

# Evan Thomas Saitta

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## Appointments

- The University of Chicago** 2021-present  
Postdoctoral Scholar, Biological Sciences Division, Department of Organismal Biology and Anatomy  
Supervisor: Dr. Paul Sereno
- The University of Illinois Chicago** 2022  
Adjunct Lecturer, Department of Earth and Environmental Sciences  
Course taught: EAES/BIOS 360 Introduction to Paleontology
- The Field Museum of Natural History** 2020-present  
Research Associate, Integrative Research Center, Life Sciences Section  
Postdoctoral Researcher, Integrative Research Center, Earth Sciences Section 2018-2020  
Supervisor: Dr. Peter Makovicky

## Education

- University of Bristol (UK)**  
Ph.D. in Geology 2015-2018 (viva), Jan. 2019 (graduation ceremony)  
Advisor: Dr. Jakob Vinther  
Thesis: The taphonomy of soft tissues and the evolution of feathers
- M.Sc. in Palaeobiology (*Distinction*) 2014-2015 (submission), Jan. 2016 (graduation ceremony)  
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

(Year indicates date of initial online publication)

- 16) Mayr, G, Kaye, TG, Pittman, M, Saitta, ET and Pott, C (2020) Reanalysis of putative ovarian follicles suggests that Early Cretaceous birds were feeding not breeding. *Scientific Reports*, 10, 19035. doi: <https://doi.org/10.1038/s41598-020-76078-2>
- 15) Saitta, ET, Stockdale, MT, Longrich, NR, Bonhomme, V, Benton, MJ, Cuthill, IC and Makovicky, PJ (2020) Invited Review: An effect size statistical framework for investigating sexual dimorphism in non-avian dinosaurs and other extinct taxa. *Biological Journal of the Linnean Society*, 1-43. doi: <https://doi.org/10.1093/biolinnean/blaa105> Altmetric score: 302
- 14) 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. doi: <https://doi.org/10.1186/s40793-020-00355-w> Altmetric score: 42
- 13) 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. doi: <https://doi.org/10.26879/1017>
- 12) 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. doi: <https://doi.org/10.1111/brv.12552> Altmetric score: 68
- 11) 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. doi: <https://doi.org/10.7554/eLife.46205.001> Altmetric score: 291
- 10) 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. doi: <https://doi.org/10.1016/j.orggeochem.2018.09.008>

9) [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: 205

8) [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>

7) 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

Altmetric score: 247

6) [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: 151

5) [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: 37

4) [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: 67

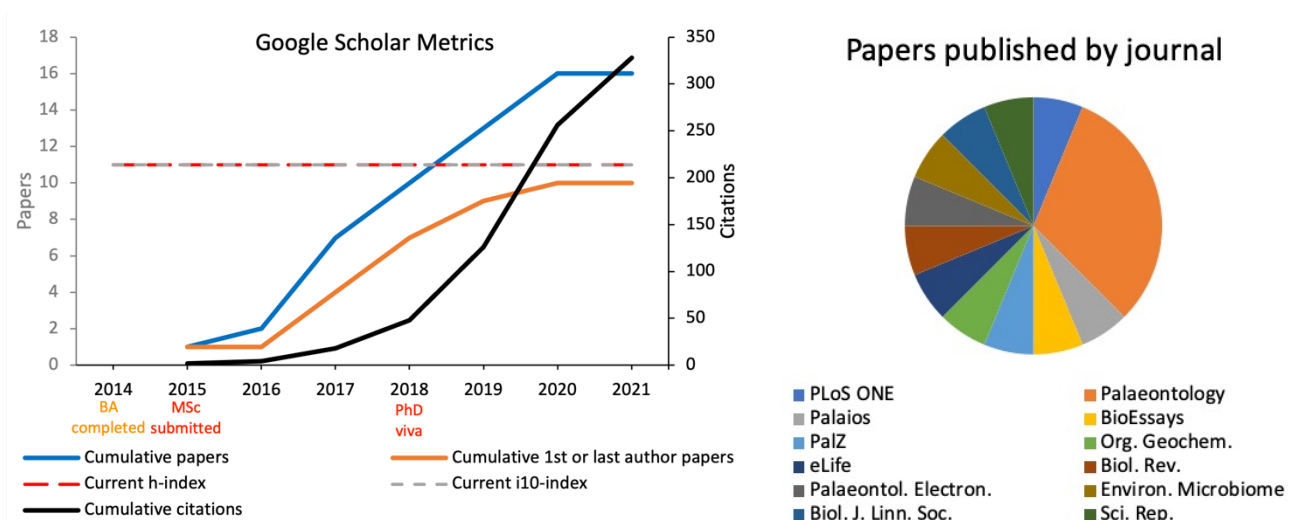
3) Smithwick, F, Mayr, G, [Saitta, ET](#), Benton, M and Vinther, J (2017) On the purported presence of fossilised collagen fibres in an ichthyosaur and a theropod dinosaur. *Palaeontology* 60(3), 409-422. doi: 10.1111/pala.12292

2) 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: 173

1) [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: 727



## Preprints

(\* indicates subsequent formal publication)

Roy, A, Pittman, M, Kaye, T and [Saitta, E](#) (2020) Sediment-encased pressure-temperature maturation experiments chemically simulate natural diagenesis of melanin. *Research Square*. doi: 10.21203/rs.3.rs-106894/v1

[Saitta, ET](#) (2020) The Society of Vertebrate Paleontology's publication policy is inconsistent with scientific epistemology. *PaleoXiv*. doi: 10.31233/osf.io/xmkhb

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 (2020) Non-avian dinosaur eggshell calcite contains ancient, endogenous amino acids. *bioRxiv*. doi: <https://doi.org/10.1101/2020.06.02.129999>

\* 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>

## Under Review

Roy, A, Pittman, M, Kaye, T and Saitta, ET (Under review) Sediment-encased pressure-temperature maturation experiments chemically simulate natural diagenesis of melanin. *Paleobiology*.

Longrich, NR, Makovicky, PJ, Tokaryk, T, Cooper, DML, Saitta, ET, Erickson, GM, Szekely, T and Snively, E (Under review) Hatchlings of *Tyrannosaurus rex* and the evolution of dinosaur reproductive strategies.

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

## 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.

## Achievements & Grants

The Palaeontological Association Research Grant	2022
Honoring Our Professors' Excellence (HOPE) Award	2022
University of Illinois Chicago Office of Campus Housing award as nominated by students	
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
Academic research award and grant through the Office of Religious Life at Princeton University	

## Teaching

Adjunct Lecturer (University of Illinois Chicago)	
Introduction to Paleontology EAES/BIOS 360	Spring 2022
Teaching Assistant (University of Bristol)	
Geobiology	Spring 2017
Geology 1: Evolution of Earth and Life	Spring 2017
Evolution of the Biosphere	Fall 2015
Environmental Geoscience: Climate and Ecology	Fall 2015

## Academic Presentations

(Lead presenter only)

### Society of Vertebrate Paleontology annual meeting

- \* Virtual Conference: Poster (abstract accepted but later withdrawn due to logistical conflict) 11/2021  
Relaxing selective pressures on complex structures: feather evolution after flight loss in recent birds
- Virtual Conference: Poster 10/2020  
Non-avian dinosaur eggshell calcite contains ancient, endogenous amino acids
- 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 ('Friends of the Rotten' discussion meeting): 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

### Field Museum of Natural History

- A. Watson Armour Seminar Series 9/2019  
Mesozoic molecules: revealing information from fossils through taphonomy

### The University of Chicago

- Evolutionary Morphology Seminar Series 10/2021  
Molecular fossil hunting: analytical and experimental taphonomy

### The University of Illinois Chicago

- EAES Departmental Seminar 3/2022  
Molecular fossil hunting: analytical and experimental taphonomy

## Popular Science Articles

### *The Conversation*

- "How some dinosaur discoveries might be wishful scientific thinking" 11/2017
- "Did male and female dinosaurs differ? A new statistical technique is helping answer the question" 1/2022

### *The Science Breaker* (partner with Université de Genève)

- "Long-dead dinosaurs support new life" 11/2019

## Radio & Podcast Appearances

### *The Skeptics Guide to the Universe*

- Twenty-minute interview on the podcast discussing Saitta *et al.* (2019, *eLife*) 6/2019

### *Palaeocast*

- Hour-long interview on the podcast discussing Saitta *et al.* (2019, *eLife*) 6/2019

### *These Vibes Are Too Cosmic*

- Hour-long interview with Princeton, New Jersey, radio show on my research in general 5/2018

### BBC Radio: National and Bristol

- Interviews discussing Saitta (2015, *PLoS ONE*) 4/2015

## Advising

Summer intern & volunteer supervising (Field Museum) 2018-2020

## Institutional Advancement

**Field Museum Private Collections Tour** 8/2019  
Showcased oversized fossil collections to Chairman's Circle member

**Field Museum Donor Private Meeting** 6/2019  
Talk given to museum donors at a small breakfast meeting

**Field Museum Pop-up** 6/2019  
Informal meet and greet with Field Museum board members at downtown 'dig site' pop-up

**Field Museum Members' Night** 5/2019  
Discussed my work with Field Museum members

**Sue Celebration** 1/2019  
Presented my work to Field Museum members and donors

**Field Encounters** 11/2018  
Talk given to Field Museum donors entitled "Creating synthetic fossils in the lab"

## 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

## Peer Reviewer

*BMC Evolutionary Biology*  
*Journal of Proteomics*  
*Biology Letters*

*Neues Jahrbuch für Geologie und Paläontologie*  
*PeerJ*  
Princeton University Press

## Societies & 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

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

## Experience

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

- Field Museum: Montana, Utah, Missouri, and 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

### Laboratory experience:

- Princeton University
- University of Bristol (UK)
- University of York (UK)
- University of Newcastle (UK)
- University of Copenhagen (Denmark)

- Foundation for Scientific Advancement
- Field Museum
- Northwestern University

- Argonne National Laboratory
- University of Chicago

**Analytical experience:**

- Museum collections research (fossil and modern reptiles, birds, fish, invertebrates, plants)
- R-based morphometrics, statistics, and data analysis
- Fossil bone histology and thin sectioning
- Hospital and micro-CT scanning
- Decay and maturation experiments
- Light microscopy
- Electron microscopy
- Energy-dispersive X-ray spectroscopy
- Pyrolysis-gas chromatography-mass spectrometry
- Laser stimulated fluorescence imaging
- Amino acid racemization analysis
- DNA, protein, and lipid extraction
- Time-of-flight secondary ion mass spectrometry
- Radiocarbon analysis
- Attenuated total reflectance Fourier-transform infrared spectroscopy
- Synchrotron X-ray fluorescence
- Raman spectroscopy
- Portable X-ray fluorescence
- X-ray diffraction
- White light scanning
- Laser ablation-inductively coupled plasma-mass spectrometry

**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