MATTHEW M. OSMOND

Assistant Professor
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Prof.	Department of Ecology & Evolutionary Biology, University of Toronto	2021-
PDF	Center for Population Biology & Banting Fellow, UC Davis Mentors: Graham Coop, Sebastian Schreiber, Andrew Whitehead	2018-2020
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* Supervisors: Laurene Ratcliffe, Matt Reudink Committee: Paul Martin	2004 - 2008

Selected Awards

2019-2020	Banting Postdoctoral Fellowship, Canada	$140,000
2018-2020	Center for Population Biology Postdoctoral Fellowship, UC Davis	$125,000
2018-2020	Postdoctoral Fellowship, NSERC (awarded but declined)	$90,000
2013-2017	Alexander Graham Bell Canada Graduate Scholarship, NSERC	$105,000
2011-2012	Alexander Graham Bell Canada Graduate Scholarship, NSERC	$17,500
2011-2012	Dr. Neal Simon Memorial Scholarship	$1,000
2007	Undergraduate Student Research Award, NSERC	$4,500

Publications

15. Lyberger K, **Osmond M**, Schreiber S. 2020. Is evolution in response to extreme events good for population persistence? *bioRχiv* 10.1101/2020.04.02.014951.

14. Klausmeier C, **Osmond M**, Kremer C, Litchman E. 2020. Ecological limits to evolutionary rescue. *Philosophical Transactions of the Royal Society B.* 375:20190453
13. Henriques GJB, **Osmond M**. 2020. During environmental change, cooperation can promote rescue or lead to evolutionary suicide. *Evolution* 74:1255-1273.
12. **Osmond M**, Coop G. 2020. Genetic signatures of evolutionary rescue by a selective sweep. *Genetics* 215:813-829.
11. **Osmond M**, Otto SP, Martin G. 2020. Genetic paths to evolutionary rescue and the distribution of fitness effects along them. *Genetics* 214:493-510.
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.

Service

Assistant Editor *Theoretical Population Biology* (2021-)

Reviewer *The American Naturalist* (11), *Genetics* (3), *Ecology Letters* (2), *Evolution* (2), *Journal of Theoretical Biology* (2), *Theoretical Population Biology* (3), *Biological Journal of the Lineann Society* (1), *Ecology* (1), *Ecology and Evolution* (1), *eLife* (1), *Frontiers in Ecology and Evolution* (1), *Global Change Biology* (1), *Heredity* (1), *Molecular Biology and Evolution* (1), *Molecular Ecology* (1), *Nature Communications* (1), *Nature Ecology and Evolution* (1), *Philosophical Transactions of the Royal Society B* (1), *Journal of Statistical Mechanics* (1), *PLoS Computational Biology* (0.5), *Science* (0.5)

Invited Seminars

Osmond M, Coop G. 2020. `spaARG`: Inferring dispersal rates and the locations of genetic ancestors from genome-wide gene genealogies. Computational and Theoretical Evolutionary Genetics seminar series, **University of California - Berkeley**, Berkeley, USA. (virtual)

Osmond M. 2020. Evolutionary rescue: genetic basis and genetic signatures. Rescue Team online seminar series, **Max Planck Institute for Evolutionary Biology**, Plön, Germany. (virtual)

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.