# Kimberly J. Gilbert | CV

Computational and Molecular Population Genetics Lab
Institute of Ecology and Evolution – University of Bern
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Population geneticist & evolutionary biologist

## Employment

**EMBO Post-doctoral Fellow** — **2017 – Present**
*University of Bern* — *Bern, Switzerland*
Advisor: Prof. Dr. Laurent Excoffier

**EEB Post-doctoral Fellow** — **2016 – 2017**
*University of Toronto* — *Toronto, Ontario*
Advisors: Dr. Aneil F. Agrawal, Dr. Stephen I. Wright

## Education

**Ph.D. Zoology** — **Sep 2011 – Oct 2016**
*University of British Columbia* — *Vancouver, British Columbia*
Advisor: Dr. Michael C. Whitlock
Dissertation title: Understanding local adaptation and effective population size in the face of complex demographic history

**B.Sc. Biology** — **2006 – 2010**
*University of Virginia* — *Charlottesville, Virginia*
Graduated with Distinction
Specialization in environmental & biological conservation

## Publications

16. Peischl S, **Gilbert KJ** (***Accepted***) Evolution of dispersal can rescue populations from expansion load. *The American Naturalist #58906 & available on BioRXiv: https://www.biorxiv.org/content/early/2018/11/30/483883*
15. **Gilbert KJ**, Peischl S, Excoffier L (2018) Mutation load dynamics during environmentally-driven range shifts. *PLOS Genetics*, 14(9): e1007450. https://doi.org/10.1371/journal.pgen.1007450.
14. Antonovics J, Abbate J, Bruns E, Fields PD, Forrester N, **Gilbert KJ**, Hood M, Park T, Taylor DR (2018) Effect of the anther-smut fungus *Microbotryum* on the juvenile growth of its host *Silene latifolia*. *American Journal of Botany*, 105(6), 1088-1095.
13. Peischl S, Dupanloup I, Foucal A, Jomphe M, Bruat V, Grenier J-C, Gouy A, **Gilbert KJ**, Gbeha E, Bosshard L, Hip-Ki E, Agbessi M, Hodgkinson A, Vézina H, Awadalla P, Excoffier L (2018) Relaxed selection during a recent human expansion. *Genetics*, 208(2), 763-777.
12. **Gilbert KJ**, MC Whitlock. (2017) The genetics of adaptation to discrete heterogeneous environments: Frequent mutation or large effect alleles can allow range expansion. *Journal of Evolutionary Biology*, 30(3), 591-602. doi:10.1111/jeb.13029.

11. **Gilbert KJ**, NP Sharp, AL Angert, GL Conte, JA Draghi, F Guillaume, AL Hargreaves, R Matthey-Doret, MC Whitlock. (2017) Local maladaptation reduces expansion load during range expansion. *The American Naturalist*, 189(4), 368-380, doi:10.1086/690673.
10. **Gilbert KJ** (2016) Identifying the number of population clusters with STRUCTURE: Problems and solutions. *Molecular Ecology Resources*, 16(3), 601-603.
9. **Gilbert KJ**, MC Whitlock (2015) Evaluating methods for estimating local effective population size with and without migration. *Evolution*, 68(8), 2154-2166.
8. Santiso X, L Lopez, **KJ Gilbert**, R Barreiro, MC Whitlock, R Retuerto (2015) Patterns of genetic variation within and among populations in *Arbutus unedo* and its relation with selection and evolvability. *Perspectives in Plant Ecology, Evolution and Systematics*, 17(3), 185-192.
7. **Gilbert KJ**, MC Whitlock (2015) $Q_{ST}$-$F_{ST}$ comparisons with unbalanced half-sib designs. *Molecular Ecology Resources*, 15(2), 262-267.
6. Caplins SA, **KJ Gilbert**, C Ciotir, J Roland, SF Matter, N Keyghobadi (2014) Landscape structure and the genetic effects of a population collapse. *Proceedings of the Royal Society B*. 281: 20141798; doi: 10.1098/rspb.2014.1798
5. Vines TH, AYK Albert, RL Andrew, F Débarre, DG Bock, MT Franklin, **KJ Gilbert**, J-S Moore, S Renaut, DJ Rennison (2014) The availability of research data declines rapidly with age. *Current Biology*, 24, 94-97.
4. Vines TH, RL Andrew, DG Bock, MT Franklin, **KJ Gilbert**, NC Kane, EJ Kleynhans, J-S Moore, BT Moyers, S Renaut, DJ Rennison, T Veen, S Yeaman (2013) Mandated archiving greatly improves access to research data. *FASEB Journal*, 27(4), 1304-1308.
3. **Gilbert KJ**, RL Andrew, DG Bock, MT Franklin, NC Kane, J-S Moore, BT Moyers, S Renaut, DJ Rennison, T Veen, TH Vines (2012) Recommendations for utilizing and reporting population genetic analyses: The reproducibility of genetic clustering using the program STRUCTURE. *Molecular Ecology*, 21(20), 4925-4930.
2. Keller SR, **KJ Gilbert**, PD Fields, DR Taylor (2012) Bayesian inference of a complex invasion history revealed by nuclear and chloroplast genetic diversity in the colonizing plant, *Silene latifolia*. *Molecular Ecology*, 21(19), 4721-4734.
1. Whitlock MC, **KJ Gilbert** (2012) $Q_{ST}$ in a hierarchically structured population. *Molecular Ecology Resources*, 12(3), 481–483.

## Awards & Funding

**Honorable Mention – Best student paper, *The American Naturalist*** **2018**
*Gilbert* et al. *2017*

**EMBO Long-term Post-doctoral Fellowship** **2017 – 2019**
*143,400 CHF*

**Ecology and Evolutionary Biology Post-doctoral Fellowship** **2016 – 2017**
*University of Toronto* *$40,500 CAD* Accepted in part

***Declined*** **– NSF Post-doctoral Research Fellowship** **2016 – 2019**
*National Plant Genome Initiative* *$210,000 USD*

**Cordula and Gunter Paetzold Fellowship** **2015 – 2016**
*University of British Columbia* *$18,000 CAD*

***Declined*** **– Zoology Graduate Fellowship** **2015 – 2016**
*University of British Columbia* *$16,000 CAD*

**Ann and William Messenger Graduate Fellowship** **2015**
*University of British Columbia* *$700 CAD*

**Zoology Graduate Fellowship** **2014 – 2015**
*University of British Columbia* *$11,000 CAD*

**Frieda Granot Graduate Scholarship in Interdisciplinary Research** **2013 – 2014**
*University of British Columbia $200 CAD*

**Theodore E Arnold Fellowship** **2013 – 2014**
*University of British Columbia $7,750 CAD*

**Patrick David Campbell Graduate Fellowship** **2013 – 2014**
*University of British Columbia $8,050 CAD*

**Zoology Graduate Fellowship** **2013 – 2014**
*University of British Columbia $11,000 CAD*

**Zoology Graduate Student Travel Award** **2013, 2014, 2016**
*University of British Columbia $500; $500; $400 CAD*

**BRITE Fellowship** **2011 – 2013**
*University of British Columbia $21,000 CAD*

## Presentations & Workshops

### Invited

**Mutation load dynamics during environmentally-driven range shifts** **Apr., Aug., Nov. 2018**
*EAWAG Kastanienbaum - Aquatic ecology & macroevolution seminar series* *Luzern, Switzerland*
*"Evolution on the edge: eco-evolutionary dynamics" ESEB symposium* *Montpellier, France*
*Institute of Science and Technology (IST) Austria* *Vienna, Austria*

**Species range shifts and local adaptation** **January 2018**
*AndinA workshop* *Bariloche, Argentina*
35-member international working group combining ecological and evolutionary disciplines to further understanding of range expansions and local adaptation

**Local adaptation, expansion load, and mutation load** **Sept., Oct. 2017**
*University of Basel – Botanical Colloquium* *Basel, Switzerland*
*Uppsala University* *Uppsala, Sweden*

**The genetics of adaptation during expansion across heterogeneous environments** **April 2017**
*University of Zürich; Behaviour, Ecology, Environment, and Evolution Seminar Series* *Zürich, Switzerland*

**Local maladaptation reduces expansion load during species range expansion** **July 2016**
*CSEE "Theoretical ecology and evolutionary biology" symposium* *St. John's, Newfoundland*

**Data availability, archiving, and scientific reproducibility** **June 2016**
*American Society of Mammalogists Annual Conference* *Minneapolis, MN*
*''Big data meets mammalogy: how to find and share data" symposium*

**Population genetic inference in the face of demographic history** **August 2015**
*University of Bern* *Bern, Switzerland*

**Estimating effective population size and the reproducibility of science** **Feb. 2015, Dec. 2014**
*Monash University* *Melbourne, VIC, Australia*
*Duke University Pop Bio Seminar Series* *Durham, NC*

**Reproducible Science Hackathon** **December 2014**
*NESCent Working Group* *Durham, NC*
21-member working group aiming to develop a curriculum and workflow for teaching reproducible science

**SimBank** **November 2014**
*NESCent Catalysis Meeting* *Durham, NC*
25-member working group aiming to create a collection of openly available simulation results to facilitate testing of statistical population genetic and phylogeographic methods

### Contributed

**Recovery from expansion load is limited during species range shifts** **2017**
*CeMEB Assembly: Biological invasions & range expansions from an evolutionary perspective* *Tjärno, Sweden*

**Mutation load across mating systems: how does load change and how is it best estimated** **2017**
*SMBE Meeting - talk* *Austin, TX*
*Evolution Meeting - talk* *Portland, OR*

**Local maladaptation reduces expansion load during species range expansion** **2016**
*Evolution Meeting - talk* *Austin, TX*

**Local adaptation and range expansions** **2015**
*SFU-UBC-UVic-UW Ecology and Evolution Retreat - talk* *Brackendale, BC*

**Validating SNP loci underlying local adaptation in lodgepole pine** **2015**
*$15^{th}$ ESEB Congress - poster* *Lausanne, Switzerland*

**Evaluating methods to estimate effective population size in the presence of migration** **2014**
*Evolution Meeting - talk* *Raleigh, NC*
*Evo-WIBO Conference (Evolutionary Biology in the Pacific Northwest) - talk* *Port Townsend, WA*

**Estimating effective population size in natural populations** **2013**
*Evolution Meeting - talk* *Snowbird, UT*
*SFU-UBC-UVic Ecology and Evolution Retreat - talk* *Brackendale, BC*

**Effective population size estimates in a metapopulation of *Silene latifolia*** **2012**
*$1^{st}$ Joint Congress on Evolutionary Biology - poster* *Ottawa, ON*

**Range expansion and adaptation across heterogeneous environments** **2012**
*Landscape Genetics Symposium, CIEE Graduate Mini-Course - talk* *Toronto, ON*
*Evo-WIBO Conference (Evolutionary Biology in the Pacific Northwest) - poster* *Port Townsend, WA*

**Inferred invasion history of *Silene latifolia* into North America** **2011**
*$13^{th}$ ESEB Congress - poster* *Tuebingen, Germany*
*SFU-UBC-UVic Ecology and Evolution Retreat - poster* *Brackendale, BC*

## Teaching Experience

**Introduction to R Programming and Analyses** **Fall 2018**
*Teaching assistant for practicals in R for biology undergraduates* *University of Bern*

**Molecular Population Genetics Practical** **Spring 2018, 2019**
*Teaching assistant for practicals in molecular data analysis for biology undergraduates* *University of Bern*

**Statistics for Biology** **Spring 2017, 2018**
*Teaching assistant for practicals in statistics for biology undergraduates* *University of Bern*

**Fundamentals of Biostatistics** **Fall 2013, 2014, 2015**
*BIOL 300* *UBC*
Statistical procedures for biological research; estimation, hypothesis testing, goodness of fit, analysis of variance and regression; use of computers for statistical analysis
Two sections (70 students total) in 2013, one section (36 students) in 2014, one section (36 students) in 2015. Lab coordinator for 254 students enrolled in 2014 and for 275 students enrolled in 2015.

***Guest Lecture* – Quantitative Methods in Ecology and Evolution** **January 2013**
*BIOL 548* *UBC*
Guest lecture on making maps in R

**Fundamentals of Evolutionary Biology** **Fall 2012, Spring 2013**
*BIOL 336* *UBC*

Discussion-based tutorial covers natural selection, population genetics, quantitative genetics, systematics, and classical and molecular approaches to the study of evolution
Three discussion sections of 45 students total per semester

## Volunteer & Outreach

**Subject Editor** **2018 – 2021**
*Molecular Ecology, Molecular Ecology Resources*

**Reviewer**: *American Naturalist*, *Evolution*, *Evolution Letters*, *New Phytologist*, *Molecular Ecology*, *Molecular Ecology Resources*, *Proceedings B*, *TREE*, *Heredity*, *Ecology and Evolution*, *Conservation Biology*, *Biological Invasions*, *PeerJ*, *Ecography*, *Tree Genetics & Genomes*, *Communications Biology*, *Frontiers in Plant Science*

**IEE Junior Staff Seminar Series** **2017 – Present**
*One of six junior staff organizing the invited lecture series in ecology and evolution*

**Symposium co-organizer** **2018**
*Joint 2018 ESEB-SSE-ASN-SSB meeting in Montpellier, France*
Co-organized with Drs. Nathaniel Sharp, Frédéric Austerlitz, and Paul Verdu a symposium entitled "From theory to genome-wide data: inferring selection, demography, gene flow and admixture"

**Graduate Student Council Member** **2013 – 2016**
*American Society of Naturalists*
Council Chair for 2015-2016 term
Organized the student-mentor mixer at the 2016 Evolution Meeting in Austin, TX
Organized the student-mentor mixer at the 2014 Evolution Meeting in Raleigh, NC
Served on the workshops committee for ASN-sponsored workshops

**Journal club organizer**
*UBC Evolution Discussion Group (EDG) weekly reading group* **2014 – 2015**
*Evolution discussion group at University of Bern, Institute of Ecology and Evolution* **2017 – Present**

**Faculty Search Committee: Graduate Student Representative** **2014**
*Evolutionary biology CRC2 job search for the Department of Zoology, University of British Columbia*

**Volunteer mist-netting and bird banding** **2013 – 2016**
*Wild Research* *Iona Island Bird Observatory, Vancouver, BC*
Participate in winter, spring migration, and fall migration bird monitoring
Teach proper bird handling, aging, data collection, and mist net extraction techniques to new volunteers
Assist in teaching other volunteers and visitors to the station about the species conservation and monitoring

## Previous Research Experience

**Independent Study & Research Technician** **Sep. 2009 – June 2011**
*University of Virginia*
Genetic analysis of metapopulation processes in the *Silene-Micobotryum* host-pathogen system
Supervisors: Dr. Douglas R. Taylor, Dr. Peter D. Fields, Dr. Janis Antonovics

**Field Technician & Research Assistant** **May 2009 – August 2009**
*Blandy Experimental Farm, University of Virginia*
Field research on effects of tropospheric ozone on native vs. invasive tree species
Supervisors: Dr. David E. Carr, Dr. Eric E. Elton

**MAPS Bird Banding Intern** **May 2008 – August 2008**
*Monitoring Avian Productivity and Survivorship – The Institute for Bird Populations*
Mist-netting, banding, and processing passerines and near-passerines during summer breeding season to monitor populations of local species
Supervisor: James Junda, M.Sc.