

KIERSTEN K. FORMOSO

Assistant Professor · Rutgers University

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EDUCATION

Ph.D., Geological Sciences	2018 – 2023
<i>University of Southern California, Los Angeles, CA</i>	
Graduate Studies, Geosciences (no degree obtained)	2016 – 2017
<i>Virginia Tech, Blacksburg, VA</i>	
B.Sc., Ecology, Evolution, and Natural Resources; Minor in Music	2012 – 2016
<i>Rutgers University, New Brunswick, NJ</i>	

EMPLOYMENT HISTORY

Assistant Professor	2026 – present
<i>Rutgers University, Department of Ecology, Evolution, and Natural Resources</i>	
Presidential Postdoctoral Fellow	2024 – 2025
<i>Rutgers University, Department of Ecology, Evolution, and Natural Resources</i>	
Teaching Assistant	2018, 2019, & 2023
<i>University of Southern California, Department of Earth Sciences</i>	

AFFILIATIONS

Research Associate	2024 – present
<i>American Museum of Natural History, Division of Paleontology</i>	
Research Associate	2020 – 2023
<i>Natural History Museum of Los Angeles County, Dinosaur Institute</i>	

AWARDS, HONORS, AND RECOGNITION

Forbes 30 Under 30	2023
Best Student Poster	2022
<i>Paleontological Society, Geological Society of America Annual Meeting</i>	
Best Lightning Talk	2022
<i>Palaeontological Association Annual Meeting</i>	
Inaugural Communicator of the Year (PhD Student Category)	2022
<i>University of Southern California, Dornsife College of Letters, Arts & Sciences</i>	
Steven Vogel Award	2022
<i>Society of Integrative and Comparative Biology (SICB) Annual Meeting</i>	
Liem Award for Best Student Poster	2022
<i>Society of Integrative and Comparative Biology (SICB) Annual Meeting</i>	
Albert E. Wood Award	2021
<i>Society of Vertebrate Paleontology (SVP)</i>	
Winnifred Goldring Award	2020
<i>Association for Women Geoscientists (AWG)</i>	
Student Research Prize	2019
<i>USC Paleosciences Research Consortium (PRC)</i>	
P. Smouse Award for Outstanding Student in Evolution	2016
<i>Rutgers University, Department of Ecology, Evolution, and Natural Resources</i>	

Scholarship

SUBMITTED GRANTS

IntBIO:LIFE: Convergent Evolution of Motor Primitives. How Evolution Repeatedly Discovered Optimal Solutions for Limbed Locomotion (NSF)

EXTERNAL GRANTS AND FELLOWSHIPS

Total amount of funding received: \$155,000

Norman Newell Early Career Grant <i>Paleontological Society—\$5,000</i>	2026
Graduate Research Fellowship (NSF GRFP) <i>National Science Foundation—\$138,000</i>	2018 – 2023
Fellowship for Graduate Student Travel <i>Society of Integrative and Comparative Biology—\$2,500</i>	2022
Graduate Student Research Grant <i>Geological Society of America (GSA)—\$2,000</i>	2021
Student Research Grant <i>Paleontological Society—\$1,000</i>	2020
Student Research Grant <i>Evolving Earth Foundation—\$3,500</i>	2020
Student Travel Grant <i>GSA Cordilleran Section—\$500</i>	2019
Graduate Student Research Grant <i>Geological Society of America (GSA)—\$2,000</i>	2017
Student Travel Grant <i>Jackson School of Geosciences—\$500</i>	2017

PUBLICATIONS

Total Citations: 219 | h-index: 4 (Google Scholar)

Peer Reviewed

6. **Formoso, K. K.**, Hebdon, N., Fish, F. E., Cieri, R., Habib, M. B. (In Press). Mosasaur tail morphology reveals burst swimming performance and ecological diversity. *Current Biology*.
5. Cribb, A. T.,* **Formoso, K. K.**,* Woolley, C. H., Beech, J., Brophy, S., Byrne, P., Cassady, V.C., Godbold, A.L., Larina, E., Maxeiner, P. P., Wu, Y.H., Corsetti, F. A., & Bottjer, D. J. (2023). Contrasting terrestrial and marine ecospace dynamics after the end-Triassic mass extinction event. *Proceedings of the Royal Society B*, 290(2023), 20232232. <https://doi.org/10.1098/rspb.2023.2232> (*co-first-authors)
4. **Formoso, K. K.**, Habib, M. B., & Vélez-Juarbe, J. (2023). The Role of Locomotory Ancestry on Secondarily Aquatic Transitions. *Integrative and Comparative Biology*, 63(6), 1140–1153. <https://doi.org/10.1093/icb/icad112>
3. Sereno, P. C., Myhrvold, N., Henderson, D. M., Fish, F. E., Vidal, D., Baumgart, S. L., Keillor, T. M., **Formoso, K. K.**, & Conroy, L. L. (2022). Spinosaurus is not an aquatic dinosaur. *eLife*, 11, e80092. <https://doi.org/10.7554/eLife.80092>
2. Griffin, C. T., Stocker, M. R., Colleary, C., Stefanic, C. M., Lessner, E. J., Riegler, M., **Formoso, K.**, Koeller, K., & Nesbitt, S. J. (2021). Assessing ontogenetic maturity in extinct saurian reptiles. *Biological Reviews*, 96(2), 470–525. <https://doi.org/10.1111/brv.12666>
1. **Formoso, K.**, Nesbitt, S. J., Pritchard, A. C., Stocker, M. R., & Parker, W. G. (2019). A long-necked tanystropheid from the Middle Triassic Moenkopi Formation (Anisian) provides insights into the ecology and biogeography of tanystropheids. *Palaeontologia Electronica*, 22, 1–15. <https://doi.org/10.26879/988>

Non-Peer-Reviewed

3. **Formoso, K.** Three ideas to inspire curiosity in natural history education. *Nat. Rev. Biodivers.* (2026). <https://doi.org/10.1038/s44358-026-00211-8>

2. “Dinosaur Explorer: A Search-and-Find Book,” by Kiersten Formoso, illustrated by Hannah Abbo. Neon Squid / Macmillan Publishers. Release date: 2027.
1. “Godzilla vs. Kong: A functional morphologist uses science to pick a winner.” (2021) theconversation.com

In Preparation

Formoso, K. K., Lloyd, G., Habib, M. B., Vélez-Juarbe, J., Bottjer, D. Constraint and release in axial and appendicular modules of secondarily aquatic amniotes. In prep for *Science Advances*.

Formoso, K. K., Giljarhus, K. E. T., Flammang, B. Surface swimming drag of terrestrial amniotes and insights into secondarily aquatic transformations and lack thereof. In prep for *Journal of Experimental Biology*.

Ghosh, N., Gruszka, P., Woolley, H. C., **Formoso, K. K.**, Cribb, A. T. Comparing ecological signatures of ancient and modern extinction. In prep for *Current Biology*.

CONFERENCE ABSTRACTS AND PRESENTATIONS

† = poster presentation

Shape evolution of the proximal humerus tracks the emergence of underwater flight in penguins **Nov 30 – Dec 3, 2026**

Formoso, K., Thomas, D., Ksepka, D. — 7th International Palaeontological Congress (IPC7), Cape Town, South Africa

Crescent rising: humeral head morphology and the evolution of underwater flight in penguins **Nov 11 – 14, 2026**

Formoso, K., Thomas, D., Ksepka, D. — Society of Vertebrate Paleontology, 86th Annual Meeting, Cleveland, OH

Crescent rising: humeral head morphology and the evolution of underwater flight in penguins **Nov 12 – 15, 2025**

Formoso, K., Flammang, B., Giljarhus, K.E.T. — Society of Vertebrate Paleontology, 85th Annual Meeting, Birmingham, UK

Correlations between degree of axial and appendicular change, derived swimming style, and ancestral terrestrial state in secondarily aquatic amniotes **June 25 – 28, 2024**

Formoso, K. — SECAD (Secondary Adaptation of Tetrapods to Life in Water), Liège, Belgium

Axial morphology may drive swimming style in secondarily aquatic tetrapods **Jan 3 – 7, 2023**

Formoso, K. — Society of Integrative and Comparative Biology Annual Meeting, Austin, TX

Correlations between degree of axial and appendicular change, derived swimming style, and ancestral terrestrial state in secondarily aquatic amniotes **Oct 18 – 21, 2023**

Formoso, K. — Society of Vertebrate Paleontology, 83rd Annual Meeting, Cincinnati, OH

Selected for the Romer Prize Session for best student oral presentation.

Appendicular and axial modular change reveals different routes taken by secondarily aquatic reptiles and mammals **July 18 – 24, 2022**

Formoso, K., Lloyd, G., Bottjer, D. — Paleontological Association Annual Meeting, Cork, Ireland

Won Best Lightning Talk.

† Mosasaurs and Their Relative Burst and Cruise Capabilities **Oct 9 – 12, 2022**

Formoso, K. — Geological Society of America, GSA Connects, Denver, CO

Won Best Student Poster.

† A functional matrix approach in comparing secondarily aquatic transitions across clades **Jan 3 – 7, 2022**

Formoso, K. — Society of Integrative and Comparative Biology Annual Meeting, Phoenix, AZ / SICB+ Virtual

Won Liem Award for Best Student Poster.

Decoupled Terrestrial and Marine Ecological Recovery after the End-Triassic Mass Extinction **Oct 9 – 12, 2022**

Cribb, A., Formoso, K., Woolley, C., Beech, J., Brophy, S., Byrne, P.J., Cassady, V., Godbold, A., Larina, E., Maxeiner, P., Wu, Y., Corsetti, F., Bottjer, D. — Geological Society of America, GSA Connects, Denver, CO

† Potential constraint and release driven by ancestral terrestrial posture in land-to-sea transitions: Insights from forelimbs across four land-to-sea amniote clades **Jan 3 – Feb 28, 2021**

Formoso, K. — Society of Integrative and Comparative Biology Annual Meeting, Virtual

† Changes in limb and body proportions and major habitat shifts in Crocodylomorpha **2021**

Foffa, D., Johnson, M.M., Schwab, J. A., Formoso, K.K., Young, M.T. — SECAD (Secondary Adaptation of Tetrapods to Life in Water), Online

Terrestrial posture and its controls on secondarily aquatic amniote evolution: forelimb changes in land-to-sea lineages **Oct 12 – 16, 2020**

Formoso, K. — Society of Vertebrate Paleontology, 80th Annual Meeting, Virtual

- Reassessment of the Mosasaur Pectoral Girdle and its Role in Aquatic Locomotion** **Sept 22 – 25, 2019**
Formoso, K., Habib, M.B., Bottjer, D.J. — Geological Society of America Annual Meeting, Phoenix, AZ
- Reassessing the mosasaur pectoral girdle and its role in swimming function: not entirely whale-like after all** **Oct 9 – 12, 2019**
Formoso, K., Habib, M.B., Bottjer, D.J. — Society of Vertebrate Paleontology, 79th Annual Meeting, Brisbane, Australia
- A long-necked tanystropheid from the Middle Triassic southwest United States and its implications for the evolution and ecomorphology of archosauromorphs** **March 30, 2018**
Formoso, K.K., Nesbitt, S. J., Stocker, M. R., Pritchard, A. C., Parker, W. — Northeast Regional Vertebrate Evolution Symposium (NERVES), NYIT
- † A Long-necked Tanystropheid from the Middle Triassic Moenkopi Formation gives Insights into the Biogeography and Ecology of Tanystropheids** **Aug 23 – 26, 2017**
Formoso, K., Nesbitt, S. J., Stocker, M. R., Pritchard, A. C., Parker, W. — Society of Vertebrate Paleontology, 77th Annual Meeting, Calgary, Alberta
Selected for the Colbert Prize Session for best student poster.

INVITED PUBLIC TALKS, LECTURES, AND SEMINARS

† = public talk

- Title pending** **Oct 2026**
Rowan University, Department of Biological & Biomedical Sciences (BBS) Seminar Series, Glassboro, NJ
- Guest Lecture: Mesozoic Marine Reptiles** **Mar 18, 2026**
Princeton University, Department of Geosciences, Princeton, NJ
- † Dead in the Water: The Rise and Fall of Ocean Giants** **Aug 2026**
The Bruce Museum, Public Talk, Greenwich, CT
- † Keynote Talk: Science, Art, and the Fake Barrier in Between** **Apr 2025**
Nevada Museum of Art, STEAM Conference, Reno, NV
- † Inspiring the Impossible: Paleontology's Influence on Sci-Fi and Fantasy** **Apr 2025**
Nevada Museum of Art, Public Talk, Reno, NV
- † Going for a Swim: Influences of Terrestrial Ancestry on Land-to-Sea Transformations** **Apr 2025**
Royal Tyrrell Museum, Speaker Series, Drumheller, AB
- † Land Before Sea: Terrestrial Ancestry and Aquatic Morphology** **Jan 2025**
Natural History Museum of Utah, DinoFest, Salt Lake City, UT
- † The Way of Water: Functional Controls of Land-to-Sea Transformations** **Mar 2024**
Museum of the Rockies, Dinosaurs and MOR, Bozeman, MT
- Assessing the Role of Ancestral Terrestrial Morphology on the Land-to-Sea Transition in Secondarily Aquatic Amniotes** **Mar 2022**
Montana State University, Departmental Seminar, Bozeman, MT
- † Exploring the Locomotor Controls of the Land-to-Sea Transition Across Marine Reptiles and Mammals** **Feb 2021**
Burpee Museum's PaleoFest, Rockford, IL
- Investigating Controls of Ancestral Terrestrial Posture and Associative Locomotor Functions on Secondarily Aquatic Transitions in Quadrupedal Amniotes** **Jan 2021**
University of Washington PaleoLunch Seminar, Online
- Tanystropheids of the Triassic and Archosauromorph Radiation into Semi-Aquatic Environments** **June 2020**
University of Edinburgh Paleontology Group Seminar, Online

FIELD EXPERIENCE

Participant

- Ghost Ranch (Triassic)** **2021, 2022, 2024**
New Mexico
- Bears Ears National Monument (Jurassic, Triassic)** **2022**
Utah
- Bisti De-Na-Zin Wilderness (Late Cretaceous)** **2021**

New Mexico

Teaching and Mentoring

STUDENT ADVISING

Maia Klarin, 4+1 Master's Student, Earth and Planetary Sciences — co-advising

Leah Kapps, Undergraduate, George H. Cook Scholar — Honors Thesis reader

Informal mentoring: comprehensive paleontology career guidance for undergraduates in Ecology, Evolution, and Natural Resources (SEBS) and Earth and Planetary Sciences (SAS)

TEACHING

Assistant Professor Teaching and Development

Postdoctoral Teaching

Instructor — Vertebrate Zoology (11:216:325), 4 credits, 70 students 2025

Instructor — Topics in Ecology, Evolution, and Natural Resources (11:216:104), 1 credit 2024, 2026

Graduate Teaching and Development

Completed USC's Center for Excellence in Teaching (CET) Future Faculty Teaching Institute — 14-week course 2020

Teaching Assistant — History of Life: A View from the Museum, LAB (GEOL 126), University of Southern California 2019, 2023

Teaching Assistant — Planet Earth (GEOL 105), University of Southern California 2018

Teaching Assistant — Physical Geology Lab (GEOS 1104), Virginia Tech 2016 – 2017

Service and Outreach

PROFESSIONAL SERVICE

Subject Matter Expert (SME), U.S. Department of Homeland Security — identification of seized fossils 2026

NSF Proposal Panelist 2026

Division of Earth Sciences (EAR)

Search Committee Member 2026

Departmental hire, Program Coordinator, Experiential Biodiversity Learning

Lanzendorf-National Geographic Paleoart Prize Committee Member and Judge 2023 – present

Journal Peer Reviewer

PeerJ · Paleobiology · Scientific Reports

Session Chair — Technical Session 157, D20. Paleontology: Vertebrate Paleobiology I 2019

Geological Society of America Meeting

Session Chair — Technical Session X: Paleontological Practices 2025

Society of Vertebrate Paleontology, 85th Annual Meeting

PUBLIC OUTREACH AND EVENTS

Panelist, New York Comic Con—"Natural History of Monster Hunter," New York, NY 2025

Featured Speaker, Nerd Nite LA—"The Way of Water: The Evolution of Marine Tetrapods," Los Angeles, CA 2023

Featured Speaker, Paleo Chats—NHMLA's DinoFest, Los Angeles, CA 2022

Series Panelist, Field Museum Black History Month Seminar, Online 2022

"How to Make a Science Meme," SICB Science Communication Workshop, Online	2022
Guest Speaker on career path, Cal State San Bernardino (Hispanic-Serving Institution), Online	2022
Table and Specimen-Based Outreach, DinoFest, Natural History Museum of Los Angeles County (NHMLA)	2021
Guest Speaker, "Mosasaurs," Rutgers Geology Museum's "Ask a Geologist"	2020
Speaker, USC STEMbytes Seminar—accessible research talk for undergraduates interested in research and graduate school	2020
Guest Speaker, Mote Marine Laboratory and Aquarium STEMventure Online Summer Camp—ancient marine reptiles	2020
Represented USC Paleosciences, Raymond M. Alf Museum of Paleontology's annual "Fossil Fest"	2019 & 2020
Featured Panelist, Long Beach Comic Expo—"Pop Paleo" session on paleontology in popular culture	2020
"Land was just a phase! I'm not that tetrapod anymore," Nerd Nite LA	2019
Speaker, "Project Scientist"—research and personal journey for girls ages 4–12 interested in STEM	2019

CONSULTING, MEDIA, AND PUBLICITY

Television and Film

Series Consultant and Featured Scientist, <i>Evolution</i> , BBC and PBS	2026
Featured Scientist and Premiere Panelist— <i>Why Dinosaurs?</i> , Pinto Productions, PBS broadcast	2024
Episode Consultant and Featured Scientist— <i>Lost Beasts</i> , Season 2, Windfall Films	2024
Series Consultant and Featured Scientist—BBC and Apple TV+'s <i>Prehistoric Planet</i> Season 2	2023
Series Consultant and Featured Scientist — PBS NOVA's <i>Ancient Earth</i>	2023
Series Consultant — BBC and Apple TV+'s <i>Prehistoric Planet</i> Season 1	2022

Video Games

Consulted on the design of the *Tylosaurus* playable in the game *Path of Titans*, published by Alderon Games

Public Writing

Prehistoric Planet Discovering Dinosaurs program contributor, Lightroom, London (2025)—wrote a piece on mosasaurs for the physical exhibition program.

Media Coverage

"Forbes 30 Under 30." (2023) [forbes.com](https://www.forbes.com)

"These Prehistoric Sea Monsters Had a Mean Breast Stroke." Smithsonian Magazine. (2019)

Book Features

Featured in the interactive Amazon Alexa children's book "Discover: Dinosaurs," by Weldon Owen and John Long. Simon & Schuster (2025).

Featured in the children's book "Everything You Know About Dinosaurs is Wrong" by Dr. Nick Crumpton. Nosy Crow (2021).

Article Contributions

"Barney's makeover has dinosaur experts scratching their heads." (2023) [yahoo.com](https://www.yahoo.com)

"Spinosaurus had penguin-like bones, a sign of hunting underwater." National Geographic (2022) [nationalgeographic.com](https://www.nationalgeographic.com)

"Could dinosaurs swim? A new fossil reveals an age-old debate." National Geographic (2022) [nationalgeographic.com](https://www.nationalgeographic.com)

"When Coronavirus Closes Your Lab, Can Science Go On?" The New York Times (2020) [nytimes.com](https://www.nytimes.com)

Podcasts

See Jurassic Right, Back to School Series (2025)

Terrible Lizards, Marine Reptiles (2021)