A. Michelle Lawing - Curriculum Vitae

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CONTACT INFORMATION

Ecology and Conservation Biology
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College Station, TX 77845

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ACADEMIC APPOINTMENTS

2020 - present	Associate Professor, Ecology and Conservation Biology, Texas A&M University -Core faculty, Ph.D. Program in Ecology & Evolutionary Biology -Participating faculty, Applied Biodiversity Science Program
2014 - 2019	Assistant Professor, Ecosystem Science and Management, Texas A&M University -Core faculty, Ph.D. Program in Ecology & Evolutionary Biology -Participating faculty, Applied Biodiversity Science Program
2013	Postdoctoral Fellow, National Institute for Mathematical and Biological Synthesis (NIMBioS), University of Tennessee, Knoxville, TN 37996 Mentors: Dr. Brian O'Meara and Dr. Alison Boyer

EDUCATION

2012	Ph.D. Double Major, Indiana University • Evolution, Ecology and Behavior, Advisor: Dr. Emília Martins • Geological Sciences (Paleobiology), Advisor: Dr. P. David Polly
2007	M.S. Quantitative Biology, University of Texas at Arlington
2003	B.S. Biology, University of Texas at Arlington

MANUSCRIPTS, ACCEPTED *(*graduate student)*

42. Struminger, Rhonda, Rachel A. Short, Jill Zarestky, Lauren Vilen*, A. Michelle Lawing. 2021. Biological Field Stations Promote Science Literacy through Outreach. *BioScience*.
41. Short, Rachel A. and A. Michelle Lawing. Geographic variation in artiodactyl locomotor morphology as an environmental predictor. *Diversity and Distributions*.

PEER-REVIEWED JOURNAL ARTICLES *(†equal authors, *graduate, **undergraduate)*

40. Lawing, A. Michelle. 2021. The geography of phylogenetic paleoecology: integrating data and methods to better understand response of species and communities to climate change. *Paleobiology* 47: 178-197.
39. Light, Jessica E., Leila Siciliano-Martina*, Emma G. Dohlanik, Grace Vielleux, David J. Hafner, A. Michelle Lawing, and Ira F. Greenbaum. 2021. Morphological differentiation of *Peromyscus leucopus* and *P. maniculatus* in East Texas. *Therya* 12: 369-387.
38. Siciliano-Martina*, Leila, Jessica E. Light, A. Michelle Lawing. 2021. Changes in canid cranial morphology induced by captivity and conservation implications (Mammalia: Carnivora). *Biological Conservation* 257: 109143.
37. Brooke*, Chase T., Rogers, William E., Lafon, Charles W. and Lawing, A. Michelle. 2021. Annual precipitation drives fire occurrence across sub-humid and semi-arid ecological gradients. *Frontiers of Biogeography*. https://doi.org/10.21425/F5FBG49497
36. Rivera, Julio A., Heather N. Rich, A. Michelle Lawing, A., Michael S. Rosenberg, and Emília P. Martins. 2021. Occurrence data uncover patterns of allopatric divergence and interspecies interactions in the evolutionary history of *Sceloporus* lizards. *Ecology and Evolution* 11: 2796-2813.

35. Siciliano-Martina[*], Leila, Jessica E. Light, A. Michelle Lawing. 2021. Cranial morphology of captive mammals: a meta-analysis. *Frontiers in Zoology* 18: 1-13.
34. Lawing, A. Michelle, Jessica L. Blois, Kaitlin C. Maguire, Simon J. Goring, Yue Wang, Jenny L. McGuire. 2021. Occupancy models reveal regional differences in detectability and improve relative abundance estimations in fossil pollen assemblages. *Quaternary Science Reviews* 253: 106747. https://doi.org/10.1016/j.quascirev.2020.106747
33. Short[*], Rachel A., Katherine Pinson[**], and A. Michelle Lawing. 2021. Comparison of environmental inference approaches for ecometric analyses: Using hypsodonty to estimate precipitation. *Ecology and Evolution* 11: 587-598. https://doi.org/10.1002/ece3.7081
31. Chyn, Kristina, Te-En Lin, David Wilkinson, James Tracy, A. Michelle Lawing, and Lee Fitzgerald. 2021. The intersection of wildlife and roads: fine-scale roadkill risk models for herpetofaunal guilds and species of conservation concern in Taiwan. *Biodiversity and Conservation* 30: 139 – 164. https://doi.org/10.1007/s10531-020-02083-6
32. Short[*], Rachel A., Rhonda Struminger, Jill Zarestky, James Pippin[**], Minna Wong[**], Lauren Vilen[*], and A. Michelle Lawing. 2020. Spatial inequalities leave Spatial inequalities leave micropolitan areas underserved by informal STEM learning institutions. *Science Advances* 6:eabb3819. https://doi.org/10.1126/sciadv.abb3819
30. Rivera, Julio, A. Michelle Lawing, and Emilia Martins. 2020. Paleoclimate shifts and ancient geological activity led to current distributional patterns in six distantly related *Sceloporus* species in the southwest U.S. *Journal of Biogeography*. Early View.
29. Meik, Jesse M., Lawing, A. Michelle and Watson[*], Jessica A. 2020. Use of scalation landmarks in geometric morphometrics of squamate reptiles: a comment on homology. *Zootaxa* 4816: 397 – 400.
28. Oksanen[*], Otto, Indre Zliobate, Juha Saarinen, A. Michelle Lawing, and Mikael Fortelius. 2019. A Humboldtian approach to life and climate of the geological past: estimating palaeotemperature from dental traits of mammalian communities. *Journal of Biogeography* 46: 1760 – 1776.
27. Castellanos[*], Adrian A., Jerry W. Huntley[*], Gary Voelker, A. Michelle Lawing. 2019. Environmental filtering improves ecological niche models across multiple scales. *Methods in Ecology and Evolution* 10: 481 – 492.
26. Casola, Claudio and A. Michelle Lawing. 2019. Nonrandom evolution of gene families. *American Journal of Botany* 106: 14 – 17.
25. Hibbits, Toby, Wade A. Ryberg, Johanna A. Harvey, Gary Voelker, A. Michelle Lawing, Connor S. Adams, Dalton B. Neuharth, Drew E. Dittmer, C. Michael Duran, Brad D. Wolaver, Jon Paul Pierre, Benjamin J. Labay, and Travis J. Laduc. 2019. Phylogenetic structure of *Holbrookia lacerata* (Cope 1880)(Squamata: Phrynosomatidae): one species or two? *Zootaxa* 4619: 139 – 154.
24. Struminger, Rhonda, Jill Zarestky, Rachel Short[*], and A. Michelle Lawing. 2018. Informal STEM learning at biological field stations. *Bioscience* 68: 969 – 978. https://doi.org/10.1093/biosci/biy108
23. Tracy[*], James L., Antonio Trabucco, A. Michelle Lawing, J. Tomasz Giermakowski, Maria Tchakerian, Gail M. Drus, Robert N. Coulson. 2018. Random Subset Feature Selection for Ecological Niche Models of Wildfire Activity in Western North America. *Ecological Modelling* 383: 52 – 68.
22. Fitzgerald[*], Maegan, Robert Coulson, A. Michelle Lawing, Tetsuro Matsuzawa, and Kathelijne Koops. 2018. Modeling Habitat Suitability for Chimpanzees (*Pan troglodytes verus*) in the Greater Nimba Landscape, Guinea, West Africa. *Primates* 59: 361 – 375. https://doi.org/10.1007/s10329-018-0657-8
21. Oakley[*], Jenny W., A. Michelle Lawing, George Guillen, and Frances Gelwick. 2018. Defining Ecologically, Geographically, and Politically Coherent Boundaries for the Northern Gulf of Mexico Coastal Region: Facilitating Ecosystem-Based Management. *Ocean and Coastal Management* 154: 1 – 7.

20. Zhou[*], Tan, Sorin C. Popescu, A. Michelle Lawing, Marian Eriksson, Bogdan Strambu, Paul C. Bürknerd. 2018. Bayesian and machine learning methods: a comparison for tree species classification with waveform LiDAR data. *Remote Sensing* 10: 39.
19. Barnosky, Anthony D., Elizabeth A. Hadly, Patrick Gonzalez, Jason Head, P. David Polly, A. Michelle Lawing, et al. 2017. Merging paleontology with conservation biology to guide the future of terrestrial ecosystems. *Science* 355: 6325, eaah4787. doi: 10.1126/science.aah4787.
18. Polly, P. David, Jesualdo Fuentes-Gonzalez[*], A. Michelle Lawing, Allison K. Bormet[*], and Robert G. Dundas. 2017. Clade sorting has a greater effect than local adaptation on ecometric patterns in Carnivora. *Evolutionary Ecology Research* 18: 61 – 95.
17. Lawing, A. Michelle[t], Jussi Eronen[t], Jessica Blois[t], Catherine Graham, and P. David Polly. 2017. Community functional trait composition at the continental scale: the effects of non-ecological processes. *Ecography* 40: 651 – 663.
16. Lawing, A. Michelle, P. David Polly, Diana K. Hews, and Emília P. Martins. 2016. Miocene Climate and Paleophylogeographic Models: A Deep Time Perspective on the Climatic Niche Evolution and Diversification of Spiny Lizards (*Sceloporus*). *American Naturalist* 188: 133 – 148.
15. Polly, P. David, A. Michelle Lawing, Jussi T. Eronen, and Jan Schnitzler. 2016. Processes of ecometric patterning: modelling functional traits, environments, and clade dynamics in deep time. *Biological Journal of the Linnean Society* 118: 39 – 63.
14. Meik, Jesse M.[t], Jeffrey W. Streicher[t], A. Michelle Lawing[t], Oscar Flores-Villela, and Matthew K. Fujita. 2015. Limitations of climate-based modeling for inferring species boundaries: Insights from the speckled rattlesnake (*Crotalus mitchellii*) complex. *PLoS ONE* 10: e0131435.
13. Tapaltsyan, Vagan, Jussi Eronen, A. Michelle Lawing, Amnon Sharir, Christine Janis, Jukka Jernvall, and Ophir D. Klein. 2015. Continuously growing rodent molars result from a predictable quantitative evolutionary change over 50 million years. *Cell Reports* 11: 673 – 680.
12. Lawing, A. Michelle and Nicholas Matzke. 2014. Conservation paleobiology needs phylogenetic methods. *Ecography* 37: 1109 – 1122.
11. Rödder, Dennis[t], A. Michelle Lawing[t], Morris Flecks, Faraham Ahmadzadeh, Johannes Dambach, Jan O. Engler, Jan Christian Habel, Timo Hartmann, David Hörnes, Flora Ihlow, Kathrin Schidelko, Darius Stiels, and P. David Polly. 2013. Evaluating the significance of paleophylogeographic species distribution models in reconstructing Quaternary range-shifts of Nearctic Chelonians. *PLoS ONE* 8:e72855.
10. Polly, P. David, A. Michelle Lawing, Anne-Claire Fabre, and Anjali Goswami. 2013. Phylogenetic principal components analysis and geometric morphometrics. *Hystrix, the Italian Journal of Mammalogy* 24: 33 – 41. doi:10.4404/hystrix-24.1-9.
9. Lawing, A. Michelle, Jesse M. Meik, and P. David Polly. 2012. Climate and competition shape species borders: A study of Panamint (*Crotalus stephensi*) and Speckled (*Crotalus mitchellii*) Rattlesnakes. *ISRN Zoology* 528745: 1 – 6.
8. Meik, Jesse M., Sarah Schaack, Matthew J. Ingrasci, A. Michelle Lawing, Kirk Setser, Estrella Mociño-Deloya, Oscar Flores-Villela. 2012. Notes on activity, body size variation, and diet in insular speckled rattlesnakes from the western Sea of Cortés, Mexico. *Herpetological Review* 43: 556 – 560.
7. Meik, Jesse M., Kirk Setser, Estrella Monciño-Deloya, and A. Michelle Lawing. 2012. Sexual differences in head form and diet in a population of the Mexican lance-headed rattlesnake (*Crotalus polystictus*). *Biol J Linnaean Society* 106: 633 – 640.
6. Lawing, A. Michelle and P. David Polly. 2011. Pleistocene climate and phylogeny predict 21st century changes in rattlesnake distributions. *PLoS ONE* 6: e28554.
5. Lawing, A. Michelle and P. David Polly. 2010. Geometric morphometrics: Recent applications to the study of evolution and development. *Journal of Zoology* 280: 1 – 7.

4. Meik, Jesse M., A. Michelle Lawing, and André Pires-daSilva. 2010. Body size evolution in insular speckled rattlesnakes (Viperidae*: Crotalus mitchellii*). *PLoS ONE* 5: e9524.
3. Lawing, A. Michelle, Jesse M. Meik, and Walter Schargel. 2008. Coding meristic characters for phylogenetic analysis: a comparison of step-matrix gap-weighting and generalized frequency coding. *Systematic Biology* 57: 167 – 173.
2. Meik, Jesse M. and A. Michelle Lawing. 2008. Elevation gradients and lizard assemblage structure in the Bonneville Basin, western USA. *J of Arid Environments* 72: 1193 – 1201.
1. Casola, Claudio, A. Michelle Lawing, Ester Betrán and Cédric Feschotte. 2007. *PIF*-like transposons are common in *Drosophila* and have been repeatedly domesticated to generate new host genes. *Molecular Biology and Evolution* 24: 1872 – 1888.

PEER-REVIEWED BOOK CHAPTERS *(*graduate student)*

4. Vermillion*, Wesley A., P. David Polly, Jason J. Head, Jussi T. Eronen, and A. Michelle Lawing. 2018. Ecometrics: A trait-based approach to paleoclimate and paleoenvironmental reconstruction. pp. 373 – 394. In D.A. Croft, S.W. Simpson, and D.F. Su (eds.), Methods in Paleoecology: Reconstructing Cenozoic Terrestrial Environments and Ecological Communities. Springer (Vertebrate Paleobiology and Paleoanthropology Series), Dordrecht.
3. Ryberg, Wade A. and A. Michelle Lawing. 2018. Genetic consequences and management implications of climate change for the American alligator (*Alligator mississippiensis*). pp. 123 – 153. In S. E. Henke and C. B. Eversole (eds.), American Alligators: Habitats, Behaviors, and Threats. Nova Science Publishers.
2. Meik, Jesse M. and A. Michelle Lawing. 2017. Considerations and pitfalls in the spatial analysis of water quality data associated with hydraulic fracturing. pp. 227 – 256. In K. A. Schug and Z. L. Hildenbrand (eds.), Advanced in Chemical Pollution, Environmental Management and Protection. Elsevier (Environmental Issues Concerning Hydraulic Fracturing Series Vol. 1), Academic Press.
1. Lawing, A. Michelle, Jason J. Head, and P. David Polly. 2012. The ecology of morphology: the ecometrics of locomotion and macroenvironment in North American snakes. Pp. 117 – 146 in J. Louys (ed.), *Palaeontology in Ecology and Conservation*. Springer-Verlag, Berlin and Heidelberg.

EDITOR-REVIEWED NOTES

2. Lawing, A. Michelle and Jesse M. Meik. 2006. Geographic distribution. *Plestiodon septentrionalis*. *Herpetological Review*. 37: 241.
1. Meik, Jesse M. and A. Michelle Lawing. 2006. Geographic distribution. *Chelydra serpentina*. *Herpetological Review*. 37: 104.

EDUCATION CONFERENCE PAPER *(*graduate student, **undergraduate student)*

1. Zarestky, Jill, Rhonda Struminger, Jeff Rodriguez*, Rachel Short*, and A. Michelle Lawing. 2018. Perspectives on informal learning: Cross-disciplinary concepts and a new venue for adult education. Adult Education Research Conference. Victoria, BC, Canada.

MANUSCRIPTS, MINOR REVISION *(*graduate student)*

1. Siciliano-Martina*, Leila, Jessica E. Light, David Riley, A. Michelle Lawing. One of these wolves is not like the other: Morphological effects and conservation implications of captivity in Mexican wolves (*Canis lupus baileyi*). Revision requested. *Animal Conservation.*

MANUSCRIPTS, REVISE AND RESUBMIT *(*graduate student)*

4. Jill Zarestky, Lauren Vilen*, Rhonda Struminger, Rachel Short*, and A. Michelle Lawing. Adult Education at Biological Field Stations: Building Capacity for STEM Learning. Revision requested. *Adult Education Quarterly*.

3. Danielle K. Walkup, A. Michelle Lawing, Toby J. Hibbitts, Wade A. Ryberg. Biogeographic consequences of shifting climate in *Sistrurus tergeminus* (western massasauga). *Ecology and Evolution.*
2. Meghan A. Balk, Rob Guralnick, John Deck, Kitty F. Emery, Ramona L. Walls, Dana Reuter, Rafael La France, Joaquin Arroyo-Cabrales, Paul Barrett, Jessica Blois, Arianne Boileau, Laura Brenskelle, Nicole Cannarozzi, Alberto Cruz, Liliana Davanos, Maggie Hartnak, Samantha Hopkins, Brooks Kohli, Jessica King, Michelle Koo, A. Michelle Lawing, Helena Machado, Samantha S. McCrane, Bryan McLean, Keiko Meshida, Michéle Morgan, Amanda Peng, Suzanne Pilaar-Birch, Denne Reed, Juha Saarinen, Noé U. de la Sancha, Neeka Sewnath, Nate Upham, Amelia Villaseñor, Laurel Yohe, Edward B. Davis. Best practices for aggregating and reporting individual traits. *iScience.*
1. Preisser, Whitney C., Adrian A. Castellanos, John M. Kinsella, Ronald Vargas, Eugenio Gonzalez, Jesús A. Fernández, Norman O. Dronen, A. Michelle Lawing, and Jessica E. Light. Taxonomic scale, but not community organization, impacts observed latitudinal gradients of parasite diversity. *Global Ecology and Biogeography*.

MANUSCRIPTS, SUBMITTED

1. Brandon C. Bowers, Danielle K. Walkup, Toby J. Hibbitts, Paul S. Crump, Wade A. Ryberg, A. Michelle Lawing, Roel R. Lopez. Should I stay or should I go? Spatial ecology of the western chicken turtles (Deirochelys reticularia miaria). Target Journal: *Herpetological Conservation Biology.*

MANUSCRIPTS, IN PREP

4. Oakley*, Jenny W., A. Michelle Lawing, George Guillen, Anna R. Armitage and Frances Gelwick. Coastal health index for the Northern Gulf of Mexico. Target Journal: *Communications Biology*
3. Daniel A. Lauer, A. Michelle Lawing, Jason J. Head, Jenny L. McGuire. Extinctions induced by hominins and not climate threatened megafaunal persistence. Target Journal: *PNAS.*
2. Meik, Jesse M. and A. Michelle Lawing. The paradox of surrogate variables. Target: *PNAS.*
1. Chyn*, Kristina A., Wesley A. Vermillion*, Michael P. Denman, Charles Lafon, Lee Fitzgerald, A. Michelle Lawing. *In Prep.* The ghost of climate past: Historic precipitation explains contemporary species richness in turtles. Target: *Journal of Biogeography.*

RESEARCH GRANTS PENDING

2021 - 2025 ***PENDING***: NSF DEB Systematic and Biodiversity Science, Collaborative Research: Inferring the history of sympatry in *Sceloporus* lizards. $1,546,728. Emilia Martins (PI, Arizona State University), Julio Riviera (co-PI, Arizona State University), and Michelle Lawing (collaborative PI, Texas A&M University). Submitted December 2020

2021 - 2024 ***PENDING***: NSF GEO-NERC: Vertebrate Functional Traits as Indicators of Ecosystem Health through Deep and Shallow Time. 807,000 USD and 300,000 GDP. Michelle Lawing (PI, Texas A&M University), Jenny McGuire (collaborative PI Georgia Tech), Jason Head (collaborative PI Cambridge University) - LOI Approved and NSF requested a full proposal December 2020.

GRANTS FUNDED

2020 - 2023 Conservation Paleobiology in Africa (CPiA) Programme awarded for the triennium – International Union of Biological Sciences €30,000 ($32,840). Jenny McGuire, Johannes Müller, Jason Head, and Michelle Lawing (Program Co-Leaders).

2019 - 2021 US Department of the Interior Fish and Wildlife Service. Genomics and Ecology of the Desert Massasauga in the Pecos. $121,600. Wade Ryberg (PI), Toby

	Hibbitts (co-PI), Danielle Walkup (co-PI), Michelle Lawing (co-PI), and Roel Lopez (co-PI).
2018 - 2020	US Department of the Interior Fish and Wildlife Service. Genomics of the Desert Massasauga (*Sistrurus tergeminus edwardsii*). $60,000. Wade Ryberg (PI), Toby Hibbitts (co-PI), Michelle Lawing (co-PI), and Kentaro Inoue (co-PI).
2017 - 2020	NSF Advancing Informal STEM Learning Research Grant. Exploratory Pathways - Informal STEM learning at biological field stations - $299,990. Rhonda Struminger (PI), Michelle Lawing (co-PI), Jill Zarestky (collaborative PI, Colorado State University).
2017	NIMBioS Investigative Workshop. Species Range Shifts in a Warming World. Knoxville, TN - estimated $102,000 for expenditure + overhead (35 workshop participants). Sean Hoban, Andria Dawson, Allan Strand, Michelle Lawing (co-Organizers).
2016 - 2019	Integrated Climate Change Biology (iCCB) Programme awarded for the triennium – International Union of Biological Sciences €44,000 ($49,731). Jussi Eronen, Jason Head, Johannes Muller, Jenny McGuire and Michelle Lawing (Leaders).
2016 - 2017	Texas EcoLab, "Measuring and monitoring environmental quality using digital leaf physiognomy," Braun & Gresham PLLC, Texas Nature Science Center, University of Texas at Austin - $5,800. Michelle Lawing (PI), Dale Kruse (co-PI).
2016 - 2017	New Mexico Parks and Wildlife Grant, Modeling the species distribution of the prairie rattlesnake - $15,000. Wade Ryberg (PI), Toby Hibbitts, Michelle Lawing (co-PIs).
2013 - 2015	Integrated Climate Change Biology (iCCB) Programme awarded for the triennium (iCCB Secretary, leadership team member) – International Union of Biological Sciences €49,200 ($55,608). Jussi Eronen, Jason Head, Michelle Lawing (Leaders)
2009 - 2014	NSF Research Grant EAR-0843935. Environmental Sorting of Vertebrate Faunas: Are Guild-Level Locomotor and Dietary Ecomorphology Indicators of Paleoclimate? - $234,973, P. David Polly (PI), Michelle Lawing (Research Assistant).
2011	NSF Travel Grant to International Society of Biogeography Conference in Iraklion, Greece - $1,250.
2011	International Biogeography Society Travel Grant - $750.
2010	Paleontology Society Travel Grant - $1,000
2010	Doctoral Research Grant-in-Aid, Indiana University, Graduate School - $1,000
2010	Office of Women's Affairs Travel Grant, Indiana University - $250
2009	Jackson School of Geosciences Std Member Grant, SVP - $600
2008	Estes Memorial Grant, Society of Vertebrate Paleontology (SVP) - $1,100
2008 – 2011	Indiana University, Department of Geological Sciences Travel Grant - $2,200
2008 – 2010	Summer Research Grant-in-aid, Indiana University, Geological Sciences - $4,800
2005 – 2006	Phi Sigma Biological Honors Society Research Grant, University of Texas, Arlington - $2,000
2005 – 2006	Department of Biology and Dean of Science Matching Grant, University of Texas, Arlington - $2,000

HONORS, AWARDS, FELLOWSHIPS

2021	Faculty Research Award, Ecology and Conservation Biology, Texas A&M University
2021	Faculty Graduate Teaching Award, Ecology and Conservation Biology, Texas A&M University
2016 – 2017	Online Education Award, Texas A&M University ($10k)

2016	Critical Thinking Fellow, Texas A&M University ($1k)
2015 – 2016	Montague – Center for Teaching Excellence Scholar – College of Agriculture and Life Sciences, Texas A&M University ($6k)
2013	NCEAS Summer Institute for Early Career Researchers (5% acceptance)
2012 – 2013	National Institute for Mathematical and Biological Synthesis (NIMBioS), Postdoctoral Fellow, Knoxville, TN ($53k/year)
2011	McCormick Science Grant (with P. David Polly). For the faculty/graduate student team whose research is judged most creative, visionary, and innovative. College of Arts and Sciences, Indiana University - ($2.5k).
2011	Departmental Citizenship Award, Indiana University Dept of Geological Sciences.
2010	Publication Award, Indiana University Dept of Geological Sciences.
2009	Estwing Academic Achievement Award, Indiana University, Geological Sciences.
2008	Estes Memorial Grant/Award, Society of Vertebrate Paleontology
2008	Paleobiology Database Intensive Summer Course UCSB, NCEAS.
2007 – 2008	Galloway/Perry/Horowitz Graduate Fellowship, Indiana University ($18k).
2004 – 2006	College of Science Recognition of Academic Excellence, University of Texas, Arlington.

INVITED PRESENTATIONS

2020 Invited Speaker, University of Washington, Quaternary Research Center Centennial Celebration Seminar Series. January 27, "Integrating fossils, phylogenies, and paleoclimate: the reactions of species and communities to climate change." Seattle, Washington.

2019 Invited Speaker, International Union of Biological Sciences 33rd General Assembly, session Climate Change: Biological Consequences of Global Change, August 1, "Modeling species and community response to past climate change." Oslo, Norway.

2019 Program Report, International Union of Biological Sciences 33rd General Assembly, July 30, "Three triennia of the integrated Climate Change Biology Programme." Oslo, Norway.

2019 Invited Speaker, Ecosystem Science and Management Seminar Series, Penn State University, March 31, "Modeling species and community response to climate change." State College, PA.

2018 Invited Speaker, Geology Department Seminar Series, Baylor University, November 30, "Modeling species and community response to climate change." Waco, TX.

2018 Invited Speaker, Symposium on Phylogenetic Methods in Paleoecology at the Geological Society of America Meetings. November 4 - 7. "Integrating fossils, phylogenies, and paleoclimate to better understand species and communities response to climate change" Indianapolis, Indiana.

2018 Invited Speaker, School of Life Sciences, Arizona State University, September 7, "Species and community response to past climate change." Tempe, Arizona.

2018 Invited Speaker, Natural History Museum, August 9, "On fossils, phylogenies, and climate change: new integrative comparative methods." Berlin, Germany.

2016 Invited Speaker, Grand Challenges Mini-Symposium on Climate Change. May 19. “Ecometric Indicators of Ecosystem Structure and Function” College Station, TX.

2016 Invited Speaker, Anthropology Brown Bag, Texas A&M University. February 1. “Fossils, phylogenies, and climate change: new integrative comparative methods.” College Station, TX.

2015 Invited Speaker, GeoSAT Seminar Series, Texas A&M University. November 19. “Ecometrics through space and time.” College Station, TX.

2015 Invited Speaker, Ecosystem Science and Management, Graduate Student Association Meeting. October 13. “Ataxic indicators of climate and the environment.” College Station, TX.

2015 Invited Speaker, Symposium and Workshop on Integrating Biology and Paleobiology to enhance conservation of terrestrial ecosystems on a rapidly changing planet. September 13 – 16. "Ataxic indicators of ecosystem structure and function." Berkeley, CA.

2015 Invited Speaker, Symposium at Case Western on Latest Methods for Reconstructing Cenozoic Terrestrial Environments and Ecological Communities. September 10 – 12. "Ecometric modeling to reconstruct past environments." Cleveland, Ohio.

2015 Invited Speaker, Department of Geology, University of Oregon. May 20. "Conservation paleobiology and the phylogenetic comparative method." Eugene, OR.

2015 Contributed presentation at the 7th International Biogeography Conference. January 8-12 "Including fossils in phylogenetic climate reconstructions: A deep time perspective on climate niche evolution and diversification of Spiny Lizards (*Sceloporus*)." Bayreuth, Germany

2014 Invited Speaker, Armour Research Seminar Series, Field Museum. June 4. "Fossils, phylogenies, and climate: calibrating the geographic response of species to climate change." Chicago, IL.

2013 Invited Speaker, Bioinformatics Symposium, UT El Paso. "Integrated climate change biology: using the past to predict future species response to climate change." El Paso, TX

2013 Invited Speaker, Society for the Advancement of Chicanos and Native Americans in the Sciences. "How species respond to climate change." San Antonio, TX

2013 Invited Speaker, Texas A&M University. "Integrated climate change biology: using the past to predict future species response to climate change." College Station, TX.

2013 Invited Speaker, The Convergence of Conservation Paleontology and Biogeography Plenary Symposium at the 6th International Biogeography Conference. "Using the past to inform future expectations of species response to climate change." Miami, FL

2012 Invited Speaker, St. Louis University. "The biology of climate change: Integrating aspects of ecology, evolution, paleontology, and climate science." St. Louis, MO

CONTRIBUTED PRESENTATIONS

2019 Co-author, Society of Vertebrate Paleontology. October 9 - 12. "Snake vertebral shape as an ecometric method, and its implications for snake distributions at local to regional scales." Brisbane, Australia.

2019 Co-author. Community limb morphology of Artiodactyla as an environmental predictor. International Congress of Vertebrate Morphology. Prague, Czech Republic. *Journal of Morphology* 280(S1):S217.

2019 Co-author. Predicting paleoenvironment from community morphology of artiodactyl limbs to understand change through time. North American Paleontological Convention. Riverside, CA. *PaleoBios* 36(S1):323.

2019 Co-author. Limb morphology of large mammal communities as an environmental predictor. Ecological Integration Symposium. College Station, TX.

2018 Co-author, Geological Society of America Meetings. November 4 - 7. "Developing Ecometrics via Middle Trunk Vertebral Morphology in North American Snakes." Indianapolis, Indiana.

2018 Co-author. Society of Vertebrate Paleontology Annual Meeting, October 17 - 20. "Building a backbone for snake ecometrics using middle trunk vertebral morphology." Albuquerque, New Mexico.

2018 Co-author. Society of Vertebrate Paleontology Annual Meeting, October 17 - 20. "Comparison of inference approaches for ecometric analyses: Using hypsodonty to estimate precipitation." Albuquerque, New Mexico.

2017 Contributed talk, Society of Vertebrate Paleontology Annual Meeting. August 23 – 26. "Occupancy models in paleoecology." Calgary, Alberta.

2017 Contributed talk, iCCB Workshop, Traits Past, Present and Future. March 6. "Building an ecometric with maximum likelihood estimation." Nairobi, Kenya.
2015 Co-author. Society of Vertebrate Paleontology Annual Meeting. October 14 – 17. "Form, function, and clade sorting: a phylogenetic and ecological analysis of carnivoran tarsal evolution using 3D data." Dallas, TX.
2013 NIMBioS Interdisciplinary Seminar Series, University of Tennessee. "Species geographic response to past climate change and the evolution of multivariate systems." Knoxville, TN
2012 EEB Brown Bag, Dept of Biology, IU. "The geographic response of species to climate and environmental change through time." Bloomington, IN
2011 Evolution Meeting. "Modeling the past to understand the future of species' response to climate change using comparative methods, climate envelopes, and paleoclimate." Norman, OK
2011 Contributed presentation to the 5th International Biogeography Conference. "Pleistocene climate and phylogeny predict 21st century changes in rattlesnake distributions." Iraklion, Greece
2011 Crossroads Geology Conference. "Comparative ecometrics in terrestrial vertebrate carnivores: A tale of two groups." Bloomington, IN
2011 Society of Vertebrate Paleontology. "Standing up to climate change: Community locomotor ecomorphology and paleoenvironment in the Plio-Pleistocene." Las Vegas, NV
2010 Society of Vertebrate Paleontology. "Modelling effects of Pleistocene climate cycles on species' distribution: Implications for the near future." Pittsburg, PA 2010
2010 Society of Vertebrate Paleontology. "Comparative evolutionary ecological morphology of locomotion in terrestrial vertebrate carnivores." Pittsburg, PA
2010 The Third International Paleo Congress. "Testable paleophylogeographic models and species' response to climate change." London, UK
2010 Cross Roads Geology Conference, "Towards a continuous-time prediction of past species distributions: climate change, geographic sorting, and testable paleophylogeographic models." Bloomington, IN
2009 IGERT Current Frontiers in Evolution, Development, and Genomics, "Cats in the trees, snakes in the grass: Ecological morphology of locomotion in terrestrial vertebrate carnivores." IU, Bloomington, IN
2009 Society of Vertebrate Paleontology. "Ecomorphology as a predictor of modern and palaeoenvironment in snakes." Bristol, UK
2009 Joint Meeting of Ichthyologists and Herpetologists, "Phenotypic evolution in insular speckled rattlesnakes (Viperidae: *Crotalus mitchellii*)." Portland, OR
2009 Cross Roads Geology Conference, "Using ecological niche models to explore paleobiogeographic patterns." Bloomington, IN
2008 Society of Vertebrate Paleontology. "Using ecological niche models to explore paleobiogeographic patterns." Cleveland, OH
2008 Natural History Collections in the 21st Century, "Building ecological models from collections data." Indiana University, Bloomington, IN
2005 Conservation, Ecology, and Evolutionary Biology Student Research Symposium, "Trends in conservation research." Texas A&M University. College Station, TX

WORKSHOPS AND WORKING GROUPS

Working Group - Invited (December 2019). Reintegrating biology. Funded by NSF. Austin, TX.
Workshop Participant - Invited (September 2019). NOAA Restore Science Co-Production Workshop. Funded by NOAA. San Marcos, TX
Working Group (June 2019). Conservation Paleontology in East Africa. Funded by International Union of Biological Sciences - integrated Climate Change Biology Program. National Museums of Kenya. Nairobi, Kenya.

Working Group (December 2018). Conservation Paleontology in East Africa. Funded by International Union of Biological Sciences - integrated Climate Change Biology Program. Hosted by Johannes Müller. Berlin, Germany

Working Group (May 2018). Conservation Paleontology in East Africa. Funded by International Union of Biological Sciences - integrated Climate Change Biology Program. Hosted by Jason J. Head. Museum of Zoology, Cambridge, UK

Steering Committee Meeting (December 2017). Integrated Climate Change Biology Program New Directions. Funded by International Union of Biological Sciences - integrated Climate Change Biology Program. Hosted by Johannes Müller. Berlin, Germany

Investigative Workshop (May 2017). Species range shifts in a warming world. Funded by the National Institute of Mathematical and Biological Synthesis (NIMBioS). Knoxville, TN. Co-Organizer.

Working Group and Training Workshop (March 2017). Traits Past, Present, and future: Quantitative approaches to conservation and climate change biology in Africa. Funded by International Union of Biological Sciences - integrated Climate Change Biology Program. National Museums of Kenya. Nairobi, Kenya. Co-Organizer.

Working Group (March 2016 and May 2015). Dispersal Biogeography. Funded by NIMBioS. Knoxville, TN. Participant.

Working Group (September 2015). Conserving Terrestrial Ecosystems in a Changing World. Funded by International Union of Biological Sciences - integrated Climate Change Biology Program. Berkeley, CA. Participant.

Symposium Participant. (September 2015). New Methods in Reconstructing Paleoenvironments in the Cenozoic. Cleveland, OH.

Working Group Participant (November 2014). Ecometrics and Ecosystem Services. Funded by International Union of Biological Sciences - integrated Climate Change Biology Program. Helsinki, Finland.

SVP Symposium Co-Organizer (November 2014). Ecometrics: quantitative trait-based approaches to biotic change. SVP 74th Annual Meeting. Berlin, Germany.

Short-term Visitor (June 2014). Conservation in context: Combining biogeography and species traits to mechanistically model population spread under climate change. Funded by NIMBioS. Knoxville, TN.

Invited Working Group Participant (May 2014). Synthesis Center of Biodiversity Sciences (sDiv) Workshop: Integrating Phylogenies, Fossils and Earth System Dynamics. Leipzig, Germany.

Working Group Host and Co-Organizer (April 2014). "Traits in Texas: Ecometrics, phylogenies, fossils, and biotic change." Funded by iCCB - IUBS. College Station, Texas.

NCEAS Summer Institute (2013). Intensive three-week training workshop in ecological analysis and synthesis for early-career researchers funded by Packard Foundation. Santa Barbara, CA

Working Group Participant (September 2012). "Traits, niches, and climate as common coinage." Funded by iCCB - IUBS. Birmensdorf, Switzerland.

UNIVERSITY COURSES TAUGHT

2021	Modeling Ecological Niches and Species Distributions (ECCB 689)
2014 - 2021	Advanced GIS for Natural Resource Management (ESSM 462)
2015 - 2020	Spatial Project Management (ESSM 464)
2017	Phylogenetic Comparative Methods (EEBL 606)
2016	Italy Study Abroad: Spatial Analysis for International Natural Resource Problems (ESSM 489)
2015 - 2017	Open Source for Open Science (EEBL 612)
2015	Quantitative Methods in Ecology, Evolution, and Biogeography (ESSM 689)
2012	Dinosaurs and their relatives (G116), Indiana University

PROFESSIONAL COURSES TAUGHT

Geometric Morphometrics, Paleobiology Database Intensive Summer Course in Analytical Paleobiology, Macquarie University, Sydney, Australia. 12 students from Europe, US, India, and South America. 5 days in July 2010.

GUEST LECTURES

Outreach: Informal STEM Learning. Ecosystem Science and Management, Texas A&M University (September 2019). "Informal Learning Activities, Relevant Models and Frameworks."

Quantitative Phylogenetics. Wildlife and Fisheries Sciences and Entomology, Texas A&M University (April 2016). "Phylogenetic Comparative Methods."

Ecological Genomics, Ecosystem Science and Management, Texas A&M University (January 2016). "An introduction to R."

Paleoecology, Department of Geological Sciences, Indiana University (April 2010). "Ecospace utilization through time."

Geobiology, Department of Geological Sciences, Indiana University (November 2009). "Paleobiogeography: niche modelling, niche evolution, community structure and the Paleobiology Database."

UNIVERSITY COURSES ASSISTED

Biology Laboratory, Department of Biology, Indiana University (2009)
Stratigraphy and Sedimentology, Department of Geological Sciences, Indiana University (2008)
Zoology, Department of Biology, Univ. of Texas, Arlington (2006-2007)
Evolution, Ecology, and Biodiversity, Department of Biology, Univ. of Texas, Arlington (2006-2007)
Structure and Function of Organisms, Department of Biology, Univ. of Texas, Arlington (2005)
Cellular and Molecular Biology, Department of Biology, Univ. of Texas, Arlington (2004)

RESEARCH SUPERVISION

Graduated Ph.D. students, chair

Rachel Short, Texas A&M University, Ph.D. Candidate, current student, 2016 - 2020. Paleobiology of mammals using functional trait-environment relationships across space and through time for conservation and public understanding of science.

Leila Siciliano-Martina, Texas A&M University, Ph.D., current student, 2016 - 2020. Variation in the skull morphology between captive and wild mammals. Co-advised with Dr. Jessica Light.

Graduated M.S. students, chair

Chase Brooke, Texas A&M University, Masters, 2015 - 2017. Identifying controls on wildland fire in the south-central US.

Wesley Vermillion, Texas A&M University, Masters non-thesis, 2014 - 2016. Ecometrics: A trait-based approach to paleoclimate and paleoenvironmental reconstruction.

Graduated Ph.D. committee, member

Jenny Oakley, Texas A&M University, Ph.D., Spring 2020
Justin Hilliard, Texas A&M University, Ph.D., Spring 2020
Nikki Roach, Texas A&M University, Ph.D., Spring 2020
Kristina Chyn, Texas A&M University, Ph.D., Fall 2019
Adrian Castellanos, Texas A&M University, Ph.D., Fall 2019
Whitney Preisser, Texas A&M University, Ph.D., Summer 2019
Edwin Lopez Delgado, Texas A&M University, Ph.D., Spring 2019

James Tracy, Texas A&M University, Ph.D., Fall 2018
Tan Zhou, Texas A&M University, Ph.D., Fall 2017
Rosaleen March, Texas A&M University, Ph.D., Fall 2015

Graduated M.S. committee, member
Erin Novak, Texas A&M University, Masters, Fall 2020
Brandon Bowers, Texas A&M University, Masters, Fall 2020
Eileah Sims, Texas A&M University, Masters, Spring 2020
Max Morris, Texas A&M University, Masters, Spring 2019
Maegan Fitzgerald, Texas A&M University, Masters, Summer 2017
Timothy Garrett, Texas A&M University, Masters non-thesis, Summer 2017
Oona Takano, Texas A&M University, Masters, Spring 2016

Current Ph.D and M.S. students, chair
John Jacisin, Texas A&M University, Ph.D. Candidate, current student, expected completion Spring 2021. Mid-trunk vertebral morphology in North American snakes as a tool for delineating species and understanding snake faunal dynamics in changing environments of the past, present, and future.
Louis Addae-Wireko, Texas A&M University, Ph.D. Candidate, current student, expected Spring 2021. The effects of climate change on species geographic distributions, community composition, and functional traits.
James West, Texas A&M University, M.S., current student, expected completion Spring 2021.
Breann Richey, Texas A&M University, Ph.D. student, Ecology and Evolutionary Biology Interdisciplinary Degree Program. Co-advised with Dr. Gil Rosenthal.
R. Peter Dorn, Texas A&M University, Ph.D. student, Ecology and Evolutionary Biology Interdisciplinary Degree Program. Co-advised with Dr. Joe Veldman.

Current research Ph.D. and M.S. committee, member
Jordan Rogan, Texas A&M University, Ph.D., expected completion Fall 2021
Michelle Chrpa, Texas A&M University, Ph.D., expected completion Fall 2021
Andrew Evans, Texas A&M University, Ph.D., expected completion Fall 2021
Alyssa Schultz, Texas A&M University, Ph.D.
Zachary D. Steffensmeier, Texas A&M University, Ph.D.
Katie Sanbonmatsu, Texas A&M University, Ph.D.
Kyle Simpson, Texas A&M University, Ph.D.
Meng Liu, Texas A&M University, Ph.D.
Clifton E. Virgil, Texas A&M University, M.S.
Emily Dowdy, Texas A&M University, M.S.

Undergraduate students gaining lab experiences
Allison Hay, Texas A&M University, 2019
Courtney Bartlett, Texas A&M University, 2019
Katherine Pinson, Texas A&M University, 2019
Anette Santella, Texas A&M University, 2019
Aliana Hale, Texas A&M University, 2018
S. Kyle Brown, Texas A&M University, 2018
Maria Ferraro, Texas A&M University, 2018
Daniel Warfield, Texas A&M University, 2018
Oliver Taylor, Texas A&M University, 2018
Emily Spears, Texas A&M University, 2016 - 2017
Walter Holms, Texas A&M University, 2015 - 2017

Postdoctoral Research Associates
Rachel A. Short, Texas A&M University, 2020 - 2022.

Elizabeth A. Reinke, Texas A&M University, 2018.

SOCIETY MEMBERSHIPS

International Union of Biological Sciences (IUBS): section Integrated Climate Change Biology (iCCB) – Group Leader (2015 – 2019), IUBS: section Conservation Paleobiology in Africa (CPiA) – Executive Steering Committee (2020 – 2023), International Biogeography Society (IBS), Society for the Study of Evolution, Association of Geographers, Geological Society of America, Sigma Gamma Epsilon, Sigma Xi, Society of Vertebrate Paleontology, American Society of Naturalists

MANUSCRIPT REVIEWER

Acta Palaeontologica Polonica
American Naturalist
Biological Invasions
Biology Letters
Biological Journal of the Linnean Society
Botanical Journal of the Linnean Society
Diversity and Distributions
Ecography
Evolution
Frontiers of Biogeography
Global Change Biology
International Journal of Climatology
Journal of Animal Ecology
Journal of Biogeography
Methods in Ecology and Evolution
Palaeogeography, Palaeoclimatology, Paleoaecology
Proceedings of the National Academy of Sciences
Proceedings of the Royal Society B
Physical Geography
Quaternary Research
Scientific Reports
Zoology

SERVICE

2021 – present	Alternate member on the IUCN Red List Committee for the Texas A&M University partnership with the IUCN Red List, Strategic Planning for the Red List
2020 – present	*Communications Biology* Editorial Board Member
2020 – present	Undergraduate Curriculum Committee, Department of Ecology and Conservation Biology
2020 – present	Committee on Bylaws, Department of Ecology and Conservation Biology
2020	Organizing biweekly working group meetings on Antiracism, Equity, and Inclusion
2019	NSF Panelist for Division of Environmental Biology
2016 – 2020	Collecting evidence of program learning outcomes for Spatial Science majors from my advanced undergraduate courses in ESSM
2015 – 2020	Graduate Admissions Committee, Ecosystem Science and Management
2015 – 2021	Curriculum Committee, Applied Biodiversity Sciences NSF-IGERT Program
2014 – 2019	Group Leader, integrated Climate Change Biology (iCCB) Initiative, International Union of Biological Sciences
2017 – 2018	ESSM Search Committee for Assistant Professor in Plant Systematics/Phylogenetics
2016 – 2018	Advisory Board Member to Centro de Investigaciones Cientificas de las Huastecas Aguazarcas, Calnali (CICHAZ).
2016 – 2017	Reviewer for University Research Fellowships for The Royal Society, the independent scientific academy of the UK and the Commonwealth
2015 – 2017	Executive Committee, Education Chair, Ecology and Evolutionary Biology Ph.D. Interdisciplinary Departmental Program
2017	NSF Panelist for Division of Environmental Biology
2016	Committee service to review requests for Endowed Professorship positions, Ecosystem Science and Management, Texas A&M University

2016	Grant Outside Reviewer for Phi Sigma Society (Biological Science Honor Society), University of Texas at Arlington
2015	Nomination to serve Intergovernmental Platform on Biodiversity & Ecosystem Services (IPBES) Panel for Scoping the State of Biodiversity
2014	Served on a faculty panel for the New Faculty Institute at Texas A&M University
2012 – 2014	Secretary, integrated Climate Change Biology (iCCB) Initiative, International Union of Biological Sciences
2011 – 2012	Fundraising, organization and implementation of the 1st and 2nd Annual Sigma Gamma Epsilon Student Grant for Excellence in Research, Department of Geological Science, IU, Bloomington, IN.

OUTREACH

2019 – 2020	Booth on ecomorphology and ecoregions at EEB Darwin Day event for Bryan-College Station, TX community outreach.
2018	Scientist in the classroom (2nd grade), Eggsperiment, College Hills Elementary, College Station, TX
2018	April 13, Guyer high school student interview on biological response to climate change, Denton, TX
2016 – 2017	Organized and implemented Darwin Day event for the public, College Station, TX
2014 – 2017	Organized and implemented Open Source for Open Science, free bootcamp to learn the R Statistical Programing language
2013	October 10, Invited presentation at a minority serving institution, visited with faculty and students to strengthen ties between UTEP and NIMBioS
2013	October 3-6, Invited presentation to undergraduate minorities in the sciences at SACNAS (Society for the Advancement of Chicanos/Hispanics and Native Americans in the Sciences) annual meeting San Antonio, TX
2013	June 6, Adventures in STEM: a science, math, and engineering camp for middle school girls in Knoxville, TN
2013	March 20, Girls in STEM launch event for female students in high school L&N High School STEM Academy in Knoxville, TN
2010 – 2012	Dino Day at Wonder Lab, The museum of science health and technology in Bloomington, IN
2009	Brownie Math & Science Day, 4th grade female students, Bloomington, IN
2008 – 2010	Science Olympiad (Paleontology) for high school students, Bloomington, IN