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Education

- Ph.D. Evolutionary Biology 2014-Present
University of Chicago, Committee on Evolutionary Biology
Thesis: *Voles, Molars, and Molecules: Integrating Quantitative Morphology, Genetics, and Evo-devo to Study Evolutionary Processes*
Laboratories of Dr. Kenneth Angielczyk and Dr. Zhe-Xi Luo.
Expected Date of Completion: **June 2021**.
- M.S. Geological Sciences 2010-2013
The University of Texas at Austin, Jackson School of Geosciences
Thesis: *Fossils, Phylogeny, and Anatomical Regions: Insights Exemplified through Turtles*
Laboratory of Dr. Christopher J. Bell.
- B.A. Anthropology 2006-2010
The University of Texas at Austin, College of Liberal Arts

Peer-Reviewed Publications

- Burroughs, R.W.**, Angielczyk, K.D., Smits, P.D., Stuart, B.L., and Parham, J.F. **In Review**. Ensemble Approaches for Estimating Congruence Between Species Delimitation and Morphological Variation in the Northern and Southern Pacific Pond Turtle (*Emys marmorata*, *Emys pallida*). *Integrative and Comparative Biology*.
- Burroughs, R.W.** 2019. Modeling rodent tooth morphogenesis reveals constraints on mammalian tooth evolution. *Scientific Reports* 9: 10902 doi:10.1038/s41598-019-47469-x
- Bell, C.J., C.N. Jass, and **R.W. Burroughs**. 2019. Dental variation in a collection of *Lemmiscus curtatus* from the northern plains of southern Saskatchewan: implications for morphological evolution. *Western North American Naturalist* 79: 219–232.
- Angielczyk, K. D., **Burroughs, R. W.**, Feldman, C. F. 2015. Do Turtles Follow Rules? Latitudinal Gradients in Species Richness, Body Size, and Geographic Range Area of the World's Turtles. *Journal of Experimental Zoology Part B* 324(3): 270-294.
- Burroughs, R. W.**, Morris, Z. S., Marsh, A. D. 2014. *Trachemys scripta*, Red-Eared Slider, *Pseudemys texana*, Texas River Cooter, *Chelydra serpentina*, Common Snapping Turtle, Feeding Behavior and Scavenging. *Herpetological Review* 45(2): 321-322.
- Burroughs, R. W.**, Bell, C. J., LaDuc, T. J., and Hendrickson, D. A. 2013. Morphological Variation in the Carapace and Plastron of *Terrapene coahuila* Schmidt and Owens, 1944. D. B. Brinkman, P. A. Holroyd, and J. D. Gardner (editors), "*Morphology and Evolution of Turtles: Origin and Early Diversification*." Springer, Dordrecht: 535-566.

Published Abstracts*

*Each Abstract provided here represents a presentation at a scientific conference. Only the past three years (2017-present) of abstracts are provided here. Published abstracts extend back to 2009.

Burroughs, R. 2020. GLACIAL CYCLES DRIVE QUATERNARY POPULATION DYNAMICS IN THE SAGEBRUSH VOLE, *LEMMISCUS CURTATUS*(RODENTIA, ARVICOLINAE). *Journal of Vertebrate Paleontology, Programs and Abstracts 2020*: No Page Number Available.

Burroughs, R. 2020. Modeling rodent tooth morphogenesis reveals constraints on mammalian tooth evolution. *Integrative and Comparative Biology Vol. 60* (Supplement to No. 1): e28.

Burroughs, R. 2019. Voles, Molars, and Molecules: Integrating Quantitative Morphology, Genetics, and Evo-Devo to Study Evolutionary Processes. *Geological Society of America Abstracts with Programs Vol. 51, No. 5, ISSN 0016-7592 doi: 10.1130/abs/2019AM-332324*

Burroughs, R. 2018. IDENTIFYING DEVELOPMENTAL CONSTRAINTS TO UNDERSTAND CONVERGENCE IN RODENT DENTITION. *Journal of Vertebrate Paleontology, Programs and Abstracts 2018*: 99.

Burroughs, R. 2017. ASSESSING THE PALEOBIOGEOGRAPHIC HISTORY OF *LEMMISCUS CURTATUS* (MAMMALIA, RODENTIA): SINGLE SPECIES OR SPECIES COMPLEX? *Journal of Vertebrate Paleontology, Programs and Abstracts 2017*: 90.

Socki, F. and **Burroughs, R. 2017.** REASSESSING THE BIOCHRONOLOGY OF KENNEWICK ROAD-CUT (WASHINGTON, USA) USING ARVICOLINE RODENTS. *Journal of Vertebrate Paleontology, Programs and Abstracts 2017*: 197.

Teaching

*In each course for which I was a teaching assistant, my duties were to aid the instructor, but also to independently instruct labs and develop course and laboratory materials.

Teaching Assistant*, University of Chicago, Division of Biological Sciences 2017-2019

Teaching assistant for **Human Evolution**. This course is an upper division course for biological sciences and anthropology students at the University of Chicago. My responsibilities included organizing weekly lab sections focused on studying human anatomy and evolution. This was the first time this course was taught at the University of Chicago in the fall of 2018. I again served as TA for this course in fall of 2019.

Teaching assistant for **Biogeography**. This course is an upper division undergraduate majors-only course for biological sciences students at the University of Chicago. My responsibilities included independently leading weekly lab sections for University of Chicago undergraduates. Training them in the technical aspects of biogeographic analysis. And developing new materials for lab. I served as TA twice in Winter 2017 and Winter 2018 for this course.

Lecturer, The University at Texas, Jackson School of Geosciences 2013-2014

Lecturer (Instructor of Record) for **Plate Tectonics and Earth and Life History**. This course serves as one of two options of historical geology for undergraduate geology majors at The University of Texas at Austin. My responsibilities included selection and creating new course materials, giving lectures, holding office hours, and being responsible for 74 undergraduate enrollees. I was also responsible for managing two graduate teaching assistants and worked with those TAs to update and construct new lab materials to match constructed lectures.

Teaching Specialist, The University of Texas at Austin, School of Undergraduate Studies 2013

Teaching Specialist for **Freshman Research Methods**. My responsibilities for this course were varied. I was responsible for managing eight laboratory sections for 94 undergraduate freshmen. The core goal of FRM is to provide freshmen students interested in STEM research-based careers to learn how to become scientists. Over the course of 15-weeks students propose a research project (lab-based) with related hypotheses, order materials, collect data to address their hypotheses, write up their data, and present their research findings. Thus, my responsibilities included managing the laboratory, eight undergraduate teaching assistants, grading assignments, reviewing and providing feedback on written project proposals and written project results, teaching lab techniques, lab safety, managing lab inventory and budgets, and helping students develop quantitative and systematic ways to collect scientific data.

Teaching Assistant*, The University of Texas at Austin, Jackson School of Geosciences 2010-2013

Teaching Assistant for **Introduction to Geology**. This course is the introductory level geology course for geology majors at The University of Texas. This course requires TAs to teaching basic theory and tools necessary for students to begin to interpret and map geological sections, identify common fossils, and understand basic principles of geology.

Teaching Assistant for **Life Through Time**. This course is one of two options for undergraduate geology majors at The University of Texas. Lab materials for this course included teaching students to identify major invertebrate fossils commonly found in central Texas. I served as a teaching assistant twice for this course.

Teaching Assistant for **Age of Mammals**. This course is one of two non-major lower-division open enrollment courses taught in geological sciences at The University of Texas. It offers concepts and information similar to historical geology for majors.

Teaching Assistant for **Age of Dinosaurs**. This course is one of two non-major lower-division open enrollment courses taught in geological sciences at The University of Texas. It offers concepts and information similar to historical geology for majors.

Grants In Review

Robert Burroughs (PI). **In Review**. Does Anuran Metamorphosis Function as a Canalizing Agent for Phenotypic and Genetic Variance? Life Sciences Research Foundation. LSRF Proposal Number 5736; Solicitation LSRF Application 2020 (Main) of Organismal Population and Evolutionary Biology. Duration 36 months. Work to be performed in collaboration with Dr. Neil Shubin of the University of Chicago

Robert Burroughs (PI). **In Review**. Integrating Geological and Paleontological Data: How do scale-dependent and scale-independent factors shape species evolution? NSF Proposal Number 2052966; Solicitation NSF18-565 of Earth and Atmospheric Research Postdoctoral Fellowships; Requested Amount: \$174,000. Duration 24-months. Work to be performed in collaboration with Dr. P. David Polly of Indiana University.

Grants and Awards Funded

National Science Foundation 2015-2019
Ann Molineux* (PI), Rowan Martindale (Co-PI), James Sprinkle (Collaborator), **Robert Burroughs** (Collaborator). **Funded**. *Natural History: Critical infrastructure upgrades and expanded digital access to Non-vertebrate Paleontology Collections at the University of Texas at Austin*. NSF proposal number 1458198; Requested amount: \$495,880; Duration 36 months; Start date 7/1/2015; Solicitation NSF14-564 of DBI-Biological Research Collections unit.

*In March 2018, Dr. Ann Molineux passed away, prior to the completion of this grant. At present Co-PI Dr. Martindale has taken over the grant in conjunction with a new Co-PI, Dr. Lisa Boucher (Interim Curator and Collections Manager of Non-Vert Paleo Collections). In May 2018, we filed a No Cost Extension for 12-months to begin 7/1/2018. This work was completed in June of 2019.

<u>Field Museum Women in Science and The Women's Board of the Field Museum</u> Robert Burroughs (PI), Kelsey Stilson (Co-PI). Funded. <i>Tongue Twisters from the Triassic to Today: Studying the Evolution of the Modern Mammalian Tongue.</i> Award Amount: \$10,000 (Summer Salaries and Benefits for two interns). Start date 5/31/2017; End 8/15/2017.	2017
<u>Burke Museum of Natural History, University of Washington</u> Vertebrate Paleontology Research Grant. Award Amount: \$1400	2016
<u>University of Chicago - Biological Sciences Division</u> Hinds Fund Research Award. Award Amount: \$1205	2015
<u>Society of Vertebrate Paleontology</u> Jackson School Student Travel Award. Award Amount: \$700	2014
<u>Texas Academy of Science</u> Master's Student Research Award. Award Amount: \$750	2012
<u>Jackson School of Geosciences</u> Ernest L. Lundelius Fellowship for Research in Vertebrate Paleontology. Award Amount: \$1000	2011
<u>The University of Texas at Austin</u> Undergraduate Research Fellowship. Award Amount: \$1000	2010

Students Mentored

University of Chicago/Field Museum of Natural History 2014-Present

Marta de Giuli - Marta began working with me in January of 2018. She is a rising senior in the College at the University of Chicago. She is currently studying the biogeographic distributions of *Artemisia sp.* (North American sagebrush). Her research in biogeography of sagebrush forms the core of her Undergraduate Thesis for specialization in her dual majors; Ecology and Evolution and Environmental Science. In summer of 2018, Marta was funded on an independent undergraduate research scholarship. Marta completed her thesis and graduated in June of 2019. She is currently employed as a research assistant with a floral research group conducting field work near Teapot Dome in New Mexico.

Francesca Socki - Francesca began working with me in 2016 and is currently studying the biostratigraphy of fossil voles from the Kennewick Roadcut locality in south-central Washington State. In 2017 she was an NSF REU Intern with the Moreau Ant Lab at the Field Museum of Natural History, studying the morphological disparity of head morphology of turtle ants. Francesca graduated with her A.B. in Zoology from Ohio Wesleyan University in 2018. Francesca worked as an Animal Research Assistant at Loyola University in Chicago from 2018-2019. She is currently a Master's Student in the University of Minnesota Paleobiology and Paleoecology Group.

Amy Chang - Amy worked on studying the evolution of the modern mammalian tongue apparatus. She was funded via the Field Museum Women-in-Science Summer Internship Program in 2017 while she was a Naperville North High School Senior. Beginning Summer 2018, Amy is a college Freshman at the University of Illinois at Chicago as part of the Guaranteed Professional Program Admission initiative. Amy will partake in an accelerated undergraduate program (3-years), before moving on to begin post-bacc studies in dentistry.

Kathryn Jin - Kathryn worked on cranial and tooth morphology of mammals, specifically *Didelphis virginiana*. She began working with me in 2017 as a Naperville North High School Senior. In Fall of 2018, Kathryn began attending University of Illinois at Urbana-Champaign to study biochemistry.

Emma Wise - Emma worked on studying the evolution of the modern mammalian tongue apparatus. She was funded via the Field Museum Women-in-Science Summer Internship Program in 2017. Emma grad-

uated from Macalester College with a degree in Biology in the fall of 2017 and is currently pursuing her work as an independent artist.

Ann Cebulski - Annie worked on elevational gradients and how they effect the biogeographic distributions of extant turtles. She was funded under a summer internship program via Northwestern University in 2017. She is currently a journalism intern in Washington, D.C.

Maria Viteri - Maria completed her undergraduate degree in June of 2016. She began her doctoral studies with the Department of Evolution and Ecology at Stanford University in the fall of 2017. Maria is currently working on new methodology and techniques for integratating paleobiology and modern conservation ecology to help develop and inform modern biological conservation efforts.

R. Ben Sulser - Ben completed his undergraduate degree in June of 2016. He began his doctoral studies at the Gilder School of the American Museum of Natural History in the fall of 2017. He is investigating the shape and function of nerve canals in the inner-ears of bats, utilizing comparative anatomy, morphometrics, and CT endocasts.

Jackson School of Geosciences

2011-2014

Samuel Muller - Sam worked on evaluating the cranial morphology of the extant turtle *Notochelys platynota* by building a digital atlas of the skull using x-ray CT data. Sam graduated from the Jackson School in May of 2015. He is currently employed as a Junior Scientist with Banda Group International (Environmental Consulting).

Professional Service

University of Chicago

2014-Present

Served as official representative of the Multicultural Graduate Community (MGC) registered student organization within the University of Chicago (2015-2016).

Organizer for the Vertebrate Paleontology Reading Group, with weekly meeting held at the Field Museum (2015-2016).

Society of Vertebrate Paleontology

2012-Present

Diversity Committee - Student/Contributing Member. I served as a co-host for 2017 Diversity Committee Workshop. And as a student ambassador for introducing first time members to the society. 2017-Present.

Development Committee– Student Member/Representative. My work with the development committee included regular interaction with donors to raise funds for a variety of awards funds given by the society To date (October 2017) – I have helped raise in collaboration with other development committee members in excess of \$150,000 for the society. Primarily in support the Stephen Cohen Student Research Award. I served from 2012-2017.

Texas Academy of Science

2011-2013

Executive Board - Elected Graduate Student Member (Voting). I served as one of two inaugural graduate student board members on the Texas Academy of Science Executive Board. Graduate Student Board Members are elected by the student members of the Texas Academy of Science, they serve two year terms, and have full voting membership as part of the executive board.

Professional Memberships

Society for the Study of Evolution (SSE)
Society for the Study of Amphibians and Reptiles (SSAR)
Society of Integrative and Comparative Biology (SICB)

Society of Vertebrate Paleontology (SVP)
Geological Society of America (GSA)