

Lexi Moore Crisp, PhD

Biology Department
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RESEARCH INTERESTS

Comparative biomechanics, functional morphology, burrowing, vertebrates

EDUCATION

- 2018 Doctor of Philosophy in Biological Sciences, University of Nevada, Las Vegas.
- 2011 Master of Science in Biological Sciences, Youngstown State University.
- 2006 Bachelor of Science in Psychology and Bachelor of Arts in Philosophy and History and Philosophy of Science, Cum Laude, with Honors, University of Pittsburgh

PROFESSIONAL APPOINTMENTS

- 2018-2020 Visiting Assistant Professor, Biology Program, Stockton University

JOURNAL PUBLICATIONS

- Bonnan MF, **Crisp LM**, Marinelli D, Dizinno J. (*in prep*) Does duty factor change with increasing speed in the central bearded dragon (*Pogona vitticeps*)?
- Crisp LM**, Barnes CJ, Lee DV. (*under review at J Exp Biol*) Tunnel-tube and Fourier methods for measuring three-dimensional medium reaction force in burrowing animals.
- Rose J, **Moore AL**, Russell AP, Butcher MT. (2014) Functional osteology of the forelimb digging apparatus of badgers. *J Mammal* 95: 543-558.
- Moore AL**, Budney JE, Russell AP, Butcher MT. (2013) Functional specialization of the intrinsic thoracic limb musculature of the American badger (*Taxidea taxus*). *J Morph* 274: 25-48.

GRANTS AND AWARDS

- 2018 Stockton University Provost's Faculty Opportunities Fund for project
"Conference Travel SICB 2019" (\$1377, awarded December 2018)
- 2015 Society for Integrative and Comparative Biology (SICB) Charlotte Magnum
Student Support Award (\$1000)
- 2014 UNLV Graduate & Professional Student Association Sponsorship (\$850)
- 2014 SICB Charlotte Magnum Student Support Award (\$1000)
- 2011 UNLV Graduate & Professional Student Association Sponsorship (\$250)
- 2011 SICB Charlotte Magnum Student Support Award (\$1000)
- 2002-2006 University of Pittsburgh University Scholarship, University Honors College,
(Full tuition, ~\$17,000/year)

TEACHING EXPERIENCE

Stockton University

- Anatomy & Physiology I (Lecture and lab: Fall 2018, 2019)
- Anatomy & Physiology II (Lecture and lab: Spring 2019)
- Biodiversity and Evolution (Lab: Fall 2018, Spring 2019, Lecture: Spring 2019)

Delaware County Community College

- General Biology II (Lecture and lab: Spring 2016),
- Humans and the Environment (Lecture and lab: Fall 2016-Spring 2018)

University of Nevada, Las Vegas

- Principles of Modern Biology II Lab (Spring 2014, Spring 2015)
- Comparative Vertebrate Anatomy Lab (Fall 2012, Fall 2013, Fall 2014)
- 3D XMA Dynamics Short Courses (2013-2014: 6 week-long courses)

Youngstown State University

- Functional Neuroanatomy Lab (Spring 2011)
- Anatomy & Physiology I Lab (Spring 2010, Spring 2011)
- Anatomy & Physiology II Lab (Fall 2010, Spring 2011)
- Advanced Systems Physiology Lab (Fall 2010)

RESEARCH EXPERIENCE

- 2011-2018** *Doctoral research:* School of Life Sciences, University of Nevada, Las Vegas (research advisor: David V. Lee).
- Designed and built the tunnel-tube, a novel force-platform to measure vertebrate burrowing biomechanics, in conjunction with X-ray motion analysis (XMA).
 - Developed a custom analysis program to perform Fourier transforms on burrowing force data.
 - Investigated digging kinetics and kinematics of three closely-related (Geomyoid) yet morphologically distinct desert rodents to understand the role of functional anatomy in phylogenetic and evolutionary context.
- 2009-2011** *Master's research:* Department of Biological Sciences, Youngstown State University, (research advisor: Michael T. Butcher).
- Measured and analyzed muscle architectural properties and bone morphometrics of the intrinsic forelimb muscles of the American badger, groundhog, and Virginia opossum

RESEARCH INTERESTS AND SKILLS

- Comparative biomechanics
- Functional morphology
- Vertebrate evolution
- Comparative anatomy/physiology
- Adaptations to extreme environments
- Fossorial specialization
- Dissection, surgery, and marker implantation
- Data and statistical analysis with Labview, Matlab, SPSS, and JMP
- 3D design and printing: Solidworks, SketchUp, and MakerWare,
- 3D imaging and reconstruction: XROMM/XMA, NextEngine laser scanner, microCT, OsiriX/Horos and ImageJ/Fiji

PRESENTATIONS (as presenting author*)

Dizinno J, Muller K, Smith J, Walker J, Bonnan MF, **Crisp LM**. Exploring Elbow Kinematics of the central Bearded Dragon (*Pogona vitticeps*) using XROMM. Poster presentation: Stockton University Natural Science and Mathematics Undergraduate Research Symposium, Galloway, NJ April 23, 2019, published abstract.

Crisp LM*, Barnes CJ, Lee DV. Who digs, who hops, who tells your story? Oral presentation: Society for Integrative and Comparative Biology (SICB) Annual meeting, Tampa, FL January 7, 2019, published abstract.

Zelikova TJ, Ramirez KS, Lipps J, Dapkey T, Schmidt R, Metcalf JL, Simonis J, **Crisp LM**. Building a collective voice for inclusion in science. Oral presentation: AGU Fall Meeting, Washington, DC, December 14, 2018, published abstract.

Crisp LM*, Barnes CJ, Lee DV. Everyone digs: Burrowing biomechanics of pocket gophers, kangaroo rats, and pocket mice. Oral presentation: Society for Integrative and Comparative Biology (SICB) Annual meeting, New Orleans, LA January 6, 2017, published abstract.

Crisp LM*, Lee DV. Is digging force determined by functional morphology or muscle biology? Oral presentation: SICB DVM/DCB Mid-Atlantic Regional Meeting, Newark, NJ October 22, 2016

Crisp LM*, Lee DV. 3D dynamics of burrowing in pocket gophers. Oral presentation: ICVM 11, Washington, DC July 3, 2016, published abstract.

Crisp AL*, Barnes CJ, Lee DV. To bite or to scratch?: Pocket gophers vary digging forces based on substrate parameters. Oral presentation: SICB Annual Meeting, Portland, OR January 5, 2016, published abstract.

Crisp AL*, Lee DV. The effect of substrate properties on pocket gopher burrowing dynamics. Oral presentation: SICB DVM/DCB Mid-Atlantic Regional Meeting, Newark, NJ November 5, 2015.

Moore AL*, Barnes CJ, Lee DV. Under pressure: A tubular 3D force analysis of kangaroo rat burrowing. Oral presentation: SICB Annual Meeting, West Palm Beach, FL January 7, 2015, published abstract.

Moore AL*, Barnes CJ, Lee DV. An X-ray based transducer to measure burrowing biomechanics. Oral presentation: Graduate and Professional Student Research Forum, Las Vegas, NV March 29, 2014.

Moore AL*, Barnes CJ, Lee DV. An X-ray based transducer to measure burrowing biomechanics. Oral presentation: SICB Annual Meeting, Austin, TX January 4, 2013, published abstract.

Moore AL*, Barnes CJ, Lee DV. An X-ray based transducer to measure burrowing biomechanics. Oral presentation: SICB Southwest Regional Meeting, Riverside, CA October 26, 2013

Moore AL*, Barnes CJ, Lee DV. A new 3D system for measuring burrowing biomechanics. Poster presentation: Graduate and Professional Student Research Forum, Las Vegas, NV March 17, 2012

Moore AL*, Barnes CJ, Lee DV. A new 3D system for measuring burrowing biomechanics. Poster presentation: SICB Annual Meeting, Charleston, SC January 4, 2012, published abstract.

Moore AL*, Butcher MT. Forelimb muscle architecture of the American badger (*Taxidea taxus*) and groundhog (*Marmota monax*). Poster presentation: Experimental Biology 2011, Washington, DC April 12, 2011, published abstract.

Moore AL*, Butcher MT. Forelimb muscle architecture of the American badger (*Taxidea taxus*) and groundhog (*Marmota monax*). Oral presentation: QUEST 2011: A Forum for Student Scholarship, Youngstown, OH April 5, 2011.

Moore AL*, Butcher MT. Forelimb muscle architecture of the American badger (*Taxidea taxus*) and groundhog (*Marmota monax*). Oral presentation: SICB Annual Meeting, Salt Lake City, UT January, 6, 2011, published abstract.

Moore AL*, Butcher MT. Forelimb muscle architecture of the groundhog (*Marmota monax*). Oral presentation: SICB Southeast Regional Meeting, Blacksburg, VA November 6, 2010.

PROFESSIONAL SOCIETY MEMBERSHIPS AND SERVICE

2017-present 500 Women Scientists Philly pod founder and coordinator

2010-present Society for Integrative and Comparative Biology (SICB)

2017-2018 500 Women Scientists
National Pod (local chapter) Mentorship Organizer

2011-2017 American Association for the Advancement of Science (AAAS)

2016-2017 International Society of Vertebrate Morphologists (ISVM)

PUBLIC OUTREACH

2019 Partner, Philadelphia Science Festival

2018 Volunteer, *My Love Affair with the Brain* screening fundraiser

2018 Partner, Philadelphia Science Festival

2018 Organizer, Science Salon for Puerto Rico

2017 Presenter, Start Talking Science

2017 Presenter, Careers with Animals camp at Brandywine Zoo

2017 Volunteer, Take Back Your Neighborhood

2017 Volunteer, Pyramid STEM Showcase

