David B. Stern

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1. Education and Appointments

1.1 EDUCATION

The George Washington University, Washington, DC
Computational Biology Institute
Ph.D. in Biological Sciences, 2018
Dissertation title: Evolution and adaptation in caves: freshwater crayfish phylogenetics, diversification, and gene expression evolution
Advisor: Dr. Keith A. Crandall

University of Virginia, Charlottesville, VA
B.S. in Biology, 2011
Undergraduate research advisor: Dr. Deborah Roach

1.2 EMPLOYMENT AND APPOINTMENTS

Current Position

Postdoctoral Fellow, University of Wisconsin-Madison **2018-Present**
Department of Integrative Biology
Advisor: Dr. Carol E. Lee

Coordinator, The George Washington University Genomics Core **2017-2018**
I played a leadership role in the establishment of the Genomics Core at the George Washington University (https://www.gwgenomics.org/). I ordered equipment, consulted with clients, designed experiments, performed molecular work (QC, DNA extraction, PCR, library preparation, Next-Generation Sequencing), analyzed data, and trained new users.

Research Student, Smithsonian National Museum of Natural History **2013-2017**
Affiliated with the Department of Invertebrate Zoology and the Laboratory of Analytical Biology,
I performed DNA sequencing for several conservation genetics projects.

Laboratory Technician II, GeneDx **2011-2013**
I performed high-throughput PCR and Sanger sequencing in a CLIA certified laboratory in order to aid in the diagnosis of prenatal and rare genetic disorders.

2. Research

2.1 COMPETETIVE GRANTS, AWARDS, AND FELLOWSHIPS

$3000	Young Investigator Award, Society for Molecular Biology and Evolution	2020
$48,000	Michael Guyer Postdoctoral Fellowship, University of Wisconsin-Madison	2018
	Comparative and population genomics of parallel freshwater invasions	
$19,730	Doctoral Dissertation Improvement Grant, National Science Foundation – DEB	2016
	Phylogenetic analysis of vision loss and gene expression in cave and surface adapted crayfish	
$930	Grants in Aid of Research, Society for Integrative and Comparative Biology	2016
$3000	Cosmos Scholars Award, Cosmos Club, Washington, DC	2015
	The Evolution of Light-Interaction Genes in Cave Adapted Crayfish	
$500	Travel Award, NSF/CBMS Mathematical Phylogeny Conference	2014

2.2 PUBLICATIONS

Peer-reviewed publications

Stern DB and Lee CE (2020). The evolutionary origins of genomic adaptations underlying rapid and repeated invasions. ***Nature Ecology & Evolution.*** *Accepted.*

Sylvetsky AC, Sen S, Merkel P, Dore F, **Stern DB**, Henry CJ, Walter PJ, Crandall KA, Rother KI, and Hubal MJ (2020). Consumption of diet soda sweetened with sucralose and acesulfame-potassium alters inflammatory transcriptome pathways in females with overweight and obesity. **Molecular Nutrition and Food Research**. *Accepted.*

Owen CL, **Stern DB**, Hilton S and Crandall KA (2020). Hemiptera phylogenomic resources: tree-based orthology prediction and conserved exon identification. ***Molecular Ecology Resources***. *Accepted.*

Stern DB and Crandall KA (2018). The evolution of gene expression underlying vision loss in cave animals. ***Molecular Biology and Evolution.*** 35(8):2005–2014.

Stern DB and Crandall KA (2018). Phototransduction gene expression and evolution in cave and surface crayfishes. ***Integrative and Comparative Biology.*** 58(3):398-410.

Stern DB, Breinholt J, Pedraza-Lara C, López-Mejía M, Owen CL, Bracken-Grissom H, Fetzner JW, and Crandall KA (2017). Phylogenetic evidence from freshwater crayfishes that cave adaptation is not an evolutionary dead-end. ***Evolution,*** 71 2522–2532**.**

Stern DB, Castro-Nallar E, Rathod J and Crandall KA (2017). DNA Barcoding analysis of seafood accuracy in Washington, DC restaurants. ***PeerJ*** 5:e3234 https://doi.org/10.7717/peerj.3234.

Media Coverage: *Time, Washington Post, Consumer affairs, WTOP, WJLA*

Owen CL, Bracken-Grissom H, **Stern DB**, and Crandall KA (2015). A synthetic phylogeny of freshwater crayfish: insights for conservation. ***Philosophical Transactions of the Royal Society B*.** 370 20140009.

Tonini J*, Moore A*, **Stern DB***, Shcheglovitova M and Ortí G (2015). Concatenation and Species Tree Methods Exhibit Statistically Indistinguishable Accuracy under a Range of Simulated Conditions. ***PLOS Currents Tree of Life***. 2015 Mar 9. Edition 1. *equal contribution

Book chapters

Carroll TM, Rogers DC, **Stern DB,** & Crandall KA (in press). A new morphotype of the freshwater crayfish *Cambarus hubrichti* from a deep phreatic Ozark spring cave system, with additional comments on its ecology. In: **Biology of Freshwater Crustaceans (Branchiopoda, Amphipoda, and Decapoda)**, Ed. Tadashi Kawai and D. Christopher Rogers. Springer Publishing Group.

Stern DB, and Crandall KA (2015). Phylogenetic Estimate of the Freshwater Crayfish (Decapoda:Astacidea) using Morphology and Molecules. In: **Freshwater Crayfish: Global Overview***,* Ed. Tadashi Kawai, Z. Faulkes, and G. Scholtz. Science Publishers.

2.3 INVITED SEMINARS AND CONFERENCE CONTRIBUTIONS

Society for Molecular Biology and Evolution, Quebec City, QC 2020
Genomic predictions of low-salinity adaptation in the wild revealed by experimental evolution
** Canceled due to COVID-19*

Climate, People, and the Environment Program Seminar, Madison, WI 2020
Genomic mechanisms of adaptation to novel environments

UW-Madison Biology Colloquium, Madison, WI 2019
Population genomics of rapid adaptation during parallel invasion events

Evolution Conference, Providence, RI 2019
Balancing selection in the native range promotes parallel adaptation during rapid invasions

Evolution Seminar Series, J.F. Crow Institute for the Study of Evolution**,** Madison, WI 2019
Population and comparative genomics of parallel physiological evolution

Open Science Grid All Hands Meeting, Newport News, VA 2019
Uncovering repeatable genetic mechanisms of biological invasions

Society for Integrative and Comparative Biology, Symposium: Evolution in the dark: Unifying understanding of eye loss, San Francisco, CA 2018
Convergent and Divergent Transcriptome Evolution in the Eyes of Blind Cave Crayfish

Evolution Conference, Portland, OR 2017
Vision Loss and Transcriptome Evolution in Cave-Adapted Crayfish (poster)

Biological Science on a Changing Planet, Washington, DC 2017
Adaptation and evolution in caves: insights from freshwater crayfish

Global Biodiversity Genomics Conference, Washington, DC 2017
Interspecific Differential Expression Reveals Patterns of Adaptation in Cave-adapted Crayfish

Society for Integrative and Comparative Biology, Portland, OR 2016
Transcriptome Comparison of a Cave and Surface-Adapted Crayfish (poster)

2.4 RESEARCH AND PROFESSIONAL TRAINING

Research Mentor Training for Postdocs, University of Wisconsin – Madison 2018
NCBI Hackathon, Metagenomics and Transcriptomics Team, National Institutes of Health 2016
Target enrichment/bait capture workshop, National Museum of Natural History 2016
NSF/CBMS Mathematical Phylogeny Conference, Winthrop University 2014
Phylogenetic Analysis using RevBayes, National Evolutionary Synthesis Center 2014

3. Teaching

3.1 TEACHING AND INSTRUCTION

Instructor and Coordinator, Zoology 957, Readings in Population Genomics, University of Wisconsin-Madison, Madison, WI 2018
Instructor, Advanced Research Internship Program, AGM Institute, Ashburn, VA (http://www.agminstitute.org/program) 2015
Instructor, Advanced Research Internship Program, AGM Institute, Ashburn, VA 2014
Graduate Teaching Assistant, Introductory Biology Lab, Biology of Organisms, The George Washington University, Washington, DC 2014
Graduate Teaching Assistant, Introductory Biology Lab, Cells and Molecules, The George Washington University, Washington, DC 2013

3.2 MENTORING AND TRAINING

Benjamin Kleinerman, **Graduate technician,** University of Wisconsin-Madison, Trained in molecular lab techniques, bioinformatics, experimental design, population genetic analyses 2020-Present
Teresa Popp, **Graduate Student**, University of Wisconsin-Madison, Trained in molecular lab techniques, experimental design 2020-Present
Ziting Zhang, **Undergraduate**, University of Wisconsin-Madison, Mentored in experimental design, aquaculture, and molecular laboratory protocols as part of a collaborative project 2019
Juanita Diaz, **Graduate Student**, University of Wisconsin-Madison, Trained in molecular lab techniques, bioinformatic analyses. Mentored and advised the design and execution of dissertation research, and collaborated on an ongoing project: Experimental evolution reveals genomic patterns of low-salinity adaptation 2018-Present
Rebecca Clement, **Graduate Student**, George Washington University, Trained in Next Generation Sequencing, laboratory management 2018
Guillermo Ruiz-Cancino, **Visiting Graduate Student**, Universidad de Quintana Roo, Trained in molecular lab techniques, computational phylogenetics 2017
Sandra Klemet-N'Guessan, **Undergraduate**, McGill University, Trained in molecular lab protocols 2016
Allessandra Bueno, Visiting Researcher, Universidade Federal de Lavras, Trained in molecular lab techniques 2016
Emelie Vanasse, **Undergraduate**, George Washington University, Mentored in research methods and molecular lab protocols as part of a collaborative project: Species delimitation of the burrowing crayfish C. fodiens complex. 2015
Pedro Prata, **Visiting Graduate Student**, Oceanographic Institute at the University of Sao Paolo, Trained in computational phylogenetics, population genetics 2015
Federica Spani, **Visiting Graduate Student**, Roma Tre University, Trained in phylogenetic synthesis methods, phylogenetic comparative methods 2015
Ruby Gonzalez, Fulbright Visiting Scholar, Mindanao State University Naawan, Philippines, Trained in molecular lab techniques, computational phylogenetics 2014

4. Professional Service

4.1 JOURNAL REFEREE

Molecular Biology and Evolution, Molecular Ecology, Molecular Phylogenetics and Evolution, BMC Evolutionary Biology, PeerJ, Journal of Heredity, International Journal of Speleology, Acta Zoologica Bulgarica

4.2 Professional Memberships

Society for Molecular Biology and Evolution, Society for Integrative and Comparative Biology, Society for the Study of Evolution, National Speleological Society

5. Public Outreach

Provided scientific expertise for an Associated Press investigation: 2018
'Fish billed as local isn't always local'

Contributed figure for public outreach article 2017
https://www.sciencemag.org/news/2017/02/biologists-propose-sequence-dna-all-life-earth

Public Symposium Talk, Biological Science on a Changing Planet, Washington, DC 2017

Collected specimens contributing to a cave crayfish exhibit at the Nashville Zoo, 2017
Nashville, TN

Gave interviews to press covering a project I led testing seafood accuracy in 2017
Washington, DC restaurants