

FOSSIL COLLECTING REPORT

July 2010

Daniel A. Woehr and Friends and Family

July 2, 2010: South Texas 'Caning Boon to Fossil Collecting

The first hurricane of the season made landfall in northern Mexico, sending bands of rain across South Texas in late June/early July. We knew that one of the better sites in the Corsicana formation (68 million years of age) near San Antonio would be sloppy but chock full 'o fossils, so Brian Evans and I made our way that direction for 2-3 hours of collecting after work on Friday.

Our kneepads and gloves soon picked up 10 pounds of mud, but we persevered and made some decent finds in the process. Brian got his first decent *Dakoticancer australis* crabs and several *Hemiaster bexari* echinoids in addition to an assortment of bivalves and gastropods. My take was about the same with one good crab in my bag plus some crustacean 3D jigsaw puzzles for a rainy day. I then hurried home to prepare for my next adventure.



FIGS 1-3: From the Corsicana Formation crab carapaces *Dakoticancer australis* this and next page followed by one echinoid *Plesiaster americanus* and two echinoids *Linthia variabilis* (Site 349)





FIGS 4-6: Corsicana Formation echinoids *Hemiaster bexari* above and bivalve *Lima guadalupensis* this page followed by bivalves *Lima acutilineata*, *L. guadalupensis*, *Plicatula mullicaensis* and *Liopistha* sp. next page (Site 349)





FIGS 7: Corsicana Formation oyster *Pycnodonte mutabilis* (Site 349)



FIGS 8-9: Corsicana Formation unidentified gastropods above followed by worm tubes *Serpula* c.f. *cretacea* below (Site 349)

July 3, 2010: Ammonite Alley(s)

4 a.m. found me on an outcrop of Georgetown limestone (roughly 102 MYA), flashlight in hand, in pursuit of the marine fossils found within. Skies threatened to unleash on me but I stayed on task and with my flashlight in my mouth proceeded to chisel out 4 *Mortoniceras* ammonites to 14 inches plus one *Cymatoceras* nautiloid. When I

arrived back at my truck at dawn the skies opened up with a fierce deluge of rain, making me fully appreciate the truck roof over my head.



FIG 10: Georgetown Formation ammonites *Mortonicerias equidistans* (Site 333)

Pressing on to farther reaches of North Texas I descended on a stream exposing the Duck Creek Formation (102 MYA). I came prepared with an inflatable raft to throw my gear and finds into and pull behind me. Success came quick with 3 *Eopachydiscus marcianus* ammonites in the first bluff begging for a new home. One was approximately 100 pounds and after 20-30 minutes of digging revealed a second, smaller Eo of about 6 inches jutting out of it at an odd angle. This will make quite a nice display piece. A few small *Mortonicerias* ammonites and *Macraster* echinoids also made it into the raft at this exposure.



FIGS 11-14: Duck Creek Formation ammonites *Eopachydiscus marcianus* in situ, this and next 3 pages (Site 73)









FIGS 15-16: Two Duck Creek Formation ammonites *Eopachydiscus marcianus* in lithified unity comprising nearly 100 LBS of fossils and matrix this page followed by echinoids *Macraster elegans* next page (Site 73)



Pressing on I eventually ran into a second, more impressive exposure of the same zone, and this place was pretty ripe for the picking. I got to work with my hand sledge and chisel, and in the case of some specimens, just hands were required to yank the ammonites out of the marl. It was a ridiculously productive stretch which loaded the raft to the gills with ammonites plus a few more echinoids in matrix.

The raft was so overloaded that at one point the edge dipped into the creek and slurped about 10 gallons of water into the bottom. I'm lucky that it didn't flip. Keep in mind that a guy and his girlfriend can float together in this raft – clearly this was a bumper crop of ammonites. Good thing I didn't have my first 2 Eos in the raft during all of this or there could have been severe problems. Getting all these treasures back to the truck was quite an ordeal in itself but well worth the effort.



FIGS 17-25: Duck Creek Formation Site 73 followed ammonites *Eopachydiscus marcianus* in situ, immediately post extrication, and as prepped this and next 5 pages













FIGS 26-35: Duck Creek Formation ammonites *E. marcianus* and *Mortoniceras* sp. followed by a host of *Mortoniceras* ammonites in situ, immediately post extrication, and as prepped this and next 9 pages – note double Mort presentation (Site 73)





















FIGS 36-38: Duck Creek Formation ammonites in various stages of transport this and next 2 pages – not bad for 2-3 hours work – prep would take much longer (Site 73)







FIGS 39-40: Duck Creek Formation echinoid *Macraster* c.f. *denisonensis* in matrix with juvenile ammonite *E. marcianus* on the reverse next page (Site 73)



My next site in the Duck Creek Formation was a bust because recent rains had made pig slop of the dirt road I needed to traverse to get there. Common sense prevailed over collecting aspirations so I scratched my head for a minute, considered the rain and how it had affected various sites, and drove a couple hours to the Bridgeport area for a change of venue.

I worked 4 well known marine exposures in the Lake Bridgeport area, all Pennsylvanian in age (303 MYA) and exhibited vastly different fauna than my more familiar Cretaceous sites. The first site in the Lake Bridgeport Shale was a small bluff loaded with so many crinoids stems that you can't put your foot down without stepping on 20 of them. I crawled around and collected a small baggy of better specimens, in the process accidentally backing into a prickly pear cactus...ouch!



FIG 41: Lake Bridgeport Shale brachiopods, crinoid cup parts, orthocone cephalopod section, and goniatite fragment (Site 62)



FIGS 42-43: Lake Bridgeport Shale sponges *Girtyocoelia beedei*, *Girtyocoelia benjamini*, *Heliospongia ramosa* above and crinoid stems below (Site 62)

A nearby bluff, also Lake Bridgeport Shale, produced more crinoid stems and I especially enjoyed picking up the partially disassociated sections that looked like slid stacks of coins. A quick crawl here also produced some nice gastropods, sponges, a cool crinoid cup plus another cup with plates disassociated. Perhaps in my spare time I'll be able to piece the latter back together.



FIGS 44-45: Lake Bridgeport Shale sponges crinoid cup *Alagecrinus bassleri* above followed by *Archaeocidaris* sp. echinoid spines and test plates below (Site 61)



FIGS 46-47: Lake Bridgeport Shale sponges bivalve *Acanthopecten carbonaria* this page, unidentified bivalve and brachiopods next page (Site 61)





FIGS 48-49: Lake Bridgeport Shale orthocone nautiloids this page, disarticulated crinoid cup plates next page (Site 61)





FIGS 50-51: Lake Bridgeport Shale crinoid stems (Site 61)



FIGS 52-53: Lake Bridgeport Shale gastropods *Strobeus*, *Euphemites*, *Meekospira*, *Goniasma* above, sponges *Heliospongia ramosa* below (Site 61)

Pressing on a few miles, I entered a new facies of the Lake Bridgeport Shale for a different fauna and mode of preservation. The first site was a vacant lot composed of gray, broken down shale studded with red ironstone concretions. Many cool fossils were found eroding out of these concretions.

This site was so productive that I spent a couple hours there. My efforts turned up 3 or 4 very nice goniatites including *Gonioloboceras*, *Schistoceras*, *Preshumardites*, and *Glaphyrites* plus several very nice *Liroceras* coiled nautiloids, 4 or 5 trilobites (*Ditomopyge* if I were to hazard a guess), *Lophyphyllidium* horn corals, *Treospira*, *Glabrocingulum*, and *Worthenia* gastropods, and a very cool compound coral the likes of which I've never seen before.



FIGS 54-55: Lake Bridgeport Shale Site 112 this and next page





FIGS 56-61: Lake Bridgeport Shale trilobites *Ditomopyge* this and next 3 pages (Site 112)











FIGS 62-64: Lake Bridgeport Shale goniatite *Glaphyrites* this and next 2 pages (Site 112)







FIGS 65-66: Lake Bridgeport Shale goniolites *Schistoceras missouriensis* this and next page, unidentified small goniolite next page (Site 112)





FIGS 67-68: Lake Bridgeport Shale goniolite *Gonioloboceras goniolobum* this and next page (Site 112)





FIGS 69-72: Lake Bridgeport Shale goniatite *Preshumardites* this and next page (note juvenile *Trepostira* gastropod nested in cingulum on reverse side) followed by two coiled nautiloids *Liroceras* next page (Site 112)







FIGS 73-74: Lake Bridgeport Shale coiled nautiloids possibly including *Liroceras*, *Peripetoceras*, and/or *Solenocheilus* (Site 112)



FIGS 75-76: Lake Bridgeport Shale orthocone nautiloids *Michelinoceras* and gastropod *Meekospira* above, unidentified compound coral below (Site 112)



FIGS 77-78: Lake Bridgeport Shale rugose corals *Lophyphyllidium proliferum* above and gastropods *Glabrocingulum grayvillense* below (Site 112)



FIGS 79-80: Lake Bridgeport Shale gastropods *Glabrocingulum grayvillense* and *Worthenia tabulata* lower left (Site 112)



FIGS 81-82: Lake Bridgeport Shale gastropod *Meekospira* and coiled nautiloid fragment *Cooperoceras* above, gastropods *Meekospira* below (Site 112)



FIGS 83-86: Lake Bridgeport Shale gastropods *Trepospira discoidalis* this and next 3 pages (Site 112)









FIGS 87-88: Lake Bridgeport Shale unidentified left, *Yoldia* top and bottom right, *Nuculopsis anodontoides* center right, *Phestia attenuata* next page (Site 112)



Moving 100 yards to another site in the shale I crawled around on spent knees in fading light grabbing a few pyritized micromorphic goniatites. Calling it a day, I noticed vehicles gathering around the lake so I too pulled over and enjoyed a 45 minute fireworks show, then headed for my first destination of the next day...

July 4, 2010: Traversing the Texas Geologic Time Scale

I spent the night in my truck at Jacksboro, then at 4 a.m. got up with my flashlight and began my hunt. Recent rains had undoubtedly washed out thousands of new finds from the Finis Shale and overlying Jacksboro Limestone (303 MYA), but standing water on the flat below had turned the place into a mosquito haven.

At one point, still hunting in the dark, I opted to lie down and crawl inside my shirt to escape the skeeters for a

while. I peeked out with my flashlight and found a shark tooth lying next to me – interesting circumstances for one of my better discoveries at the site that day. Afterward I decided to retrace a zone of pyritized micromorphic goniatites that I had found a few years back – this was not as hard as it seems in the dark as the specimens, small as they are, shine back in the flashlight beam.

After about 20 micro goniatites it was light enough out to collect without my flashlight. I retreated to the bottom of the black Finis shale and took a number of nice gastropods plus many *Michelinoceras* orthocone nautiloids. I'm sure that I could have had a banner day at this site but my worn out knees begged for a non-crawling venue, so I pulled the plug around 8 a.m., but not before laying hands on a 2/3 complete *Gonioloboceras* goniatite.



FIGS 89-92: Unidentified partial shark tooth (?) from the Finis Shale this and next 3 pages (Site 64)









FIGS 93-94: From the Finis Shale pyritized micromorphic goniatites *Eoasianites*, *Idiohamites*, and *Parashistoceras* above, below a 2/3 complete goniatite *G. goniolobum* and various cephalopod fragments (Site 64)



FIGS 95-96: From the Finis Shale orthocone cephalopods *Mooreoceras* above and *Michelinoceras* below (Site 64)



FIGS 97-98: Finis Shale gastropods *Worthenia tabulata*, *Straparollus*, *Strobeus*, *Treospira discoidalis*, *Meekoceras* and *Glabrocingulum grayvillense* above, brachiopods *Juresania nebrascensis* and bivalves *Pfestia attenuata* and *Pteronites percuata* below (Site 64)



FIGS 99-100: Finis Shale bivalve *Pteronites percuata* above, rugose corals *Lophyphyllidium proliferum* and *L. spinosum* below (Site 64)

Moving east toward Fort Worth, I reentered the outcrop area of the Duck Creek Formation and took a little time to survey an eroding bluff. I took 3 *Mortoniceras* ammonites plus a handful of *Macraster* and *Holaster* echinoids, most of which will end up in my kiddie give away box.



FIG 101: Duck Creek Formation ammonites *Mortoniceras* sp. and echinoids *Holaster simplex* (Site 138)

A nearby site, also Duck Creek, with a little crawling produced 20-30 pyritized micromorphic ammonites of at least 3 species, making it well worth the stop.



FIGS 102-103: Duck Creek Formation pyritized micromorphic ammonites *Scaphites* sp. this page and unidentified next page (Site 134)



At this point I was wiped out from lots of crawling and several long hikes. It was decision time...keep collecting or head home? I reasoned that my only motivation to push on would come from finding something out of the norm as opposed to piling up more of the same old stuff. I got in touch with my good friend Brent Dunn and he graciously shuffled his schedule to accommodate my unanticipated arrival. He and Chris Vencevich guided me into the Upper Britton Formation (90 MYA) around Dallas.

The Upper Britton presents much like the Lake Bridgeport Shale with its ironstone concretions on a backdrop of broken down, dark gray shale. But the similarities end with an examination of fauna. Soon we were finding cool ammonites with remaining aragonitic shell preservation. Between us over 2-3 hours we found several species including *Metoicoceras*, *Spathites*, *Desmoceras*, *Sciponoceras*, Brent's *Placentoceras* and my first and second *Yezoites*.



FIGS 104-105: My good friend Brent Dunn at Upper Britton Formation Site 95 this and next page





FIGS 106-107: Upper Britton Formation crabs *Notopocorystes dichrous* – note positive and negative of crab nodule below (Site 95)



FIGS 108-110: Upper Britton Formation ammonites *Yezoites delicatulus* this page, next two pages *Y. delicatulus* in matrix with straight ammonites *Sciponoceras gracilis* (Site 95)







FIGS 111-112: Upper Britton Formation ammonites *Allocrioceras annulatum* (Site 95)



FIGS 113-116: Upper Britton Formation ammonites *Metoicoceras whitei* above and *Sciponoceras gracilis* below and next page followed by *Inoceramus* clam and crustacean burrows bottom of next page (Site 95)



Sloppy as the footing was, we pressed on, and not without significant rewards crustacean in form. Brent led the pack with 13 *Notopocorystes dichrous* and 2 *Cenomanocarcinus vanstraeleni* crabs while Chris got 7 or 8 Notos

and I got 6. Having previously only found 3 or 4 Notos over the years I was quite pleased with my take especially since some had good legs and claws preserved.

After the final hike back to the vehicle my body began to shut down. In fact I fell asleep at Jack in the Box and the guys woke me up by pouring ice down my shirt. I grabbed a shower, took Brent out to eat, watched the movie Avatar, then finally sunk into his couch around midnight for 8 hours of solid slumber. This came in stark contrast to the 2 hours of sleep I got Friday night and 4 I got Saturday night.

With no women or children to spend my time with next weekend either, I'm sure some sort of wild outdoor adventure is in store...



FIGS 117-118: Brent Dunn's Niobrara Chalk mosasaur skull this and next page



July 10, 2010: Canvassing the Texas Cretaceous

An early start to the day put me on a small outcrop of the South Bosque Formation (Eagle Ford Group, approximately 90 MYA) that I had not perused in a year or two, allowing it to weather properly between visits for maximum productivity. This particular site is an outlier in an area mapped as Buda Formation where a small intermittent creek has over the eons incised a small waterfall exposing the thinly laminated shales and interceding thin lenses of glauconitic shell hash of the South Bosque which hide varying concentrations of small but well preserved shark teeth.

I found this little site perhaps 5 years ago and it has produced hundreds of teeth since. It is such a small site however that two guys swinging geo picks could quite possibly inadvertently impale each other's skulls on the backswing, so I tend to work the locality alone.

This hunt provides a venue that is quite appealing to me at times...spotting shell hash dotted with *Squalicorax falcatus* and *Carcharias* sp. teeth on the underside of an overhang, I simply lay on my back in the shade and chipped out these little treasures. Kneepads however were *de rigeur* and came into play as I traced the inch thick glauconite lens around the waterfall, prying up the thinner areas of overburden and then carefully removing and inspecting the crumbly shell hash for teeth. Many small teeth of aforementioned genera dotted the matrix; others were found loose in my rubble.



FIGS 119-120: South Bosque Formation Site 165 this page and rare sawfish rostral tooth *Onchopristis dunklei* found there next page





FIGS 121-122: South Bosque Formation crusher type shark teeth *Ptychodus anonymus* this and next page (Site 165)





FIG 123: South Bosque Formation shark tooth *Carcharias* sp. (Site 165)



FIG 124: South Bosque Formation shark teeth *Squalicorax falcatus* and *Odontaspis* sp. in matrix (Site 165)



FIG 125: South Bosque Formation shark teeth *S. falcatus*, *Odontaspis* sp. *Carcharias* sp., and fish teeth *Enchodus* sp. in matrix (Site 165)



FIGS 126-127: South Bosque Formation shark tooth *S. falcatus* this page, unidentified tooth and bone fragment next page (Site 165)



At one point I even spotted a small and well preserved crusher type tooth *Ptychodus anonymus*. From experience I've learned that if I see a few teeth in a particular piece of matrix, it is best to just process the entire slab at home as there are generally more hidden teeth to be revealed by soaking, scrubbing, and breaking down the matrix. So an hour or so of this drill resulted in a 5 gallon bucket full of matrix and a baggy full of loose teeth and others in small pieces of matrix. Depending on how many I unwittingly break during prep, I could end up with 25 to 75 perfect teeth for my efforts.

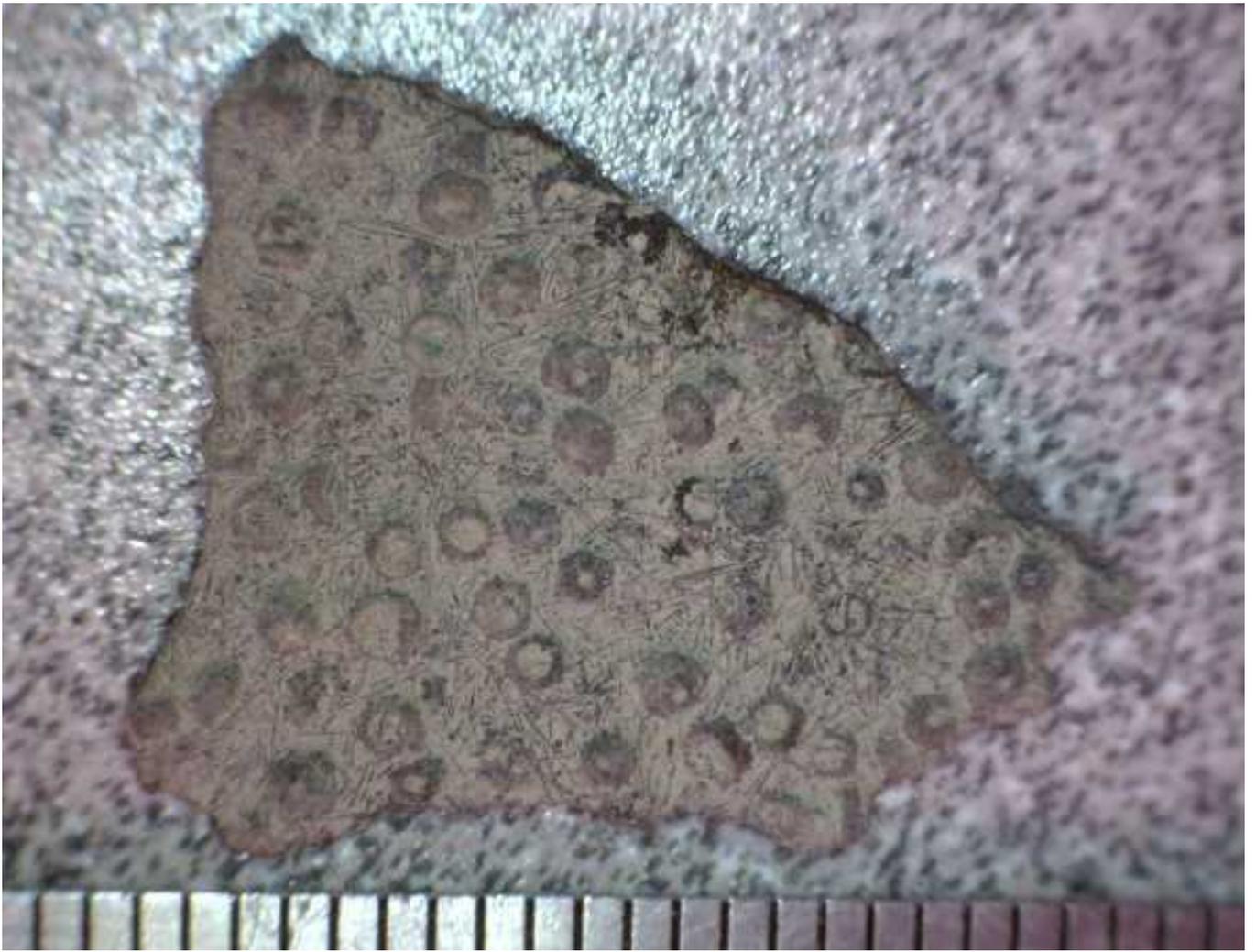
The Del Rio Formation (98 MYA) was next to call my name and it is intermittently exposed from the Trans Pecos region up through North Central Texas. In some localities the fossils are quite small, so again gloves and knee pads were required to put me close to the ground.

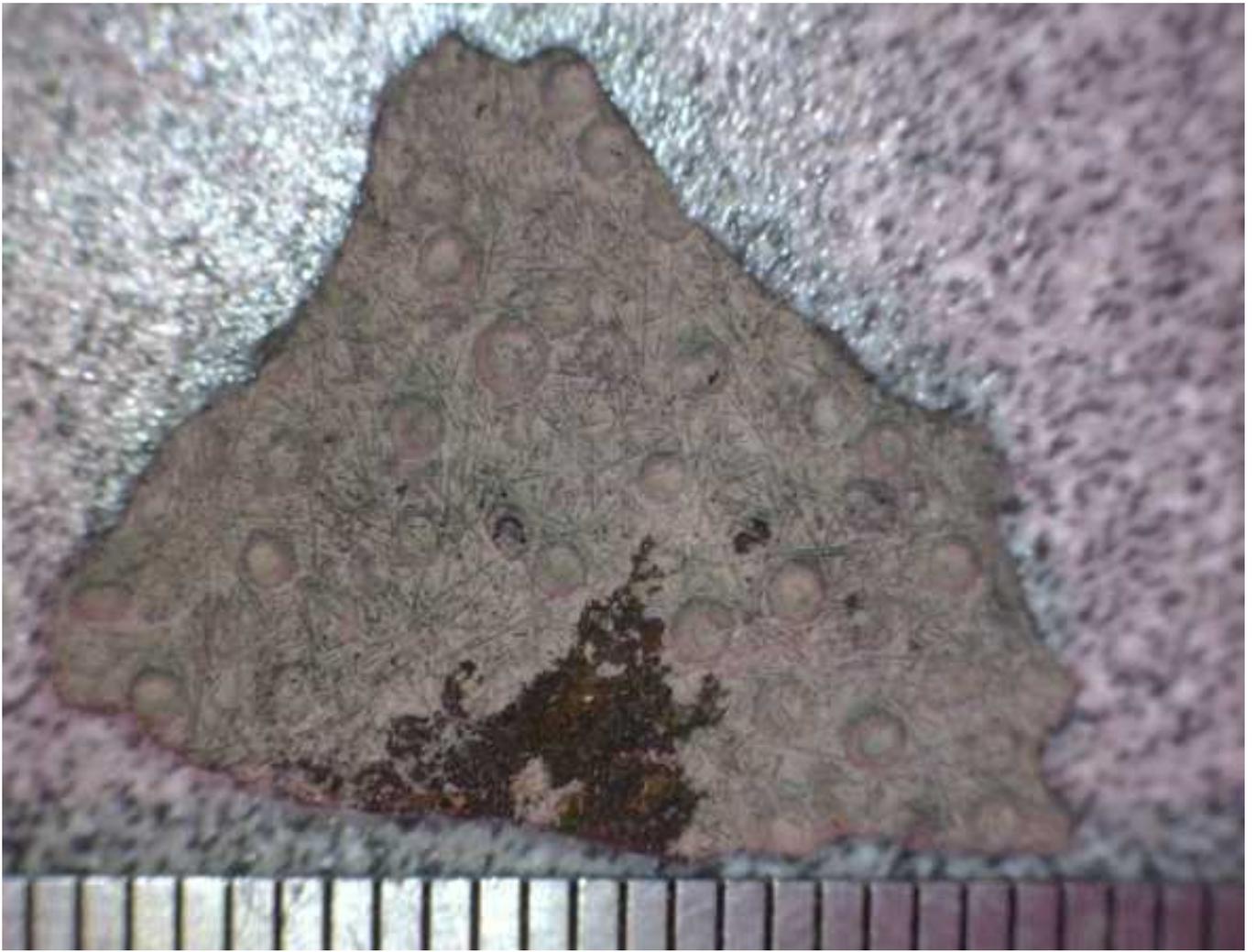
My first find made it all worthwhile. A foot in front of my face was a half palm sized piece of matrix that covered with little bumps...but those weren't just any bumps....I had just found a death slab of tiny juvenile *Goniophorus scotti* echinoids, each in the 1 to 1.5 mm range, and not only were they densely packed and stacked on top of each other on both sides of the matrix, but some were pyritized and all were lying on a bed of hair like spines.



FIGS 128-144: Rare death slabs of juvenile Del Rio Formation echinoids *Goniophorus scotti* on beds of hairlike disarticulated spines this and next 16 pages (Site 39)







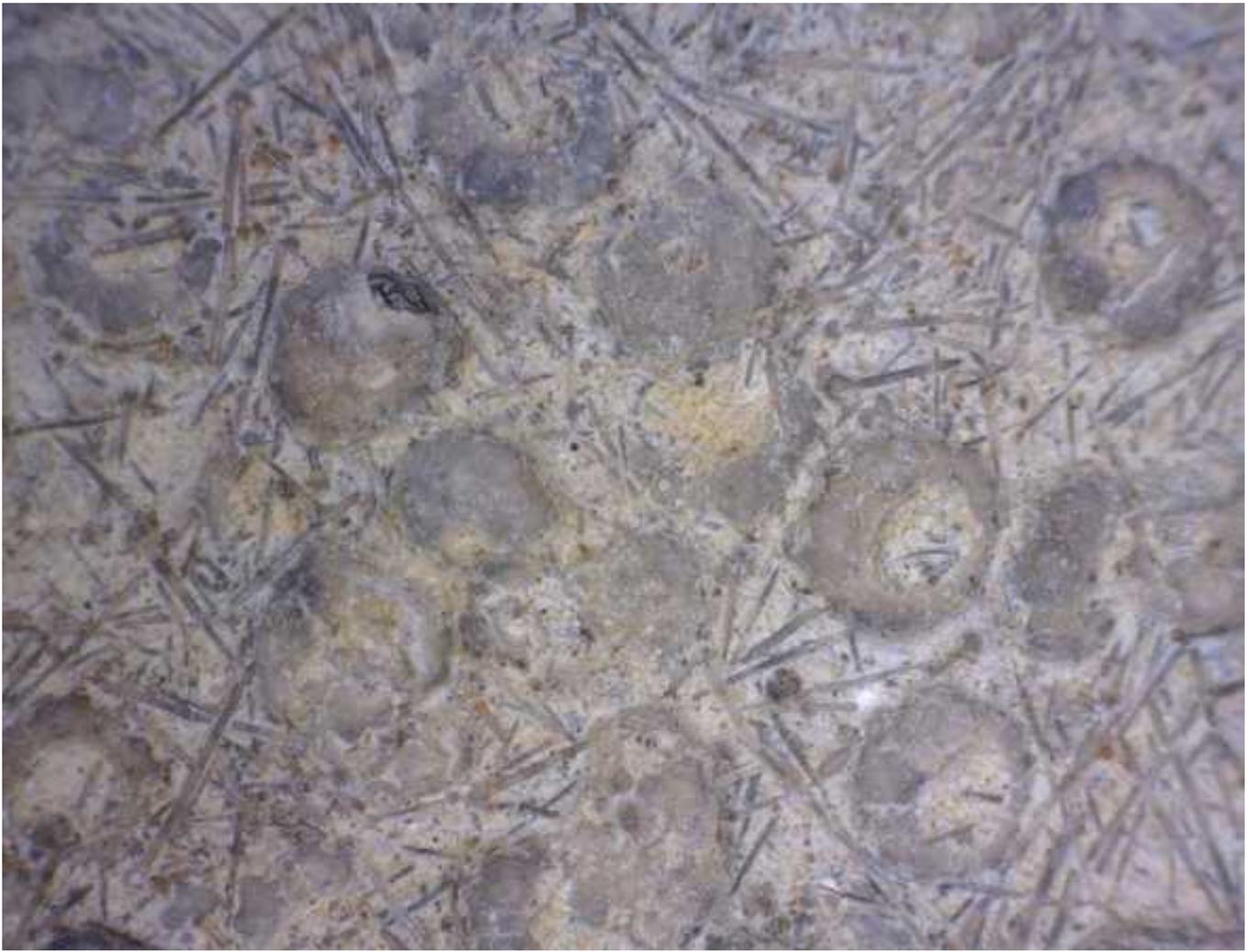




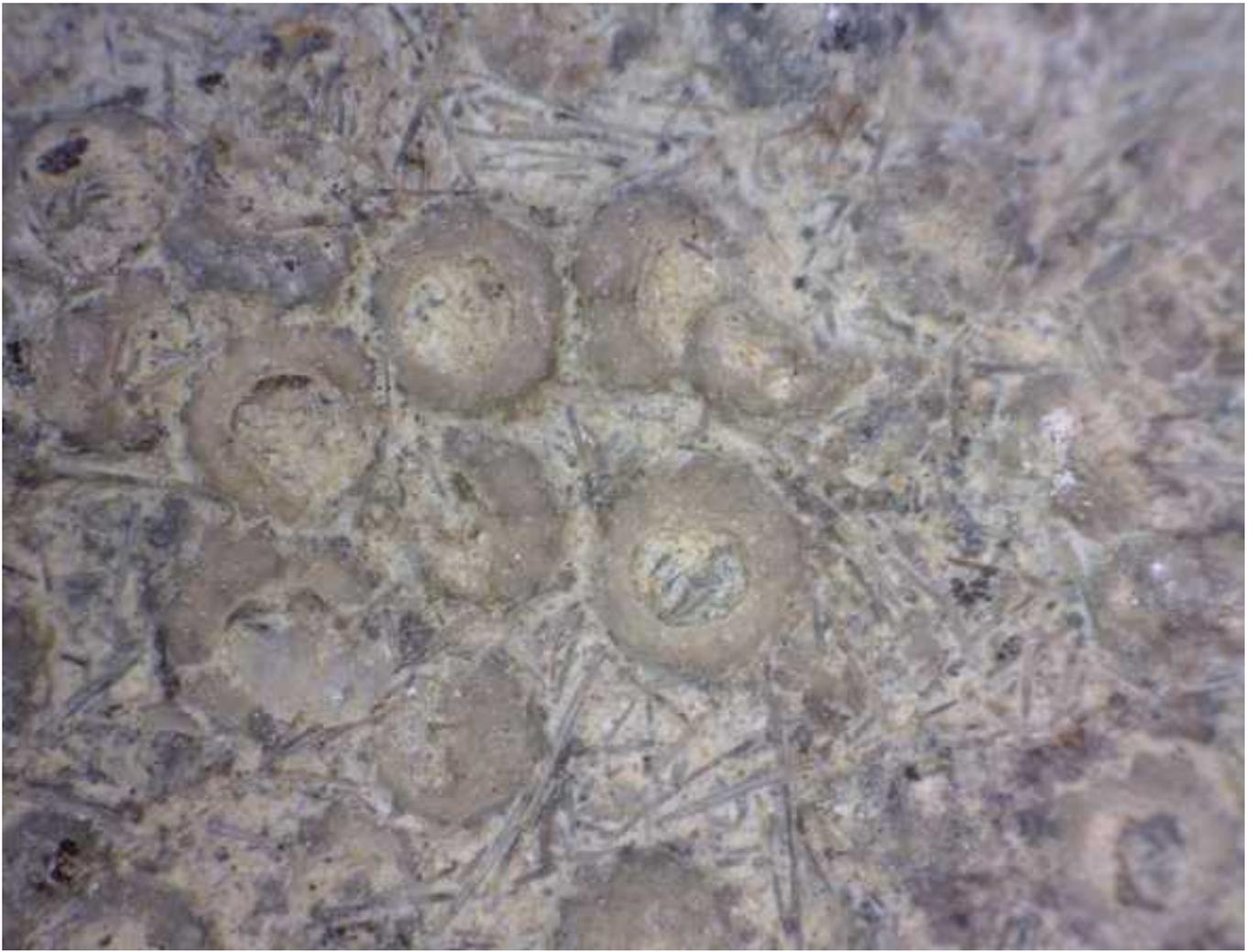








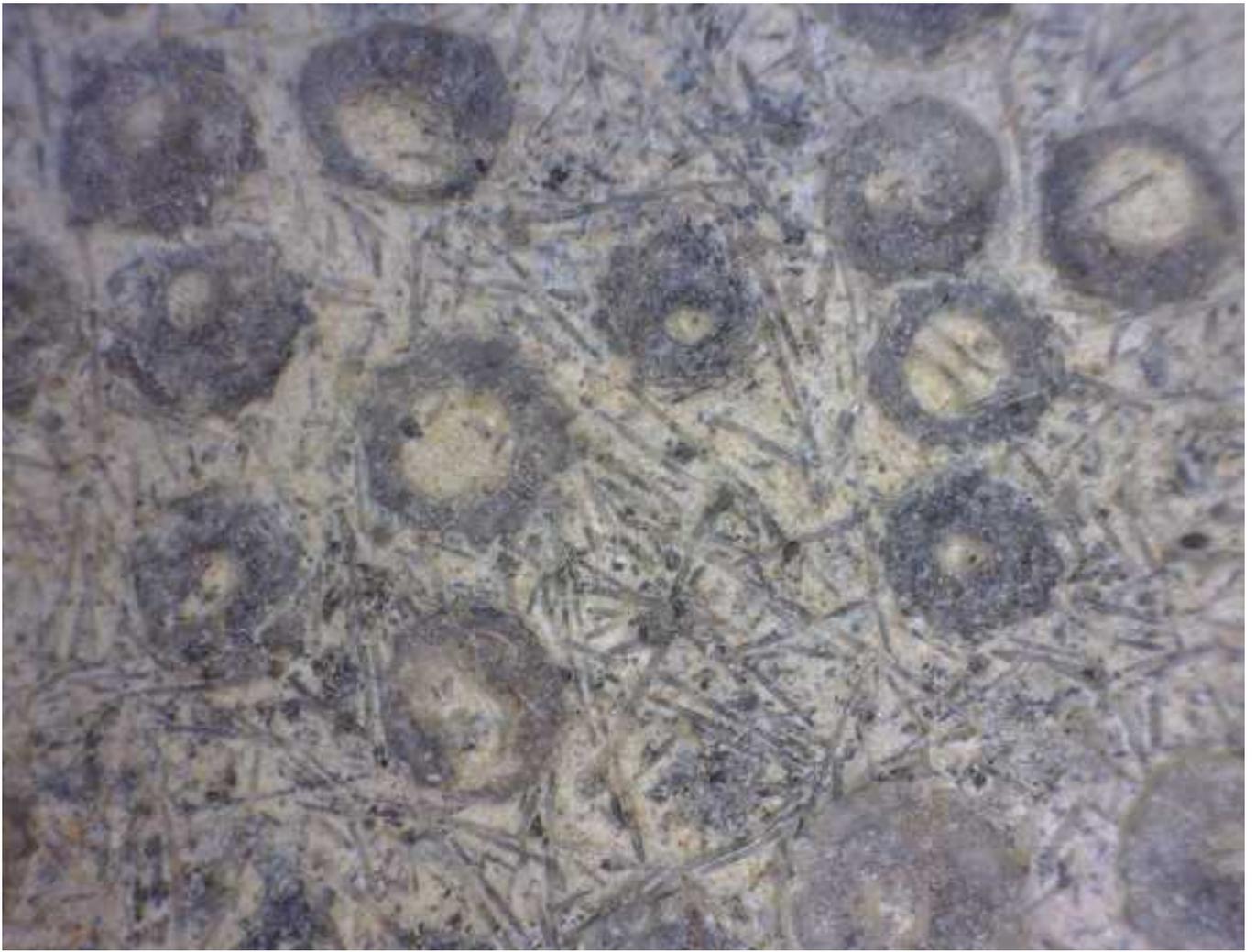


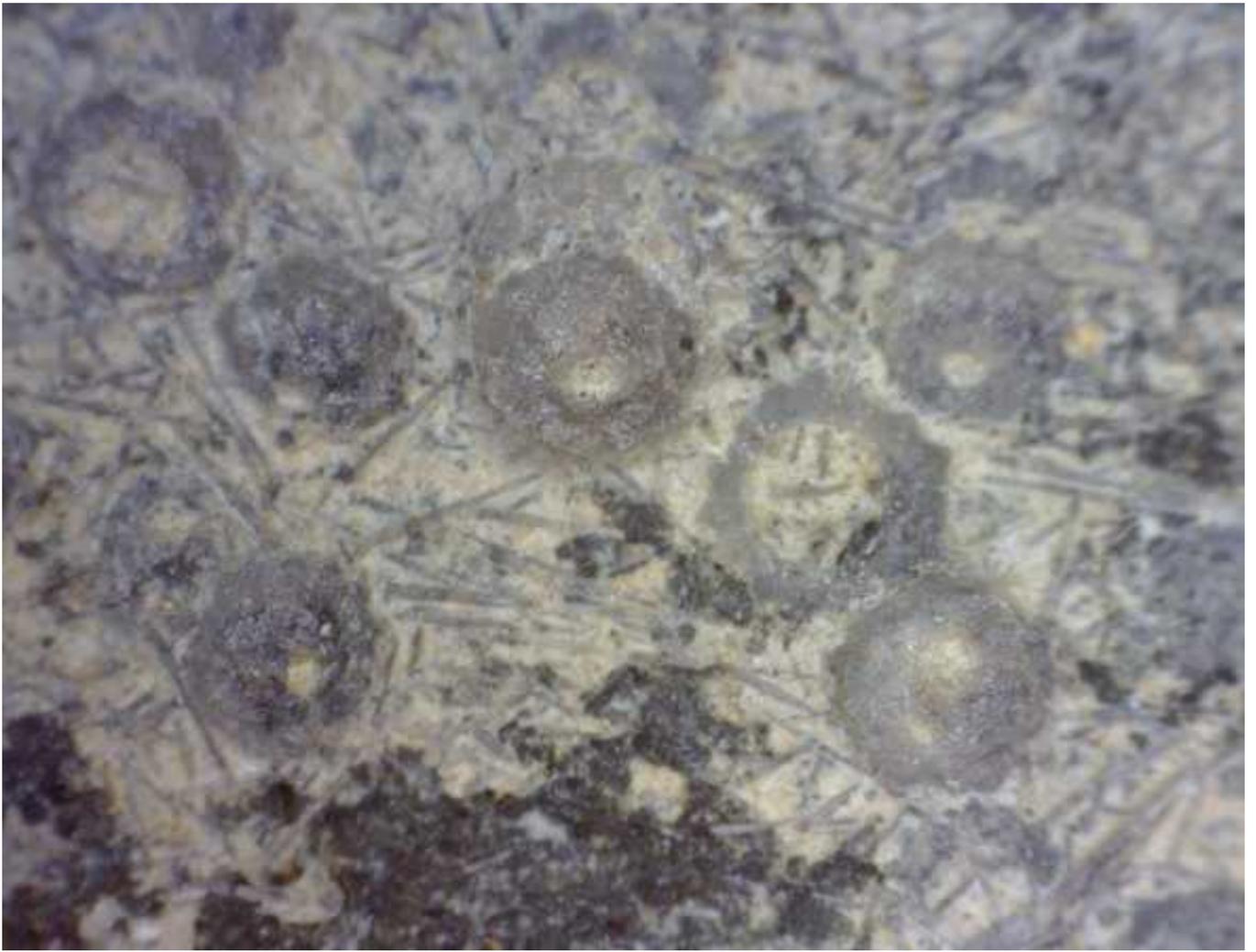


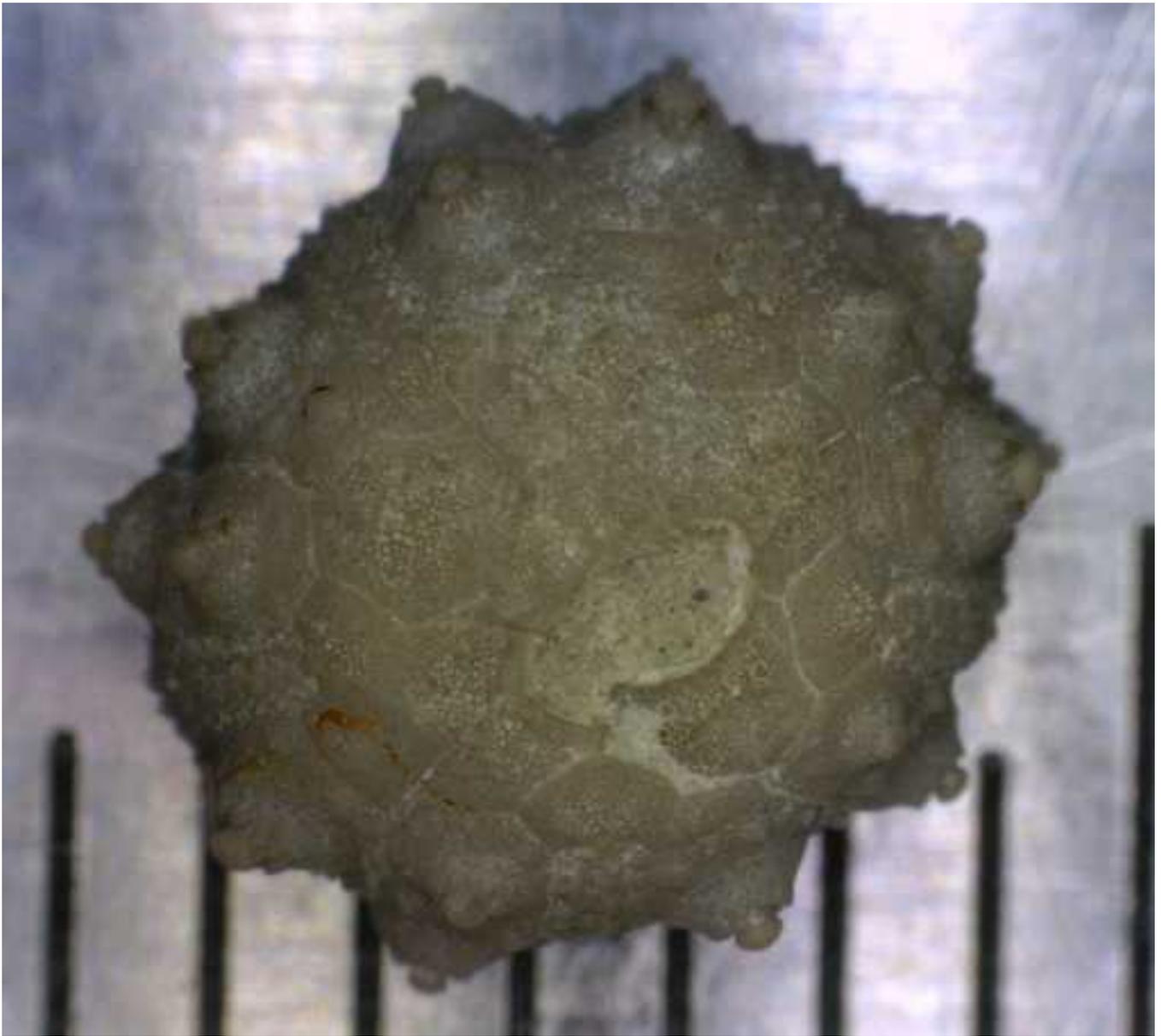












FIGS 145-146: Adult Del Rio Formation echinoid *Goniophorus scotti* (Site 39)





FIG 147: Pyritized Del Rio Formation ammonites *Otoscaphtes*, *Mantelliceras*, *Adkinsia*, *Sciponoceras*, *Plesioturritites*, coral *Parasimilia* and unidentified shark vertebrae (Site 39)

This specimen contains hundreds of individuals at a minimum, possibly a thousand or more including those obviously hidden from view by the thickness of the matrix. This is clearly the highest body count association of echinoids I've ever encountered, and within a foot or two I found two more quarter sized flakes of this same death bed – Wow!

Buoyed by this early success I leisurely worked more of the exposure, in the end tallying 3 nice fish and shark vertebrae, a 6 or 7 mm diameter adult *G. scotti* echinoid, and several pyritized ammonites including *Adkinsia*, *Otoscaphtes*, *Plesioturritites*, and *Mantelliceras*.

Stepping back in time several million years more, I finished my Cretaceous fix at another marine exposure, this time in the Walnut Formation (105 MYA). Although I work many Cretaceous marine sites in Texas, nuances in fauna and preservation characteristics have kept things fun up to this point. The thrill of discovery never gets old, but I'll probably need to put more effort into discovering something different going forward.



FIGS 148-149: Walnut Formation echinoids *Phymosoma texanum* above, *Heteraster texanus* below (Site 404)



FIGS 150-153: Walnut Formation unidentified gastropods (Site 404)







I arrived at the site at dusk and I wasn't tired enough to sleep yet, so I whipped out my handy flashlight and got to work. Pyrite dusted *Heteraster texanus* echinoids soon flashed like disco balls in the beam of my high intensity LED flashlight, and a handful of nice gastropods hit the bottom of my catch bag as well, some studded with pyrite, others in matrix with traces of the aperture fingers handsomely preserved in stone. I was quite pleased with 4 little gem grade *Phymosoma texanum* echinoids which I caught in the flashlight beam, thus sealing a productive day afield.

The sweltering Texas night spent in the back seat of my truck in a rest area, however....not quite as rewarding.

July 11, 2010: Danny's Pleistocene Playground

I thrive on variety of experiences in the field and saw it fit to spend a day plying the Pleistocene for a change, and just happened to handily have my canoe and related accoutrements and appurtenances stashed wherever they would fit in the truck. By daylight I had huffed and puffed and grunted to get all my gear down to water's edge at the stream of interest.

This was somewhat of a test run as recent stalling of my outboard motor on the water in remote areas had forced me to look hard maintenance-wise at my previously reliable little power plant. Total carburetor teardown and cleaning followed by a new spark plug had restored vitality and top end performance to my motor, thankfully foregoing a piston ring job. It was touch and go in places due to depth, but I was able to throw a satisfying rooster tail and v-wake, putting my arduous put-in in the rear view mirror.....

The first stop produced a few quality finds but nothing spectacular. I took a large and extremely well preserved horse metapodial, so well preserved in fact that I wasn't convinced of its age until I heard the signature glassy ring of mineralization when I tapped it gingerly on a nearby stone cobble. A slow but steady stream of odds and ends made it into my catch bag; a few proximal horse metapodial halves, a large distal radius, perhaps bison, a distal scapula, a few glassy rib sections, etc.



FIGS 154-155: Pleistocene horse metapodial, partial radius above, rib fragments below (Site 140)



FIGS 156-157: Pleistocene deer antler tine above, large rib head, eroded scapula, large foot bone, and turtle plastron fragment above, partial radii and pelvis below (Site 140)

The second stop was a bust but this is par for the course in the Pleistocene as not all exposures are created equal.

The third stop put me back in paydirt. The bulk of my finds later made it onto my kiddie giveaway pile, but the short list of keepers included perhaps a horse vertebra or two, a shard of Indian pottery, perhaps the best *Glyptotherium*

osteoderm (section of giant armadillo body armor) I've found to date, the biggest section of *Hesperotestudo* land tortoise plastron (belly plate) I've ever found, part of a box turtle plastron, and a distal half of a camel (?) left mandible with 3 or 4 empty tooth sockets. I've tentatively labeled the latter as camel because it is more gracile than bison and larger than deer.



FIGS 158-159: Unidentified Pleistocene jaw – camel? bison? (Site 132)



FIGS 160-163: Pleistocene deer metapodial, bison foot bone, and Indian pottery shard above, exceptionally preserved *Glyptotherium* osteoderm below and next page (Site 132)





FIGS 164-167: Pleistocene vertebrae (l-r) unidentified, sloth caudal, unidentified cervical above followed by large *Hesperotestudo crassiscutata* land tortoise plastron fragment this and next page and finally miscellaneous fragments of *Terrapene carolina* and perhaps other turtles (Site 132)



Plying along the stream and hopping out on another bar, the gray deer mandible section with 4 pink teeth really made for a cool day. With an eye catching, curved deer antler tine I was on my way. The fourth stop although small with limited gravel exposed actually produced some interesting finds. I picked up an old bottle for my son, a horse astragalus (ankle bone), and with a big femur ball I made my way back to the boat.

The humerus ball is rather interesting. It is about 4 inches in diameter, making it larger than bison and smaller than mammoth, so I'm tentatively calling it ground sloth and enjoying the aesthetics of its well preserved spherical geometry. God's perfect design is truly a splendid thing.



FIGS 168-169: Eroded Pleistocene vertebra, horse astragalus (ankle bone) and sloth (?) femur ball above (Site 137) followed by *Apalone ferox* soft shelled turtle shell fragment, Indian pottery fragment, horse medial phalanx (toe bone) and *Odocoileus virginianus* deer mandible (Site 179)

My fifth site was a bust so fueled by Gatorade G2 I sweated, grunted, and heaved my equipment back up the stream terrace to the welcome site of my truck. But relaxation was a distant thought. I was soon making my second and final put-in, pulling the rip cord, and listening to the familiar whine of my engine singing its happy song behind me.

Miles of scenery and a few wide open throttle bumps to my lower unit later, I idled down and drifted in to the edge of a gravel bar. Proceeding at a leisurely pace and enjoying the solitude, I soon lay hands on another nice bottle for my son's collection. He was away on an extended road trip with his mama and just as I got him on the cell phone, I looked down and took possession of a large vertebral centrum of a size and shape that to me screamed "ground sloth".



FIGS 170-171: Sloth vertebral centrum this and next page (Site 373)





FIGS 172-173: Pleistocene *Alligator mississippiensis* mandible fragment above, pelvis fragment, unidentified proximal metapodial, and Indian pottery fragment below (Site 373)



FIGS 174-176: Pleistocene *Paleolama mirifica* phalanx (toe bone) above, horse upper molar as found below, both after cleaning next page along with gator jaw fragment (Site 373)





FIGS 177-178: Miscellaneous Pleistocene vertebrae possibly from deer, sloth, and horse (Site 373)



Subsequent finds were nice but there were no spectacular specimens taken. A large, well preserved horse upper molar was a welcome addition to my collection as was a glassy, chocolate brown llama phalanx (toe bone). Another nondescript shard of Indian pottery was not to be left behind either. The section of mineralized gator jaw didn't hurt my feelings either. A few more vertebrae later I was back in the boat, slicing my way to my final site.

I was greeted by lots of sand and very little gravel. Not much to report from this site other than a slightly worn but keeper lower horse molar.



FIG 179: Pleistocene distal deer humerus and horse lower molar (Site 210)

Getting my gear back to the truck was once again part of the drill – funny how the hardest part comes at the end when I'm most tired. Lubricated by Gatorade I accomplished my task, and in the process sweated harder than I ever remember. Saline beads from my brow stung my eyes, but satisfaction with the day's finds made it more than an even trade – sweat equity in its purest form.

In the end my 20 year old t-shirt was so sweaty that it stuck to every square inch of contact with my skin, and clung so tightly to me in fact that I literally had to tear it off my body in pieces and throw it in the dumpster...

July 17, 2010: Pleistocene Playground Parte Dos

It isn't every weekend I have completely to myself, so I figured I'd wring a little adventure out of this opportunity once again – time to explore both hither AND yon.... With my trusty canoe lashed to the bed of my truck I set out for a secluded Texas stream, shoved off into the current, pulled the rip cord on my little outboard, and putted along gingerly through navigational hazards until arriving at my chosen start point.

Once again I was in my element, intermingling my footprints with those of cows, deer, and wild hogs. My first find of the day turned out to be my most spectacular...my best preserved double horn core of the extinct antelope *Tetrameryx schuleri*, a distinct 4 horned beast with passing similarities to the modern pronghorn. The back core of this specimen had surprising length to it...nearly a foot in fact. Attached to the base of the specimen is the top half of an eye socket and on the reverse side part of the brain cavity. Most often stream tumbling erodes the tips of the



FIGS 180-184: Pleistocene antelope horn core *Tetrameryx schuleri* this and next 3 pages (Site 379)







horn cores down substantially; not so in this case.

When I got home I realized that I now have a left and right side horn core, so with a hunk of clay in between them I've fashioned a composite skull cap of this critter which now has a very complementary 3D presentation – way cool! Other finds came to hand at this first site as well...a coupon of mammoth ivory...a damaged but still keeper *Glyptotherium* osteoderm...miscellaneous partial limb bones and such.



FIG 185: Pleistocene goodies including from top left unidentified cervical vertebra, turtle shell fragment, *Glyptotherium* osteoderm, femur ball, lower left mammoth tusk fragment, back of deer sized skull (Site 379)

The second gravel bar produced just one good find, but it is quite spectacular in its own right....a very large and well preserved camelid phalanx (toe bone). It could have come from the long legged llama *Hemiauchenia megacephalus*, or perhaps due to size and robustness, the King Kong of Texas camels, *Camelops*.



FIGS 186-190: Large and impressive Pleistocene camel phalanx (toe bone) either from *Camelops* or the long legged llama *Hemiauchenia* this and next 4 pages (Site 380)









The third bar gave up a few goodies including some horse vertebrae and a section of deer antler. Pressing on to other bars I took possession of another forked but worn section of deer antler plus a *Paleolama* astragulus (ankle bone). Another *Glyptotherium* osteoderm found while on the phone with my girlfriend was a welcome addition to my collection.



FIGS 191-195: Pleistocene deer antler *O. virginianus* and distal horse femur *Equus* sp. this and next 3 pages (Site 426)









FIGS 196-198: Pleistocene deer antler section, horse vertebra and camelid (?) astragalus this and next page (Site 426)





FIGS 199-200: Unidentified Pleistocene rib, turtle carapace fragment, and *Glyptotherium* osteoderm this and next page (Site 382)



The day didn't result in my biggest haul or any coveted mammoth teeth or spear points, but the combination of quality, variety, and solitude made for a quality day afield.

July 18, 2010: Switching Gears: Take up thy Fishing Rod and Cast

My slumber in the back seat of my truck at the base of the Port Aransas jetties was interrupted at 4:30 a.m. by hard rain coming through my windows. I quickly rolled up my windows and got my big heavy 2WD truck off the beach before there was any chance of getting myself stuck. I pulled into the parking lot of a local bait shop and after a couple more hours of sleep picked up a quart of live shrimp and got the next adventure underway.

I launched my canoe in a channel leading into Corpus Christi Bay with a slight delay. Since the cloudburst earlier in the middle of the night had prompted me to throw gear around the truck haphazardly, my engine ended up upside down and had flooded. Having trouble starting it, I eventually pulled out the spark plug, shot starting fluid directly onto the piston, closed things up, and got it to fire up.

Anchoring in front of an old work dock I found the anonymous bait thieves to be a bit annoying right up against the bulkhead. On a whim I tossed my second line out into the channel...and was rewarded with a throwback trout.

Repeating this pattern, I continued to throw my biggest and liveliest shrimp out into the channel with pretty quick hits resulting. A hard and constant tug on my ultralight spinning outfit turned into a fun fight culminating with a 15.5 inch speckled trout securely in my landing net. I landed a few more undersized trout, a couple small redfish and one throwback black drum. Several ladyfish couldn't resist my live shrimp and hooked themselves, giving me lively fights and aerial displays before I dehooked and released them boatside.

Just as things were getting fun a couple boats motored through really close to my boat, their drivers asking me questions. I was sure this would be a complete buzz kill to my fishing, but 20 minutes later I landed a 16.5 inch trout out in the channel after things had calmed down. The incoming tide for whatever reason did not bring more keeper fish with it; I instead tangled with perch, croakers and whiting.



FIGS 201-202: A pair of legal speckled trout *Cynoscion nebulosus* from Corpus Christi Bay near Port Aransas this and next page



Once off the water I treated myself to a broiled seafood platter at The Big Fisherman and made my way back to San Antonio. As fun as the last 3 solo weekends have been, I look forward to seeing what sort of adventures young Weston and I can share next weekend.....

July 24, 2010: South Texas Brush Country Hog Hunt

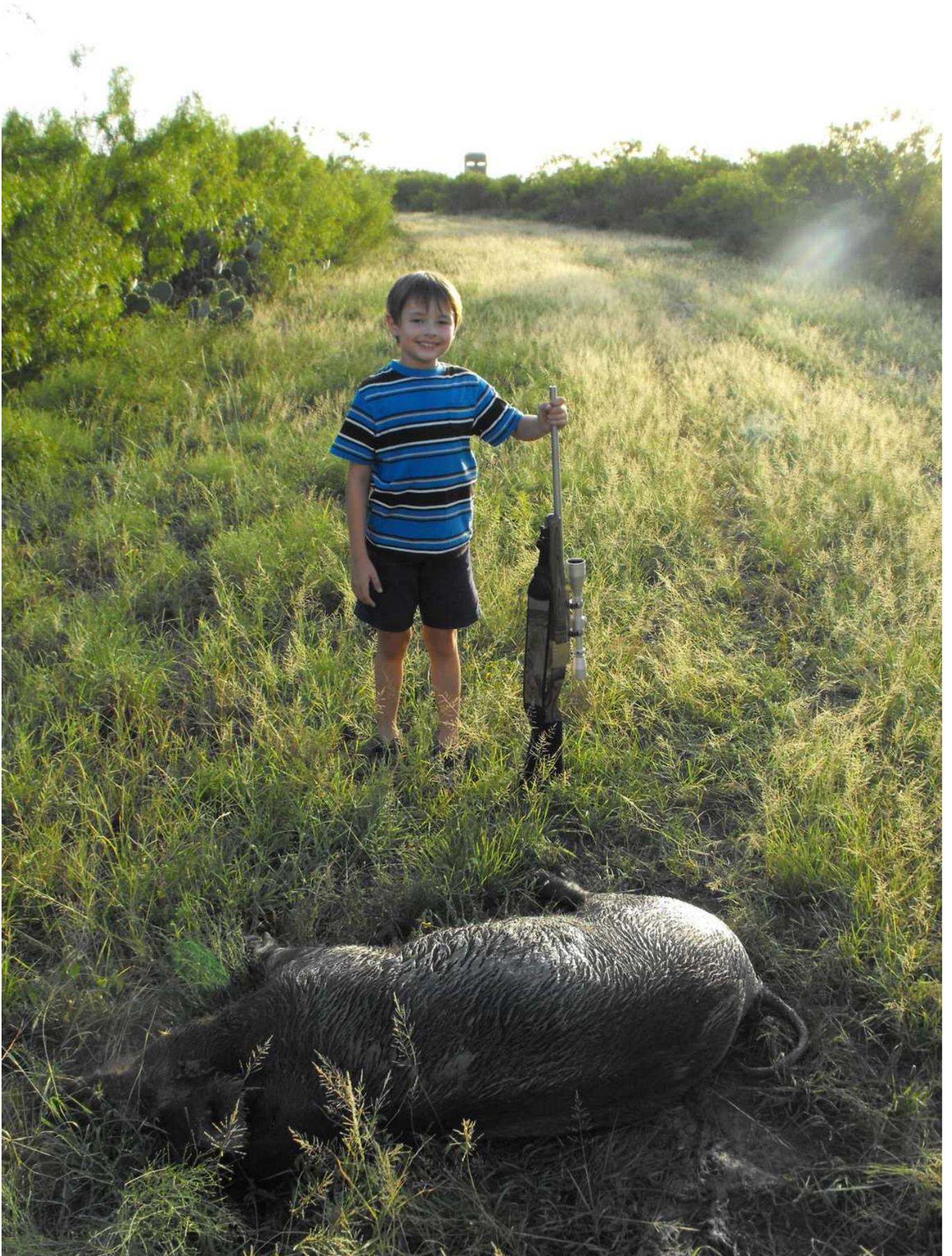
The short report is that Weston and I lucked into a hog hunt with his second cousin Eddie Ellis who graciously drove us, fed us, and even paid for the bait corn. I owe him big time for the opportunity for this father and son to share quality time afield, especially since we saw some hogs emerge from the verboten bowles of the South Texas prickly pear and mesquite thicket, giving us something to marvel at through our binoculars.

We couldn't believe that a curious roadrunner actually landed on our blind window to check us out and our eyes and cameras were riveted on it until I glanced out another window, spotting a big boar moving across the sendero 135 yards away. I had intended to let Weston shoot, but things were happening fast, so I quickly found the back of the 220 LB beast's head in the crosshairs and pole axed him sideways.

High fives were in order.....when the .25-06 speaks in the hog woods, piggies listen. Rounding out the adventure with encounters with jackrabbits, black widows, horny toads, 4 wheeler rides and .22 pistol plinking, young Weston was a little bobble head in the back seat on the way home, snoozing most of the way...



FIGS 203-206: 220 LB wild boar *Sus scrofa* lying in the brush after a well placed shot from the author's Ruger No.1 .25-06 this page, father and son taking turns behind the camera following 3 pages







July 29, 2010: Sundown Special in the Glen Rose

I had a little time on my hands after work, so considering the heavy rains that fell the week before, I thought it might be worth crawling an exposure of Glen Rose Formation (108 MYA) marl in hot pursuit of micro echinoids, and I do mean HOT as Texas can be in late July. Gloves...kneepads...elbow pads....all soon soaked with sweat. I spent maybe an hour down close to the ground looking for goodies, the place apparently torn up by someone on a 4 wheeler while it was still wet, making it a little harder to find things. I packed it up with 3 or 4 *Salenia* echinoids in hand along with a nice crab claw *Paleopagurus banderensis*.



FIGS 207-209: Glen Rose Formation *Salenia* sp. echinoids this and next page followed by *Salenia* spine and crab claw finger *Paleopagurus banderensis* (Site 161)





July 30, 2010: Way Deep in the Walnut

I had my truck packed with all manner of fossiling accessories, allowing me to springboard into the weekend directly from the office on Friday. A long drive into Central Texas finally landed me at a borrow pit in the Walnut Formation (105 MYA) well after dark. I broke out my LED flashlight and navigated around the walls of the pit, the nodular limestone in the wall casting shadows as my light swept through the darkness.

Down near the base of the slope I met decent success....a couple *Salenia mexicana* echinoids in matrix, one upside down and quite well preserved with a few associated spines showing, a couple *Phymosoma texanum* echinoids eroded loose, my biggest *Pinna* shell to date, and a number of *Heteraster texanus* echinoids. I was later able to extract one more *Phymosoma* from the wall, packing it in after an hour or so.



FIG 210: Walnut Formation *Salenia mexicana* echinoid with associated spine (Site 50)



FIG 211: Walnut Formation echinoids *Heteraster texanus* left and two *Phymosoma texanum* right (Site 50)



FIGS 212-213: Walnut Formation bivalves *Pinna* sp. along with *Texigrypha* oyster next page (Site 50)



I continued north in the thick of the night, rambling through sleepy little Texas towns, ultimately pulling into my destination around 1 a.m. – Jacksboro once again. This North Texas town an hour west of Fort Worth is seated in some very productive strata of Pennsylvanian age (303 MYA).

The borrow pit near the Lost Creek Lake dam is ludicrously productive for fossils of this age, so I staged for my morning assault in the gravel parking area, cracked my windows, reclined in the back seat, and grabbed 5 hours of sleep.

July 31, 2010: Benthic Breakfast with a Mid Day Marine Main Course

And so I perambulated across the dam and settled into the Finis Shale at the base of the hill around daylight. I had cut my visit to the site short over the July 4th weekend as my knees were already shot from prior rigorous collecting and standing water at the time resulted in an unbearable mosquito hatch. I had an itch to scratch at this site.

Good finds came at a regular pace this round...the root of a large *Symmorium* shark tooth with the 7 cusps broken off followed by occasional well preserved pyritized micromorphic goniatites. *Conularia* and various rugose and compound corals made it into my bag along with abundant *Michelinoceras* orthocone nautiloids and well preserved gastropods and brachiopods of several genera. My favorite finds however came in the form of coiled nautiloids and goniatites; these were the gems that made it all worth the effort.



FIG 214: Finis Shale fossil shark tooth *Symmorium* sp. left, *Archaeocidaris* sp. echinoid plate top right and articulated crinoid arms lower right (Site 64)



FIGS 215-217: Finis Shale goniatite *Preshumardites* sp. this and next 2 pages (Site 64)







FIG 218: Finis Shale unidentified goniatite (Site 64)



FIGS 219-220: Finis Shale pyritized micromorphic goniatites *Eoasianites*, *Imitoceras*, and *Paraschistoceras* above, various nautiloids and goniatites below most notably *Gonioloceras goniolobum* lower left (Site 64)



FIGS 221-222: Finis Shale orthocone nautiloids *Mooreoceras* (large) and *Michelinoceras* (small) above, *Conularia* sp. lower right and horn corals *Lophyphyllidium proliferum* lower left (Site 64)



FIGS 223-224: Finis Shale corals *Palaecis* sp. top left, bivalves *Myalina*, *Pteronites*, *Nuculopsis*, and *Pfestia* (Site 64)



FIGS 225-226: Finis Shale brachiopods *Linoproductus cora*, *Hystriculina texana*, *Hustedia mormoni*, *Juresania* above, gastropods *Glabrocingulum grayvillense* below (Site 64)



FIGS 227-228: Finis Shale gastropods *Meekospira* this page and next, *Strobeus* next page (Site 64)



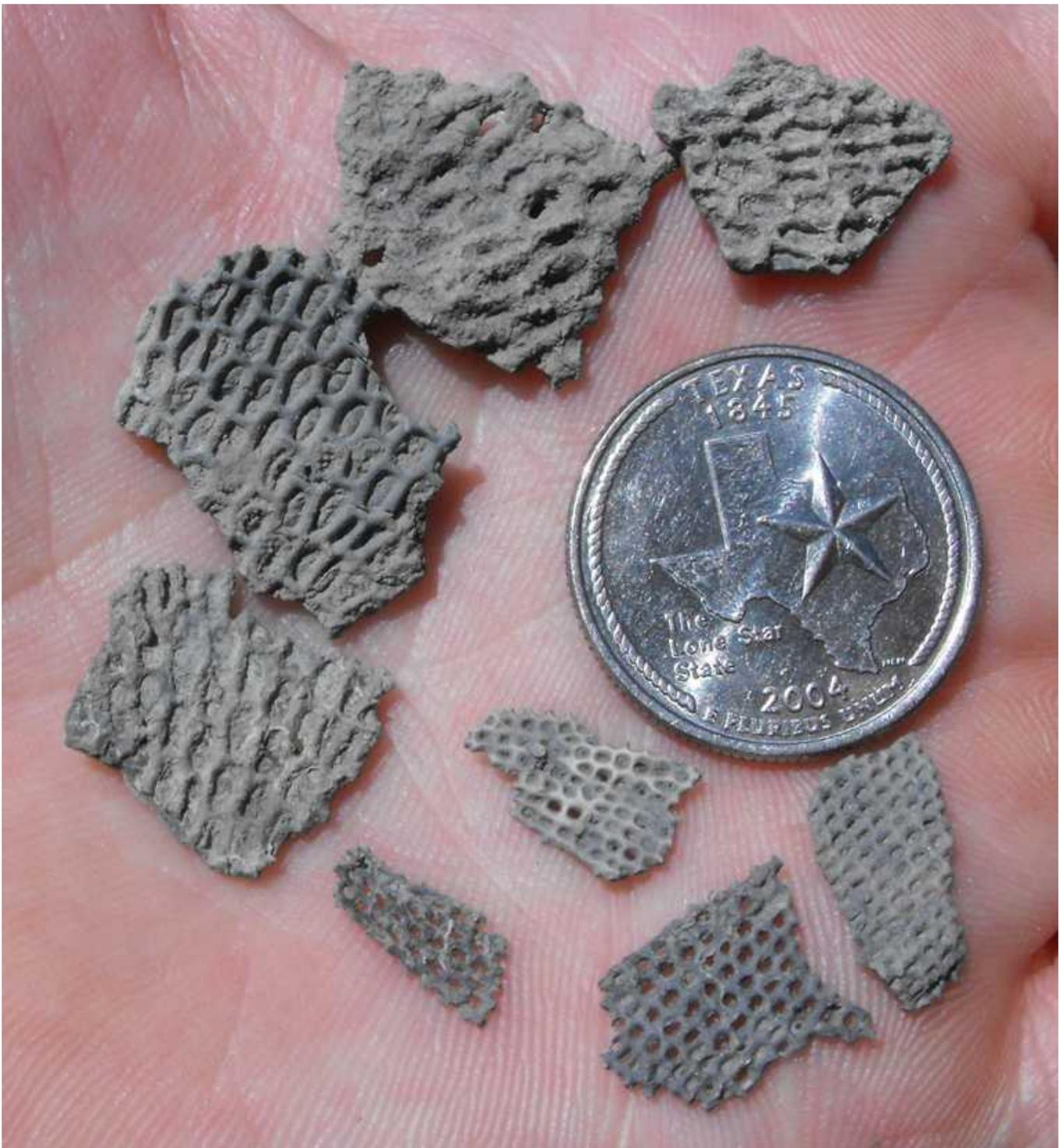


FIGS 229-230: Finis Shale gastropods *Strobeus* above, *Straparollus* lower left and *Pharkodonotus* and *Euphemites* lower right (Site 64)



FIGS 231-232: Finis Shale gastropods *Treospira discoidalis* this page, *Worthenia tabulata* next page (Site 64)





FIGS 233-234: Finis Shale bryozoans *Fenestella* this page, coral *Cladochonus* next page (Site 64)



Black shales are no place for a sensible man to spend the heat of the day in the Texas sun, so by 9 or 10 a.m. I hoofed it back to the truck to press on to the next leg of my adventure. Lake Texoma – it has been quite some time since I wet a canoe there. Earlier in the month sloppy conditions forced me to abandon my attack on the lake via remote dirt road access. This weekend was dry enough for me to circle back and complete my mission.

With all the gear in the boat and the motor mounted in place, I pulled the rip cord and was soon underway. Undiagnosed engine trouble however kept me from running much over half throttle. Clearly I didn't completely fix whatever throttling/spark/fuel delivery issues which caused similar symptoms a couple months back. However, since I was lightly loaded I was able to ply along at 6-8 knots at half throttle and still proceed as planned.

A low shoreline bluff exposed what I would guess is Fort Worth Formation (101 MYA) as evidenced by its numerous *Mortoniceras* ammonites, some quite well preserved, and *Macraster* and *Holaster* echinoids, mostly worn specimens down near water level, but in good condition in the gray marl higher in the bank.

I beached at the base of some larger, steep bluffs and again my finds were dominated by various species of *Mortoniceras* ammonites in the 4-6 inch diameter range hailing from the Duck Creek and overlying Fort Worth Formations. After about 20 ammonites and a couple more nice *Macraster elegans* and *Macraster denisonensis* echinoids I decided it was time to cut and run before my Gatorade ran out.



FIGS 235-237: Duck Creek, Fort Worth, and Weno Formations exposed at Site 223 this page, boat load of *Mortoniceras* ammonites found at Sites 222 and 223 next page





FIGS 238-240: Fort Worth Formation *Macraster* and *Holaster simplex* echinoids this and next page (Site 223)





FIGS 241-245: Duck Creek and Fort Worth Formation *Mortonicerias* ammonites this and next 4 pages (Sites 222 and 223)









I noticed it was so hot that some of the accessories I had hand crafted for my boat from ABS plastic had begun to blister and soften – time to get out of the heat before my head suffered a similar fate. My Gatorade went down like a fresh pot of coffee (hot and refreshing) and I countered the heat by jumping in the water and submerging my entire body and head every 30 minutes or so.

Near my put-in I investigated a bench of Weno Limestone (100 MYA) near water level and speed bagged a few more *Mortoniceras* ammonites, some keepers, some kiddie grade. A little wiser these days, I used a rope to yank my boat up the bank rather than drag it and grunt and sweat with my heart beating out of my chest. Just getting into a new set of dry, clean clothes and wiping my brow made me feel like a million bucks, and a cold stream of A/C in the face wasn't too bad either.



FIGS 246-247: Weno Formation *Mortonoceras* ammonites above (Site 225), faithful truck and canoe below after a hard month's workout

Switching gears, I spent the rest of the weekend in Dallas hanging out with my high school buddy Bryan Williams along with a couple of my good fossil buddies Brent Dunn and Frank Holterhoff. This was probably the first time Brent and Frank had ever seen me showered with combed hair and nice clothes...I hope I didn't ruin their image of me!

