

## FOSSIL COLLECTING REPORT

July, 2011

Daniel A. Woehr and Friends

### July 2, 2011: Holiday Weekend Exploratory Push – Day 1

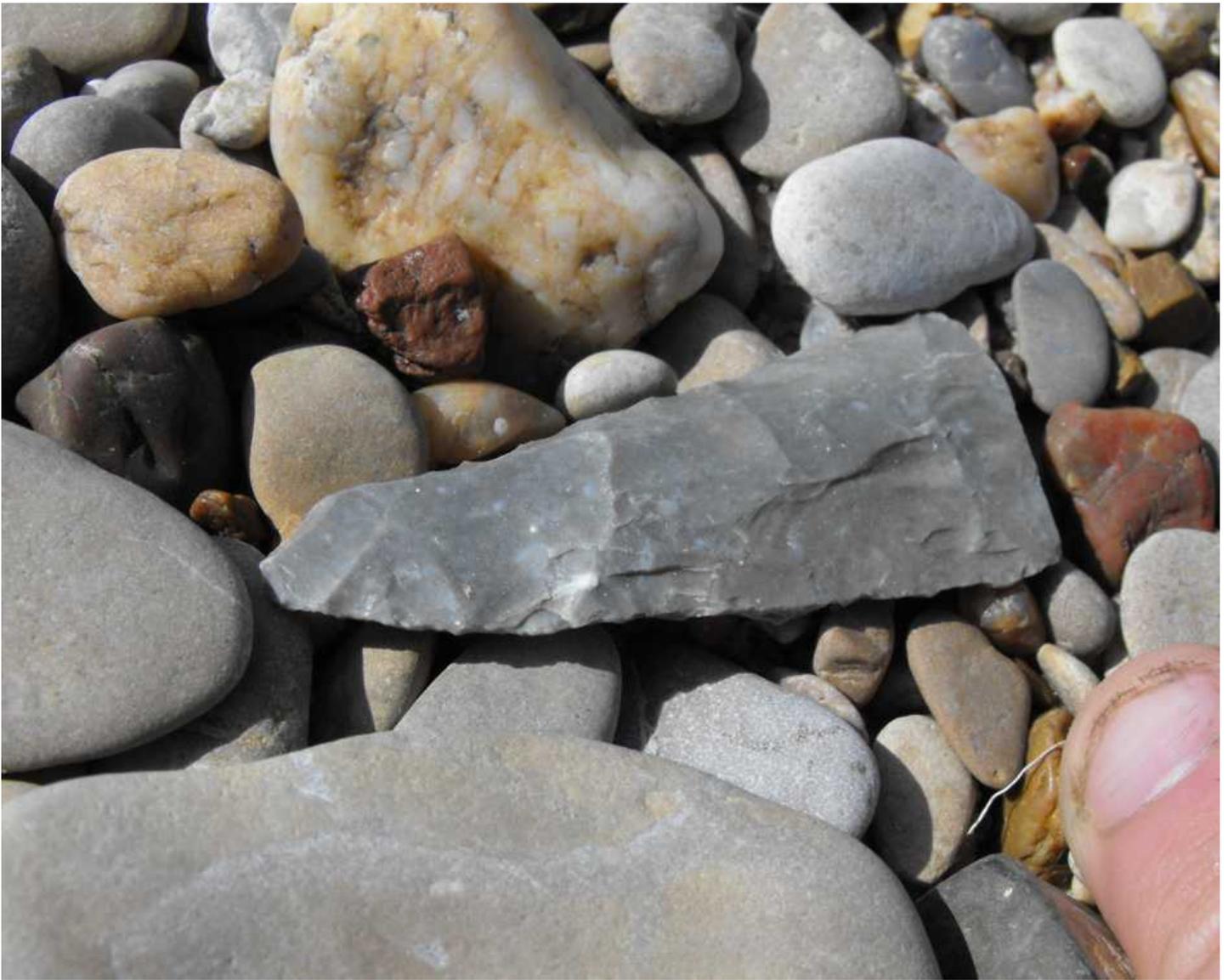
A hard fall on my wrist at home late Friday night had me questioning whether I should scrap weekend fossil hunting plans. A voice in my head would have nothing of it as the truck was already packed and I had a spare wrist brace lying around the house somewhere. So in the wee hours of Saturday morning I rounded up my girlfriend Brett (she wasn't saying wee with me at 3 a.m.) and pointed the big diesel truck north for a long haul.

My, how the heat comes on fast in the early morning Texas sun! It was soon a fiery ingot singeing the back of my neck. Fortunately an easy put-in made for a easy start. Our stream of choice however varied in depth this time of year, forcing us to alternate between motoring, paddling, and dragging to access various exposures of interest.



FIGS 1-3: The author launching his battered old canoe and finding a partial lithic artifact, this and next 2 pages (Site 552)





We happened upon a gravel bar big enough to warrant a grid search. Finds were scant but interesting. I picked up what looked like a small indeterminate section of skull which could range anywhere from Holocene to Pleistocene in age, but appeared to have some years on it nonetheless. My favorite find however was what could be an Archaic knife with the base knocked off (disclaimer – I'm no expert in lithic artifact typology). Ms. Brett had never encountered a stone artifact during our times afield so this one is now reposed in her collection awaiting the company of the first one she finds herself.

Pressing on, we happened upon a low bluff of Upper Cretaceous clay, similar in character to much of what I see in the Maastrichtian through Campanian layers of this age in Texas, and a rough guess would be Kemp Formation or thereabouts, roughly 66 MYA. Finds were numerous but not exactly what we were after – worm tube clusters and phosphatic molds of bivalves and gastropods. Best find was half of a half dollar sized shark vert that fell to the keen eyes of Ms. Brett. I was hoping for coveted Upper Cretaceous ammonites, but they failed to materialize this round.



FIGS 4-6: Ms. Brett working a Maastrichtian exposure this page, phosphatic bivalve molds found there next 2 pages (Site 553)







FIGS 7-8: Ms. Brett showing off her half shark vertebra this page followed by the author's gastropod *Striatocostatum* sp. next page (Site 553)





FIGS 9-10: Unidentified phosphatized gastropods above followed by worm tubes below (Site 553)

Constant imbibing of electrolytes and full body dunks in the river (the planned variety) made the imposing Texas heat much more bearable, keeping the entire leisurely trip well within everyone's comfort level...a successful and enjoyable outing overall.

July 3, 2011: Holiday Weekend Exploratory Push – Day 2

Variety and self styled adventure are a big part of what draws me to the pursuit of paleo treasures, so another truck ride was in order to shake up the venue a bit. Again we dropped the canoe in the water for a full day of motoring, paddling, and dragging it to spots we've never visited nor heard of being collected.

An even easier put-in than the day before was quite a welcome surprise first thing in the morning, and soon we were on our way and canvassing bluffs of Lower Cretaceous limestone which I'm guessing were Mainstreet Formation or thereabouts, roughly 99 MYA. We paddled and walked a good expanse of this stuff and found it to be rather stingy with fossils. Although we found a few rough *Mortoniceras* ammonites which we left behind, we only picked up two fossils, a big *Macraster* echinoid and a smaller *Hemiaster calvini* echinoid. Neither was taken in situ so I'm not even sure if they came from this formation.



FIGS 11-13: The author navigating an exposure of Mainstreet Formation this and next page followed by a *Macraster* sp. echinoid found loose in the float (Site 554)







FIGS 14-15: Mainstreet Formation echinoid *Hemister calvin* this and next page, note translucent infill (Site 554)





FIG 16: The author pacing himself in the Texas summer heat (Site 554)

Miles later, we happened upon a sizeable gray bluff whose fossils and lithology quickly identified it as Grayson Formation, 98 MYA. The harder layers low in the exposure seemed to give up the most desirable fossils. *Ilymatogyra arietina* and *Gryphea mucronata* oysters were abundant, and a few brachiopods *Kingena wacoensis* made the scene as well. The large spired heteromorphic ammonite *Plesioturrillites brazoensis* and nautiloid *Paracymatoceras texanum* were common as well, but weathering characteristics of this formation left most specimens broken in situ. We ended up sorting through the chaff and taking a few of the latter two species.

With a slow pace and stooping posture I came eye to eye with a couple echinoids, first a small *Hemiaster calvini*, then later a more desirable example of the ornate regular echinoid *Goniophorus scotti*, always welcome in my catch bag. Brett left her mark on the area as well, taking a large shark tooth *Cretolamna appendiculata* while studying a reworked zone of gravel in the bank not far downstream of the main exposure.



FIG 17: Ms. Brett observing a fine exposure of Grayson Formation (Site 555)



FIG 18: Grayson Formation ammonite *Plesioturritites brazoensis* above a nautiloid *Paracymatoceras texanum*..unfortunately both looked much better in situ than once removed from the exposure (Site 555)



FIGS 19-20: Ms. Brett with her Grayson Formation nautiloid *Paracymatoceras texanum* this and next page (Site 555)





FIGS 21-22: Grayson Formation nautiloid *Paracymatoceras texanum* this and next page (Site 555)



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FIGS 23-27: Grayson Formation echinoids in the raw – *Hemiaster calvin* this page, *Goniophorus scott* next page; as prepped following 3 frames (Site 555)









FIGS 28-29: Ms. Brett with her *Cretolamna appendiculata* shark tooth taken from Grayson Formation derived float this and next page (Site 555)



Still farther along we encountered another low gray bluff worth perusing. From a distance it looked superficially much like the Grayson exposure we had visited earlier, however closer scrutiny of the lithology suggested otherwise. This was less marly and more shaly in general, deeper blue/gray in color, and sprinkled with evaporate crystals, perhaps gypsum.

Slabs of soft glauconitic shell hash and harder limestone fallen from above caught my attention, and soon I began seeing shark teeth *Squalicorax falcatus* and fish teeth *Enchodus* sp. I called Ms. Brett over and we began splitting slabs blindly and examining the parting planes. "Whoa!" I exclaimed as a perfect *Cretodus crassidens* tooth appeared before me, a later scrub with a toothbrush and water later revealing perfect examples of an *S. falcatus* tooth and small fish vertebra within an inch of the big tooth.



FIG 30: Eagle Ford Group exposure (Site 556)



FIG 31: Spectacular and scarce example of the Eagle Ford shark tooth *Cretodus crassidens*(Site 556)



FIGS 32-33: Same *Cretodus crassidens* tooth above sharing matrix piece with *Squalicorax falcatus* tooth left and fish vert farther right, two *S. falcatus* teeth below (Site 556)



FIG 34: Eagle Ford pycnodont ethnoid plate, scale in mm (Site 556)

On that note we acknowledged our hunger pangs and headed back to the truck, made it through the drudgery of getting gear secured back in the truck, and eventually rewarded ourselves with a killer steak dinner before the long trek back to San Antonio.

The next day's x-rays revealed that I had indeed chipped my left triquetrum, one of the bones of the wrist, but careful paddling and loading, unloading, and portaging of equipment had not exacerbated the problem. I'm glad we proceeded as planned and I don't see an arm brace slowing me down a bit over the next several weeks. As the saying goes, "I'll rest when I'm dead!"

#### July 17, 2011: Solo Exploratory Push

After spending a couple lunch hours researching new Cretaceous marine sites I approached 3 local collecting buddies one at a time to see if one might join me. Schedules did not match up but that's OK as collecting solo affords certain freedoms that I've really come to enjoy over time. And so I left home around 3 or 4 a.m. and began perusing the first of a dozen sites at daylight....and it was a dud, somewhat of a harbinger of how most of the other sites would pan out. My buddies were smart not to come along! With many sites strung out over 100 miles to look at over the course of the day, I remained vigilant.

Unfortunately the next half dozen sites too were duds. Satellite imagery can be misleading as it can be 2 or more years out of date. It doesn't always show gates and fences, nor do outdated photos reveal revegetation of exposures since images were taken. Such are the perils of prospecting, and I accept all this as part of the gig.

The next couple sites were meant to be high percentage options for Upper Cretaceous marine vertebrate material. They too were duds; creek bottoms being blocked off by fences near bridges. Oh well, there is still value in knowing what areas to avoid in the future.

Another difficult access creek provided a good look at its limestone bottom courtesy of the current drought. The gray and blue limestones and shales were mapped as Weno formation, roughly 100 million years old. A half mile into my hike, finally I ran into a couple nice *Mortoniceras* ammonites, common on many of my excursions but appreciated more than normal on this balmy, otherwise fruitless summer day.



FIGS 35-40: Weno Formation site and a couple *Mortonicerassp.* ammonites found there, this and next 5 pages (Site 557)











Getting late in the afternoon at this point, I opted to switch gears and begin the trek back home. But on the way I stopped by the Waco Pit to survey the Del Rio clay (98 MYA) for well preserved but diminutive marine fauna. After pounding down a couple Gatorades I went about my hike and crawl campaign.

I forgot my gloves and the ground actually began burning my hands, so I kept it down to a half hour. I felt like a cat dropped on a hot stove. But in the process some cool little pyritized ammonites came to hand such as *Engonoceras*, *Mantelliceras*, *Mariella*, *Otoscaphtes*, and *Adkinsia* as well as the straight heteromorph *Sciponoceras*. A nice little fish vertebra and a *Cretolamna appendiculata* shark tooth helped make it worth my while.



FIG 41: Del Rio Formation shark tooth *Cretolamna appendiculata* above (Site 46)



FIGS 42-44: Del Rio Formation ammonite *Engonoceras serpentinum* above, tip of *Sciponoceras* ammonite lower right, and unidentified shark vertebra lower left (Site 46)



FIGS 45-46: More views of same *C. appendiculata* tooth and shark vert plus cidarid echinoid plate and business end of a crab claw (Site 46)



FIG 47: Del Rio Formation ammonite *Adkinsia bosquensis*(Site 46)



FIG 48: Del Rio Formation ammonites *Mantelliceras* sp. (Site 46)



FIG 49: Del Rio Formation ammonites *Mariella bosquensis* (Site 46)

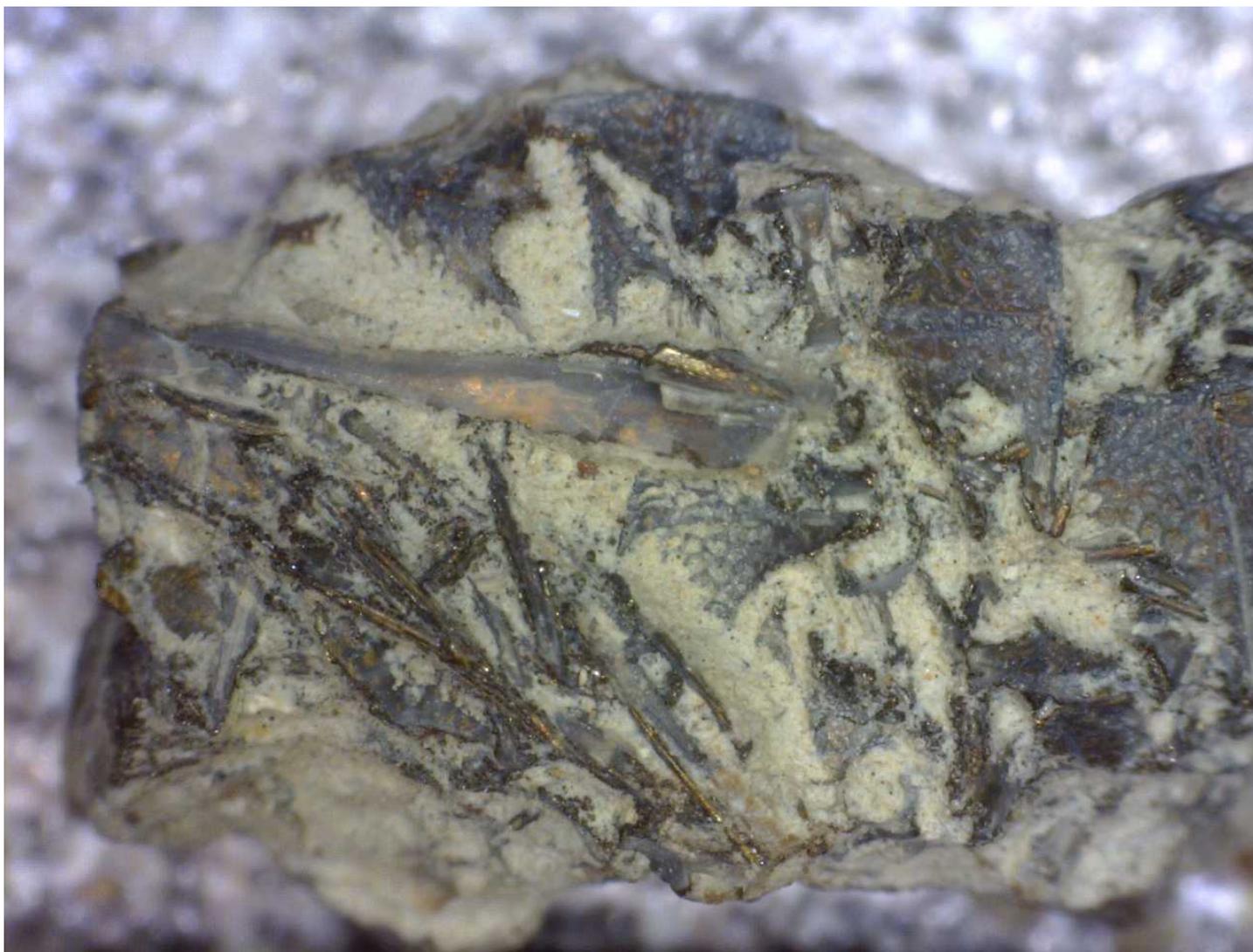


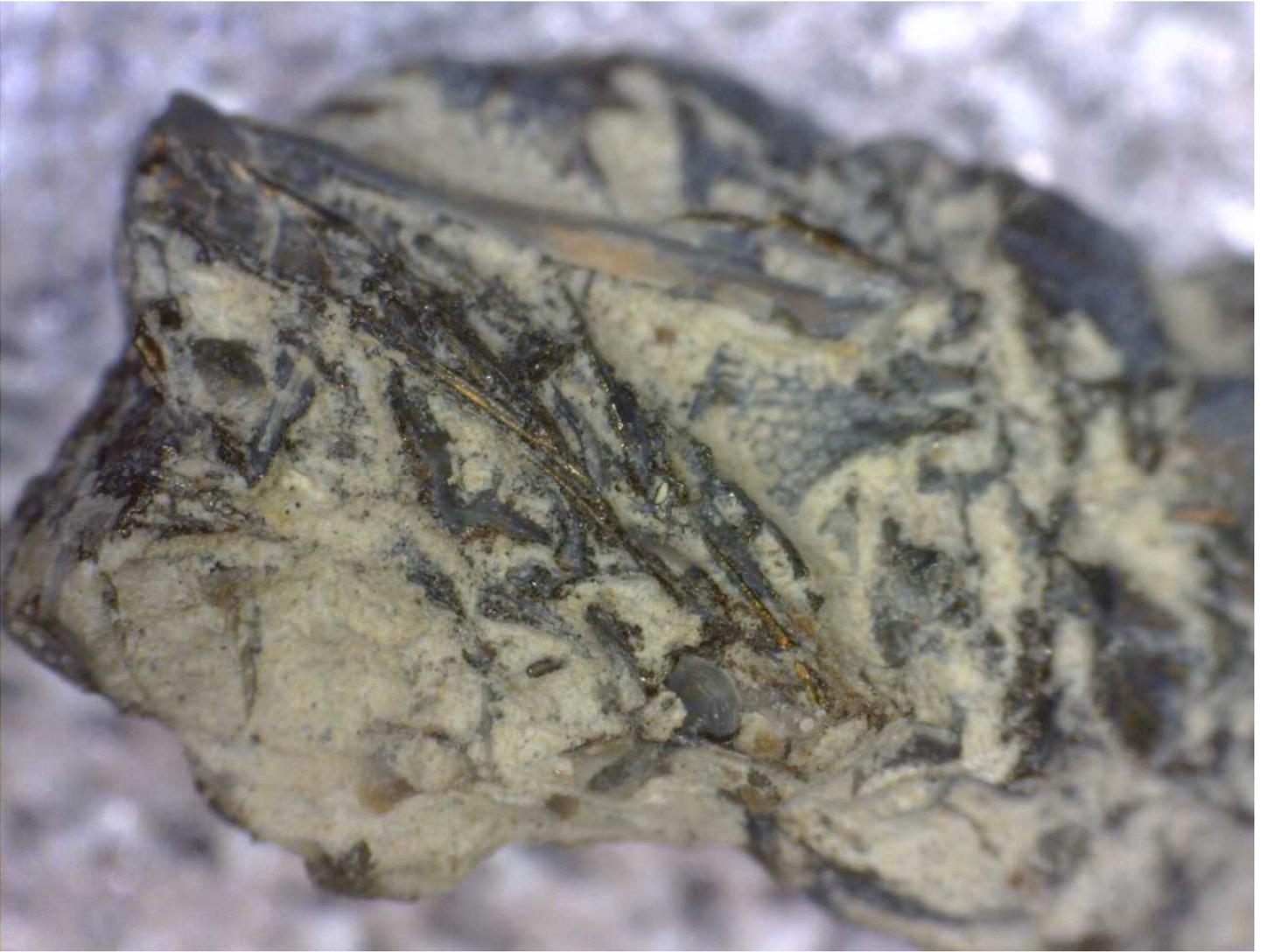
FIGS 50-52: Del Rio Formation ammonites *Otoscapites subevolutus* this and next page followed by straight ammonites *Sciponoceras* sp. (Site 46)



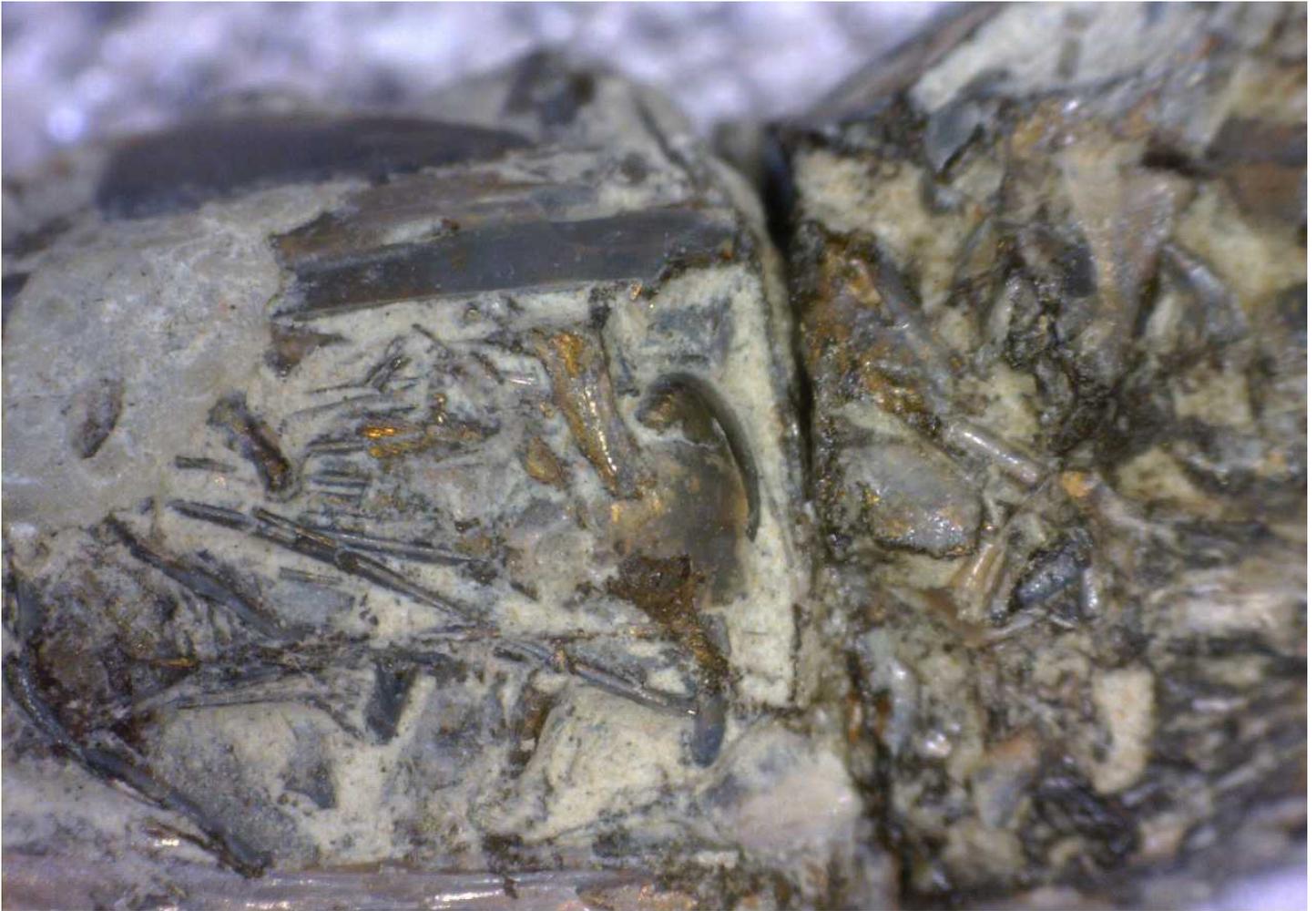


FIGS 53-57: Del Rio Formation coprolites (colloquial English translation: turds) containing hard to discern vertebrate material this and next 4 pages (Site 46)









High temps and burning palms ushered in fulfillment of my need for thrill of discovery a bit quicker than normal. I still had time to burn and opted to visit the Waco Mammoth Site for the first time. It was really cool to see several articulated mammoth skeletons of various ages at death together in the ground alongside a camel skeleton. Photos of the skeletons will serve as references of anatomical position and comparative osteology of various bones, particularly vertebrae.



FIGS 58-62: Views of the Waco Mammoth Site, Pleistocene, including Mammoth Q this and next 4 pages













FIGS 63-67: From the Waco Mammoth Site mammoth - molars above followed by Mammoth W next 4 pages





**Mammoth W**  
**(Female)**



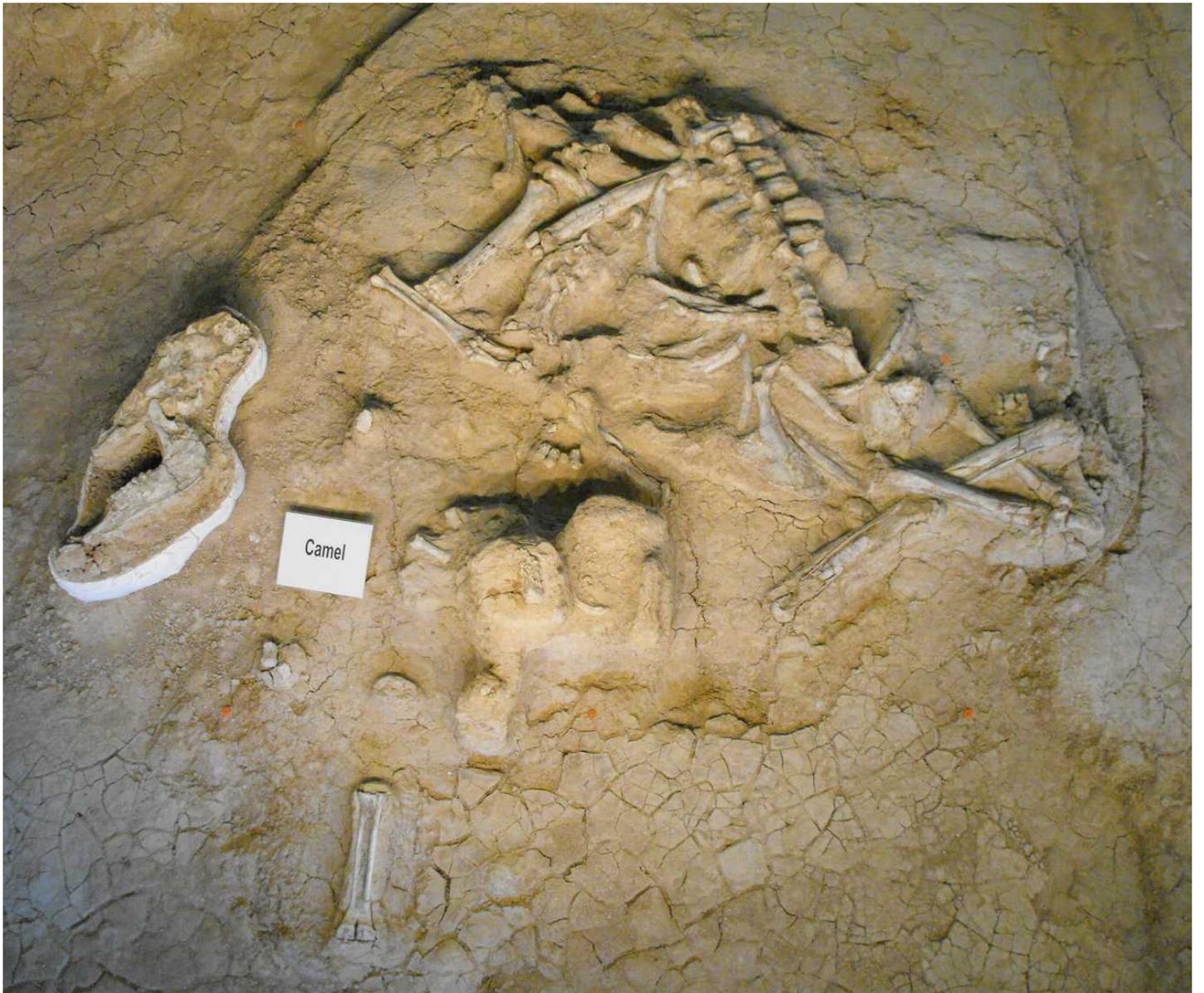




FIG 68: A very nice mammoth molar



FIGS 69-71: Camel jaws and skeleton at Waco Mammoth Site this and next 2 pages





And thus concluded my day afield, actually one of my less productive outings but I got to cross a number of exploratory sites off the list. Time to line up some new ones.

#### July 30, 2011: Texas Ammonite Olympics

And so with the summer winding down for some of us, my friend Anthony Talluto had one last weekend for fossil hunting available before his internship ends in San Antonio and he heads back to school in Mississippi. He still had ammonites on the brain, so I selected a recently successful North Texas venue in the Duck Creek Formation (102 MYA) for us to spend a day poking around. The plan was to arrive early so we could get home early, but it still turned out to be a 25 hour day in the end....and well worth it.

On an hour and 15 minutes of sleep I slapped my alarm and got out of bed at 12:30 a.m. Anthony showed up at 1 and helped me load my 17 foot canoe in the back of the truck before we grabbed some breakfast tacos, diesel up, and clipped off hours of driving for a dawn assault on our creek of choice.

Upon reaching the creek our travels were far from over. We covered a dead stretch of waterway before landing on a large gravel bar which we had to portage. The drill: unload the boat, shuttle gear and boat across 50 yards of dry ground, and reload the boat for another ¼ mile of paddling. The few nice ammonites and echinoids we found on that first gravel bar quickened our step and served as harbingers of things to come.

I had first hunted this site on an exploratory mission with my girlfriend Brett a few months back, and the place was quite different this round. The first trip was right after a flood, and high water had afforded us easy canoe access to some good areas plus the convenience of dropping them in the canoe and floating them out. This time the creek bed was bone dry in spots, forcing us to walk in and pack out our ammonites, but revealing many specimens previously hidden from view. Water must have been 3-4 feet higher the other time.



FIGS 75-78: Basal Duck Creek Formation outcrop (water level 3 feet lower than last visit) showing *Idiohamites fremonti* ammonite zone at bottom of blue/gray layer overlain by 10 feet of marl and *Eopachydiscus marcianus* ammonite zone marked by 2 foot thick tan limestone bench positioned high in the bank, large boulders in creek from Eo zone, Anthony Talluto for scale, this and next 3 pages (Site 548)







Early in our hike Anthony focused on a tan block of limestone that revealed more and more small *Eopachydiscus* and *Idiohamites* ammonites the longer he looked at it. A few yards away I found a high grade *Mortoniceras* ammonite, and upon splitting some matrix away noticed that it preserved the rarely seen rostrum denoting it as a complete specimen. It alone made the trip worth my while...but much more was to come.

Anthony was taken aback by the sheer number of ammonites present.... *Eopachydiscus*, *Mortoniceras*, *Idiohamites*, and *Craginites*. And there were so many to go around that there was no hint of competition in the air. It was more a game of deciding how much material we wanted to carry, keeping boat capacity in mind, and high grading along the way. We must have hiked a mile along that creek bed, and left many of the larger Eos where found...no point in killing ourselves when quality examples of more portable specimens were available much closer to the boat.



FIG 79: Anthony Talluto with a nice, portable sized *E. marcianus* ammonite (Site 548)



FIGS 80-84: One must at times endure bad hair to lay hands on prize finds, like this Duck Creek Formation *Mortonkeras equidistans* ammonite with rostrum intact, this and next 4 pages (Site 548)







Close by I spotted a slab of limestone choked with 2 inch *Macrasterochinoids*...too bad none were perfect. I ultimately made up for that by plucking a couple perfect ones from the marl later on.



FIGS 85-89: A slab of roughly preserved Duck Creek *Macraster* sp. echinoids followed by a couple nice specimens of the same plucked from the marl between the *Idlihamites* and *Eopachydiscus* benches, this and next 4 pages (Site 548)











FIGS 90-92: Basal Duck Creek Formation ammonites *Idiohamites fremont* (this and next 2 pages) (Site 548)

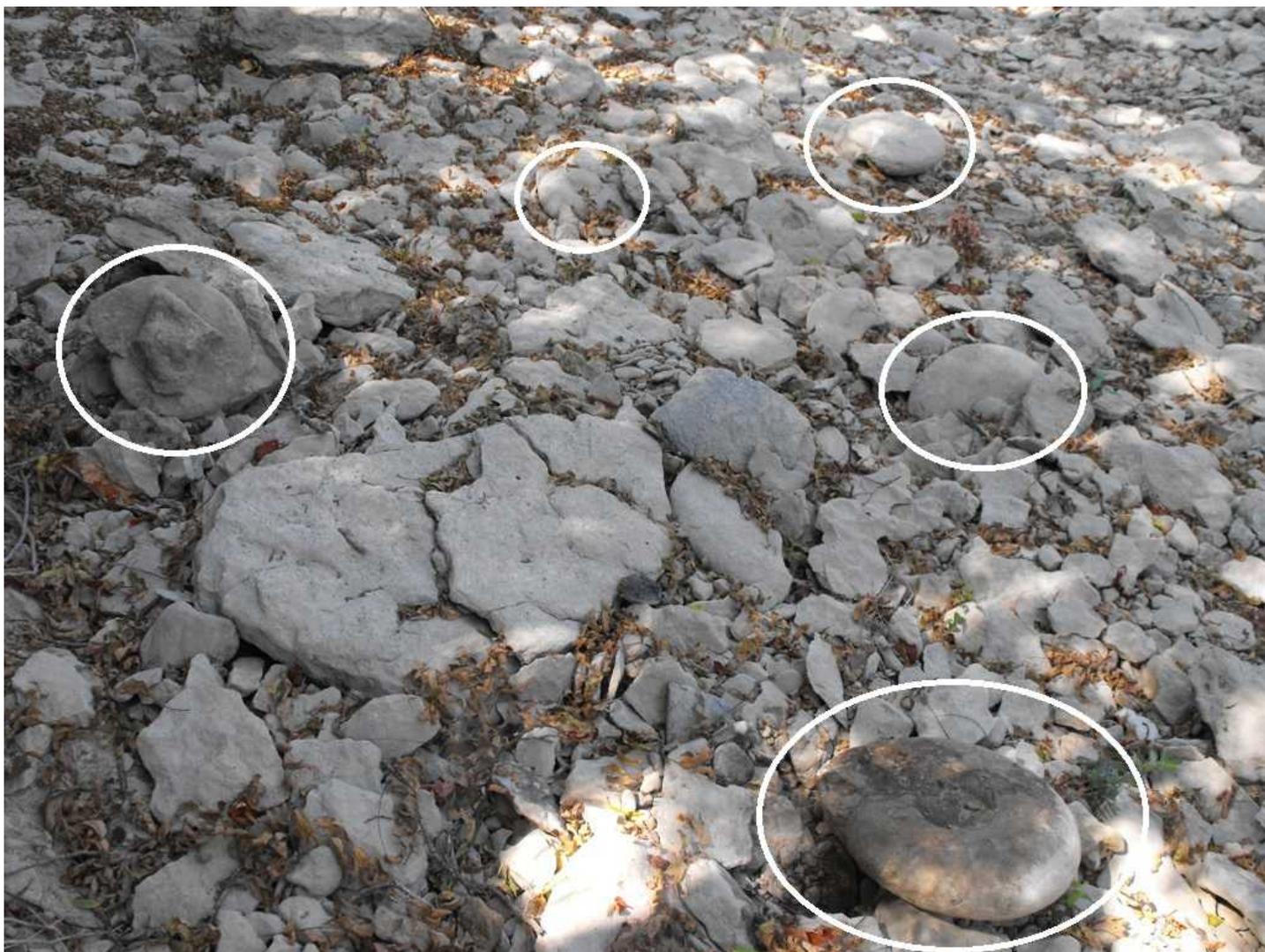




At one point our high grading efforts almost struck me as a light hearted form of fossil snobbery...minor flaws were cause for rejection. With flawed Eo in hand at one point I asked Anthony, "Have you ever wondered why they call them EopachyDISCUS???"....then with a spinning wind up I threw it like an Olympic discus and we laughed at the resounding splash in the middle of the creek.



FIGS 93-95: Anthony and me leaving some Eos for another day, this and next 2 pages (Site 548)







FIGS 96-105: OK so I caved in and grabbed a few Eos that caught my eye...and left many others that would have hurt to carry, see this and next 9 pages (Site 548)





















FIG 106: A couple water worn, kiddy give away grade *Eopachydiscus* and one *Mortoniceras* ammonite (Site 548)



FIGS 107-109: Two *Eopachydiscus marcianus* ammonites in association with *Idiohamites fremonti* ammonites, this and next 2 pages (Site 548)







FIGS 110-112: Anthony working meticulously on a *Mortonicerasp.* ammonite this and next 2 pages (Site 548)...note the "superfluous" Eo below his work area...







FIGS 113-114: Another *Mortoniaceras* ammonite with partial rostrum intact, encasing boulder having split along a less than opportune fissure, this and next page (Site 548)

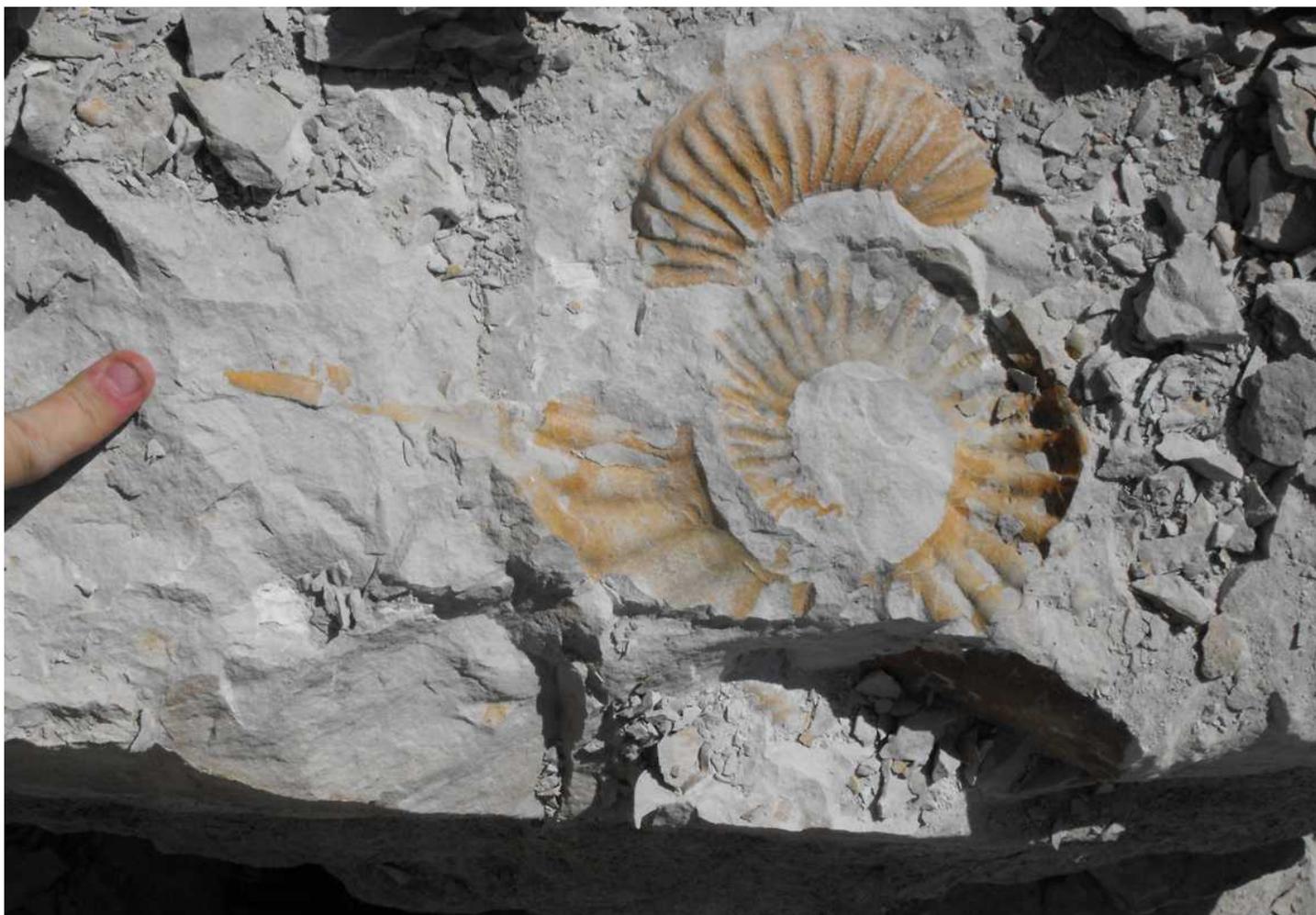




FIGS 115-122: Watch with me as killer details including an intact rostrum materialize frame by frame during extrication of this *Mortonicer* ammonite from a boulder in the creek, this and next 5 pages (Site 548). I opted not to attempt extraction of the underlying specimen as I was too exhausted to do so with due care....maybe next time....







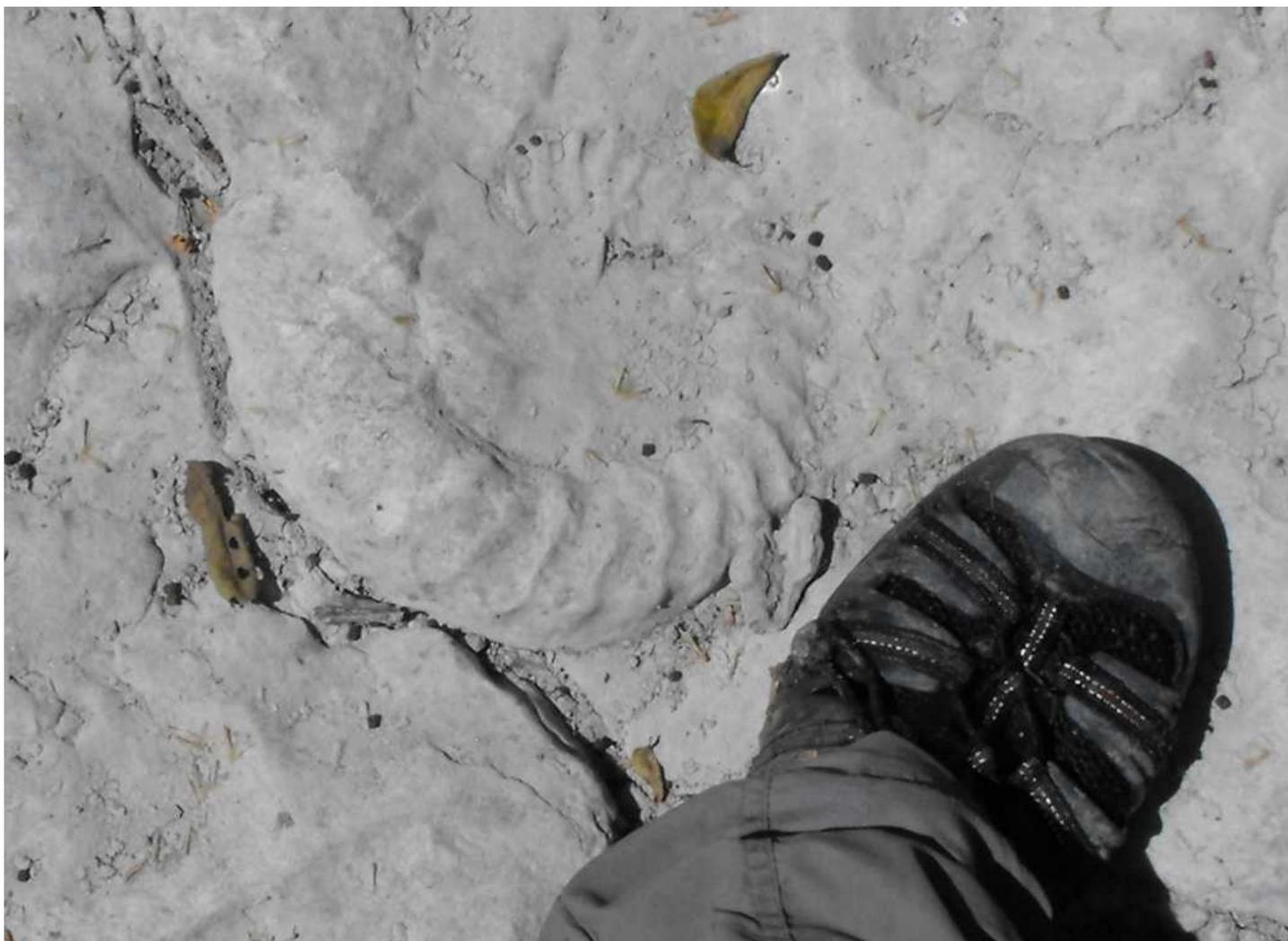






FIGS 123-126: Four more *Mortoniceras* sp. ammonites in situ this and next 3 pages (Site 548)









FIGS 127-131: Target *Mortoniceras* ammonite in situ above with non target *Eopachydiscus* ammonite top left of frame. As prepped next 4 pages (Site 548). Both sides, siphuncle, and keel all in good shape!











FIGS 132-134: More *Mortonicerasthis* and next 2 pages (Site 548)





Hiking upstream was the easy part as we simply made piles of goodies and pressed on with empty backpacks. Heading back downstream proved to be a Herculean effort, however. Eos, Morts and the occasional *Macraster* echinoid weighed us down incrementally, and it became a game of shuttling the growing pile of material  $\frac{1}{4}$  mile downstream at a time, slugging unsatisfyingly hot Gatorade, lounging in the hot shade, and dunking ourselves in isolated pools of hot water when present. 103F climes were nothing to trifle with, so we assumed a slow pace, dragging our fossil retrieval effort out to a 5 hour ordeal from the time we quit searching to the time all gear and goodies were ultimately back in the truck and ready to drive away. Disintegrating flip flops had made the work detail a bit harder than necessary on Anthony, but he never complained.

Eventually after throwing down hard earned subs and chips while clipping off miles, we stopped again in a higher zone of the Duck Creek Formation, more specifically the pyritized ammonite zone. In fading daylight this was to be a quick hit as we knew that fatigue would catch up with us soon...actually I kept us moving as Anthony doesn't drive stick shift, so all the driving fell on me this round, and I could feel my batteries fading fast.

I was first to locate a few tiny pyritized ammonites, and called Anthony over to help mop them up. He quickly grabbed the biggest one of the day, which wasn't much more than a half inch in diameter. In a half hour I grabbed maybe 75 and Anthony got at least a couple dozen with perhaps 3 or 4 species represented. Their diminutive size was a blessing after killing ourselves portaging Morts and Eos.



FIGS 135-136: Unidentified pyritized micromorphic ammonites from the upper marls of the Duck Creek Formation, this and next page (Site 134)





FIGS 137-138: Group shot of Duck Creek ammonites and a single crab claw finger this page, close up of my favorites from this group next page, not bad for 30 minutes work! (Site 134)



It was a grueling trek back to San Antonio punctuated by Rock Star coffee drinks and loud music; fatigue was the omnipresent elephant in the room. Ultimately we made it home safely, unloaded the canoe and bid goodbye. I do believe Anthony is satisfied with this summer's attainment of his ammonite collecting goals, and I enjoyed my role in helping him find success.