

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

University of Bern

Advisor: Prof. Dr. Laurent Excoffier

2017 – Present

Bern, Switzerland

EEB Post-doctoral Fellow

University of Toronto

Advisors: Dr. Aneil F. Agrawal, Dr. Stephen I. Wright

2016 – 2017

Toronto, Ontario

Education

Ph.D. Zoology

University of British Columbia

Advisor: Dr. Michael C. Whitlock

Dissertation title: Understanding local adaptation and effective population size in the face of complex demographic history

Sep 2011 – Oct 2016

Vancouver, British Columbia

B.Sc. Biology

University of Virginia

Graduated with Distinction

Specialization in environmental & biological conservation

2006 – 2010

Charlottesville, Virginia

Publications

- Gilbert KJ**, Peischl S, Excoffier L (*Submitted*) Mutation load dynamics during environmentally-driven range shifts. *PLOS Genetics*, *PGENETICS-D-18-01058*, BioRxiv: <https://doi.org/10.1101/333252>
14. Antonovics J, Abbate J, Bruns E, Fields PD, Forrester N, **Gilbert KJ**, Hood M, Park T, Taylor DR (*In Press, AJB-D-18-00087*) Effect of the fungal pathogen *Microbotryum* on early growth of *Silene latifolia*. *American Journal of Botany*.
 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, <i>The American Naturalist</i> Gilbert et al. 2017	2018
EMBO Long-term Post-doctoral Fellowship 143,400 CHF	2017 – 2019
Ecology and Evolutionary Biology Post-doctoral Fellowship University of Toronto \$40,500 CAD Accepted in part	2016 – 2017
Declined – NSF Post-doctoral Research Fellowship National Plant Genome Initiative \$210,000 USD	2016 – 2019
Cordula and Gunter Paetzold Fellowship University of British Columbia \$18,000 CAD	2015 – 2016
Declined – Zoology Graduate Fellowship University of British Columbia \$16,000 CAD	2015 – 2016
Ann and William Messenger Graduate Fellowship University of British Columbia \$700 CAD	2015
Zoology Graduate Fellowship University of British Columbia \$11,000 CAD	2014 – 2015
Frieda Granot Graduate Scholarship in Interdisciplinary Research University of British Columbia \$200 CAD	2013 – 2014
Theodore E Arnold Fellowship University of British Columbia \$7,750 CAD	2013 – 2014

Patrick David Campbell Graduate Fellowship <i>University of British Columbia \$8,050 CAD</i>	2013 – 2014
Zoology Graduate Fellowship <i>University of British Columbia \$11,000 CAD</i>	2013 – 2014
Zoology Graduate Student Travel Award <i>University of British Columbia \$500; \$500; \$400 CAD</i>	2013, 2014, 2016
BRITE Fellowship <i>University of British Columbia \$21,000 CAD</i>	2011 – 2013

Presentations & Workshops

Invited.....

Species range shifts lead to greater fitness loss than range expansions <i>"Evolution on the edge: eco-evolutionary dynamics, range expansion, and local adaptation"</i>	August 2018 Montpellier, France
Genetic impacts of species range expansions <i>EAWAG Kastanienbaum - Aquatic ecology & macroevolution seminar series</i>	April 2018 Luzern, Switzerland
Species range shifts and local adaptation <i>AndinA workshop</i> 35-member international working group combining ecological and evolutionary disciplines to further understanding of range expansions and local adaptation	January 2018 Bariloche, Argentina
Local adaptation, expansion load, and mutation load <i>University of Basel – Botanical Colloquium</i> <i>Uppsala University</i>	Sept., Oct. 2017 Basel, Switzerland Uppsala, Sweden
The genetics of adaptation during expansion across heterogeneous environments <i>University of Zürich; Behaviour, Ecology, Environment, and Evolution Seminar Series</i>	April 2017 Zürich, Switzerland
Local maladaptation reduces expansion load during species range expansion <i>CSEE "Theoretical ecology and evolutionary biology" symposium</i>	July 2016 St. John's, Newfoundland
Data availability, archiving, and scientific reproducibility <i>American Society of Mammalogists Annual Conference</i> <i>"Big data meets mammalogy: how to find and share data" symposium</i>	June 2016 Minneapolis, MN
Population genetic inference in the face of demographic history <i>University of Bern</i>	August 2015 Bern, Switzerland
Estimating effective population size and the reproducibility of science <i>Monash University</i> <i>Duke University Pop Bio Seminar Series</i>	Feb. 2015, Dec. 2014 Melbourne, VIC, Australia Durham, NC
Reproducible Science Hackathon <i>NESCent Working Group</i> 21-member working group aiming to develop a curriculum and workflow for teaching reproducible science	December 2014 Durham, NC
SimBank <i>NESCent Catalysis Meeting</i> 25-member working group aiming to create a collection of openly available simulation results to facilitate testing of statistical population genetic and phylogeographic methods	November 2014 Durham, NC

Contributed.....

Recovery from expansion load is limited during species range shifts <i>CeMEB Assembly: Biological invasions & range expansions from an evolutionary perspective</i>	2017 Tjärno, Sweden
Mutation load across mating systems: how does load change and how is it best estimated <i>SMBE Meeting - talk</i>	2017 Austin, TX

<i>Evolution Meeting - talk</i>	Portland, OR
Local maladaptation reduces expansion load during species range expansion	2016
<i>Evolution Meeting - talk</i>	Austin, TX
Local adaptation and range expansions	2015
<i>SFU-UBC-UVic-UW Ecology and Evolution Retreat - talk</i>	Brackendale, BC
Validating SNP loci underlying local adaptation in lodgepole pine	2015
<i>15th ESEB Congress - poster</i>	Lausanne, Switzerland
Evaluating methods to estimate effective population size in the presence of migration	2014
<i>Evolution Meeting - talk</i>	Raleigh, NC
<i>Evo-WIBO Conference (Evolutionary Biology in the Pacific Northwest) - talk</i>	Port Townsend, WA
Estimating effective population size in natural populations	2013
<i>Evolution Meeting - talk</i>	Snowbird, UT
<i>SFU-UBC-UVic Ecology and Evolution Retreat - talk</i>	Brackendale, BC
Effective population size estimates in a metapopulation of <i>Silene latifolia</i>	2012
<i>1st Joint Congress on Evolutionary Biology - poster</i>	Ottawa, ON
Range expansion and adaptation across heterogeneous environments	2012
<i>Landscape Genetics Symposium, CIEE Graduate Mini-Course - talk</i>	Toronto, ON
<i>Evo-WIBO Conference (Evolutionary Biology in the Pacific Northwest) - poster</i>	Port Townsend, WA
Inferred invasion history of <i>Silene latifolia</i> into North America	2011
<i>13th ESEB Congress - poster</i>	Tuebingen, Germany
<i>SFU-UBC-UVic Ecology and Evolution Retreat - poster</i>	Brackendale, BC

Teaching Experience

Molecular Population Genetics Practical	Spring 2018
<i>University of Bern</i>	
Teaching assistant for practicals in molecular data analysis for undergraduate biology majors	
Statistics for Biology	Spring 2017, 2018
<i>University of Bern</i>	
Teaching assistant for three sessions of practicals in statistics for undergraduate biology majors	
Fundamentals of Biostatistics	Fall 2013, 2014, 2015
<i>BIOL 300</i>	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
<i>BIOL 548</i>	UBC
Guest lecture on making maps in R	
Fundamentals of Evolutionary Biology	Fall 2012, Spring 2013
<i>BIOL 336</i>	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:** *Evolution, New Phytologist, Molecular Ecology, Molecular Ecology Resources, Heredity, Ecology and Evolution, 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, and the general tasks of running a banding station

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.