MATTHEW M. OSMOND

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Academic Positions

Prof.	Department of Ecology & Evolutionary Biology, University of Toronto	2021-
PDF	Center for Population Biology & Banting Fellow, UC Davis Supervisors: Graham Coop, Sebastian Schreiber, Andrew Whitehead	2018-2020

Education

PhD	Zoology, University of British Columbia Title: *Adaptive challenges: fitness valleys and evolutionary rescue* Supervisor: Sarah Otto Committee: Amy Angert, Michael Doebeli, Michael Whitlock	2013 - 2018
MSc	Biology, McGill University Title: *Eco-evolutionary rescue: an adaptive dynamic analysis* Supervisor: Claire de Mazancourt Committee: Michel Loreau, Frédéric Guichard	2010 - 2012
BSc	Mathematics & Biology, Queen's University Honours title: *The meaning of female coloration in the American redstart* Honours supervisor: Laurene Ratcliffe (and Matt Reudink) Committee: Paul Martin	2004 - 2008

Selected Awards and Fellowships

2018-2021	Center for Population Biology Postdoctoral Fellowship, UC Davis	$125,000
2018-2020	Banting Postdoctoral Fellowship	$140,000
2018-2020	NSERC Postdoctoral Fellowship (declined)	$90,000
2013-2017	Alexander Graham Bell Canada Graduate Scholarship (CGS-D), NSERC	$105,000
2011-2012	Alexander Graham Bell Canada Graduate Scholarship (CGS-M), NSERC	$17,500
2008	Undergraduate Student Research Award (USRA), NSERC (declined)	$4,500
2007	Undergraduate Student Research Award (USRA), NSERC	$4,500

Publications

13. **Osmond M**, Coop G. 2019. Genetic signatures of evolutionary rescue by a selective sweep. *bioRχiv* 10.1101/800201.
12. Henriques GJB, **Osmond M**. 2019. During environmental change, cooperation can promote rescue or lead to evolutionary suicide. *bioRχiv* 10.1101/784553.
11. **Osmond M**, Otto SP, Martin G. 2020. Genetic paths to evolutionary rescue and the distribution of fitness effects along them. *Genetics*.
10. Thompson K, **Osmond M**, Schluter D. 2019. Parallel genetic evolution and speciation from standing variation. *Evolution Letters* 3:129-141.
9. Edwards K, Kremer C, Miller E, **Osmond M**, Litchman E, Klausmeier C. 2018. Evolutionary stable communities: a framework for understanding the role of trait evolution in the maintenance of diversity. *Ecology Letters* 21:1853-1868.
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.

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)

Community Involvement

Referee *The American Naturalist* (9), *Evolution* (2), *Genetics* (2), *Journal of Theoretical Biology* (2), *Theoretical Population Biology* (2), *Biological Journal of the Lineann Society* (1), *Ecology* (1), *Ecology Letters* (1), *eLife* (1), *Frontiers in Ecology and Evolution* (1), *Global Change Biology* (1), *Heredity* (1), *Philosophical Transactions of the Royal Society B* (1), *PLoS Computational Biology* (0.5), *Journal of Statistical Mechanics* (1), *Science* (0.5)

2018-	**Organizer** Center for Population Biology Seminar & Social Hour, 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/Training

2019	**Participant** Teaching Toolkit for Diverse Learners, San Francisco State University
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. 2018. Evolutionary rescue: adaptation, genetics, demography. University of Toronto, Toronto, Canada.

Osmond M, Martin G, Ronce O, Otto S. 2018. Evolutionary rescue. Mathematical Biology Seminar, University of British Columbia, Vancouver, Canada.

Osmond M. 2018. Evolutionary rescue: integrating ecological and evolutionary theory. Center for Population Biology, University of California - Davis, 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. Institute National de la Recherche Agronomique, 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, University of British Columbia, Vancouver, Canada.

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, Coop G. 2020. Inferring the locations of genetic ancestors. American Naturalist, Asilomar, USA. (poster)

Osmond M, Coop G. 2019. Genetic signatures of evolutionary rescue. Evolution, Providence, USA.

Osmond M, Coop G. 2019. Genetic signatures of evolutionary rescue. Bay Area Population Genetics, Stanford, USA.

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, USA. (poster)

Osmond M, Otto S. 2014. Crossing fitness-valleys without the help of Mendel. Evolution of Mating Systems, University of Jyväskylä, 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, Helsinki, Finland.

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)