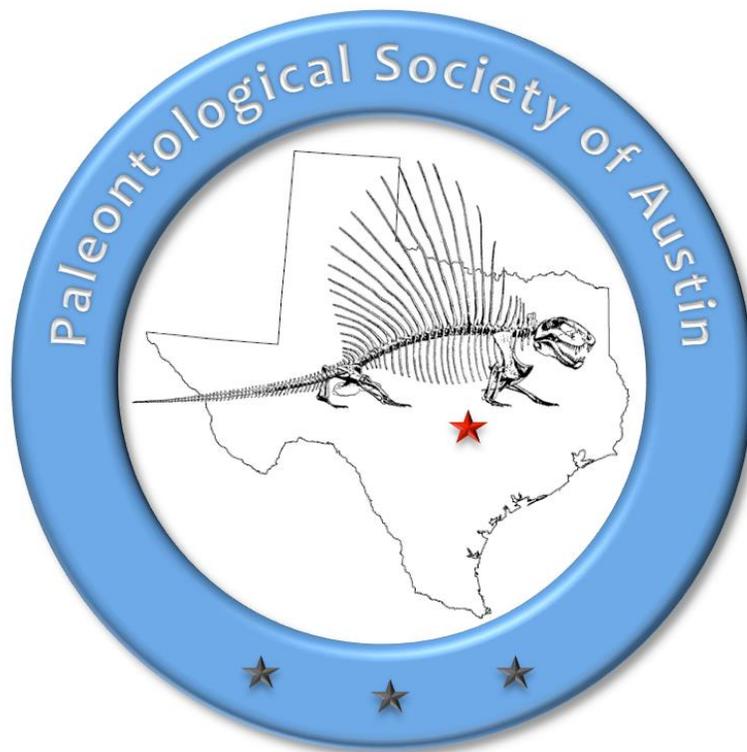


Paleo Footnotes

Newsletter of the
Paleontological Society of Austin

Austin and Central Texas



Volume 9, Number 2
February 2014

President's Note

Hope you are all having a great new year. The weather has been a roller coaster of cold, wet, freezing and then, like the end of this week, 80's! I've managed a few very short visits to the local cuts but nothing special to show for it. Hope your luck has been better.

We have another interesting lecture coming up this month. Dinosaurs and feathers is certainly a hot topic. We also have a great field trip for those who don't want to drive all day and night. The area around Harker Heights is rich with fossils of the Walnut Formation, including some really good spots for sea urchins and ammonites. And they are all easy to hunt spots with low eroded slopes, no climbing and generally loose fossils to just pick up.

We will be asking for volunteers for a few events this spring. Two schools have asked us to participate in science events. We would love to team up a few of our long-time members with new members and have a presence at each of these events. Education and outreach is what we pride ourselves on and there is nothing as satisfying as seeing someone's eyes light up when you hand them a fossil and tell them how old and unusual it is. And all this eventually leads up to our biggest annual outreach event: Fossil Fest.

Take care and hope to see you all at Tuesday's meeting or Saturday's field trip.

-- Erich

NAPC / The FOSSIL Project

As you read this, Vice President / Show Chair Suzanne Galligher and member Linda McCall are attending the 10th North American Paleontological Conference held Feb. 15 - 18 in Gainesville, FL. Their attendance at the conference is sponsored by The FOSSIL Project. FOSSIL is an acronym for Fostering Opportunities for Synergistic STEM with Informed Learners. FOSSIL "aims to enhance communication between fossil club / society members and professional paleontologists, provide opportunities for training and development, enable attendance at conferences and workshops, encourage digitization of fossil collections and foster participation in K-12 outreach." Suzanne will be sharing her experiences at NAPC / FOSSIL at the March meeting. Meanwhile, you may keep up with the NAPC conference on Twitter #NAPC2014 or follow our newly created club Twitter feed at #Austin_Paleo!

That's all folks! ---Suzanne



NAPC Icebreaker at the Florida Museum of Natural History
(photo by Suzanne Galligher)

Next Meeting

Tuesday February 18

**7:00 p.m. at the Austin Gem and Mineral Society building
6719 Burnet Lane, Austin, TX**

Evolution of feathers, wings in birds: can feathered dinosaurs fly?

Dr. Xia Wang

Feathered dinosaurs were present more than 161 Mya (Million-years-ago), at least 10 My (Million years) older than the 'first bird' *Archaeopteryx*. Remarkable fossils of theropod dinosaurs displaying a wide range of epidermal structures, commonly referred to as 'protofeathers' or 'dinofuzz', are widely distributed amongst non-avian coelurosaurs and include exceptionally well-preserved specimens from the Jehol Group of western Liaoning, China that have been collected and described over the last twenty years. The feathers and feather-like structures present on these specimens can be categorised into several morphotypes and fall within two major structural categories: 'Shafted' and 'non-shafted'. Most of these structures are composite and are formed of multiple slender filaments. There is still debate about the function of the first feathers. As most "feathered" theropods have feathers that had no clear aerodynamic characteristics (and could likely not have generated enough lift for flight), their feathers must have developed for some reason other than flight. It is generally believed that display, thermoregulation or brooding may also be plausible hypotheses for the initial function of feathers. In addition, it has been suggested that the presence of feathers, even primary feathers, does not necessarily support the existence of powered flight. However, some argue that feathers are too complex to have evolved for *any* function other than an aerodynamic role.

The flight surface of birds is comprised of wing bones and primary feathers. The components of the wings hold vital clues to the radiation and evolution of flight in avians. Studies, based on the preservation of wing elements in fossils, aiming to infer the flight capabilities of fossil birds, are rare. Over recent years, however, the substantial increase in numbers of dinosaurs and early birds with well-preserved feathers presents a great opportunity to learn a considerable amount about the flight and related ecology of fossil birds. During my PhD study, I create an initial framework from living birds; from data on their wing proportions, feather flexural stiffness and aerodynamics that can then be extended into the fossil record in order to study how feathers, wings and flight changed and evolved from feathered dinosaurs to modern birds. I found that feathered dinosaurs and basal birds have relatively short primary feathers and the rachis of feathers are very weak. The flight ability of feathered dinosaurs and basal birds (e.g. *Archaeopteryx* and *Confuciusornis*) are still limited, none of them are likely a flapper.

Xia Wang completed her PhD study in University College Dublin, Ireland on evolution of avian feathers and wings in 2012. Following that, she joined Paleontology Research Group, University of Texas at Austin as a postdoctoral research fellow. Xia Wang is interested in the evolution of feathers and flight of birds. Specific research interests include: study of Mesozoic birds, avian anatomy and systematics as well as evolution of avian wing morphology. Now she is focused on using phylogenetic methods and diverse data types to gain insight into the characters evolution in wing-propelled diving birds.

Saturday February 22

Harker Heights, TX

Meet at 8:00AM at the McDonald's on the north side of 190 at Indian Trail.

This trip will be to Harker Heights and other locations along US-190. We will be collecting from the Fredericksburg Group, Walnut and Comanche Peak(?) Formations. Although many of you have collected these same formations in and around Austin the variety of fossils will be somewhat different with a few more types of echinoids being common as well as many other species of invertebrates we don't commonly see here. Shark and other fish teeth have also been found.

Most of the fossils will be oose and easily collected. Some may require a little digging or down-sizing so a rock hammer and chisel could be handy. But mostly you will just need a variety of containers (boxes, zip lock bags, divided boxes, etc.) for everything from tiny crab claws to ammonites.

Directions:

Take I35 north to Belton.

Go west on US 190 to Harker Heights and exit at Indian Trail.

Look for the McDonald's on the right across Indian Trail at the light. We will meet there.

Travel time from central Austin is about 1 hour and 15 minutes.

Be there on time because we will caravan to our first stop fairly quickly.

For more information contact Ed Elliot, Field Trip Leader at 512-657-7581.

January Field Trip Report: Jacksboro, TX and vicinity

I could tell it was going to be a good day, simply because it was Jacksboro we were collecting. And all Jacksboro trips are good. With me at the Courthouse were Dax Gonzalez, David Lindberg, Paul Hammerschmidt, Erich Rose, Melvin Noble, and Gary Vliet. It was rather brisk just standing there waiting for stranglers. But not as in years past..... by 10:30 everyone was shedding clothing. Like I said: a great day.

Our only stop for the day was the Lost Creek Reservoir spillway. This is the Finis Shale Member, basal unit of the Graham Formation, which is the basal formation in the Cisco Group. Overlying this (on top of the hill) is the more yellow Jacksboro Limestone. Everyone started off the morning following me to a little spot where I always pick up micro-cephalopods and the occasional rostroconch. It is a good little spot and it had the additional advantage of being out of the wind and in the sun. After half of an hour everyone dispersed to every corner of the site. Due to the continuing drought the lake is low and a lot of extra shoreline was available. This area gave up a few treasures to several people. Paul found a really nice scallop, several inches across. He also picked up a bellerophon gastropod (*Knightsites?*) with the margin intact. Nearly all specimens have it broken off and one of our "really good" specimens is really only half there. And Gary found several good, coiled nautiloids as well as a beautiful section of a cephalic spine from some unknown shark. Kudos! And in the same area Melvin and I both picked up a nice coiled nautiloid. Over on the hill, Erich found a coiled *Tainoceras*. We all find pieces, finding a coil is very nice. And also on the hill, Melvin picked up a pretty rostroconch, *Apotocardium lanterna*. And while that is all of the treasures that I remember, we all took home conularids, brachiopods of many kinds, gastropods of

many kinds, some very nice bivalves, corals of several kinds, as well as all of the small stuff. I picked up several *Plagioglypta* (scaphopod – Dentalium), a large bryozoan frond – free of matrix and lying on the black dirt, several large coiled nautiloid pieces in good shape. The list goes on. The Finis produces the greatest variety of fauna, some of the best preservation and certainly the best collecting of any Paleozoic site we go to. Big and small, treasures abound in the Finis.

David, Gary and Paul went on to Mineral Wells on Sunday. I wasn't there but I was told they visited the Union Hill cut and finished off the day at the Fossil Park. I'm sure they found some good things, but I was told nothing exciting. Great weather, great comrades and great fossils, means another great trip. I'm ready to go back.

See you at the next one in Harker Heights. ---Ed

FOSSIL FEST NEWS

The Show Committee is now forming for the 24th Annual Fossil Fest. If you are interested in outreach and planning/shaping the upcoming show, please contact showchair@austinpaleo.org. The first meeting of 2014 will be held on Thursday, March 6th at 7pm. Meetings are held the first Thursday of each month at the AGMS Building.

SAVE THE DATE:

The 24th Annual Fossil Fest will be held the weekend of November 15 - 16, 2014. Yes, that's right - in November! The Management at Williamson County's Old Settlers Association requested a Fossil Fest date change. They are expanding their holiday Trail of Lights program to include a new Santaland, which will utilize the Old Settlers property throughout the month of December. We surveyed our vendors gem, mineral & fossil show calendar against local & state shows and came up with this November date. The show will follow on the heels of the Houston Gem & Mineral Society show, which may create an opportunity to pick up vendors participating in all the consecutive weekend shows in Texas during October/November.

That's all folks!
Suzanne

Volunteer Opportunities

Please check your calendar and see if you would be available to help with either of these events. We will combine new members with our more experienced members for each. These events are great fun and all you really need to bring is your enthusiasm for fossils. Contact Erich Rose (president@austinpaleo.org) if you are interested.

What: Cedar Creek Elementary Science Day, Where: 3301 Pinnacle Rd., Austin, TX
When: Friday, April 4th, 8:30-2:30

What: Science Night for Caraway Elementary, Where: 11104 Oakview Drive Austin, TX 78759, When: March 27th, from 6-8pm

Paleo Society Board meeting Minutes 1.21.2014

The Board meeting was called to order at 5:42pm, with Gary and Cathy Rylander, Frederick Falk, Melvin Noble, Mike Smith, Erich Rose, Suzanne Galligher and Dale Vargo attending. Mike spoke of the need to elect both board members AND officers. Gary addressed whether or not we should pay membership dues to Mid-America Paleo Society (MAPS) since it was unpaid this past year and the Cranes are no longer involved. There was discussion of whether we should continue membership and Erich recommended that we keep the membership in MAPS.

Mike brought up web hosting fees.

Gary spoke of the need to depreciate capital expenses over multiple years to aid in balancing expenditures for each year. Regarding this, Mike said the bylaws could be changed.

Then Gary's handout showing the 2013 year's budget, the actual 2013 expenditures, and a column for the proposed 2014 budget was reviewed, discussed by all, with item-by-item recommendations entered for everything in the upcoming budget. Then \$300 for the Christmas party was added into the budget as an item. Once the 2013 budget, expenditures, and proposed budget was resolved, Frederick moved that we accept Gary's budget report, Frederick confirmed the budget items for vote and these were approved by unanimous vote. Ed Elliott arrived and joined the meeting.

Next, the scholarship program was brought up, including discussion of who should be awarded funds, which areas best represent our interests, who

qualifies for awards, and scholarship awards to mainly local recipients was approved by vote.

Then 2014 calendar dates were addressed, with the annual Auction moved to April 12 and the Christmas meeting on December 16 recommended.

Ed gave out proposed dates and sites for the field trip, with discussion and recommendations. The need for new field trip localities was emphasized due to some members not able to go great distances for the field trips. It is thought that closer-to-home field trips will encourage new members, and young families' participation also. The dates and locations for the first 6 months trips were approved, with the second half of the field trips to be determined later. Erich discussed a proposed summer field trip to a museum in Seymour, TX. Also brought up was the type of sites conducive to a well-attended field trip, such as large road cuts, quarries, etc. Erich said that there will be a nation gem and Fossil conference in Austin in 2015, and proposed that our club host a fossil collecting field trip to a great local site in connection with it, with Frederick, others proposing that attendees be given info sheets and maps on the fossil profiles and for this area and there was discussion on this.

Regarding Fossil Fest, Suzanne proposed that the 2014 date for Fossil fest be November 15-16. She judged this date as our best weekend because it does not conflict with other show dates and still occurs in the fall. The proposed theme is Ice Age Texas. The 2014 Fossil Fest date was approved by vote.

Erich adjourned the board meeting at 6:50pm.

Meeting Minutes of Austin Paleo Society 1.21.2014

Erich welcomed the meeting to order at 7:05 and introduced tonight's speaker, Dr Ian W D Dalziel of the University of Texas Institute of Geophysics. His topic tonight is 'The Cambrian Transgression and Explosion of Metazoan Life'. In his talk, Dalziel describes the Earth's ancient super-continents, whose continual breaking up and movements in the early Cambrian Era resulted in the opening of the Iapetus-Pacific corridor, an ancient seaway that transgressed, or flooded onto vast areas of land, enabling life form proliferation and wide distribution. He noted that evidence has been analyzed by geophysicists in the modern age to look at "Darwin's Dilemma", a seemingly sudden appearance of numerous organized life forms at the beginning of the Cambrian Era, about 540 million years ago, whose rapid development stands in stark contrast to Darwin's own slow-paced adaptive theory of evolution. Many modern scientists works have debated and described this 'explosion' of life, such as in Steven Gould's excellent work entitled "Wonderful Life", and it is now realized that this rapid 'explosion' of life forms onto the scene was more drawn out than had been recognized. Using his slide presentation, Dr. Dalziel showed and presented, with mineral analysis, fossil life form comparison, magnetic field data, age dating, and plate tectonics, how these primordial large pieces of the Earth's crust have moved around the planet's surface. And his evidence shows how these ancient land masses, which were once joined together in the Early Cambrian, are now thousands of miles apart, similar to a jigsaw puzzle that has drifted part over the past one half billion years. Dr. Dalziel took questions from the audience.

We then took the refreshment break and when we returned, Erich presented results of the Board meeting that took place just before the regular meeting. He described how the board reviewed, and analyzed the budget items from previous years and constructed a proposed budget for 2014. Erich

mentioned the upcoming Jacksboro field trip. New Paleo Society Treasurer Frederick Falk related the need to remove old officers' names from the bank's authorized account user list. Falk made a motion that we officially drop the invalid names and establish himself, President Erich Rose, and Vice-President Suzanne Galligher as authorized users of the account for 2014. The motion was seconded and approved by vote. The December meeting minutes were approved, and it was noted that the minutes are to be corrected to show that Gordon Galligher is the Webmaster. Suzanne stated that she will be going to be representing us at the North American Paleontological Conference (NAPC) next month in Gainesville, FL. and that her participation as made possible by the FOSSIL Project. Erich then related the details of the need to move the date for Fossil Fest, how the change came about, the benefits to moving the date, and that the board agrees with Suzanne's recommendation that Fossil Fest's 2014 date be moved to Nov 16-17.

New members and visitors Jennifer, Andrea, and Phillip were welcomed. Erich noted the passing of John Arnet, a beloved naturalist of Austin, and Erich and others attested to his good works and that he will be missed. Frederick inquired about any news of the imminent major loss of funding for the Texas Memorial Museum. Discussion of this ensued with support info. Next, Ed Elliott presented the details of this weekend's upcoming trip to Jacksboro to collect specimens from the Finis Shale. Discussion of cheap motels was touched upon. Doris noted the opportunity to attend the UT program, "Hot Science, Cool Topics", whose next topic is 'Feathers and Birds'. Erich then brought up some new email options for the club and Mike Smith directed us to look to Gordon for new email info up coming. Erich also mentioned the need for more local field trips and the logistics for local fossil hunting. Melinda, Dr Sprinkle, and Phillip took the door prizes. The meeting adjourned at 9:03.

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 the third Tuesday* of each month, 7:00 p.m. at the Austin Gem and Mineral Society building, 6719 Burnet lane, Austin, TX. The public is cordially invited to attend. See web site for April & December dates.

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

PSA Web Site: www.austinpaleo.org

Web master: Michael Smith: webmaster@austinpaleo.org

2014 Officers:

President	Erich Rose
Vice President	Suzanne Galligher
Treasurer	Frederick Falk
Secretary	Dale Vargo
Field Trips	Ed Elliott
Programs	Ron Root
Editor	Erich Rose
Web master	Gordon Galligher
Show Chair	Suzanne Galligher

president@austinpaleo.org
vicepresident@austinpaleo.org
treasurer@austinpaleo.org
secretary@austinpaleo.org
fieldtripchair@austinpaleo.org
ron@grassrootstrader.com
editor@austinpaleo.org
webmaster@austinpaleo.org
showchair@austinpaleo.org

Science Advisors:

Ann M. Molineux, PhD.	anm@mail.utexas.edu
Pamela R. Owen, PhD.	powen@mail.utexas.edu
James T. Sprinkle, PhD.	echino@mail.utexas.edu

Permission to copy material printed herein is granted provided proper credit is given to the author and source.
The Paleontological Society of Austin is a member of and affiliated with:

South Central Federation of Mineral Societies & American Federation of Mineralogical Societies



PALEONTOLOGICAL SOCIETY OF AUSTIN

Erich Rose, Editor
807 The Living End
Austin, TX 78746

DATED MATERIAL – *HOLIDAY PARTY NOTICE!*

FIRST CLASS MAIL