

FOSSIL COLLECTING REPORT

April, 2008
Daniel A. Woehr and Friends and Family

April 5, 2008: Surveying a Kendall County Ranch

A couple of my artifact collecting buddies recently obtained access to a coworker's 120 acre ranch near Boerne, TX and did a little prospecting for points. Their exchange with the owner revealed that his wife had interest in fossils, they had fossils on their land, and they were willing to learn more about them. My name came up in conversation and before long I found myself out there early on a Saturday morning and met the Jenkins at their front gate. My pre hunt research consisted of reviewing a geological map of the area and confirmed my suspicions that their land exposed the Upper Glen Rose formation (108 MYA).

Our initial stops took us to hillside exposures presenting numerous bivalve and gastropod molds which are characteristic of this formation. Kneeling down I showed them the innumerable foraminifera, or disc shaped microfossils, known as *Orbitolina texana*. I told them that this foram is often found in the soft Glen Rose marls that produce echinoids.

Our last stop was the best spot of the day, a small borrow pit exposing fossiliferous yellow marl. Soon we were finding dozens of irregular (heart shaped) *Heteraster* echinoids. I ended up keeping 3 echinoids that we found including 2 nice *Heterasters* and one *Loriolia rosana*.

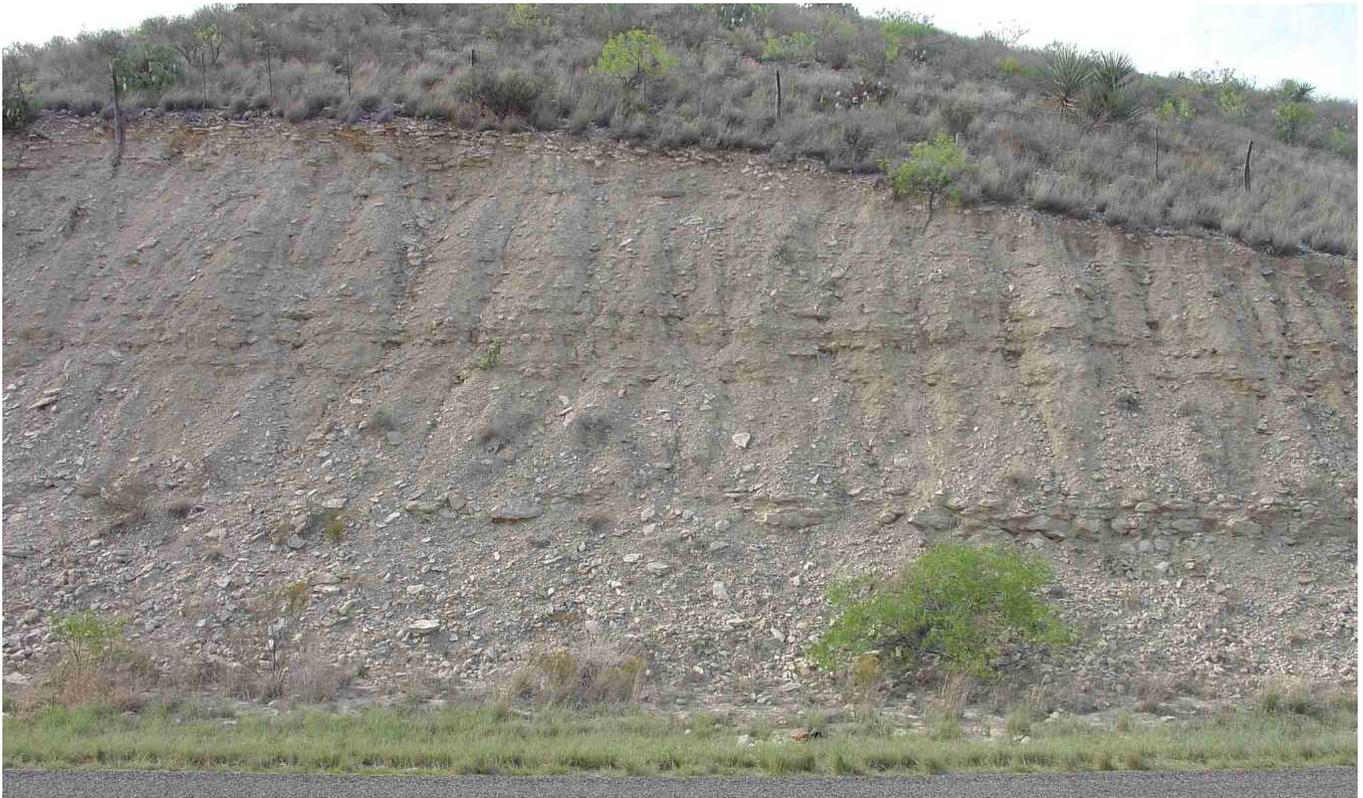


FIG 1: Glen Rose echinoids *Heteraster obliquatus* left and center and *Loriolia rosana* right (Site 447)

I jump at every opportunity to collect a new site, especially private land that has never been systematically collected. I walked away with a few nice pieces while the Jenkins ended up with knowledge of fossils they weren't previously aware of, tips on how to target the productive zones, and a couple dozen specimens as a reminder of what is on their land. I thought my time was pretty well spent with a nice couple on a beautiful and conveniently located piece of land.

April 12, 2008: Serendipity and Chagrin in the West Texas Desert

Chagrin came early in the game as I knocked a 4 inch, \$100 Florida Meg tooth off my shelf while getting my extension ladder off the wall, watching the tooth explode into 10 pieces on the floor Friday night...Oh well, at least it wasn't a personal find. After a few changes in who would accompany me on this West Texas fossil trip I picked up my friend Bill Morgan at 3 a.m., pointed my F250 into the morning chill and pleasantly chatted away the next several hours. Echinoids were our main quarry on this particular trip, and I had a few old references to put us in general areas, but often sites that were accessible when the reference was penned are now off limits. Still, getting in the general area is a tremendous help. As we arrived in the Boquillas fm, an 87 MYA equivalent of the upper Eagle Ford group, I could clearly see that our target area was fenced. I pulled over at a road cut that appeared "echinoidy" to me, i.e. more marl than limestone, broke out the gloves and knee pads and got to work.



FIGS 2-5: Boquillas formation road cut (Site 448) this and next 2 pages with Bill Morgan for scale





Within minutes I called out "I have echinoids!" and things got pretty hectic from that point forward. *Hemiaster jacksoni* was the echie we were after, and we had several within the first 10 minutes. The base of the exposure was littered with limestone nodules which under close scrutiny contained *H. jacksoni* jutting out of the surface randomly, in some cases 6-10 specimens per nodule. Working up section we found the source of the nodules and took many. Before long we had 4 piles of nodules next to the road ready for drive by loading in my pickup.



FIGS 6-20: Boquillas echinoids *Hemiaster jacksoni* in situ, in matrix, and free of matrix this and next 11 pages (Site 448)























But the festivities didn't end here. We found a zone of many echinoids weathered free of matrix lying on the exposures. Most were *H. jacksoni*, but occasionally I picked up something a little different, something more like a Holasterid. My best guess at this specimen ID is *Holaster c.f. feralis*, a species of approximately the same age documented from the Greenhorn limestone of Colorado. I'm not sure whether this critter has documented occurrence in Texas so I'll need to consult the experts.



FIGS 21-25: Boquillas echinoids *Holaster* sp. this and next 2 pages (Site 448)





With our burgeoning pockets of echinoids we gave the exposure another 15 minutes, and during this time I was plucking more *H. jacksoni* from a soft marl layer. However several small round fossils caught my eye and upon closer inspection recognized them as *Coenholectypus* c.f. *nanus*. *C. nanus* is documented as a Pawpaw form, about 13 million years older than the sediments under scrutiny here, so I'm not sure if this constitutes a new form, a new occurrence, or simply ignorance on my part to published works detailing these diminutive echinoids. At any rate I dug 30 or 40 pounds of this marl out of the exposure for later bulk sampling.



FIGS 26-33: Boquillas echinoids *Coenholectypus* c.f. *nanus* this and next 4 pages, the last image having a large pyrite or marcasite crystal in matrix with the echinoid (Site 448)









2 ½ hours seemed like a reasonable amount of time to invest in this site. We estimated that we found 200-300 echinoids each and left back slapping over this tremendous success. Heck, they were numerous enough to use as slingshot ammo. We went out seeking one new species and instead found 3. I even joked that just the echinoids hidden in the matrix we took were enough to justify the trip. Had I only known how true this statement would prove to be...

Fast forwarding to my garage a couple days later I found that the *H. jacksoni* were often clustered like grapes in these hard nodules. In prepping these nodules a hammer was clearly the tool of choice as the rock tended to break away at the interface of the fossil, creating in some cases a dramatic 3D presentation. However a veneer of hard matrix covered many of the specimens and required liberal applications of caustic chemicals to begin to reveal more detail.

Much of the marl reduced to muddy ooze when submerged in a bucket of water. I later poured this "echinoid elixir" into stackable screen boxes I had made last year, washed everything down with a garden hose, dried it out under a fan, and began picking out treasures. In addition to stunningly preserved juvenile *H. jacksoni*, I picked out a few more *H. feralis* and a stunning number of *C. nanus*, the bringing hundreds of specimens from 1 to 9 mm diameter with most perfectly preserved. In some cases all the pores along the ambes could be seen with the naked eye, but these specimens can only truly be appreciated with a microscope. I particularly enjoy the multi species slabs of matrix, my favorite being a palm sized hunk of marl with one *H. feralis*, 2 *H. jacksoni*, and 6 *C. nanus*. In addition, the micro crinoids, *Enchodus* (fish) tooth, and sponge spicule were very cool bonus finds.



FIGS 34-36: Small *H. jacksoni* and *C. c.f. nanus* specimens (Site 448)





FIGS 37-39: Centerpiece of the Boquillas trip, a nodule with one *Holaster*, 2 *Hemiasters*, and 6 *Coenholectypus* echinoids this and next page (Site 448)





FIGS 40-41: Nodules containing both *Hemiaster* and *Coenholectypus* echinoids (Site 448)



FIG 42: From the Boquillas fm star shaped floating micro crinoids, an *Enchodus* (fish) tooth with the tip knocked off, and a cross shaped sponge spicule (?) from Site 448

Back on the road again Bill and I worked a road cut in the Buda fm (95 MYA). Typically in San Antonio this is a porcellanous, hard to collect formation. We saw this lithology as well, but underlying it was a softer, gritty layer near the contact with the Devils River formation, and this gritty layer gave up several rough but keeper echinoids, a crab claw, and a cute little *Budaiceras* sp. ammonite.



FIGS 43-49: Buda fm Site 449 and the echinoids *Heteraster* sp. and *Hemiaster calvini*, partial crab leg, and *Budaiceras* (?) ammonite found there, this and next 3 pages







Things were slowing down compared to the first site but good finds still came to hand. We saw some broken *Plesioturrillites* and *Engonoceras* ammonites in the Del Rio fm (98 MYA) amongst the innumerable oysters *Ilymatogyra arietina*, but I picked up one squashed *Heteraster* sp. echinoid with spines intact and another one compressed off center. Our favorite finds from this formation were slabs of pyritized gastropod-form foraminifera identified as *Hoplistoche texana*.



FIGS 50-55: Slabs of gastropod (snail) like foraminifera *Hoplistoche texana* from the Del Rio fm (Site 450) followed by 2 views of a road cut exposing the white Buda limestone and underlying Del Rio clay, and ultimately 2 breathtaking views of the Pecos River exposing the Devil's River limestone down section of the Del Rio clay







Our final stop was another road cut through a rudist reef in the Devils River Limestone (105 MYA), an equivalent to the painfully fossil free Edwards Limestone of San Antonio. I had read cryptic notes of echinoid occurrence in this road cut and figured they were some form of *Goniopygus* based on association with a rudist reef of this age. Soon we were finding echinoid spines and after an eternity I was fortunate to encounter a perfect *Goniopygus texana* echinoid sitting on the flint hard exposure free of matrix. Small in size, this find was a milestone in my personal collection. Soon I found a second specimen jutting out of a small chunk of hard matrix.



FIGS 56-59: From the Edwards equivalent Devils River Limestone came 2 echinoids *Goniopygus texanus* and some isolated, unidentified echinoid spines shown on this and the next page (Site 451)



What a wonderful day of collecting this had been, one that I hope Bill found worth waiting for as I had been promising to take him out for quite some time. We each took several new species from new formations in areas we'd never collected. Losing my chisel roadside while shuffling fossils and gear around did little to mitigate the success of the day, but when I lost my wallet the day took on a more somber tone. Now that I've dealt with the drivers license office, bank, credit card company, etc. I'm ready to hit the field again, hopefully doing a better job of keeping the essentials in order.

Sick over the day's losses but elated over the day's great finds, I stopped for a moment for some reason to stare at a nice *Placopecten clintonius* shell from VA sitting on my table...just then something fell off the ceiling and dead centered this fragile shell, breaking it into 3 pieces...time for bed!