

MATTHEW M. OSMOND

Postdoctoral Fellow

Center for Population Biology

University of California - Davis

mmosmond@gmail.com

mmosmond.github.io

Academic Positions

PDF Center for Population Biology, University of California - Davis 2018 -
Supervisors: **Graham Coop**, **Sebastian Schreiber**, **Andrew Whitehead**

Education

PhD Zoology, University of British Columbia 2013 - 2018
Title: *Adaptive challenges: fitness valleys and evolutionary rescue*
Supervisor: **Sarah Otto**
Committee: Amy Angert, Michael Doebeli, Michael Whitlock

MSc Biology, McGill University 2010 - 2012
Title: *Eco-evolutionary rescue: an adaptive dynamic analysis*
Supervisor: **Claire de Mazancourt**
Committee: Michel Loreau, Frédéric Guichard

BSc Mathematics & Biology, Queen's University 2004 - 2008
Honours title: *The meaning of female coloration in the American redstart*
Honours supervisor: **Laurene Ratcliffe**
Committee: Paul Martin

Additional Research Experience

2017 **Student** Evolutionary Quantitative Genetics workshop (J. Felsenstein *et al.*)
2016 **Visiting researcher** University of Montpellier and CNRS (O. Ronce, T. Lenormand)
2015 **Student** Complex Systems Summer School (Santa Fe Institute)
2013 **Student** Metacommunities summer school (M. Leibold, C. Klausmeier)
2013 **Researcher** Michigan State University (C. Klausmeier, E. Litchman)
2012-2014 **Visiting researcher** University of Helsinki (S. Geritz, E. Kisdi)
2012 **Research assistant** University of British Columbia (D. Irwin)
2011 **Student** Adaptive Dynamics summer school (S. Geritz, C. Klausmeier)
2010-2012 **Member** Eco-evolutionary working group (A. Gonzalez *et al.*)
2010 **Research assistant** USGS (J. Piatt) and University of Victoria (A. Burger)
2009-2010 **MSc** (withdrew) Lakehead University (A. Mallik)

Publications

9. Edwards K, Kremer C, Miller E, **Osmond M**, Litchman E, Klausmeier C. Accepted. Evolutionary stable communities: a framework for understanding the role of trait evolution in the maintenance of diversity. *Ecology Letters*.
8. Scott M*, **Osmond M***, Otto S. 2018. Haploid selection, sex ratio bias, and transitions between sex-determining systems. *PLoS Biology* 16:e2005609. [* joint first authors]
7. **Osmond M**, Klausmeier C. 2017. An evolutionary tipping point in a changing environment. *Evolution* 71:2930-2941.
6. **Osmond M**, Otto S, Klausmeier C. 2017. When predators help prey adapt and persist in a changing environment. *The American Naturalist* 190:83-98. [F1000Prime Recommended]
5. **Osmond M**, Barbour M, Bernhardt J, Pennell M, Sunday J, O'Connor M. 2017. Warming induced changes to body size stabilize consumer-resource dynamics. *The American Naturalist* 189:718-725.
4. Toews D, Delmore K, **Osmond M**, Taylor P, Irwin D. 2017. Migratory orientation in a narrow avian hybrid zone. *PeerJ* 5:e3201.
3. **Osmond M**, Otto S. 2015. Fitness-valley crossing with generalized parent-offspring transmission. *Theoretical Population Biology* 105:1-16.
2. **Osmond M**, Reudink M, Marra P, Germain R, Nocera J, Boag P, Ratcliffe L. 2013. Relationships between carotenoid-based female plumage and age, reproduction, and mate colour in the American Redstart. *Canadian Journal of Zoology* 91:589-595.
1. **Osmond M**, de Mazancourt C. 2013. How competition affects evolutionary rescue. *Philosophical Transactions of the Royal Society B: Biological Sciences* 368:20120085.

Preprints

1. Thompson K, **Osmond M**, Schluter D. 2018. Patterns of speciation and parallel genetic evolution under adaptation from standing variation. *bioRxiv* 368324.

Selected Awards, Grants, and Fellowships

2019-2020	Postdoctoral Fellowship, NSERC (declined)	\$90,000
2018-2021	Center for Population Biology Postdoctoral Fellowship, UC Davis	\$125,000
2017-2018	Graduate Student Fellowship, University of British Columbia	\$16,500
2013-2017	Alexander Graham Bell Canada Graduate Scholarship (CGS-D), NSERC	\$105,000
2013-2014	Faculty of Science Graduate Award, University of British Columbia	\$6,000
2013-2018	Four Year Fellowship, University of British Columbia	\$18,000
2013-2014	BRITE Fellowship, University of British Columbia & NSERC	\$6,000
2011-2012	Dr. Neal Simon Memorial Scholarship	\$1,000
2011-2012	Alexander Graham Bell Canada Graduate Scholarship (CGS-M), NSERC	\$17,500
2011-2012	Excellence Award, Quebec Centre for Biodiversity Science	\$2,500
2010-2011	Science and Technology Award, Ontario Graduate Scholarship	\$5,000
2007	Undergraduate Student Research Award (USRA), NSERC	\$4,500

Community Involvement

Referee *The American Naturalist* (6), *Genetics* (2), *Journal of Theoretical Biology* (2), *Theoretical Population Biology* (2), *Biological Journal of the Linnean Society* (1), *Ecology* (1), *Evolution* (1), *Frontiers in Ecology and Evolution* (1), *Philosophical Transactions of the Royal Society B* (1), *Journal of Statistical Mechanics* (1)

2018- **Organizer** Center for Population Biology Tuesday Seminar, UC Davis
 2017-2018 **Secretary** Zoology Graduate Student Society, University of British Columbia
 2017 **Volunteer** Eco-Evo Retreat, Squamish, British Columbia
 2016-2017 **Organizer** Let's Assume (evol. theory discussion group), University of British Columbia
 2014 **Organizer** Vancouver Evolution Group (regional journal club), Vancouver
 2010-2012 **Organizer** Eco-Theoretic Cafe (mathematical ecology discussion group), McGill University
 2007 **Volunteer** Society of Canadian Ornithologists meeting, Queen's University

Teaching Experience

2014, 2016, 2017 **Marker** Population Genetics, University of British Columbia
 2011 **Mentor** for work-study undergraduate student, McGill University
 2010 **Teaching Assistant** Math Models in Biology, McGill University
 2010 **Teaching Assistant** Organismal Biology, McGill University
 2010 **Teaching Assistant** Evolutionary Concepts, Lakehead University
 2009 **Teaching Assistant** Ecology, Lakehead University

Invited Seminars

Osmond M, Martin G, Ronce O, Otto S. 2018. Evolutionary rescue. Mathematical Biology Seminar, UBC, Vancouver, Canada.
Osmond M. 2018. Evolutionary rescue: integrating ecological and evolutionary theory. Center for Population Biology, UC Davis, USA.
Osmond M, Martin G, Otto S, Ronce O. 2016. Genetic signatures of evolutionary rescue with sex. Stochastic Models for the Inference of Life Evolution group, College de France, Paris, France.
Osmond M, Otto S, Klausmeier C. 2016. When predators help prey adapt and persist. INRA, Montpellier, France.
Osmond M, Otto S. 2016. Subcritical adaptation: fitness valleys and evolutionary rescue. Stochastic and Deterministic Models for Evolutionary Biology workshop, Oaxaca, Mexico.
Osmond M, de Mazancourt C. 2013. Using adaptive dynamics to predict evolution and extinction in changing environments. Pacific Institute for the Mathematical Sciences, UBC.
Osmond M, de Mazancourt C. 2011. To adapt and persist in a changing environment. Mick Follows lab, Massachusetts Institute of Technology, Boston, USA.

Conference Presentations

Osmond M, Martin G, Ronce O, Otto S. 2018. Genetic paths to evolutionary rescue. Population and Evolutionary Quantitative Genetics, Madison, USA. (poster) ***Poster award**

- Osmond M**, Martin G, Ronce O, Otto S. 2018. Predicting the genetic paths evolutionary rescue will take. Evo-WIBO, Port Townsend, USA. ***Talk award**
- Osmond M**, Scott M, Otto S. 2017. Gametic competition, meiotic drive, sex ratio selection, and transitions between sex determination systems. Evolution, Portland, USA.
- Osmond M**, Klausmeier C. 2017. Evolutionary tipping points in changing environments. Canadian Society for Ecology and Evolution, Victoria, Canada.
- Osmond M**, Otto S, Klausmeier C. 2016. When predators help prey adapt and persist. Evolution, Austin, USA.
- Osmond M**, Klausmeier C. 2016. When predators help prey adapt and persist. Evo-WIBO, Port Townsend, USA.
- Osmond M**, Otto S. 2015. Crossing fitness-valleys without the help of Mendel: extending theory. Canadian Society for Ecology and Evolution, Saskatoon, Canada. ***Talk award**
- Osmond M**, Otto S. 2014. Crossing fitness-valleys without the help of Mendel. Evolution, Raleigh, USA. (poster)
- Osmond M**, Otto S. 2014. Crossing fitness-valleys without the help of Mendel. Evo-WIBO, Port Townsend, WA, USA. (poster)
- Osmond M**, Otto S. 2014. Crossing fitness-valleys without the help of Mendel. Evolution of Mating Systems, University of Jyväskylä, Finland. (poster)
- Osmond M**, Weigang H. 2012. Shorter generation times, slower evolution? Impact of life-history on evolution. Swedish Meeting on Mathematics in Biology, Lund, Sweden. (poster)
- Osmond M**, Weigang H. 2012. How life-history affects the rate of evolution. Biomathematics Day, University of Helsinki.
- Osmond M**, de Mazancourt C. 2012. How competition affects evolutionary rescue. Joint Congress on Evolutionary Biology, Ottawa, Canada.
- Osmond M**, de Mazancourt C. 2011. Evolutionary rescue and competition. Quebec Centre for Biodiversity Science Symposium, Montreal, Canada.
- Osmond M**, de Mazancourt C. 2011. To adapt and persist in a changing environment. Canadian Society for Ecology and Evolution, Banff, Canada. (poster)