

Social Media and Your Research Career

Steve Brusatte and PhD Student Panel



Steve Brusatte

@SteveBrusatte

Paleontologist at University of Edinburgh, dinosaur enthusiast and writer. Free born man of the USA. (views mine)

📍 Edinburgh

🔗 sites.google.com/site/brusatte/

📅 Joined March 2013



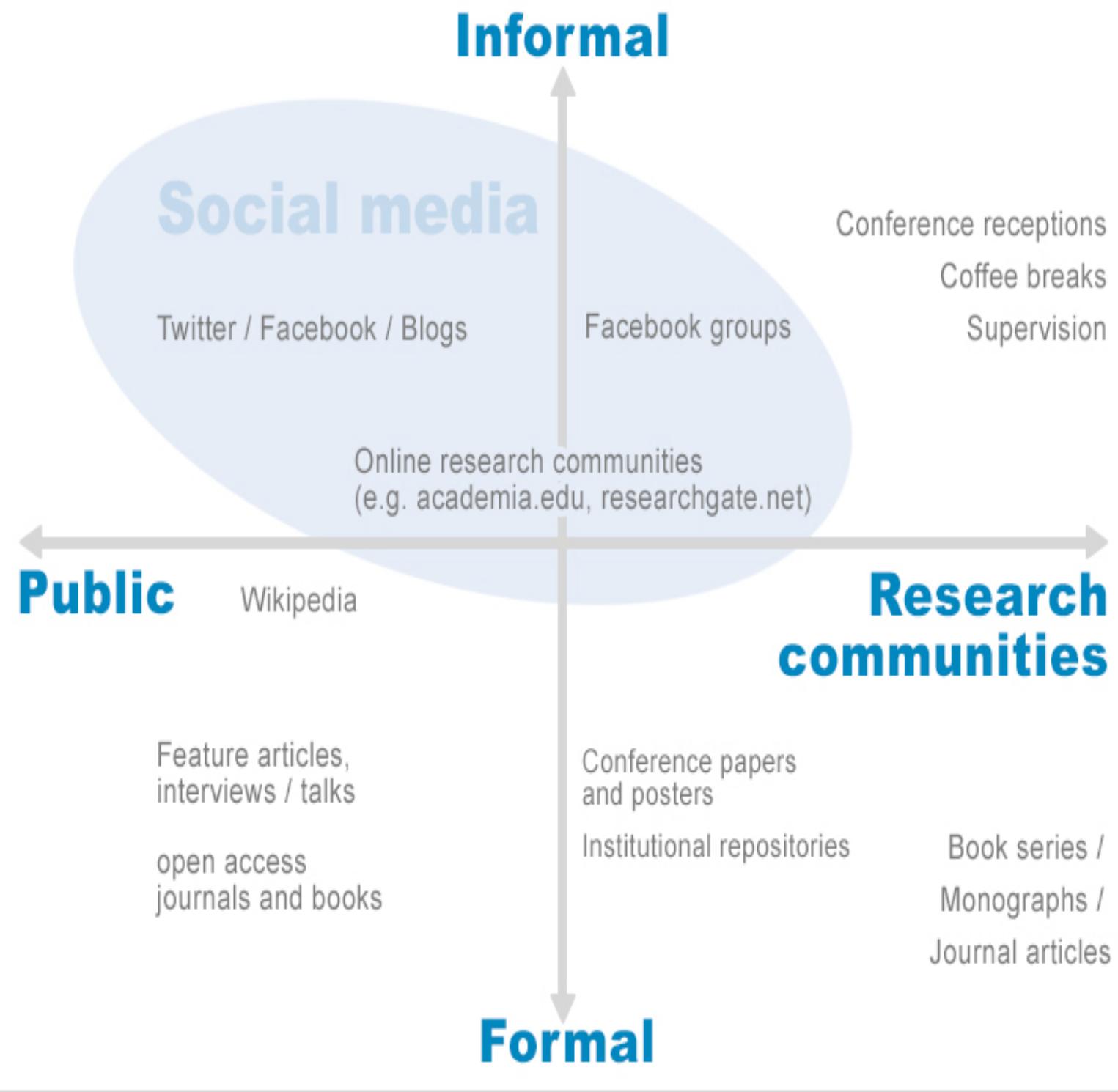
Why Consider Social Media?

Opportunities ?

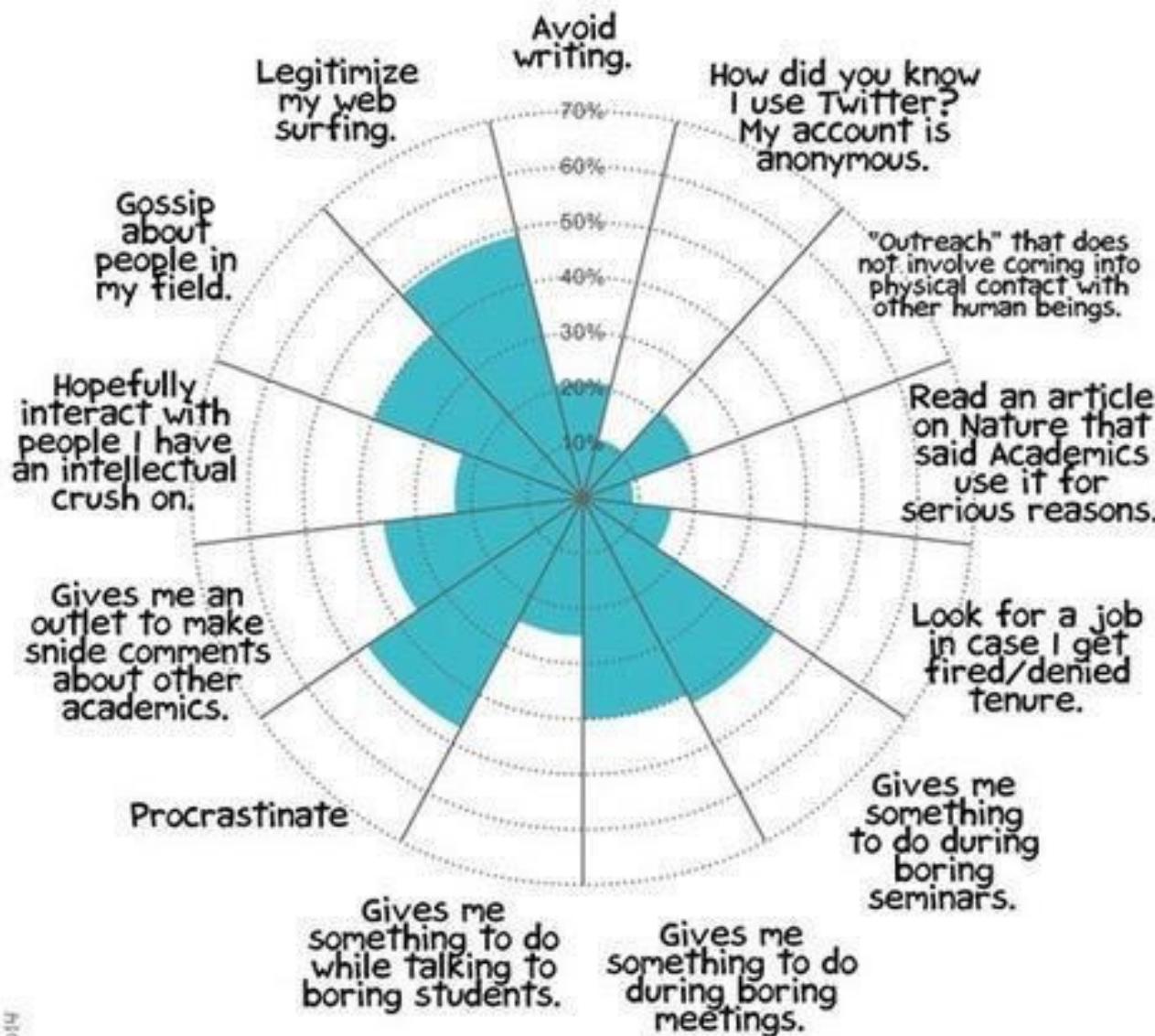


Risks?





Why Academics REALLY Use Twitter



Twitter buzz about papers does not mean citations later

Analysis of science on social media service finds little correlation with standard measures of academic success.

Richard Van Noorden

12 December 2013



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JOURNAL OF THE ASSOCIATION FOR INFORMATION SCIENCE AND TECHNOLOGY

RESEARCH ARTICLE

Do blog citations correlate with a higher number of future citations? Research blogs as a potential source for alternative metrics

Hadas Shema¹, Judit Bar-Ilan¹ and Mike Thelwall²

Article first published online: 15 JAN 2014

DOI: 10.1002/asi.23037

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Journal of the Association
for Information Science and
Technology
Volume 65, Issue 5, pages
1018–1027, May 2014

A highâresolution bioclimate map of the world: a unifying framework for global biodiversi

Overview of attention for article published in Global Ecology & Biogeography, January 2012



SUMMARY

Blogs

Twitter

Facebook

Title A highâresolution bioclimate map of the world: a unifying framework for global biodiversity research and monitoring

Published in Global Ecology & Biogeography, January 2012

DOI 10.1111/geb.12022 

TWITTER DEMOGRAPHICS

MENDELEY

The data shown below were collected from the profiles of 9 tweeters who shared this research output. [Click here to find out more about how the information was collected](#)

About this score

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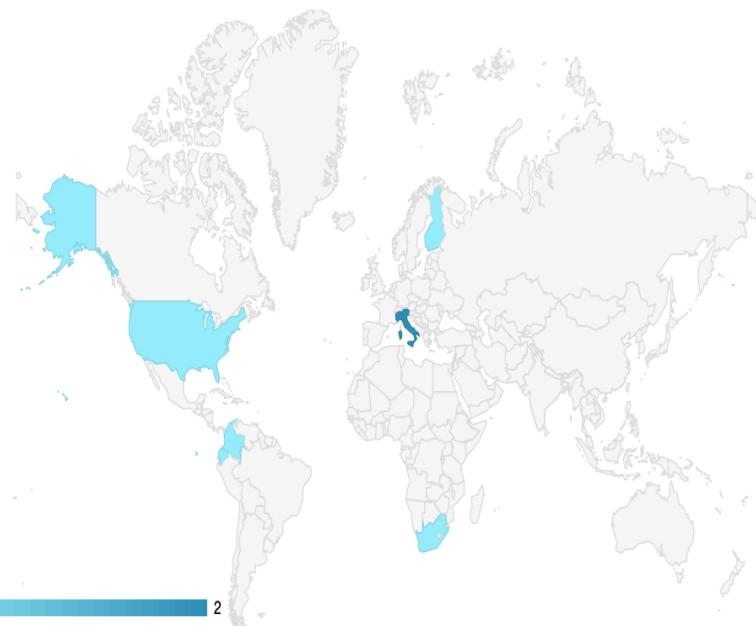
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Dr. Stephen Brusatte



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Phone: +44 (0) 131 650 6039
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Email: sbrusatt@staffmail.ed.ac.uk
Web Page: <https://sites.google.com/site/brusatte/>

Earth and Planetary Science
Geobiology and Geochemistry

Steve is interested in the anatomy, genealogy, and evolution of fossil vertebrates. Particular research interests are the origin and early evolution of dinosaurs in the Triassic, the anatomy and genealogy of carnivorous theropod dinosaurs (T. rex and kin), the evolution of birds from theropods, the end-Cretaceous mass extinction, the recovery and radiation of mammals after the end-Cretaceous extinction, and the evolution of marine crocodylomorphs during the Mesozoic. He currently does fieldwork in the Triassic of Portugal and Poland, the Cretaceous of Romania, and the Cretaceous-Paleogene of New Mexico (USA), aimed at understanding major evolutionary radiations and extinctions. His work has appeared in journals such as *Science*, *Proceedings of the National Academy of Sciences*, and *Nature Communications*, as well as more specialist journals. He is the author of the recent textbook *Dinosaur Paleobiology* (Wiley-Blackwell, 2012), meant for higher-level undergraduates and graduate students.

Publications
[Edinburgh Research Explorer](#)

Other platforms are better—easier to use, more flexible, fewer rules

**Stephen Brusatte,
Paleontology Research**

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Sitemap

Stephen Brusatte, University of Edinburgh



Stephen Brusatte

University of Edinburgh
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Edinburgh Vertebrate Palaeontology Research Group
PalAlba Consortium: Preserving Scotland's Fossil Heritage

Google

And there are other open platforms for websites and blogs...



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A detailed look at the front of Kronebreen, Svalbard

© 22/09/2016

EDIT

Thanks to some nice boat trips this September (and a good zoom lens on my camera*), we were able to take a detailed look at the calving front of Kronebreen, a fast-flowing glacier which terminates into Kongsfjorden, an inlet on the west coast of Svalbard. Since 2011, Kronebreen has been retreating significantly faster (approx. 100m per year) and the front (where the ice meets the fjord water) has changed drastically. What is interesting is that the calving front does not appear uniform - the distinctiveness of each section indicates that different processes are active. If this intrigues you then please read on! If not, then sit back, relax, and enjoy the pictures at least!

All photos were taken on the Sony NEX-5R with the Sony E 55-210 mm f/4.3-6.3 lens and the Sony E 20 mm f/2.8 lens.



Kronebreen glacier (centre) viewed from the west this September (2016). Kronebreen shares its southern (right) margin with Kongsvegen, a slow-moving surge-type glacier that has been fairly inactive for the past couple of years. The glacier adjacent to Kronebreen, separated by the mountain Collethøgda (left), is called Kongsbreen. Kongsbreen has been retreating from the fjord onto land since approximately 2014.

Penny How



Third year glaciology PhD student interested in calving dynamics, Svalbard glaciers and time-lapse techniques.

Recent blog posts

PhD Update: September 2016

A detailed look at the front of Kronebreen, Svalbard

And there are other open platforms for websites and blogs...

Welcome to Team Shrub

Tundra Ecology Lab

Arctic and alpine shrub research



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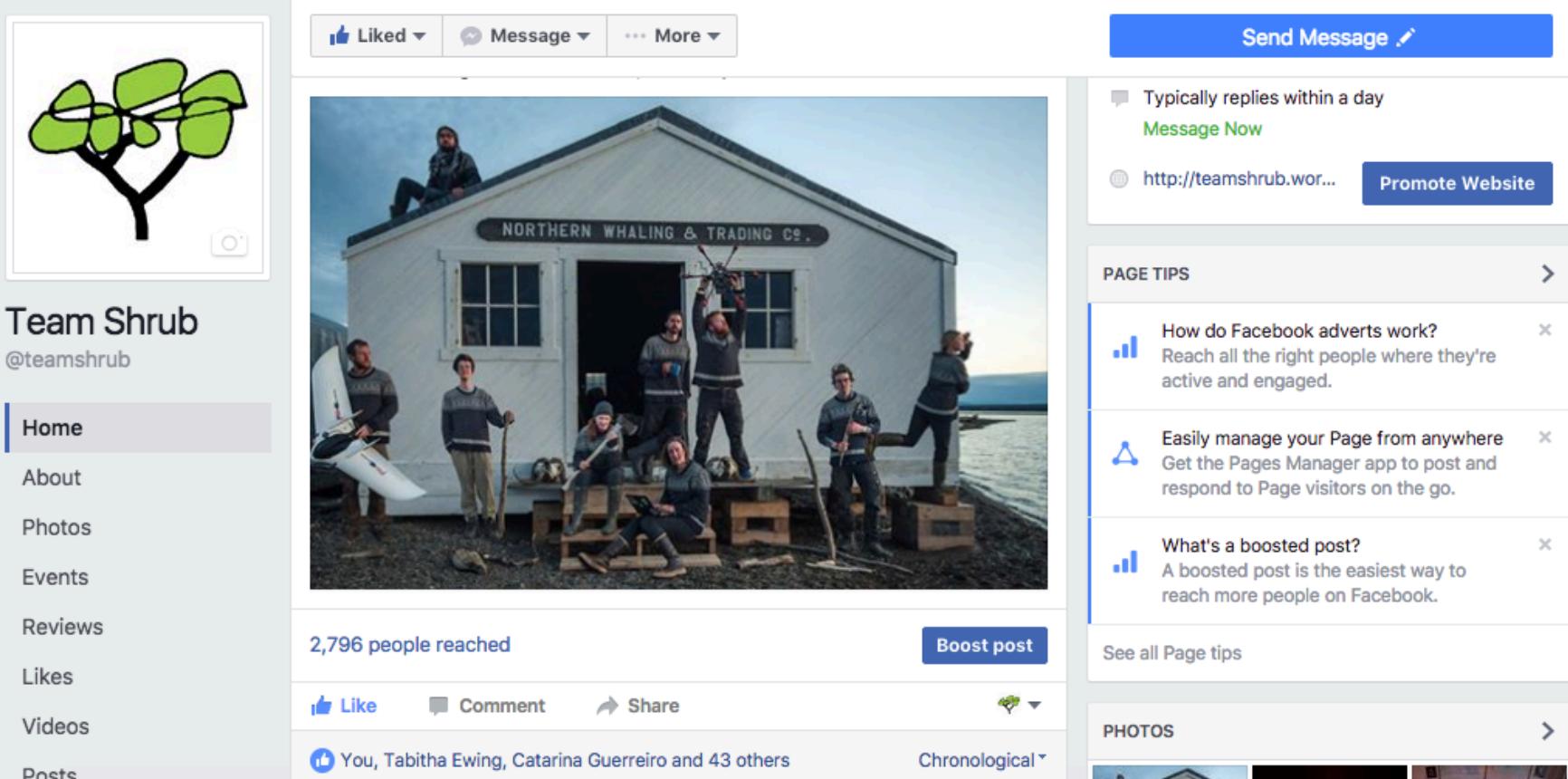
[Mentorship](#)



We are a plant ecology research group that studies the influence of a warming climate on tundra

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And there are other open platforms for websites and blogs...



A screenshot of a Facebook page for "Team Shrub". The page header shows a profile picture of a green shrub branch. The page name is "Team Shrub" and the handle is "@teamshrub". A navigation menu on the left includes links for Home, About, Photos, Events, Reviews, Likes, Videos, and Posts. The main content area features a large photo of a group of people standing in front of a white building with a sign that reads "NORTHERN WHALING & TRADING CO.". Below the photo, it says "2,796 people reached" and has "Boost post" and "Like", "Comment", "Share" buttons. At the bottom, it shows "You, Tabitha Ewing, Catarina Guerreiro and 43 others" and a "Chronological" filter. On the right side, there are sections for "Send Message", "Typically replies within a day", "Message Now", "http://teamshrub.wor...", "Promote Website", "PAGE TIPS" (with three items about ads, managing the page, and boosted posts), and a "PHOTOS" section.

And sometimes our students blog for well-known publications....

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home

Elsa Panciroli Elsa Panciroli is a researcher specialising in the origin of mammals as part of her PhD at the University of Edinburgh and National Museums Scotland. She is a member of Pal Alba, and has an interest in promoting and preserving Scotland's fossil heritage. Her current work centres on the mammal fossils of the Isle of Skye. Find her on Twitter @gscience lady

September 2016


Lost Worlds Revisited / Did milk and fur evolve before the earliest mammals?

14 Sep 2016 08:43 |


Scientists reveal most accurate depiction of a dinosaur ever created

14 Sep 2016 08:43 |

August 2016


Lost Worlds Revisited / Did T. rex make your dog colour blind?

Recent genetic discoveries reveal how the first mammals acquired night vision in order to thrive in a world dominated by reptiles

3 Aug 2016 08:00 |

July 2016


How did legless worm-lizards cross the Atlantic?

How did a reclusive, underground animal colonise so much of the world? The answer to this and other unexpected animal migrations could be "rafting"

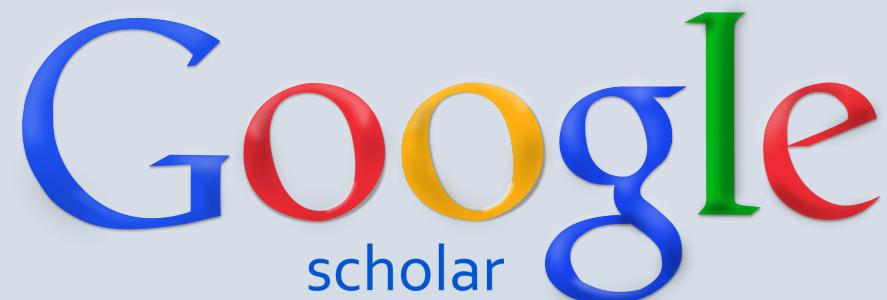
13 Jul 2016 08:13 |

June 2016


Lost Worlds Revisited / Australia's

2. Social Media Platforms for Research

Google Scholar



Stephen Brusatte

[University of Edinburgh](#)

Verified email at ed.ac.uk - [Homepage](#)

paleontology evolutionary biology systematics dinosaurs anatomy

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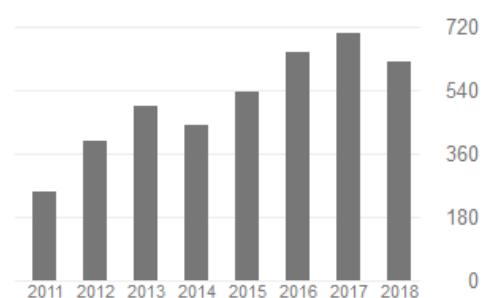
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h-index	37	34
i10-index	85	80

- | <input type="checkbox"/> | TITLE | CITED BY | YEAR |
|--------------------------|--|----------|------|
| <input type="checkbox"/> | Superiority, competition, and opportunism in the evolutionary radiation of dinosaurs
SL Brusatte, MJ Benton, M Ruta, GT Lloyd
Science 321 (5895), 1485-1488 | 292 | 2008 |
| <input type="checkbox"/> | A rationale for phylogenetic definitions, with application to the higher-level taxonomy of Dinosauria [41-83]
PC Sereno
Neues Jahrbuch für Geologie und Paläontologie-Abhandlungen, 41-83 | 288 | 1998 |
| <input type="checkbox"/> | The higher-level phylogeny of Archosauria (Tetrapoda: Diapsida)
SL Brusatte, MJ Benton, JB Desojo, MC Langer
Journal of Systematic Palaeontology 8 (1), 3-47 | 200 | 2010 |
| <input type="checkbox"/> | The origin and early radiation of dinosaurs
SL Brusatte, SJ Nesbitt, RB Irmis, RJ Butler, MJ Benton, MA Norell
Earth-Science Reviews 101 (1-2), 68-100 | 183 | 2010 |
| <input type="checkbox"/> | The evolution of Metriorhynchoidea (Mesoeucrocodylia, Thalattosuchia): an integrated approach using geometric morphometrics, analysis of disparity, and biomechanics
MT Young, SL Brusatte, M Ruta, MB de Andrade
Zoological Journal of the Linnean Society 158 (4), 801-859 | 154 | 2010 |
| <input type="checkbox"/> | A new clade of archaic large-bodied predatory dinosaurs (Theropoda: Allosauroida) that survived to the latest Mesozoic
RBJ Benson, MT Carrano, SL Brusatte
Naturwissenschaften 97 (1), 71 | 139 | 2010 |



Co-authors

[EDIT](#)

- | | | |
|--|--|----------------------|
| | Mark Norell
American Museum of Natural His... | > |
| | Richard J. Butler
Professor of Palaeobiology, Univ... | > |
| | Roger Benson
Associate Professor in Palaeobi... | > |
| | Thomas E. Williamson
Curator of Paleontology, New Me... | > |
| | Mark Young
University of Edinburgh | > |

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Stephen L Brusatte The University of Edinburgh, Edinburgh

Paleontology, Evolutionary Biology

PhD, Columbia University

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Overview Contributions Info Stats

Stephen L Brusatte has 1 project

Projects is where researchers share updates about their current work.



Triassic Vertebrates of Algarve

Aim: Study the Triassic vertebrates of Algarve and the implications to the end of the Triassic extinction

2 Updates · 4 Collaborators

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104 Total reads

36 Total followers



The University of Edinburgh
School of GeoSciences
Edinburgh, Scotland, United Kingdom

Jobs at this researcher's institution

Head of School of GeoSciences, and Chair

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Skills and expertise (14)

View all

Geometric Morphometrics Ecology Cladistics Evolution
Morphometrics Systematics Taxonomy Phylogeny

Researcher ID



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Stephen Brusatte

ORCID ID
 orcid.org/0000-0001-7525-7319

Other IDs
[ResearcherID: O-9663-2014](#)
[Scopus Author ID: 18233445200](#)

▼ Education (3) ↓↑ Sort

Columbia University: New York, NY, United States
2008 to 2012 (Earth and Environmental Sciences)

PhD
Source: Stephen Brusatte Created: 2015-01-26

University of Bristol: Bristol, Bristol, United Kingdom
2006 to 2008 (Earth Sciences)

MSc
Source: Stephen Brusatte Created: 2015-01-26

University of Chicago: Chicago, IL, United States
2002 to 2006 (Geophysical Sciences)

BS
Source: Stephen Brusatte Created: 2015-01-26

▼ Employment (1) ↓↑ Sort

University of Edinburgh: Edinburgh, Edinburgh, United Kingdom
2013 to present (School of GeoSciences)

Chancellor's Fellow (tenure-track faculty)

3. Social Media Platforms for Public-Facing Communication...

Twitter



A photograph showing several hikers in a vast, arid, and rocky landscape, likely a desert or badland area. The terrain is rugged with various rock formations and sparse vegetation. In the foreground, a group of hikers is walking along a rocky path. One person in a blue jacket is walking away from the camera, while others are standing or walking towards it. The sky is clear and blue.



Steve Brusatte

@SteveBrusatte

Paleontologist at University of Edinburgh, dinosaur enthusiast and writer, T. rex autopsier, loud American living in the UK and fan of all sports (views mine)

Edinburgh

sites.google.com/site/brusatte/

Joined March 2013

TWEETS 4,222 FOLLOWING 933 FOLLOWERS 2,638 LIKES 2,758 MOMENTS 0

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Tweets Tweets & replies Media



Steve Brusatte @SteveBrusatte · 1h
That time that Trump fired my high school classmate Maria from the Celebrity Apprentice for 'locker room talk': facebook.com/thedailyshow /v...



Steve Brusatte @SteveBrusatte · 2h
This description of yesterday's Trump rally is terrifying. Turning crowd anger towards reporters and Hillary.

Your Tweet activity

Your Tweets earned **47,249** impressions over the last week



A bar chart showing the number of impressions for each tweet posted by Steve Brusatte over the last week. The x-axis represents dates from Oct 5 to Oct 11. The y-axis represents the number of impressions. The bars show a general downward trend from approximately 47,000 on Oct 5 to about 10,000 on Oct 11.

Date	Impressions
Oct 5	~47,000
Oct 6	~42,000
Oct 7	~35,000
Oct 8	~30,000
Oct 9	~25,000
Oct 10	~20,000
Oct 11	~10,000

[View your top Tweets](#)



Donald J. Trump

@realDonaldTrump



Follow

Healthy young child goes to doctor, gets pumped with massive shot of many vaccines, doesn't feel good and changes - AUTISM.
Many such cases!

Reply Retweet Favorite More



Donald J. Trump

@realDonaldTrump



Follow

An 'extremely credible source' has called my office and told me that @BarackObama's birth certificate is a fraud.

Reply Retweet Favorite

690
RETWEETS

115
FAVORITES



4:23 PM - 6 Aug 12 · Embed this Tweet

Verizon 5:50 PM 29%

< Tweet Search

Donald J. Trump
@realDonaldTrump

"@mplefty67: If Hillary Clinton can't satisfy her husband what makes her think she can satisfy America?" @realDonaldTrump #2016president"

4/16/15, 5:22 PM

100 RETWEETS 112 FAVORITES



Donald J. Trump

@realDonaldTrump



Follow

It's freezing and snowing in New York--we need global warming!

Reply Retweet Favorite

2,097
RETWEETS

595
FAVORITES



2:24 PM - 7 Nov 12 · Embed this Tweet



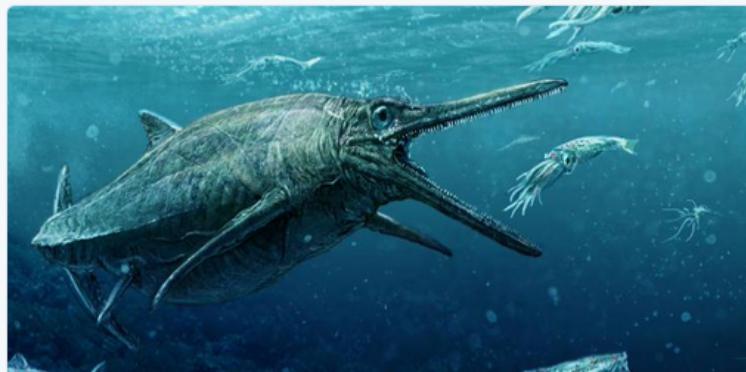
Steve Brusatte @SteveBrusatte · Aug 18

Our new paper on the brain and senses of a 150+ million year old Jurassic croc! w/ @mty_84 @WitmerLab and great team onlinelibrary.wiley.com/doi/10.1002/ar ...



Steve Brusatte @SteveBrusatte · Sep 5

Excellent article on our new Scottish sea reptile fossil--the Storr Lochs Monster--from @michaelgreshko at Nat Geo!



Jurassic 'Sea Monster' Emerges From Scottish Loch

The fossil beast from the Isle of Skye is the most complete skeleton of an ichthyosaurus yet found in Scotland.

news.nationalgeographic.com



Steve Brusatte @SteveBrusatte · Oct 4

Awesome lectureship in geology/earth sciences/palaeo at St. Andrews!
[vacancies.st-andrews.ac.uk/ViewVacancy.aspx...](http://vacancies.st-andrews.ac.uk/ViewVacancy.aspx?...)



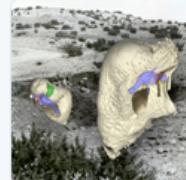
Steve Brusatte @SteveBrusatte · Sep 5

The Storr Lochs Monster! Most complete sea reptile ever found in Scotland! Unveiling right now with [@BBCEarth!!](#)



Steve Brusatte @SteveBrusatte · Sep 22

Wacky new bone-headed Triassic reptile that really looks like a dinosaur, from [@VTechmeetsPaleo](#) My thoughts:



Were dinosaurs copycats? Ancient skull shows c...

A 230-million-year-old reptile may have looked like a dinosaur, but it wasn't one. What can it tell us about evolutionary patterns?

csmonitor.com





Penny How

@PenelopeRHow

Back at Kronebreen to collect data from our 11 time-lapse cameras. What a beautiful day to fly! #Svalbard



RETWEETS

31

LIKES

71



9:22 PM - 12 Sep 2016

Tromsø, Norway



31

71



Penny How

@PenelopeRHow

A submarine plume at Tunabreen, Svalbard. Read more on them here: wp.me/p6kasI-ZQ



RETWEETS

19

LIKES

20



4:24 PM - 5 Jun 2016



19



20



Reply to @PenelopeRHow



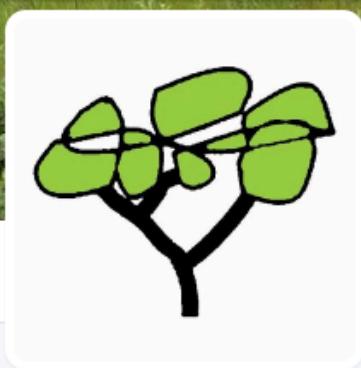
Norma Laming @TheSandlings · Jun 7

@PenelopeRHow @Jamie_Woodward_ I thought you meant a plume from a submarine, but on reflection I guess that is a plume from below sea level?



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Team Shrub

@TeamShrub

Exploring how climate change is altering life in the tundra

Edinburgh and the Arctic

teamshrub.wordpress.com

Joined May 2015

47 Photos and videos



Tweets

[Tweets & replies](#)[Media](#) Team Shrub @TeamShrub · Sep 5

Read about our foggy final two weeks on #Qikiqtaruk as the tundra turned from green to brown
teamshrub.wordpress.com/2016/08/26/las...



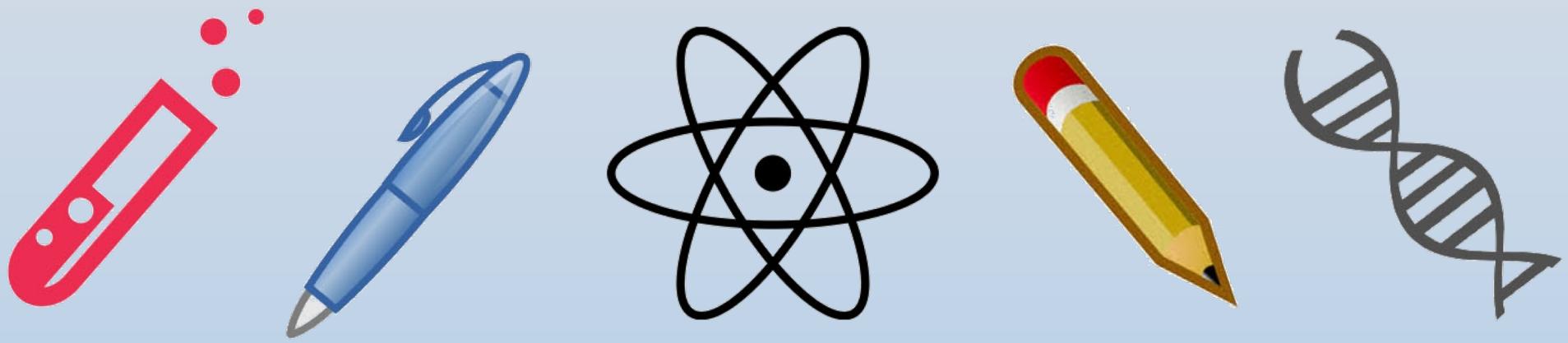
My personal recommendations:

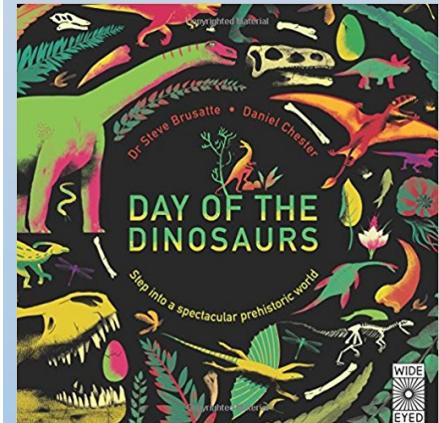
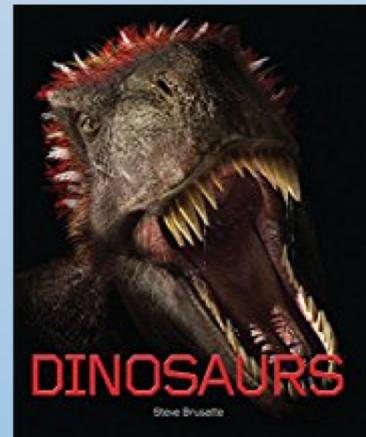
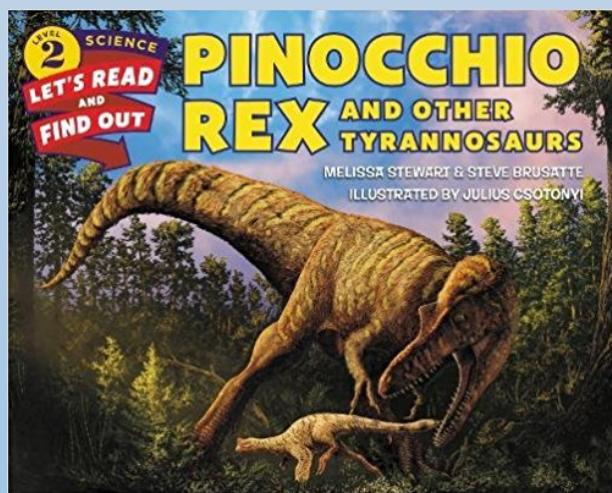
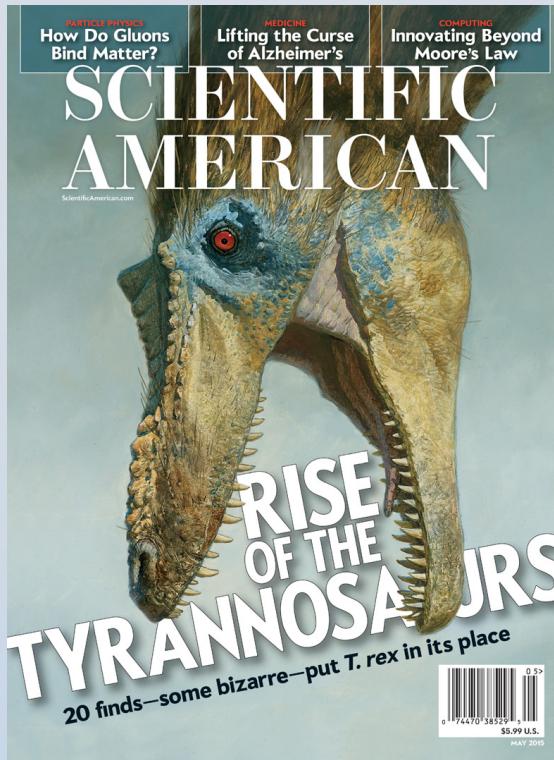
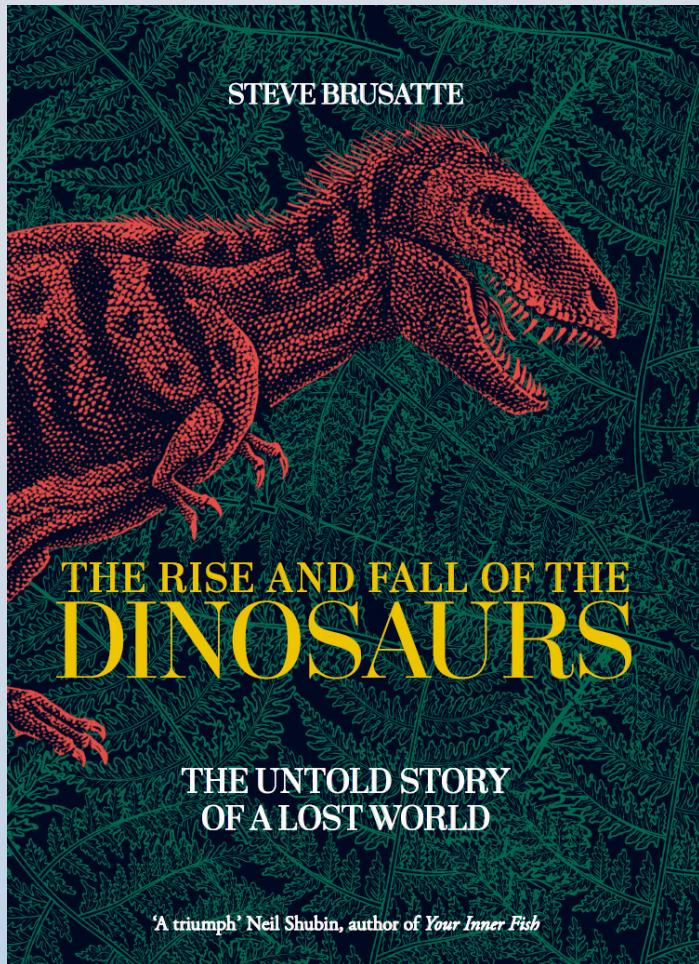
- 1) Make your own research webpage
(and do a blog if you like)
- 2) Make a Google Scholar profile
- 3) Get your ORCID/Researcher ID account

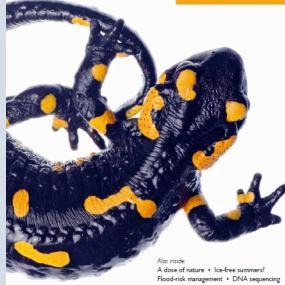
Social media and your research career

- Are you using social media professionally?
- What do / would you use it for?
- Which platforms do / will you use?

Science Writing







The rise of the mammals

An asteroid strike put an end to the dinosaurs 66 million years ago, making way for mammals to thrive – that much we know. But how exactly did our ancestors go about their march to dominance? Stephen Brusatte and Sarah Shelley introduce an unassuming fossil that holds some of the answers.

Edward Drinker Cope named more than 1,000 species and published nearly 1,500 papers during his long career in vertebrate palaeontology. He worked on everything, from fish and frogs to sea-living reptiles and dinosaurs. But in 1881 he announced a discovery that stood above the rest. In the characteristic understatement of a 19th-century gentleman scientist, Cope boasted that the new fossil would be remembered as ‘an important event in the history of palaeontological science’. He wasn’t referring to a charismatic dinosaur of colossal size or an early branch of the human family tree. Instead, he was talking about an unassuming little mammal called *Peritychus*, just about the size of a dog, found in the dusty badlands of the American Southwest.

Cope’s excitement was prophetic. *Peritychus* may look like nothing more than a cute pet, but it and a growing number of other mammal fossils are now helping us better understand one of the pivotal moments of Earth history. At the end of the Cretaceous, about 66 million years ago, a 10-kilometre-wide asteroid slammed into what is now Mexico. It rudely interrupted a world

in which dinosaurs were dominant, and had been for more than 100 million years. The asteroid hit with the force of several million nuclear bombs, unleashing a torrent of tsunamis and wildfires and sending dust into the stratosphere, blocking out the sun and poisoning the atmosphere. Ecosystems were devastated and many plants and animals went extinct. When things eventually settled down and the Earth recovered, dinosaurs were nowhere to be found

primates and, later, to us. But surprisingly we still know little about when and how mammals started their march to dominance. Why did some mammals survive the extinction but not dinosaurs? How quickly did mammals diversify after the asteroid? When did the major groups of living mammals like rodents, elephants and primates originate?

Peritychus and its kin seem to hold the key. These so-called ‘archaic’ mammals thrived during the first few million years

“When rapid environmental change occurs, animals and ecosystems that have been successful for millions of years can suddenly disappear.”

and mammals were everywhere.

This is one of the classic stories in Earth science, repeated to every first-year geology student. The asteroid knocked out the dinosaurs making way for mammals, which had been living in the shadows for tens of millions of years, to prosper, eventually leading to

after the dinosaurs died out, during a time called the Paleocene (66–56 million years ago). They were the very mammals that took the reins from *Tyrannosaurus* and *Triceratops*, establishing a new world in which mammals invaded nearly every conceivable environment across the globe and ascended to the top of



the food chain in many ecosystems. But surprisingly, after the initial fossil discoveries by Cope and other 19th- and early-20th-century palaeontologists, research on these archaic Paleocene species nearly died out itself. As dinosaurs and fossil hominids grabbed the headlines and research funds, *Peritychus* and other Paleocene mammals became an afterthought.

But now a new generation of scientists is returning to these Paleocene fossils because of their obvious importance in understanding a major interval of environmental change. We have been working in New Mexico (USA), one of the best places in the world to find both the latest Cretaceous dinosaurs and the Paleocene mammals that replaced them. We are doing fieldwork with our colleague Thomas Williamson, who for more than two decades has been scouring the San Juan Basin area of northwestern New Mexico in the hunt for new fossils. Our joint work in the Paleocene-aged Nacimiento Formation is aimed at finding new Paleocene mammals, tracking the diversity of mammals across this interval, and better understanding the environments they lived in.

Working in New Mexico harks back to the early days of palaeontology, when explorers would fan out to remote corners of the globe in search of the unknown. Fieldwork in the San Juan Basin probably hasn’t changed much since Cope’s day. Although New Mexico is within the borders of one of the most economically developed countries in the world, a lot of unexplored territory and many undiscovered fossils remain. Most of the state is vast, empty desert; it is a third larger than the UK in land area, but has only 3 per cent of the population. When we’re out prospecting in the barren, candy-striped hills it isn’t uncommon to go entire days without seeing other people.

Our field expeditions over the past five years have produced many new fossils and an emerging picture of what happened to mammals before, during, and after the end-Cretaceous mass extinction. We’ve discovered spectacular new specimens of big plant-eating mammals like *Pantolomodonta* and *Ectoconus* (a close cousin of *Peritychus*), fast-running species like *Tetragonodon*, weird burrowers like *Wortmania*, and bizarre rodent-like mammals called multituberculates. Our team has also



used radiometric dating to place these fossils in time, analysed sediments and isotopes to reconstruct the environments they lived in, and used diversity analysis to look at broad evolutionary trends during this dynamic period of mammal evolution.

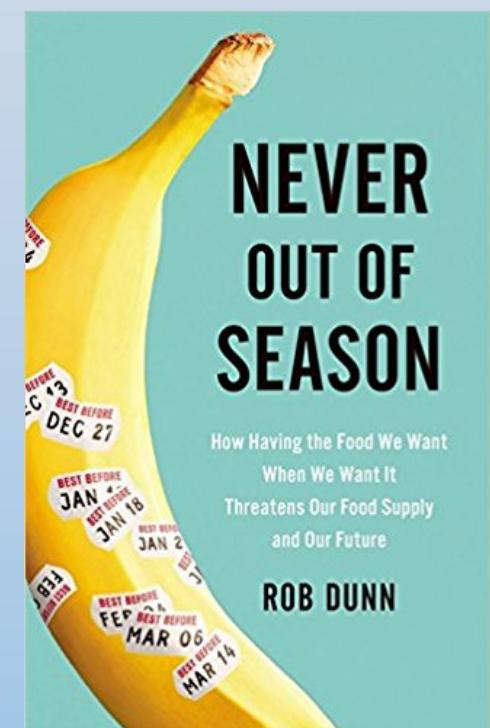
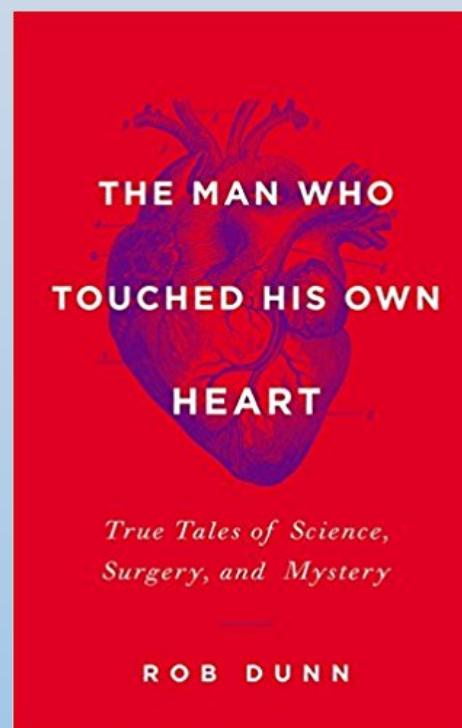
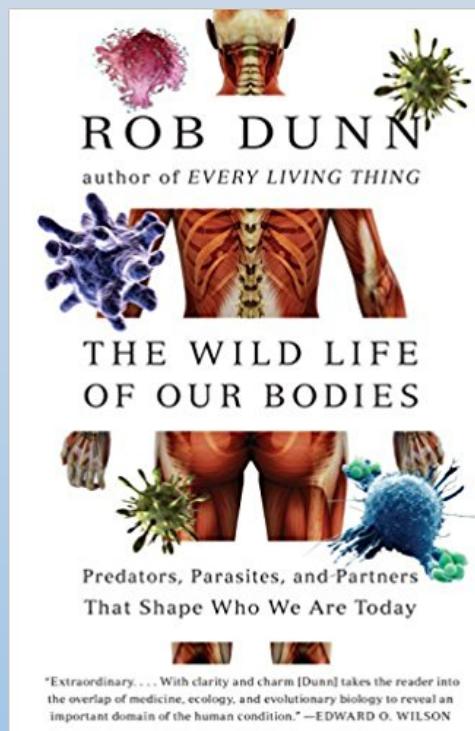
There’s still plenty to do but an evolutionary picture is coming into focus. Mammals did not pass through the mass extinction unscathed; the close relatives of modern marsupials were decimated but the hitherto unspectacular placentals (mammals that give live birth to well-developed young) weathered the storm and radiated in the aftermath. This radiation was rapid: within a few hundred thousand years at most there were complex ecosystems with mammals of many sizes, up to about cow size, filling many niches, eating different types of food, and living in the ground, on the land and in the trees.

So it looks like the end-Cretaceous extinction was a knife-edge moment in evolution. Right up until the asteroid impact dinosaurs prospered, then the environment rapidly changed and very quickly entirely new animals – placental mammals – moved in and took over. There is surely a lesson here: when rapid environmental change occurs, animals and ecosystems that have been successful for millions of years can suddenly disappear and the world changes in an instant. When this happened at the end of the Cretaceous it set in motion a chain of events which led, eventually, to humans. If it happens again, who knows where that unpredictable chain could lead.

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Rob Dunn's Tips for Science Writing



1-It is about the people. Let's say that your topic is Chlamydia. I know and you know that you can write something perfectly interesting about Chlamydia without mentioning people, but the truth is the article will be more interesting if includes people. Readers want to hear about people. If your story is about Chlamydia, it is really about Chlamydia and people. If you don't know anyone with Chlamydia find someone who does, or, perhaps less awkwardly, find out who revealed the biological story of Chlamydia.

2-Your story needs a happening part. If you string together paragraphs of facts, you have not written a story. You have written a textbook and for as much as teachers tell students otherwise, textbooks are boring. Something needs to happen in the story and then either resolve or conspicuously fail to resolve. What happens can be funny. It can be serious. It can be funny and then serious and then funny again, but it has to happen.

3-It is easier to write a simple story. Look, while you are reading this you are thinking of ways around my suggestions. “Oh,” you might think, “I could write a compelling story without mention of people or characters in which absolutely nothing happens. It will be about a rare beetle.” I bet you could. I believe in you. But to do so is to do things the hard way. Just a piece of advice here. If you are just starting in science writing, you might want to avoid always doing things the hard way.

4-Nouns not adjectives. The temptation in writing a story is to use piles of adjectives to describe the beauty, awe, tininess, sublimity, grandness and awkward bumbling of whatever it is you are writing about. Don't. Use strong nouns and verbs. Write simple sentences.

5—Sound like you. Your voice should be your own. If you are writing what someone else could write, well, you can take it easy and let them do it.

6-Be relevant. Scientists are trained to study marginal topics. Suggest to a PhD candidate that they might focus on a common relevant species and they will, with a natural inevitability, disappear into the rain forest to study something obscure instead. Perhaps it is reasonable for scientists to focus on the obscure; in the margins we hope for big discoveries others missed. It is not reasonable for writers, unless, in that obscure, the reader can see a broader story, a story relevant to millions of people.

7-Tell the readers what they want to know.

Write for the readers. When I talk about ants, people almost always ask, “what should I do about ants in my kitchen?” It took me a decade to realize this was my listener/reader saying, “this is the only way your topic was even remotely interesting to me.” You don’t have to give readers the answers they want, but if the reader has a natural reason for caring about your topic, don’t avoid it. Your goal as a writer is to engage as many people as possible in ways that might affect their lives. This stands in contrast to your goal when writing scientific papers which is, as near as I can figure, to write a paper that appeals to thirty people and, in doing so, avoid affecting them in any real way (lest they give you an unfavorable review).

**8-Even if it is not about people, it is about
people.**

9-If you write about scientists, make them human. This doesn't mean make them seem ordinary if they are not. Scientists include ordinary people. Now that I've said that, let's be more honest, they also include a fair number of folks incapable of navigating the aisles of the supermarket. Tell it like it is—I know a scientist who walked to work wearing two different shoes and only realized it on the way home (OK, that was me, but I digress)—but even odd scientists have ordinary struggles. By making scientists human you let the readers know scientists have daily struggles, problems buying cars, issues finding the right schools for their kids. You want your reader to relate to the characters in your story.

10-Know your stuff. You need to know a story better to write about it for the public than you need to do to write about it for scientists. To write about a story for non-scientists you need to capture the big story and explain complex topics in ways intelligible to folks for whom the topics are new. Don't shy away from complex ideas, but explain them with clarity. Doing this requires you to know the details AND the broad picture. Imagine you are trying to figure out things about the field you are writing about that the experts missed.

11-Tritrophic is not a real word. Your reader does not know the words tritrophic, ecological assemblage, genomics or parthenogenesis. That is not because your reader is dumb. It is because scientists made up those words and never told anyone but other scientists. Don't underestimate the intelligence of your readers. Readers can be very clever, but it is not their job to know all of the words that you and the twelve people you call colleagues made up.

12-Share your joy. You are writing about science because you like science. Your reader is reading about science because he or she likes science. If you share your joy in a piece of the scientific world the reader may well feel joy too. If they do, they might send you a letter and you will feel joy again (After thinking, “I’ll be damned, an actual paper letter.).

13-Your story can turn at the end in a way that changes the perspective of the reader. It is a great sensation if, at the end of the story, we see the topic you are writing about in a new light. In a short article, this turn is most easily made in the last paragraph. If you are writing a book, well, you have bigger problems.

14-Delete. Cut mercilessly. Cut extra words.

Cut paragraphs. Be wariest of sentences and paragraphs you love; they have a tendency to stick around even when they don't help. As Arthur Quiller-Couch said, murder your darlings. Delete whole essays. Winnow. Writing improves with practice and winnowing is part of practice. Fill your trashcans with attempts. Fill them with whole books. Share what is left over, the cut stone of a story, a stone that anyone would agree shines. Then start over, and when you do, remember it is about the people.

Workshop time...