

MICROMORPHS, MACRASTERS, AND MAMMOTHS, OH MY! TALES FROM THE FIELD

September 25, 2004

When I heard that Hurricane Ivan had stalled in extreme SE Texas just short of my selected fossil site, I elected to hit a favorite river again in hopes of landing some more Pleistocene vertebrate material. My efforts panned out with some surprises to boot.

I slid the kayak into the water around daylight, fired up the outboard and putted upstream 10 miles or so, stopping to search the gravel bars along the way. I found bone fragments on about $\frac{3}{4}$ of the gravel bars, most too small and tumbled to easily ascertain species or even body part. On one bar I spotted a curious blob of mud with a hole in the middle. I washed it in the river and watched a nice vertebra materialize from the murk. Not a bad start.



FIGURES 1 and 2: Unidentified Vertebra

A very long gravel bar upstream gave up a number of bones, but half or more of the bones were recent (no mineralization, hollow sound when tapped together, light weight). I chucked 'em. I saw a dead cow and a dead dog in the river, so I'm skeptical of the age of bones which aren't heavily mineralized. I soon found a couple large fragments with hard matrix on them and mineral deposits filling the marrow pores. These are what I'm after.



FIGURE 3: Unidentified Bone Fragment

I have read that many of these bones are thought to be Rancholabrean (10,000 – 400,000 years) in age from the Beaumont Formation. Some of the more glassy looking, red to black bones could be Irvingtonian (400,000 to 1.8 MYA) or even Blancan (1.8-3.5 MYA) float. A good way to determine age is by determining species, which requires a trained eye, knowledge of skeletal morphology, and heavy doses of experience. For this reason I enlisted the help of Richard Hulbert, Vertebrate Fossil Collections Manager of the Florida Museum of Natural History and editor of Vertebrate Fossils of Florida. My gratitude to Mr. Hulbert for taking time assist me in this effort. His expertise has been attained by viewing thousands of Cenozoic vertebrate fossils in varying condition. I get the biggest kick out of finding remains of animals which no longer live in Texas.



FIGURE 4: Partial Vertebra? The jury is still out...



FIGURES 5 and 6: Dire Wolf scapholunar (wrist bone), *Canis dirus*

I worked my way to the upstream edge of the gravel bar and spotted a slender triangular shape under about 3 inches of running water...and jumped on it like a live hand grenade! I wanted to make sure this dream didn't escape me. In some sort of primordial, splashing victory dance I held up a perfect $3 \frac{3}{4}$ inch spear point made of black flint. This is one of the best artifacts I've found to date, and I instantly knew this was the find of the day. Bob McWilliams of the Texas Amateur Archeological Association has tentatively identified this as an Early Stemmed point, with more positive ID coming when he can hold it in his own hands.



FIGURE 7: Early Stemmed point

I loaded my gear back in the truck and headed downstream to a different put-in point. Getting my kayak down a 15 foot, extremely steep bank was not all that hard, but I knew what was in

store upon my return. I worked a long gravel bar finding little, but at the upstream side where the big gravel drops out I found one large bone chunk that caught my eye. Mr. Hulbert informed me that I had found a portion of carapace from a giant land tortoise. Based on the size of this piece, this animal conservatively weighed several hundred pounds. Plowing farther upstream I heard the clunk and rev of a broken shear pin. Since it was already late in the day, and I had a little trouble removing the prop, I opted to paddle back and be happy with the day's loot.



FIGURES 8 and 9: Giant Tortoise Carapace Fragment, *Hesperotestudo crassiscutata*

Getting the yak back to the truck was no easy feat. I had to wedge it against a tree or rock every couple feet and “ratchet” it back to my truck. Where are my buddies when I need them?

September 29, 2004

I stumbled upon a Lower Glen Rose site while driving through the country north of San Antonio last weekend, and returned to it after work one day. After a quick look around, I was happy to depart with a couple *Salenia texana* echinoids for my collection. They are pretty plentiful in this area, but I still have not yet limited out on perfect ones. For reference, these fossils are thought to have lived roughly 108 MYA.



FIGURE 10: *Salenia texana* echinoids

October 1-2, 2004

I had to go to Fort Worth on Friday to attend a classic car show, and was able to drag my stay out to Saturday and piggyback a fossil hunt onto my work obligations. Veteran DPS member Irene Stemple was kind enough to front me a Duck Creek micromorph site where I went Friday night and found about 50 tiny pyritized ammonites before lightning bolts began dropping from the north. I pulled up stakes and headed over to Irene and Norm's house.



FIGURE 11: Pyritized micromorphic ammonites from Duck Creek Formation

Irene was kind enough to spend 3 hours showing me her amazing fossil collection consisting of an intact cidarid echinoid, *Dimetrodon* skull, Pennsylvanian marine bones, teeth, and goniatites, jellyfish, whale vertebrae, petrified stumps, Paw Paw crab carapaces, etc. Her display of cut and polished ammonites showcases her honed lapidary skills as well, and it sounds like a few cherished finds were sacrificed in developing that expertise. Solid site info, a "museum tour", dinner, pie, ice cream...now that's some "holistic hospitality." Thanks, Irene!

At daylight I perused a streambed exposure in the Duck Creek formation which I had spotted while driving around the day before. I didn't find much, but what I found was quality stuff. I made off with 2 *Holaster simplex* echinoids and one small *Drakeoceras wintoni* ammonite as

well as some cool gastropods. Duck Creek seas prevailed in the Fort Worth area around 103 MYA.



FIGURE 12: *Holaster simplex* echinoids, Duck Creek Formation

I spent 2 hours at my next Duck Creek site, and once again Ma Nature gave up the goods. I found a zone of *Macraster* and *Holaster simplex* echinoids, bagging a couple of each in superb condition. A couple of these big *Macrasters* are indisputably museum quality as all the plate and tubercle detail is impeccably preserved. In addition, I got a half dozen or so good ammonites including *Mortoniceras* and *Drakeoceras*. Many of the specimens from this site are marked for display in my home or office.



FIGURES 13 and 14: A truly superb echinoid specimen from the Duck Creek Formation, possibly *Macraster denisonensis*



FIGURES 15 and 16: Multiple species of echinoids including *Macraster elegans* (and possibly others) left, *Holaster simplex* right, all from the Duck Creek Formation



FIGURES 17 and 18: Duck Creek ammonites *Drakeoceras wintoni* left, *Drakeoceras wintoni* and *Mortoniceras* right

Next I bombed out in a Paw Paw site, finding only oysters. Ammonites, crabs, and shark teeth eluded me. The Paw Paw is a sandy layer deposited about 101 MYA.

My fortuitous streak was resurrected at my last site in the area, which happens to be in the Grayson formation. 6 or 8 good ammonites came to hand including *Paracalycoceras*, and I can usually prep them out without much trouble since the matrix yields pretty cleanly to the aircrabe, revealing excellent surface detail. Weathered out in gullies I was happy to lay hands on 3 varieties of echinoids including *Heteraster*, *Hemiaster calvini*, and an undescribed *Salenia*. Grayson sediments were deposited about 98 MYA.



FIGURES 19 and 20: From the Grayson Formation, unidentified *Salenia* left, *Hemiaster calvini* and *Heteraster* right



FIGURE 21: Grayson ammonites *Mariella* top right, *Paracalycoceras* and possibly others

Working my way home, I gave Rio Vista another shot, this time locating a small Weno exposure which surrendered one large but damaged nautiloid and a half dozen large *Macraster* echinoids in about 15 minutes. Gotta love those quick hit sites. These *Macrasters* are more damaged than the Duck Creek specimens I found that day, but I'll keep them nonetheless to represent a different formation in my collection. They cleaned up quickly and easily when microblasted with baking soda, but this was a mixed blessing revealing their true ugliness. These fossils lived about 102 MYA.



FIGURE 22: *Macraster* echinoids from the Weno Formation of Johnson County

Last stop: A stream bed in McClennan County. In fading light I crisscrossed a gravel bar where I had found a chunk of mammoth bone a month before. Nothing. I waded up to the next bar, and sitting on top was the ugliest, most river worn section of broken mammoth tooth that I could possibly identify. If memory serves, mammoths have 9-11 vertically running folds of enamel (up to 20 in the colossal Imperial Mammoth), and when the tooth weathers, it splits vertically between these ridges. This partial shows two folds. Many collectors would likely use this thing for a skipping stone. Unsightly as it is, it adds a new dimension to my collection and represents attainment of a self-imposed goal. Now I'm ready for a prettier one!



FIGURES 23-25: Selected views of Columbian Mammoth molar fragment, *Mammathus columbi*