FOSSIL COLLECTING REPORT

April 2011

Daniel A. Woehr and Friends and Family

April 2, 2011: South Texas Sweat Equity Fossils Revisited

My long time friend Ron Hunter drove down to Texas with his high school buddy Barry Wood for two weeks of outdoor adventure including fossil collecting and wild hog hunting, and I did my best to accommodate them on both venues. Our successful nocturnal encounters with feral swine were detailed in a separate report, which brings us to our pursuit of long deceased critters, namely fossils. A moment of excitement was enjoyed late in the week by Ron and Barry as they visited one of the sites I had directed them to, finding the place to be somewhat devoid of fossils, but not of rattlesnakes…you are welcome, guys!

The New Yorkers used my house as a launch pad for daily fossil collecting sortees throughout the week, and my girlfriend Brett met us at my house at 6 a.m. Saturday morning for the beginning of our 2 pronged *coup de grace* on my fossil collecting sites across South Texas. We kicked things off with a half dozen wild pork and egg breakfast tacos for the road.

While it has become increasingly difficult to obtain permission to collect private land in today's litigious times, we thanked our quarry contact for allowing us once again to descend into a hole in the ground in the Anacacho Formation (78 MYA) which afforded us a descent shot at encountering scattered remains of rare organisms of yore. I had not put collecting pressure on the site in about a year and looked forward to what the elements had presented for us during that time. Our contact was content with the fact that I keep my collecting parties small and infrequent, as he doesn't seem to want to tie up too many Saturdays with this sort of thing nor deal with numbers of people, which would eventually result in someone breaking safety rules and shutting down the venue to everyone….so I once again chose my company very carefully.

Unseasonably warm temperatures did not avoid us on this trip; in fact they were magnified by our environs. The day before was the hottest April 1 recorded in the last 72 years. And so we entered the pit of weathering gray Anacacho limestone around 9 a.m. We fanned out across the field of weathering boulder piles in this particular old quarry, with Brett and me soon calling over the other guys when we located a concentration of marine fossils.

My first find appeared to be a weathered shark vertebra about the size of a nickel, and echinoids soon made the scene and became the dominant find, namely *Petalobrissus cubensis*, a beautiful little cassiduloid worthy of our attention. After I grabbed a few I pointed out a few more to all members of our group so they could bang them out and retain them. This sort of on site instruction gives new-to-venue folks the visual lock required to most quickly master spotting and extracting fossils of choice. Unfortunately sometimes nice fossils end up entombed in hard limestone, and I'd surmise that each of us destroyed half of what we attempted to extract.

FIGS 1-4: Barry Wood taking an up close look at the Anacacho Formation above followed by Ms. Brett and the author below and the author next page (Site 84)

FIGS 5-8: A very worn shark (?) vertebra this and next 3 pages (Site 84)

FIGS 9-11: An Anacacho ammonite hiding in plain view this and next page followed by the author's resultant bloodletting when an errant limestone shard shot off like a missile…this pursuit has its hazards! (Site 84)

FIGS 12-22: Spectacular presentation of the very rare echinoid *Hardouinia bowlesi* this and next 8 pages…so rare I'm not even sure if the formal description has yet been published (Site 84)

FIGS 23-24: A less spectacular *H. bowlesi*, still rare enough to keep, this and next page (Site 84)

FIGS 25-31: Anacacho cassiduloid echinoids *Petalobrissus cubensis*, this and next 6 pages (Site 84)


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FIG 32: Unidentified Anacacho formation bryozoan (Site 84)

FIGS 33-36: Anacacho formation *Turritella* gastropods preserved in asphaltic limestime this page and calcilte following 3 pages (Site 84)


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FIGS 37-40: Unidentified Anacacho formation bivalves and oyster this and next 3 pages (Site 84)

FIGS 41-42: Cool Anacacho formation calcite crystals (Site 84)

We continued to grab a few straggling echinoids, gastropods, and oysters up until about noon when we all felt the deleterious effects of the sun's rays in the pit, the boulders now radiating heat back at us. The sweat-o-meter read 107F in the pit, so with a pleasant "thank you" to quarry personnel we were on our way, soaking up Gatorade and air conditioning as we ambled through the brush and desert to our next site.

A brief stop at a road cut in the Del Rio Formation (98 MYA) was enjoyed by all. I had hoped to locate more slabs of a cool little foraminifer named *Hoplistoche texana*, and within minutes we each found multiple slabs of this tiny, gastropod like organism. In 15 or 20 minutes we were all satisfied with our take and back on the road.

FIGS 43-51: Ron, Barry, and Ms. Brett surveying the Del Rio formation this and next page and finding ram's horn oysters *Ilymatogyra arietina* and pyritized gastropod-like foraminifera *Hoplistoche texana* next 6 pages (Site 450)


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Finally we reached our last site of the day, what I had hoped to be our echinoid slam dunk. The Boquillas Formation (90 MYA) in this particular road cut once again gave up the goods. Soon we were all finding echinoids *Mecaster batnensis* in

the scree slope, both singles and clusters in matrix. I got a little adventurous and went into 4WD up the nearly vertical face of the cut, with Ron later letting on that he was expecting me to come somersaulting back down. That never happened as I dug footholds when required and clawed away at the exposure, reducing echinoids *M. batnensis, Coenholectypus* c.f. *nanus*, and *Holaster* c.f. *feralis* to possession, the latter being quite rare. While up high I dug out many limestone nodules with multiple echinoids, and threw them downhill for the other guys…sorry Ron about the one that bounced up into your bumper!

FIGS 52-54: The author's best find at the site, 15.75 inch diameter Boquillas Formation ammonite *Coilopoceras* sp. this and next 2 pages (Site 448)

FIGS 55-57: The author's best echinoid find at the site, Boquillas Formation *Holaster* c.f. *feralis* this and next page (Site 448)

FIGS 58-59: Boquillas Formation echinoids *Mecaster batnensis* above, *Coenholectypus* c.f. *nanus* below (Site 448)

FIGS 60-61: Unidentified Boquillas Formation oysters this and next page (Site 448)

Before long I decided to move the Explorer down the exposure so the guys wouldn't have to double back, carrying their finds. The guys had sweated hard for days looking for ammonites, but drought conditions at some sites and flood conditions at others had prevented any major ammonite encounters for them to date. "There aren't any sites I know of where we can just drive up and step out on big ammonites", I had told them. So when I stepped out of the Explorer and directly onto a 15.75 inch diameter, rare *Coilopoceras* ammonite and hoisted it aloft with a victory WHOOP!, I was met with a very entertaining, uncensored New York tongue lashing! This specimen went back north with the guys as I had recently found a similar specimen.

<u>April 3, 2011: Cooler Climes, Cool Finds</u>

And so the 4 of us grabbed breakfast and proceeded to our first site of the day, another pit I had obtained permission to collect, this time in the Escondido Formation (66 MYA). Our short one hour crawl at this site gave up a bumper crop of shark, fish, ray, and reptile teeth plus a few shark verts and fish otoliths (earbones). Overcast skies kept things a bit more

comfortable this time and we all enjoyed the rapid return on investment of effort at the site. 50s doo whop and 60s-70s classic rock were the sound track of our road trip.

FIGS 62-63: Escondido Formation mackerel shark teeth *Serratolamna serrata* in situ this and next page (Site 86)

FIGS 64-65: The author's Escondido Formation finds above: A) Unidentified shark vertebrae, B) Nurse shark tooth *Ginglymostoma lehneri*, C) Unidentified fish otoliths (earbones), D) Ray teeth *Rhombodus binkhorsti*, E) Sawfish rostral tooth *Ischyrhiza mira*, F) Crow shark teeth *Squalicorax pristodontus*, G) Mackerel shark teeth *Serratolamna serrata*; more of the same found by Ms. Brett below (Site 86)

FIGS 66-68: Ms. Brett's reptile tooth right plus mystery tooth or bone left and next two pages (Site 86)

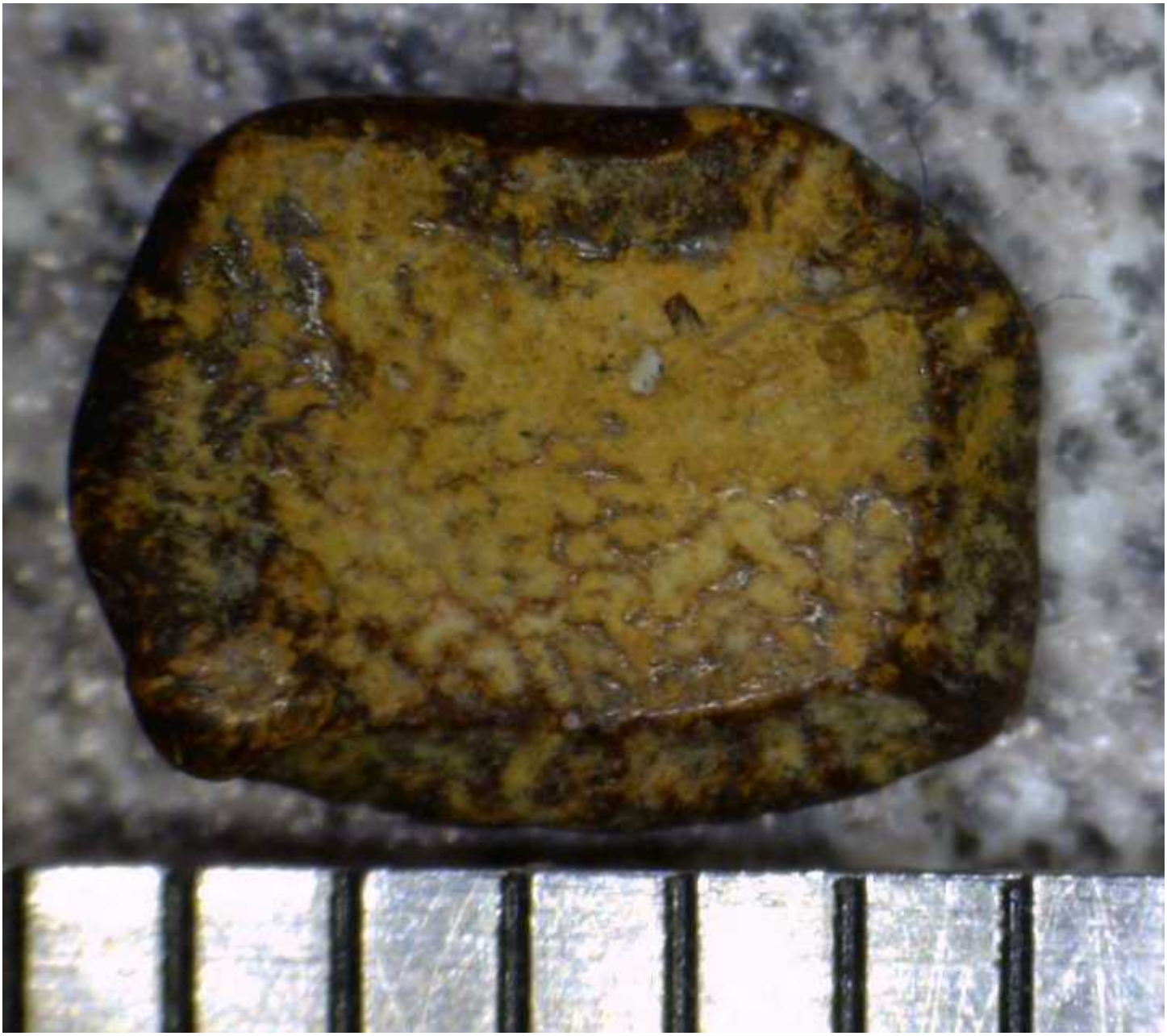

FIG 69: Broken "junk teeth" from the Escondido Formation (Site 86)

Pressing on, we descended on the fabled Corsicana Formation site (68 MYA), but my expectations were low since I had hit the site hard 3 or 4 times since it last saw heavy rain 3 or 4 months ago. Still, we gave it a whirl, and with due diligence we accrued modest dividends. As a group we walked out with a few *Hemiaster bexari* echinoids, Brett's *Eutrephoceras* nautiloid and *Trigonia castrovillensis* bivalve, some gastropods, and two *Dakoticancer australis* crabs carapaces, one with two partial claws and long partial legs. I heard no complaints as we left the site despite my previous collecting transgressions there.

FIGS 70-73: The author's best Corsicana Formation *Dakoticancer australis* crab of the day this and next page, unfortunately with most of the face and claws missing but still impressive (Site 349)

FIG 74: The author's second Corsicana Formation *Dakoticancer australis* crab of the day, again with part of the face missing (Site 349)

FIG 75-77: Ms. Brett's Corsicana Formation bivalve *Trigonia castrovillensis* this and next 2 pages (Site 349)

Brett broke away from our collecting party to prepare for her work week, and the 3 guys made a push into the Glen Rose Formation (108 MYA) to prospect for echinoids, *Salenia texana* specifically by request. Again drought and my previous collecting efforts left me with little hope of group success, however at the first site we were able to round up 3 perfect *Salenia* in short order, plus a few *Heteraster obliquatus* and *Palhemiaster comanchei* echies and a partial *Paleopagurus banderensis* crab claw and some *Nerinea* gastropods for good measure before moving on for one last hoo-rah.

FIG 78: The author's partial hermit crab claw *Paleopagurus banderensis* (Site 357)

FIGS 79-83: Paleo enthusiasts Barry Wood this page and Ron Hunter next 2 pages finding their first *Salenia texana* echinoids in the Glen Rose Formation followed by 2 views of the author's *S. texana* specimen (Site 357)


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Different site, same horizon in the Glen Rose…..we scraped together a few more *Salenia* and other spatangoid echinoids plus a ton of bivalves, gastropods, and algal fruiting balls *Porocystis globularis*. The guys seemed quite content with their weekend haul, so we celebrated with cheeseburgers, chili cheese fries, and vanilla shakes at Longhorn Café and called it a night. The 4 of us made a great team afield, making for an enjoyable and memorable weekend journey into the Texas Outback…

FIG 84: The author's *S. texana* echinoid again from the Glen Rose Formation (Site 357)

April 10, 2011: Echinoid Pickup with the Itinerant Italians

Young Weston and I picked up my friend Farley Katz in San Antonio at 6:30 a.m. with the intention of piling into my truck and heading north in search of fossils, but a flickering battery light tipped me off to a failing alternator, prompting us to move our gear into Farley's Prius a little behind schedule. We arrived at our designated rendezvous point 15 minutes late but still found our Italian guests Nando and Diana still dutifully waiting for us, so we all shuffled onto the site together.

This graded lot in the Walnut Formation (105 MYA) of Central Texas abutted a cut in a hill, and my fears of months of drought coupled with ongoing collecting were allayed when we found the site to be thick with echinoids top to bottom. Those of us willing to defy the angle of repose of the scree slope found a slightly undercut tan marl layer to hold many echinoids in situ, mostly *Heteraster texanus* but also *Phymosoma texanum*, of which I soon took 3. Farley snagged a nice 3 inch *Engonoceras* ammonite to break the "monotony" of echinoids.

FIGS 85-89: Old Man and The Kid, Farley, Nando, and Diana surveying the Walnut Formation (Site 484)

Those of us choosing to work the lower levels found much of the same, in some cases better, as Diana showed us when she produced a honkin' big, perfect *Phymosoma*….nice……it anchored their day of success afield within the first few minutes, and accordingly the pressure of success as a guide was lifted off my shoulders. This experienced husband/wife team had a few things on their wish list and we nailed one of them right out of the gate.

Even young Weston demanded a piece of the action and followed his Old Man up the face of the bluff, probably well beyond what his Mama would have allowed should she have been in attendance. He speed bagged *Heterasters* and gastropods faster than most kids could grab the last cookie……then he took a spill which Charlie horsed him hard and gave him a nasty bruise on his thigh, his hand in his Pop's the whole time. Between tears he pointed and said, "Wait…there's another echinoid…" and in his catch bag it went…that's my boy!

FIGS 90-94: Diana's spectacular *Phymosoma texanum* echinoid this and next page followed by a few more appropriated by Nando and the author (Site 484)

FIG 95: Nando's fist full-o-*Heterasters* (Site 484)

FIG 96: The author's better *Heterasters* (Site 484)

FIGS 97-100: Young Weston's *Heteraster* echinoids this and next 3 pages (Site 484)


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FIG 101: The author's *Engonoceras* ammonite in situ, fortunately photographed as such since it was booby trapped to explode upon extrication (Site 484)

FIGS 102-107: Old Man and the Kid's combined take of Walnut Formation gastropods this and next 5 pages (Site 484)


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Near the road we found another profuse explosion of *Heterasters* and we hustled like ants on a picnic basket until the better ones were reduced to possession.

The second site, also Walnut, was another graded lot that we hoped would be the same layer, but it wasn't exactly, so it gave up some nice *Heterasters* in the gray marl but no regular echinoids. It was worth our time but ended up being a quick hit.

FIGS 108-109: The author collecting the Walnut Formation this and next page (Site 542)

FIG 110: The author's take of Walnut Formation *Heteraster texanus* echinoids (Site 542)

After Asian food for lunch, we dropped onto our third site, a graded lot with regular echinoids *Salenia mexicana* present. These specimens are so small and camouflaged that gloves and kneepads were *de rigeur*. Nando called out the first one found, then Farley. Diana grabbed one then I finally followed suit with an outsized specimen. Concentrations were spotty, but we continued to find then. After I realized I had a few in the bag, I called Diana over to find a hidden one I spotted during my crawl. An hour of this proved tough hunting but slow and steady success made it worth the effort.

FIGS 111-112: Weston taking care of business this and next page (Site 352)

FIGS 113-116: Part of Nando, Diana, and the author's combined take of *Salenia mexicana* echinoids from the Walnut Formation, this and next 3 pages (Site 352)

The fourth site was also Walnut, and before long we were back in the *Heterasters*, this time the ones from gray marl often appearing dusted with pyrite and extremely well preserved and the ones in the tan marl exhibiting some degree of pyrite breakdown, but also very well preserved. I plucked two *Phymosoma* from wall of the hillside cut and enough *Heterasters* to make it all worth the effort, and the rest of our crew found several of the latter as well.

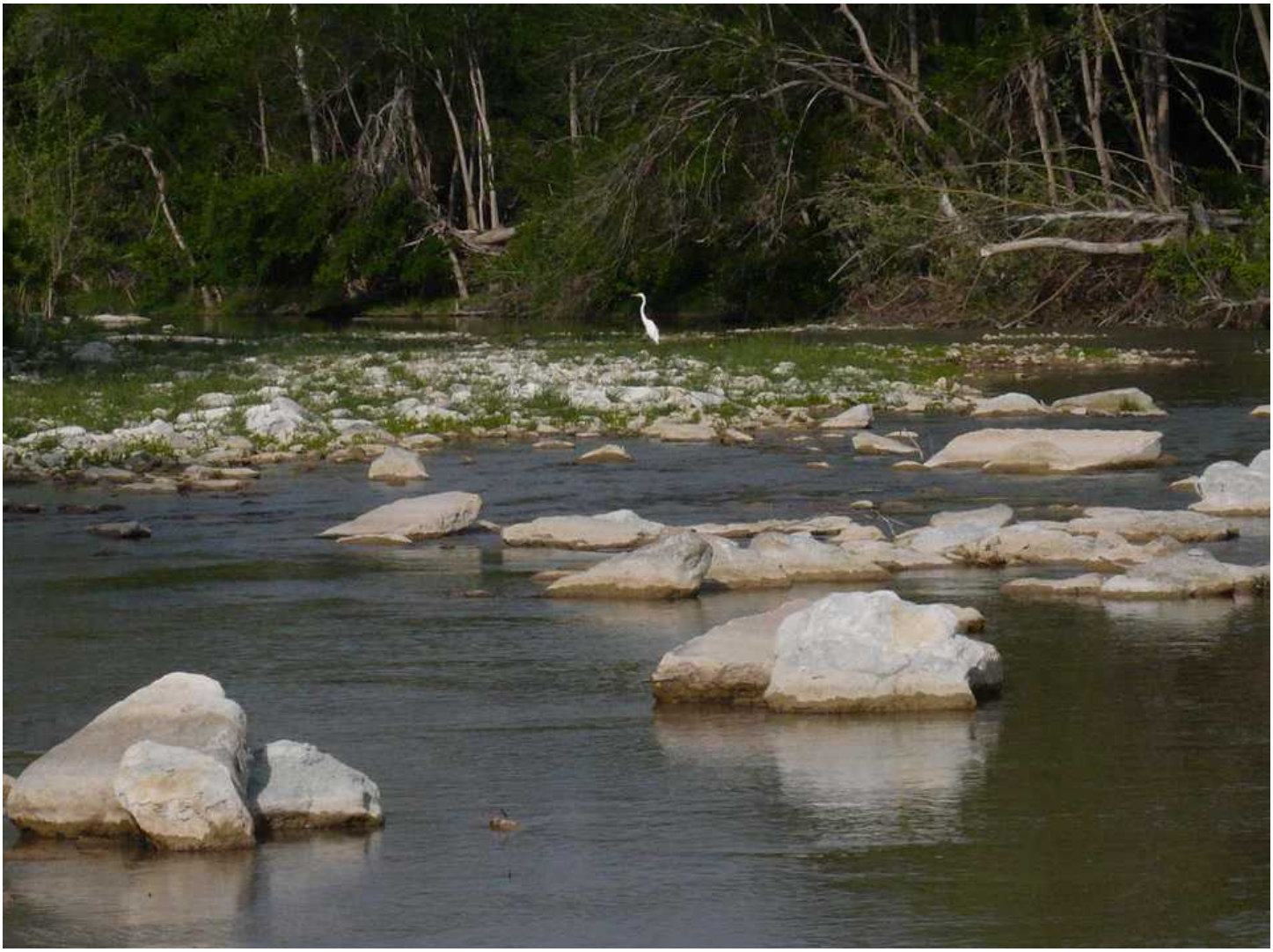
FIGS 117-121: The author's Walnut Formation echinoid *Phymosoma texanum* this and next 2 pages followed by 2 shots of a second specimen (Site 404)

FIGS 122-124: The author's Walnut Formation echinoids *Heteraster* this page and gastropods and bivalves, some with pyrite, next 2 pages (Site 404)

Some refreshment was in order and soon we were at our fifth and final site for the day, a clean creek that we waded for ammonites of the Georgetown Formation (100 +/- MYA). The cool water and clear pools were therapeutic, although ammonites were somewhat scarce.

Farley broke the ice with a 6 inch diameter *Mortoniceras* ammonite, which he promptly bestowed on Diana. Weston jumped in and swam up to his neck like a hound dog as he floated in the current. I hopped from limestone bench to limestone bench with Nando until he spotted a 10 inch diameter Mort of his own. I had heavy hand tools and volunteered to bang it out for him. We released it from the firm clutches of the formation, but the center had worn paper thin, leaving only the adult whorl intact. It had an interesting charm however so Nando appropriated it accordingly.

FIGS 125-126: Farley, Old Man and the Kid along with a pleasant view of Georgetown Formation Site 333 this and next page



FIGS 137-145: Several Georgetown Formation *Mortoniceras* ammonites in various stages of weathering followed by the author tapping one out of the limestone, center section eroded thin (Site 333)


SAFETY GOGGLES


WARNING-WEAR
SAFETY GOGGLES

FIGS 146-147: Farley's killer *Mortoniceras equidistans* ammonite this and next page (Site 333)

Back at the vehicles Farley unveiled his *piece de resistance*, a splendidly preserved Mort of about 9 or 10 inches diameter. Although the last site only brought 3 finds, we were 5 for 5 on sites so I felt that we made good use of our guests' time. Nando and Diana are a delightful couple, and I look forward to collecting with them at any point in the future that can be arranged. Farley enjoyed not only the fossils but also the opportunity to unveil his command of the Italian language, a rare opportunity in Texas. Weston was a bit under the weather all week, but hung well with the adults and made some good finds along the way. It was time well spent for all 5 of us.

April 30, 2011: Woehr Boys vs. the Duck Creek Formation

I had my son Weston for the weekend and realizing I had never taken him on a major Lower Cretaceous ammonite run, a trip to North Texas was in order, Lake Texoma area in particular. I figured this time of year temperatures would be bearable dawn to dusk for a kid his age, and it was time to make a 700+ mile round trip before Obama's fuel prices put the squeeze on such travels. And so the die was cast, and with the canoe loaded onto the back of my truck, young Weston and I pointed the front bumper to the north around 8 p.m. Friday night, arriving at the big rest area just south of the Red River on Hwy 91 around 2 a.m. Weston got a jump on some zzzz's, while the Old Man was happy to grab about 4 hours with the windows cracked.

By 7:30 we deployed the canoe in the "Rio Eo", a stream channel ripe with *Eopachydiscus marcianus* ammonites from the Duck Creek Formation (102 MYA), also issuing its share of *Mortoniceras* ammonites and *Macraster* echinoids as we'd soon see. And so we set sail, low water conditions making for easy perusal of the bedrock stream bottom, Weston on point at the helm.

His index finger jutting at the stream bank, he soon laid claim to the first *E. marcianus* of the day, its keel jutting from the exposure. We'd extricate that specimen on the return trip – no need to load the boat with extra ballast early (says the dad who would have to drag the canoe in spots). At the first low water drag Weston snatched a nice 4 inch Mort from underwater, his eyes quickly calibrated to this venue. Soon yelps of victory and a jutting finger directed my attention to a true algae covered mill stone of an Eo stuck to the submerged bedrock, and with 5 minutes of submarine chiseling this goliath specimen was exhumed from its calcareous sepulcher as the youngster cheered on.

FIGS 148-149: Young Weston scoring the first *Mortoniceras* ammonite and enjoying a boat ride this and next page

(Site 73)

FIGS 150-154: Weston spotted the first and biggest ammonite *Eopachydiscus marcianus* ammonite then found a nice *Macraster elegans* echinoid next to it peeking out of the Duck Creek limestone this and next 4 pages (Site 73)

FIGS 155-157: Eos underwater, Eos trying to hide, Eos reduced to possession this and next 2 pages (Site 73)

FIG 158: Another Duck Creek Formation *Mortoniceras* ammonite, courtesy of Weston (Site 73)

FIGS 159-162: More of Weston's finds….*Rastellum carinatum* oyster and *Macraster denisonensis* echinoid in the raw followed by bivalve *Inoceramus comancheanus* this page, more views of his *R. carinatum* next page (Site 73)

FIGS 163-166: Weston digging out a 13 inch *E. marcianus* ammonite followed by the Old Man muddy from lugging ammonites this and next 3 pages (Site 73)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FIGS 167-170: More Duck Creek ammonites *E. marcianus* this and next 3 pages (Site 73)


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FIGS 171-174: Duck Creek Formation *Mortoniceras* ammonites starting with Weston's triple Mort followed by singles next 3 pages (Site 73)

FIGS 175-177: Duck Creek Formation echinoids *Macraster denisonensis* this page, same species cracked open showing geodized calcitic interior next page followed finally by our collective boat load of fossils (Site 73)

Weston took lead when we arrived at an ammonite bed peeking above water level and laid claim to a number of Morts and Eos in need of chisel work while Pops brought up the rear, banging out a few more subtley exposed specimens. We took a number of small *Macraster denisonensis* (?) echinoids as well, although there were a few casualties in trying to extricate them from the hard limestone.

The trek back to the vehicle was no easy task…boat bottoms out….unload ammonites…drag boat…reload ammonites…repeat repeat repeat. But shuttling our finds and the canoe back up the bank made me glad that I occasionally visit the gym. Weston's 22 inch, 90 LB Eo made me feel like a weak man in the strongest man contest…finally a ride in the air conditioned climes of the truck between sites….With a toast of Gatorade bottles we were on our way…

And so after a bit of a drive we deployed the canoe on the shores of Lake Texoma and took advantage of recent low water levels. High winds were not a problem for our small craft while running a protected shoreline. Walking behind a line of fallen Duck Creek limestone blocks I spotted a wonderful Eo hidden from any other view…perfectly preserved, large, and easily retrieved. Another big one from a higher muddy layer presented itself mostly hidden in the marl ground…another easy extraction, honkin' big at that; it found a spot in the bottom of the boat.

A couple hours produced a combined take of numerous Eos, Morts, and Macs, with most of the nice Macs falling prey to little Mr. Eagle Eyes by the fistful. I heard no complaints. A few partial heteromorphic ammonites *Idiohamites fremonti* rounded out our ammo take.

FIGS 178-186: Duck Creek ammonites *E. marcianus* in situ, extracted, and prepped this and next 8 pages (Site 183)


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FIGS 187-191: Pyrite chunks above followed by pyritized micromorphic Duck Creek ammonites *E. marcianus, Idiohamites fremonti*, and *Scaphites worthensis* along with gastropods, shark and fish teeth, and partial crab claws this and next 8 pages (Site 183)

Best specimens

Eopachydiscus marcianus

Idiohamites fremonti and fish tooth

Scaphites worthensis

FIGS 192-197: Duck Creek *Mortoniceras* ammonites this and next 5 pages (Site 183)


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FIG 198: Duck Creek *Inoceramus comancheanus* bivalve (Site 183)

FIGS 199-200: Duck Creek ammonites *Idiohamites fremonti* this and next page (Site 183)


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FIGS 201-210: Duck Creek echinoids *Macraster denisonensis?* (smaller) and possibly *M. elegans* (larger) this and next 8 pages (Site 183)

FIGS 211: Bumper crop of Duck Creek finds – father/son combined take (Site 183)

Weston took a break and played in the sand while I changed venues, strapped on gloves and kneepads, and got up close and personal with the Duck Creek marl. I was fortunate to lay hands on 3 or 4 species of pyritized micromorphic ammonites, a few partial shark teeth, a nice fish tooth, and a couple partial crab claws before we called it a day and headed back to Dallas to hang out with a high school buddy of mine.

Our ride home was a bit long, so we stopped at a site along the way in the Georgetown Formation, Duck Creek member, and soon Weston found a nice *Cretolamna appendiculata* shark tooth. We enjoyed a contest of seeing who could find he biggest crystals and nuggets of pyrite, then we ran into 3 more ammonites before closing out the day with a big BBQ pork sandwich from Salt Lick. I'm glad my little accomplice had a healthy taste of success in the great outdoors this weekend and look forward to more of the same with him.

FIGS 212-214: Weston's Georgetown Formation *E. marcianus* ammonite adorned with a pyrite crystal and wonderful sutures this and next 2 pages (Site 547)

FIGS 215-218: Weston's Georgetown Formation shark tooth *Cretolamna appendiculata* followed by two *Neithea* scallops bejeweled with pyrite this and next 3 pages (Site 547)

FIGS 219-235: Weston was quite proud of our Georgetown Formation pyrite, so here it comes….this and next 14 pages (Site 547)


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