

December 15, 2007: Foolhardy Fossil Collectors Brave North Texas Norther

It had been several months since I collected with my friend Robert Bowen of Gatesville as lately he has spent most of his time working in Wyoming. He was back home briefly so we opted to join forces for an assault on the shorelines and creeks near Lake Texoma in far north Texas, 350 miles from my home. I blew out of San Antonio around 2 a.m., hooked up with Robert in Waco around 5, then continued north with temperatures dropping by the hour as a norther punched North Texas squarely in the face. Our first stop around 7 a.m. put us in a stream bed in a zone near the contact of the Denton and Fort Worth formations, about 102 MYA. Most of the creek float was composed of marly and calcareous nodules and slabs which I assume represented the Fort Worth fm, as did the limestone bench in the bed of the creek. The Denton was evidenced by slabs of concentrated oyster hash.

We didn't find a great number of fossils in our half hour spent there, but I found half of a *Mortoniceras* ammonite and was able to whack the broken whorl off with my hammer, leaving a presentable 2.5 inch juvenile whorl. Next I plucked a decent *Macraster* echinoid from a tan marly layer in the bank just under the contact with the overlying Pleistocene/Holocene gravel. Robert is not one to be left behind and produced 3 compressed *Macrasters* that I had just walked by then a 9 inch *Mortoniceras* from above the vegetation line. He had short boots and ran across the creek quickly to keep his feet dry. I had tall boots and took the time to scour the submerged limestone bench as I crossed, spotting a 7 inch *Mortoniceras* on the bottom. Luckily the limestone yielded easily to my chisel and a fine ammonite was annexed into my collection.



FIG 93: Fort Worth fm Site 421



FIG 94: Robert Bowen with a *Mortoniceras* ammonite (Site 421)











FIGS 95-99: *Mortoniceras* ammonites from Site 421 (first 4 frames one single specimen)



FIG 100: *Macraster* echinoids (Site 421)

Next stop: Lake Texoma. After getting permission from the buddy that introduced me to a certain site we dropped by for a visit that would hopefully result in a few echinoids. Robert and I hiked down a picturesque shoreline of monolithic and varicolored Woodbine sandstone bluffs and fallen boulders and eventually reached a stretch of 98 MYA Grayson marl. The wind was whipping across the lake at 30 knots and tearing straight through my sweat jacket and biting my ears as well. The temps were in the 30s and dropping but the wind made it such that I wouldn't enjoy being out there unless I was pursuing such a passionate hobby.

An intermittent exposure at the water's edge gave up first a small hunk of matrix with both *Engonoceras* and *Plesioturrillites* ammonites. Isolated specimens of the latter made up the bulk of our finds, and one appeared to be a different species from the others as its surface ornamentation was dominated by coarse ribs lacking the prominent tubercles (bumps) found on the ribs of the more common *P. brazoensis*. I'm not sure if this was actually a different species or just a worn example same as the others. I also lifted an immaculate *Paracymatoceras*(?) nautiloid, perhaps the best in my collection.

Crawling along the reworked nodules being actively lapped at the water's edge we both found several *Heteraster* sp. echinoids, mostly in rough condition. I got lucky and picked up a nice little *Coenholectypus* echinoid the size of a dime and that made the site worth visiting for me. Robert continued to another stretch of the exposure while I doubled back and crawled the area we had just walked. I was rewarded with a perfect half dollar sized *Coenholectypus* echinoid and a *Hemiaster calvini*. I waved Robert back over since the biting wind was taking its toll on me. From his pocket he produced a small shark tooth, *Phymosoma volanum* echinoid, and his first *Pseudananchys completa* echinoid in his collection. Our visit to this site ended as Robert found an apparently nice *Coenholectypus* echinoid impaled in the matrix on edge at the water's edge. He tried to trench around it only to have an errant wave smack into the echinoid and crumble it into many pieces.



FIGS 101-102: *Coenholectypus* sp. echinoid followed by lineup of the same plus 3 examples of *Heteraster* sp. and one *Hemiaster calvini* far right (Site 294)





FIGS 103-106: Immaculate *Coenholectypus* sp. echinoid (Site 294)



FIG 107: Robert's *Phymosoma volanum* and *Pseudananchys completa* echinoids (Site 294)





FIGS 108-109: A superb example of a *Cymatoceras* (?) nautiloid from Site 294







FIGS 110-113: Several *Plesioturrillites* ammonites followed by a *Plesioturrillites* and *Engonoceras* ammonite in the same block of matrix (Site 294)

A half hour later we dropped into a creek which has always produced decent lower Duck Creek fm (103 MYA) material for me including the big "grape cluster" of *Macraster* and *Goniophorus* echinoids a couple summers ago plus a few *Eopachydiscus marcianus* ammonites each trip. After impaling ourselves on sticker bushes and flooding our boots with icy water we had a few goodies to admire including a big *Inoceramus comanchensis* clam, a *Mortoniceras* ammonite or two clam, and three 10-11 inch *E. marcianus* ammonites along with a few juveniles of the same, including 2 sharing a hunk of matrix with a nice little *Macraster* echinoid.



FIGS 114-115: *Eopachydiscus marcianus* ammonites in situ in the Duck Creek fm (Site 73)



FIGS 116-117: *Macraster denisonensis*(?) echinoid and unidentified shark tooth blade in same matrix block as 2 small *E. marcianus* ammonites (the latter didn't photograph well) from Site 73





FIGS 118-119: *E. marcianus* ammonite and *Inoceramus comanchensis* clam (Site 73)

Another creek stomp put us in a basal Duck Creek site which had obviously been hit hard by other collectors. The good thing was there were so many ammonites that previous collectors weren't able to get them all and pack them out as it was a long hike. There were many perfect ammonites to choose from but some were in the middle of very large, hard limestone benches with no natural fissures to exploit. Trenching around these specimens would have resulted in a long work detail that very well could have shattered the specimen, so we opted for the easier extractions. At Robert's experience level he is generally pretty hard to please but this site seemed to raise his eyebrows. We hauled out about 10 ammonites from a zone marking the transition from more primitive Oxytropidocerid forms to the later Mortonicerid form.





FIGS 120-121: Basal Duck Creek ammonites marking the transition from Oxytropidocerid to Mortonicerid forms (Site 49)

Our final stop was a 30 minute stop in a creek known to produce 90 MYA Eagle Ford shark teeth and other marine vertebrate material in addition to occasional Indian artifacts. I crawled a couple gravel bars to no avail but Robert showed up at dusk with a big *Ptychodus whipplei* tooth that made it all worth the effort.



FIG 122: Robert's *Ptychodus whipplei* shark tooth (Site 422)

It was good to hang out with Robert once again. He seemed to get a kick out of visiting sites that were all new to him. I really appreciated letting someone else drive from Texoma to Waco so I could vegetate in the passenger seat after a long day of braving the elements. And while my passions lately have gravitated toward Upper

Cretaceous marine fossils, Pleistocene terrestrial material, and Indian artifacts it was refreshing to throw some Lower Cretaceous variety into the mix.

December 22, 2007: South Texas Sweep of the Upper Cretaceous

I had a 4 day Christmas weekend and opted to collect just one day and spend the other 3 with family, so I was determined to make my time afield count. I kicked things off by nosing around the old Corsicana sites which a couple months ago were pretty much wiped out by construction. I found a small area that had weathered enough to be worth searching and spent a couple hours there on hands and knees bagging 68 million year old marine fossils. What began as a half hearted perfunctory exercise morphed into a determined knee grinding two hour crawl which resulted in one small *Dakoticancer australis* crab carapace, one *Eutrephoceras* nautiloid, and 35 echinoids including a rough *Linthia variabilis* and a juvenile *Proraster dalli*, the rest being the more prevalent *Hemiaster bexari*. I grabbed a few bivalves and gastropods as well.



FIGS 123-124: Nearly complete and partial *Dakotacancer australis* carapaces (Site 248)



FIGS 125-126: Corsicana echinoids *Proraster dalli* (left) and *Linthia variabilis* (right) from Site 248





FIGS 127-129: *Hemiaster bexari* echinoids followed by *Eutrephoceras* nautiloid eroded in section, ammonite fragment, and bivalve and finally a large bivalve (Site 248)

From there my travels took me to an exposure of Escondido clay (66 MYA) featuring an abundant but worn fauna of shark, fish, and ray teeth and vertebrae. Since I have bad feet all this crawling was a welcome change of venue for me. An hour or so of crawling the slopes and gullies produced probably 200 teeth, most broken. It looked like someone had beaten me to the punch since last flood but I still picked up enough cool specimens to justify my effort. Specific finds included teeth from mackerel sharks (*Serratolamna serrata*), crow sharks (*Squalicorax pristodontus*), nurse sharks (*Ginglymostoma lehneri*), rays (*Rhombodus binkhorsti*), pycnodont and other fish teeth, a couple small vertebrae, and a small shark coprolite (spiral turd).



FIGS 130-131: Above, right of quarter, 7 *Serratolamna serrata* (mackerel shark) teeth, right of quarter 5 *Squalicorax pristodontus* (crow shark) teeth, *Ginglymostoma lehnerei* (nurse shark) tooth, pycnodont tooth in matrix, shark coprolite, 2 small vertebrae, 2 fish teeth, *Rhombodus binkhorsti* (ray) pavement tooth, possible shark demal ossicle, misc broken teeth below (Site 86)

With that behind me I was ready for the main event. A little background discussion is in order on this next site. One particular creek exposing the Anacacho formation (72 MYA) has had my interest for some time. I eventually contacted the county tax office, tracked down adjacent landowners, and asked for permission to collect the creek. I was turned down by all landowners, but one took the time to show me the nice ammonites he and his wife had collected there over the years. Discussions with a friend suggested that it was indeed legal to collect here, so I followed a lead and contacted a Texas Parks and Wildlife official and was told that it was indeed legal to walk the creek bed and collect fossils there so long as I entered from a public road bridge and stayed below the vegetated terrace. A call to the county game warden reinforced my confidence in my plan. Then I embarked on my 2 mile round trip walk down the bluffs of the creek, but not without the phone number of the game warden in my backpack in case nearby landowners had other ideas about my presence.

As it turned out I didn't need to whip out the phone number or cell phone as high winds muffled the steady onomatopoeic "ching, ching, ching" of steel on steel as I beat my quarry into submission. Soon I spotted the keel of a 12 inch ammonite poking out of a bluff, but it appeared to be cracked in half so I left it in situ. Otherwise I found the chalky, gritty, yellowish limestone to be compliant and easy to work, with most specimens popping out in good shape with minimal effort. Next I laid hands on a couple nice *Pachydiscus paulsoni* ammonites followed by several *Eutrephoceras* or *Cymatoceras* nautiloids. The find of the day however was a spectacular 3D example of the rare heteromorphic ammonite *Didymoceras reevesi* which popped out in just a few hammer blows. Winding down, I dug another heteromorphic ammonite *Trachyscaphites spiniger* out of the wall before doubling back and finding a large but rough echinoid *Proraster dalli* in a limestone bench in the middle of the creek.



FIG 132: Anacacho fm Site 168





FIGS 133-135: *Pachydiscus paulsoni* ammonite (Site 168)





FIGS 136-137: *Pachydiscus* ammonite in matrix followed by *Pachydiscus* and *Trachyscaphites spiniger* (spiny) ammonites (Site 168)





FIGS 138-139: Rare *Didymoceras reevesi* ammonite (Site 168)





FIGS 140-143: *Cymatoceras*(?) nautiloids followed by bivalve and several *Gyrodes* gastropods (Site 168)





FIGS 144-145: *Proraster dalli* echinoid (Site 168)

Nobody accosted me but a couple curious people did stop their vehicles on the bridge to stare and try to figure out what the heck I was doing. They won't see me there again until the next big flood. In the meantime, keep in mind that the county game warden is always a good resource in helping determine public access to certain waterways.

December 29, 2007: Auld Lang Syne, Pleistocene Style

With a new lower unit on my engine this trip would be a test of my troubleshooting and boat mechanic skills. But as I was readying my gear I noticed still another problem. My boat's transom had a bit too much play in it when pushed and pulled, alerting me to the presence of 4 fatigue induced stress cracks, two outboard near the gunwales and two inboard near the engine mount. I could picture it all in my head...buzzing down the river at wide open throttle with all attention on avoiding the submerged obstacles ahead, only to have my transom tear off catastrophically, sending the engine, hull, and my carcass to the depths of Davy Jones' locker...fortunately things did not unfold this way, although I plan to head to a weld shop prior to next trip.

Most days result in a single "find of the day" that stands out above all the others that day. You never know when that find will come. On my last river trip it was the spear point that came near dusk as I wearily carried out the task of grid searching the last gravel bar of the day. This time it came at dawn as there was just enough light to see as I launched my boat. A porous surface buried in gravel and sand caught my eye as I stooped over to look at the ground. Plunging my fingers into the sand like a kid ramming his hand into a cookie jar I came up with a nice centrum of a mammoth vertebra, fully 7 inches in diameter and probably 2 inches thick, my first of this type of vert. It lacks processes and I'm not sure if it is cervical, thoracic, or lumbar. I followed this up with a large atlas vert from something of the bison or camel spectrum, also a desirable find.





FIGS 146-149: 7 inch centrum from a mammoth vertebra (Site 379)







FIGS 150-153: *Bison*(?) atlas vertebra first 3 frames followed by *Bison* sp. metapodial (Site 379)



FIG 154: Turtle shell fragments (Site 379)

I made a run miles upstream and then began picking my way through the bars and banks on the way back. The first bar produced 3 nice horse teeth while the next bar coughed up a deer cervical vert, a nice glyptodont osteoderm, and sundry bone chunks. I always enjoy spotting specimens in the bank while underway in the boat, and a deer scapula proved to be just such a find, its articular surface jutting out of red Pleistocene clay just inches above water level. Other bars downstream brought sections of deer antler, turtle shell fragments, etc. A brand new bar downstream produced by the last flood gave up a palm sized piece of mammoth enamel, actually 2 enamel folds still bonded. Rough in condition and fragile, this is the biggest piece of mammoth tooth I've picked up in a while. Obviously I'll need to look closer to the source for a good one as rivers tend not to be too gentle with them.





FIGS 155-157: Horse teeth and medial phalanx (Site 382)



FIGS 158-159: *Glyptotherium* sp. osteoderm and blue *Bison* sp. lower molar (Site 382)





FIGS 160-163: Deer scapula and cervical vertebra in situ and prepped followed by turtle fragments (Site 382)



FIGS 164-165: Horse calcaneum and unidentified distal scapula followed by *Bison* sp. foot bone, unidentified bone, and deer antler base (Site 426)





FIGS 166-167: Mammoth tooth sections (Site 425)



FIG 168: *Bison* or *Bos* mandible section and *Terrapene* sp. turtle plastron (Site 425)

Since the river level had dropped a little I opted to pack up and head for the area that produced my mammoth tusk a few weeks prior. I found footprints a few days old on each bar I visited. I suppose that collector appreciated seeing my footprints from a few weeks ago as well. We all miss a few things as our eyes can't be everywhere all the time, and I found a few teeth and bones but nothing major.







FIGS 169-171: Large *Bison* sp. lower molar (Site 306)



FIGS 172-173: Turtle shell fragments, deer antler tine, horse upper molar, and horse proximal phalanx (Site 307)

Calculating what I could do with remaining daylight I stomped on the gas pedal and headed to a new area in need of exploration, throwing the boat in the water and heading upstream at 4 p.m. Here the bars were all sand and no gravel, not exactly what I had envisioned. As I was turning around 4 miles upstream my prop smacked some insidious submerged obstruction and rolled the shear pin. With daylight waning I opted to throttle back until the pin caught the hub, allowing me to limp back to my truck rather than fumble around with changing the pin on the river, wasting daylight while opening the door for other problems.

I opted to survey the steep banks at selected intervals to close out the day. Skimming close to the water's edge along one bluff I noticed something white about the size of a pack of cigarettes and jumped out to investigate. It turned out to be the biggest non-elephant tooth I've ever encountered afield. I had to stare at it for a few seconds to recognize it as a tooth as it had a strange mode of preservation; enamel shattered and separated slightly yet cemented by caliche. If it is indeed a *Bison* tooth as suggested by some of my internet buddies, it certainly came from one of the largest *Bison* ever to walk the earth. Another ¼ mile downstream I jumped out to climb another similar exposure and picked up a hip socket of some sort.







FIGS 174-177: The largest *Bison* tooth I've ever seen followed by an unidentified pelvis fragment (Site 423)

My final stop at another such bank produced an unexpected find. I spotted a book sized slab of white, shattered and cemented vertebrate material, apparently a large section of turtle or tortoise shell, lying on the slope. A couple feet up section I could see the source, a bigger slab of the same material buried in the bank. This material was extremely fragile and I could see much of it broken in situ. It was lying on a bed of tan-orange sand and covered by chunks of caliche. I raced against daylight and finally got all 8 pieces in the boat and nosed the boat back downstream. I may have gotten about 2 square feet of shell, all that was present I'm fairly sure. The fractured and fragile preservation makes it not a very camera friendly specimen, so I'll need to figure out what to do with this thing. It is a bit ugly in my opinion but may be of use to some turtle researcher out there, so I'll box it up and hang onto it for donation.









FIGS 179-182: Unidentified turtle plastron weathering out of a Pleistocene bank (Site 424)

And thus sealed the end of not only a good day but an eventful year in collecting. I can't imagine 2008 being better but I'll certainly try. I suppose now is the time to reflect and mention some collecting goals for the new year. For me this would be museum grade examples of a mammoth tooth, tapir tooth, and perhaps some new species of echinoids I've never encountered in my travels. I look forward to heading afield both with buddies and solo next year and eagerly await to see what comes to hand.