

# FOSSIL COLLECTING REPORT

## January 2008

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January 5, 2008: Which Way to the Weches?

I was recently contacted by an avid echinoid collector named Adam from the East Coast via a fossil forum which I visit online. As it turns out my new friend works for the Air Force and has traveled the country and the world extensively, seizing the opportunity to collect echinoids wherever possible, devoting every available weekend and week night to the pursuit. His skill in tracking down pertinent references coupled with his ability to ferret out little known or unknown exposures resulted in top notch collecting for him. At one point he was stationed in Texas and assembled an extensive network of quality echinoid sites of various formations and ages.

Still, he was interested in acquiring some of the material I've been fortunate enough to stumble into which eluded him while he was here. I don't do many fossil trades since I prefer to find my own specimens, but I do occasionally sell off a few surplus specimens to defray the cost of fuel used to run between sites. However my favorite form of barter is exchanging surplus specimens for solid site info, and this arrangement is turning out quite well for us both. I always keep surplus specimens of rare species on hand, leaving me poised for high stakes wheeling and dealing whenever the situation arises. Your collecting is only as good as your sites, and one guy can only study so much of the state within the limits of his free time and finances, so this type of "horse trading" is as vital a part of increasing your umbrella of sites as is exploration and constitutes a form of investment resulting in significant enhancements to both collections when like minded people find each other.

He began a series of "information dump" emails in the same exhaustive detail I tend to provide for people when describing a site. Not only is it vital to know where to go, but when to go and what to do when you get there. He covered all this in each site description. Last weekend I opted to venture into East Texas not only to survey a few of his sites, but also to see what I was committing myself to. It will suffice to say that this guy's information is gold and I'll need to dig deep into my collection and loosen my vise grip on some closely held specimens in order to reward him fairly for his good natured and candid sharing of some really good sites.

It would be a hard push into East Texas so I got up at 2 a.m. and was on the road by 3. Over the hills and through the woods I went, at long last arriving in a brushy ditch next to a lonely road in the middle of nowhere. I was targeting the Weches formation, a 45 MYA Eocene marine sequence of sandstone and glauconite mapped as 50 to 90 feet thick in that part of the state. Hidden back in the brush were a few rusty sandstone benches totaling a couple hundred square feet. It was all as my friend had laid out for me...I first encountered an oyster layer then pushed through the brush and stepped onto another bench a foot or so stratigraphically lower, this layer studded with innumerable tests of the extinct sand dollar *Protoscutella mississippiensis*. First I stood back and shot a few photos before tracking the place up. It was a jumble of specimens, some right side up, some upside down, some exposed along the margin only. Many of the tests were broken in matrix, but a surprising number were intact, some weathered free of matrix and others exposed in close association with other nice specimens. They ranged from about 4 to 75 mm in diameter, some perfectly preserved in hues of yellowish tan with rusty highlighted apical stars, with whole specimens and sometimes multiples set artistically in chunks of reddish sandstone.







**FIGS 1-3:** A few views of Site 428, Weches formation, showing layer of sand dollars in earthy sandstone

To my delight the earthy sandstone yielded easily to my chisel, implying that prep work would be relatively easy. I must have spent 2 hours there carefully crawling the area. I ended up grabbing a couple *Fibularia texana* echinoids which are rather small and nondescript in comparison to the sand dollars. Adam sent me several more so I have a good representative sample of them. As well I picked up a couple small sections of crab appendages although a carapace would have been nice. It was the overwhelming take of *P. mississippiensis* however that caused the lips of my gallon sized Ziploc bags to tear on the way back to the vehicle.



**FIGS 4-19:** Eocene sand dollar *Protoscutella mississippiensis*, Weches formation above and in the next 9 pages (Site 428)





















**FIGS 20-26:** Weches echinoids *Fibularia texana*, most donated by Adam but some found by the author (Site 428)





With the best site of the day behind me I paid a visit to another road cut which my friend noted as not being terribly productive, yet still in the right zone for the sand dollars. Last spring and summer's rains combined with apparently zero collecting pressure turned this site around and made it well worth another hour. Here some of the biggest and best preserved *Protoscutella* came to hand and despite the brief rain shower I didn't miss a beat.



**FIGS 27-32:** *Protoscutella mississippiensis* this and next 3 pages (Site 427)







A third road cut was heralded as the least productive of the bunch, and it was, but 20 minutes still yielded at least 10 sand dollars, this time in a darker and slightly harder sandstone. The fourth site was a large bluff exposing the same zone, but here the lithology had changed to a hard as flint, black, massive sandstone overlying a glauconite

bed. The sand dollars were there en masse, but all were broken in section in the face of the bluff. I've heard of other collectors coming home frustrated with the Weches in the past, noting that it was impossible to extract an intact specimen. I'm guessing they encountered this same lithology if not the same site.



FIGS 33-35: *P. mississippiensis* this page and next (Site 429)



Switching gears slightly I opted to slip into a river bed on the way home and hike a couple miles in hopes of encountering Pleistocene mammal bones or even spear points. An energy sapping slog through the mud eventually led to a patch of gravel which gave up 3 or 4 bone sections that were definitely Pleistocene in age, the most notable being a partial mammoth ball joint.

I always love trips that result in a lifetime supply of a new species and I am really not used to being spoon fed exclusive and ludicrously productive site information, so it is easy to chalk this trip up as a resounding success. Now I'm anxious to investigate some of these other sites as well as return the favor.

#### January 10, 2008: Incremental Progress in the Pleistocene

The boss and the wife were both gracious enough to let me escape San Antonio on this particular Thursday, and I was in the mood to explore some new river sites. Arriving at my put-in point around 8 a.m. I launched the boat and sputtered my way several miles upstream. I was happy to see that my newly welded transom was solid, not flexing with engine vibration as was the case on the previous trip. The transom wood is rotten though and I plan to replace it prior to my next trip, which will also be a trial run of the prop guard I designed and welded out of 304 stainless steel. I'm getting a bit weary of grinding down these \$40 composite propellers and breaking shear pins and prop hubs every other trip, so a bit of ingenuity was required at this point, especially since I just dropped a cool \$250 on a new lower unit and the original was boogered by repeated encounters with submerged obstructions.

The first big bar was covered with 4 wheeler tracks and human footprints, but I did manage to land the head of a bison humerus. The next big bar upstream had some better material including a decent horse astragalus (ankle bone), but relative lack of productivity prompted me to pull the plug around 11 a.m., yank the boat back up the bank, pack up and haul butt for a proven area. Around 1:30 I eagerly ran down the bank, threw my boat in the water, fired up the little engine and headed upstream. Daylight was at a premium so I threw it into WOT and probed the bottom every 50 feet with a broomstick to avoid surprises.



**FIG 36:** Soft shelled turtle fragment *Apalone* sp. left, unidentified bone fragment center, horse astragalus right (Site 430)

The first bar at first glance made my confidence drop...tracks from 4 wheelers doing donuts, cow tracks, people tracks...not the pristine encounter with nature I had envisioned. The relative dearth of fossils was notable as well. However the disturbance on the bar lacked one key element: evidence of systematic scrutiny. All it would take is one fossil to make or break the bar for posterity, and on this particular day, that one fossil was there. As I walked back toward the boat, right next to a dusting of sand recently thrown by a 4 wheeler, was the end of a mammoth tooth! It is about 4 inches long, perhaps half of a medium sized molar or a third of a large one and has some good root detail remaining. It is far from the perfect specimen I've been searching for, but will certainly serve as a placeholder for the Grand Prize. Being the most significant example of a mammoth tooth I've encountered to date, I'll consider it incremental progress at this point.



**FIGS 37-40:** The author's best *Mammuthus columbi* tooth fragment to date (Site 141)







Buoyed by this success I threw the biggest roostertail possible with a 3.5 HP outboard and headed to the next 2 or 3 bars. I found a few interesting things such as a horse upper molar, horse medial phalanx (toe bone), etc. but nothing really worthy of note. As I putted along the water's edge at the foot of a large bank I spotted something that made me jump out for a look...it turned out to be a thoracic vertebra with a large spinous process intact.



**FIGS 41-42:** Turtle plastron section and unidentified worn vertebra top, horse molar and medial phalanx (foot bone) below (Site 433)



**FIG 43:** Unidentified cervical vertebra (Site 434)





**FIGS 44-45:** Unidentified bone fragment previous page, unidentified distal radii this page (Site 434)



**FIG 46:** Unidentified thoracic vertebra (Site 157)

The next bar gave up a few verts, one rather large, and a femur ball from a horse or bison sized critter. Still another bar gave up several more verts plus a perfect horse metapodial (metatarsal or metacarpal). The next bar is one that has given up few specimens for me in the past, but with proper timing I often walk away with one large and significant piece of mammoth bone from that site. My timing was good this time and I grabbed a foot long, 15 LB hunk of mammoth skull. It could even be the ramus of the beast's jaw, but I could be off in this hypothesis. I wish it would have been a good tooth, but this bar may eventually produce just that.



**FIGS 47-48:** Unidentified vertebra and femoral head above (Site 140), horse metapodial below (Site 132)



**FIGS 49-53:** 2 unidentified vertebra (Site 132) above followed by 4 views of a chunk of mammoth skull, possibly jaw ramus (Site 137)







The sun setting low in the sky cast an orange glow onto the red terrace ahead of me. It was a race against darkness so I had to move fast. I beached the boat and climbed around for several hundred yards high up on the bank, tracing a gravelly horizon where I've found success in the past. This time would be no different. Scraps of white bone caked with orange sand and gravel quickly came to hand, first a small, fragile scapula, then several scraps of turtle shell, a nice horse lower molar, then larger limb bones like those from a horse or bison. I've never found mammoth material on this particular bank, but the game isn't over yet.



**FIGS 54-55:** 2 views of Site 179, one showing obscure “sandstone straws” on the exposure





FIGS 56-57: Horse lower molar (Site 179)



**FIGS 58-61:** Unidentified distal humerus this and next 2 pages (Site 179)







FIGS 62-64: Unidentified distal humerus this and next page (Site 179)





**FIGS 65-66:** Unidentified bone in situ above, unidentified scapula and ulna below (Site 179)



**FIGS 67-68:** Unidentified ulna in sandstone (Site 179)



**FIGS 69-70:** Unidentified scapula and half vertebra above, unidentified basal skull fragment below (Site 179)



**FIG 71:** Turtle shell fragments (Site 179)

Darkness began to set in and Ma Nature once again chased me off the river before I was ready to give up. The partial mammoth tooth was certainly a welcome find which helped me justify in my own mind the time and expense required to make the trip that day.