Matthew W. Pennell

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Education

Ph.D. Candidate, Bioinformatics and Computational Biology, University of Idaho, 2010-present.

Dissertation: "Variations on a theme by Felsenstein".

Major Supervisor: L.J. Harmon

Committee: S.L. Nuismer, A.Ø. Mooers, J. Sullivan, P. Joyce

B.Sc. Honours, Biological Sciences, Simon Fraser University, 2010.

Thesis Project: "Measuring the two-fold cost of sex in natural populations of *Timema* stick insects".

Thesis Supervisor: B.J. Crespi

Fields of Research Interest

Macroevolution, Comparative Biology, Phylogenetics, Macroecology, Quantitative Genetics

Research

Publications

The Tree of Sex Consortium; T. Ashman, D. Bachtrog, H. Blackmon, E.E. Goldberg, M.W. Hahn, M. Kirkpatrick, J. Kitano, J.E. Mank, I. Mayrose, R. Ming, S.P. Otto, C.L. Peichel, M.W. Pennell, N. Perrin, L. Ross, N. Valenzuela, and J.C. Vamosi. 2014. Tree of Sex: a database of sexual systems. *Scientific Data* (in press).

Stansbury, C.R., D.E. Ausband, P. Zager, C.M. Mack, C.R. Miller, M.W. Pennell, and L.P. Waits. 2014. A long term population monitoring approach for a wide-ranging carnivore: noninvasive genetic sampling of gray wolf rendezvous sites in Idaho, USA. *Journal of Wildlife Management* (in press).

R. Lanfear and M.W. Pennell. 2014. Open access is worth considering. *Trends in Plant Sciences* (in press).

Pennell, M.W.*, J.M. Eastman*, G.J. Slater, J.W. Brown, J.C. Uyeda, R.G. FitzJohn, M.E. Alfaro, and L.J. Harmon. 2014. geiger v2.0: an expanded suite of methods for fitting macroevolutionary models to phylogenetic trees. *Bioinformatics* (in press).

FitzJohn, R.G.*, M.W. Pennell*, A.E. Zanne, P.F. Stevens, D.C. Tank, and W.K. Cornwell. 2014. How much of the world is woody? *Journal of Ecology* (in press).

Pennell, M.W., L.J. Harmon, and J.C. Uyeda. 2014. Speciation unlikely to drive divergence rates. *Trends in Ecology & Evolution* 29:72-73.

Cornwell, W.K, M. Westoby, D.S. Falster, R.G. FitzJohn, B.C. O'Meara, M.W. Pennell, D.J. McGlinn, J.M. Eastman, A.T. Moles, P.B. Reich, D.C. Tank, I.J. Wright, L. Aarssen, J.M. Beaulieu, R.M. Kooyman, M.R. Leishman, E.T. Miller, U. Niinemets, J. Oleksyn, A. Ordonez, D.L. Royer, S.A. Smith, P.F. Stevens, L. Warman, P. Wilf, and A.E. Zanne. 2014. Functional distinctiveness of major plant lineages. *Journal of Ecology* 102:345-356.

Slater, G.J. and M.W. Pennell. 2014. Robust regression and posterior predictive simulations increase power to detect early bursts of trait evolution. *Systematic Biology*.

Pennell, M.W., L.J. Harmon, and J.C. Uyeda. 2014. Is there room for punctuated equilibrium in macroevolution? *Trends in Ecology & Evolution* 29:23-32.

Pennell, M.W. and L.J. Harmon. 2013. An integrative view of phylogenetic comparative methods: connections to population genetics, community ecology and paleobiology. *Annals of the New York Academy of Sciences* 1289:90-105.

Maliska, M.E., M.W. Pennell, and B.J. Swalla. 2013. Developmental mode influences diversification in Ascidians. *Biology Letters* 9:20130068.

Stoltzfus, A., H. Lapp, N. Matasci, H. Deus, B. Sidlauskas, C.M. Zmasek, G. Vaidya, E. Pontelli, K. Cranston, R. Vos, C.O. Webb, L.J. Harmon, M. Pirrung, B. O'Meara, M.W. Pennell, S. Mirarab, M.S. Rosenberg, J.P. Balhoff, H.M. Bik, T.A. Heath, P.E. Midford, J.W. Brown, E.J. McTavish, J. Sukumaran, M. Westneat, M.E. Alfaro, A. Steele, and G. Jordan. 2013. Phylotastic! Making tree-of-life knowledge accessible, reusable and convenient. *BMC Bioinformatics* 14:158

Pennell, M.W., C.R. Stansbury, L.P. Waits, and C.R. Miller. 2013. Capwire: a R package for estimating population census size from non-invasive genetic sampling. *Molecular Ecology Resources* 13:154-157.

Pennell, M.W., B.A.J. Sarver, and L.J. Harmon. 2012. Trees of unusual size: biased inference of early bursts from large molecular phylogenies. *PLoS ONE* 7:e43348.

Pennell, M.W. 2012. Biology in the light of phylogeny. *Trends in Ecology & Evolution* 27:657-658.

Rosenblum, E.B., B.A.J. Sarver, J.W. Brown, S. Des Roches, K. Hardwick, T.D. Hether, J.M. Eastman, M.W. Pennell, and L.J. Harmon. 2012. Goldilocks meets Santa Rosalina: an ephemeral speciation model explains patterns of diversification across time scales. *Evolutionary Biology* 39:255-261.

Green, D.J., K.B. Loukes, M.W. Pennell, J. Jarvis, and W.E. Easton. 2012. Resevoir levels do not influence daily mass gain of warblers at a riparian stopover site. *Journal of Field Ornithology* 82:11-24.

*Equal contribution

Papers Under Review or Revision

Sarver, B.A.J., M.W. Pennell, J.W. Brown, K.M. Hardwick, J. Sullivan, and L.J. Harmon. The choice of tree prior and molecular clock does not substantially affect phylogenetic inferences of diversification rates.

Pennell, M.W., R.G. FitzJohn, W.K. Cornwell, and L.J. Harmon. Model adequacy and the macroevolution of angiosperm functional traits.

Additional writing

Essay on the contributions of Joseph Felsenstein on the occasion of his receiving the American Society of Naturalists Honorary Lifetime Membership Award (co-authored with J. Losos and S. Otto).

Additional research experience

Participant, NESCent Working Group "Tree of Sex". November 2012-present

Participant, NESCent Phylotastic Hackathon. June 2012.

Participant, NESCent Working Group "Tempo and Mode of Angiosperm Trait Evolution: Synthesizing Data from Extant and Extinct Taxa". November 2011-May 2013.

Research Assistant, Simon Fraser University, Supervised by D.J. Green. May-August 2010. Project title: "Latitudinal Differences in Carry-Over Effects in Yellow Warblers".

Field Assistant/NSERC-USRA Researcher, Supervised by D.J. Green. May-July 2009. Project title: "Impacts of Brown Headed Cowbird Parasitism on Yellow Warblers".

BISC 498: Undergraduate Research, Supervised by J.K. Christians. May-August 2008. Project title: "Investigation of a QTL candidate (PAPPA2) for skeletal development in mice".

Teaching

University of Idaho

Teaching assistant and part-time lecturer, BCB 504 Applied Bioinformatics, Spring 2012.

Simon Fraser University

Teaching Assistant, BISC 300 Evolution, Fall 2009.

Teaching Assistant, BISC 302 Genetic Analysis, Fall 2008.

Teaching Assistant, BISC 300 Evolution, Summer 2008.

Teaching Assistant, BISC 102 Introduction to Ecology and Evolution, Spring 2008

Workshops and Courses

Lecturer, Applied Phylogenetics Workshop (NESCent ambassador program). Quito, Ecuador. August 1-12, 2013.

Teaching Assistant, Evolutionary Quantitative Genetics (NESCent academy), Durham, NC August 8-12, 2012.

Lecturer, Macroevolution in R. Santa Barbara, CA, June 11-14, 2012.

Grants, Fellowships, & Awards

NSERC (Canada) Post-graduate research fellowship, 2013

Bioinformatics and Computational Biology Graduate Fellowship, University of Idaho, 2013 (declined)

Bioinformatics and Computational Biology Graduate Fellowship, University of Idaho, 2012

Rosemary Grant Graduate Student Research Award, Society for the Study of Evolution, 2012

Graduate Fellowship, National Evolutionary Synthesis Center (NESCent), 2012

Best Poster, Evo-WIBO conference, 2012

Research Assistantship, BEACON center for Evolution in Action (with J. Felsenstein and L.J. Harmon), 2012

Honours with great distinction, Simon Fraser University, 2010

NSERC (Canada) Alexander Graham Bell Graduate fellowship, 2010 (declined)

NSERC (Canada) Post-graduate research fellowship, 2010

Vice President of Research, Undergraduate Student Research Award, Simon Fraser University, 2010

SFU Open Scholarship (x2), 2009

NSERC Undergraduate Student Research Award, 2009

Gordon Shrum Entrace Scholarship, Simon Fraser University, 2005

Conference and Seminar Presentations

The adequacy of phylogenetic trait models

Evolution meeting, June 2013.

Palouse Evolution and Ecology Society, December 2013.

Evo-WIBO Conference, April 2014.

Progressive radiations and the pulse of angiosperm diversification

University of Virginia, Department of Biology, October 2012.

Poster presentation at Evo-WIBO Conference, April 2012***Best Poster Award.

Professional Activities

Reviewer for *Proceedings of the National Academy of Sciences*, *Systematic Biology*, *Evolution*, *Proceedings of the Royal Society: B*, *Journal of Evolutionary Biology*, *Ecology*, *Methods in Ecology & Evolution*, *PLOS ONE*, *Functional Ecology*. *The ISME Journal*, *Molecular Ecology Resources*, and *New Phytologist*

Rosemary Grant Student Research Award Committee, American Society of Naturalists, 2013-2014.

Graduate Committee to the Executive Council, American Society of Naturalists, 2012-Present

Graduate Representative to the Executive Council, American Society of Naturalists. 2013-2014.

Member, American Society of Naturalists, 2012-Present.

Member, Society for the Study of Evolution, 2012-Present.

Last updated: May 19, 2014