An hour or two was all I needed, and I since many teeth were worn with broken roots, I was selective in what I took. I had planned ahead and prepared to bulk sample some of the richer zones, and this paid off well, increasing my take of all species mentioned plus adding micro ray and pycnodont teeth.

I meandered many miles across the desert until I pulled up to an exposure of Boquillas Formation (90 MYA) that I like to search a couple times per year for echinoids. *Mecaster batnensis* irregular echinoids dominated my take, but I got a few small *Coenholectypus nanus* echies plus one rare *Holaster* c.f. *feralis* to boot. No ammonites or shark teeth this time, but fun all the same. The weather was great and I was there in part to scout it out for out of state guests in the coming months. After a little bulk sampling and heaving a couple multi specimen echie blocks into the car I was on my way.

FIGS 191-193: Boquillas Formation echinoids *Holaster* c.f. *feralis* in matrix with a small *Coenholectypus nanus*, this and next 2 pages (Site 448)


TEXAS
1845
The
Lone Star
State
2004
E PLURIBUS UNUM

FIGS 191-193: Boquillas Formation echinoids *Coenholectypus nanus* along with a few juvenile heart urchins *Mecaster batnensis*, this and next 2 pages (Site 448)


TEXAS
1845
The
Lone Star
State
2004
E PLURIBUS UNUM


TEXAS
1845
Star
State
2004
IBUS UNUM

FIGS 194-195: Boquillas Formation echinoids *Mecaster batnensis* and *Coenholectypus nanus* in matrix, this and next page (Site 448)

FIGS 196-204: Boquillas Formation echinoids *Mecaster batnensis* in situ and as prepped, this and next 8 pages (Site 448)


TEXAS
1845
The
Lone Star
State
2004

Love this *Mecaster* block! 3 views of same block

I closed out the day's collecting adventure with an exploratory site in the Fort Terrett Limestone (104 MYA) and in the process lay hands on one *Engonoceras* ammonite, enough to make the stop worth my while.

FIGS 205-206: Views of Site 575 this and next page

FIGS 207-210: Fort Terrett Formation ammonite *Engonoceras* sp. this and next 3 pages (Site 575)


TEXAS
1845
The
Lone Star
State
2004
E PLURIBUS UNUM

FIGS 211-213: Evening views of the West Texas desert, this and next 2 pages

FIG 214: First day of my iconic West Texas adventure complete with a ribeye and Texas Toast

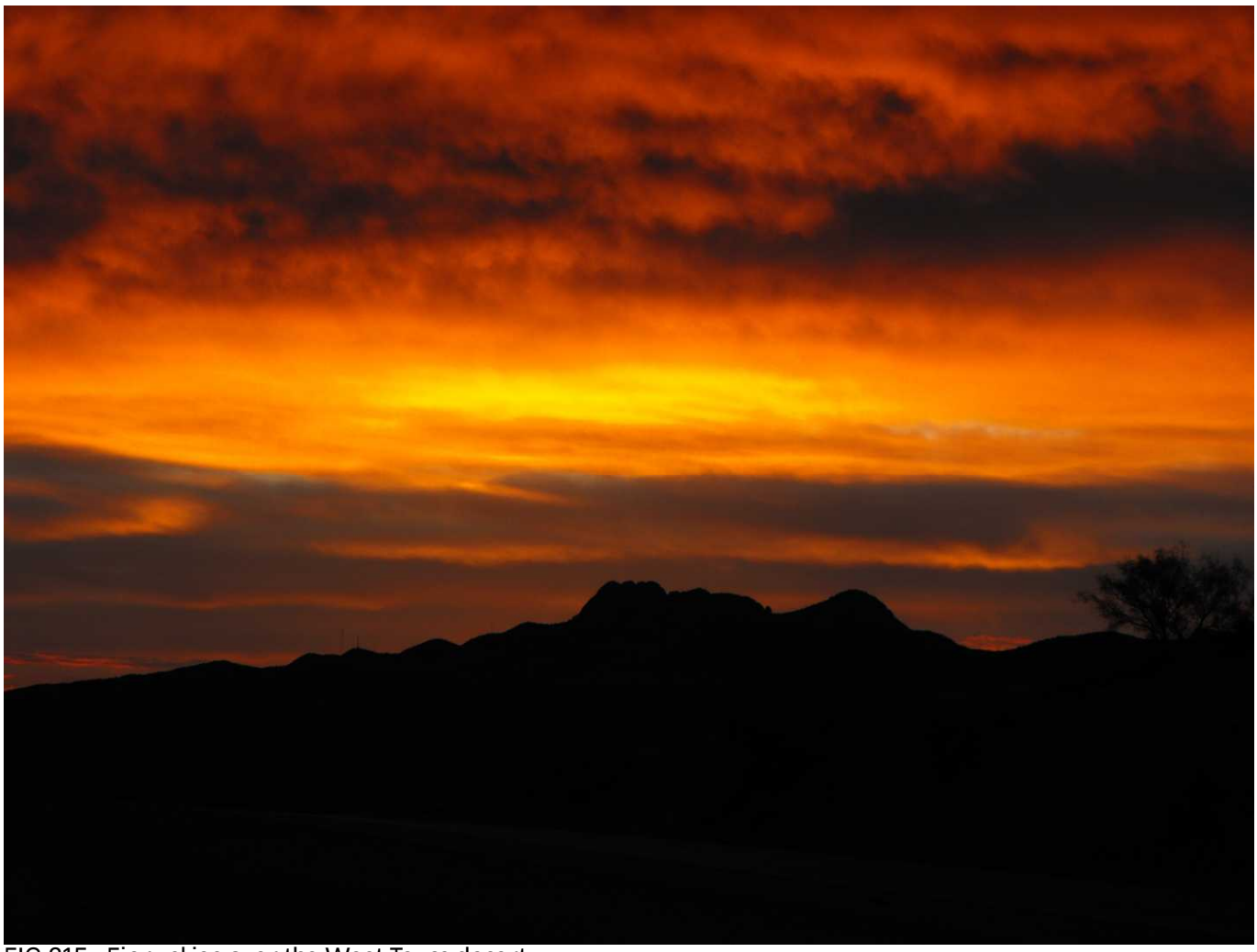

FIG 215: Fiery skies over the West Texas desert

With a good ribeye in my belly, I covered still another 100 miles before I pulled over on a remote gravel patch off the road, gazed for a while at the stars of the desert, and eventually fell into a deep slumber.

November 20, 2011: Road Cut Rampage

With head lamp in position I began scaling road cuts in far West Texas before daylight, the geology being Boracho Formation (100 MYA). My quarry was echinoids, and in the San Martine member of the Boracho I landed a rough *Coenholectypus* and a *Globator parryi* before moving on. I had approached this stretch of sites assuming that my worthy competition probably had beaten me there, but as it turned out, most sites appeared to have seen little pressure in quite some time.

FIG 216: Sunrise over Boracho Formation Site 286

FIGS 217-219: Starting in the Boracho Formation before daylight, echinoids *Coenholectypus* sp. this and next 2 pages (Site 286)

FIGS 220-223: Boracho Formation, San Martine Member echinoids *Globator parryi* this and next 3 pages (Site 286)


TEXAS
1845
The
Lone Star
State
2004

FIGS 224-225: Desert flora this and next page (Site 286)

FIG 226: The desert in winter is an especially unforgiving place (Site 286)

FIGS 227-230: Echinoids *Anorthopygus texanus* from the San Martine Member of the Boracho Formation, this and next 3 pages (Site 286)


The Lone Star State
2004

FIGS 231-232: Unidentified Boracho Formation echinoid this and next page (Site 286)

FIG 233: *Phymosoma* echinoid from the San Martine Member of the Boracho Formation (Site 386)

FIG 234: Same *Phymosoma* echinoid along with *Anorthopygus texanus* echinoid and unidentified gastropod, all from the San Martine Member of the Boracho Formation (Site 386)

A cut in the Levinson member first presented me with a nice *Cymatoceras hilli* nautiloid, then a superb 6 inch *Mortoniceras* ammonite, which I later donated to the University of Grenoble, France. Nice start!

FIGS 235-239: A well preserved nautiloid *Cymatoceras hilli* from the Levinson Member of the Boracho Formation, this and next 4 pages (Site 276)


2004

FIGS 240-242: Ammonite *Drakoceras* aff. *maximum* from the Levinson Member of the Boracho Formation, this and next 2 pages (Site 276)

Through methodical surveying and climbing of the bluff faces, I was able to reduce a few more fossils to possession. The desert had been pretty rough on *the Dumblea, Anorthopygus, Globator*, and *Coenholectypus* echinoids, and ¾ of my finds won't make it into my collection. The marlier portions of the Levinson, however, were a bit more forgiving. Thusly, I took a number of nice oysters *Alectryonia quadriplicata* from one cut, some nice *Heteraster* echinoids there as well, and from another cut, a great *Macraster kentensis* and a couple *Holaster simplex*. My final look into the San Martine gave up a rock with 2 and a half *Phymosoma* echinoids.

FIGS 243-245: A spectacular *Heteraster* echinoid from the Boracho Formation, followed by one with average preservation, this and next 2 pages (Site 275)


TEXAS
1845
The
Lone Star
State
2004
E PLURIBUS UNUM

FIGS 246-248: Boracho Formation oysters *Alectryonia quadraplicata* this and next page, followed by an unidentified gastropod (Site 275)


TEXAS
1845
The
Lone Star
State
2004


TEXAS
1845
The
Lone Star
State
2004
E PLURIBUS UNUM

FIGS 249-251: Boracho Formation, San Martine Member echinoids *Anorthopygus texanus* this and next 2 pages (Site 528)


TEXAS
1845
The
Lone Star
State
2004

FIGS 252-253: Boracho Formation, San Martine Member echinoids *Phymosoma* sp. this and next page. There is a half specimen on the reverse side of the block as well (Site 281)


TEXAS
1845
2004

FIGS 254-258: Boracho Formation, Levinson Member echinoids *Holaster simplex* this and next 4 pages (Site 274)

Looks like a *Heteraster* right of the *Holaster*


TEXAS
1845
The
Lone Star
State
2004
E PLURIBUS UNUM

FIGS 259-262: Boracho Formation, Levinson Member echinoid *Macraster* sp. this and next 3 pages (Site 274)

I pulled the plug on everything around 1 p.m. so I could get home at a decent hour and unpack the car after a good steak sandwich at a lonely diner along the way. That long West Texas drive is always rough, but at 80 MPH I could feel the progress. And I didn't see any deer standing in the highway, allaying one of my biggest travel fears at this time of year.

And after 4 days on the go, I feel a little fossiled out at the moment!

November 25, 2011: Piscatorial Pursuit Plus Pleistocene Punchline

Some days its totally worth getting out of bed at 3 a.m., although I didn't realize that just yet as I spilled an entire bottle of orange juice on my passenger side floor mat. With that out of my system, I proceeded to throw the proverbial trident of adventure at the Texas Coastal Bend, and all 3 prongs sunk into something GOOD! Follow along with me as I expound on how fishing plus a couple fossil venues made for an incredible day.

My friend Jeff was feeling under the weather so I made a solo run for the coast. Around daylight I bought 50 live shrimp and rowed one of my ugly boats under a bridge, and enjoyed hundreds of yards of elbow room for several

hours. Dropping anchor on the edge of a channel as the incoming tide picked up, I began sinking shrimp in the drink.

Action was fast and fun, but my stringer was light. In 4 hours of heaving bait I landed about 40 fish, mostly undersized redfish and speckled trout. In addition I landed a flounder, a sea robin, lots of huge perch, a golden croaker and a sand trout, only 3 fish earning a spot on my stringer.

FIGS 263-264: Flounder this page, sea robin next page

Better than the catching was the phone call I received….young Weston had pole axed an 8 point whitetail buck on Uncle Joey's ranch! 100 yards, one shot to the heart, one deer dropped to the ground with one kick, one happy kid.

FIGS 265-267: Weston and his third whitetail this and next 2 pages

Pressing on, I opted to check out a construction site in the area for fossils to no avail. Next I returned to an area where I have permission to hunt coastal Pleistocene fossils. Years ago I had taken hundreds of sand dollars *Mellita quinquiesperforata* which are Sangamonian in age (15,000 years old), but a half dozen visits since had resulted in no more.

That all changed today! I worked a stretch where the sand and caliche and shell material just looked right. First I began seeing sand dollar fragments, then I wandered into an area where whole specimens were concentrated. A well spent hour netted about 30 specimens.

FIGS 268-280: Pleistocene sand dollars *Mellita quinquiesperforata* this and next 12 pages (Site 324)


TEXAS
1845
The
Lone Star
State
2004


TEXAS
1845

FIG 281: Pleistocene shelly sandstone concretion (Site 324)

For the third leg of this adventure, the boat went back in the water. The Pleistocene site is one I've nicknamed "Glyptodont Gulch" as I've averaged one *Glyptotherium* osteoderm (giant armadillo shell segment) per trip. After this day's adventure, I may now have to call the place "Glyptodont Graveyard".

A long boat run of bucking headwinds put me at the foot of the exposure, but not before rubbing elbows with a very large alligator swimming happily within about 10 yards of me at one point. Its head looked to be 18-24 inches long, and I'm guessing this equates with an 8-10 foot gator. This would have been a bad place to hit an obstruction and capsize the boat, so I concentrated on the water ahead of me so as to avoid submerged logs.

First step out of the boat netted me a desirable find, a fossilized gar scale – a great start as this isn't common in Texas. A Pleistocene *Bison* tooth landed in my pocket with satisfying heft. Bone shards were here and there, and soon a honkin' big *Glyptotherium* osteoderm, perhaps my biggest ever, graced my palm and thus maintained the moniker and folklore associated with this special place.

Rounding the corner, I grabbed several turtle carapace pieces followed by a perfect osteoderm from the "beautiful armadillo", *Daspyus bellus*. Wow! Rare find in my experience.

FIGS 282-283: Pleistocene gar scale and fish vertebra this and next page (Site 350)


TEXAS
1845

FIGS 284-287: Pleistocene *Bison* sp. molar this and next 3 pages (Site 350)


TEXAS
The
Lone Star
State
2004


TEXAS
1845
The
Lone Star
State
2004

FIGS 288-291: Pleistocene *Daspyus bellus* ("Beautiful Armadillo") osteoderm this and next 3 pages (Site 350)


TEXAS
1845
The
Lone Star
State
2004
E PLURIBUS UNUM


TEXAS
1845
The
Lone Star
State
2004
E PLURIBUS UNUM


TEXAS
1845
The
Lone Star
State
2004
E PLURIBUS UNUM

FIGS 292-295: Pleistocene *Glyptotherium* sp. osteoderm (giant armadillo body armor plate) this and next 3 pages (Site 350)

FIGS 296-297: Pleistocene turtle osteoderms this and next page (Site 350)

A few feet farther something else caught my eye. As I kneeled for a closely look, mental shape recognition kicked in...Holy Snikeys!!! A couple articulated (still attached) *Glyptotherium* osteoderms were half showing. I brushed some sediment away and this thing went back into the hill! Retrieving a hammer and chisel from the boat, I revealed the extent of this fossil the best I could. 21 articulated osteoderms!

The trouble was that the entire specimen was extremely fragile, and I was completely unprepared for this today....no plaster, no super glue...So basically this specimen may never again look as good as it did in situ, so I grabbed a few images. While digging underneath I grabbed a nice fish vertebra that popped out of the matrix ...bonus! The *Glyptotherium* came out in chunks and the best I could do was to fill my hat with the chunks and race back to the truck as the sun dropped below the horizon.

FIGS 298-304: Pleistocene giant armadillo *Glyptotherium* sp. (courtesy of Wikipedia) followed by an impressive partial casque of osteoderms which the author disintegrated in the field then later painstakingly reconstructed, this and next 6 pages (Site 350)


Estwing

Next time be more prepared!

Fishing, Pleistocene marine, then Pleistocene terrestrial material...not a bad day! After 18 hours on the go, I look forward to sleeping in for the rest of the weekend.....

Prep Notes

Those of us who prep our own fossils must be prepared to take on whatever nature throws at us, and jobs can vary greatly. The articulated glyptodont osteoderms shown above came out of the ground in many splinters and chunks (lack of preparedness on the part of the collector in this case), resulting in a lengthy prep process more time consuming than necessary.

Given the 3D jigsaw puzzle at hand, the task appeared daunting. Although bone material, some osteoderms were cracker thin outer cortex only, and comparatively weak. I began by washing and drying all shards, supergluing together pieces that by time consuming trial and error seemed to fit. Then complete osteoderms were reinforced on the backside using epoxy putty. Using an in situ photo for reference, these osteoderms were then put back in original position.

I continued building up the reverse side of the unified piece with epoxy putty for structure and in some places spackling compound just to fill voids and trim out visible edges.

Large cracks were visible between osteoderms on the show side, so I reconstituted original matrix in water, used it as grout in between osteoderms, cleaned the front like tile with a wet sponge, and coated the sides and back of the piece with more liquid matrix. The end result is something quite pleasing to me, although techniques were employed rather impromptu and seat of the pants. I would have taken step by step photos had I had the confidence that it would turn out acceptable.

<u>November 27, 2011: Return of the Corsicana Coalition</u>

Rain fell hard this weekend in South Texas, so young Weston and I arranged our schedule to join forces as an ad hoc, paleo rapid response team focused on retrieval of marvelous Maastrichtian masterpieces recently exposed by the elements. Our minuteman timing was not without good reason...certain crabs and echinoids at these sites tend to crack and fall apart when exposed for too long, generally from wetting and drying cycles. As willing stewards of this particular paleo resource, noting chances of more rain in the forecast, we simply couldn't allow these fossils to suffer outside any longer.....

Harbor Freight afforded us new gloves en route, and with gloves and kneepads in place we commenced our labor of love, crawling the exposures and bagging some good-r-uns of yore courtesy of the Corsicana Formation. "You are the perfect dad for me"...quite a flattering, unsolicited comment from the lad as we spent 5 hours in cold 40 knot winds.

I took the time to very slowly and methodically work a certain portion exposure, the same one in fact where my friend George Phillips found two very rare eel skulls. No skulls for us today, but a few shark teeth made it into the catch bag along with an impeccably preserved little 10 mm shark vertebra.

FIGS 305-307: Young Weston flexing his fossil chops in the Corsicana Formation with the discovery of two articulated pycnodont teeth, this and next 2 pages (Site 349)

FIGS 308-311: Weston's high grade Corsicana Formation crabs *Dakoticancer australis* this and next 3 pages, starting with a rare juvenile specimen with appendages intact (Site 349)


UNITED STATES OF AMERICA
IN GOD WE TRUST
LIBERTY
QUARTER DOLLAR

FIGS 312-313: Weston's Corsicana Formation echinoids *Hemiaster bexari* and gastropods *Turritella* and *Anchura* this pages followed by his echinoid *Proraster dalli* next page (Site 349)

Echinoids made the scene as well, dominated by well preserved little *Hemiaster bexari*. We both found several. Weston also got a tattered but diagnostic *Proraster dalli*, a less common form. Crabs *Dakoticancer australis* were out in force…I think I got 8 while young Weston bagged 2 great ones including a rare juvenile. These are splendid finds for collectors of all experience levels, but the coolness factor steps up a notch when youthful eyes score the prize.

Weston found succor in the mud, coming back looking like a muddy little piglet just in time to grab his bike and run it deep into the quagmire. Oh, to be young again. Once he tired himself out he returned in full protective

crawling gear to rejoin The Old Man. But by this time he was near the end of his endurance, rushing through the exposure, and complaining just a bit of not finding anything....

”Hey Dad, look at this thing!”... The Kid had just made the best find of the day in my opinion, two beautiful, articulated, coffee brown pycnodont teeth, the best find of its type I’ve personally seen from these sites. Pycnodont for the uninitiated signifies a type of fish with smooth plates of multiple crushing teeth in their mouths as opposed to more recognizable sharp teeth. This cool find will make it into one of Weston’s Riker mounts along with his other good finds.

FIGS 314-317: Corsicana Formation crabs *Dakoticancer australis* this and next 3 pages (Site 349)


TEXAS
1845
The Lone Star State
2004
E PLURIBUS UNUM


2004

FIG 318: Corsicana Formation crab claw partials, unidentified (Site 349)

FIGS 319-320: Corsicana Formation shark vertebra this page, same vert plus shark and fish tooth next page, brown shark tooth may be *Cretolamna maroccana* (Site 349)


TEXAS
1845

FIGS 321-324: Corsicana Formation echinoids *Hemiaster bexari* this and next 3 pages (Site 349)


TEXAS
1845

FIGS 325-326: Corsicana Formation straight ammonites *Baculites* sp. this and next page (Site 349)


TEXAS
The
Lone Star
State
2004

FIGS 327-329: Corsicana Formation bivalve *Lima acutilineata* lower right, surrounded with unidentified bivalves, 2 conjoined unidentified bivalves next 2 pages (Site 349)

FIGS 330-331: Massive Corsicana Formation bivalve *Lima sayrei* this page, scallops *Neithea bexarensis* and *Ostrea mesenterica* oyster next page (Site 349)


TEXAS
1845
The
Lone Star
State
2004
E PLURIBUS UNUM

FIGS 332-334: Corsicana Formation gastropods *Anchura, Polinices, Gyrodes,* and several unidentified this and next 2 page (Site 349)

Left most 3 specimens appear to be *Napulus* sp.

FIGS 335-337: Corsicana Formation bryozoans *Dysnoetopora celleporoides* this page, *Serpula* (?) worm tubes next 2pages (Site 349)

Running out of time and daylight before our rollerskating outing with his school class, we made time for one last strip of exposure…time well spent as it resulted in one extremely well preserved echinoid *Linthia variabilis*, sort of a rare form.

FIGS 338-341: Corsicana Formation echinoid *Linthia variabilis* top right, gastropod *Gyrodes* sp. lower right, unidentified gastropod lower left, detail views of *L. variabilis* next 3 pages (Site 348)

We sealed the adventure on a high note with cheeseburgers and ice cream...at my age it may be time to consider more healthful fare on these weekend excursions.

November 2011: Addendum 1

My friends Paty and Brian Evans got out in November and quickly added 5 Texas Columbian Mammoth teeth to their collection. Site access was a 3 year exercise in persistent patience for them, and their payday was well preserved.

FIG 342: Brian Evans and partial husband/wife take of mammoth teeth

November 2011: Addendum 2

Over the years I have accumulated a number of ammonites *Sphenodiscus pleurisepta* from the Escondido Formation (66 MYA) of South Texas. Some are prettier than others, and I like to admire the outwardly attractive ones in their as-found state. However, I finally decided to do something with "the uglies". Keep in mind that not many ammonites in Texas have geodized chambers like these; they present a special form of preservation.

Having had some ammonites cut and polished by lapidary friends in the past, I opted to take the plunge and commit to having ALL my ugly ones cut and polished, knowing that only there could be some fallout attributed to breakage or mud filled chambers.

I'm quite pleased with the work done by Dan Kelly with D and B Rockwerks in Vida, Oregon. He was one of the few lapidary guys I found who had all the equipment required for the job. If you are interested in similar work with you own specimens, feel free to contact him at

dkelly4819@aol.com

FIGS 343-357: Cut and polished *Sphenodiscus pleurisepta* ammonites from the Escondido Formation of South Texas, this and next 14 pages (Site 417)