

## Emily E. Puckett

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### EDUCATION

- 2015          PhD    University of Missouri, Columbia, MO; Biological Sciences (Advisor: LS Eggert) Certificate: Science and Public Policy, 2013
- 2008          MS    State University of New York- College of Environmental Science and Forestry, Syracuse, NY; Environmental and Forest Biology (Advisor: LB Smart)
- 2004          BS    North Carolina State University, Raleigh, NC; Botany (*summa cum laude*)

### DISSERTATION & THESIS

Phylogeography and Population Genomics of the American Black Bear (*Ursus americanus*). PhD Dissertation, University of Missouri, 2015, p 190.

Molecular Basis for Differential Uptake and Sensitivity to Arsenic among Clones of Shrub Willow (*Salix* spp.). MS Thesis, SUNY-ESF, 2008, p 168.

### RESEARCH EXPERIENCE

- 2018-*present*    Assistant Professor: University of Memphis, Memphis, TN
- 2017-2018        Postdoctoral Associate: Michigan State University, East Lansing, MI  
(PI: G Bradburd)
- 2015-2017        Postdoctoral Associate: Fordham University, Bronx, NY (PI: J Munshi-South)
- 2010-2015        Graduate Assistant: University of Missouri, Columbia, MO (Advisor: LS Eggert)
- 2008-2010        Research Associate III: Edenspace Systems Corporation, Chantilly, VA
- 2006-2008        Research Project Assistant: SUNY- College of Environmental Science and Forestry, Syracuse, NY (Advisor: LB Smart)
- 2005-2006        Research Assistant: University of North Carolina, Chapel Hill, NC  
(PI: CE Mitchell)

### PUBLICATIONS

Burkhart, JJ, **EE Puckett**, CJ Kroese, CN Sholy, RD Semlitsch, and LS Eggert. (*In Press*) Post-Pleistocene differentiation in a Central Interior Highlands endemic salamander. *Ecology and Evolution*.

**Puckett, EE**, E Magnussen, LA Khylap, TM Strand, A Ludkvist, and J Munshi-South. (*In Press*) Genomic analyses reveal three independent introductions of the invasive brown rat (*Rattus norvegicus*) to the Faroe Islands. *Heredity*.

- Media Coverage: Heredity Podcast

- Puckett, EE** and J Munshi-South. 2019. Brown rat demography reveals pre-commensal structure in eastern Asia prior to expansion into Southeast Asia. *Genome Research* **29**: 762-770.
- Puckett, EE**, O Micci-Smith, and J Munshi-South. 2018. Genomic analyses identify multiple Asian origins and deeply diverged mitochondrial clades in inbred brown rats (*Rattus norvegicus*). *Evolutionary Applications* **11** (5): 718-726.
- Kristensen, TV, **EE Puckett**, EL Landguth, JL Belant, JT Hast, C Carpenter, JL Sajecki, J Beringer, M Means, JT Cox, LS Eggert, D White Jr, KG Smith. 2018. Genetic structuring in American black bears (*Ursus americanus*) can be explained by more than female philopatry: interactions of density, genetic diversity, and sex-biased dispersal. *Heredity* **4**: 329-341.
- Combs, M, **EE Puckett**, JR Richardson, D Mims, and J Munshi-South. 2018. Spatial population genomics of the brown rat (*Rattus norvegicus*) in New York City. *Molecular Ecology* **27**: 83-98.
- Media Coverage: NPR, The Atlantic, Popular Science
- Puckett, EE**. 2017. Variability in total project and per sample genotyping costs under varying study designs including with microsatellites or SNPs to answer conservation genetic questions. *Conservation Genetics Resources* **9** (2): 289-304.
- Puckett, EE**, J Park, M Combs, MJ Blum, JE Bryant, A Caccone, F Costa, EE Deinum, A Esther, CG Himsworth, PD Keightley, A Ko, A Lundkvist, LM McElhinney, S Morand, J Robins, J Russell, TM Strand, O Suarez, L Yon, and J Munshi-South. 2016. Global population divergence and admixture of the brown rat (*Rattus norvegicus*). *Proceedings of the Royal Society B* **283**: 20161762.
- Media Coverage: New York Times, Popular Science, and Business Insider
- Puckett, EE**, DC Kesler, and DN Greenwald. 2016. Taxonomic class, petitioning agency, and lawsuits affect time spent awaiting listing under the Endangered Species Act. *Biological Conservation* **201**: 220-229.
- Media Coverage: Huffington Post
- Wilton, CM, J Beringer, **EE Puckett**, LS Eggert, and JL Belant. 2016. Spatio-temporal capture-recapture biases in black bear detection probability. *Journal of Mammalogy* **97**: 266-273.
- Puckett, EE** and LS Eggert. 2016. Comparison of SNP and microsatellite genotyping panels for spatial assignment of individuals to natal range: A case study using the American black bear (*Ursus americanus*). *Biological Conservation* **193**: 86-93.
- Puckett, EE**, PD Etter, EA Johnson, and LS Eggert. 2015. Phylogeographic analyses of American black bears (*Ursus americanus*) suggest four glacial refugia and complex patterns of post-glacial admixture. *Molecular Biology and Evolution* **32**: 2338-2350.
- Wilton, CM, **EE Puckett**, J Beringer, B Gardner, LS Eggert, and JL Belant. 2014. Trap array configuration influences estimates and precision of black bear density and abundance. *PLoS One* **9**(10): e111257.
- Puckett, EE**, TV Kristensen, CM Wilton, SB Lyda, KV Noyce, PM Holahan, DM Leslie, Jr, J Beringer, JL Belant, D White, Jr, and LS Eggert. 2014. Influence of drift and admixture on population structure of American black bears (*Ursus americanus*) in the Central Interior Highlands, USA 50 years after translocation. *Molecular Ecology* **23**: 2414-2427.

- Puckett, EE**, MJ Serapiglia, AM DeLeon, S Long, R Minocha, and LB Smart. 2012. Differential expression of genes encoding phosphate transporters contributes to arsenic tolerance and accumulation in shrub willow (*Salix* spp.). *Environmental and Experimental Botany* 75: 248-257.
- Hudson, CM, **EE Puckett**, M Bekaert, JC Pires, and GC Conant. 2011. Selection for higher gene copy number after different types of plant gene duplication. *Genome Biology and Evolution* 3: 1369-1380.
- Mitchell, CE, D Blumenthal, V Jarosik, **EE Puckett**, P Pysek. 2010. Controls on pathogen species richness in plants' introduced and native ranges: roles of residence time, range size and host traits. *Ecology Letters* 13 (12): 1525-1535.

### BOOK CHAPTERS

- Puckett, EE** and LS Eggert. (*In Press*) "Using genetics in the conservation management of the American black bear (*Ursus americanus*) in Missouri." IN: J Ortega and JE Maldonado (eds.), *Conservation Genomics in Mammals: integrative research using novel approaches*. Springer, New York.

### MANUSCRIPTS

- Puckett, EE**, E Sherratt, W Harcourt-Smith, and J Munshi-South. (*In Prep*) Variation in brown rat cranial and mandible shape was due to morphological drift instead of selection over 120 years in New York City.
- Sjodin, B, **EE Puckett**, R Irvine, G Howald, J Munshi-South, M Russello. (*In Prep*) Global origins of invasive brown rats (*Rattus norvegicus*) in the Haida Gwaii archipelago.

### GRANTS

- 2018            New Mexico Department of Game and Fish and US Fish and Wildlife Service  
Range-wide assessment of genomic diversity, demography, and subspecies  
status for the least (*Tamias minimus*) and Colorado (*T. quadrivittatus*) chipmunks-  
\$52,664

### RESEARCH TALKS

#### *Invited*

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|--|------|
| University of Mississippi, Biology Department: Oxford, MS                              | 2019 |
| Association of Southeastern Biologists: Memphis, TN                                    | 2019 |
| University of Memphis: Memphis, TN   | 2018 |
| Evolution Meeting, Evolution in Urban Environments Symposium: Portland, OR             | 2017 |
| Yale University, DNA Analysis Facility: New Haven, CT                                  | 2017 |
| 24 <sup>th</sup> International Conference on Bear Research & Management: Anchorage, AK | 2016 |
| Fordham University, Biology Department: Bronx, NY                                      | 2016 |
| Missouri Chapter of The Wildlife Society: Bois D'Arc Conservation Area, MO             | 2013 |
| Missouri Department of Conservation: Columbia, MO                                      | 2013 |

### *Contributed*

Evolution Meeting: Austin, TX	2016
SMBE-GAP Genetics of Admixed Populations: San Antonio, TX	2016
NY Area Population Genomics Workshop: Princeton, NJ	2016
University of Missouri, Life Sciences Fellows: Columbia, MO	2014
Evolution Meeting: Snowbird, UT	2013
University of Missouri, EcoLunch: Columbia, MO	2013

### *Public*

Biology on Tap, Lansing, MI	2018
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### **POSTER PRESENTATIONS**

Evolution Meeting: Providence, RI	2019
24 <sup>th</sup> Eastern Black Bear Workshop: Potosi, MO	2019
13 <sup>th</sup> Western Black Bear Workshop: Grand Junction, CO	2018
Bronx Science Consortium: Bronx, NY	2016
23 <sup>rd</sup> Eastern Black Bear Workshop: Ligonier, PA	2017
Ecological and Evolutionary Genomics, Gordon Research Conference: Biddeford, ME	2015
12 <sup>th</sup> Western Black Bear Workshop: Canamore, AB	2015
22 <sup>nd</sup> Eastern Black Bear Workshop: Louisville, MS	2015
12 <sup>th</sup> Ecological Genomics Symposium: Kansas City, MO	2014
Life Sciences Week, University of Missouri: Columbia, MO (3 <sup>rd</sup> place- Best EEB Poster)	2014
11 <sup>th</sup> Ecological Genomics Symposium: Kansas City, MO	2013
Life Sciences Week, University of Missouri: Columbia, MO	2013
10 <sup>th</sup> Ecological Genomics Symposium: Kansas City, MO	2012
Evolution Meeting: Ottawa, ON	2012
11 <sup>th</sup> Western Black Bear Workshop: Coeur d'Alene, ID	2012
Life Sciences Week, University of Missouri: Columbia, MO	2012
Ecological and Evolutionary Genomics, Gordon Research Conferences: Biddeford, ME	2011
20 <sup>th</sup> Eastern Black Bear Workshop: Hendersonville, NC	2011
Northeast Section, American Society of Plant Biologists: Storrs, CT	2008
Symposium in Plant Biology, University of Massachusetts: Amherst, MA	2007
Ecological Society of America: San Jose, CA	2007

### **TEACHING EXPERIENCE**

#### *Instructor on Record- University of Memphis*

2018 (Fall) BIOL 7092/8092: Topics in Evolution- Speciation

#### *Teaching Assistant*

2014-2015 Teaching Assistant, BIO 2200: General Genetics, University of Missouri  
2008 (Spring) Teaching Assistant, EFB 531: Plant Physiology Laboratory, SUNY-ESF  
2003 (Fall) Teaching Assistant, BCH 451: Principles of Biochemistry, NC State University

### *Guest Lectures*

- 2019 Phylogeography, BIOL 4096: Molecular Ecology, University of Memphis
- 2017 RADseq, American Museum of Natural History
- 2017 Molecular Phylogenetics, BISC 3244: Evolution, Fordham University
- 2017 Natural Selection, BISC 3244: Evolution, Fordham University
- 2016 Genomic Evolution, BISC 7501: Population Biology, Fordham University
- 2015 Evolution of Sex, BISC 3244: Evolution, Fordham University
- 2013 Phylogeography, BIO 4983: Molecular Ecology, University of Missouri

### **GRADUATE MENTORING**

- 2019-present Matthew Pollard

### **GRADUATE COMMITTEE SERVICE**

- 2018-present Avery Tucker (PI: Shawn Brown)
- 2019-present Steven M. Ballou (PI: Jennifer Mandel)
- 2019-present Caroline Melton (PI: Bernie Daigle, Jr.)

### **UNDERGRADUATE MENTORING (\*- denotes co-author)**

- 2019-present Isis Davis
  - Global spatial genetic variation across Ursidae
- 2017- 2018 Sarah Frocillo
  - Variation in isolation-by-distance in marine species along the Scotian shelf
  - Presented poster at University Undergraduate Research and Arts Forum 2018
- 2016- 2017 Olivia Micci-Smith\*
  - Geographic origin of inbred brown rats using genomic data
  - Presented poster at Evolution 2017
- Summer 2016 Destiny Mims\*
  - Sex-biased dispersal of brown rats in New York City
  - Presented poster at Evolution 2017
- 2011- 2013 Michelle Anderson
  - Geographic variation in *CLOCK* and *FTO* in American black bears
  - Presented poster at the University of Missouri- Life Sciences Week 2013
- 2011- 2012 Jessica (Philbrick) Wayhart
  - Mitochondrial phylogeography of American black bears
  - Presented poster at the University of Missouri- Life Sciences Week 2012
- 2007- 2008 Alyssa DeLeon\*
  - Molecular analysis of genes related to arsenic uptake and detoxification in sensitive and tolerant varieties of shrub willow (*Salix* spp.)
  - Presented poster at American Society of Plant Biologists 2009

## PROFESSIONAL SERVICE

Journal Reviewer: *Evolutionary Applications*, *Heredity*, *Molecular Ecology Resources*, *Journal of Biogeography*, *Biological Journal of the Linnean Society*, *Royal Society: Proceedings B*, *Genome*, *Biological Conservation*, *Conservation Genetics*, *Animal Conservation*, *Journal of Mammalogy*, *Scientific Reports*, *Ursus*, *Biological Invasions*, *Environmental Science and Pollution Research*, *Axios Reviews*

- 2019-present Associate Editor, *Ecology and Evolution*  
2019 Panelist, NSF advisory panel  
2018-present Member, Communications Committee, Biological Sciences, U of Memphis  
2016-present Member, IUCN Bear Specialist Group  
2014-2015 Member, Systems Biology Search Committee, Biological Sciences, U Missouri  
2011-2014 Member, Biology Seminar Series Organizing Committee, Biological Sciences, U Missouri  
2013 Graduate Student Representative, Divisional Council, Biological Sciences, U Missouri  
2010-2015 Secretary (2011-2013) and Member, Biology Graduate Student Association, U Missouri  
2008 Member, Graduate Advisory Council, Dept. of Environmental and Forest Biology, SUNY-ESF  
2001-2004 President, Botany Club, NC State University

## BIOLOGY DEPARTMENT COMMITTEE SERVICE

- 2018-present Member, Communications Committee  
2019-present Co-chair, Seminar Committee  
2019-present Founding Member, Center for Biodiversity Advisory Board

## OUTREACH

- 2013-present Founder and blogger at WildlifeSNPits (<http://wildlifesnpits.wordpress.com>)  
As of October 2018: 53 posts as EEPuckett & 126 posts as WildlifeSNPits  
2002-2004 Volunteer, Young Scientists Program: Weekly science tutoring with a fourth grade student in Raleigh, NC

## PATENTS

Gampala, S, D Lee, **EE Puckett**, R Nair, and F Chumley. Poplar genomic DNA sequences that regulate gene expression in plants and uses thereof. Patent Filing date: June 4, 2009.

## SCHOLARSHIPS AND HONORS

- 2012 TransWorld Airlines Scholarship, University of Missouri  
2010-2014 Life Science Fellow, University of Missouri  
2008, 2006 Lowe-Wilcox Graduate Scholarship, Department of Environmental and Forest Biology, SUNY-ESF  
2004 Outstanding Botany Senior Award, Department of Botany, NC State University  
2004 University Scholars Program, NC State University

2004 Honors Program, College of Agriculture and Life Sciences, NC State University  
2003 Larry A. Whitford Scholarship, Department of Botany, NC State University  
2001 Promising Young Botanist Award, Department of Botany, NC State University

**PROFESSIONAL AFFILIATIONS**

Society for the Study of Evolution

International Association for Bear Research and Management

Phi Beta Kappa