Volume 20, issue 2

Summer 2013

Priscum

Newsletter of the Paleontological Society

Special points of interest:

- PS Research Grant awardees
- GSA 2013 Annual Meeting Topical Sessions
- PS Short course on ecosystems announcement
- NAPC 2014 information
- Distinguished Lecturer Program
- STEPPE consortium
- *Paleobiology* editors report
- Book reviews

Inside this issue:

The Paleontological Society 2013: A Snapshot in Time

By Alicia Stigall (Ohio University), Councilor-at-Large

Many of your participated in the Paleontological Society membership survey that was conducted during March of this year. Thank you for sharing your time and insights! Historically, PS records include only data on names, membership type, and addresses of members. The typical data is similar in many ways to the data that can be derived from fossiliferous shell beds. One could identify taxonomic names, calculate frequencies of organismal types, or map distributions, but many biological attributes are obscured. The new membership survey provided a detailed snapshot into the status of the Paleontological Society at this moment in time, a membership Lagerstätte. The membership survey was completed by 803 members and is statistically valid with a 2.4% margin of error at the 95% confidence level.

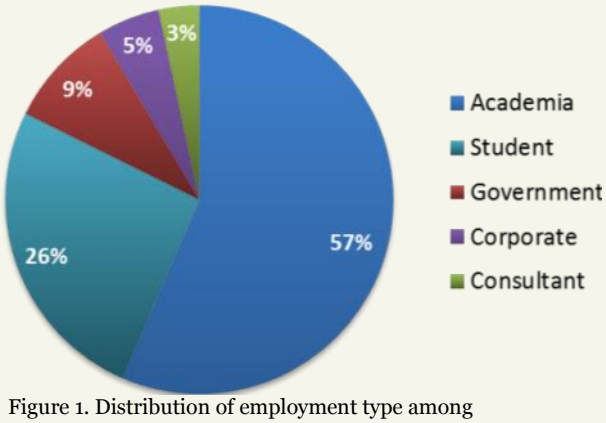

Figure 1. Distribution of employment type among Paleontological Society members.

Demographics: Who are we as a society?

In 1908, the Paleontological Society was founded by a group of American paleontologists who were predominantly Caucasian men employed in academic paleontology. That description still characterizes much of our membership. The PS is primarily an academic professional society. Approximately 83% of our members, exclusive of retirees, are employed within academia as either students or professionals (Fig. 1). 66% of our members have earned a PhD, and another 12% are actively pursuing them. Other members work for the government, in natural-history museums, or in the corporate world. At present, our membership comprises a limited number of K–12 educators or avocational members; this is an area of potential growth.

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Society Membership Survey (continued)

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Approximately 75% of our members have academic training in the earth sciences, whereas 25% have biology backgrounds. The PS has maintained close ties with the Geological Society of America since our founding, and our current membership reflects continued strong ties with GSA. Approximately 60% of our members are also GSA members, and approximately 25% belong to the Society for Vertebrate Paleontology, the Palaeontological Association, and/or the Society for Sedimentary Geology (SEPM).

Our present membership includes more gender diversity than at any time in our society's history. Indeed, among graduate students, there are *more* female than male members (52% to 48%). This parity, however, disappears in the professional membership; only 39% of professional members aged 25–34 are women (Fig. 2). The loss of female members between graduate school and professional categories, known as the "leaky pipeline," is not unique to paleontology, but recognizing its prevalence in our society suggests that the PS could benefit from developing initiatives to better support our members in the transition from student to early career professional life. See the Winter 2013 *Priscum* for a detailed discussion of gender disparity in the society (Caroson 2013; Stigall 2013).

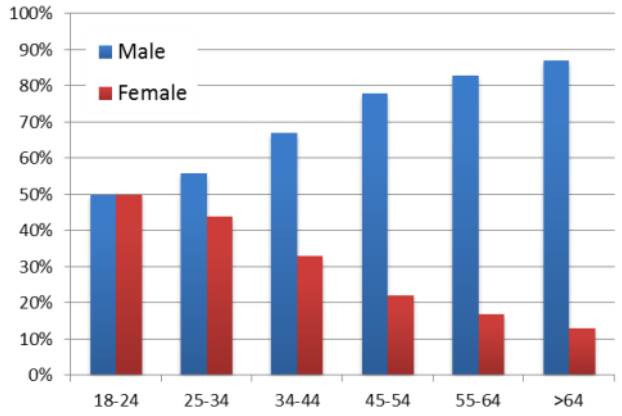

Figure 2. Gender distribution of members with age.

The current membership is overwhelmingly Caucasian (88%). Ethnicity does not vary substantially among membership categories or age classes. Survey respondents suggested that grass-roots diversity initiatives targeted at the K–12 level were likely to be the most effective means to promote paleontology to a more diverse community.

What areas within paleontology are PS members pursuing?

The Paleontological Society strives to support and advance all types of paleontology, and the diverse taxonomic and scientific interests of current PS members reflect this goal (Fig. 3). Although the society is sometimes perceived as invertebrate-centric (as noted in some respondent's comments), only 51% of respondents identified as invertebrate paleontologists, and more than half of the respondents indicated they were interested in vertebrate (33%), microfossil (16%), and/or plant (13%) clades. If you must know the specifics: the Lophotrochozoa was the most popular clade among respondents. Similarly, members indicated interests in all of geologic time and all ecosystems.

Many members are interested in multiple clades, ecosystems, and geologic intervals, resulting in cumulative sums in each graph well above 100%. Notably, the shape of the interest-through-time graph roughly resembles the shape of similar chart generated by Peter Sheehan in 1977 from the *Directory of Palaeontologists of the World* as well as estimates of global taxonomic diversity and rock-volume estimates (*e.g.*, Raup 1972 and myriad others since). Apparently, we paleontologists still "follow the fossils" as noted by Raup (1977), although it

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Society Membership Survey (continued)

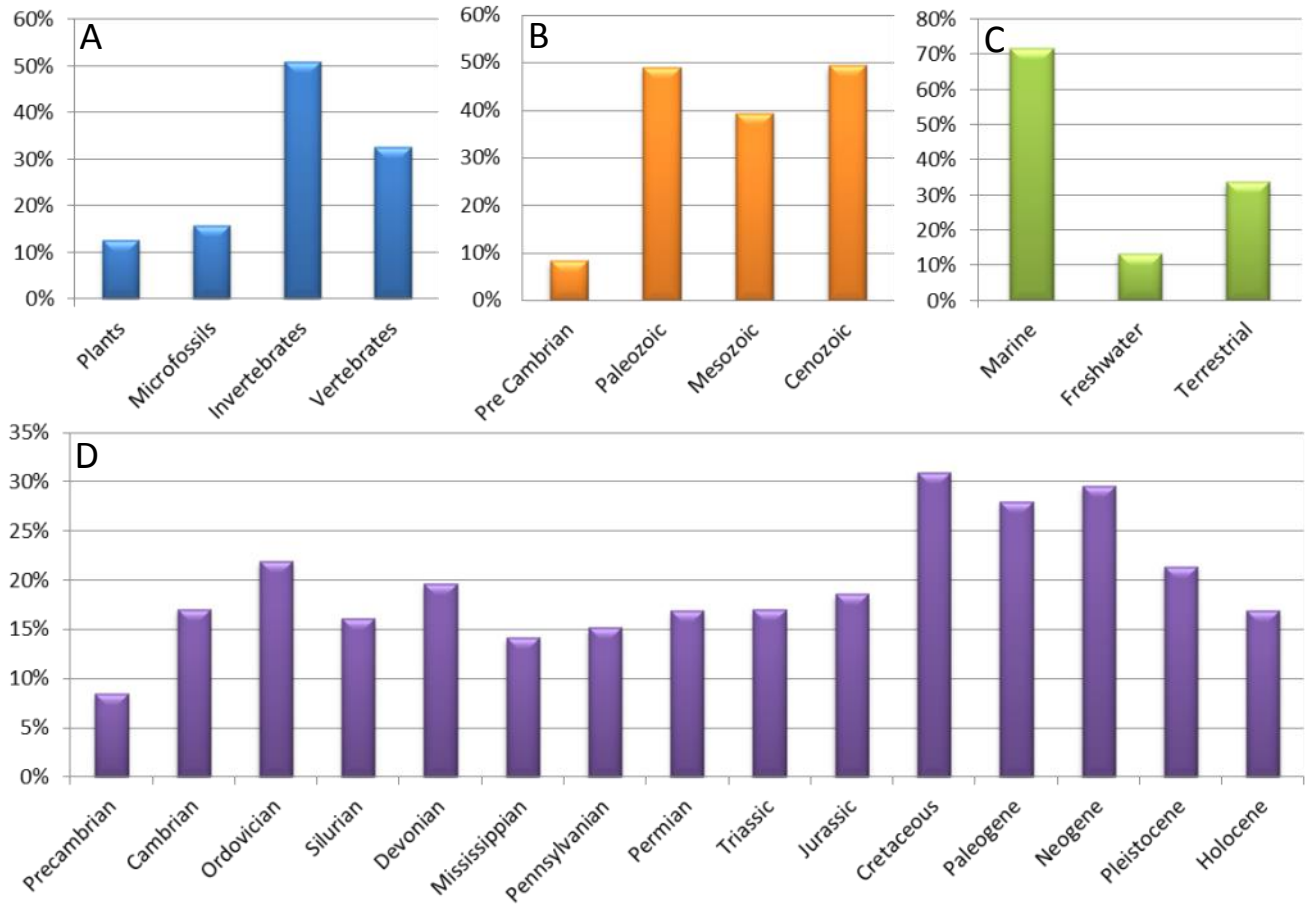

Figure 3. Distribution of (A) focal taxa, (B) geologic era, (C) environment, and (D) geological period of interest to PS members. Note that percentages sum to more than 100% because participants could choose multiple foci.

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seems we have increased our efforts in previously less intensely studied intervals resulting in more dampened pattern in this dataset compared to those just mentioned.

Within the realm of paleontological questions, paleoecology is currently *the* hot topic: 52% of PS members identify this field as within their top-three research themes (Fig. 4). Specimen-based taxonomic research is also highly valued by the membership, with 40% of respondents interested in systematics and phylogenetics and 32% focused on biostratigraphic questions. This distribution shifts somewhat when students are considered alone; among students, paleoecology, paleoenvironment, macroevolution, and systematics were each selected by more than 25% of respondents.

Where is our society headed?

The reason behind pursing the membership survey was to use this snapshot of our society to better characterize who are members are, to determine what aspects of society activities are most valued, and to learn how member services might be improved. We do not often have

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Society Membership Survey (continued)

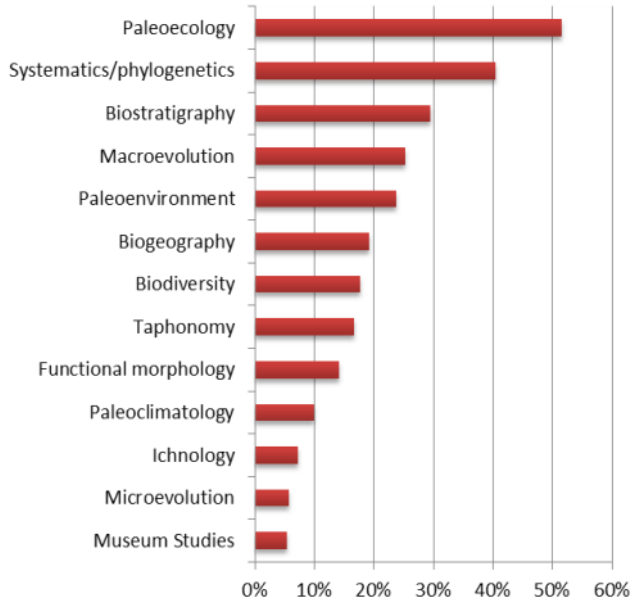

Figure 4. Distribution of area of scientific interest among members. Note that percentages sum to more than 100% because participants could choose multiple specializations.

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such exceptional preservation of membership values and feedback. Paleontology is a dynamic field. Exciting new opportunities are emerging for research collaborations with members of other disciplines, but pursuing paleontological activism is important in order to promote our science within society and to have continued support for research programs (see Carlson, 2012)

We learned that most members joined the society to promote the science of paleontology and for networking or funding opportunities. Respondents most often requested additional networking opportunities, employment/grant workshops, and enhanced regional meetings. Responses were also overwhelmingly positive about the general structure of the annual Paleontological Society meeting held in conjunction with GSA.

At the upcoming annual meeting, PS Council is introducing several new initiatives to differentiate the PS meeting from GSA, including developing a "Guide to Paleontology at the 2013 GSA meeting" and prevalent use of the PS logo to indicate the location of PS events. New this year will also be lunchtime networking events related to career development and women in paleontology, and the newly added Student Social will return. We will continue developing ways to strengthen our membership base. Remind your friends/colleagues/students to renew their membership and be part of our dynamic society!

For the full executive report of the Membership Survey, see the PS webpage

Works Cited

Carlson, S.J. 2012. Paleontological activism. *Priscum* 19 (2):1–2.

———. 2013. Paleontologist Barbie. *Priscum* 20(1):4–5.

Raup, D. M. 1972. Taxonomic diversity during the Phanerozoic. *Science* 177:1065–1071.

———. 1977. Systematics follow the fossils. *Paleobiology* 3:328.

Sheehan, P. M. 1977. A reflection of labor by systematists? *Paleobiology* 3:325–328.

Stigall, A. L. 2013. Women in paleontology: Where are they? *Priscum* 20(1):1–3.

Congratulations to the membership survey drawing winners!

The following members have won $100 gift cards to Amazon.com for their participation in the membership survey:

- Aaron Alford (Battelle, VA)
- Holly Schreiber (University of California, Davis)
- Yurena Yanes (University of Cincinnati)

Are you taking advantage of all your membership benefits?

The Society is pleased to announce that all members are eligible for substantial discounts on books published by many university presses, as well as the *Treatise on Invertebrate Paleontology* and publications of the Palaeontological Association. We are grateful to the publishers for their generosity!

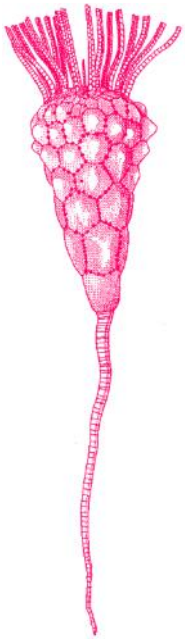
Log into the Members-Only PS page (rock.geosociety.org/membership/paleo/) for discount codes. Note that these discounts are for Society members only. Please do not distribute!

Indiana University Press: Receive 30% off list prices of Indiana University Press books (sale items excluded). Enter the discount code at checkout. View their paleontology titles here: www.iupress.indiana.edu/paleontology

Johns Hopkins University Press: Receive a 25% discount when you use the discount code . This applies to all publications marketed by JHU Press. Website: www.press.jhu.edu

Princeton University Press: Society members receive 20% off any Princeton University Press title. Please click here for details: www2.allenpress.com/pdf/PrincetonUniversityPress.pdf. For orders in the US/Canada: Enter the discount code in the Catalog Code box during checkout on our website, or, call 1-800-777-4726 (mention keycode P04434). Outside the US/Canada, visit press.princeton.edu/ordering.html for more information.

University of Chicago Press: Receive a 30% discount when you use the discount code . This applies to all publications marketed by the University of Chicago Press books division. Website: www.press.uchicago.edu



Columbia University Press: Receive a 20% discount on paleontology titles. For a full list of titles on sale, please visit www.cup.columbia.edu/subject/40/35. You can also access this list by clicking on "browse subjects," then selecting "Science" and then choosing "Paleontology" from the drop-down menu. After selecting the titles you wish to order, enter the discount code in the "redeem coupon" box. The box appears on the page after you enter your shipping and billing information and includes simple instructions.

Treatise on Invertebrate Paleontology: Members are eligible for a 20% discount on hard-copy volumes of the *Treatise on Invertebrate Paleontology*. To receive your discount, you will need to order by fax (785-864-3636) or phone (785-864-3338) and provide the code Paleosociety2010. See the Treatise website www.paleo.ku.edu/treatise for prices and availability.

Palaeontological Association: Discounted member rates on publications of the Palaeontological Association (www.palass.org).

PS Members receive discounts on books and other materials!

Interested in requesting funds for your conference session or fieldtrip?

Organizers of Paleontological Society sponsored events can request funds from the Society to support students attending fieldtrips and speakers (who would not normally attend) of conference sessions. Contact Program Coordinator Tom Olszewski (tomo@geo.tamu.edu) for details.

Distinguished Lecturer/Educator Program

Did you know that the PS sponsors distinguished lecturers to visit your department? Pass this message along to the person coordinating your department seminars and suggest that they invite a paleontologist in for the upcoming semester!

The Society may cover up to $400 towards travel for a speaker to visit your department !

The Paleontological Society is proud to support the Distinguished Lecturer Program, with the goal of bringing outstanding scientists to colleges, universities, and public events to speak about cutting-edge paleontological research, evolution, and the nature of science. The long history of life on our planet offers countless opportunities to explore the mechanisms and fascinating consequences of evolution, extinction, and ecosystem change. The response of the world's biota to global climate change has become an important issue today, and paleontologists can provide an important perspective on this from research in the deep-time record. Through this program, we hope to increase the visibility of paleontological research and to communicate its unique insights to the community at large.

We support three lecturers each year. Speakers have agreed to make themselves available on an expenses-only basis; no honorarium is required. **The Society may provide up to $400 toward speaker travel**. The host institution is expected to cover on-site expenses, including meals and lodging.

Travel support is currently available on a first-come, first served basis, but this process may be amended if demand is high. See www.paleosoc.org/speakerseries.html for more details.

Here is information on this year's speakers. To request a speaker, contact that individual directly.

Distinguished Lecturer on Evolution and Society

Patricia Kelley, University of North Carolina at Wilmington (kelleyp@uncw.edu)

- *Teaching evolution with integrity and sensitivity*
- *Evolution and creation: conflicting or compatible?*
- *The arms race from a snail's perspective: evolution of the naticid gastropod predator-prey system*

Thanks and a welcome!

Gene Hunt's term as a Distinguished Lecturer ended May 2013. He has been replaced by Nick Pyenson, Curator of Fossil Marine Mammals at the National Museum of Natural History, introduced here. Thanks to both for their service!

Dena Smith, University of Colorado Boulder (Dena.Smith@colorado.edu)

- *Fossil insects: Exceptional preservation and incredible diversification*
- *Eocene ecology: Insects, plants and climate change*
- *Brown bag/conversation—Supporting underrepresented students and faculty in the sciences*

Nick Pyenson, National Museum of Natural History (Smithsonian Institution) (PyensonN@si.edu)

- *The life and death of whales: New discoveries of world's largest animals*
- *Cetaceans in silico: 3D digitizing a fossil whale graveyard in the Atacama of Chile*
- *The evolution of marine mammals and the many returns to seas*

Nick Pyenson is a vertebrate paleontologist whose research focuses on major land-to-sea ecological transitions in the past 245 million years. In this span of geologic time, many different lineages of reptiles and mammals—whales, sea cows, mosasaurs, and turtles, for example—have independently entered the oceans, showing both common patterns and unique solutions to the challenges of living the life aquatic. To understand how and why these ecological transitions have happened, Nick has participated in paleontological fieldwork on every continent except Antarctica. He also leads active field programs on Vancouver Island in Canada, and with South American collaborators in the Atacama Desert of Chile. Nick is especially interested in growing public appreciation for natural patrimony and fossil resources, especially using digital tools that can expand fieldwork, outreach, and natural history collections at the same time. Also, Nick's work highlights how living marine tetrapods, such as sea turtles, penguins, and marine mammals, are ready-made vehicles for enhancing a deeper understanding of basic education in evolutionary biology and earth sciences. For more information, see his lab's blog: http://nmnh.typepad.com/pyenson_lab/

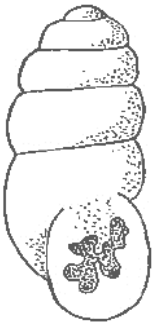
Credit: Aaron O'Dea / Smithsonian Tropical Research Institute

2013 Paleontological Society Student Research Grant awardees

Mid-America Paleontology Society (MAPS) Outstanding Student Research Award
Dori Conteras
(UC Berkeley)
Investigating the evolution of tropical rainforests: a functional analysis of the late Cretaceous Jose Creek Member, McRae Fm.

Renske Kirchholtes
(UC Berkeley)
Phytoliths: a novel application to answering ancient questions

Haley O'Brien
(Ohio University)
Investigating the impact of selective brain cooling on artiodactyl diversification



Richard K. Bambach Award
Ekaterina Larina
(Brooklyn College CUNY)
Ammonite ecology and diversity just prior to the K/Pg mass extinction

Kenneth E. & Annie Caster Award
Jonathan Calede
(University of Washington)
Biogeographic affinities of early modern mammalian communities in North America

Rowan Dejardin
(University of Leicester)
Miocene diatoms and isotopes as indicators of environmental change: is there a correlation with stickleback evolution?

Robert Haselwander
(Missouri University of Science and Technology)
Reconstructing Holocene climate history in southern Missouri

Joshua Lively
(The University of Texas at Austin)
The environmental and biogeographic context of Eocene marine vertebrate evolution

Sharon McMullen
(University of Wisconsin-Madison)
Controls on the stratigraphic distribution of non-marine fossils: a case study in the Upper Jurassic Morrison Formation, western USA

G. Arthur Cooper Award
Elizabeth Petsios
(University of Southern California)
Correlation of carbon isotope values with marine community structure in the Early Triassic Blacktail Creek section of Beaverhead County, Montana

Allison Stegner
(University of California, Berkeley)
Assessing small mammal response to Quaternary climate and land use change on the Colorado Plateau

Rodney M. Feldmann Award
Adam Jackson
(The University of Kansas)
Ichnological assessment of nearshore marine to deltaic depositional environments of the Cretaceous Dakota Group, Cañon City, Colorado

Matthew Vrazo
(University of Cincinnati)
Testing the integrity of stable isotopes in fossil marine arthropods

Congratulations to all of our awardees and good luck with your research!

Steven Jay Gould Award
Spencer Hellert
(University of Illinois Urbana-Champaign)
Causes of trait modularity and their relation to ontogeny in bird forelimbs

Subhronil Mondal
(University of South Florida)
Phanerozoic coupled changes in taxonomic and theoretical ecospace occupation diversity of bivalves

Peter Tierney
(University of Chicago)
Sharing an evolutionary cradle: spatial heterogeneity in early metazoan reefs and its effects on diversity dynamics

N. Gary Lane Award
Ben Collins
(University of Alberta)
Functional morphology of passive suspension feeding in Composita

Jansen Smith
(Cornell University)
Remembering the Colorado River Delta: geohistorical baselines of molluscan predator-prey interactions before damming of the Colorado River

James Thomka
(University of Cincinnati)
Unusual echinoderm biotas and paleoceanographic perturbations: implications for understanding faunal anachronisms

Richard Osgood Award
John Hils
(Ohio University)
Neoichnology of three burrowing mygalomorph spiders

2013 Student Research Grant awardees

Allison R. "Pete" Palmer Award
Cole Edwards
(The Ohio State University)
34S isotope geochemistry of the Early-Middle Ordovician Pogonip Group, Great Basin, USA: implications of oxygenation during the Great Ordovician Biodiversification Event (GOBE)

Lidya Tarhan
(University of California, Riverside)
Trilobite paleoecology and mixed layer development: the Rusophycus *record*

James M. & Thomas J. M. Schopf Award
Emma Locatelli
(Yale University)
Exploring the preservation potential of basal angiosperms: advancing our knowledge of taphonomic biases in the plant fossil record

Steven M. Stanley Award
Lindsay Meador
(University of Massachusetts Amherst)
Examining evidence of predation in Madagascar's extinct giant lemurs

Robert J. Stanton & James R. Dodd Award
James Proffitt
(Jackson School of Geosciences, University of Texas)
Terrestrial locomotion in penguins: hind limb evolution and function in waterbirds

Harry B. Whittington Award
Robert Young
(Yale University)
Laboratory testing of a substrate mechanism for decay inhibition and exceptional preservation

Ellis L. Yochelson Award
Catherine Beck
(Rutgers University)
Changes in ostracod assemblages and their implications for interpretations of recent lake-level fluctuations in Lake Turkana, Kenya

Nicole Dzenowski
(The University of Kansas)
Large-diameter of probable vertebrate origin structures in the lower Permian (Wolfcampian) Cedar Mesa Sandstone (Cutler Group) of southeastern Utah

Robin Green
(Indiana University)
Ostracodes as proxies for Pleistocene climate history at early hominid site, Olduvai Gorge, Tanzania

Matthew Jones
(University of Kansas)
Neoichnology of bats: implications for pterosaur locomotion

Outstanding Poster Award at GSA annual meeting

The Outstanding Poster Awards are given to student members of the Paleontological Society presenting posters at the annual GSA meeting. The amount and number of cash awards will increase this year, and separate undergraduate and graduate categories are being created. Given the distribution of posters in the past, the current plan is award to a best poster prize in each category ($550) as well as one undergraduate and two graduate student honorable mention awards ($300 each) . Best wishes for your research!

Student membership

There are many benefits to student membership in the Society, including opportunities for research grants, travel grants, and poster awards at Society meetings. Check www.paleosoc.org/students.html for additional benefits. The current student representatives are Sarah Tweedt (University of Maryland, TweedtS@si.edu) and Max Christie (Pennsylvania State University, mchristie09@gmail.com).

GSA Congressional Science Fellowship

Are you a current or recent geoscience graduate student looking for a well-paid fellowship working as a staff member for a Member of Congress or a congressional committee? Consider applying next winter for the GSA Congressional Science Fellowship, supported by GSA, USGS, and AAAS. See http://www.geosociety.org/csf/scifello.htm#S3 for details. Feel free to contact President Sandy Carlson (sjcarlson@ucdavis.edu) for additional information.

The Paleontological Society is now on Facebook!

Search for Paleontological Society in Facebook, or click on the Facebook icon to the right

2013 GSA Topical Sessions & Pardee Symposia sponsored by the PS

T164. Recent Advances in Geochronology—Celebrating the 100th Anniversary of the Publication of the "The Age of the Earth" by Arthur Holmes. Chairs: S.A. Bowring, Sidney R. Hemming, & J. Douglas Walker

T225. Climate of the Late Paleozoic—Earth's Last Icehouse and Icehouse Collapse. Chairs: Gerilyn S. Soreghan & William A. DiMichele

T230. Quantitative Reconstructions of the Large-Scale Cenozoic Terrestrial Climate Change. Chairs: Yusheng Liu & Torsten Utescher

T233. Celebrating Advances in Conodont Studies—134 Years of North American Conodonts. Chairs: D. Jeffrey Over, Stephen A. Leslie, & John E. Repetski

T234. Cyberinfrastructure for Paleogeographic Synthesis. Chairs: Scott Lidgard, Bradley Sageman, David B. Rowley, & Shanan E. Peters

T235. The Importance of Museum Collections for Paleontologic Research. Chairs: Mena Schemm-Gregory, Howard R. Feldman, & Robert B. Blodgett

T236. Biological and Environmental Feedbacks in the Colonization of the Water Column. Chairs: Mark Williams, Thijs Vandenbroucke, & Bradley D. Cramer

T237. Coevolution of the Earth and Life: The Role of the Physical Environment in Species Evolution. Chairs: Corinne E. Myers & Erin E. Saupe

T238. New Insights into Triassic-Jurassic Transition Events and End-Triassic Mass Extinction. Chairs: Rowan C. Martindale, Morgan F. Schaller, & Jessica H. Whiteside

T239. Recent Advances in the Nature of the Mesozoic Marine Revolution. Chairs: Lydia S. Tackett & Nicole Bonuso

T240. Advances in the Application of Biogeochemical Datasets in Paleoenvironmental and Paleoecological Studies. Chairs: Jordan R. Noret & John F. Graf

T241. Ancient Polar Ecosystems and Climate History in Deep Time. Chairs: Anthony R. Fiorillo, Paul J. McCarthy, Edith L. Taylor

T242. Conservation Paleobiology—The Microfossil Record. Chairs: Susan T. Goldstein & Jere H. Lipps

T243. Konservat-Lagerstätten: Morphology, Ecology, and Taphonomy of Exceptionally Preserved Fossils. Chairs: Maria E. McNamara & Xiaoya Ma

T244. Paleoclimate and Biotic Change in Africa, Mesozoic to the Present. Chairs: Ellen D. Currano & Bonnie F. Jacobs

T245. The Arthropoda: Paleoecology, Diversity, Taphonomy, and Phylogeny. Chairs: Adiël A. Klompmaker, Rodney M. Feldmann, & Carrie E. Schweitzer

T246. Topics in Paleoecology: Predation/Biotic Interactions, Fidelity/Conservation Paleobiology, and Community Ecology/Whole Organism Paleoecology. Chairs: Carrie L. Tyler, Amelinda E. Webb, Troy A. Dexter, Mary Elizabeth Kosloski, & Ben M.J. Collins

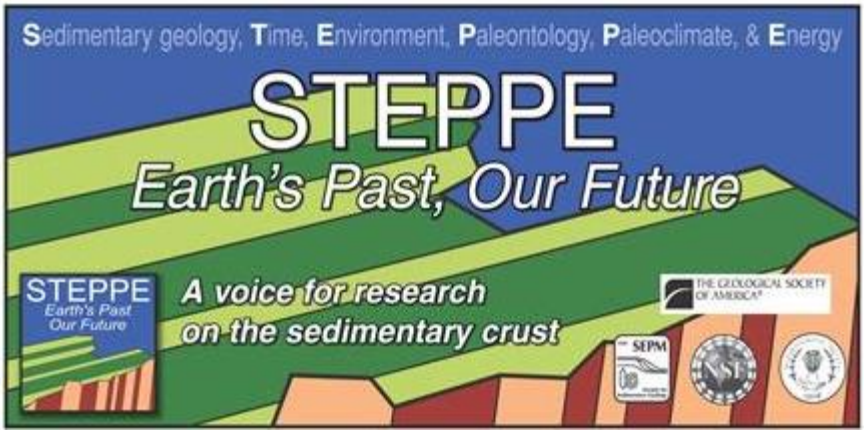
T247. Tracking Life History: New Developments in Ichnological Research. Chairs: Christopher D. Aucoin, Patrick Ryan Getty, & Jayme Csonka

T248. Unlocking Lilliput: New Approaches to Microscopy in Paleontology. Chairs: Thomas Hegna & K. Leo Pullin

T249. Beyond Diversity Curves: Exploring Research Opportunities within the Paleobiology Database. Chairs: Matthew E. Clapham & Carrie E. Schweitzer

P7. Back to the Future: Eocene–Early Oligocene Climatic Response to Geological Processes and Implications for the Future Earth. Chairs: Yildirim Dilek, Philippe Claeys, & Christian Koeberl

The Geological Society of America, the Paleontological Society, and the Society for Sedimentary Geology in STEPPE together



Boulder, Colorado, USA—STEPPE is a newly established, NSF-supported consortium involving the Geological Society of America (GSA), the Paleontological Society (PS), and SEPM (Society for Sedimentary Geology) — designed to coordinate research, teaching, and learning in the areas of sedimentary geology and paleobiology. STEPPE stands for "**S**edimentary geology, **T**ime, **E**nvironment, **P**aleontology, **P**aleoclimate, and **E**nergy," promoting study of Earth's past for our common future.

Predictions of the future require a detailed understanding of the past, and realistic expectations for biotic response to the environmental changes we know to be coming require a deeper understanding of life-environment linkages in the past.

STEPPE is a newly established, NSF-supported consortium involving the GSA, PS, & SEPM(SSG) designed to coordinate research, teaching, and learning in the areas of sedimentary geology and paleobiology

Sedimentary strata in Earth's crust contain most of humankind's natural and energy resources. These also provide the principal long-term archival record of biological evolution and evidence for the causes and ecological consequences of global environmental change. Sedimentary geology and paleontology provide critical benchmark studies of global climate change and its effects on life and the environment through the history of the earth.

STEPPE's mission is to be a voice for and to communicate the results of investigations into these geological records for the benefit of society. This includes training a critically needed sedimentary geology and paleontology workforce to develop energy and environmental applications. STEPPE aims to support these geoscience disciplines by facilitating development of key research infrastructure that will improve acquisition of and access to data, information, and integrative models. STEPPE will help (1) articulate priorities for research in associated disciplines; (2) promote sharing of observations; and (3) publicize new scientific advances to inform energy management and climate policy.

"STEPPE is a major initiative integrating sedimentary geologists and paleontologists, one of the largest global geoscience communities, into a more cohesive research effort with benefits to society world-wide," said Howard Harper of SEPM.

For more information about STEPPE please contact:

Jack Hess, The Geological Society of America, hess@geosociety.org

Sandra Carlson, Paleontological Society, sjcarlson@ucdavis.edu

Howard Harper, SEPM (Society for Sedimentary Geology), hharper@sepm.org

Paleobiology Updates from the Editors

By Bruce MacFadden, Jon Bloch, Michal Kowalewski, Douglas Jones, Natasha Atkins, & Julia Tejada , *Paleobiology* editorial team

Paleobiology has undergone several significant changes since our last report in *Priscum*. Firstly, our Managing Assistant Editorial Luz Helena Oviedo has graduated and moved on to a new position in Bogota, Colombia. During her two and a half years she served *Paleobiology* efficiently and we appreciate her dedication to the position. We wish her well with her new pursuits. Consequently, we are pleased to announce that our new Managing Assistant Editor is Julia Tejada. Julia comes to us from Lima, Peru, and currently is a paleobiology graduate student in the Department of Biology at the University of Florida. The editors welcome Julia to the *Paleobiology* editorial team.

Paleobiology *currently has no backlog, with a six-month lag possible between submission and advance on-line availability.*

Paleobiology now appears on-line (BIO ONE, GSW is anticipated in the future) prior to the official print date. Issues are therefore built incrementally (termed "continuous publication") as they are sent from our Production Editor Natasha Atkins to Allen Press. This typically shortens time to (on-line) publication by a few months. At this point in time, we essentially have no backlog and when papers are accepted, they are typically placed in the next available issue. Thus, if both the review process and production run smoothly, and the author makes timely revisions, then a paper submitted to *Paleobiology* that reviews well oftentimes can appear within about six months. We are currently exploring additional innovations, including an open-access option for individual articles and changes to the fee structure for color printing of figures.

Notwithstanding the changes that we have made on the back end, which significantly decrease time to publication, the front end still is the major challenge to timely overall publication. The editors have set a goal of 90 days from original submission to initial decision, and we are able to achieve this goal in about 75 to 80% of the manuscripts. Traditionally we have specified four weeks for the review, but we have decreased this now to 20 days, and the PS Council has encouraged us to reduce it to two weeks. Nevertheless, obtaining timely reviews remains the main challenge in achieving rapid manuscript processing. To attempt to resolve the problem, we plan to develop an Editorial Board of about two dozen paleobiologists. These board members will agree beforehand to review 2 or 3 articles per year and, in return, they will be recognized for their service in *Paleobiology*. We will seek a diverse representation on this board to include the different fields within the discipline, as well as a range of experience and international representation. Under this new system manuscripts being sent out for review would typically be sent to one Editorial Board member and then we would seek another peer reviewer, thus still securing two reviewers for an article.


Paleobiology

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Please volunteer to review manuscripts in a timely manner! The peer-review process accounts for the greatest delay in the processing of manuscripts

In summary, the *Paleobiology* editors are committed to maintaining the highest quality journal while significantly decreasing the time to publication, both of which are highly desired among the professional community. In order to do this, we need the community to continue to submit your best work to us and also to help us in the review process when called upon.

Paleobiology continues to enjoy high visibility, with an impact factor of 2.926 (BioOne 2010). *Paleobiology* also ranks #3 (out of 49) among paleontology journals.

10th NORTH AMERICAN PALEONTOLOGICAL CONVENTION

FLORIDA MUSEUM OF NATURAL HISTORY

Gainesville, Fl. • Feb. 15–18, 2014

We are pleased to announce that the 10th North American Paleontological Convention (NAPC) will be held in Gainesville, Florida, in February 2014. The meeting will be hosted by the Florida Museum of Natural History (University of Florida) from February 15th through 18th (Saturday through Tuesday). Pre-conference and post-conference field trips are planned for February 13–14 and 19–20, respectively.

The North American Paleontological Convention is a major international paleontological event administered by the Paleontological Society under the auspices of the Association of North American Paleontological Societies. Initiated in 1969, NAPC meets every 4–5 years. The convention includes active participation from all fields of paleontology. Over 500 participants from 26 countries attended the most recent NAPC in Cincinnati (2009).

We extend our warmest invitation to all who are interested in paleontology. Our intention in this meeting is to broaden interest and create new avenues of scientific inquiry within the field of paleontology. Thematically focused symposia will provide a wide range of taxonomically diverse topics designed to demonstrate new research applications and increase communication between the distinct disciplines within the field of paleontology. Special activities and symposia will be available for amateurs and fossil clubs to provide networking opportunities and increase interactions between enthusiastic advocates of paleontology at any level.

Hope to see you in Florida!

For more details, including lodging, registration and abstract information, please visit: www.flmnh.ufl.edu/napc/

Important NAPC Dates

Abstract Deadline: Sept. 20, 2013
Early Registration Deadline: Dec. 8, 2013
Regular Registration Deadline: Jan. 31, 2014
Onsite registration available

10th NORTH AMERICAN PALEONTOLOGICAL CONVENTION

FLORIDA MUSEUM OF NATURAL HISTORY

NAPC Symposia: (www.flmnh.ufl.edu/napc/symposia.htm)

S01: Ediacaran environments and ecosystems (*Lidya Tarhan & Marc Laflamme*)

S02: New advances and applications in sclerochronology (*Donna Surge & David Goodwin*)

S03: Triassic–Jurassic transitional events and the end-Triassic mass extinction (*Rowan Martindale & Lydia Tackett*)

S04: What comes after death: current topics in actualistic taphonomy and integrative paleobiology (*Emma R. Locatelli, Madeline S. Marshall, Marc Laflamme, James D. Schiffbauer, & Simon Darroch*)

S05: Exceptional records: evolution and ecology of microfossils (*Gene Hunt & Pincelli Hull*)

S06: The Cenozoic assembly of the grassland biome: pattern and process in ecosystem evolution (*Caroline Strömberg & Bonnie Jacobs*)

S07: Reconstructing past continental environments from the biogeochemistry of fossils (*Yurena Yanes & Brooke Crowley*)

S08: Pantropical Cenozoic reefs (*James Klaus, Kenneth Johnson, & Willem Renema*)

S09: Stratigraphic paleobiology: integrating sedimentary and fossil records (*Jackie Wittmer & Daniele Scarponi*)

S10: The Cretaceous-Paleogene Gondwanan expressway (*Maria A. Gandolfo & Elizabeth J. Hermsen*)

S11: Modern approaches to educational outreach in paleontology (*Peg Yacobucci*)

S12: From macroecology to macroevolution: the ecological context of extinction and origination (*Seth Finnegan*)

S13: The microfossil record: the past is the key to the future (or present) in conservation paleobiology (*Pamela Hallock Muller & Laurel S. Collins*)

S14: Form and function: tracing the foundations of animal diversity, ecology, and functional morphology (*Mike Meyer & James D. Schiffbauer*)

S15: Ecological fidelity and resolution of the fossil record across broad spatial and temporal scales (*Adam Tomašových, Joshua Miller, James Nebelsick, & Martin Zuschin*)

S16: Digitization in vertebrate paleobiology (*Aaron R. Wood*)

S17: Conservation paleobiology: ecosystem, community, and species response to environmental change (*Carrie L. Tyler, Sahale N. Casebolt, & Rebecca Terry*)

S18: Celebrating public participation in paleontology (*Austin J.W. Hendy & Bruce J. MacFadden*)

NAPC Field Trips

Haile Quarry/Thomas Farm: Open-pit quarrying at the Haile quarries 15 miles west of Gainesville creates exposures of the highly fossiliferous late Eocene Ocala Limestone (echinoids, crabs, mollusks, bryozoans, foraminiferans, sharks, archaeocete whales [rare]). The quarrying also exposes ancient sinkholes that were formed and filled in the late Miocene or Pleistocene, many of which have produced abundant faunas of terrestrial and freshwater vertebrate species. A 45-minute-drive northwest of Haile is the world-famous Thomas Farm site, which has been excavated for over 80 years and has produced an early Miocene vertebrate fauna with > 100 species and an excess of 50,000 identifiable specimens.

Bone Valley Phosphate Mine: Located in south-central Florida about a three-hours-drive from Gainesville is one of the world's major phosphate mining regions. The deposits range in age from middle Miocene to early Pliocene, and produce several mixed terrestrial-marine vertebrate faunas. Shark teeth are very abundant as are moldic mollusks, but fossils of dugongs, whales, three-toed horses, turtles, etc. are also frequently found.

SMR Aggregates (formerly Quality Aggregates) Quarry: This commercial sand and shell quarry near Sarasota exposes extremely fossiliferous beds of the Plio-Pleistocene Tamiami Formation. Mollusks in the higher beds include over 1,000 species of bivalves and gastropods. Corals, barnacles, echinoderms, crabs, and others are also common. Vertebrates in the upper beds are a mix of marine (seals, sea birds, fish) and terrestrial (horses, sloths, llamas, etc.) taxa, while the lower Pliocene beds are strictly marine (whales, walrus, sharks). The quarry is a three-hour-drive south of Gainesville.

For more information, see
www.flmnh.ufl.edu/napc/fieldtrips.htm

The Florida Keys: The Florida Keys are divided into upper and lower portions based upon the geomorphology of these islands. From Marathon north, the islands consist of a fossilized reef tract dating to the last interglacial (Sangamon) period. The fossil reef tract is part of the late Pleistocene Key Largo Limestone. At Windley Key Fossil Reef Geological State Park quarrying operations exposed the internal framework of this paleo-reef tract. In this park visitors can examine fossil corals embedded in the walls of an abandoned quarry. The lower Keys, from Marathon south to Key West, consist of muddy limestone and oolite of the late Pleistocene Miami Limestone. These deposits formed in a shallow marine environment similar to the modern ooid shoals in the Bahamas. The Florida Keys also divide the modern reef tract along the Atlantic side from Florida Bay along the Gulf of Mexico side. Modern carbonate environments on both sides of the Keys provide ample opportunity to see analogs for many interpreted paleoenvironments.

The Florida Panhandle: This part of Florida is completely different, both geologically and ecologically, from the peninsula. Fossiliferous sediments ranging in age from late Eocene through Pleistocene crop out along river corridors and are exposed in quarrying operations in this part of the state. We will visit several localities, including the classic exposure at Alum Bluff, and several active mines. Many of the strata in the Florida Panhandle are highly fossiliferous, including the lower Miocene Chipola Formation and the Pliocene Jackson Bluff Formation which are both known for their diverse and well preserved molluscan faunas. The various strata we will investigate contain a wide variety of fossil species representing open marine, nearshore, deltaic, and fluvial depositional environments.

Course Announcements

University of Washington, Paleontology Field Methods & Research, (BIOL 475A, 4 credits)

Check out this amazing course for an incredible summer experience of paleontology fieldwork in Hell Creek, Montana. Get your hands dirty learning the basics of field geology and paleontology, excavating mammal and dinosaur fossils like *Triceratops*, and analyzing data that contribute to research on the extinction of dinosaurs and the rise of mammals.

The course is a five-week introduction to paleontological field methods and research, in which students develop skills in collecting, analyzing, and interpreting field data and designing research projects by participating in ongoing paleontological research on the Cretaceous-Paleogene mass extinction. Topics include excavation of fossils, identification and curation of fossils, collection/interpretation of stratigraphic and taphonomic data, and report writing.

If you are a high-energy, enthusiastic student ready for a summer of hard work and discovery, please contact the instructor Greg Wilson (gpwilson@uw.edu)!

Course Details (June 24 – July 24)

- **Lecture/Lab Component:** Intro lectures on principles in field paleontology, geology, and taphonomy as well as the scientific context of the research. Lab sessions to introduce the fossil vertebrates, curate collected fossil specimens, analyze data, and present final reports.
- **Fieldwork Component:** 2.5 wks (Jun 30-Jul 18) at the Hell Creek State Park in NE Montana learning basic paleontology and geology field techniques, gaining context of ongoing research, and engaging in group research projects.
- **Course fee of $120 and Program fee of $1,025** covers transportation, meals, lodging, and equipment for fieldwork.
- **More info:** http://faculty.washington.edu/gpwilson/BIO475_Paleo_Field_Methods.htm

Entry Code: contact instructor Greg Wilson (gpwilson@uw.edu) for an entry code.

Greg and students examine *Triceratops* skull bones (left). Students show off plant fossil discovery (right)

Conference Announcements

International Symposium on Foraminifera (FORAMS 2014), Concepcion, Chile

We are pleased to announce the International Symposium on Foraminifera (FORAMS 2014) to be held at the Main Campus of the University of Concepcion, in Concepcion, Chile on 19-24 January, 2014.

Papers covering a wide range of research topics are invited, including all aspects of foraminiferal biology, biostratigraphy, biogeography, ecology and paleoecology, paleoceanography, molecular evolution and systematics, and paleoclimatology.

The website is available with preliminary information at www.udec.cl/forams2014. This website will be continuously updated. A facebook site is available at http://www.facebook.com/Forams2014.

Call for papers for Burgess Shale symposium at 4th IPC, Mendoza, Argentina

A symposium titled "Burgess Shale-type deposits and the origin of modern ecosystems" will be organized as part of the fourth International Palaeontological Congress in Mendoza, Argentina (Sept 28-Oct 3, 2014). This symposium will be an opportunity to share the latest research on the Cambrian Explosion with a broad range of scientists.

We encourage presentations (oral or poster) in systematic and evolutionary palaeontology, paleoecology, ichnology, taphonomy, geochemistry, environmental reconstruction as well as developmental and evolutionary biology. While we anticipate presentations related to Burgess Shale-type deposits we welcome participation of researchers working on other types of Cambrian fossil deposits and any researchers interested by the Cambrian explosion in general.

Please send an email to symposium organizers Jean-Bernard Caron (jcaron@rom.on.ca) and and Jean Vannier (Jean.vannier@univ-lyon1.fr) and indicate if you are likely (option 1) or simply interested (option 2) to attend this symposium. Oral presentation slots will be limited and we anticipate that this symposium will be quite popular, so early responses are highly encouraged to make sure we can accommodate as many people as possible.

Additional information is available at www.ipc4mendoza2014.org.ar/symposia/

Save the date: PRI's 2013 Summer Symposium

The Summer Symposium at the Paleontological Research Institution (PRI) will once again occur in Ithaca, New York. The PRI Summer Symposium is a small, fun, and relatively informal symposium held at the end of the summer each year. Talks and posters will take place on Saturday, August 3, and a field trip is being organized for the afternoon of Sunday, August 4. Additional details (including how to submit abstracts and more info about the field trip) are forthcoming. Contact Dana Friend (dsf88@cornell.edu) with any questions.

Call for papers for Konservat-Lagerstätten session at 2013 GSA annual meeting

Xiaoya Ma (Natural History Museum London) and Maria McNamara (University College Cork) invite you to contribute to our session T243: 'Konservat-Lagerstätten: morphology, ecology, and taphonomy of exceptionally preserved fossils" at the 2013 GSA annual meeting.

Konservat-Lagerstätten offer unique insights into the evolution of life. Research into this subject area is entering an exciting phase, with novel applications of analytical methodologies, emergence of new fields and discovery of new fossil localities. This session will be a forum to present frontier research on Konservat-Lagerstätten and will encompass studies focusing on the morphology, ecology, evolution and taphonomy of exceptionally preserved fossils.

Our session will feature contributions from three invited speakers (Derek Briggs, Bob Gaines and Tom Harvey) and other high-profile paleontologists in the field. Our session is sponsored by the Paleontological Society and the Palaeontological Association (UK) and we can offer financial assistance for early career researchers (PhD students and postdoctoral researchers) to present their work at our session.

Please contact us (maria.mcnamara@ucc.ie / maria.mcnamara@bristol.ac.uk or x.ma@nhm.ac.uk) to express your interest or if you have any questions.

Section news and updates

Northeast section meeting events

Held Mar. 18–20 in Bretton Woods, NH

Northeastern PS section chair: Alex Bartholomew

T29. Refining the Iconic New York Devonian: A New Time-Rock Synthesis (Co-chairs Charles A. Ver Straeten, Carlton E. Brett, Gordon C. Baird and D. Jeffrey Over)

Two poster sessions

Southeast section meeting events

Held Mar. 20–21 in San Juan, Puerto Rico

Southeastern PS section chair: Bradley Deline

T3. Multidisciplinary Approaches to Caribbean Stratigraphy and Paleontology (Co-chairs Jorge Vélez-Juarbe and Alvin J. Bonilla-Rodríguez)

T12. Quaternary Caribbean Reef Systems (Co-chairs Clark Sherman, Wilson Ramírez and David Cuevas)

T24. Multidisciplinary Paleontology Research (Co-chairs Andrew K. Rindsberg and Kathlyn M. Smith)

Three poster sessions, including one focused on undergraduate research

South-Central section meeting events

Held Apr. 4–5 in Austin, TX

South-Central PS section chair: Ben Waggoner

T4. The Paleontology of Texas I and II (Two sessions): A Session in Honor of Wann Langston, Jr. (Co-chairs Michelle R. Stocker, William G. Parker, Ernest Lundelius and Christopher Brochu)

T18. Reefs and Reef-Like Buildups of North America: Modern and Deep-Time Biological and Climate Records and Exploration Potential (Co-chairs Ann Molineux and Robert W. Scott)

Thank you to the many organizers, chairs, and participants who made this year's section meetings a success!

T24. Building Comprehensive Models of Epicratonic Paleoenvironments from Integrated, Basin-Scale, Lithostratigraphic and Chemostratigraphic Datasets (Co-chairs Harold Rowe and Stephen Ruppel)

Two poster sessions

Fieldtrip: Late Cretaceous Strata and Vertebrate Fossils of North Texas (Organized by Louis L. Jacobs, Michael J. Polcyn, John Wagner, and Dale Winkler)

Fieldtrip: Friesenhahn Cave: Late Pleistocene Paleoecology and the Predator-Prey Relationships of Mammoths with the Extinct Scimitar Cat (Organized by Russell W. Graham, Ernest L. Lundelius, Jr., and Laurence Meissner)

The many benefits of PS sponsorship

Section organizers of sessions and fieldtrips are encouraged to request that your event be sponsored by the Paleontological Society. Funds may even be available to support students attending fieldtrips and non-normally attending speakers in conference sessions. Contact Program Coordinator Tom Olszewski (tomo@geo.tamu.edu) for details.

Section news and updates

North-Central section meeting events

Held May 2–3 in Kalamazoo, MI

North-Central PS section chair: Rebecca L. Freeman (Outgoing chair: Benjamin Dattilo)

T15. Paleontology as a Murder Mystery: How the Study of Predation and Taphonomy Reveals the Means, Motives & Opportunities of Ancient Perpetrators and Their Victims (Co-chairs Karen A. Koy and Joseph E. Peterson)

T22. Topics in Vertebrate Paleontology (Co-chairs Michael J. Ryan, Evan E. Scott and Chuck Ciampaglio)

One poster session

Cordilleran section meeting events

Held May 20–22 in Fresno, CA

Cordilleran PS section chair: Nicole Bonuso

T13. Irvingtonian Paleoecology of Western North America (Co-chairs Robert G. Dundas and Eric Scott)

One poster session

Fieldtrip: Middle Irvingtonian Fairmead Landfill Fossil Site and Fossil Discovery Center of Madera County, California (Organized by Robert G. Dundas, James C. Chatters, and Eric Scott)

Rocky Mountain section meeting events

Held May 15–17 in Gunnison, CO

Rocky Mountain PS section chair: Leif Tapanila

No paleontology sessions held

International section meeting events

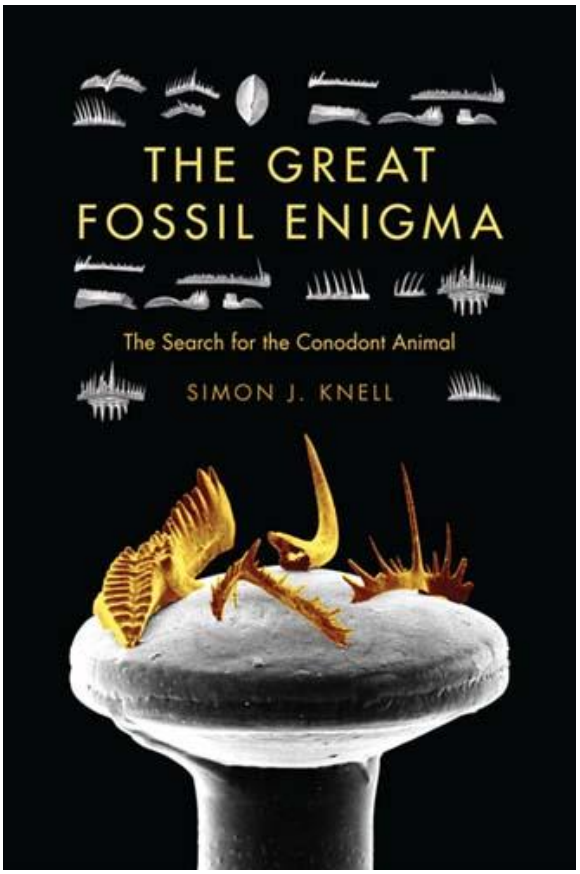
Held as a joint scientific meeting of GSA and the Geological Society of China, June 17–19, in Chengdu, China

C-1: Critical transitions in the history of life and Earth (Co-chairs Shuhai Xiao, Zhonghe Zhou, Qiang Ji, and Junyuan Chen)

C-2: Mass extinction at the Permo-Triassic boundary and subsequent recovery dynamics (Co-chairs Hongfu Yin, Jonathan Payne, and Shuzhong Shen)

Fieldtrip: Permo-Triassic boundary and early Permian–middle Triassic marine stratigraphic sequence of the northern margin of the upper Yangtze platform (Organized by Zhongqiang Chen, Haishui Jiang, and Zhiqiang Shi)

Book reviews



Knell, S.J. 2013. *The Great Fossil Enigma: The Search for the Conodont Animal*. Indiana University Press, Bloomington, IN, 413 p. ($31.50 cloth, $26.59 ebook with 30% PS discount.)

Reviewed by Stephen K. Donovan (Naturalis Biodiversity Center, Leiden, the Netherlands)

Simon Knell has written a book to educate and entertain paleontologists about the pursuit during the past 150+ years for Walt Sweet's "fascinating little whatzits" (1985). *The Great Fossil Enigma* is a history of research on the conodonts from Pander to the 21st Century, particularly focusing on the changing ideas about the animal that produced the fossils, but not ignoring other aspects. It is a story packed with more characters, wild ideas, cultural restraints, dead ends, facts, errors and disagreements than any cliffhanger best seller. That is, it is paleontology as we all know it. Indeed, Knell's book does read like a thriller, not a whodunit, but a chase, with the conodont's true identity remaining hidden for much (all?) of the story.

What is good about *The Great Fossil Enigma*? First, Knell's style of writing is highly readable; I already knew this from one of his earlier book (Knell 2000) which I've recently been re-reading (and also recommend) in my pursuit of 19th-Century crinoid collectors from the type Devonian. He has empathy not just with paleontology, but also with paleontologists, such that his cast of characters comes alive on the page. And what a cast! I never knew that the likes of even Richard Owen and Thomas Henry Huxley were involved in debates on the nature of the conodont in the 19th Century. Knell brings alive the requirements of stratigraphic versus more biological studies in the first half of the 20th Century. He knows the strength of a telling analogy: "Anyone assembling a jigsaw puzzle knows that reference to the box lid simplified matters, and it seems that the box lid [of the conodont animal] in Ellison's mind carried the image of a vertebrate" (p. 84). Much of this book will resonate with readers, like myself, who aren't conodontologists per se, but who persevere in reassembling and classifying other fossils commonly preserved as tiny 'bits', such as arthropods and micromammals (see Chapter 5, 'Outlaws'). And Knell is happy to pursue dead ends of related research pertinent to his story, such as looking for iridium anomalies associated with the Late Devonian mass extinction (Donovan, 1987).

Of course, the real star turns are those of conodont animals, either putative or otherwise, and their describers. Melton, Scott and the 'beast of Bear Gulch" are here, as is Conway Morris and *Odontogriphus* of the Burgess Shale, but the real center stage belongs to Clarkson, Aldridge, Briggs, Gabbott *et al.*—the Pommie Bastard Conodont Group (p. 342)—and the wonderful specimens from the Granton shrimp bed and the Soom Shale. Yet, with all these fine fossils pointing the way to a vertebrate affinity, there are still many who choose to deny it, although they appear to employ more rhetoric than science in their, dare I say, manifesto (pp. 352-353). I'm reminded of Groucho Marx in *Horsefeathers*:

> I don't know what they have to say,
>
> It makes no difference anyway,
>
> Whatever it is, I'm against it.

May the Poms continue to rattle the cage of Aussie Rhetorical Science Expositors for many years to come.

Book reviews

As an aside, I was particularly pleased that *The Great Fossil Enigma* emphasizes the importance of the collecting skills of Neil Clark, now of the Hunterian Museum in Glasgow, to the understanding of the Granton shrimp bed animal (Chapters 13 and 14). Neil is a collector *nonpariel*, who found most of the Granton shrimp bed conodont animals; "… Clark's constant supply of animals had progressed many of these initially tentative arguments [about the morphology and relationships of the conodont animal] to a point of certainty" (p. 322). But Clark only appears to have been invited as a co-author on one paper about them. Without Neil's contribution, our modern interpretation of conodont gross morphology would be much less certain. Contrast this with the close collaboration between Harold Scott and Bill Melton (Chapter 11).

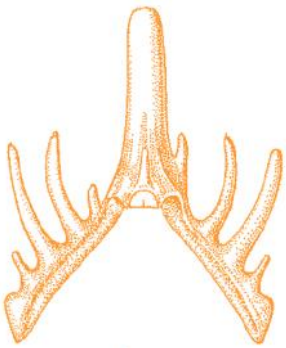
Simon Knell has written, and written particularly well, the history of our conception and misunderstanding of the conodonts. It is the best semi-popular account of the history of paleontology that I have read since Gould's *Wonderful Life*. *The Great Fossil Enigma* deserves to be widely read and enjoyed, not just by those who work on conodonts, but by a broad cross-section of paleontologists, geologists and anyone with an interest in our understanding of the natural world.

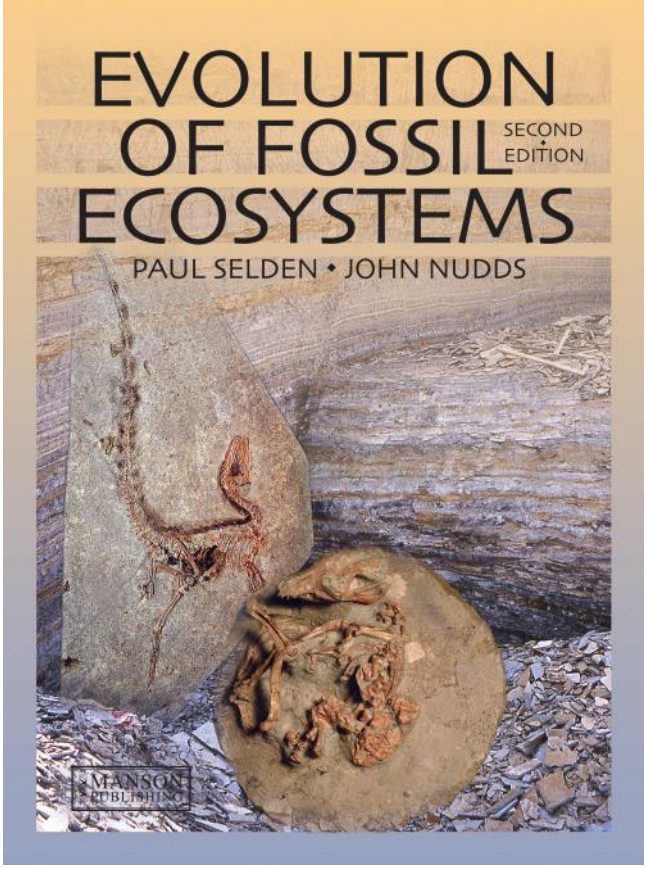
Works Cited

Donovan, S.K. 1987. Iridium anomalous no longer? *Nature* 326:331–332.

Knell, S. J. 2000. *The Culture of English Geology, 1815-1851: A Science Revealed Through its Collecting*. Ashgate Publishing, Aldershot, UK and Burlington, VT.

Sweet, W.C. 1985. Conodonts: those fascinating little whatzits. *Journal of Paleontology* 59:485-494.





Selden, P. and J. Nudds. 2012. *Evolution of Fossil Ecosystems*. 2nd ed. Manson Publishing Ltd., London, 288p. (£29.95, ~$45 paperback.)

Reviewed by Thomas Hegna (Western Illinois University)

Fossil Lagerstätten have been a hot topic of research over the last 20 years as paleontologists have discovered new sites of exceptional preservation and endeavored to understand how they come to be. Cataloging many of these advances is the second edition of Paul Selden and John Nudds' *Evolution of Fossil Ecosystems* (hereafter *EOFE*). This book follows nearly ten years after the publication of the first edition and is notably expanded. I must say that I wholeheartedly endorse the author's project, and I hope they continue until they have produced a volume containing *all* fossil Lagerstätten. By my count, this should only be 50–100 additional chapters…

Book reviews

The 2nd edition contains six new chapters: Chengjiang (China, Cambrian), Herefordshire (U.K., Silurian), Karoo (South Africa, Permian), Jehol (China, Cretaceous), El Montsec & Las Hoyas (Spain, Cretaceous), and the White River Group (USA, Palaeogene). This brings the total number of chapters to 20, but the number of Lagerstätten that are discussed is almost double that due to comparative discussions at the end of each chapter. The chapters present in the 1st edition are updated with added paragraphs describing new discoveries.

This is not the first book to attempt to collect information about different fossil Lagerstätten into one volume (Table 1). In addition to the 1st and 2nd editions of the *EOFE*, Nudds and Selden also produced *Fossil Ecosystems of North America* (2008). All of these were preceded by Bottjer *et al.*'s *Exceptional Preservation* (2001). Between these three different books (evaluating the 1st and 2nd editions of the *EOFE* together) there is surprisingly little overlap—in an odd coincidence, each book contains nine chapters that are not found in any of the other volumes. The choice of new chapters by Selden and Nudds suggests that they are consciously avoiding Lagerstätten treated elsewhere.

The chapters in the new edition of *EOFE* span both geologic time and taxonomic interest relatively evenly. One could point to specific holes in the coverage of specific chapters (the notostracans from the Jehol Biota?) but such would be petty. The fact is that each chapter presents great geologic and taxonomic summaries of each site, distilling down what is often a very disconnected literature into a coherent narrative. Both vertebrate and invertebrate-dominated Lagerstätten are included, as well as all of the major modes of preservation (except for modes restricted to the Quaternary, like freezing, desert mummification, and peat mummification—whether or not those count as fossils is a separate issue). Thus, this book is well suited for the academic and avocational paleontologist, and is ideal for use in a seminar-style class on exceptional preservation.

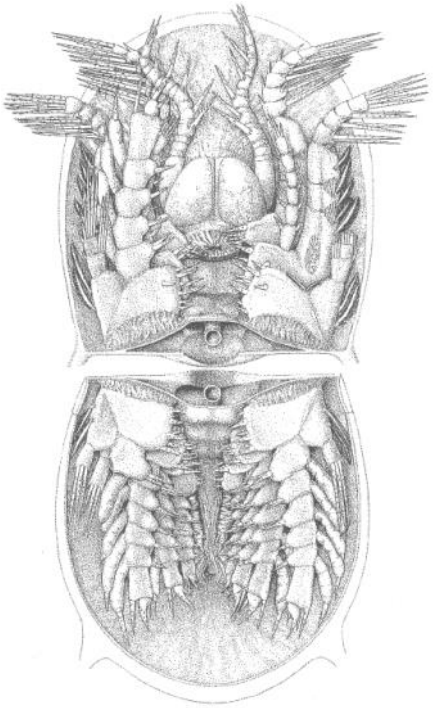
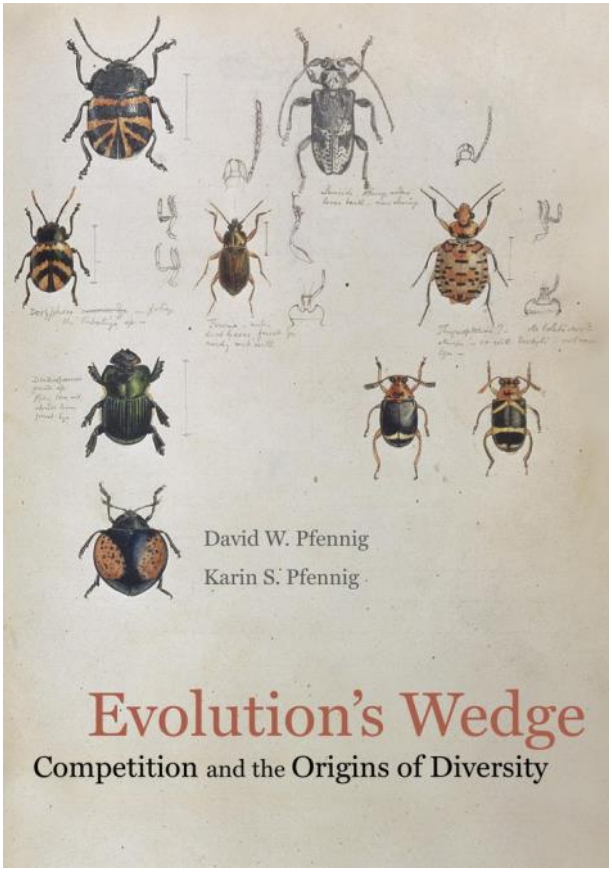


Table 1. Summary of published texts summarizing Lagerstätten. Asterisks denote small-format books. "Unique chapters" includes coverage of Lagerstätten not focused on in other texts.

Book	Date	Chapters	Unique Chapters	Pages
Exceptional Preservation (Bottjer et al.)	2001	20	9	403*
Fossil Ecosystems of North America (Nudds and Selden)	2008	14	9	288*
Evolution of Fossil Ecosystems, 1st Edition (Selden and Nudds)	2004	14	0	160
***Evolution of Fossil Ecosystems*, 2nd Edition (Selden and Nudds)**	2013	20	9	288

Book reviews



Pfennig, D. W. and K.S. Pfennig. 2012. *Evolution's Wedge: Competition and the Origins of Diversity*. Univ of California Press, Berkeley and Los Angeles, CA, 320 p. ($75.00 cloth, $75.00 ebook.)

Reviewed by Andrej Spiridonov (Vilnius University, Lithuania)

Competition—the antagonistic interaction between individuals caused by the limitations of various vital resources—has been seen ever since Darwin as one of the major factors driving evolutionary change at various temporal and spatial scales (Jablonski 2008). Competitive processes are expressed in different forms and sometimes produce various consequences for interactors. In paleontology, competition is usually identified as a negative force that, in the long-term, eliminates whole clades and by doing so, radically reshapes biotic composition of the biosphere (for example, Sepkoski 1996). However, there is another, milder and more creative ramification of this evolutionary process. It is so-called character displacement, the major theme of the splendid and well-structured book *Evolution's Wedge: Competition and the Origins of Diversity* written by the David and Karin Pfenning.

The authors here follow the definition of character displacement first proposed by Brown and Wilson (1956): "trait evolution that arises as an adaptive response to resource competition or deleterious reproductive interactions between species" (p. x in the Preface). Starting from this point they address conceptual ambiguities of the meaning and various methods to recognize instances of character displacement. The authors explicitly state that character displacement is a process and not a pattern. That means that there should be protocols developed by which we can distinguish different processes responsible for producing similar patterns. The most typical outcome of character displacement is the increased dissimilarity in phenotype between competing species in sympatry relative to those phenotypes found in allopatry, when focal species do not interact with each other. Other processes listed by the authors that could produce similar patterns, among other processes, are genetic drift following colonization of new environments, selective pressure caused by common enemies, and so called species sorting. [The term "species sorting" used by the authors uses a very different conception from that used by paleobiologists, i.e., the neutral term describing differential proliferation of species in a clade (Vrba and Gould 1986). In *Evolution's Wedge*, species sorting is understood as the population-level process describing invasions of species into a new community which are different from each other because of their previous evolutionary histories and not because of an immediate reciprocal competitive interaction.] It is fortunate that some of the discriminating criteria listed in the book—such as occurrences of parallel displacements in different sympatric populations, increased differences in characters that are associated with resource use or reproduction, and over-dispersion of traits between closely related sympatric species—could be, at least in some instances, inferred from paleontological data. So, as pointed out by the authors, the hypothesis of character displacement is, in principle, testable in deep time.

This book represents what could be called a synthesis of

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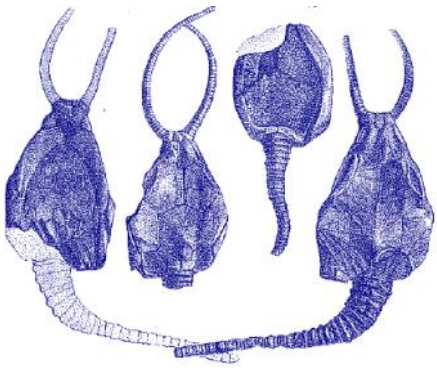
character-displacement concepts. The authors recognize four types of character displacement which could take place independently or interact with each other, producing various forms of competitively mediated evolutionary divergence. These include the four combinations of interspecific and intraspecific ecological and reproductive character displacement. Moreover, the authors demonstrate how those four instances of character displacement could interact with other evolutionary (e.g. sexual selection, speciation) and proximate (phenotypic plasticity, genetic canalization) mechanisms. As a class of organism-level selective processes, character displacement, in concert with other evolutionary processes, creates important fitness consequences for at least two higher levels of biological organization. It was demonstrated in the book, using both numerous examples and theoretical considerations, that competition which ends in character displacement, in general, should promote coexistence in sympatry of populations of competing species, i.e. a lower probability of extirpation. At the species level, a geographic mosaic of polymorphism caused by local character displacement events could, as noted by the authors, increase extinction resistance of the whole species and also catalyze speciation processes and even whole adaptive radiations.



Sound as it is, character displacement hypothesis is based on the fundamental assumption of the impossibility for species to coexist in the same niche at the same time and place, which was repeated through the book over and over again. This is true if interacting species could be ranked hierarchically based on their competitive superiority, i.e. when their interactions are transitive. On the other hand, if in the competitive superiority data, loops are found (i.e. when power relations are intransitive), the above-mentioned assumption no longer holds. Species occupying the same niche could coexist indefinitely long due to the cyclic topology of competitive superiorities (May and Leonard 1975) and in that case there is no need to evoke character displacement hypothesis. The authors almost do not mention the role of transitive/intransitive dynamics in their discussion of character displacement (except one example of "rock-paper-scissors" dynamics on p. 127) despite its great role in validating the approach. Intransitivity of competitive interactions is not just a theoretical quirk, but has been confirmed in different groups of organisms in different ecosystems (Laird and Schamp 2008). So, if there are more than two possible competitors (be it different species or just polymorphs of the same species) in an analyzed community, there will always exist the possibility for intransitivity. In these cases, the assumption of transitivity ideally should be tested.

Despite these mentioned shortcomings, *Evolution's Wedge* is highly recommended for everyone who is interested in the role of competition shaping biological diversity at different temporal and spatial scales and its role in ecology and evolution.

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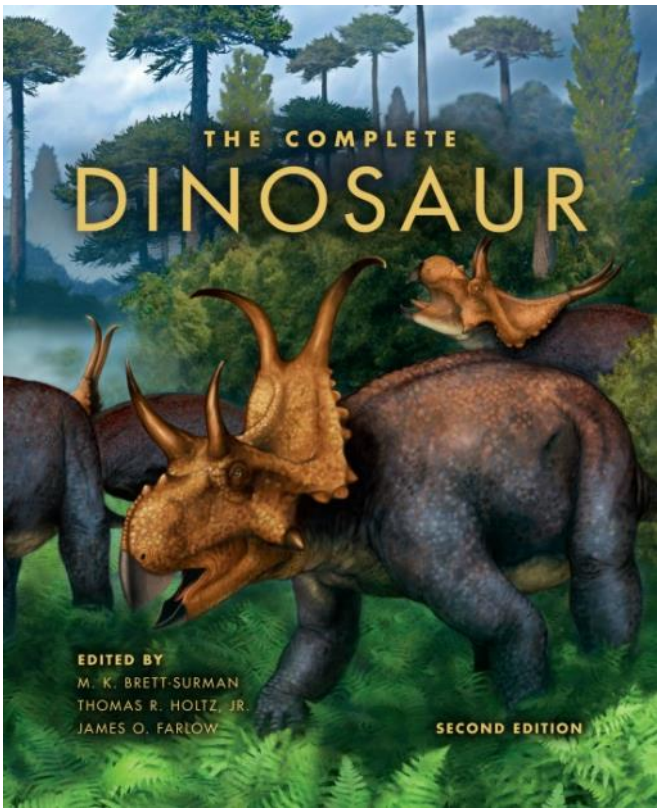

Brett-Surman, M.K., T.R. Holtz, Jr., and J.O. Farlow, eds. 2012. *The Complete Dinosaur*. Indiana University Press, Bloomington, IN, 1128 p. ($59.50 cloth, $52.49 ebook with 30% PS discount.)

Reviewed by Stephen Brusatte (University of Edinburgh)

The 1990s were a boom decade for dinosaurs in popular culture. *Jurassic Park* was released to huge critical acclaim and public fascination, no fewer than five (!) *Land Before Time* movies made it to video, *Mononykus* graced the cover of *Time*, and the Field Museum purchased a *Tyrannosaurus* skeleton for nearly $10 million. Many children of the '90s, me included, were so swept up by dinosaur mania that we pursued careers in paleontology. Many others went through a dinosaur phase that later evaporated, but along the way learned about science, evolution, and earth history in something of a "Trojan-horse" way, through the non-threatening medium of dinosaurs.

I fondly remember one of the first dinosaur books I purchased as a fossil-obsessed high school student in the late 1990s. It was called *The Complete Dinosaur* (), and it was a phonebook-sized tome edited by two leading paleontologists, with several short chapters on the different groups of dinosaurs, how dinosaurs grew and behaved, and what methods scientists used to study these rapidly changing topics. It wasn't a kids' book or one of those mass-produced dinosaur encyclopedias that were so common in the 1990s, nor was it a textbook or a technical volume for scientists. Instead, it was meant to be something of a hybrid: a professionally produced, intelligently written celebration of the latest developments in dinosaur research for the educated lay reader. Coming on the heels of *Jurassic Park*, *The Complete Dinosaur* was a landmark publication for communicating the realities of dinosaur science to the public.

Quite a bit has changed in the fifteen years since *The Complete Dinosaur* was published. What we have learned about dinosaurs during this time is staggering. The feathered dinosaurs of China, the first of which were announced as *The Complete Dinosaur* was being written, now number in the thousands of specimens and have closed the book on the once-controversial theory that birds evolved from dinosaurs. On average, one new dinosaur species is found every week or two. CT scanning has revolutionized the field, allowing scientists to peer inside the brains of dinosaurs and better understand how these animals thought, sensed, and moved. Bone histology, isotopic studies, and computer programs for studying locomotion have helped us understand the biology of dinosaurs in such detail that we now know more about dinosaurs than many living groups of animals. The current state of dinosaur science is vibrant, and many young paleontologists who came of age during the 1990s are now leading the charge.

All of these developments have conspired to make the original version of *The Complete Dinosaur* woefully out of date. So the editors did the only natural thing: they produced a new, updated version that encapsulates the state of dinosaur research circa 2012. A new editor, the tyrannosaur specialist Thomas Holtz, joined the team, along with several scientists who contributed individual chapters. Many of the new authors are mid-career researchers who finished their PhDs and secured their first positions around the time the first edition of the

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book was published. The new edition is several hundred pages longer than the original, and includes 45 chapters that together flesh out the story of dinosaur evolution. The first chapters focus on the discovery and early studies of dinosaurs. These are followed by chapters describing the anatomy and systematics of dinosaurs, and then a series of chapters on the major individual dinosaur subgroups (including birds). The meat of the book is nearly 20 chapters on dinosaur biology and evolution, summarizing the latest research on how these fascinating creatures fed, reproduced, grew, moved, breathed, evolved over time, and ultimately went extinct.

The second edition of *The Complete Dinosaur* is a solid, enjoyable book that is useful to both amateurs and professionals. Most of the chapters are well written and do a nice job of explaining dinosaur anatomy, biology, or evolution in terms that an educated lay reader will understand, without too much jargon or technical prose. But researchers will get something out of this book as well. Few dinosaur paleontologists are experts on all things dinosaur. Many of us focus on one particular research area—anatomy, systematics, diet, locomotion, growth, you name it—and this book is a helpful summary of research advances and techniques in those areas that we may be less familiar with. *The Dinosauria* (Weishampel, *et al.* 2004) remains the signature technical book on dinosaurs, but the latest edition is nearly 10 years old and miserably out of date. For the time being, until a third edition of *The Dinosauria* is produced, the second edition of *The Complete Dinosaur* is among the handful of books that dinosaur researchers will want on their shelves.

As with any edited volume, some of the chapters in this second edition are more reader friendly than others. If I have any overarching criticism of the book, it is that, at times, it feels more like a collection of individual pieces than a flowing narrative of dinosaur evolution. My other main criticism regards how dinosaur physiology is explained. Most topics, such as dinosaur growth and feeding, are summarized in a single chapter. But the editors decided that dinosaur physiology is a controversial-enough subject to deserve three chapters: one arguing that dinosaurs had a reptile-like physiology, another that they had bird-like levels of activity, and a third advocating something of an "intermediate" position. True, the debate over "warm-blooded" vs. "cold-blooded" dinosaurs has been a mainstay of dinosaur research, and especially dinosaur television documentaries, over the past few decades. But the evidence is now overwhelming that dinosaurs had elevated levels of metabolism, grew fast, and had physiologies that were much more bird-like than crocodile-like. With this in mind, the chapter by John Ruben and colleagues, which argues that dinosaurs had ectothermic physiologies and may not have been closely related to birds, seems like a relict from another era. Reading this chapter is sure to infuriate many dinosaur workers, but I'll leave it at that.

But don't let these few criticisms detract from the book. The second edition *of The Complete Dinosaur* is a special book, which will no doubt continue the legacy of the first edition in bringing cutting-edge dinosaur science to the public.

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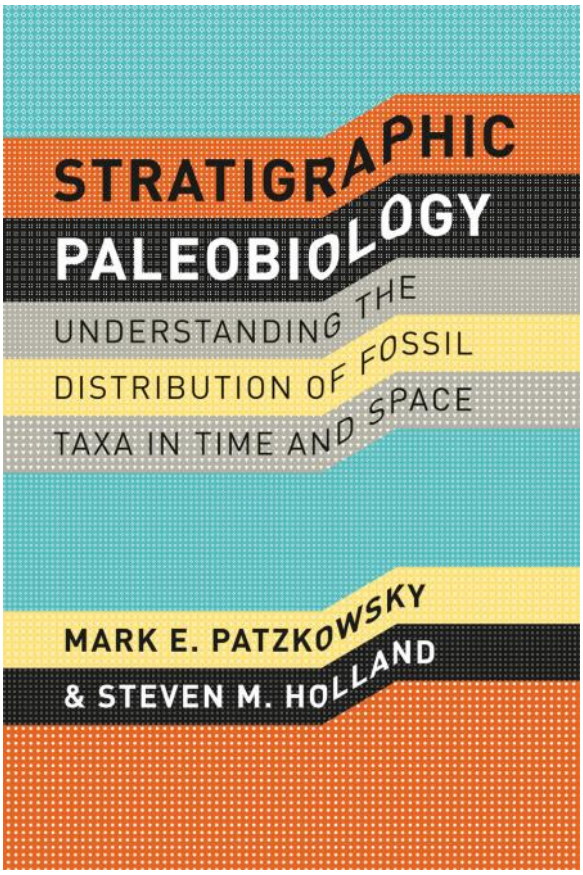

Patzkowsky, M.E. and S.M. Holland. 2012. *Stratigraphic Paleobiology: Understanding the Distribution of Fossil Taxa in Time and Space*. Univ of Chicago Press, Chicago, IL, 256 p. ($79.10 cloth, $24.50 paper, $21 ebook with 30% PS discount.)

By Nigel Hughes (University of California, Riverside)

Darwin famously located his discussion of the fossil record in the middle part of the *Origin of Species,* where he spent one chapter explaining why the fossil record might seem not to support his theory before devoting a second chapter to showing how, in fact, it did. Geology's role in the *Origin* was more stanchion than pillar because Darwin viewed biotic interactions as the prime driver of evolution and it was a hundred years before Simpson's *Tempo and Mode in Evolution* mounted a serious challenge to that view. *Stratigraphic Paleobiology* is an important book not only because it seeks to disentangle the influence of stratigraphy on the interpretation of evolutionary patterns (driven biotically or otherwise), but also because it helps elucidate how geological setting has affected evolution.

The book's structure follows a logic explained in the pithy preface: a consideration of the stratigraphic context of fossils, followed by an exploration of the kinds of ecological and evolutionary patterns we can learn from them. The preface also explains several issues that the authors consider to be central to their approach, such as their commitment to assessing fit rather than seeking statistical significance *per se*. The principles and logic outlined in the introduction provide clear guidelines for the structure of the rest of the book, which progresses via consideration of the fundamentals of field-based paleontology at the outcrop level through to the global history of biodiversity. Readers, including students in our graduate class, have found the book's structure and writing exceptionally clear. It opens by asking how faithfully skeletal fossil assemblages represent species form and its variation through time, and ultimately how they represent community diversity and structure. The message is generally good news: provided care is taken to understand what is preserved and how, it is possible to make inferences that show us how lineages have evolved and how communities have changed. The scope then expands through a consideration of how we can make inferences about community structure, its relation to the physical environment, and how this has changed through space and time. The book makes no bones about its faith that the fossil record can provide us detailed and relevant information about how communities have responded to past environmental change. The suggested research program outlined is serious and demanding. It requires sustained effort to acquire familiarity with the study system, while showing that important patterns can still be retrieved before the species-level systematics of all groups is finalized or their phylogenetic context secured. I appreciated this balance, because it provides a realistic path between a taxonomic miasma requiring a lifetime's work before conclusions can be drawn, and the tendency to "do" the ecological changes associated with extinction boundaries or radiations of choice before moving elsewhere in the column.

The sequence stratigraphy chapter is short and to the point, a practitioner's guide that codifies principles in the reader's mind that are needed before addressing the

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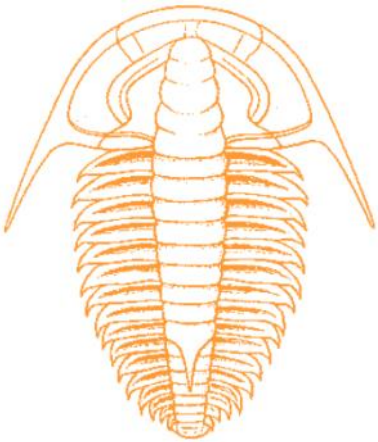
meat of the book. The text then moves to areas in which the authors themselves have played a leading role in developing. The methods of examining and establishing faunal gradients are discussed in some detail, with helpful summaries of the state of play in both the methodology and results. The generality of gradients related to water depth and, to a lesser degree, substrate consistency, are reviewed, and discussion of the detection of faunal gradients is clear, although a revision might benefit from including a few more explanatory lines on how detrended correspondence analysis actually works, as this lies at the heart of their approach. Here we learn how various analytical methods, applied along with reasoning derived from the ecology of living organisms, can be successfully applied to studying the environmental context of spatial changes in organismal frequency. This is then combined with our understanding of how time is represented in stratigraphic packages via a modeling approach to lead us to an appreciation of how patterns of organismal distribution can be expected to be expressed in the fossil record under a variety of evolutionary scenarios. This approach begins to codify paleontological lore that has been appreciated for generations but to which the general response has been shoulder shrugging. Now, thanks to modeling, paths forward for factoring stratigraphically induced patterns from actual changes in the rate of evolution within lineages are beginning to emerge. Nevertheless, one of the clear messages of the book is just how far we still have to go before a consensus on rate and pattern of lineage evolution will emerge. Some of the advice is arrestingly simple: if you want to look at patterns of evolutionary change in lineages, make sure you are comparing patterns in similar environments and systems tracts. Throughout the book one gets a sense that now that a comparative methodology for looking at community evolution in the fossil record has been established, we must embark on several decades of field-based, case-study research conducted according to the time-environment framework before another quantum leap in insights becomes attainable. But the prize is very worthy—unique insights gleaned from paleontology on how biotic systems respond to changes in the environment at our planet's surface, and the general principles that guide such responses.



Much of the book is dedicated to explaining and justifying the methodology by which to address community change through time across the span of spatial and temporal scales accessible to paleontologists. In this sense, this is a book of promise. However, towards the end of the text, intellectual debates that give color to the short-term applications of our endeavors appear, and this is refreshing. The prime example is the continuing debate over the phenomenon of coordinated stasis and whether biotic interactions among species give communities robustness by association, which brings us back to the Darwin/Simpson debate. The author's own research suggests that species are largely independent players, but they concede that patterns may vary over time and situation. They do, however, remind us of the need for a rigorous application of the time-environment methodology before these questions can be settled. That's as close as the authors get to taking off their gloves.

The fossil record addressed in this book is the conventional one: there is little attention given to either exceptional preservation of soft tissues, or other rare cases in which special circumstances present unusual fidelity. Rather, the focus is on the "normal" record of skeletal fossils and, although the book makes a valiant attempt to consider terrestrial environments, these are not those in which the authors have concentrated their own work, and because so much of the work proceeds from their research, the marine shelly record understandably gets prime of place. But this is as it should be; Patzkowsky and Holland's choice to focus on such fossils was evidently a considered one because here is where the record is at its most complete. Furthermore, although full of case studies, the book is essentially one of principles, and these are potentially applicable to the stratigraphic record wherever it has accumulated.

The book is also a summary of the careers to date of two distinguished American paleontologists and provides a fascinating glimpse into their own intellectual journeys.

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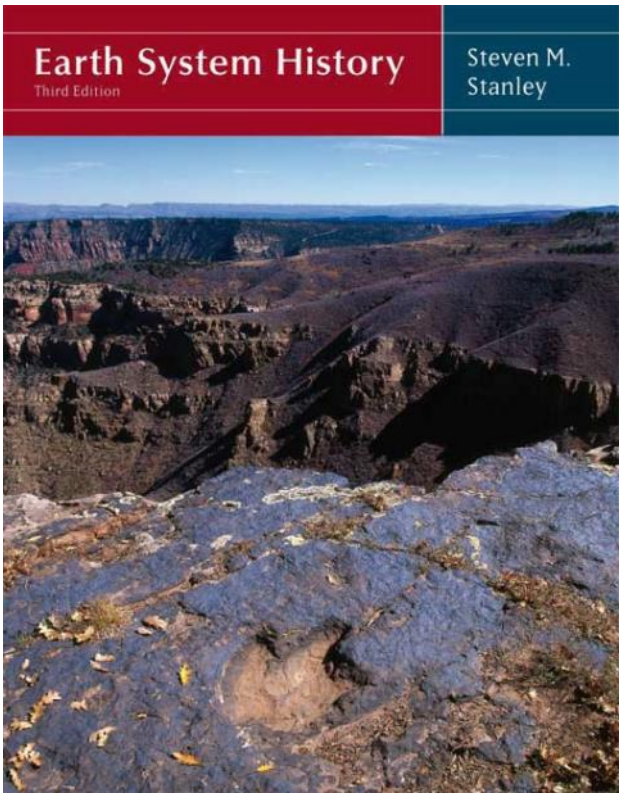
Whilst the need to write a lucid and logical text necessarily arranges their adventures into a logical sequence, one can't help suspecting that a similar deliberate logic has characterized their progress throughout. I remember Mark and Steve on various fieldtrips in the 1980s and early 1990s and the fun of attempting sequence stratigraphy on-the-fly. It was a vivid illustration of the power of having an interpretive framework in mind when observations were being made, so that one's observations are ordered and ideas can be tested as they develop. Patzkowsky and Holland's book is testament to enduring thoughtful focus, and it will be inspiring to paleontologists at all stages of their careers.



Stanley, S.M. 2009. *Earth System History*. 3rd ed. W.H. Freeman, New York City, 608 p. ($139.95 paper, $70.95 ebook.)

By Alexei Rivera (Germantown, MD)

Who could have imagined that, once upon a time, a thick icy shell almost completely encased the Earth? Or that vast swaths of steamy coal swamps carpeting the land might have triggered a mass extinction in the ocean? Or that our furry mammalian forebears, for over a hundred million years, cowered in fear of being devoured by dinosaurs? Leading paleontologist Steven Stanley explores these and many other pivotal moments of geologic history in a fantastic time-traveling odyssey spanning five billion years.

As in previous editions of this textbook, the central premise of *Earth System History* is that the physical and biological aspects of our planet are so intricately interwoven that environments affect life and vice versa. Stanley therefore aims to acquaint readers with these dual components of the Earth system not in stark isolation, but rather in concert. Such reasoning pervades the text, which is divided into twenty chapters.

The opening half commences with a new conceptual explanation of actualism and uniformitarianism and deftly covers the basic facts and principles of earth science, such as the properties of minerals and rocks, radiometric dating, and plate tectonics. Noteworthy are an exceptionally fine treatment of evolution and the fossil record, areas that the author has studied intensively since the mid-sixties, and a chapter on major chemical cycles—the first of its kind for any introductory historical geology textbook.

Next is a large-scale history of the Earth, from its molten beginnings in the Hadean Eon to human-induced greenhouse warming and its potentially devastating global consequences. Especially helpful here are Visual Overviews, which illustrate the growth and drifting of continents and other significant events from a temporal perspective, and Earth System Shifts, which are separate in-chapter sections dedicated to detailed investigations of key topics.

Although Stanley highlights the most salient features of world geology, the dominant emphasis is on the assembly of North America. Those yearning for more comprehensive discussions on the Devonian Great Barrier Reef of Australia or the uplift of the Alps, for instance, may consult the book's aged but memorable predecessor, *Earth and Life Through Time*. That said, I am quite pleased by Stanley's coverage of the geology and paleontology of my home state, Maryland. His comments on the early adaptive radiation of terrestrial flowering plants as preserved in several sedimentary formations of the Potomac Group and on the cataclysmic origins of

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the Chesapeake Bay are particularly welcome.

One useful feature that distinguishes this third edition is a heightened attention to scale, either mentioned in figure captions or depicted directly, as in the case of a geologist's rock hammer propped alongside an angular unconformity underlying the Old Red Sandstone (p. 333). Furthermore, it is surprisingly up-to-date, incorporating recent developments on the dramatic Middle Ordovician emplacement of immense volcanic ash beds onto the eastern margin of Laurentia during the Taconic Orogeny, the discovery of *Tiktaalik* and its role as an anatomically intermediate 'missing link' between lobe-finned fishes and primitive amphibians, and evidence that a cometary impact might have initiated the Younger Dryas climatic reversal and the simultaneous demise of the spear-wielding Clovis culture.

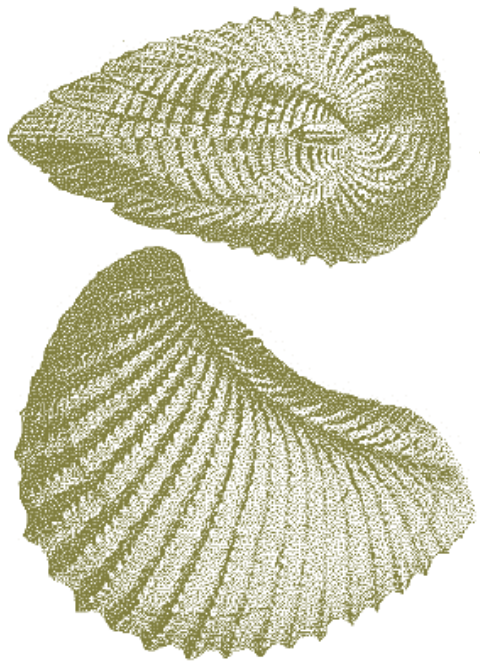
Stanley even infuses some of his own highly innovative research, including the recognition that shelled animals appeared sequentially throughout the Cambrian explosion, that increased rates of oceanic crust production allowed the formation of the famous Cretaceous chalk seas of Europe, that the late Mesozoic rise of advanced predators altered the marine ecosystem by sweeping away vulnerable epifaunal benthos such as brachiopods and stalked crinoids, and that the expansion of dry grasslands in Africa heralded the sudden origin of *Homo* from small-brained australopithecine ancestors.

There are, of course, occasional lapses. A passage on the regular oscillations in Earth's rotational motions known as Milankovitch cycles, for example, confuses the 41,000 year obliquity cycle with the 100,000 year eccentricity cycle (p. 234). In another chapter, *Basilosaurus* is erroneously demoted to the size of a mere tiger shark (p. 433), while in reality this long-dead serpent-like cetacean rivaled the bulk of extant sperm whales – about 14 meters or more in length. Fortunately, such mistakes tend to be corrected elsewhere in the book. Not all geologists, however, would agree with Stanley in his inclusion of the Pleistocene and Holocene epochs into the Neogene Period. Both the Geological Society of America and the International Commission on Stratigraphy now consider the Quaternary, which comprises these two geochronologic intervals, as a distinct period in the Cenozoic Era.

For future editions, I would recommend just a bit more labeling in the text's paleogeographic maps. Interested readers, for one, may be curious as to the name of the enormous body of water that encircled the ancient supercontinent of Pangaea. An opportunity to briefly discuss competitive displacement in the context of the spectacular biotic interchange across the Americas is also missed, as is a chance to convey the intriguing hypothesis that the late Precambrian Ediacara Fauna largely represents a failed evolutionary experiment, but this is minor quibbling indeed.

Importantly, students and teachers using this book can benefit from numerous resources and pedagogical aids, including an online study center and an instructor's-only CD-ROM filled with test questions, lecture presentations, and the text's beautiful images. Moreover, paperback, loose leaf, and electronic format versions of the volume are readily available from the publisher, W. H. Freeman and Company.

In summary, I have yet to encounter a more authoritative or downright immersive account of deep time. By offering splendid vistas into the distant past, Stanley's *Earth System History* continues the pioneering efforts of Dunbar, Kummel, and Cloud and deserves a prominent place in the library of every earth scientist.



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Announcements

Fall 2013 internships in Panama

NSF-funded internships are available for the Panama Canal Project (PCP)- PIRE (NSF-funded Partnership for International Research and Education) for US citizens or permanent residents undertaking or having recently completed undergraduate studies to assist with collecting fossils and other fieldwork in the exposures along the Panama Canal (Panama). **Deadline to apply for the Fall 2013 internship is June 15, 2013.** Future cohort deadlines are Oct. 15, 2013 (Spring), Mar. 1, 2014 (Summer), and June 1, 2014 (Fall). Interns will live in Panama for a minimum of 4 months conducting fieldwork under the supervision of PIRE PIs and Postdoctoral Fellows at the Smithsonian Tropical Research Institute (STRI) in Panama City. Experience in geological/paleontological fieldwork and some level of bilingual (English/Spanish) competency is preferred.

PCP-PIRE internships include $1,000 monthly stipend, dorm-style housing in Panama, relocation to/from Panama, and travel to Panamanian field sites.

For more information, or to apply, please view www.flmnh.ufl.edu/panama-pire/op_internships.htm, or contact Claudia Grant (cgrant@flmnh.ufl.edu).

Call for nominations of PS Fellows

Fellows are members of the Paleontological Society who have made significant contributions to paleontology through research, teaching, or service to the profession. Recipients of the Paleontological Society Medal and the Charles Schuchert Award automatically become Fellows if they have not previously been elected to fellowship. Any member of the Paleontological Society may nominate another member for election to fellowship; the nomination must also have the support of two active Fellows. **Please submit new nominations for consideration in 2013 now, no later than June 30, 2013.** Prior nominations, submitted over the past three years, remain under active consideration by the Committee on Fellows. Chair: Roger D.K. Thomas (roger.thomas@fandm.edu)

Scholarships for Florissant Fossil Beds field trip at GSA

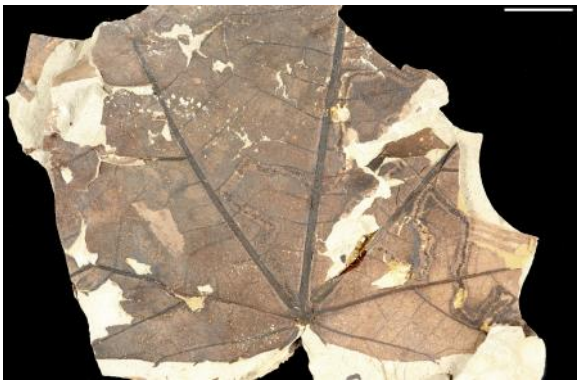
The Paleontological Society is offering four scholarships for students who would like participate in the field trip History of Paleontology at the Florissant Fossil Beds National Monument during the GSA Annual Meeting in Denver. The field trip will be held on October 31, 2013. More information is available at community.geosociety.org/2013AnnualMeeting/Conference/FieldTrips (see trip #425).

Students who wish to apply must be current members of the Paleontological Society and enrolled in a college or university where they are pursuing a degree related to paleontology. Applications should be addressed to the field trip leader, Herb Meyer, at Herb_Meyer@nps.gov. Applications should include a statement of relevance of the student's studies and interests to the field trip topic, a statement of what he/she would expect to gain from the field trip, willingness to provide limited logistical assistance during the trip, and one reference sent directly by a professor to the same e-mail address.

2013 PS Short Course at annual meeting

This year's PS short course is titled "Ecosystem Paleobiology and Geobiology", and will occur Saturday, October 26, 2013, 9 AM–5 PM prior to the annual GSA meeting in Denver, CO. It is organized by Andrew M. Bush (University of Connecticut), Sara B. Pruss (Smith College), and Jonathan L. Payne (Stanford University).

Summary: Ecosystems consist of organisms and their non-living environment, linked by nutrient cycles and energy flow. On geological time scales, biotic radiations and mass extinctions are often attributed to secular trends and short-term disruptions in the availability nutrients and energy. Critically, ecological element cycles interact with geological cycles, resulting in substantial global change. Many geochemical techniques are available for tracing these cycles, linking ecosystem-level paleobiology, geochemistry, and earth system science. This short course focuses on the evolutionary and macroecological effects of these changes in ecosystem structure.



Feeding traces from insects on a leaf. Photo by Ellen Currano.

Speakers and topics:

- Tanja Bosak (Neoproterozoic microbial ecosystems)
- Andrew Bush (theoretical ecospace & ecosystem dynamics)
- Ellen Currano (plant-insect food webs)
- Seth Finnegan (energetics & ecosystem history)
- Pincelli Hull (mass extinctions & ecosystem structure)
- Erik Sperling (paleobiology of poorly preserved ecosystem components)
- Bas van de Schootbrugge (mass extinctions & primary producers),
- Jon Wilson (plant hydraulics & ecosystem history)

Celebrate National Fossil Day™ Oct. 16, 2013

The National Park Service and AGI are partnering to host the 4th annual National Fossil Day ™ on October 16, 2013 during Earth Science Week. National Fossil Day is a celebration organized to promote public awareness and stewardship of fossils, as well as to foster a greater appreciation of their scientific and educational value.

National Fossil Day activities will also highlight natural processes that shape our planet over time to correlate with this year's Earth Science Week theme, "Mapping our World" (www.earthsciweek.org).

On October 16th, paleontologists and park rangers will share fossil discoveries at special events nationwide and explain the importance of preserving fossils where they are found, so that everyone can share a sense of discovery!

Join in the celebration of National Fossil Day today! This year's theme is Paleozoic marine life.

"National Fossil Day" is a trademark of the National Park Service and is intended to promote public awareness and stewardship of fossils, as well as to foster a greater appreciation of their scientific and educational value.

The Paleontological Society encourage PS members to engage in outreach activities on National Fossil Day™ on Oct. 16, 2013, and will have materials available to assist you. Contact Education and Outreach Coordinator Peg Yacobucci (mmyacob@bgsu.edu) or nature.nps.gov/geology/nationalfossilday/ for additional information.

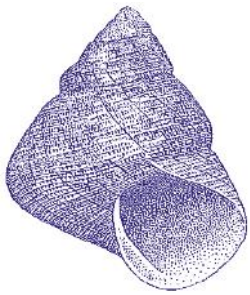
Being a Society member brings many benefits!

- Support the advancement of the science of paleontology and understanding of the history of life on Earth through membership in the Paleontological Society.
- Gain cutting-edge knowledge of advances in paleontology.
- Interact and exchange ideas with the worldwide paleontological community while shaping the future of the profession.
- Online access to two premier journals—*Journal of Paleontology* and *Paleobiology*—included with membership.
- Discounted, members-only rates on print journals.
- Receive occasional *Paleontological Society Memoirs* with print subscriptions to the *Journal of Paleontology,* and *Paleobiology Memoirs* and other special publications with print subscriptions to *Paleobiology*.
- Members-only discounts on the *Treatise of Invertebrate Paleontology* and other paleontology books from many publishers.
- Student research grants opportunities.
- Discounted member rates on publications of the Palaeontological Association (www.palass.org).
- Discounted member registration rates for annual and regional meetings of the Geological Society of America (GSA). Participate in paleontological topical sessions and other programs at GSA meetings.
- Opportunities to participate in North American Paleontological Conventions.
- Participate in supporting the Society's programs, awards, and publications; including:
  - ◊ Student research grants
  - ◊ International research grants to support those in Eastern Europe and republics of the former Soviet Union (PalSIRP Sepkoski Grants)
  - ◊ Student NSF travel grants, solicited and distributed by the Paleontological Society
  - ◊ Educational outreach to K-12 children, teachers, and the general public
  - ◊ ... and more

There's still time to renew for 2013!

Membership numbers
(updated May 2013)

Year	Student	Regular	Retired	Emeritus	Spouse	Total
2013	301	883	109	95	7	**1,395**
2012	379	951	123	91	8	**1,552**
2011	403	959	125	92	10	**1,589**
2010	295	940	134	89	10	**1,468**



Ways the Society supports students

- Discount membership rates that include online access to both *Journal of Paleontology* and *Paleobiology*.
- Paleontological Society Student Research Grants for undergraduate and graduate student members of the Paleontological Society
- Discount rates on printed journal and short course volumes for student members
- Sponsorship at student networking events
- Discount tickets for the Society luncheon at annual GSA meeting
- Invitation to the Schuchert Talk and Student Social at annual GSA meeting
- Student members are eligible for the Paleontological Society Student Poster Award at GSA

Thanks for your service!

It takes many people in addition to the Society Officers to make our Society work! Many thanks to those below who have spent served on various ad-hoc committees. If you would like to volunteer to help the Society, please contact the Committee Chair or any Society Officers.

Website coordinator: Dena Smith

Facebook coordinator: Phoebe Cohen

Auditing committee: Gregory Dietl & James Hagadorn

Joint Technical Program Committee: Tom Olszewski (Program Coordinator), Phoebe Cohen, & Seth Finnegan

PS Student Research Grant proposal reviewers: Marc LaFlamme (Chair), Matthew Powell (Outgoing chair), Diana Boyer, Kate Bulinski, Edward Davis, Jocelyn Sessa, Pincelli Hull, Pedro Marenco, & Jim Schiffbauer

PalSIRP Grant Committee: Ronald Parsley (Chair), Carrie Schweitzer, George Stanley, and Colin Sumrall

PS Education and Outreach Committee: Peg Yacobucci (Education Coordinator), Danita Brandt, Phoebe Cohen, Sean Cornell, Dave Goldsmith, Alan Goldstein, Talia Karim, Joanne Kluessendorf, Steve Schellenberg, Judy Scotchmoor, Dena Smith, Dale Springer, Leif Tapanila

Nominations Committee: David Fox (Chair), Danita Brandt, Claudia Johnson, Daniel Peppe, Susan Richardson, & Scott Wing

PS Medal Committee: Philip Gingerich (Chair), Laurie Anderson, Dana Geary, Susan Goldstein, Herb Meyer, Kevin Peterson, & David Polly.

Schuchert Committee: Philip Gingerich (Chair), Tom Baumiller, Laurel Collins, James Doyle, Mary Droser, Davied Fastovsky, & Paul Koch

Strimple Committee: Steven Holland (Chair), Kevin Boyce, Pamela Hallock Muller, Carrie Schweitzer, & Mark Uhen

Pojeta Award Committee: Tom Olszewski (Chair), Steve Holland, Patricia Kelley, & Peter Wilf

PS Fellows Committee: Roger Thomas (Chair), Alan Cheetham, William DiMichele, Daniel Fisher, Christine Janis, Patricia Kelley, Susan Kidwell, Andrew Knoll, & John Pojeta, Jr.

Publications Committee: Roy Plotnick (Chair), Steve Hageman, Sara Marcus, Bruce MacFadden, Arnie Miller, Leif Tapanila, & Peter Wagner

Books available for review

The following volumes have been received and are available to Paleontological Society members in exchange for writing a review for *Priscum*. Reviews should be informative, engaging, and 400–800 words long. The tone can be informal and casual, appropriate to recommending or critiquing a book to friendly colleagues. (Longer reviews are allowed, but please request ahead of time.) Reviews should be submitted by May 1 for inclusion in the Spring/Summer issue or Dec. 1 for inclusion in the Winter issue. **Reviewers must be a current member of the Paleontological Society before receiving review copy.** If you are interested in reviewing one of these volumes, please contact Book Reviews editor Phil Novack-Gottshall (pnovack-gottshall@ben.edu). Reviews will be assigned on a first-claimed basis.

Arthur, W. 2011. *Evolution: A Developmental Approach*. Wiley-Blackwell.

Berta, A. 2012. *Return to the Sea: The Life and Evolutionary Times of Marine Mammals*. University of California Press.

Bose, R. 2013. *Palaeobiology of Middle Paleozoic Marine Brachiopods: A Case Study of Extinct Organisms in Classical Paleontology*. SpringerBriefs in Earth Sciences. Springer.

Bose, R., 2012. *Devonian Paleoenvironments of Ohio, USA*. SpringerBriefs in Earth Sciences. Springer.

Bose, R., and A. Bartholomew, 2013. *Macroevolution in Deep Time*. SpringerBriefs in Evolutionary Biology. Springer.

Cantrill, D.J. and I. Poole. 2013. *The Vegetation of Antarctica through Geological Time*. Cambridge University Press.

Coram, R. & Jepson, J.E. (2012) Fossil insects of the Purbeck Formation of Southern England: palaeoentomology from the dawn of the Cretaceous, 144 pp. Monograph Series, Volume 3. Siri Scientific Press, Manchester.

Donovan, S.K., R.E. Widdison, D.N. Lewis, and F.E. Fearnhead. 2012. *The British Silurian Crinoidea. Part 3. Addendum to Parts 1 and 2, Camerata and Columnals*. Monograph of the Palaeontographical Society #638.

Dunlop, J.A. & Penney, D. (2012) Fossil Arachnids, 192 pp. Monograph Series, Volume 2. Siri Scientific Press, Manchester.

Fariña, R. A., S. F. Vizcaíno, and G. De Iuliis. *Megafauna: Giant Beasts of Pleistocene South America*. Indiana University Press.

Gangloff, R.A. 2012. *Dinosaurs under the Aurora*. Indiana University Press.

Padian, K. and E.-T. Lamm, eds. 2013. *Bone Histology of Fossil Tetrapods: Advancing Methods, analysis, and Interpretation*. University of California Press.

Parish, J.C. 2012. *The Dodo and the Solitaire: A Natural History*. Indiana University Press.

Penney, D. & Selden, P.A. (2011) Fossil Spiders: the evolutionary history of a mega-diverse order, 128 pp. Monograph Series, Volume 1. Siri Scientific Press, Manchester.

Pyne, L.V. and S.J. Pyne. 2013. *The Last Lost World: Ice Ages, Human Origins, and the Invention of the Pleistocene*. Penguin.

Book publishers: Please contact Book Reviews editor Phil Novack-Gottshall (pnovack-gottshall@ben.edu) if you are interested in providing review copies for inclusion in *Priscum*, which has a readership of 1,600 professional and avocational paleontologists.

Upcoming events & deadlines

National Fossil Day
Oct. 16, 2013 (click here for details)

2013 GSA Annual Meeting
October 27–30, Denver, CO

- Abstracts due Aug. 6
- Early registration deadline is Sept. 23
- FREE Paleontological Society Short Course (*Ecosystem Paleobiology and Geobiology*) is Oct. 26, 9 AM–5 PM
- Paleontological Society Reception and Awards Banquet is Oct. 27, 6:30–9:30 PM (ticketed event)
- Schuchert Talk and Student Social is Oct. 28, 7–9 PM (Students only)
- PS Education and Outreach Committee meets Oct. 28, 7:00–9:00 PM
- PS Council Meeting: is Oct. 29, 1–5 PM

2014 GSA section meetings
Northeastern: Lancaster, PA, Mar. 23–25, 2014
Southeastern: Blacksburg, VA, Apr. 10–11, 2014
North-Central: To be announced
South-Central: To be announced
Rocky Mountain: To be announced
Cordilleran: To be announced
International: To be announced

Future GSA annual meetings
2014 - Vancouver, BC, Canada: October 19–22

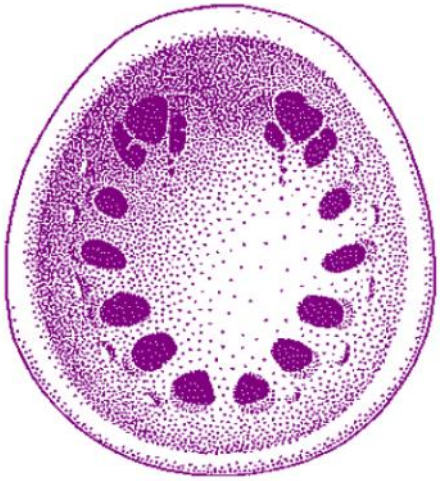
- Call for proposals due early 2014

2015 - Baltimore, MD: November 1–4
2016 - Denver, CO, September 25–28

North American Paleontological Convention (NAPC)
February 15–18, 2014 - Gainesville, FL

- Abstracts due Sept. 20
- Early registration deadline is Dec. 8
- Regular registration deadline is Jan. 31, 2014

Association of Applied Paleontological Sciences
Check http://www.aaps.net/aaps-grants.htm for details on individual grants and deadlines



Current Paleontological Society Officers

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Past-President: Philip D. Gingerich
Secretary: Mark A. Wilson
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Education Coordinator: Margaret (Peg) Yacobucci
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Southeastern: Bradley Deline
North-Central: Rebecca L. Freeman
South-Central: Ben Waggoner
Rocky Mountain: Leif Tapanila
Cordilleran: Nicole Bonuso

Priscum

Newsletter of the Paleontological Society

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