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## EDUCATION

**Harvard University** Cambridge, MA  
PhD, Organismic and Evolutionary Biology 2016 (expected)  
Dissertation: Population pedigrees and coalescence in structured populations

**Carleton College** Northfield, MN  
BA, *summa cum laude*, Biology, Phi Beta Kappa 2010  
Thesis: Polyandry and the evolution of selfish genetic elements

## RESEARCH EXPERIENCE

**Harvard University** Cambridge, MA  
Graduate student – Advisor: John Wakeley 2011 – Present

- Effects of population pedigree on coalescence in structured populations
- Two-locus properties of sequentially Markov coalescent models, with an exploration of consistency and bias in the SMC and SMC'
- (*in collaboration with Shai Carmi and Pier Palamara*)  
Theory of IBD segment lengths and mutational mismatches on IBD segments
- (*in collaboration with Frank Rheindt*)  
Phylogeography and introgression in *Zimmerius* flycatchers and *Rhipidura* fantails (class: Aves)
- (*in collaboration with Maurine Neiman*)  
Population genomics of reproductive mode in sexual and asexual *Potamopyrgus* snails

**University of Iowa** Iowa City, IA  
Research technician with Maurine Neiman and Andrew Forbes 2010 – 2011

- Evolution of reproductive mode in sexual and asexual *Potamopyrgus* snails
- Speciation across trophic levels in tephritid flies and parasitoid wasps

Peter R. Wilton

University of Alaska Anchorage

NSF REU undergraduate researcher

Anchorage, AK

Summer 2009

- Evolution of cranial morphology in threespine sticklebacks

## PEER-REVIEWED PUBLICATIONS

Palamara, P.F., Francioli, L., **Wilton, P.**, Genovese, G., Gusev, A., Finucane, H., Sankararaman, S., Sunyaev, S., Debakker, P., Wakeley, J., et al. Leveraging distant relatedness to quantify human mutation and gene conversion rates. *American Journal of Human Genetics* (in press).

**Wilton, P.R.**, Carmi, S., and Hobolth, A. (2015). The SMC' is a highly accurate approximation to the ancestral recombination graph. *Genetics* *200*, 343–355.

Carmi, S., **Wilton, P.R.**, Wakeley, J., and Pe'er, I. (2014). A renewal theory approach to IBD sharing. *Theoretical Population Biology* *97*, 35–48.

Rheindt, F.E., Fujita, M.K., **Wilton, P.R.**, and Edwards, S.V. (2014). Introgression and Phenotypic Assimilation in *Zimmerius* Flycatchers (Tyrannidae): Population Genetic and Phylogenetic Inferences from Genome-Wide SNPs. *Systematic Biology* *63*, 134–152.

**Wilton, P.R.**, Sloan, D.B., Logsdon Jr, J.M., Doddapaneni, H., and Neiman, M. (2013). Characterization of transcriptomes from sexual and asexual lineages of a New Zealand snail (*Potamopyrgus antipodarum*). *Molecular Ecology Resources* *13*, 289–294.

Neiman, M., Larkin, K., Thompson, A.R., and **Wilton, P.** (2012). Male offspring production by asexual *Potamopyrgus antipodarum*, a New Zealand snail. *Heredity* *109*, 57–62.

Willacker, J.J., Von Hippel, F.A., **Wilton, P.R.**, and Walton, K.M. (2010). Classification of threespine stickleback along the benthic–limnetic axis. *Biological Journal of the Linnean Society* *101*, 595–608.

## BOOK CHAPTERS

“The coalescent and models of identity by descent.” Wakeley, J. and **Wilton, P.R.** in *Encyclopedia of Evolutionary Biology* (in press).

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## TEACHING

### Harvard University

Cambridge, MA

- Teaching Fellow, Coalescent Theory Fall 2015, Fall 2012
- Teaching Fellow, Statistics for Biologists Fall 2014
  - Led weekly section, giving both review and prospective lectures
  - Designed, created, and led introduction to the R statistical programming language for biologists, now available on [GitHub](#)
  - Awarded Certificate of Teaching Excellence

### Carleton College

Northfield, MN

- Teaching Assistant, Population Ecology Spring 2010
- Teaching Assistant, Evolutionary Biology Fall 2010
- Prefect, Population Ecology Spring 2009

## AWARDS

### Smith Family Graduate Science and Engineering Fellowship

Harvard University

### Phi Beta Kappa Honor Society

Carleton College

## ORAL PRESENTATIONS

Joint inference of sample pedigrees, admixture proportions, and migration rates

Probabilistic Modeling in Genomics,

Cold Spring Harbor Laboratory, October 2015

Theory of identity-by-descent and sequentially Markov coalescent models

Evolution 2014, Raleigh, NC, USA

The effect of selective sweeps on genetic variation at unlinked sites

Evolution 2012, Ottawa, Ontario, CAN

## POSTER PRESENTATIONS

Clarifying the approximations inherent in sequentially Markov coalescent models

- SBE meetings 2015, Vienna, Austria

Introgression and phenotypic assimilation in *Zimmerius flycatchers*: population genetic and phylogenetic inferences from genome-wide SNPs

- American Ornithological Union meetings 2013, Chicago, IL

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## SKILLS

- Probabilistic modeling and stochastic processes
- Statistical inference with next-generation sequencing data
- Scientific programming and software development
- Daily or near-daily use of Python, C, R, Bash, Git, \*nix coreutils
- Frequent use of LaTeX, Mathematica