

Walker Pett

Department of Ecology, Evolution and Organismal Biology
251 Bessey Hall
Iowa State University
Ames, Iowa

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Current

Postdoctoral Researcher 2016-Present
Department of Ecology, Evolution and Organismal Biology
Iowa State University
Principal Investigator: Tracy Heath

Education

PhD in Bioinformatics and Computational Biology August 2014
Iowa State University
Minor: statistics
Advisors: Dennis Lavrov and Karin Dorman

B.A. in Biology May 2007
Bard College
Annandale-on-Hudson, New York

Research Positions

Postdoctoral Researcher 2017-2018
Department of Ecology & Evolutionary Biology
University of Kansas
Principal Investigator: Mark Holder

Postdoctoral Researcher 2014-2016
Laboratoire de Biométrie et Biologie Évolutive
Université Claude Bernard - Lyon 1
Villeurbanne, France
Principal Investigator: Nicolas Lartillot

Graduate Research Assistant 2009-2014
Department of Ecology, Evolution and Organismal Biology
Iowa State University
Principal Investigator: Dennis Lavrov

Refereed Publications

- Joëlle Barido-Sottani, **Walker Pett**, Joseph E O'Reilly, and Rachel CM Warnock (2019). “FossilSim: An R package for simulating fossil occurrence data under mechanistic models of preservation and recovery”. *Methods in Ecology and Evolution* 10: 835–840.
- Walker Pett**, Marcin Adamski, Maja Adamska, Warren R Francis, Michael Eitel, Davide Pisani, and Gert Wörheide (2019). “The role of homology and orthology in the phylogenomic analysis of metazoan gene content”. *Molecular biology and evolution* 36: 643–649.
- James E Tarver, Richard S Taylor, Mark N Puttick, Graeme T Lloyd, **Walker Pett**, Bastian Fromm, Bettina E Schirrmeister, Davide Pisani, Kevin J Peterson, and Philip CJ Donoghue (2018). “Well-annotated microRNAs do not evidence pervasive miRNA loss”. *Genome biology and evolution* 10: 1457–1470.
- Roberto Feuda, Martin Dohrmann, **Walker Pett**, Hervé Philippe, Omar Rota-Stabelli, Nicolas Lartillot, Gert Wörheide, and Davide Pisani (2017). “Improved Modeling of Compositional Heterogeneity Supports Sponges as Sister to All Other Animals”. *Current Biology* 27: 3864–3870.
- Dennis V Lavrov and **Walker Pett** (2016). “Animal mitochondrial DNA as we do not know it: mt-genome organization and evolution in nonbilaterian lineages”. *Genome biology and evolution* 8: 2896–2913.
- Davide Pisani, **Walker Pett**, Martin Dohrmann, Roberto Feuda, Omar Rota-Stabelli, Hervé Philippe, Nicolas Lartillot, and Gert Wörheide (2015). “Genomic data do not support comb jellies as the sister group to all other animals”. *Proceedings of the National Academy of Sciences* 112: 15402–15407.
- (February 9, 2016). “Reply to Halanych et al.: Ctenophore misplacement is corroborated by independent datasets”. *Proceedings of the National Academy of Sciences* 10.1073/pnas.1525718113.
- Walker Pett** and Dennis Lavrov (2015). “Cytonuclear interactions in the evolution of animal mitochondrial tRNA metabolism”. *Genome Biology and Evolution* 7: 2089–2101.
- Karri M Haen, **Walker Pett**, and Dennis Lavrov (2014). “Eight new mtDNA sequences of glass sponges reveal an extensive usage of +1 frameshifting in mitochondrial translation”. *Gene* 535: 336–44.
- Dennis V Lavrov, **Walker Pett**, Oliver Voigt, Gert Wörheide, Lise Forget, B Franz Lang, and Ehsan Kayal (2013). “Mitochondrial DNA of *Clathrina clathrus* (Calcarea, Calcinea): six linear chromosomes, fragmented rRNAs, tRNA editing, and a novel genetic code.” *Molecular Biology and Evolution* 30: 865–80.
- Walker Pett** and Dennis V Lavrov (2013). “The twin-arginine subunit C in *Oscarella*: origin, evolution, and potential functional significance.” *Integrative and Comparative Biology* 53: 495–502.
- Dennis V Lavrov, Olga O Maikova, **Walker Pett**, and Sergey I Belikov (2012). “Small inverted repeats drive mitochondrial genome evolution in Lake Baikal sponges.” *Gene* 505: 91–9.
- Walker Pett**, JF Ryan, Kevin Pang, James C Mullikin, Mark Q Martindale, Andreas D. Baxevanis, and Dennis V Lavrov (2011). “Extreme mitochondrial evolution in the ctenophore *Mnemiopsis leidyi*: Insight from mtDNA and the nuclear genome”. *Mitochondrial DNA* 22: 130–142.
- Romulo Segovia, **Walker Pett**, Steve Treweek, and Dennis V Lavrov (2011). “Extensive and evolutionarily persistent mitochondrial tRNA editing in Velvet Worms (phylum Onychophora).” *Molecular Biology and Evolution* 28: 2873–81.
- Karri M Haen, **Walker Pett**, and Dennis V Lavrov (2010). “Parallel Loss of Nuclear-Encoded Mitochondrial Aminoacyl-tRNA Synthetases and mtDNA-Encoded tRNAs in Cnidaria.” *Molecular Biology and Evolution* 27: 2216–9.

Awards

Research Excellence Award, ISU	2014
Cornette Fellowship, ISU	2012
EEOB Graduate Student Research Award, ISU	2012
BCB Student Seminar Award, ISU	2010

Teaching – Courses

Iowa State University

BIOL 315: Evolution	2014
BIOL 212L: Principles of Biology Lab	2014
BIOL 255L: Human Anatomy Lab	2013
BIOL 211L: Introduction to Biodiversity Lab	2012-2013
BCB 570: Computational Functional Genomics and Systems Biology	2012
EEOB 536: Molecular Phylogenetics	2011

Teaching – Workshops

Workshop on Molecular Evolution (Teaching Assistant)

Marine Biological Laboratory Woods Hole, Massachusetts	Aug 1-12, 2019
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Analysing Macroevolutionary Processes using RevBayes

Bristol, United Kingdom	May 1-3, 2018
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Introduction to Bayesian phylogenetic inference in RevBayes

University of Gothenburg and ForBio workshop Gothenburg, Sweden	Oct 23-27, 2017
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Introduction to Bayesian phylogenetic inference in RevBayes

International Biogeography Society Bangalore, India	Sep 25-26, 2017
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Introduction to Bayesian phylogenetic inference in RevBayes

Iowa State University Ames, Iowa	Aug 14-15, 2017
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Analysis of Fossil and Molecular Data in RevBayes

Society of Systematic Biologists Baton Rouge, Louisiana	Jan 8, 2017
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Invited Talks

A morphospeciation model for integrating models of fossil character evolution and stratigraphic range data

Evolution, Providence, Rhode Island	2019
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Beyond supermatrix resolution: deep metazoan phylogeny from gene content
Evolution, Portland, Oregon 2017

Contributed Talks and Posters

Integrating models of fossil character evolution and stratigraphic range data (Talk)
Evolution, Montpellier, France 2018

Ascertainment bias in gene family data and metazoan phylogenomics (Talk)
Ancestrone Project Annual Meeting, Paris, France 2015

Genomic data do not support comb jellies as the sister group to all other animals (Poster)
Society of Molecular Biology and Evolution, Vienna, Austria 2015

Deep metazoan phylogeny and the position of Ctenophora (Talk)
Ancestrone Project Annual Meeting, Saint-Martin-de-Londres, France 2014

A mitochondrial gene unique among animals: the evolution of the Tat pathway in *Oscarella*
(Talk)
Society for Integrative and Comparative Biology, San Francisco, CA 2013

The Coevolving Histories of mt-tRNAs and aminoacyl-tRNA synthetases (Poster)
Society of Molecular Biology and Evolution, Kyoto, Japan 2011

Reconstructing Patterns of Rearrangements in Animal Mitochondrial DNA (Poster)
New Mexico Bioinformatics Symposium, Santa Fe, NM 2011

Mitochondrial Genome Rearrangements in Animals (Talk)
Society for Integrative and Comparative Biology, Seattle, WA 2010

Experience

Smithsonian Tropical Research Institute, Bocas del Toro, Panama 2012
Taxonomy and Ecology of Caribbean Sponges (course)

Point Reyes Bird Observatory, Point Reyes, CA 2008
Resident species nest-searching, and neotropical migrant banding internships

Hudsonia, Ltd., Red Hook, NY 2007
Blanding's turtle conservation and monitoring internship

Service

BCB Curriculum Committee, student representative 2012-2013

Languages

C++, R, Perl, Python, Ruby, SQL, bash, L^AT_EX, Mathematica, JavaScript

Software

[biphy](#): Phylogenetic analysis of binary character data (sole author)

[RevBayes](#): An interactive statistical environment for Bayesian phylogenetics (core developer)

References

Tracy Heath, Postdoctoral advisor
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Nicolas Lartillot, Postdoctoral advisor
Laboratoire de Biométrie et Biologie Evolutive
Université Claude Bernard Lyon 1
69622 Villeurbanne, France
nicolas.lartillot@univ-lyon1.fr

Dennis Lavrov, PhD advisor
Department of Ecology Evolution and Organismal Biology
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