

Evan Thomas Saitta

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Employment

The Field Museum of Natural History **2018-present**
Postdoctoral researcher, Integrative Research Center, Section of Earth Sciences
Supervisor: Dr. Peter Makovicky

Education

University of Bristol **2015-2018**
Ph.D. in Geology
Advisor: Dr. Jakob Vinther
Thesis: The taphonomy of soft tissues and the evolution of feathers

M.Sc. in Palaeobiology (*Distinction*) **2014-2015**
Advisor: Dr. Jakob Vinther
Thesis: The taphonomy of keratin in archosaurs

Princeton University **2010-2014**
B.A. in Ecology and Evolutionary Biology (*Magna Cum Laude*)
Advisor: Dr. James Gould
Thesis: Paleobiology of North American stegosaurs: Evidence for sexual dimorphism

Publications

Liang, R, Lau, MCY, Saitta, ET, Garvin, ZK, Onstott, TC (2020) Genome-centric resolution of novel microbial lineages in an excavated *Centrosaurus* dinosaur fossil bone from the Late Cretaceous of North America. *Environmental Microbiome* 15, 8. <https://doi.org/10.1186/s40793-020-00355-w>

Saitta, ET and Vinther, J (2019) A perspective on the evidence for keratin protein preservation in fossils: an issue of replication versus validation. *Palaeontologia Electronica* 22.3.2E, 1-30. <https://doi.org/10.26879/1017>

Roy, A, Pittman, M, Saitta, ET, Kaye, TG and Xu, X (2019) Recent advances in amniote palaeocolour reconstruction and a framework for future research. *Biological Reviews* 95(1), 22-50. <https://doi.org/10.1111/brv.12552>

Altmetric score: 69

Saitta, ET, Liang, R, Lau, MCY, Brown, CM, Longrich, NR, Kaye, TG, Novak, BJ, Salzberg, SL, Norell, MA, Abbott, GD, Dickinson, MR, Vinther, J, Bull, ID, Brooker, RA, Martin, P, Donohoe, P, Knowles, TDJ, Penkman, KEH, and Onstott, T (2019) Cretaceous dinosaur bone contains recent organic material and provides an environment conducive to microbial communities. *eLife* 8, e46205. <https://doi.org/10.7554/eLife.46205.001>

Altmetric score: 282

Saitta, ET, Fletcher, I, Martin, P, Pittman, M, Kaye, TG, True, LD, Norell, MA, Abbott, GD, Summons, RE, Penkman, K, and Vinther, J (2018) Preservation of feather fibers from the Late Cretaceous dinosaur *Shuvuuia deserti* raises concern about immunohistochemical analyses on fossils. *Organic Geochemistry* 125, 142-151. <https://doi.org/10.1016/j.orggeochem.2018.09.008>

Saitta, ET, Kaye, TG, and Vinther, J (2018) Sediment-encased maturation: a novel method for simulating diagenesis in organic fossil preservation. *Palaeontology* 62(1), 135-150. doi: <https://doi.org/10.1111/pala.12386>

Altmetric score: 199

Saitta, ET, Clapham, C, and Vinther, J (2018) Experimental subaqueous burial of a bird carcass and compaction of plumage. *Paläontologische Zeitschrift*, 1-6. doi: <https://doi.org/10.1007/s12542-018-0411-y>

Parry, LA, Smithwick, F, Norden, K, Saitta, ET, Lozano-Fernandez, J, Tanner, A, Bernard Caron, J, Edgecombe, GD, Briggs, DEG, and Vinther, J (2017) Soft-bodied fossils are not simply rotten carcasses – towards a holistic understanding of exceptional fossil preservation. *BioEssays* 40(1), 1700167. doi: 10.1002/bies.201700167

Saitta, ET, Gelernter, R, and Vinther, J (2017) Additional information on the primitive contour and wing feathering of paravian dinosaurs. *Palaeontology* 61(2), 273-288. doi: 10.1111/pala.12342

Altmetric score: 166

Saitta, ET, Rogers, CS, Brooker, RA, and Vinther, J (2017) Experimental taphonomy of keratin: a structural analysis of early taphonomic changes. *Palaios* 32(10), 647-657. doi:10.2110/palo.2017.051

Altmetric score: 35

Saitta, ET, Rogers, C, Brooker, RA, Abbott, GD, Kumar, S, O'Reilly, SS, Donohoe, P, Dutta, S, Summons, RE and Vinther, J (2017) Low fossilization potential of keratin protein revealed by experimental taphonomy. *Palaeontology* 60(4), 547-556. doi:10.1111/pala.12299

Altmetric score: 70

Smithwick, F, Mayr, G, Saitta, ET, Benton, M and Vinther, J (2017) On the purported presence of fossilised collagen fibres in an ichthyosaur and a theropod dinosaur. *Palaeontology* 60(3), 409-422. doi:10.1111/pala.12292

Mayr, G, Pittman, M, Saitta, E, Kaye, T, and Vinther, J (2016) Structure and homology of *Psittacosaurus* tail bristles. *Palaeontology* 59(6), 793-802. doi:10.1111/pala.12257

Altmetric score: 145

Saitta, ET (2015) Evidence for sexual dimorphism in the plated dinosaur *Stegosaurus mjosi* (Ornithischia, Stegosauria) from the Morrison Formation (Upper Jurassic) of western USA. *PLoS ONE* 10(4): e0123503. doi:10.1371/journal.pone.0123503

Altmetric score: 545

Saitta, ET, Stockdale, MT, Longrich, NR, Bonhomme, V, Benton, MJ, Cuthill, IC and Makovicky, PJ (In review) Sexual dimorphism in non-avian dinosaurs and other extinct taxa: the importance of effect size statistics in paleontology.

Saitta, ET, Vinther, J, Crisp, MK, Abbott, GD, Kaye, TG, Pittman, M, Bull, I, Fletcher, I, Chen, X, Collins, MJ, Sakalauskaite, J, Mackie, M, Dal Bello, F, Dickinson, MR, Stevenson, MA, Donohoe, P, Heck, PR, Demarchi, B and Penkman, KEH (In review) Non-avian dinosaur eggshell calcite contains ancient, endogenous amino acids.

Achievements and Grants

Paleontological Society Stephen Jay Gould Award	2017
The Daniel Pidgeon Fund	2017
■ The Geological Society research grant	
Bob Savage Memorial Fund	Received four times - 2016-2017
■ University of Bristol palaeobiology graduate student award	
Jackson Student Travel Grant	2016
■ Society of Vertebrate Paleontology award to support student travel to their annual meeting	
M.Sc. Award: Distinction (University of Bristol)	2015
University of Bristol Alumni Foundation Travel Grant	Received twice - 2015
■ University of Bristol student award to support conference attendance costs	
Magna Cum Laude (Princeton University)	2014
Elected to the Society of Sigma Xi	2014
Senior Thesis Poster Award in Behavior	2014
■ Granted by Princeton University's Department of Ecology and Evolutionary Biology	
Office of the Dean of the College Senior Thesis Research Funding	2013
■ Princeton University academic research grant	
Fred Fox Fund	2012
■ Princeton academic research award and grant through the Office of Religious Life at Princeton University	

Preprints

Saitta, ET, Liang, R, Lau, CY, Brown, CM, Longrich, NR, Kaye, TG, Novak, BJ, Salzberg, S, Donohoe, P, Dickinson, M, Vinther, J, Bull, ID, Brooker, RA, Martin, P, Abbott, GD, Knowles, TDJ, Penkman, K, and Onstott, TC (2018) Life inside a dinosaur bone: a thriving microbiome. *bioRxiv*. doi: <https://doi.org/10.1101/400176>

R Packages

'Momocs'. Authors: Vincent Bonhomme, Sandrine Picq, Julien Claude with suggestions and contributions from Cedric Gaucherel, Sarah Ivorra, Ricardo Kriebel, Neus Martinez, Marcelo Reginato, Evan Saitta, Norbert Telmon, Asher Wishkerman. 2015.

Teaching Assistance

Geobiology (University of Bristol)	Spring 2017
Geology 1: Evolution of Earth and Life (University of Bristol)	Spring 2017
Evolution of the Biosphere (University of Bristol)	Fall 2015
Environmental Geoscience: Climate and Ecology (University of Bristol)	Fall 2015

Academic Presentations

Society of Vertebrate Paleontology annual meeting

- Brisbane, Australia: Talk 10/2019
 - Sexual dimorphism in non-avian dinosaurs and other extinct taxa: the importance of effect size statistics in paleontology
- Albuquerque, New Mexico, USA: Talk (Romer Session) 10/2018
 - Molecular stability and mobility: Protein diagenesis in open and closed taphonomic systems
- Calgary, Alberta, Canada: Talk (Romer Session) 8/2017
 - Creating fossils in the lab: replicating fossilization using sediment-based maturation
- Salt Lake City, Utah, USA: Talk 10/2016
 - The taphonomy of keratin in archosaurs

Palaeontological Association annual meeting

- London, UK 12/2017
 - Talk: Approaching sexual dimorphism in non-avian dinosaurs and other extinct taxa
 - Poster: Life inside a dinosaur bone: a thriving microbiome
- Lyon, France 12/2016
 - Poster: Primitive contour feathers in paravian dinosaurs and the evolution of avian plumage
 - Informal talk: Taphonomy 2.0: Experimental P/T maturation using sediment as a taphonomic filter to investigate soft tissue preservation
- Cardiff, UK 12/2015
 - Poster: The taphonomy of keratin in archosaurs
 - Talk: Evidence for sexual dimorphism in the plated dinosaur *Stegosaurus mjosi* (Ornithischia, Stegosauria) from the Morrison Formation (Upper Jurassic) of western USA

International Workshop on Konservat-Lagerstätten

- Cork, Ireland: Talk 7/2017
 - Dinosaur eggshell calcite as a closed system: 'molecular Konservat-Lagerstätten'

Argonne National Laboratory

- Advanced Photon Source: Coffee Talk 8/2019
 - Exceptional fossils: feathers, soft tissues, and ancient molecules

Popular Science Articles

- The Conversation** 11/2017
- "How some dinosaur discoveries might be wishful scientific thinking"
- The Science Breaker (partner with Université de Genève)** 11/2019
- "Long-dead dinosaurs support new life"

Advising

Summer intern supervising (Field Museum)

2018, 2019

Radio and Podcast Appearances

The Skeptics Guide to the Universe	6/2019
■ Twenty-minute interview on the podcast discussing Saitta <i>et al.</i> (2019, <i>eLife</i>)	
Palaeocast	6/2019
■ Hour-long interview on the podcast discussing Saitta <i>et al.</i> (2019, <i>eLife</i>)	
These Vibes Are Too Cosmic	5/2018
■ Hour-long interview with Princeton, New Jersey, radio show on my research in general	
BBC Radio: National and Bristol	4/2015
■ Interviews discussing Saitta (2015, <i>PLoS ONE</i>)	

Institutional Advancement

Field Encounters	11/2018
■ Talk given to Field Museum donors entitled "Creating synthetic fossils in the lab"	
Sue Celebration	1/2019
■ Presented my work to Field Museum members and donors	
Field Museum Donor Private Meeting	6/2019
■ Talk given to museum donors at a small breakfast meeting	
Field Museum Private Collections Tour	8/2019
■ Showcased oversized fossil collections to Chairman's Circle member	
Field Museum Members' Night	5/2019
■ Discussed my work with Field Museum members	
Field Museum Pop-up	6/2019
■ Informal meet and greet with Field Museum board members at downtown 'dig site' pop-up	

Public Outreach

Gloucester Museum "Dinosaurs" Talks and Workshops	9/2017
■ Feathers and colour in dinosaurs	
Bristol Dinosaur Project	2015
■ Educational outreach program directed at children	
Jurassic Quest	7/2014
■ Educational day directed at young children involving fossil displays	
The Billings Clinic	7/2013
■ Presented to TV/print media and the public about use of CT scanner for undergraduate thesis	
Princeton Undergraduate Research and Public Service Symposium	2013
■ Alumni Day showcase of independent research	

Societies and Groups

The Society of Vertebrate Paleontology	2013-present
The Palaeontological Association	2015-present
The Paleontological Society	2010-present
DinoSoc - University of Bristol student paleontology society	2014-2017
Bristol University Geology and Geoscience Society	2014-2017
Princeton Undergraduate Geosciences Society	2012-2014
myFOSSIL.org (Beta tester)	2015-present
Princeton University Varsity Track and Field	2010-2014
University of Bristol Athletics and Cross Country Club	2014-2018
University of Bristol Snowsports Club	2015-2018
Cannon Dial Elm Club - Princeton University eating club	2011-2014

Experience

Analytical experience:

- Museum collections research (fossil and modern reptiles, birds, fish, invertebrates, plants)
- R-based morphometrics, statistics, and data analysis
- Fossil bone histology
- CT scanning
- Decay and maturation experiments
- Scanning electron microscopy
- Energy-dispersive X-ray spectroscopy
- Pyrolysis-gas chromatography-mass spectrometry
- Laser stimulated fluorescence imaging
- Amino acid racemization analysis
- DNA and protein extraction
- Time-of-flight secondary ion mass spectrometry
- Radiocarbon analysis
- Attenuated total reflectance Fourier-transform infrared spectroscopy
- Synchrotron X-ray fluorescence
- Raman spectroscopy

Paleontological (prospecting and quarrying), geological, and biological field experience:

- Field Museum: Montana, Utah, Missouri, and Patagonia (Argentina)
- Royal Tyrell Museum: Dinosaur Provincial Park, Alberta (Canada)
- Royal Tyrell Museum Field Station (preparatory lab): Dinosaur Provincial Park, Alberta (Canada)
- Seven years of independent paleontological field and preparatory lab experience: Montana
- Princeton University: geology (Spain, France, Utah, New Mexico, the Catskills, Kentucky, Delaware Water Gap, and Yellowstone National Park) and biology (Bermuda and Yellowstone National Park)
- Dinosoc: UK

Museum collections experience and research visits:

- Field Museum of Natural History
- American Museum of Natural History
- Senckenberg Naturmuseum Frankfurt (Germany)
- Paläontologische Museum München (Germany)
- Smithsonian National Museum of Natural History
- Yale Peabody Museum
- Carnegie Museum of Natural History
- Dinosaur National Monument
- Denver Museum of Nature and Science
- Sauriermuseum Aathal (Switzerland)
- Natural History Museum of Utah
- Wyoming Dinosaur Center
- Brigham Young University Museum of Paleontology
- Museum of Western Colorado
- Virginia Museum of Natural History
- Black Hills Institute of Geologic Research
- Utah Field House of Natural History State Park Museum

Laboratory experience:

- Princeton University
- University of Bristol (UK)
- University of York (UK)
- University of Newcastle (UK)
- Foundation for Scientific Advancement
- Field Museum
- Northwestern University
- Argonne National Laboratory