FOSSIL COLLECTING REPORT
OCTOBER, 2007
Daniel A. Woehr and Friends

October 7, 2007: Another Exploratory Push Through the Pleistocene

My friend Tom Fisher has been itching to do some collecting lately so I met him at 4 a.m. and at daylight we staged 2 vehicles 25 miles apart on a secluded stretch of river I've been meaning to explore for some time. Running my boat with 2 people is a slow proposition at 7 mph downstream and 4.5 mph upstream, so we concentrated on downstream exploration. I generally do most of my boating alone since I can clip off 14 mph heading downstream, covering lots of exposures in a day. Tom is a good guy however with a light enough build that our combined load in the boat still allowed for a feasible day trip.

Over the next 8-9 hours we covered miles and miles of river, stopping to canvass every gravel bar. We found fossil bones and teeth at every stop, just not great numbers of specimens nor outstanding quality. I was happy with the camel phalanx, horse teeth and partial deer mandible in sandstone matrix that I found but the worn vertebrae and turtle and tortoise shell fragments are standard fare. Since Tom hasn't yet amassed the volume of bones as in my collection I handed off lots of my repeat finds to him, including a big chunk of what appeared to be a section of mammoth scapula.

FIGS 1-4: Site 411 and the *Equus* sp. tooth, unidentified vertebra, and distal *Bison* sp. metapodial found there


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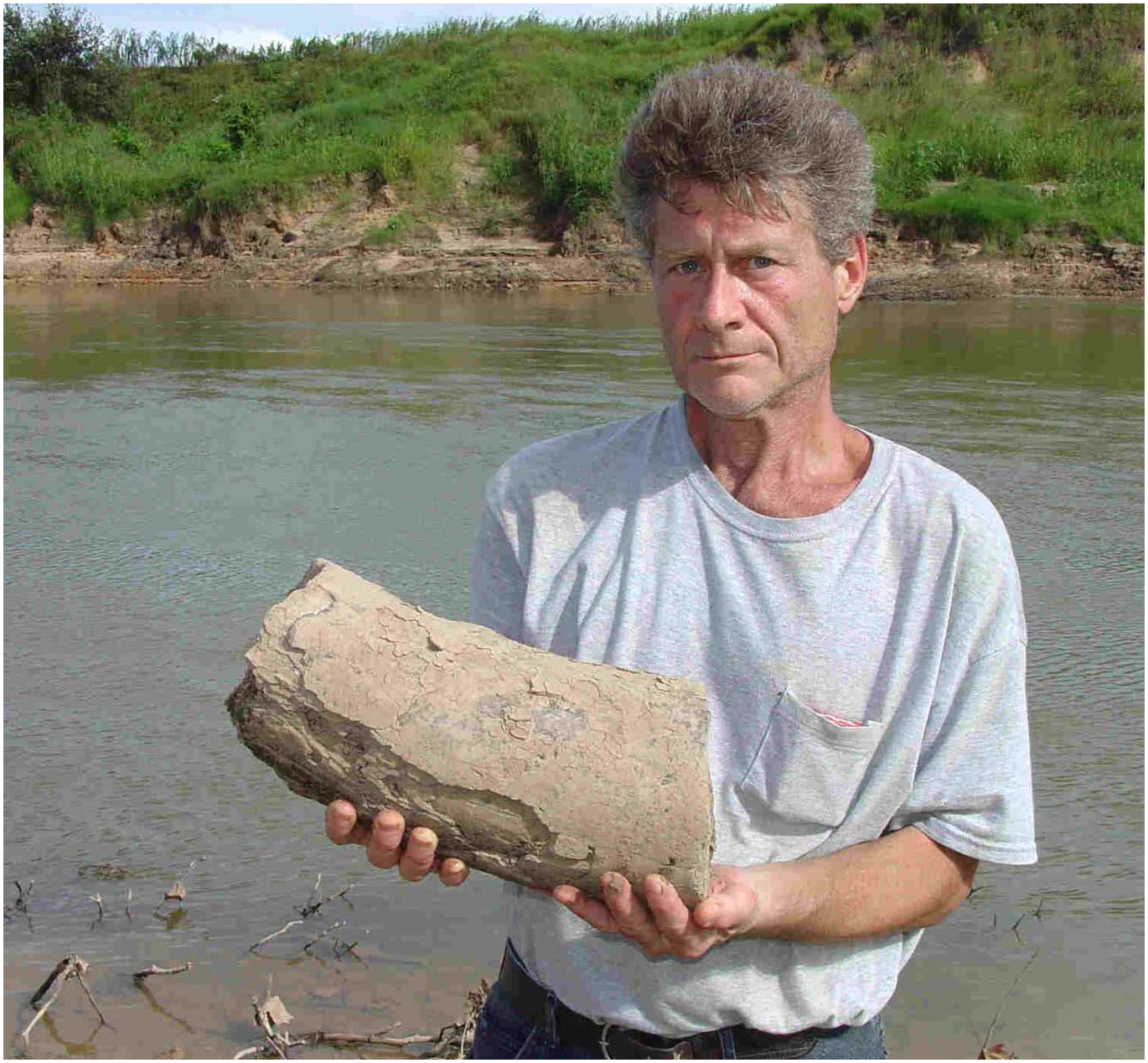
FIGS 5-10: Miscellaneous ischium (hip bone), tortoise shell fragment, vertebrae, distal scapula, and distal tibia first 2 frames, deer *Odocoileus virginianus* mandible fragment in matrix next 3 frames, camelid phalanx and unidentified vertebra last frame (Site 412)

FIG 11: *Equus* sp. molar and possible *Mammuthus columbi* jaw fragment (Site 413)

“These banks are starting to look right,” I told Tom as we entered a stretch of high red clay and yellow sand banks studded with gravel, sandstone nodules, and mud balls. A mishap on the water turned the tide in Tom’s favor. I broke a shear pin on a submerged obstruction and spotted a small accumulation of gravel and sandstone nodules at the base of a bluff, landing at that spot so Tom had some exposure to look at while I worked on the prop. “Hey, what’s this thing?” Tom asked as he brought the black bison(?) humerus encased in tan sandstone over for my inspection. He also grabbed a big section of tortoise plastron a couple feet away.

Back under power we landed at the head of a gravel bar some 200 yards downstream. Something caught Tom’s eye on the bar before we had even stepped out of the boat. Walking together at the water’s edge we both almost tripped over a big log sitting in a mud hole by the water’s edge. “What is that? That has to be something,” Tom said. “Man, that’s a MAMMOTH TUSK!” I informed him. I picked the thing up, all 24 pounds of it, and admired the concentric rings at both ends. It measures 15 inches long x almost 7 inches in diameter. This was truly a find of a lifetime.

Even more striking was that gratitude for being invited on the trip prompted Tom to give me the piece without hesitation. Now that’s a friend! I ordinarily don’t accept other folks’ finds but in this case a) I would have found it anyway in a matter of seconds, b) There aren’t many of these things laying around for the taking and c) the trip research was mine and d) he said his wife would have made him relegate it to the shed anyway and e) I never look a “gift mammoth” in the mouth. To his wife’s credit, it is hard to find a place to display such a specimen. Heck, I might have to display this and my other one in the fireplace I don’t use. At the same bar Tom also picked up the end of a large mammoth limb bone and I found a 12 inch, Y shaped spinous process which I believe to be from a mammoth thoracic vertebra. I handed this find over to Tom.



FIGS 12-18: Tom Fisher and his unidentified humerus in sandstone matrix first frame, our mammoth tusk section *Mammuthus columbi* remaining frames (Site 414)

FIG 19: *Mammathus columbi* (thoracic?) spinous process (Site 414)

Just downstream was big cut bank that looked too good to pass up so we nosed into the mud, jumped out, and crawled the steep banks. Almost immediately I spotted a yellow bone poking out of the clay which I broke in half while extracting it, but superglued it back together. I also dug a horse tooth out of a big clay ball and picked up some sort of strange sacral vertebra. Tom picked up a big bison tooth, a 3 inch femur ball, and a rarely seen sloth femur about 1/3-1/2 complete and in perfect detail.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FIGS 20-25: A shot of Site 414 followed by Tom's proximal ground sloth femur, unidentified femur ball, and *Bison* sp. molar then Dan's mammoth tusk fragment, rough *Equus* sp. tooth, and medial deer metapodial fragment, and finally Dan's *Equus* (?) radius and unidentified juvenile sacral vertebra

The remaining bars and banks didn't measure up to that short, productive stretch but still produced vertebra, a deer antler, small pieces of mammoth tusk and tooth enamel. When we pulled the boat out it was funny watching Tom walk off with a potato sack full of bones in one hand and some bigger loose bones in the other. I think he quadrupled his Pleistocene collection in one day.

It must have been a ridiculous site on the road to see my boat on top of his car as we drove upstream to retrieve my truck, sort of a Beverly Hillbillies meets Mr. Bean scene. We grabbed a little dinner and hit the road, while sun and dehydration-induced headaches interplayed with new memories of high adventure and friendship cemented by good finds. I doubt either one of us will forget this particular day on the river unless by some unlikely stroke of fortune we are able to find an even better spot while exploring someday.

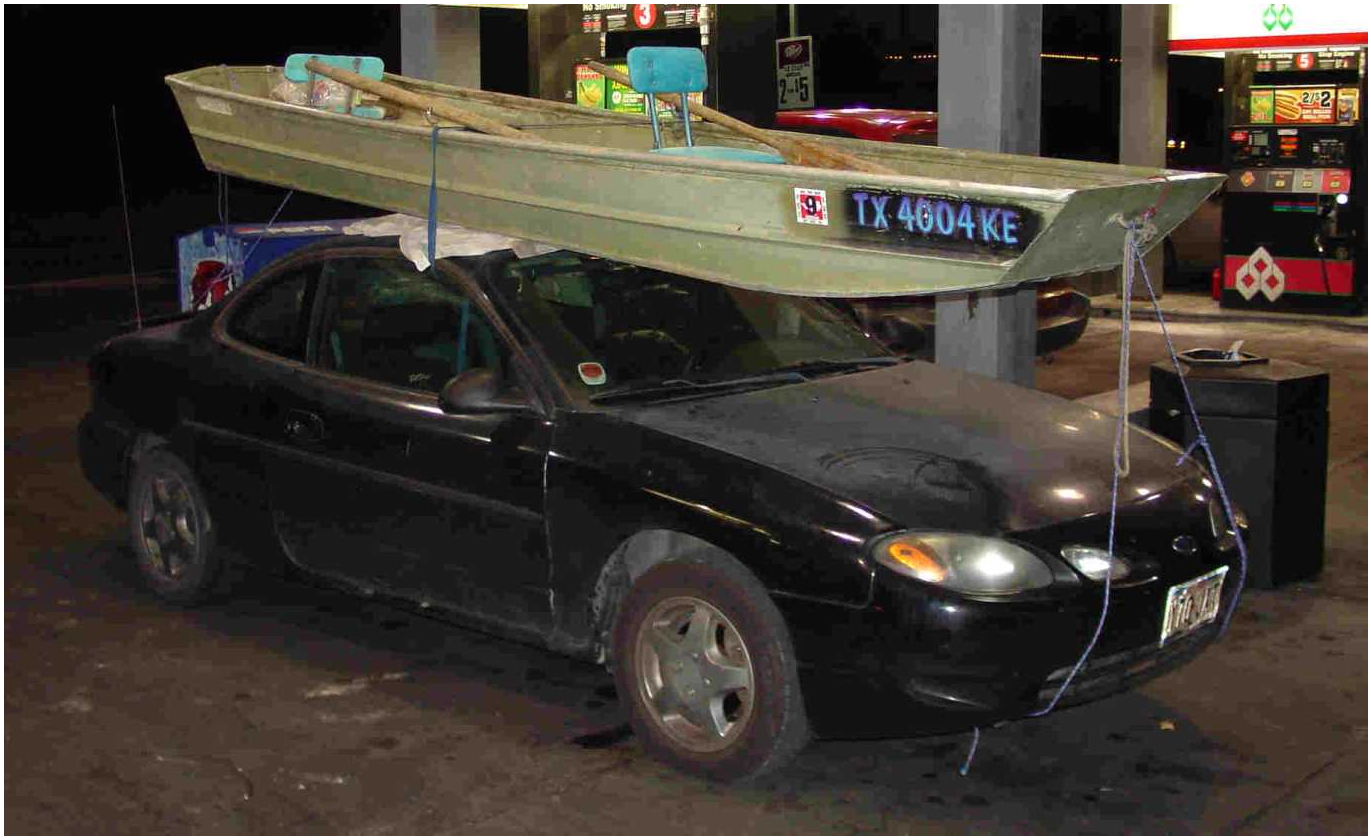


FIG 26: We must have looked like hillbillies…

<u>October 10, 2007: Lunch Hour Excursion</u>

A stomp through the Austin Chalk (83 MYA) outcrops in the creek near my office produced one noteworthy find, a cool partial *Pachydiscus* ammonite showing good sutures on the surface as well as internal details of the septa where sections were missing. Can I Whatasize that?

FIGS 27-28: Pachydiscid ammonite (Site 15)

October 14, 2007: Remedial Pleistocene

I couldn't sleep. The anticipation of another Pleistocene river trip kept me tossing and turning for an hour until I finally decided to get up and start driving around 10:30 Saturday night. In the middle of the night I arrived at my put-in point and crashed in the back seat of my truck, waking up before my 6 a.m. alarm. After dragging all my gear to the water's edge I lay on the ground looking at constellations and shooting stars until the first streaks of dawn illuminated the river enough for me to navigate. The river had dropped and shoals were everywhere, causing me to run aground and drag the boat often despite my best efforts in using my depth finder (an old broom stick).

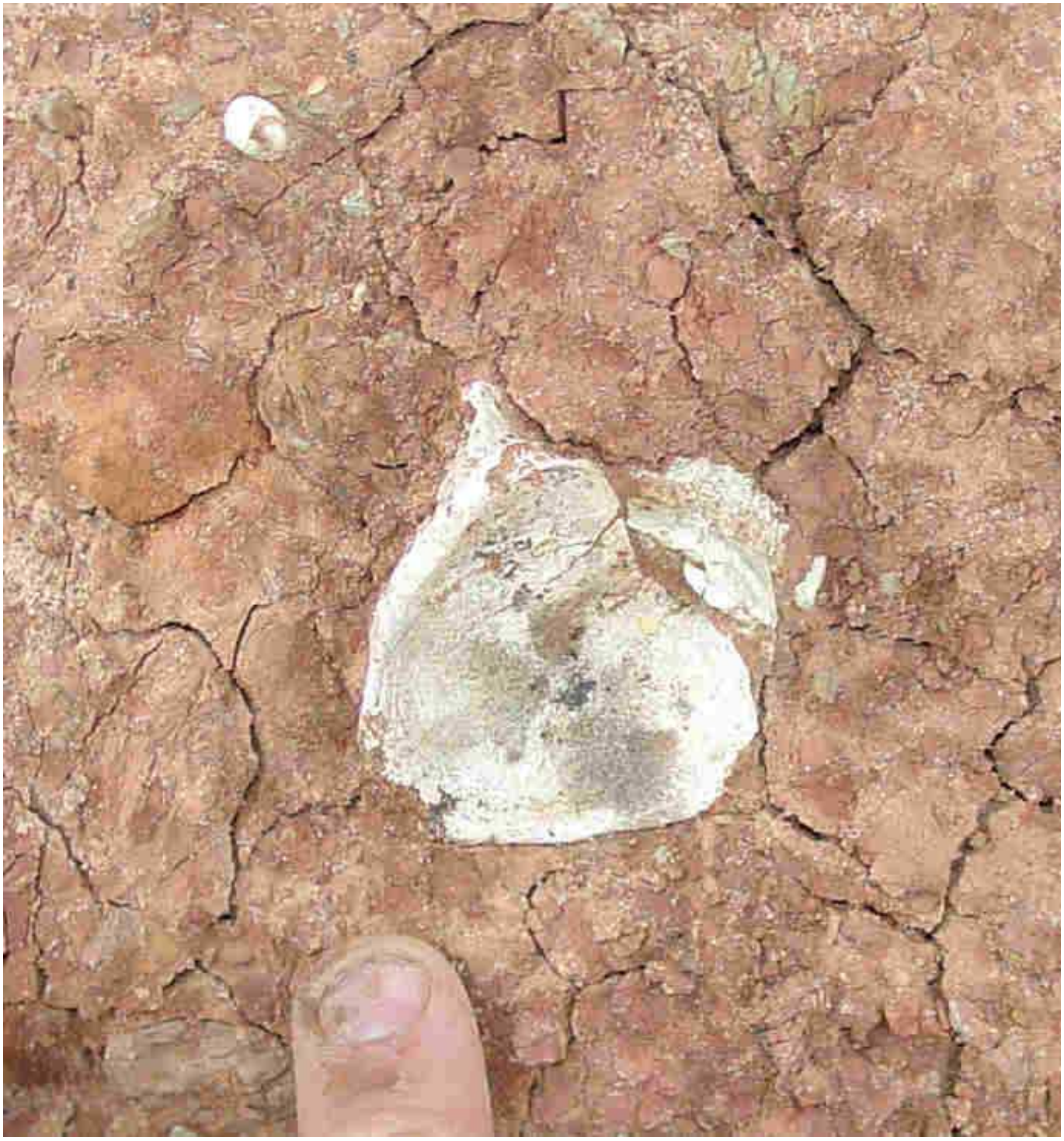
Before long I was once again in "Pleistocene Alley", the short stretch where Tom and I left the previous weekend with good mammoth and sloth material. The river had dropped enough to potentially expose more of the same. I jumped out on the vertical cut bank and toe walked the edge of the river not unlike someone sneaking around the lofty ledge of a skyscraper, only this time it was the river I was trying not to plunge into. Within 5 minutes I spotted a small bit of bone which turned out to be attached to 18 inches of the same encased in sandstone. It looked as if someone had dumped cement over it and made for a pretty interesting presentation. At the water's edge I picked up a distal femur from some large beast. This too was encased in ¼ inch of sandstone and studded with adhered gravel. After an hour and a few more bone fragments I saw that Tom and I had done a pretty thorough job the first time and moved on to the mammoth tusk bar. There too my audit suggested that we had done a good job as well.

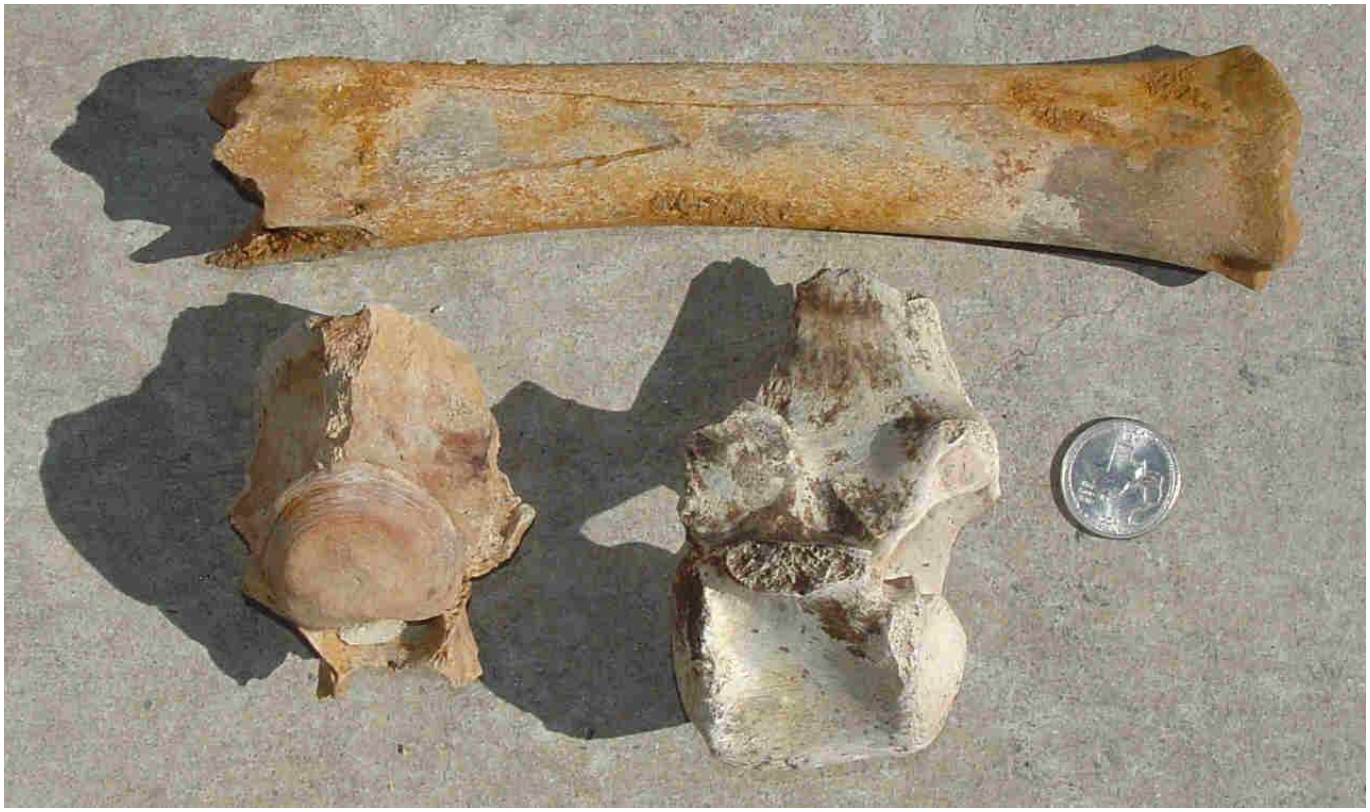
FIGS 29-31: Unidentified proximal tibia and unidentified limb bone in hard sandy matrix above, *Equus* sp. lower molar, antilocaprid horn cores and unidentified limb bone fragments below (Site 414)

Packing up my boat, I headed back to another stretch that had dropped a few feet since my last visit, hopefully revealing more goodies. In short I picked up a horse tooth, a few vertebrae, and miscellaneous bone chunks before I ran into the same guy that preempted me 2 weeks before. My, how competition takes its toll on these "secret" honey holes!

FIGS 32-33: *Bison* sp. astragalus (ankle bone), *Geochelone* sp. (tortoise) carapace fragment, and unidentified vertebra above (Site 382), wonderful *Geochelone* sp. fragment, *Alligator mississippiensis* skull fragment, and unidentified pelvic fragment below (Site 393)

I packed up my gear and headed off to another river where I hiked 2-3 miles to a big bluff that produced my first mammoth tusk earlier this year. No landmark finds this time, but I did end up with a bison metatarsal and a couple nice vertebrae. The hike back was no picnic. Walking into big black and yellow garden spiders is no fun, nor is picking through the poison ivy in drizzle as it is getting dark. I kissed my truck when I saw it again and was happy to be home around 10 or 11.





FIGS 34-36: Two unidentified vertebra and unidentified radius, possibly horse (Site 157)

October 15, 2007: Guiding the Mississippi Museum of Natural Science Part 1 of 2

Friend and museum curator George Phillips made his pilgrimage to Texas over the weekend, piggybacking a South Texas fossil trip onto the Society of Vertebrate Paleontology conference in Austin. In preceding weeks I had contacted several private landowners and a quarry, securing 2 solid days of collecting after unfortunately being turned down by 4 landowners who I really wished had said yes.

George's agenda was to appropriate as many species of Upper Cretaceous echinoids to the Mississippi Museum of Natural Science collection as possible so I tried to tailor things in that manner. Joined by our friends Frank Holterhoff and Farley Katz we piled into the MS Dept of Wildlife, Fisheries, and Parks truck and kicked things off at an active quarry in the Anacacho fm (72 MYA). I didn't have high expectations for this site especially since a community college class had collected there just a week before but was pleasantly surprised in the end.

Apparently rain and weathering since our last trip had greatly benefited the site. The first small string of boulders I surveyed was full of echinoids, mostly *Phyllobrissus cubensis* but also the cassuloid *Hardouinia bowlesi* (pending description). The other guys came over for a look and they too secured some *P. cubensis* and George found a loose *Hardouinia* in the rubble nearby. Frank found half a mosasaur vert in that pile as well.

Moving on to another large rock pile I couldn't seem to get away from the echinoids. The other guys continued to score as well. By noon our group total of *Phyllobrissus* must have exceeded 40 specimens and we each found 1-2 rare *Hardouinia*, not a bad start to the trip.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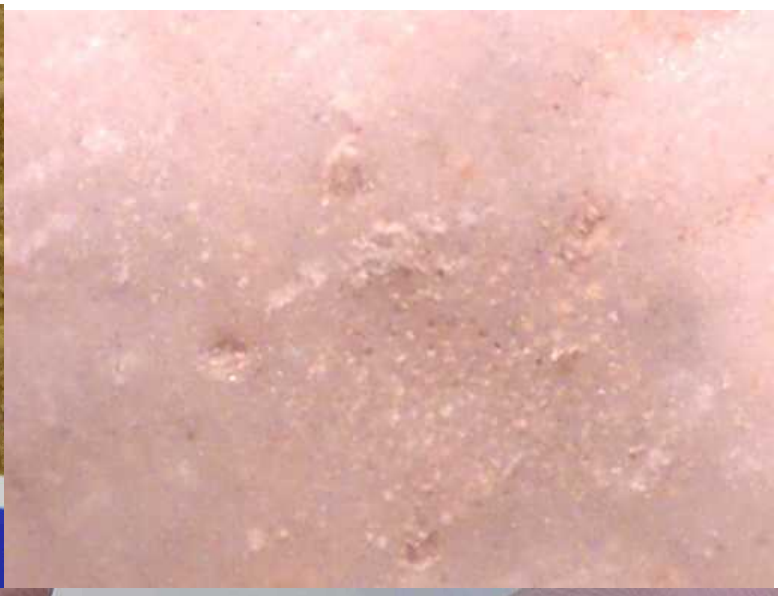


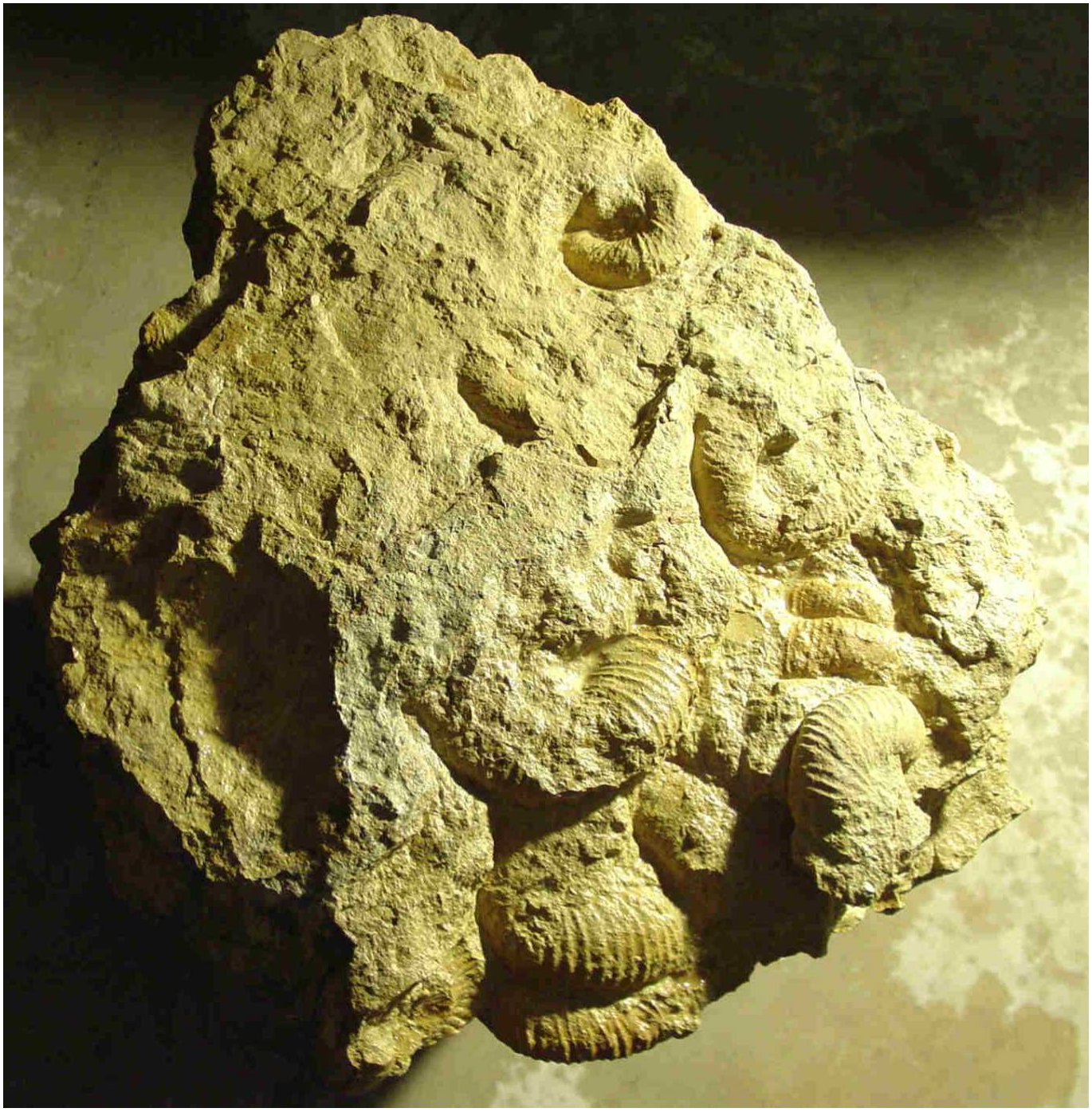
FIGS 37-49: A couple shots of Site 84 and natural asphalt seeping from limestone above, a compressed ventral view of the rare echinoid *Codiopsis* sp. followed by 4 frames of the cassiduloid echinoid *Phyllobrissus cubensis*, 3 frames of the rare cassiduloid *Hardouinia bowlesi*, a conglomeration of calcified or silicified gastropods, the author and friend Farley Katz lower right

I then took us to a stream exposure of Anacacho fm where echinoids were sparse, but I landed a couple *Phyllobrissus* and Farley made the best find, a large and undescribed cassiduloid.

FIG 50: Farley's ventral presentation of an unidentified cassiduloid (Site 158)

Our final stop was a creek exposure of Anacacho (72 MYA) in contact with the overlying Escondido fm (66 MYA). This contact zone has been know to produce the large, domed echinoid *Echinocorys texanus* over the years, and recent flooding fortunately exposed a few more. George was quick to spot them, finding 3 decent ones by day's end. I believe one came out very nicely. I too found one with a little damage, but repairable. We pulled out some more heavily damaged specimens as well.

It then turned into a game of ammonites for me. This zone presents the heteromorphic ammonite *Bostrychoceras polyplocum*, a loosely coiled form, and I may have pulled 3 decent individuals, a slab with multiple specimens, and several partials. I also picked up a cracked but intact *Trachyscaphites spiniger* ammonite which exploded back at the truck. In our final moments I spotted what I though was a coiled 6-7 inch nautiloid, but after careful extrication I was surprised to hold a perfect *Pachydiscus paulsoni* ammonite.



FIGS 51-60: A panoramic view of Site 87 above followed by a shot of a typical *Echinocorys texa*nus echinoid exposed to the elements too long and then one found in slight better condition, prepped and repaired, the author and his *Pachydiscus paulsoni* ammonite and his slab of *Bostrychoceras polyplocum* ammonites and *Cymatoceras* sp. nautiloid, a *Trachyscaphites spiniger* ammonite and unidentified gastropod, and finally George Phillips making the scene in Hondo, TX

What a solid start for our trip. Frank and Farley peeled away but after a good night's sleep George was ready to hit it again.

October 16, 2007: Guiding the Mississippi Museum of Natural Science Part 2 of 2

On Tuesday we lost 2 guys to attrition, leaving just George and myself to carry the torch. A slight change of venue sent George and me on a 4 mile kayak trip down a nearby river I've been wanting to explore for several months. Receding river levels after this summer's floods dovetailed perfectly with George's visit, so away we went. We soon found some small bedded exposures of Kemp Clay (66 MYA) and ultimately found an echinoid fragment in them in addition to some well preserved bivalves and gastropods but opted not to keep much. I found the abundant red septarian nodules to be quite interesting. Moving downstream we encountered a large gravel bar that produced a nice fossil horse lower molar.

A couple miles of crossbedded Pleistocene and Holocene gravel overlying Eocene Wilcox sandstone amongst lush ferns and vegetation provided a scenic backdrop corrupted by trash high in the tree limbs from the last flood. The flip side to this however was the cool finds made downstream. I suspected that things could get interesting near the confluence of the river with a big creek, and indeed they did. 3 small gravel bars gave up 3 fine artifacts, a horse upper molar, and a bison upper molar in addition to a mammoth enamel fragment. George outhunted me on this leg of the trip but gladly traded me his finds for a pile of echinoids, his singular objective for this trip.

FIGS 61-62: *Bison* sp. and *Equus* sp. molars along with a fragment of mammoth enamel and “a cool rock” above, nice flint artifacts below (Sites 415-416)

From there we drove 30 miles to a private ranch bisected by a creek exposing Anacacho limestone. Erosion had created grotto like recesses in the limestone banks where the softer layers had been hollowed out. It was here that

we went “splelunking for echinoids”. We indeed found large spatangoids and a few *Phyllobrissus cubensis* by crawling on our backs and chipping away at the grotto ceilings. I also found 2/3 of a 20-22 inch *Placenticeras* ammonite that I left because it wasn’t whole.

FIGS 63-64: Unidentified Anacacho spatangoid echinoid left (Site 251) followed by Corsicana nautiloid *Eutrephoceras* sp. (Site 348)

Our final site was the fabled Corsicana construction site which to our chagrin was 90% freshly graded. Still we found some undisturbed, properly weathered strips of real estate that still produced enough goodies to justify George’s effort. We each grabbed a bunch of oysters, partial *Dakoticancer* crabs, gastropods, bivalves, and of course, echinoids. I gave all 25-30 *Hemiaster bexari* plus a perfect *Plesiaster americanus* to George along with a *Eutrephoceras* nautiloid, keeping a similar nautiloid for myself. Too bad I couldn’t show George the undisturbed stratigraphic layers at the sites, but it was still a worthwhile stop.

This was my first opportunity to spend time with George and we got along pretty well in and out of the field. We found keeper material at every stop so I would consider the entire trip a success. As a private collector it felt good to lend science a hand as well.

<u>October 20, 2007: “Holy Sphenodiscus, Batman!” - Escondido Ammonites En Masse</u>

Friday night was a drag. Subcutaneous pain and swelling in my ankle prompted me to spend half the night at Texas Med Clinic getting a tetanus shot and then in a 24 hr pharmacy waiting for antibiotics. My case of cellulitis was apparently caused by being poked by burrs that adhered to my socks, then ingression of bacteria resulting from contact with stagnant river or creek water a few days prior. This condition can have dire consequences if left untreated so I’m glad I went in to have it evaluated the same day as onset of symptoms.

However Saturday brought an exploratory venue to the surface which I simply couldn’t turn down. I had tracked down a landowner with uppermost Cretaceous strata on his property of Escondido fm (66 MYA) and wanted to maintain my schedule despite my limp. I came bearing gifts of the ammonite kind, specifically a 10 inch *Mortoniceras* just for letting me look at the ranch. The gracious landowner took me down to the creek and showed me some gravel bars exposing big red limestone slabs which I inspected closely. The slabs contained numerous bivalves and gastropods, not exactly what I set out to look for.

However the landowner and his wife took me into their cabin and showed me a pile of rocks on the fireplace hearth which sparked my interest and were collected years ago by a relative. I noticed at least two *Sphenodiscus* ammonites and a big *Eutrephoceras* nautiloid, all worn by being tumbled down the river but still interesting specimens.

I asked how far up the creek I could march. I was determined to find the source of these fossils. He mentioned several other landowners by name and then suggested dropping me off in his kayak 4 miles upstream – this was turning out better than I could have imagined. You see the landowner and his son were interested in this particular float trip but weren’t sure about navigability or how well kayakers would be embraced by other landowners. This was all the permission I needed, and I was glad to be their guinea pig. I had this skin infection but figured what the

heck, I was already on antibiotics anyway. The local game warden had recently said that this was a public stretch of creek so with his card in hand I went about my trip, with the landowner expecting me back in about 4 hours.

The creek was clean and beautiful. I gazed down into the deep green pools and observed fish up to 18 inches gliding along the bottom. These pools were interrupted by gravel shoals and minor rapids in places, forcing me to drag the yak 50-100 yards at times, but by and large I was able to paddle full speed most of the time.

A dull roar up ahead was the harbinger of good things to come. It was a 3-4 foot waterfall exposing layers of Escondido limestone with slabs of the same piled up downstream. *Sphenodiscus* ammonites were everywhere. At the foot of the falls I saw one barely peeking out of the limestone so I deployed my trusty 3 LB sledge and chisel, first knocking the matrix off the top and then relieving a channel around the circumference. Once this ammonite popped out I could see it was quite a find – 12 inches diameter in perfect shape with great sutures exposed on both sides set in mustard colored steinkern. I saw lots of ammonites there – unsure whether they were species *pleurisepta, lenticularis, intermedius,* or *lobatus* – but only banged out a few of the easier ones. I was more interested in grabbing what I could fast and heading downstream before my hammer blows attracted attention.

FIGS 65-74: Escondido ammonites *Sphenodiscus* sp. First specimen 12 inches diameter. Note suture details on various specimens and imbedded (*Turritella*?) gastropod in the living chamber of one specimen (Site 417)

A long, low bluff of reddish brown Escondido a few hundred yards downstream presented another ammonite keel jutting out of the exposure. I climbed out and beat this specimen into submission as well, noting that the size and overall condition would make it a good gift for my landowner friend.

After another half mile I noticed another big bluff with lots of fallen slabs lying around the base at the water's edge. Again ammonites were everywhere, and I grabbed several from 4 to 8 inches diameter. I actually began to wonder if I had overloaded the kayak, potentially making it hard to drag across the shallow spots. I wondered if I'd have to jettison some. Thankfully this wasn't necessary as I was soon back at the landowner's property.

Even with a SE wind in my face I had managed to knock out the 4 miles in 2 hours flat including 45 minutes of searching and hammering. I was happy to have taken 9 ammonites and given one to the landowner. Without his hospitality in offering to drop me off with a kayak this degree of success would have been impossible. While brief this had been a memorable trip. Beautiful scenery gave way to wonderful examples of rare ammonites in a

sparsely exposed geologic zone. I didn't take them all, and as I left the landowner was already talking about a repeat trip even longer than the first…

October 27, 2007: Fossicking Central Texas

With too much wind at the coast to fish out of my little boat and preferred fossil collecting sites not in optimum conditions I opted for Plan C, a leisurely run through some Central TX marine exposures. I kicked things off in a Bell Co. stream incising the 105 MYA Walnut fm. The gray, nodular limestone first showed a number of well preserved bivalves and gastropods, some of which I picked up, but they were not really what I was after. Things went much better on the opposite bank where I plucked a perfect 50 mm *Phymosoma texanum* echinoid. This cool find was soon joined by another of the same also in perfect condition but much smaller. 2 nice *Engonoceras* sp. ammonites and a *Heteraster texanus* echinoid joined the mix, making this hour long stop well worth the effort.

FIGS 75-79: Echinoids *Phymosoma texanum*, ammonites *Engonoceras* sp., and various bivalves and gastopods from the Walnut fm (Site 192)

Pressing south I took a stroll through the woods to end up at another stream exposure, this one revealing intermittent banks of tan and gray limestone and marl of the Georgetown fm (100 MYA). Water level was down quite a bit since last visit so I was able to scan the stream bottom at the foot of the first exposure, quickly securing a large and perfect 80 mm *Macraster* sp. echinoid relatively free of matrix. I also laid hands on a nice 75 mm *Mortoniceras* sp. ammonite sitting atop the exposure. Pressing on, the larger exposure only gave up one *Mortoniceras* sp. similar in size to the first. Still I was pleased with my finds.

FIGS 80-82: Georgetown fm echinoid *Macraster* sp. and ammonites *Mortoniceras* sp. (Sites 173 and 218)

Mid afternoon found me in yet another creek in Travis County, this one exposing Eagle Ford (87 MYA) limestone layers sandwiching thin glauconitic lenses bearing shark teeth. I plopped down on top of a small waterfall outcrop and began splitting and lifting overburden to expose the softer layers of red oyster hash and phosphate nodules. I was quick to grab several shark teeth including *Cretoxyrhina mantelli, Squalicorax falcatus*, and *Ptychodus anonymus*. I noticed a long, eroded undercut on one bank and spent some time on my back looking at the bottom of the protruding limestone slabs. They were covered in a gritty hash of oyster and vertebrate debris and I was able to tap out a several *S. falcatus* and *Carcharias* sp. teeth. I noticed a few rough ammonite partials in the tan limestone slabs as well. As I was leaving I noticed a big tan slab with a half dozen or so small shark vertebrae on its surface. 3 or 4 came with me and the rest were sacrificed, i.e. still there in many pieces.

FIGS 83-85: Eagle Ford shark teeth *Cretoxyrhina mantelli* above, *Ptychodus anonymus* and various fish teeth center, shark teeth *Carcharias* sp. below (Site 36)

FIGS 86-88: Eagle Ford shark teeth *Squalicorax falcatus* above, various small fish and shark vertebrae below (Site 36)

No landmark finds were made on this day, but I was happy with the return on a rather backhanded and lacksadaisical approach to collecting. October was a very fun and productive month full of exploratory trips to new areas as well as remedial visits to proven areas. However with it costing over $90 to fill my tank with diesel at this point I don't expect every month to turn out like this one. I'll need to adjust my approach to these excursions to maximize my "quality fossil per dollar – mile – man hour" index. Every trip will need to be a choreographed surgical strike as I simply can't afford for one day to be a bust at this point.