Paleo Footnotes

Volume 14, Number 6 **June 2019**

President's Note

Erich Rose
PSoA President

Oh lord it is hot again! We had a little taste of it in Harker Heights last month on that last field trip. We lucked out with a cloudy morning but after lunch the sun came out and reminded us what summer was about to bring on.

We continue to see rain in the forecast every week so I have no idea what the Brazos will offer up for us this month. My guess as of today the 8th is too high for the float trip but not for Whiskey Bridge. We will see what Ed has to say at the meeting if not sooner.

Every summer our program chair finds it hard to scare up speakers for the meetings. They all go off to do field work. Well, good for them. Wouldn't we all want to go spend a few months straight collecting fossils and studying our earth's history. So this month I will be presenting Echinoids of the Glen Rose Redux. Redux in that I gave a smaller version back in 2012 just after I became interested in the formation and it's diverse wealth of sea urchins. I hope I can entertain and inspire you all a well as these professors and grad students do.

Emelia Rose has me working up a new design for T-shirts. We want something fun and inspiring that members will want, as well as something to sell at Fossil Fest. Our theme will be New Discoveries in Paleontology but we want to feature one of the coolest Texas discoveries on this year's shirt: *Quetzalcoatlus northropi.*

Next Meeting

Tuesday, June 18 – 7 p.m.
Austin Gem and Mineral Society Building
6719 Burnet Lane Austin, Texas

Next Field Trip

Saturday, June 22nd – 8 a.m.
tbd, TX
Brazos Float or Whiskey Bridge

President's Note (cont'd)

Found in Big Bend, this species meets our Texas criteria of being the biggest pterosaurs known from the fossil record. I hope to have some art to show you at the meeting.

See you at the June meeting,
--Erich

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Upcoming Meeting Program

Paul Hammerschmidt
Programs Chair

"Glen Rose Echinoids, Redux" - Erich Rose

Presentation:

Starting about ten years ago I was made aware of the great variety of echinoids that could be found and collected from the Glen Rose Formation (Lower Cretaceous) of Central Texas. A research paper had been written by Andrew Smith and William Rader (2009) describing 22 species, new and old, that were known to exist in the Glen Rose. Some were common and some rare. With the paper in hand, I launched into the hunt for all 22 species.

In 2012 I presented on the handful of fossils I had found to date. Since that time I have teamed up with another avid collector, and between the two of us we have collected pretty much the entire list of Smith and Rader. And during those ten years several new genera and a handful of new species have been added to the list of Glen Rose echinoids.

My presentation will include examples of almost all of the Smith & Rader species; some of the new ones we know of; a review of out-of-date species; and, additionally, examples of some other echinoderms that can be found in the formation.

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May Meeting Minutes

Lisa Izzi
PSoA Secretary

"*Reconstructing Forests: Landscape paleoecology and the evolution of late Cretaceous floras*" by Lisa D. Boucher with the Non-vertebrate paleontology laboratory

-An update on the NPL rehousing progress – about 73% rehoused since January
-Call for volunteers – contact LisaBoucher@austin.utexas.edu

- It is thought the origin of flowering plants began during the Cretaceous period.
- Angiosperms evolved from weeds to other plant forms like trees.
- Some late cretaceous sample sites show a diverse number of plant groups. Floodplain sites are good for the preservation of plant fossils.
- Some examples of Taphonomic biases are biological features, sampling efforts, & sedimentology.
- It is more common to find leaves than flowers as fossils.
- When examining leaves for identification they look at the vein patterns in the leaf fossils.
- Lisa's research is interested in trends in diversity and abundance of leaf floras. The diversity is the number of species and abundance is the amount of cover.
- Researchers also take into consideration the sub-environments, as different species dominate in different areas or environments.
- For permineralized wood research they take thin pieces of petrified wood and by studying it can identify the types of trees, they can usually get down to the family of wood.
- They measure the stem spacing for in situ stumps, in an attempt to determine if it was a closed or open canopy environment. Most stump fields are dominated by larger conifers and likely had an open canopy environment.
- Wood richness and abundance vary in sub-environments similar to what they found in the leaf research data.
- Researchers are trying to understand the dynamics of evolution of flowering plants.
- The goal of the research is to reconstruct vegetation dynamics at the landscape level.
- If you know of any in situ wood sites, or stump fields, of the older Cretaceous time period please let Lisa know.

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Upcoming Field Trip

Ed Elliott
PSoA Field Trip Chair

The Club's June field trip will be discussed at the June meeting.

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May Field Trip Report

Harker Heights, TX, May 2019 (Ed Elliott)

Well we lucked out. No rain but a cloudy morning to keep the heat down at least until after lunch. We had a good turnout of folks at the McDonalds all chomping at the bit to do some great collecting.

Ed Elliott, Melvin Noble, Robert Ferguson, Vaughn Nelson, Lisa Izzy, Jamie Shelton, Brian Bedrosian and his sons Emerson and Anders, Noah Harrington, Kevin Bills, Di Gazdar, Marta and Aiden Blake, Dave Hoppes and myself rounded out the PSA members. But we also had a special guest, Sally E. Walker of the University of Georgia at Athens tagged along to collect fossils and learn more about our Texas geology. And then at our second site we ran into Eric Henry, an avid collector and member we don't see as often as we would like.

Every one was on time and we were off to our first stop a few minutes away at the local High School. The shallow slope we collected was an exposure of the Walnut Formation, Fredericksburg Group, Albian Stage (Lower Cretaceous) ~105mya. Although the Walnut is well exposed and rich with fossils here in Austin the same formation up in Bell County produces more and better echinoids (sea urchins) as well as complete ammonites and many other great fossils. But urchins and ammonites were the desired finds. And the first site did not disappoint. Marta Blake had the honor of almost immediately picking up a really nice large Tetragramma. Within minutes folks were finding more of the regular echinoids Tetragramma and Phymosoma. The heart urchin Heteraster texanus was abundant. The best things found at the high school site were, a crazy rare belemnite by our field trip leader Ed, and a rather large Pycnodontid jaw plate by Noah. Unfortunately the site had been partially graded and planted over so we were not seeing the lower layers that often produce corals and Leptosalenia urchins. Yet we still managed to fill the morning with good collecting.

At noon we took a break for lunch and then headed for a new location to collect. A large area had been scraped for new homes and we had the go ahead to collect there. Exposing almost exactly the same strata as the high school folks immediately started picking up oodles of echinoids. I saw some really nice specimens of Heteraster texanus, H. mexicanus, Phymosoma texanum, Tetragramma malbosii and a few Pliotoxaster sp. including a large one that Melvin picked up that was just about perfect. The sun came out and we started to see members peel off looking to head home before they cooked. But a handful of us stuck it out under the late afternoon sun.

At that point I headed home and Ed took the remaining crew on to a place we refer to as the “18 wheeler parking” site. That is a really interesting exposure of the Keys Valley Member of the Walnut Formation. It includes an incredibly dense bed of Texigryphaea mucronata on the upper slope. But below that can be found pockets of nicely preserved Leptosalenia mexicana as well as a variety of small, but well preserved, gastropods and corals. Ed said they all did well there and I am sure they probably stayed close to dark making the most of a great full-day field trip here in Central Texas.

Eds Phymosoma

Fish Jaw

Belemnite

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Odds and Ends

How Do Fossils Form?

Learn from the Smithsonian’s curator of vertebrate paleontology Anna K. Behrensmeyer, a pioneer in the study of how organic remains become fossils

Read more at https://www.smithsonianmag.com/smithsonian-institution/how-do-fossils-form-1-180972340/

How Do Paleontologists Find Fossils?

Smithsonian’s Hans-Dieter Sues, who has collected fossil vertebrates in the U.S. and around the world shares some of his tips

Read more at https://www.smithsonianmag.com/smithsonian-institution/how-do-paleontologists-find-fossils-180972126/

Dinosaur Bones Shimmering With Opal Reveal a New Species in Australia

A discovery in an Australian opal mine remained unexamined for three decades—it turned out to be the most complete opalized dinosaur skeleton in the world

Read more at https://www.smithsonianmag.com/science-nature/dinosaur-bones-encrusted-opal-reveal-new-species-australia-180972332/

A toe bone of Fostoria, spectacularly preserved in opal. (Robert A. Smith, courtesy Australian Opal Centre.)

Reimagining the Megalodon, the World's Most Terrifying Sea Creature

Evidence suggests that megalodons, which lived between 23 million and 3.6 million years ago, were more closely related to modern mako sharks than to great whites, giving them more slender bodies than great whites and a bronzy back befitting a predator that preferred coastal waters.

Read more at https://www.smithsonianmag.com/smithsonian-institution/reimagining-megalodon-worlds-most-terrifying-sea-creature-180972193/

Newly Discovered Bat-Like Dinosaur Reveals the Intricacies of Prehistoric Flight

Though *Ambopteryx longibrachium* was likely a glider, the fossil is helping scientists discover how dinosaurs first took to the skies

Read more at https://www.smithsonianmag.com/science-nature/newly-discovered-bat-dinosaur-reveals-intricacies-prehistoric-flight-180972128/

This 100-Million-Year-Old Squid Relative Was Entrapped in Amber

The ancient ammonite was preserved alongside the remains of at least 40 other marine and terrestrial creatures

Read more at https://www.smithsonianmag.com/smart-news/100-million-year-old-squid-relative-was-entrapped-amber-180972171/

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The purpose of the **Paleontological Society of Austin,** a 501(c)(3) non-profit organization, is the scientific education of the public, the study and preservation of fossils and the fossil record, and assistance to individual, groups and institutions interested in various aspects of paleontology. Meetings of the **Paleontological Society of Austin** are held on the third Tuesday of each month at 7:00 p.m. in the Austin Gem and Mineral Society building located at 6719 Burnet Ln. in Austin, Texas. The public is welcome to attend. Visit austinpaleo.org for more information.

Annual Dues: $18/individual, $24/family and $12/associate (non-voting, receiving newsletter) Send to: Treasurer, Paleontological Society of Austin, P.O. Box 90791, Austin, TX 78749-0791.

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PALEONTOLOGICAL SOCIETY OF AUSTIN