

## Laurel R. Yohe, PhD

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### APPOINTMENTS

#### **2017-present**

**SUNY Stony Brook University** postdoctoral researcher  
PI: Dr. Liliana M. Dávalos

### EDUCATION

#### **2012-2017**

**SUNY Stony Brook University** PhD, Ecology and Evolution  
PI: Dr. Liliana M. Dávalos  
NSF GRFP Fellow

#### **2007-2011**

**Loyola University Chicago** BSc, *magnum cum laude*  
Dual Major in Bioinformatics, Biology  
PIs: Sushma R. Reddy & Louis R. Lucas  
Carbon Fellow

### TEACHING

#### ***Stony Brook University:***

#### **2017-2018**

#### **BIO 344: Chordate Zoology, Lecturer**

Designed and lectured mammalogy portion of the course

#### **2017-2018**

#### **BIO 201: Fundamentals of Biology course designer**

Design and implemented lecture material for genetics and phylogenetics portion of class

#### **2015-2017**

#### **WSE:187 Introduction to Research, Lecturer and Course Leader**

Designed and lectured course special topic "Making Sense of Bat Senses"

#### **2014**

#### **BIO: 354 Evolution, Teaching Assistant**

Aided in organization and grading for summer course

### PUBLICATIONS

**Yohe LR**, Hoffmann S\*, and Curtis A. (2018) Vomeronasal and olfactory structures in bats revealed by diceCT clarify genetic evidence of function. *Frontiers in Neuroanatomy*. 12(32): 1-12. DOI:

[10.3389/fnana.2018.00032](https://doi.org/10.3389/fnana.2018.00032) \*denotes equal contribution to work

Hedrick BP, **Yohe LR**, Vander Linden A, Dávalos LM, Sears KE, Sadier A, Rossiter SJ, Davies KTJ, and Dumont E. (2018) Impact of shrinkage on museum specimens using diffuse iodine-based contrast enhancing microCT. In press at *Microscopy and Microanalysis*.

**Yohe LR** and Dávalos LM. (2018) Strength of selection on *Trpc2* predicts accessory olfactory bulb form in bat vomeronasal evolution. *Biological Journal of the Linnean Society*. 123(4): 796-804. DOI:

<https://doi.org/10.1093/biolinnean/bly015>

**Yohe LR**, Abubakar R, Giordano C, Dumont E, Sears K, Rossiter SJ, and Dávalos LM. (2017). *Trpc2* pseudogenization dynamics in bats reveal ancestral vomeronasal signaling, then pervasive loss. *Evolution*. 71(4): 923-935. [doi: 10.1111/evo13187](https://doi.org/10.1111/evo13187)

- Yohe LR**, Velazco PM, Rojas D, Gerstner BH, Simmons NB, and Dávalos LM. (2015). Bayesian hierarchical models suggest earliest known plant-visiting bat was omnivorous. *Biology Letters*. 11 (20150501). [doi: 10.1090/rsbl2015.0501](https://doi.org/10.1090/rsbl2015.0501)
- Reddy S, Sharief S, **Yohe LR**, Witkowski J, Hosner PA, Nyari AS, and Moyle RG. (2015). Untangling taxonomic confusion and diversification patterns of the streak-breasted scimitar babblers (Timaliidae: *Pomatorhinus ruficollis* complex) in China. *Molecular Phylogenetics & Evolution*. 82(A): 183-192. [doi/10.1016:j.ympev.2014.10.013](https://doi.org/10.1016/j.ympev.2014.10.013)
- Yohe LR**, Flanders J, Duc HM, Vu L, Phung, TB, Nguyen, QH, and Reddy, S. (2014) Unveiling the impact of human influence on species distributions in Vietnam: a case study using babblers (Aves: Timaliidae). *Tropical Conservation Science*. 7(3): 586-596.
- Yohe LR**, Lucas LR, and Suzuki H. (2013) Aggression is suppressed by acute stress but induced by chronic stress: Immobilization effects on aggression, hormones, and cortical 5-HT<sub>1B</sub>/ striatal dopamine D<sub>2</sub> receptor density. *Cognitive, Affective, and Behavioral Neuroscience*. 12(3): 446-59. <http://dx.doi.org/10.3758/s13415-012-0095-9>

#### BOOK CHAPTER IN PRESS

- Yohe LR**, Liu L, Dávalos LM, and Liberles DA. (2018) Protocols for the molecular evolutionary analysis of membrane protein gene duplicates. In press for *Computational Methods in Protein Evolution*. Springer.

#### SUBMITTED MANUSCRIPTS

- Yohe LR** and Brand P. (2018) Evolutionary ecology of chemosensation and its role in sensory drive. In revision at *Current Zoology*.
- Yohe LR**, Davies KTJ, Dumont E, Sears KE, Rossiter SJ, and Dávalos LM. First evidence of functional *V1Rs* in bats indicates rapid evolution of conserved and orthologous vomeronasal receptors. Submitted to *Genome Biology and Evolution*. Pre-print available on BioRxiv: <https://doi.org/10.1101/293472>
- Sadier A, Davies KTJ, **Yohe LR**, Yun K, Donat P, Hedrick BP, Dumont ER, Dávalos LM, Rossiter SJ, and Sears KE. (2018) Evidence for multifactorial processes underlying phenotypic variation in bat visual opsins. Submitted to *eLife*. Pre-print available on BioRxiv: <https://doi.org/10.1101/300301>

#### MANUSCRIPTS IN PREP

- Yohe LR**, Davies KTJ, Rossiter SJ, and Dávalos LM. Optimizing *de novo* transcriptome assembly approaches for large mammalian gene families.

#### FELLOWSHIPS

- NSF Postdoctoral Fellowship** **2018**  
National Science Foundation postdoctoral fellowship at Yale University for two years of support for research and stipend for project entitled "Evolution and development of chemosensory systems in tetrapods".
- American Society of Mammalogists Shadle Fellowship: DECLINED** **2017**  
The Shadle fellowship recognizes sustained records of outstanding research productivity as well as substantial engagement in ASM and is intended to promote a professional career in mammalogy
- NSF Graduate Research Fellowship Program** **2012-2016**  
National Science Foundation graduate research funding for tuition, research, and stipend of \$34,000 for three years.
- U.S. Student Fulbright Fellowship** **2011-2012**  
Vietnam Fulbright grant recipient to carry out biogeographical research of past and present bird species distributions in order to prioritize future conservation efforts

- Google Summer of Code** **Summer 2011**  
[Open source project](#) mentored by Dr. Rutger Vos and Dr. William Piel to improve automated submission of rich data to TreeBASE.
- Carbon Fellowship** supervised by Dr. Louis Lucas **June 2008- Aug 2011**  
 Fellowship awarded aid to work on two-year research project titled “The Behavioral and Neurochemical Analysis Effects of Stress and Aggression”. Proficient in working with laboratory rats, radioimmunoassay, autoradiography, brain sectioning, and behavioral analysis of stress and aggression.
- Dept of Biology REU Fellowship** supervised by Dr. Sushma Reddy **Jan 2010-Aug 2011**  
 Fellowship awarded aid to work on research project titled “Phylogeny and Diversification of *Pomatorhinus ruficollis* using Mitochondrial and Nuclear Genes.” Proficient in DNA extractions, PCR, DNA sequencing, sequence editing, and phylogenetic analysis.
- Duke University Institute for Genome Science & Policy** **Summer 2009**  
 Summer fellowship working under supervision of Dr. Sayan Mukherjee. Project involved analyzing genomic data, annotating gene sets, and developing statistical methods to improve the quality of genomic data in databases.

### GRANTS & AWARDS

- Stony Brook University President’s Award for Distinguished Doctoral Work** **2017**  
 Award (\$1,000) for outstanding graduate work and exceptional contribution to the university and research community.
- NSF Doctoral Dissertation Improvement Grant** **2017**  
 Funding (\$18,760) for project “DISSERTATION RESEARCH: Detecting adaptive evolution of gene duplication in olfactory receptors”
- ASM Travel Award for IMC-12** **2017**  
 Competitive travel award from American Society of Mammalogists to present vomeronasal research at the International Mammalogical Congress in Perth, Australia.
- Anna M. Jackson Award** **2016**  
 American Society of Mammalogists Graduate Student honorarium (\$2000) for work on vomeronasal evolution in bats to support travel to give plenary talk at 2016 annual meeting
- George C. Williams Award for Research in Evolutionary Biology** **2016**  
 Department award that provided funding (\$950) to attend International Congress of Vertebrate Morphology Meeting in Washington DC
- GSO Distinguished Travel Award** **2016**  
 Competitive travel award (\$1500) from Stony Brook’s Graduate Student Organization to present research at the 2016 annual meeting for the Society of Integrative and Comparative Biology
- Lindau Nobel Laureate Meeting for Young Scientists** **2015**  
 Symposium in Lindau, Germany to connect young investigators with Nobel laureates. Nominated and selected among thousands and fully sponsored by ORAU and Mars, Inc.
- SSE Rosemary Grant Award** **2014**  
 Funding (\$2500) for project entitled “Finding fruit in the dark: olfactory evolution and adaptation to frugivory in bats.”
- American Society of Mammalogists Grants-in-Aid of Research** **2014**  
 Funding (\$1500) for project entitled “Finding fruit in the dark: olfactory evolution and adaptation to frugivory in bats.”

- Tinker Foundation Field Research Grant** **2014**  
 Funding (\$2300) for expedition to Peru to collect samples for project entitled “Finding fruit in the dark: olfactory evolution and adaptation to frugivory in bats.”
- The Explorer’s Club Exploration Fund** **2014**  
 Funding (\$1500) for project entitled “Uncovering the Olfactory Gene Repertoire in Vietnam.”  
 Reallocated to expedition in Peru.
- Sigma Xi Grants-in-Aid of Research** **2014**  
 Funding (\$1000) for project entitled “Vomeronasal Transcriptome Diversity and Adaptation in Leaf-Nosed Bats.”
- Robert R. Sokal Award for Research in Statistical Biology** **2013**  
 Department award that provides funding (\$750) to advance training in statistical biology. Grant used towards NESCent’s “Next-generation sequencing for phylogenetics and phylogeography” in June 2013.
- ExCel Scholarship from Department of Computer Science** **2009-2011**  
 Annual scholarship for exceptional academic performance at Loyola University Chicago
- Illinois Technology Foundation “50 for the Future” Award** **2009**  
 Nominated for award by Loyola University Chicago as promising young scientist in bioinformatics

INVITED TALKS

- Evolution Meetings Symposium Speaker for “25 years of sensory drive”** **2017**  
 Yohe LR and Dávalos LM. Olfactory receptor evolution shows association with diet in neotropical Leaf-nosed bats. Proceedings of the Annual Meeting of Evolution (Portland, OR), 2017.
- UMass, Lowell, Department of Biological Sciences Colloquium** **2017**  
 Yohe, LR. “The molecular and morphological basis of chemosensory evolution in bats”.
- ICVM: Speaker for [diceCT](#) symposium** **2016**  
 Yohe LR, Curtis A, Rosenthal H, Hoffmann S, Martin K, and Dávalos LM. The curious case of the vomeronasal organ in bats: genetics asks questions only morphology can answer. International Congress of Vertebrate Morphology (Washington DC), 2016.
- American Society of Mammalogists: Anna M. Jackson plenary speaker** **2016**  
 Yohe LR and Dávalos LM. Is vomeronasal evolution in bats is a one-way street? Annual Meeting of ASM (Minneapolis, MN), 2016.
- Suffolk County Community College Science and Mathematics Colloquium** **2013**  
 Yohe, LR. “Bird Species Distribution and Conservation Issues in Vietnam”. Colloquium speaker for natural science and mathematics students at community college.
- Tôn Đức Thắng University: Ho Chi Minh City, Vietnam** **2012**  
 Yohe, LR. “The Power of Genetics in Conservation Research & Research in the US”. Invited talk for students of the Division of Environmental Science.

CONFERENCE PRESENTATIONS

- NERVES: Westbury, NY** **2018**  
 Yohe LR, Hoffmann S, Curtis A, Dávalos LM. Genetic function predicts accessory olfactory bulb form in bat vomeronasal evolution. Northeast Regional Vertebrate Evolution Symposium (Westbury, NY), 2018.
- SICB DVM/DCB Regional Meeting: Lowell** **2017**  
 Yohe LR, Dávalos LM. Strength of selection on Trpc2 predicts accessory olfactory bulb form in bat evolution. SICB Division of Vertebrate Morphology and Division of Comparative Biomechanics (Lowell, MA), 2017.

- IMC-12: Perth** **2017**  
 [1] Yohe LR and Dávalos LM. Olfactory receptor evolution shows association with dietary radiation of neotropical leaf-nosed bats. 12th International Mammalogical Congress (Perth, Australia), 2017.  
 \*Invited speaker for symposium on "Timing, rates, and drivers of Neotropical mammal diversification"  
 [2] Yohe LR, Rosenthal H, Hoffmann S, and Dávalos LM. Phylogeny, not ecology, shapes the mammalian vomeronasal system: evidence from V1Rs and morphology. 12th International Mammalogical Congress (Perth, Australia), 2017.
- Evolution: Portland, OR** **2017**  
 [1] Yohe LR and Dávalos LM. Birth-death dynamics reveal how phylogeny and ecology shape the evolution of mammalian vomerolfaction. Proceedings of the Annual Meeting of Evolution (Austin, TX), 2016\*Competed for SSB Ernst Mayr Award  
 [2] Yohe LR, Hoffmann S, and Dávalos LM. Genetic function of *Trpc2* predicts accessory olfactory bulb form in bat vomeronasal evolution. Proceedings of the Annual Meeting of Evolution (Portland, OR). P110.
- American Society of Mammalogists: Moscow, ID** **2017**  
 Yohe LR and Dávalos LM. Phylogeny, not ecology, shapes the mammalian vomeronasal system: evidence from V1Rs and morphology. Annual Meeting of ASM (Moscow, ID), 2017. \*student travel award recipient
- IBBM: Berlin, Germany** **2017**  
 Yohe LR and Dávalos LM. Olfactory receptor evolution shows association with phyllostomid dietary radiation. International Berlin Bat Meetings (Berlin), 2017. \*Awarded 3<sup>rd</sup> best student talk
- SSB: Baton Rouge, LA** **2017**  
 Yohe LR, Smith T, Bhatnagar K, and Dávalos LM. Form follows function in the evolution of the vomeronasal system in bats. Society for Systematic Biologists Standalone Meeting (Baton Rouge), 2017
- SICB: New Orleans** **2017**  
 Yohe LR, Rosenthal H, Hoffmann S, Dávalos LM. Birth-death dynamics reveal how phylogeny and ecology shape the evolution of mammalian vomerolfaction. Society for Integrative & Comparative Biology (New Orleans), 2017
- SICB DVM/DCB Regional Meeting: Boston** **2016**  
 Yohe LR, Hoffmann S. Vomeronal structures revealed by diceCT: Genetics asks questions only anatomy can answer. SICB Division of Vertebrate Morphology and Division of Comparative Biomechanics (Boston, MA), 2016
- IBRC: Durban, South Africa** **2016**  
 Yohe LR, Smith T, Bhatnagar K, and Dávalos LM. Form follows function in the evolution of the vomeronasal system in bats. International Bat Research Conference (Durban, South Africa), 2016
- Evolution: Austin, TX** **2016**  
 Yohe LR and Dávalos LM. Vomeronal evolution in bats is a one-way street. Proceedings of the Annual Meeting of Evolution (Austin, TX), 2016\*Competed for SSB Ernst Mayr Award
- SICB: Portland, OR** **2016**  
 Yohe LR, Davies K, Rossiter S, Dávalos LM. Selection on the sniffer: olfactory receptor evolution shows association with diet. Society for Integrative & Comparative Biology (Portland, OR), 2016.
- NASBR: Monterey, CA** **2015**  
 [1] Yohe LR, Santana SS, Dávalos LM. Wake up and smell the Piper: Olfactory receptor repertoires reflect specialization in *Carollia*. North American Society for Bat Research (Monterey, CA), 2015.  
 [2] Davies KD, Yohe LR, Dumont E, Sears K, Dávalos LM, Rossiter S. The Search for Visual Adaptations in Noctilionoid Bats: a first using comparative transcriptomics. North American Society for Bat Research (Monterey, CA), 2015.

- SMBE: Vienna, Austria** **2015**  
 Yohe LR, Giordano CG, Dávalos, LM. Molecular Evidence for Dollo's Law from Vomeronasal Function in Bats. Society for Molecular Biology & Evolution (Vienna, Austria), 2015. 548C.
- NASBR: Albany, NY** **2014**  
 Yohe LR, Giordano, CG, Dávalos, LM. Evidence of Vomeronasal Function in Noctilionoids from *Trpc2*. North American Society for Bat Research (Albany, NY), 2014.
- Evolution: Snowbird, UT\*** **2013**  
 Yohe LR, Reddy, SR Dávalos, LM. Diversification of lineages and traits supports multiple adaptive radiations in babblers (Aves: Timaliidae). Proceedings of the Annual Meeting of Evolution (Snowbird, UT), 2013: 210006. \*Competed for SSB Ernst Mayr Award
- Society for Neuroscience: Washington DC** **2011**  
 Yohe L, Suzuki H, Lucas LR. Neurochemical and behavioral effects of stress and aggression. Neuroscience Meeting (Washington DC), 2011: 598.03.
- Evolution: Norman, OK** **2011**  
 Yohe L, Sharief S, Reddy S, Moyle R.. Phylogeny and Diversification of *Pomatorhinus ruficollis* using Mitochondrial and Nuclear Genes. Proceedings of the Annual Meeting of Evolution (Norman, OK), 2011: 825. \*Undergraduate Diversity Fellowship recipient from Harvard University
- Great Lakes Bioinformatics Conference: Athens, OH** **2011**  
 Yohe L, Sharief S, Reddy S, Moyle R.. Phylogeny and Diversification of *Pomatorhinus ruficollis* using Mitochondrial and Nuclear Genes. Proceedings from the Great Lakes Bioinformatics Conference (Athens, OH), 2011: 45.
- Midwest Ecology & Evolution Conference: Carbondale, IL** **2011**  
 Yohe L, Sharief S, Reddy S, Moyle R.. Phylogeny and Diversification of *Pomatorhinus ruficollis* using Mitochondrial and Nuclear Genes. Proceedings of the Midwest Ecology & Evolution Conference (Carbondale, IL), 2011: 12.
- Society for Neuroscience: San Diego, CA** **2010**  
 Yohe L, Suzuki H, Lucas LR. Stress-free effects on induction of aggression: 5-HT1B and dopamine D2 receptor binding. Neuroscience Meeting (San Diego, CA), 2010: 693.11.

### COURSEWORK & WORKSHOPS

- MBL Workshop for Molecular Evolution** **July 2015**  
 Bioinformatics training and discussion on contemporary topics in molecular evolution.
- Bodega Bay Workshop of Applied Phylogenetics** **March 2015**  
 One week intensive course in comparative phylogenetic methods and phylogenetic inference.
- NSF Gene Family Evolution Workshop** **May 2014**  
 NSF-funded workshop at New Mexico State University that covered gene family molecular evolution, coalescent theory, and species tree estimation.
- NESCent Academy: Next-Gen Sequencing for Phylogenetics** **June 2013**  
 Course geared towards training in next-generation sequencing data collection and data analysis. Skills learned involved understanding of various sequencing methods and approaches to different biological questions, species delimitation, species tree methods, model selection, and data partitioning.

### FIELDWORK EXPERIENCE

**Costa Rica (2014, 2017):** Sampled bats at La Selva biological field station; dissected olfactory tissue; preserved tissue in liquid nitrogen.

**Peru (2015):** Organized field expedition to sample bats throughout various field sites in Northern Peru; dissected various tissue types to be used for sensory biology analyses. Funded by Explorer's Club, American Society of Mammalogists, and Tinker Foundation.

**Cloverly Formation, Wyoming (2014):** Assisted on two-week fossil expedition funded by National Geographic in the Bighorn Basin targeting vertebrate fossil samples from Early Cretaceous. PI: Dr. Michael D'Emic.

**Dominican Republic (2014):** Sampled bats throughout various field sites in the Dominican Republic; dissected olfactory tissue; preserved tissue in liquid nitrogen.

**Vietnam (2011-2012):** Collected bird feather samples and distribution information for birds using mist nets throughout South-Central Vietnam.

### LEADERSHIP ACTIVITIES

#### **Graduate Student Organization Department Senator 2012-2015**

Elected by department to serve as a GSO member, representing student opinions to improve graduate student life.

#### **Graduate Council Grievances & Appeals Committee 2013-2014**

Graduate representative to review appeals from graduate students regarding academic integrity and decisions made by the Graduate School and graduate departments.

#### **CPATH Computer Science Project 2008-2009**

NSF-funded project to visit IT companies around Chicago (i.e. IBM, Abbott Labs) in order to determine gaps between universities and what companies are looking for in a graduate. Presented findings at various conferences, including Argonne Laboratories.

### MEMBERSHIPS

**Society for Integrative & Comparative Biology (SICB), Society of Molecular Biology & Evolution (SMBE), Society for the Study of Evolution (SSE), Society for Systematic Biology (SSB), Sigma Xi, Alpha Sigma Nu**

### LANGUAGES

#### **Computer Languages:**

Proficient: C++, Java, Perl, R  
Experience: MATLAB, SQL

#### **Foreign Languages:**

Conversational: Vietnamese  
Experience: Spanish, French