

# MATTHEW M. OSMOND

Postdoctoral Fellow

Center for Population Biology

University of California - Davis

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## Appointments

- Prof.** Department of Ecology & Evolutionary Biology, University of Toronto 2021-
- PDF** Center for Population Biology & Banting Fellow, UC Davis 2018-2020  
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 (and Matt Reudink)  
Committee: Paul Martin

## Selected Awards and Fellowships

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|-----------|--|-----------|
| 2018-2021 | Center for Population Biology Postdoctoral Fellowship, UC Davis  | \$125,000 |
| 2018-2020 | Banting Postdoctoral Fellowship                                  | \$140,000 |
| 2018-2020 | NSERC Postdoctoral Fellowship (awarded but 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  |
| 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. *bioRxiv* 10.1101/800201.
12. Henriques GJB, **Osmond M**. 2019. During environmental change, cooperation can promote rescue or lead to evolutionary suicide. *bioRxiv* 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.

## Community Involvement

**Reviewer** *The American Naturalist* (9), *Evolution* (2), *Genetics* (2), *Journal of Theoretical Biology* (2), *Theoretical Population Biology* (2), *Biological Journal of the Linnean 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), *Journal of Statistical Mechanics* (1), *PLoS Computational Biology* (0.5), *Science* (0.5)

## 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.