

Fossil Collecting Report

December, 2009

Daniel A. Woehr and Friends

December 6, 2009: Echinoid Evangelism in San Antonio

On Sunday afternoon after 3 years of email contact I was finally able to meet in person friend and East Coast echinoid collector Adam Osborn who was in San Antonio on business. In the past he had generously heaped good site information on me that he had discovered while stationed here in Texas some years ago. I had been promising to guide him to some of the better area sites and was finally able to make good on my offer. His stay would be short so good use of daylight was imperative, and I had a containment plan for that situation as you'll soon read.

First stop: the Corsicana Formation, a 68 million year old marine sequence which contains discrete zones of concentrated rare and unusual fossils. Adam proved to be fun to collect with...he was very gung ho to be collecting a new formation and adding new echinoid species to his collection, and he was genuinely excited no matter who made the big finds.

And so we began our crawl. Adam forgot to pack his knee pads so I threw him an extra pair of mine. We only had 2-3 hours of daylight but managed to bag perhaps 50 or 60 *Hemiaster bexari* echinoids between us in addition to a couple squashed *Plesiaster americanus* plus a partial ammonite, possibly *Discoscaphites*. We got a few crabs *Dakoticancer australis* between us as well.



FIG 1: The author canvassing the Corsicana formation (Site 349)



FIGS 2-3: Echinoids *Hemiaster bexari* plus one large *Linthia variabilis* (Site 349)



FIGS 4-5: Corsicana fm crabs *Dakoticancer australis* (Site 349)



FIGS 6-7: Corsicana fm ammonite *Discoscaphites* (?) above; gastropods *Striatocostatum bexarensense* below (Site 349)



FIGS 8-9: Corsicana fm ammonite gastropods (Site 349)



FIGS 10-11: Corsicana fm bivalves *Trigonia castrovillensis* this page; various bivalves and oysters including *Neithea bexarensis* and *Plicatula mullicaensis* next page (Site 349)



Fading light took us to two small exposures, the first giving up very little. The second in the past had given up 2 examples of an undescribed *Codiopsis* echinoid which will hopefully soon be recognized as *C. woehri*, one most recently being found within the last couple weeks, both being found within a 15 foot circle. I gave Adam the end of the exposure that had given up the 2 mentioned examples of the species and he quickly began bagging more *H. bexari* echinoids while I took the opposite end which had historically been less productive.

In the final rays of dusk I saw it...."WHOA! You need to come see this!" I left it in the ground, circled a 6 foot area with my finger, and said "Adam, find it!" Still calibrating his eyes to a new formation it took him a couple extra nanoseconds, but soon Adam experienced the thrill of discovery as well....it was a large *Codiopsis woehri* upside down, its subpentagonal ambitus providing just the required amount of symmetry to catch our eyes. Plucking it from the ground I could see that this was the only high form example of this species I've taken to date, and it came from soft marl, making it easy to prep....and a beauty it is now that I've taken a brush and water to it, nearly every tubercle intact including the tiny secondary tubercles lining the ambulacra....see for yourself.



FIGS 12-19: Spectacular Corsicana echinoid *Codiopsis* sp. this and next 5 pages (Site 348)











Hand shaking behind us, darkness had fallen but we weren't finished. To the Glen Rose Formation we went, traveling back in time to encounter 108 million year old echinoids. Elbow pads, check. Knee pads, check. Gloves, check. LED headlamp, check. Soon we took adjacent rises of a marl flat and proceeded to belly flop through the wet marl, attention focused on the 8 inch cone of light immediately before our eyes.

And a productive outing it turned out to be! Being forced to focus on such a small area at a time, we clobbered the micro echinoids. Anything that the light passed over was dead meat. In 2 hours I had covered 1/3 of the area I usually do by crawling during daylight hours, but found twice the echinoids....24 in all, including 2 *Globator hancockensis*, some squashed *Heterasters*, and a pile of perfect little *Salenia*, some *Paleopagurus banderensis* crab claws and a pycnodont tooth in addition to some very nice crinoids stems *Isocrinus annulatus*. The latter usually exhibit pentagonal symmetry in the form of each columnal having a star shaped cross section, but I found one with 4 points, not unlike finding a 4 leaf clover. Adam had a similar echinoid take in the low 20s.



FIG 20: Several Glen Rose fm *Salenia* sp. echinoids, 2 articulated *Phyllacanthus* plates, and several squashed spatangoids (Site 161)



FIG 21: Glen Rose fm crinoid columnals *Isocrinus annulatus* and partial crab claws *Paleopagurus banderensis* accompanied by a single pycnodont tooth (Site 161)

Circling back to the house I knew it was time to crash....we would be joined by yet another jubilant fossil collector at 5 a.m., that being my friend Brian Evans.

December 7, 2009: Anacacho Assault

And so the 3 of us joined forces in an Anacacho Formation pit exposing more echinoids of a different age, roughly 78 million years old. Climbing around the boulders the first thing to catch my eye was the suture pattern of a gray ammonite accented in black. It turned out to be a full whorl of a partial heteromorphic ammonite still to be identified, but it exhibits some characteristics of *Bostrychoceras* or *Didymoceras*, both Campanian forms.



FIGS 22-24: Anacacho fm this and next 2 pages (Site 84)







FIGS 25-27: Anacacho fm heteromorphic ammonites this and next 2 pages (Site 84)







FIGS 28-33: Anacacho fm *Baculites* sp. and gastropod plate found by Brian Evans along with some calcified gastropods and Brian's *Hardouinia bowlesi* echinoid in site this and next 3 pages (Site 84)









FIGS 34-37: Anacacho fm *Hardouinia bowlesi* echinoids found by the author this and next 3 pages (Site 84)







FIGS 38-48: Community finds of Anacacho fm *Phyllobrissus cubensis* echinoids this and next 8 pages (Site 84)

















We spread out in different directions and soon happy chiseling could be heard intermittently from all directions. *Phyllobrissus cubensis* echinoids made the biggest showing for all of us, but a couple decent and rare echinoids *Hardouinia bowlesi* went to Brian and myself while Adam was happy to score a *Heteraster* and a *Salenia*.

But the finds didn't end there. Brian showed off a big 4 inch, solid calcite nautiloid cast plus a cool conglomeration of a couple gastropods and 3 *Baculites*, all preserved in translucent calcite, sutures on the cephalopods very intricately preserved. I've never seen anything like it! Bailing out by lunch time, a couple of us had to go back to work but it was a morning very well spent.

December 12, 2009: Double Dipping into Ma Nature

A call earlier in the week from my son's Aunt Michael set the wheels in motion for the weekend....the boy would be deer hunting with his aunt and uncle, freeing me up for yet more adventure. I arranged a little wild hog hunting within an hour of home, but that would be an evening affair.....I dropped the boy off with his aunt around 10 a.m.....what to do with the mid day?

Fossil hunt, of course! I was pressed for time but still worked 2 sites in the 105 million year old Walnut Formation en route to my hog hunt. Recent rains had done their job and payback was pretty good for my minimal effort. *Loriolia*, *Phymosoma texanum*, *Heteraster texanus*, and *Coenholectypus planatus* echinoids all came to hand in good condition, the number of *Phymosoma* being a surprise as I don't find many of them in this particular area.



FIGS 49-51: Walnut fm echinoids *Coenholectypus planatus* (round and smooth), *Phymosoma texanum* (round and spiny) and *Heteraster texanus* (heart shaped) above, *Ceratostreaan* oyster and unidentified ornate gastropod, bivalve, and crab claw below followed by a *C. planatus* echinoid in matrix next page (Site 459)





FIGS 52-53: Walnut fm echinoids *Coenholectypus planatus* and *Heteraster texanus* this page, *Phymosoma texanum* next page (Site 494)



The rest of the weekend was very successful as well. My Ruger No.1 .25-06 barked once and felled a fat 140 LB sow out of a roving pack of swine 30 minutes after sundown, and the next morning young Weston flexed his huntin' chops by making a 100 yard heart shot on a cute 10 point, 2 ½ year old cull buck on Uncle Joey's ranch. And thusly the Woehr Boys got their hands dirty in the Texas outback yet another weekend...



FIGS 54-56: Young Weston Woehr proudly posing with his expertly dispatched 10 point whitetail cull buck followed by the author and his “silhouette shot” sow taken on a night hunt this and next 2 pages





December 19, 2009: Escondido Escapades, Take 1

Well I had spent Friday night in a hunting blind until a couple hours after dark and then on my cot holding my spotlight equipped rifle until the next morning, but alas my quarry, the wily wild hog, never showed its pretty face. Saturday night was a repeat no-show, but mid day I ended up taking a few guys from the ranch to an exposure of Escondido clay (66 million years of age) in search of shark teeth.

With permission from the property owner we were crawling around the rocky slope grabbing good numbers of teeth including *Serratolamna serrata* (mackerel shark), *Squalicorax pristodontus* (crow shark), *Ginglymostoma lehneri* (nurse shark), *Rhombodus binkhorsti* (ray), *Enchodus* sp. (saber tooth herring), pycnodont (fish with crushing plates for teeth) as well as unidentified fish and reptile teeth. I also found a few pieces of turtle bone, several small fish and shark vertebrae, and my first complete ray dermal ossicle, a boney plate that once was protected the top of its back.



FIGS 57-58: Vertebrate material from the Escondido fm including shark teeth *Serratolamna serrata* top left, *Squalicorax pristodontus* top right, fish and shark vertebrae lower left, nurse shark teeth *Ginglymostoma lehneri*, a ray tooth, and a pycnodont tooth accompanied by a ray dermal ossicle lower right (Site 86)



FIGS 59-61: Two more views of the Escondido fm ray dermal ossicle followed by *Enchodus* and various fish teeth and a reptile tooth (Site 86)



After an hour or so of this we had adequately worked the exposure and after a couple of the guys had lost interest, we pulled the plug in a timely fashion with adequate compensation for our efforts.

December 20, 2009: Escondido Escapades, Take 2

Switching gears I opted to explore a completely different zone of the Escondido Formation, and took my friend Brian Evans with me. This was an exploratory push deep into the Texas Outback where few people, especially fossil collectors, care to venture. This day was the culmination of a couple years of casual research on my part, and now it was time to pull the trigger and see what was lying out there for us.

Earlier in the week I had talked with the county game warden to confirm legality of my plan to hike the stream bed. But then I began thinking...what if we got all the way out there and the stream level was too high for us to hike? Not wanting to risk trespassing, especially during deer season, nor risk a wasted trip, on a whim we threw my kayak on the roof of Brian's van and embarked on our mission.

31 degrees F is a mighty cold morning for immediately soaking feet and butts in a 2 man, sit on top kayak, but we endured the discomfort simply to have the chance to survey new potential fossil sites. It was a rough 7 mile round trip with alternating deep pools, shallow flats, and rapids forcing us to step out into the icy drink and drag the yak quite often as a certain white truck came into view high on bluff from time to time.

Multiple 5 to 6 foot waterfalls made navigation interesting, but these same waterfalls proved to be honey holes for us fossil collectors. The first set of falls sent Brian and me to opposite sides of the stream and soon in the brown limestone bench I was seeing gastropods, then one ammonite....and another....then still another. Happy chiseling ensued and before long Brian and I had 5 or 6 *Coahuilites* c.f. *sheltoni* ammonites between us, a new genus for both our collections.



FIGS 62-78: Paddling the Escondido fm at and near Site 525 followed by images of the *Coahuilites* c.f. *sheltoni* ammonites and unidentified gastropod found there this and next 13 pages



























Waterfall 2 brought Brian's favorite part of the day as he quickly homed in on the subtle presentation of still more *Coahuilites* ammonites and I followed suit behind him. Curiously we found a number of them in a strange asphalt infused sandstone, leading to a strange, odoriferous preservation. Some had the sutures accented with black asphalt – very cool and unique.



FIGS 79-88: Escondido Site 530 with Brian Evans left and the author right followed by images of more of our *C. sheltoni* ammonites exhibiting asphaltic preservation this and next 9 pages





















FIGS 89-91: The author pointing out an Indian bison kill/cooking site exposing bones and burned midden rock this and next 2 pages





Moving downstream into an area mapped as Pleistocene terrace deposits overlain by Quaternary Alluvium we were on our lookout for younger things such as mammoth bones, spear points, etc. While inspecting a silt bluff I called Brian over to see a jumble of bones I had found jutting out of the wall. The presence of burned midden rock suggested that we had come across an Indian bison kill or cooking site, the broken limb bones perhaps indicating marrow extraction, but this is pure speculation on my part. Unfortunately there were no flint artifacts present to round out this classic presentation.

Doubling back we rehit each of the waterfalls and grabbed remaining ammonites we had missed previously, rounding out our take to 8 or 10 specimens for each of us, with half of them being spectacular examples. It was a

long and arduous paddle back to the vehicle, and when we got there the mysterious white truck had us parked in. It turned out to be the Buford T. Justice of the game warden community, a caricature of small town, backwoods Texas who had invested his day in figuring out exactly what we were up to. I dropped the name of the game warden I had spoken to earlier in the week, resulting in an about face thus bringing this gentleman onto our side as he chuckled and spit tobacco juice through stained teeth into a half filled bottle and bid us farewell and safe travels.

On the way home we stopped at an exposure of Anacacho limestone that I had declared "played out" a few years ago. My approach to the site was half hearted, considering it just a time filler to help justify our drive. But time and weathering can work wonders, albeit slowly, even on tenacious limestone. And thusly I was happy to find a few *Phyllobrissus* echinoids barely popping out of the matrix and provide them a new home.

And so the road less traveled panned out in spades yet again...."To the motivated go the spoils" as they say....



FIGS 92-94: Anacacho fm echinoids *Phyllobrissus cubensis* this and next 2 pages (Site 158)





December 22, 2009: Mid Week Two Prong Outdoor ManVenture

I took a half day off work to take young Weston wild hog hunting with me. No hogs came out but we got to watch some deer. Anyway, on the way to the ranch we stopped at a construction site to light some fireworks – good fun for Weston because at 7 this was his first time with this sort of thing. We brought a couple old, broken toys of his and blew them sky high.

Anyway, after the dust cleared we did a quick crawl in the Corsicana formation once again picking up 68 million year old marine goodies. Best finds included a couple *Hemiaster bexari* echinoids and a half a crab carapace *Dakoticancer australis* in a big concretion. Fossils were not a strong focus of this multi pronged father-son outing but we still came up with a few things to show for our effort.



FIGS 95-97: Corsicana fm echinoids *Linthia variaibilis* above, *Hemiaster bexari* below, unidentified gastropod mold and bivalve *Plicatula mullicaensis* next page (Site 248)



December 24, 2009: Christmas Eve Echinoids

30 degree temperatures ushered in by 25 knot winds, thin jacket, thin pants, no socks, aching back thrown out several weeks prior....no better way to burn a little time than in happy fossil hunting grounds, I say. The boy was tied up with his Mama for Christmas Eve festivities with her family, so this would be a quick solo mission blitzkrieging through 3 sites.

Site1: Walnut Formation

This road cut sliced through Edwards, Walnut, and Glen Rose formations, the Walnut being a relatively thin, marly, gray soft layer spewing out 105 million year old marine fossils. I forgot about my back as I crawled the ditches and bluffs, other discomforts such as creeping cold in the toes and wind howling up my back taking precedence. However my eyes and mind remained engaged, and for my efforts I took 3 nice *Coenholectypus planatus* echinoids and a spectacular *Phymosoma texanum*, perhaps my best from the Walnut of South Texas.



FIGS 98-100: Walnut fm echinoids *P. texanum* above, *C. planatus* and *H. texanus* below, various bivalves and gastropods next page (Site 455)



Site 2: Upper Glen Rose Formation

Another road cut, this series of tan, marly hoodoos spits out echinoids and for those interested, various bivalves and gastropods. Although I saw no footprints, I suspect this cut may be a bit too obvious and popular now as evidenced by the relative lack of good fossils. I took a few rough *Heteraster* echinoids and one *Loriolia rosana*.

Site 3: Upper Glen Rose Revisited

Fading light, but one more road cut lay ahead of me, one that had produced measurable results consistently in the past. This day would be no different. Still the howling wind found its way up under the tail of my shirt but my focus remained undeterred. I ended up pocketing numerous echinoids *Loriolia rosana* and a few *Heterasters* as well as some interesting bivalves. Passers by who customarily honk horns at bluff climbing fools fell conspicuously silent this day, perhaps befuddled by a man's desire to grub for lithified trinkets in such inhospitable climes. Swinging

back for a low pass of the exposure on the way back to my car I made my best find from that site....a dime sized *Coenholectypus planatus*, one of my better preserved examples from the Glen Rose.



FIGS 101-102: Upper Glen Rose fm echinoids *Loriolia rosana* (spiny) and one *C. planatus* (smooth) above; scallop like bivalves below (Site 27)

December 26, 2009: The North Wind Doth Blow

Lumbar back still a mess, I was unsure when I awoke at 4 a.m. whether I should stay in bed or seek adventure....those that know me know the answer already. I'm not a very avid indoorsman. So with several Ibuprofen for the aches and pains, a handful of vitamin C for my cold, and a swig of cough syrup I synched up my old weightlifting belt and found that I could load and unload the boat without shooting pain. Its natural to take our

bodies for granted. On this day I thanked God just for providing the opportunity to enjoy the outdoors. Boat in the water I shoved off, fired up the little Nissan outboard, and went about my merry way, Pleistocene vertebrate material (.1-1.8 million years old) on the agenda.

The first gravel bar showed no footprints, bovine or humanoid, and this was a good sign. Soon a bunch of busted bones jumped into my bag including tortoise shell, some small vertebra, even a sliver of mammoth tusk bark and an unidentified acetabulum (hip socket). The second bar provided modest pickings and the third had been winnowed out by rain exposing sandstone clods that looked like they could snag and hold bones and teeth during times of flow. No spectacular finds here, but I did lay hands on a nice cervical vertebra, probably from a horse.



FIG 103: Unidentified Pleistocene ilium left and ulna right (Site 279)



FIGS 104-105: Unidentified skull occipital plate and turtle shell fragments above, mammoth tusk bark, deer sacrum and metapodial, and unidentified vertebra below (Site 279)



FIG 106: Unidentified partial scapula (Site 280)



FIGS 107-108: Unidentified partial femur ball and cervical vertebra above (Site 381) rib and horse astragalus below (Site 394)

A couple more vertebrae and miscellaneous bone scraps came to hand at the fourth bar, and the fifth gave up a nice horse astragalus (ankle bone). Before long the hair was standing on my neck and I went on high alert.....I was in an area where I had taken various proboscidean bones and tusks in the past....I remember telling myself, "Now I've found good stuff at the next bar upstream and downstream.....there's no reason I wouldn't find something here."



FIG 109: Unidentified vertebrae 426 (Site 394)

And so I went about my meandering, semi systematic grid search, just taking my time and enjoying the building north wind driving ice cold drizzle from leaden north skies. Layered and dressed for the occasion, outer layer being rain gear, I was perfectly comfortable braving otherwise hypothermic conditions, taking special care not to dunk myself in the drink this particular day.

And then a funky sky blue swirled with off-white and black specks caught my eye...this is a color pattern that serious Pleistocene enthusiasts long for...the color of ivory. Hoisting the fist sized mass from the sand and gravel, I flipped it over and saw a large and beautifully colored enamel cap....I had half a tooth of some sort of mastodon! Rinsing it in the water, I instantaneously knew that I was look at something exceedingly rare in Texas, half of a tooth of a primitive mastodon known as a gomphothere, probably of the genus *Cuvieronius*! I have never seen one of these first hand before and was happy to appropriate it into the Woehr Collection.



FIGS 110-115: Half gomphothere tooth *Cuvieronius* (?) this and next 5 pages (Site 382)











With the trip maker under my belt the rest was a leisurely, low pressure ordeal with driving rain prompting me to shorten my range this particular day. 2 or 3 final gravel bars brought a few goodies but nothing out of the ordinary; a deer astragalus, an unidentified proximal ulna, another scrap of mammoth tusk, and a few pieces of turtle shell in addition to miscellaneous giveaways.



FIG 116: Turtle shell fragment and deer astragalus (Site 383)

Doubling back to my put-in I got a little lazy about monitoring depth and ended up smacking hard bottom with my lower unit, pitching the boat wildly. I kept the river out of the boat, but my shear pin broke immediately upstream of a small log jam. A few evasive strokes with a paddle put me on a small island where I could break out my tools and swap out shear pins, putting me back underway within 10 minutes.

My back gave me little reminders through the day that it wasn't happy, but I got all my gear back to the vehicle without serious bodily aggravation, or so I hope, but will find out for sure in a day so. The old body will heal and I'll look down at that gomp tooth earned with sweat equity and savor the moment of discovery for years to come.