Fossil Collecting Report

Daniel A. Woehr and Friends and Family

February, 2011

February 5, 2011: Late Start on Local Echies

With arctic night time temps dropping precipitously to 18-20F in San Antonio, I felt that a late start for fossil hunting was more than appropriate. Once temps rose to 60F, I rounded up my girlfriend Brett and whisked her off to a few Walnut Formation sites (105 MYA) which she had not yet visited.

The first site was a small road cut with a thin layer of yellow nodular marl sandwiched between the overlying Edwards and underlying Glen Rose formations. The usual *Ceratostrean* oysters and bevy of bivalves and gastropods were present, but for some reason, echinoids proved elusive.....hmmm...

FIG 1: Brett's Walnut Formation *Ceratostrean* oysters (Site 459)

On to our second site, also a road cut exposing this same layer. A short uphill hike put us up close and personal with the bluff. This time a few goodies came to hand, albeit sparingly. I plucked one *Heteraster texanus* echinoid from the marl, followed by one weathering *Phymosoma texanum* and one *Coenholectypus planatus*, the latter I accidently broke in half upon extrication, but it was a clean break which glued back together nicely. Some ornate bivalves and gastropods rounded out our take, making the stop worthwhile.

FIGS 2-3: Brett suited up and working the Walnut Formation this and next page (Site 494)

FIGS 4-5: Walnut Formation echinoids in situ including *Coenholectypus planatus* this page and *Phymosoma texanum* next page (Site 494)

FIGS 6-7: Walnut Formation echinoid *Heteraster texanus* above, echinoids *Coenholectypus planatus* and *Phymosoma texanum* below alongside *Trigonia*, *Neithea* and other bivalves below (Site 494)

FIGS 8-9: Close up of Walnut Formation echinoids *Coenholectypus planatus* and *Phymosoma texanum* this page and unidentified bivalve next page (Site 494)

Budgeting remaining daylight, we made our way to yet at third Walnut site. Our efforts produced several *Loriolia* echinoids followed by one squashed *Coenholectypus* and finally, with the aid of a ladder, I reduced one nice example of the latter to possession. Once prepped, one of my *Loriolia* looked different than the rest and I believe it instead to be *Pseudodiadema*. Still, our take for the day was somewhat light. I could understand writing off one site to being visited by other collectors, but not all of them...I guess we just need more rain in South Texas! Still we had a good time in the field and grabbed a few goodies for Brett's collection without a major investment in driving time, and it was nice to enjoy a blue bird winter day before night time temps again plummeted...

FIGS 10-11: Close up of Walnut Formation echinoids *Loriolia* sp. (Site 454)

FIGS 12-14: Walnut Formation bivalves, gastropods and echinoids *Coenholectypus planatus*, *Loriolia* sp. and *Pseudodiadema* sp., above and below, note difference between *Loriolia* and *Pseudodiadema* next page (Site 454)

FIG 15: Walnut Formation gastropod, unidentified (Site 454)

FIGS 16-17: Brett's Walnut Formation finds including gastropods, *Ceratostrean* oysters, *Neithea* bivalve, and partial *Engonoceras* ammonite this page, calcite next page (Site 454)

February 12, 2011: Back Handed Collecting with the Boy

No he wasn't misbehaving as the title implies – hahaha! Weston and I enjoyed play day in the field without serious emphasis on collecting. The day was more about boyish things…like strapping an Estes rocket engine to the back of a big Styrofoam glider, stuffing a wick in the engine, hand launching the plane, then letting him chatter away at it in flight with his AirSoft machine gun…this just happened to take place in a spot where we could fossil hunt, and good thing too as one flight powered the plane nose into the ground at high speed, breaking it into 5 pieces…nothing a little Gorilla glue won't fix.

And so I broke out the gloves and kneepads for a little fossil crawling. Rain has been sparse at the Corsicana site (68 MYA marine) so I didn't expect major finds. I only worked a little strip of exposure that I omitted last time, and Weston jumped in with me but only lasted a few yelps when crawling bare kneed over broken oysters. Still, he found a couple nice *Hemiaster bexari* echinoids and a cool *Gyrodes* gastropod in matrix, the latter quite stunning actually.

FIGS 18-20: Weston's *Gyrodes* gastropod in a Corsicana Formation nodule this and next 2 pages (Site 349)

I found the standard menu of *H. bexari* echies, gastropods *Turritella vertebroides, Anchura, Gyrodes*, etc. as well as bivalves *Neithea bexarensis, Trigonia castrovillensis, Lima acutilineata* and others. Best finds were a rough crab carapace *Dakoticancer australis* and 3 echinoids *Plesiaster americanus*.

FIGS 21-23 : Corsicana Formation echinoids *Plesiaster americanus* this and next page (Site 349)


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FIGS 24-26 : Corsicana Formation echinoids *Hemiaster bexari* this and next page (Site 349)

FIGS 27-29 : Corsicana Formation gastropods unidentified this and next page, *Turritella vertebroides* and others third pag (Site 349)

FIGS 30-31 : Corsicana Formation bivalves *Lima acutilineata* this page, *Neithea bexarensis* next page (Site 349)

FIGS 32-34 : Corsicana Formation bivalves *Plicatula, Trigonia* and others above, next 2 images unidentified bivalves (Site 349)

FIG 35 : Corsicana Formation bivalves oysters *Pycnodonte mutabilis* (Site 349)

I pulled the plug early so as not to burn the boy out on fossils, and we went about other adventures and home projects for the remainder of the weekend…

February 18, 2011: Bountiful Binge in the Boquillas Formation

Lovely Brett and I opted for a weekend camping and hiking trip in Big Bend National Park, leaving early Friday morning and stopping at some road cuts along the way to break up the drive and maybe find a few fossils. Our first stop was at a road cut in the Boquillas Formation (Boquillas is Spanish for "little mouths") which geologically speaking is approximately 90 million years old. I last visited this site on a museum trip I had organized the year before, and although we collected it fairly thoroughly and systematically, the time and consequent weathering since have revealed countless marine specimens.

Most prevalent were the spatangoids (heart urchins) *Mecaster batnensis*, their star shaped ambulacral system and dark gray test revealing themselves easily in contrast the the surrounding yellowish marl and grayish limestone nodules. Brett was happy to lay hands on instant echinoid paydirt, as was I. Most of these finds were weathered out isolated while others occurred in clusters on the surface of the limestone nodules.

FIGS 36-38 : Boquillas Formation Site 448 with Ms. Brett for scale this and next 2 pages, circle notes location of ammonite later found once we began scaling the exposure in search of echinoids

FIGS 39-53 : Boquillas Formation echinoids *Mecaster batnensis* in situ and prepped this and next 10 pages (Site 448)


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Ascending the face of the exposure, gravity was our foe and had a way of suddenly showing us without warning who was boss! For my billy goat-like, 4WD climbing style I was rewarded early in the game with a rare oval echinoid which I've not found in literature documented in Texas, but bares some similarity to *Holaster feralis* of Colorado. This alone made my visit to the site worth the effort. In addition I relocated a peanut butter colored marl layer chock-full-o echinoids, mainly *M. batnensis* and BB sized, dome shaped *Coenholectypus* c.f. *nanus*.

FIG 54 : Boquillas Formation echinoid *Holaster* c.f. *feralis* (Site 448)

FIGS 55-64 : Boquillas Formation echinoids *Coenholectypus nanus* this and next 8 pages (Site 448)


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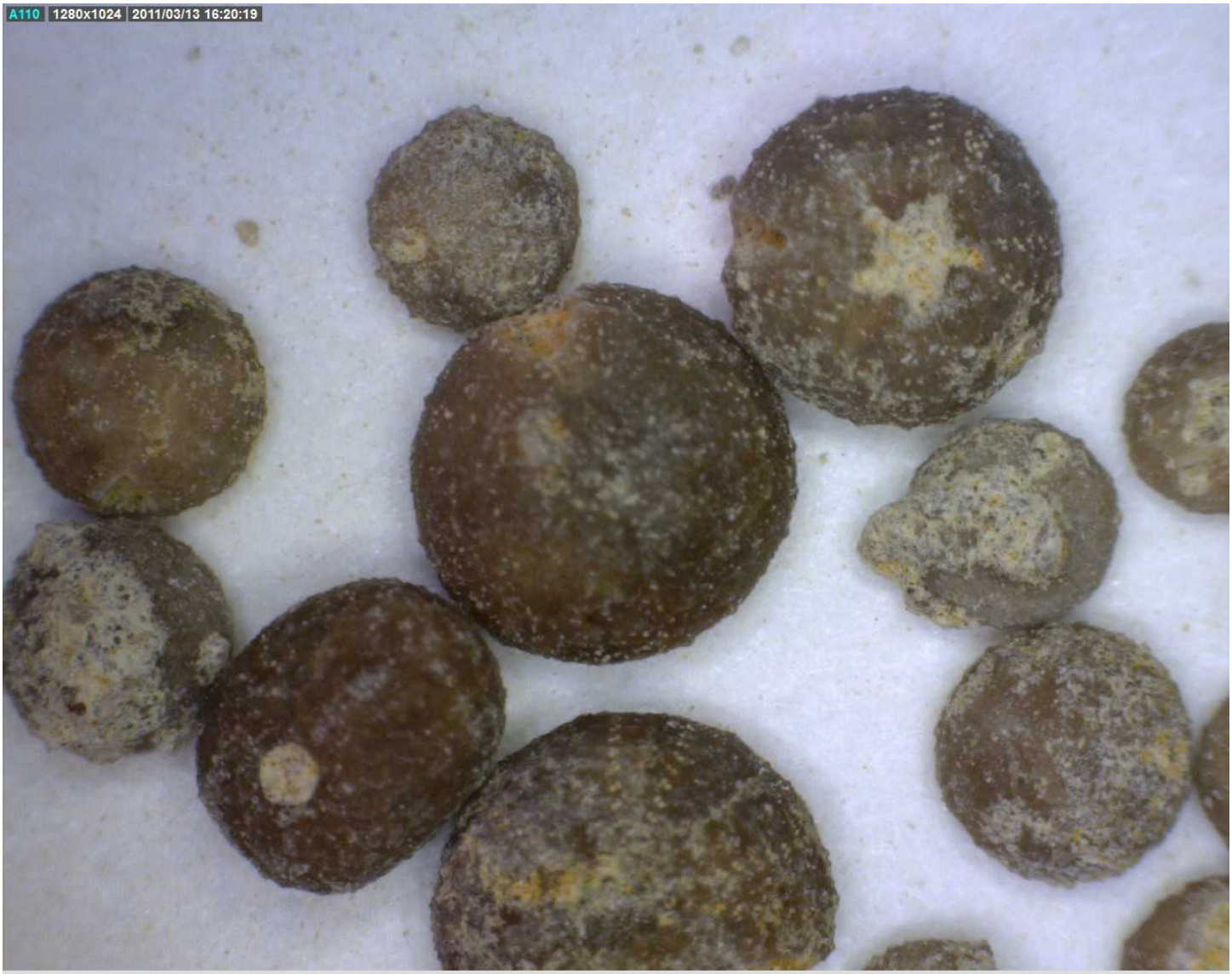
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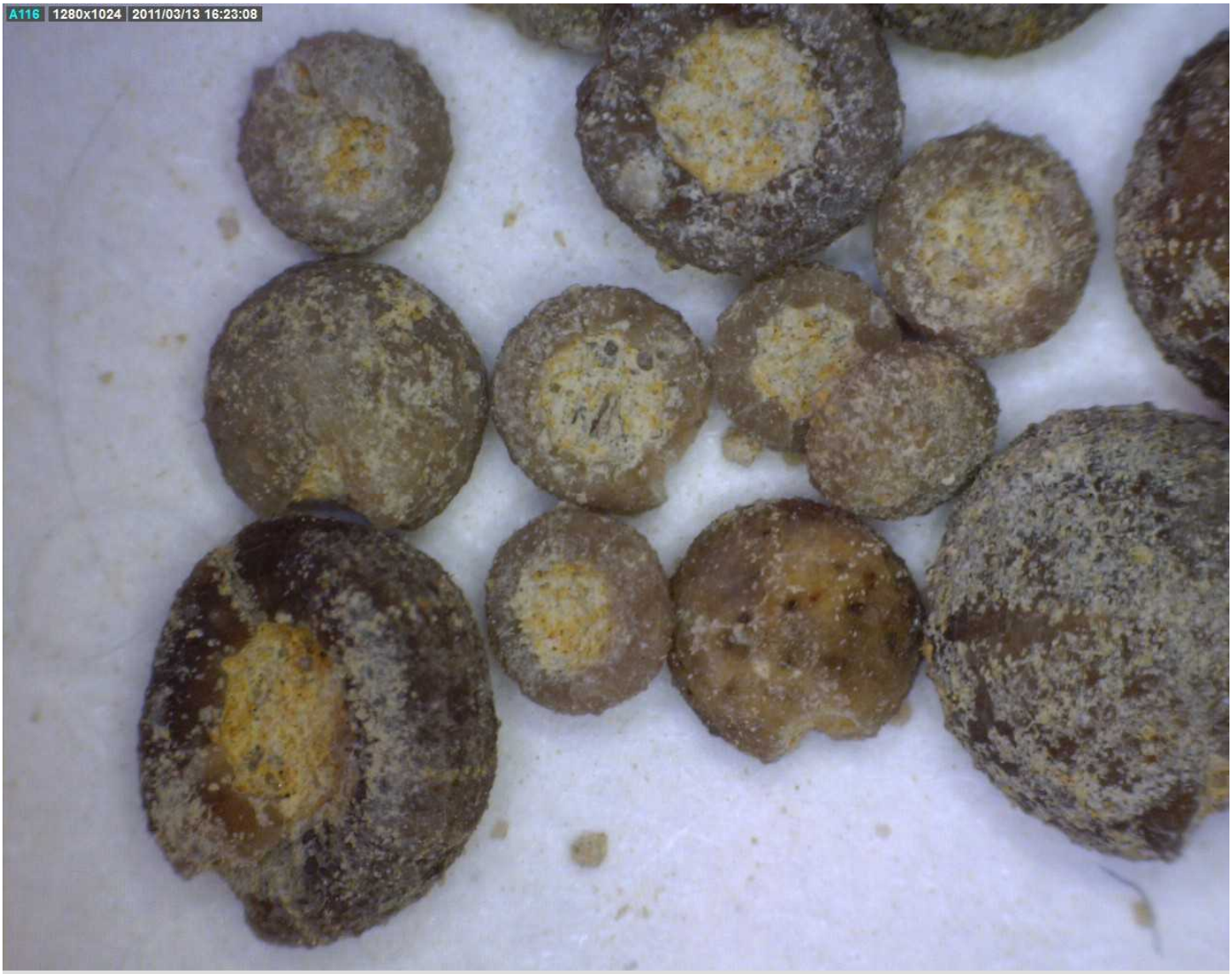
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A section of a large ammonite caught my attention and sparked my curiosity. I had never before seen ammonites in this particular horizon. Not long after, I spotted the keel of a larger ammonite subtley protruding from the exposure, high in section. It was broken in half in situ, but the halves fit together fairly well after excavation, and once cleaned up at home its sutures became much more prominent, making this 15.25 inch diameter *Coilopoceras* sp. specimen quite a prize for my personal collection. Not only is it the biggest ammonite I've ever seen of this age, but it is a new genus for my collection....woo hoo!

FIGS 65-70: Boquillas Formation ammonite *Coilopoceras* sp. this and next 4 pages (Site 448)

The “Don King” of Paleo strikes again!

We packed up after about an hour of ludicrously productive collecting once Brett and I were satisfied with our take. Hours later we drove up on the desert hamlet of Marathon and proceeded to another road cut, this time in the Permian Gaptank Formation, some 275 MYA. It was clear however that the site had been recently worked by a group, possibly college students from nearby Sul Ross University in Alpine.

FIGS 71-72: Permian Gaptank Formation – Ms. Brett scaling the exposure this page, crinoids and corals next page

(Site 42)

However the scree slope was still full of marine goodies....we were quick to find crinoid stems, both as isolated columnals and stacks thereof. A few sponges and corals also came to hand, but previous collecting had wiped out the brachiopods, gastropods, and goniatites I had found amongst the clays and weathering conglomerate on my last visit 8 years ago.

Gravity made a stronger presence here as evidenced by the more frequent sound of one or both of us slide back down the slope out of control, so we opted to cut our time short at this site to allow more time to set up camp farther south in Big Bend.

The extra daylight at the scenic Chisos Basin campground proved advantageous, as the place was filling up fast. We secured a great place to pitch a tent and then proceeded to the Chisos Mountain Lodge for the best dining experience I could imagine nestled anywhere in the mountains of Texas. We sat outside to fully imbibe the natural splendor of the sun setting over the mountains, enjoyed a few laughs, and later saw a picture a few years old showing a black bear sniffing around the very table where we had enjoyed our dinner! The silence of the remote outdoors was a wonderful change from the noise and fast pace of city life in San Antonio.

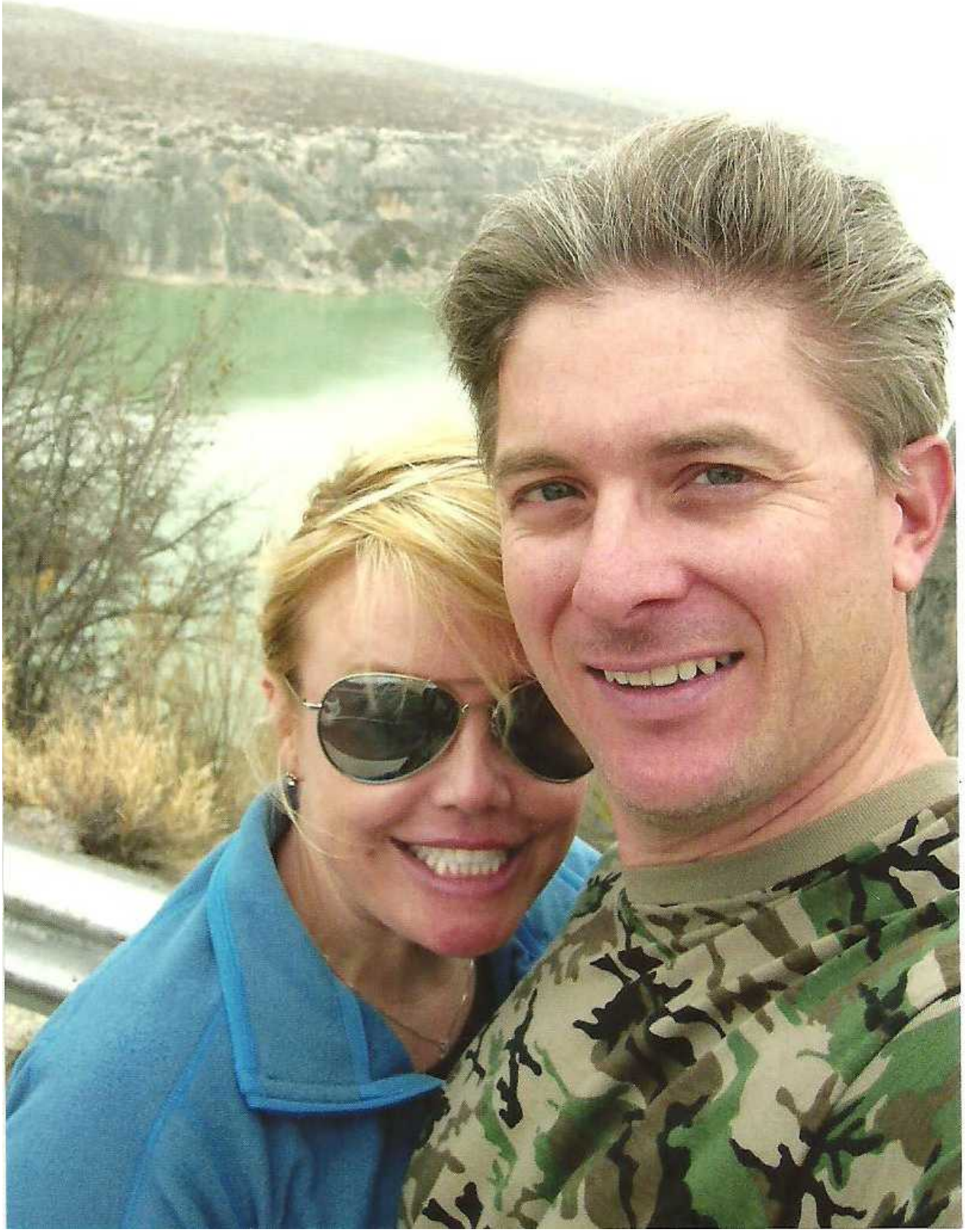
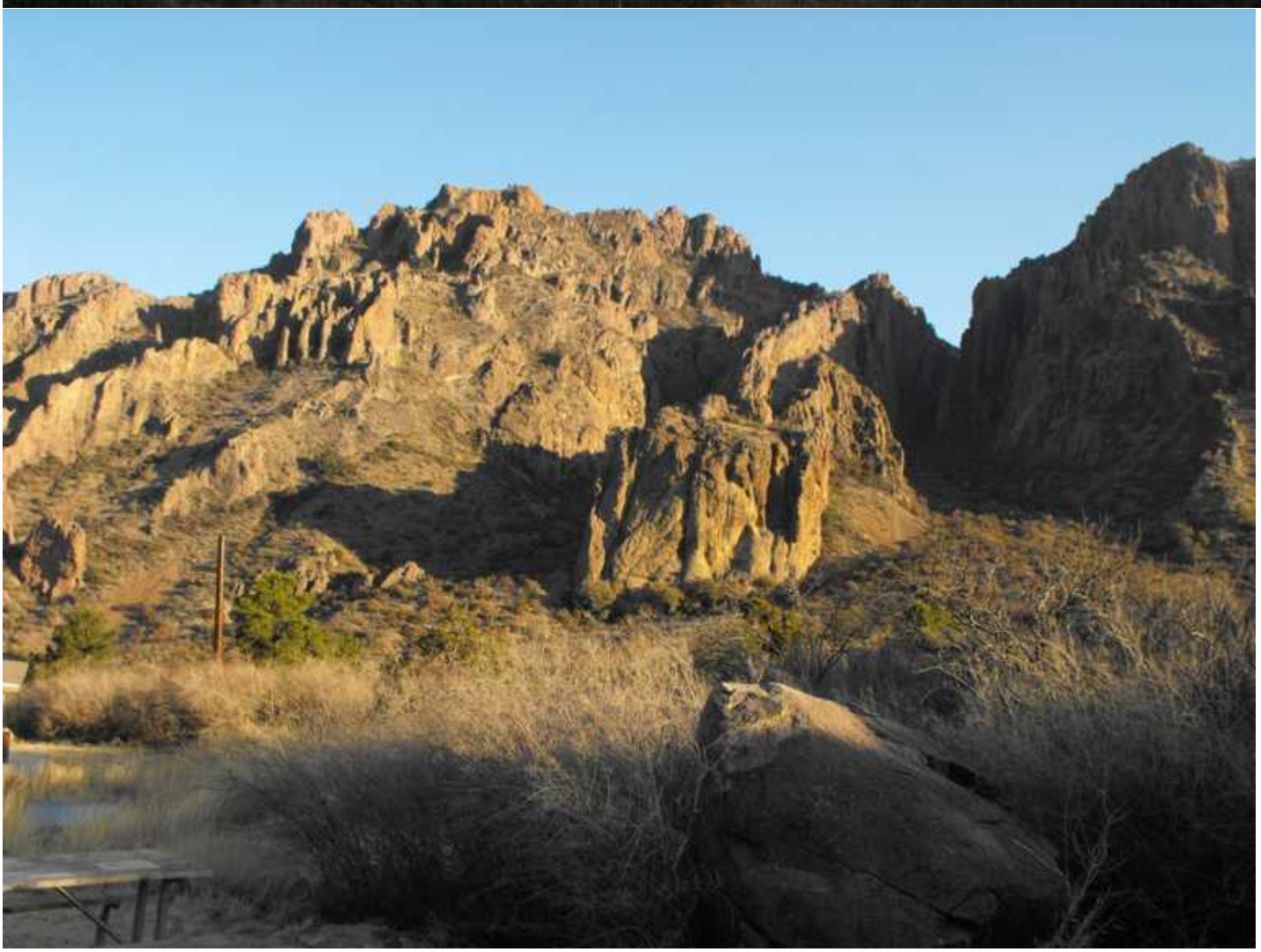


FIG 73: Brett and the author embarking on our trip



FIGS 74-79: Views of our campsite at Chisos Basin Campground, Big Bend National Park

Bear Country

Storage Locker

- Store food, drinks, dirty dishes, and toiletries in this locker when not in use. Edible or scented items in your vehicle should be locked in the trunk.
- Tents, tent trailers, and ice chests are not bearproof.
- Keep a clean camp. Dump dishwater and cooking liquids in utility sinks near the restrooms, not on the ground. Immediately dispose of trash in a dumpster.
- Empty and clean the locker at the end of your stay.
- If a bear approaches, keep a safe distance. Scare it away—shout, bang pans, throw objects toward the animal if necessary. Never approach, follow, or feed wildlife.
- Report all bear encounters to a park ranger.

FIG 80: The author planning the next day's fossil hikes

February 19, 2011: Aguja Anyone?

Brett and I broke camp soon after daylight and kicked off the day with a healthful breakfast on the fly followed by a wonderful morning hike of Santa Elena Canyon on the Rio Grande River, Lower Cretaceous limestones lining the walls. Brett had mentioned several times in the past that she enjoyed hiking, and I chuckled to myself over what would come next. Now it was time! My planned hikes would "accidentally" coincide with potentially productive fossil hunting, hahahaha! A little background reading ahead of time revealed that it was completely legal to trek all over Big Bend looking at and for fossils, just not take them. So with that in mind I targeted the Aguja Formation, an Upper Cretaceous sequence (Campanian, ~75 MYA) comprised of four members within the park, some members being marine and others terrestrial or tidal flats.

FIGS 81-83: Santa Elena Canyon, Big Bend National Park

We prospected a few hills and valleys and found little at first, but enjoyed the view, desolation, and silence. Our next stop would be the "meat and potatoes" of the day. We parked the car, slugged down some water, and packed a couple Gatorade G2s each for our desert stomp. I was reminded that the distant ridge looked farther and farther away as we walked toward it, my diabolical sense of humor kicking in and noting aloud that at park headquarters I read that visibility was as far as 236 miles on a clear day...hehehehe! We found various bivalves and oysters in the foothills en route, noting marine member(s) of the Aguja. We had to rest a few times to thwart heat induced headaches, but at long last reached the bluff. I fully expected to find more marine fossils, possibly ammonites, but instead began seeing scraps of dinosaur bone and petrified wood.

Clearly we had entered a terrestrial member of the formation. We didn't stay long, but from my elevated position I was able to plot an easier route back to the car, taking advantage of a drainage cutting through the foothills. "Whoa!", I shouted, interrupting our leisurely walk and conversation and almost clothes lining Brett in the process...at our feet was a 15 to 18 inch section of dinosaur bone eroding out of the gully, possibly a hadrosaur rib, with perhaps much more length still buried.

FIGS 84-85: Hiking the Aguja Formation amongst ocotillo cactus this page, hollowed out sandstone concretion next page, Big Bend National Park

FIGS 86-88: Ms. Brett observing a marine member of the Aguja Formation this page followed some of its bivalves and oysters next 2 pages (Site 545)

FIGS 89-93: The author conserving energy this page while Ms. Brett enjoys Site 545 next 4 pages

FIGS 94-96: From a terrestrial member of the Aguja Formation…our first dinosaur bones! Perhaps a hadrosaur rib followed by a hunk of petrified wood next page (Site 545)

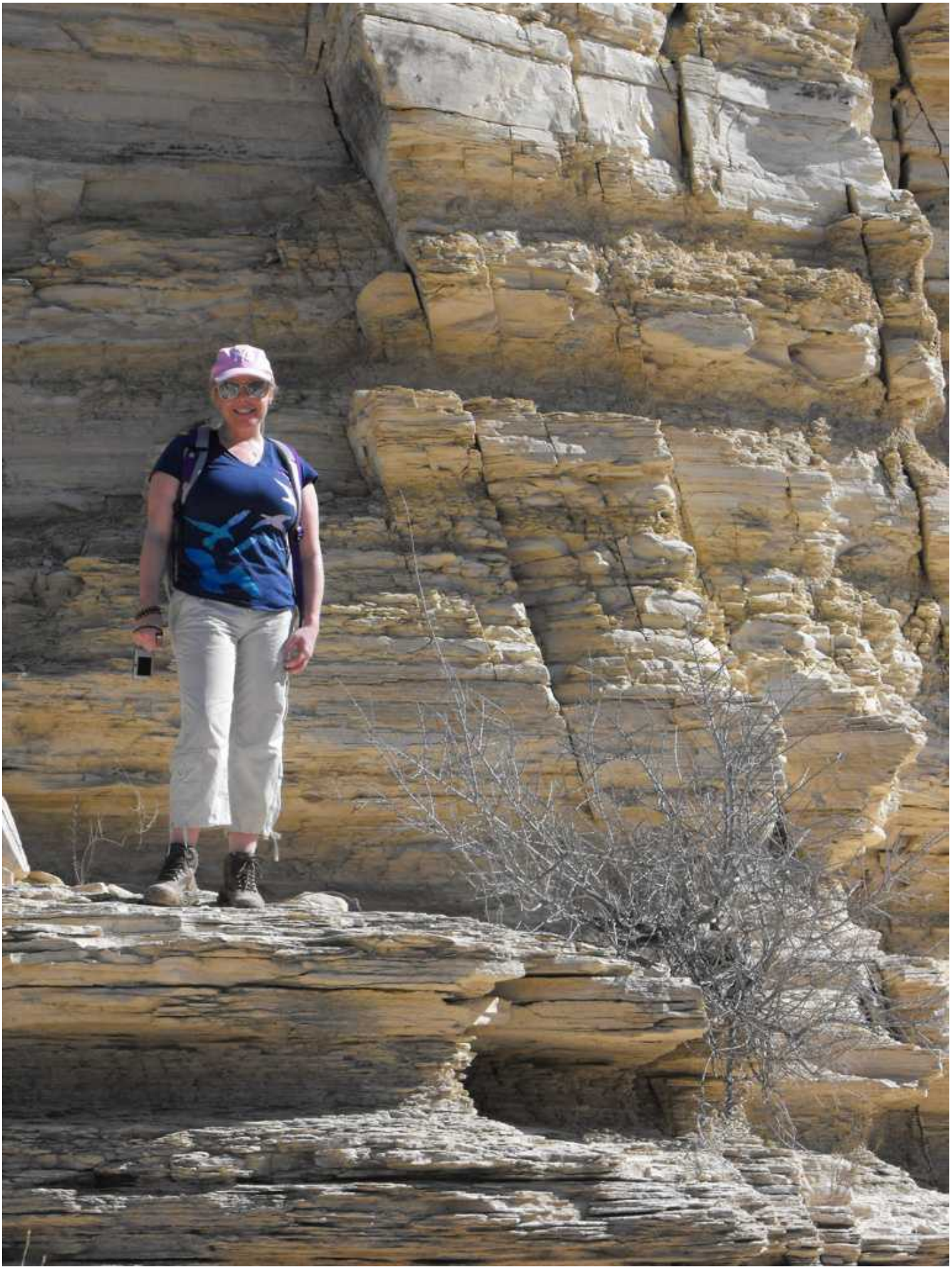
I'm accustomed to hauling out my finds and adding them to my personal collection, however a different set of rules applies in this situation. We admired the big bone, possibly 2 feet long or more if uncovered, photographed it, and I've since reported it to the park headquarters. The thrill of discovery was still extremely cool, and the site was so remote that this particular bone may have been exposed by the last gully washer, possibly never seen before by human eyes. We basked in the thrill of the moment and hoofed it back to the car, our spirits buoyed by the find coupled with an easier return hike. Interestingly, the park paleontologist Steve Wick later contacted me and by coincidence we found that we grew up in the 70s in Madeira, a suburb of Cincinnati, Ohio and even knew some of the same people back then. Quite an interesting twist for me personally.

A more civilized evening was in order, so we celebrated with a Mexican dinner in Terlingua and then camped in Study Butte. Winter is a wonderful time to visit the desert...although temps can still reach the 80s and 90s while hiking mid day, night temps were in the 40s, making for solid sleep, but not before I plugged and pressurized the flat tire I had earned by taking my Nissan Versa on a "high clearance vehicle required" gravel road. That long desert hike had drained us, as evidenced by 12 hours of sleep with no complaints from either side.

FIGS 97-99: Playing tourist in scenic Terlingua Ghost Town, Texas

February 20, 2011: Home Stretch

It was nice to enjoy a breakfast not issued from our cooler...a sit down buffet in Study Butte suited us well as the sun came up over the mountains. A hike down Terlingua Creek showed us some pretty exposures of Pen Formation (Austin equivalent, Campanian, 84 MYA) and we saw some *Inoceramus* clams but nothing of more interest. So we played tourist for a few hours, visiting the ruins and cemetery at Terlingua Ghost Town followed by the rock shop and a Mexican lunch at the Chili Pepper in Study Butte. 470 miles then separated us from home, and we made it without incident, savoring the West Texas landscape as it transitioned to more familiar Hill Country. All in all a very memorable trip.



FIGS 100-101: Thin bedded Cretaceous limestone of the Pen Formation, Ms. Brett for scale this and next page

FIGS 102-108: Gypsum crystals of the Aguja Formation, Terlingua, Texas, this and next 5 pages

FIG 109: Winding down our trip at the Chile Pepper in Study Butte, Texas

Addendum: Escondido Ammonites

Over the last couple years I've taken a number of *Sphenodiscus pleurisepta* ammonites from one of my sites in the Escondido Formation (66 MYA), putting the showier specimens on display and reserving the ugly ones for later cutting and polishing. The images below show the result of that lapidary effort, expertly performed by Dan Kelly of D&B Rockwerks in Vida, Oregon.

FIGS 110-123: Escondido Formation *Sphenodiscus pleurisepta* ammonites found by the author and cut and polished by Dan Kelly this and next 14 pages (Site 417)