaison to the faculty, Brown Univ.

2006 – 2007: Organizer, Brown bag seminar, Brown Univ.

2005 – 2006: Organizer, Weekly Ecology and Evolution Discussion Seminar, Brown Univ.

Ad-hoc Reviewer

• **Scientific journals:** *Aging Cell*, *The American Naturalist*, *BMC Biology*, *Developmental Biology*, *Ecological Entomology*, *Environmental Entomology*, *Evolution*, *Evolution & Development*, *Functional Ecology*, *Genetics*, *Heredity*, *Journal of Evolutionary Biology*, *Molecular Ecology*, *Physiological Entomology*, *PLoS Genetics*, *PLoS One*, *Proc. Royal Soc. B*.

• **Funding agencies:** *Austria (ASF)*, *France (INR)*, *United Kingdom (BBSRC)*