FOSSIL AND ARTIFACT COLLECTING REPORT

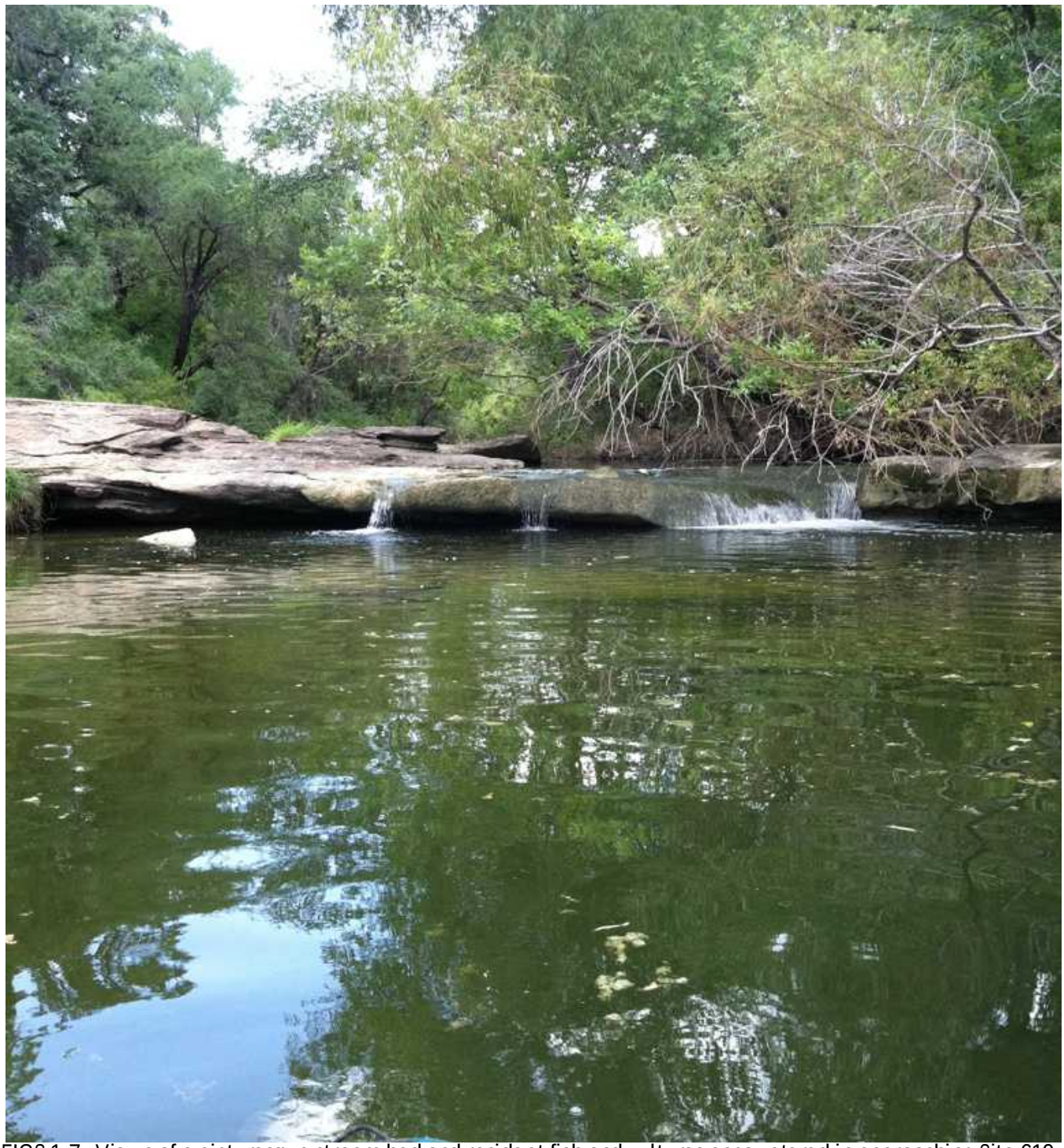
August 2012

Daniel A. Woehr and Friends and Family

August 4, 2012: Context is Critical

Lovely Ms. Brett worked 80 hours once again this week and still had more work to do on Saturday, so I embarked on an exploratory kayak mission solo this particular day. With great anticipation I mobilized on this stream course, the possibilities swirling in my head. Quite often I find nothing worthy of note while exploring, but this does little to dampen my perseverance, knowing that each dud site puts me one site closer to my next slam dunk. While landmark finds eluded me this trip, there were still some honorable mentions, although some are only interesting with an awareness of context. Allow me to expound.

I descended into my stream valley of choice, the geo map noting alluvium and Pleistocene terrace deposits. Clear water, gentle current teeming with carp, catfish, and panfish, not too much pollution…all the makings of an enjoyable trip afield.



FIGS 1-7: Views of a picturesque stream bed and resident fish and vultures encountered in approaching Site 610, this and next 6 pages

Good times portaging the kayak

Carp

Catfish

After considerable paddling I encountered a large bluff and associated gravel bars, and as I rounded a bend and approached the first bar, something out of context caught my eye…a large whelk shell. This was strange. It was a rather stout shell, and somewhat worn by the elements, and it was completely out of place where found. It would have taken one very determined snail to migrate this far upstream from the coast, and this isn't the type of thing people dump into streams with their trash these days, so it is quite possible that this arrived at its current location through Indian intervention some time ago, possibly being a trade item.

FIGS 8-11: Site 610 and the bovid mandible found in the bluff, this and next 3 pages

FIGS 12-17: Indian transported whelk shell as found and after clean up, this and next 5 pages (Site 610)

Note encrusting caliche, a sign of age and perhaps internment

Natural wear or purpose ground spire?

FIGS 18-20: Pleistocene horse molar this and next 2 pages (Site 610)


TEXAS
1845
2004

Then the bar at the base of the bluff gave up a chocolate brown horse lower molar, clearly Pleistocene in age. Rough in condition, but still a welcome find. Looking up the bluff a gleaming white bone caught my eye stuck in the sediment high up in the bank. It turned out to be a *Bison* or cow mandible, uninspiring at first, but in consideration of context, perhaps this was the result of Indian interaction.

Miles of leisurely paddling under a canopy of trees helped me beat the summer heat. I guzzled Gatorade until I was about to burst. Logjams and limestone slabs blocking the stream course gave me reason to walk, climb, wade, and in some cases submerge all but my head as I went over, around, and in some cases under navigational obstacles. I enjoyed sharing the Texas Outback with all manner of critters...herons, egrets, vultures...I even slipped up on a 150 LB wild hog and spooked it out of its sloppy, sandy wallow at the base of a bluff and got a good look as it reluctantly retreated to higher and hotter ground. A second hog later startled me from thick brush 10 yards away as I walked a gravel bar, the sharp alarm snort sending me back a few steps...but only for a few seconds as experience has shown that these beasts want nothing to do with humans.

While wading through the shallows my eyes caught the shape of a bone in the current, and I'm now the proud owner of a Pleistocene hip bone of some sort, proof seal of age being a crust of caliche on one side. A couple bends away I plucked half of a mineralized metapodial of some sort, possibly horse, from the stream, the bone split lengthwise. Then a cow or *Bison* lower molar came to hand, its root worn down. I was on high alert as I rounded the next bend and came up on another silty bluff.

FIGS 21-25: Unidentified Pleistocene pelvic bone this and next 4 pages (Site 611)

Half horse metapodial right?

Caliche encrusting pelvis fragment

While walking the base of the bluff I noticed several squarish looking cracked rocks that looked unlike anything else encountered in this stream. Looking down the bluff, I saw a line of these rocks then looking up the face, I could see they were eroding out from a bit higher up. These were clearly fire cracked rocks from an Indian campsite midden. This was very cool…one of the few campsites I've found completely on my own, pretty satisfying actually. I climbed the bluff to a darker layer up high in the bank, and there I found a few more midden rocks, burned charcoal from ancient fires, lots of snails and a few bivalves, flint flakes, and one blade with the tip

and base knocked off. I found no perfect artifacts this time but it was interesting to see so many classic indicators of ancient human habitation all in one site.

FIGS 26-30: Signs of an Indian campsite this and next 4 pages (Site 611)

Burned midden rock

Charcoal

Snails, partial artifact

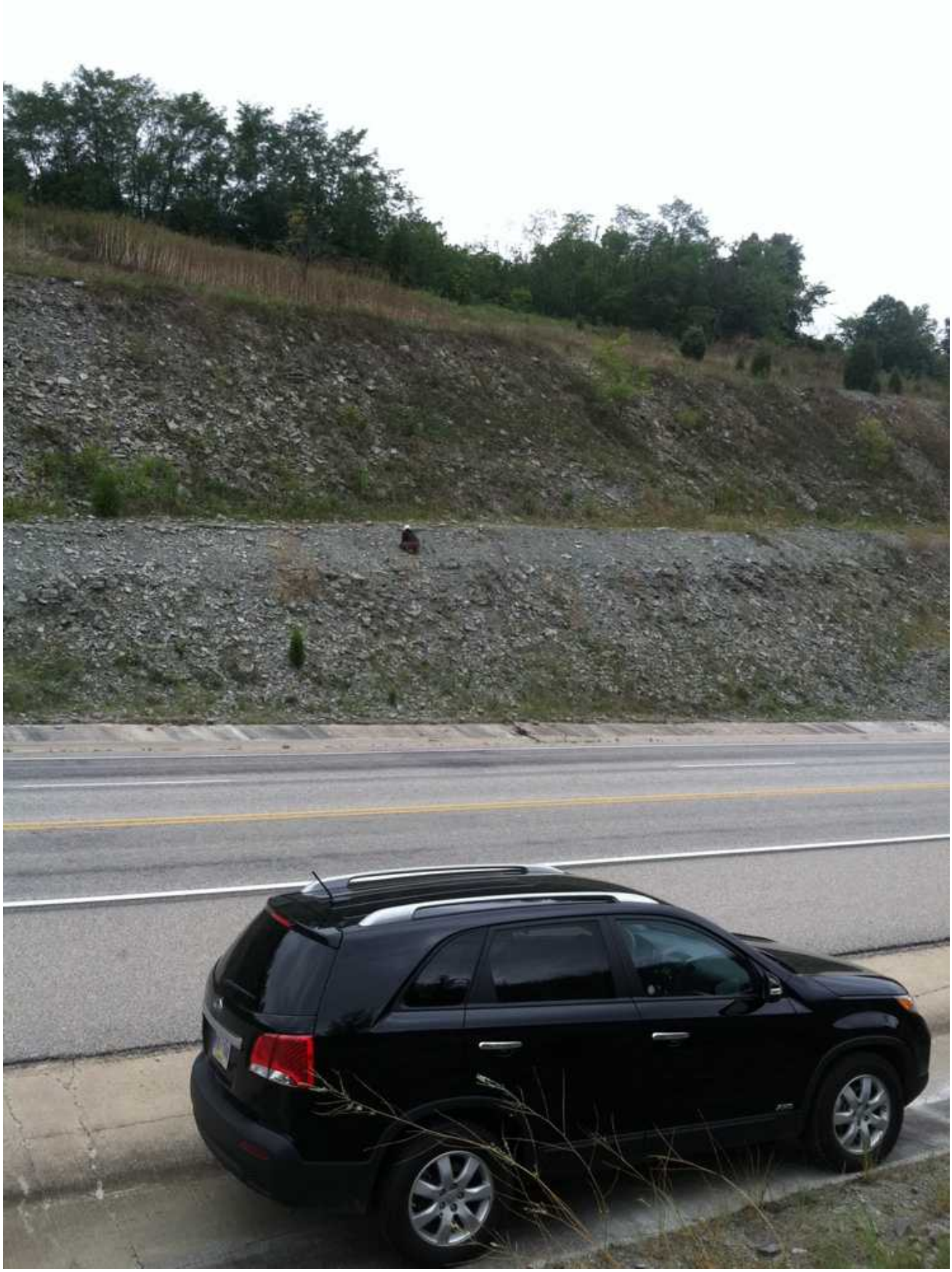
Partial blade, flint chip, bovid tooth

My adventure began to wind down at that point and my attention turned to the paddling, wading, and dragging trip back to the truck. I made no other finds. Back at the truck it was clear that someone didn't like where I had parked, but at least all my windows were intact! While light on finds, I consider the day a resounding success and wish more exploratory trips could go this well.

August 10, 2012: Ordovician Excursion

At long last, young Weston and I took my fiancée Brett to Cincinnati to meet the rest of my family…and with a little slip time built into our schedule, I was able to orchestrate a half day survey of Ordovician fossil sites, thus chronicling Ms. Brett's first time exploring for fossils of that period. Heavy thunderstorms landed us well after midnight in Dayton Thursday night and the rental car place had closed, leaving us in a bit of a pickle. I had to scramble to get us another car and a last minute room by the airport. To some this might seem as a major inconvenience, but looking just a bit beyond the inconvenience, I smiled and welled with anticipation…

Up early, I coaxed my crew into the car, dropped off Weston with his eager grandparents, and whisked Ms. Brett off to a well known road cut in southeastern Indiana. The planets had aligned perfectly…over a half inch of hard rain had just fallen on the road cut a few hours prior, the first rain to break the drought in weeks, and an early start put us first on site in pleasant 65F climes while most local collectors were at work! Mua ha ha!



FIGS 31-32: Ms. Brett diligently searching the butter shales of the Liberty Formation in hopes of her first trilobite this and next page (Site 291)

Within a half hour we had located a couple headless *Flexicalamene* trilobites nestled amongst the *Zygospira modesta* brachiopods found so commonly together in the butter shales of the Liberty Formation (440 MYA). Once Ms. Brett had a handle on the presentation of fossils in this zone, I gave her one side of the road cut while I moved to the other side so we could each move at our own most comfortable pace. I like to cover lots of ground fast, perhaps missing a percentage of desirable finds, but I make up for that in area covered. Ms. Brett on the other hand prefers to work a smaller area methodically with a 100% catch rate. Both methods work just fine, especially at large sites.

FIGS 33-34: First Liberty Formation *Flexicalamene* trilobite of the day this page, associated Zygospira *modesta* brachiopods next page (Site 291)


INDIANA
1816
CROSSROADS OF AMERICA
2002

I found 3 whole *Flexicalamene* trilobites in rapid succession, two enrolled and one prone with his head tucked under, and when another collector rolled up I called Ms. Brett over to put her on what I felt was the most productive section of the site on this day, freeing up the other side in case the other guy wanted some space. Brett's purposeful crawl landed her first trilobite, so everything else was gravy after that. We spent another hour Spiderman crawling the slopes, and in the process I snagged perhaps 8 more nearly perfect to perfect *Flexicalamene* specimens from BB to larger than marble sized. Added to our final tally were numerous *Grewingkia* horn corals, *Platystrophia* and *Strophonema* brachiopods, and *Loxoplocus* and *Sinuites* gastropods...quite an acceptable take.

FIGS 35-46: Liberty Formation *Flexicalamene* trilobites this and next 11 pages (Site 291)


INDIANA
1816
CROSSROADS OF AMERICA
2002


INDIANA
1816
CROSSROAD

Dark patches are pyrite. Scale in mm

FIGS 47-49: Associated Liberty Formation *Isotelus* trilobite fragments including horseshoe shaped hypostome this page, unidentified partial orthocone cephalopod next 2 pages (Site 291)


INDIANA
1816
CROSSROADS OF AMERICA
2002
E PLURIBUS UNUM

Note siphuncle

FIGS 50-51: Ornate Liberty Formation gastropod *Phragmolites dyeri* this and next page (Site 291)


CROSSROADS OF AMERICA
2002

FIG 52: *Loxoplocus bowdeni* gastropods from the Liberty Formation (Site 291)

FIG 53: Liberty Formation gastropods *Cyrtolites ornatus* (hook shaped), unidentified center, two *Sinuites cancellatus* bottom and right (Site 291)

FIG 54: Liberty Formation brachiopods *Strophonemum planumbona* (Site 291)

FIG 55: Liberty Formation brachiopod *Platystrophia* left, rugose coral *Grewingkia canadensis* right (Site 291)

FIGS 56-57: Unidentified Liberty Formation bivalves this and next page (Site 291)

Pangs of hunger rang out in unison, so we held out for Skyline Chili, an area favorite, and threw down a few cheese coneys en route to the next site, this one not as well known to the collecting public. I realized its potential while exploring alone 5-6 years ago and have enjoyed its spoils with each visit back home ever since. It looks no different than the other innumerable road cuts in the Greater Cincinnati area...until you get out and look at the ground, with quality Fairview Formation (or stratigraphically similar) fossils coming to hand rather readily.

Before we had a chance to collect anything, a city highway worker came by and tried to run us off. After citing a few facts and other conversations I had had previously with law enforcement, he seemed satisfied and moved on...and Brett and I moved in...and the Blitzkrieg began! I climbed high while Brett worked down low, the two of

us purposely staggered so that my loose rocks couldn't catch her on their way down. We only stayed for a half hour, but my, what a montage of fossils came to hand! First I saw a whopper of an enrolled *Flexicalamene* trilobite, a big 3 inch wide glabellum (head) from an *Isotelus maximus* trilobite, then several very nice orthocone cephalopods, some cool *Cyclonema* gastropods, nice *Rafinesquina ponderosa* and walnut sized *Platystrophia ponderosa* brachiopods. At the end came the Holy Grail of the site, a palm sized slab of shale partially exposing 6 crinoid crowns *Pycnocrinus dyeri*, with perhaps more hidden subsurface. Subsequent preparation of this rare specimen brought out a little more flowery splendor of these stalked echinoiderms.

FIGS 58-59: Ms. Brett working the Fairview Formation this page, *Flexicalamene* trilobite cephalon next page

(Site 292)

FIGS 60-61: Fairview Formation *Flexicalamene* trilobite this and next page (Site 292)


OHIO
1803
BIRTHPLACE
OF AVIATION
PIONEERS
2002

FIGS 62-68: Fairview Formation *Isotelus maximus* trilobite glabellum this page, unidentified orthocone cephalopods next 6 pages (Site 292)


OHIO
1803
BIRTHPLACE
OF AVIATION
PIONEERS
2002
E PLURIBUS UNUM


2002


OHIO
BIRTHPLACE
OF AVIATION
PIONEERS

FIGS 69-71: Fairview Formation *Cyclonema* gastropods this and next 2 pages (Site 292)


OHIO
1803
BIRTHPLACE
OF AVIATION
PIONEERS
2002

FIGS 72-75: Fairview Formation *Platystrophia ponderosa* brachiopod this and next 3 pages (Site 292)


OHIO
1803
BIRTHPLACE
OF AVIATION
PIONEERS
2002
E PLURIBUS UNUM

FIGS 76-78: Fairview Formation brachiopods *Hebertella occidentalis* this page, *Rafinesquina ponderosa* next page, storm deposited *Rafinesquina* brachiopods next page (Site 292)


OHIO
1803
2002

FIGS 79-80: Fairview Formation bivalves *Ambonychia* this page, *Caritodens demissa* next page, bryozoan *Parvohallopora ramosa* next page (Site 292)


OHIO
1803
BIRTHPLACE
OF AVIATION
PIONEERS
2002
E PLURIBUS UNUM

FIGS 81-102: Fairview Formation crinoid crowns *Pycnocrinus dyeri* this and next 21 pages (Site 292)

Initial scrub

First baking soda blast

First air scribe session followed by 2nd baking soda blast

Second air scribe session

Crinoids covered with acetone based glue to protect from more aggressive media blast

After final iron filing blast and removal of glue

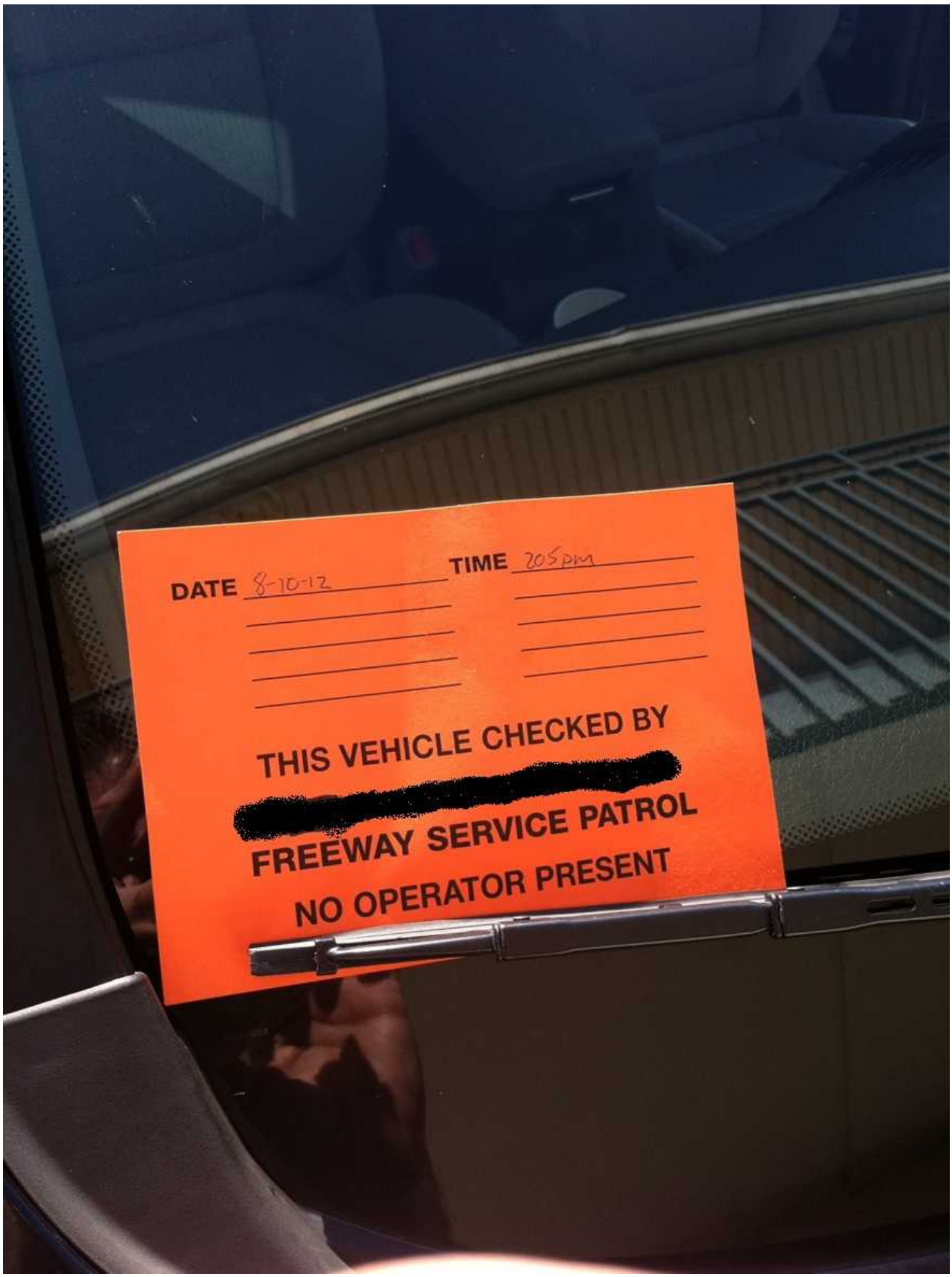


FIG 103: Just checking on us.....(Site 292)

Now we were officially tired. A German dinner with my family followed by an early night made for a perfect day.

August 13, 2012: Following in Small Footsteps

On Saturday my dad, Weston and Brett had gone on a walk and happened upon a couple graded lots in an otherwise mature housing development. A sharp eyed Weston smoked everyone in finding fossils, and in the process picked up something in a slab I had never personally found…the enigmatic tapered form known as *Tentaculites sterlingensis*, a little understood fossil thought to be a polychaete worm, quite diminutive in size. Subsequent research suggested that this site possibly represented the Whitewater Formation.

FIGS 104-105: Weston's polychaete worm *Tentaculites sterlingensis* possibly from the Whitewater Formation this page, worn rugose coral, probably *Grewingkia candadensis* next page (Site 612)


OHIO
1803
BIRTHPLACE
OF AVIATION
PIONEERS
2002
E PLURIBUS UNUM

FIGS 106-111: A pretty Ordovician creek exposure in southwestern Ohio this and next 2 pages, cephalopods and brachiopods found there following 3 pages

Following the lad's lead, I returned with Ms. Brett on Sunday morning with our gloves and kneepads. We found the lower levels of the alternating limestone and butter shale layers to be a veritable pavement of *Cincinnatensis* brachiopods, mostly in perfect preservation. Very nice. We grabbed a few of them for good measure. I urged Brett to focus on the broken down shales, and there she found 2-3 *Flexicalamene* trilobites, but they were very weathered to the point of partial delamination. So they were present, but neglected and left to the elements way too long...we'll try not to let that happen again!

FIGS 112-120: More *Tentaculites sterlingensis* worm tubes this and next 3 pages followed by brachiopods *Cincinnetina meeki* next 5 pages (Site 612)


OHIO
1803


OHIO
1803


OHIO
1803


OHIO
1803
BIRTHPLACE
OF AVIATION
PIONEERS

With persistence we were able to locate more of the little *Tentaculites* worms both in limestone matrix and in the clays weathered free of matrix. Success at this site is attributed fully to Weston's powers of perception.

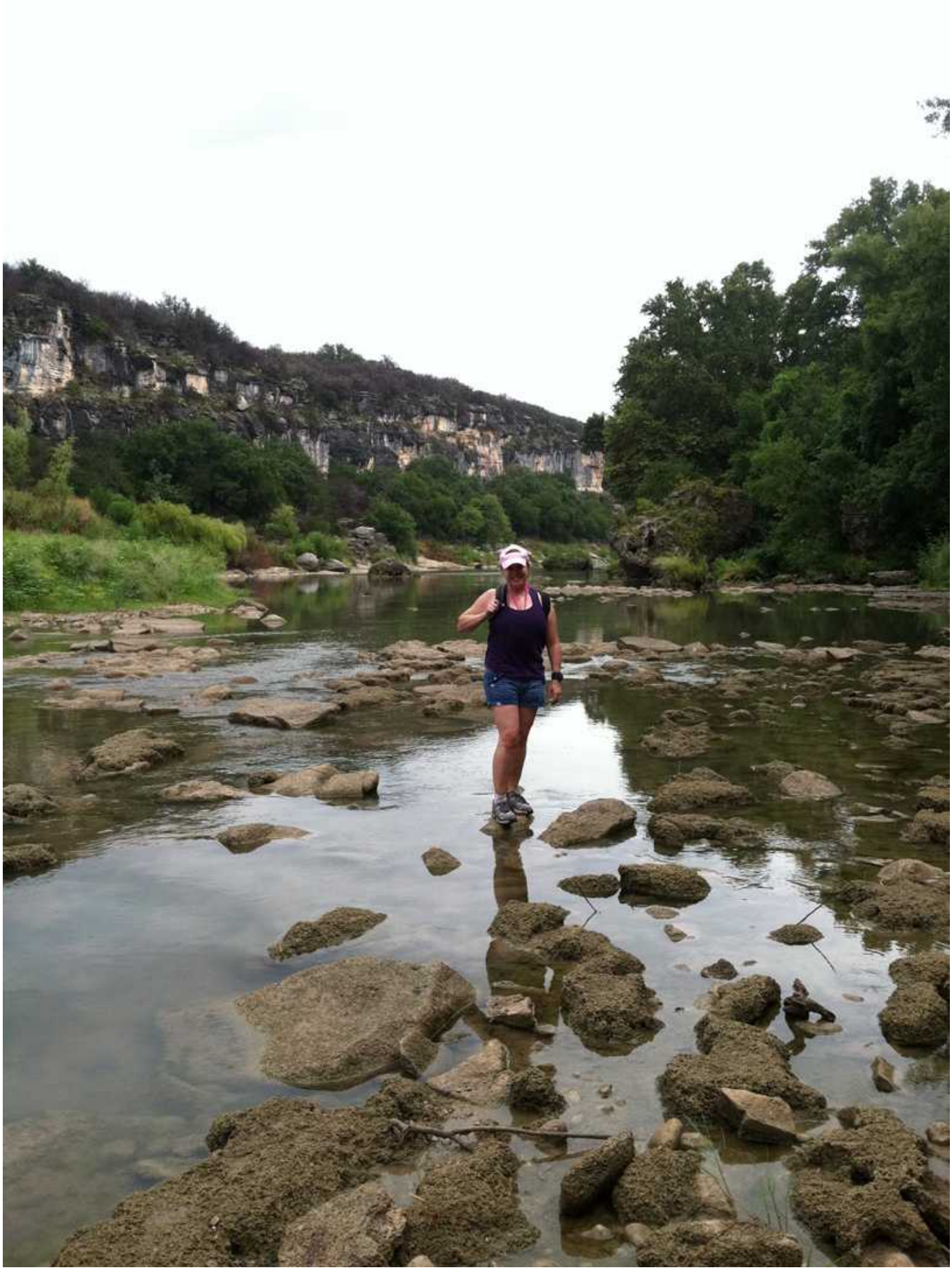
Unfortunately the work week beckoned and we had to bid farewell to my parents, brothers, cousins, and friends, some I've known since Cub Scouts in the late '70s. But we'll be back more often for more family, friends, food and fossils! Perhaps in the colder months so young Weston can indulge himself once again in sled riding as he last did a couple years ago….

August 18, 2012: Wine and Echinoids

On a rainy Texas Saturday I took Ms. Brett on a tour of the Hill Country in search of varied adventure. In no particular hurry, we stopped first at a little winery to kick things off on a positive note. (Nota bene: it always pays to make the woman an equal stakeholder in the day's adventures, perhaps adding some non-paleo points of interest to the itinerary…). Pressing on, we visited Colorado Bend State Park for a long and rainy hike down

muddy, sloppy trails to Gorman Falls, a beautiful and scenic 60 foot waterfall of lichen, ferns, and travertine well worth the hike, even in the rain. We got pretty muddy sliding down a mud chute into the river (inadvertently, that is).

FIGS 121-124: Ms. Brett at the winery this page and Gorman Falls at Colorado Bend State Park next 3 pages



Moving right along, we made a quick stop at a site in the Walnut Formation (107 MYA), perhaps the most widely exposed Cretaceous marine formation in Texas. Within seconds I grabbed a nearly complete *Engonoceras* ammonite in a nodule of yellow marl, its back side eroding thin, but with a little epoxy putty on the thin side, I was able to scribe the rock away from the other side, leaving one good show side on this 4 inch specimen. Ammonites seem to rarely survive intact up to the time of collection in this formation.

FIG 125: Walnut Formation *Engonoceras* ammonite (Site 50)

Echinoids on the other hand seem to fare much better, and this was our prime quarry anyway. *Heteraster* heart urchins were everywhere, but they weren't the target of our collecting, except for a few well preserved juveniles that made it into my catch bag. We were instead after the regular echinoids which the formation produces, and I was first to score with a couple *Coenholectypus planatus*, unexpected and welcome. A third of the same joined the other 2, this time a juvenile.

FIGS 126-127: Walnut Formation *Leptosalenia mexicana* echinoids this and next page (Site 50)

FIGS 128-129: Walnut Formation *Loriolia whitneyi* echinoids this and next page (Site 50)

FIG 130: Walnut Formation *Phymosoma texanum* echinoids (Site 50)

FIG 130: Walnut Formation echinoids *Coenholectypus planatus* above, *Leptosalenia mexicana* mid left, *Heteraster texanus* lower left (Site 50)

FIGS 131-134: Close ups of Walnut Formation echinoids *Coenholectypus planatus* and *Leptosalenia mexicana* mid left, more *Coenholectypus* detail shots next 3 pages (Site 50)

Meanwhile I spotted a *Loriolia* echinoid, marked a wide perimeter around it, and helped train Ms. Brett's eyes by letting her find it. Soon she found a *Salenia mexicana*, and I followed suit with 2 more, stunning in their presentation and preservation. I spotted one very fine larger regular echinoid *Phymosoma texanum*, of which I have many, so I got an in situ shot, backed off, gave Ms. Brett a general area to search, and let her enjoy the moment of glory for herself and keep her prize. A small crab claw marked my last hoorah on the stomp back to the car, and away we went.

We finished our day at a fruitless site exposing Weno Formation limestone and marl in cold and blasting rain. The upside…we both agreed it was time to call it a night!

August 19, 2012: Whine and Ammonites

The whining was mine as a cloudburst sneaked up and flooded my intended Sunday collecting site, my fault for not watching the weather forecast more closely. Who would have expected copious precipitation in drought

stricken Texas in August???, I says....Good thing I always have a Plan B so the gas, time, and effort are never wasted.

Brett and I entered a stream bed that happened to have a little bedrock exposed. Part of the joy of exploring new sites for me is the initial few minutes when I work to ascertain what formation I'm looking at, with the mental computer processing lithological and faunal clues in real time. Blue gray limestone and marl gave up a couple *Holaster simplex* echinoids, both well preserved and eroded, to suggest Fort Worth Formation (101 MYA) as the true identity of our host exposure.

FIGS 135-141: Fort Worth Formation echinoids *Holaster simplex* this and next 6 pages (Site 613)

FIGS 142-145: Fort Worth Formation *Mortoniceras* ammonite this and next 3 pages (Site 613)

Brett went one way and I went the other, and when I did a 180 to catch back up with her, I spotted the keel of a big *Mortoniceras* ammonite jutting out of a 150 pound slab of limestone. Slinging my 3 pound hand sledge, the ensconcing limestone was quite compliant, and separated from the fossil quite readily, including the plug that popped out on one side of this 13½ inch diameter beauty to reveal the inner whorls. This specimen will be beautiful and unweathered when viewed from any angle, a real trophy for ammonite lovers, yanking my pack straps with 30 pounds of heft.

Pressing on with a little bar hopping, Brett encountered a nice *Mortoniceras* about 8 inches diameter, which I unfortunately shattered when trying to lighten it up a little by freeing matrix. "Yeah, I'll prep your ammonite next," she retorted. I let her take point, hoping to give her first crack at the better fossils, but admonished that that also gives first encounter with any snakes, and scant moments later I heard the "girl snake scream" that made me chuckle. It was just a water snake making a living in the shallows, and I ushered it along unharmed.

Proceeding, we visited a temporary exposure of Duck Creek limestone and marl (102-103 MYA) and perhaps its contact with the underlying Kiamichi Formation (104 MYA). This transition was marked not only by a difference in ammonite faunas, but also in lithology, the Duck Creek being a light gray to tan marl and limestone, and the Kiamichi with dark gray strata dominated by thin bedded clays. We preferred the more productive Duck Creek Formation, where we found several *Mortoniceras* and *Eopachydiscus* ammonites, some of the latter quite large but hard to extract whole. No worries as we have many examples of this oversized and hard to portage genus already.

FIG 146: Contact of basal Duck Creek Formation and underlying Kiamichi Formation (Site 614)

FIGS 147-148: Duck Creek Formation ammonite *Eopachydiscus marcianus* this and next page (Site 614)

FIGS 149-150: Duck Creek Formation ammonites *Mortoniceras* this and next page (Site 614)

Working down section, Ms. Brett spotted a large but fractured example of an older ammonite form, something in the *Oxytropidoceras* to *Adkinsites* spectrum marking the transition from *Oxytropidoceras* of the Kiamichi to *Adkinsites* and eventually *Mortoniceras* ammonites that dominated the Washita Group. Cool stuff. We saw a few broken echinoids as well and pulled the plug on our adventure after an hour or so, each walking away with one

good 4 inch *Mortoniceras* ammonite for our efforts, small and well preserved; a quite acceptable way to wind down our full speed weekend.

FIGS 151-154: Ms. Brett investigating the basal Duck Creek Formation and ammonites *Oxytropidoceras* or *Adkinsites* this and next 3 pages (Site 614)

FIGS 155-156: Ms. Brett and her nice Duck Creek Formation *Mortoniceras* ammonite this and next page

(Site 614)

FIGS 157-163: Duck Creek Formation *Eopachydiscus* ammonite this page, *Mortoniceras* ammonites next 6 pages

(Site 614)

We quit a little early and rolled back to San Antonio with good memories and a few trophies for our efforts, and several hands-on paleo lessons under our belts.

August 20, 2012: Quadrupedal Assessment of the Corsicana

The rain that fell over the course of the weekend served to freshen up the Corsciana Formation site (68 MYA) a bit, the major weather event by act of God coinciding perfectly with my week long hiatus from parental duties, thus affording me a week of work nights to assess various collecting venues in the vicinity with unprecedented flexibility. With gloves and knee pads engaged and locked in combat position I began my purposeful and systematic crawl across the Corsicana fossilscape, noting a distinct prickly character of the encroaching vegetation at the site. South Texas it seems is replete with all manner of flora designed to jab, stab, and exsanguinate humans, and Ma Nature was doing her best to rob me of my concentration with every incremental move as I weaved through the weeds on all fours. Nice try, but dogged perseverance prevailed over physical discomfort this time.

Interestingly and for reasons I can't explain, some rains seem to bring out more echinoids than crabs, other rains more crabs than echinoids. This rain brought a little of both. My initial passes across the exposure brought the

satisfying clunk of many an echinoid in the bottom of my catch bag, dominated by *Hemiaster bexari*. I was pleased however to add a couple oddballs to the mix, namely *Diplodetus americanus* and *Proraster dalli*.

FIGS 164-165: Corsicana Formation *Proraster dalli* echinoid this and next page (Site 349)

FIGS 166-167: Corsicana Formation echinoids *Schizaster americanus* above, *Proraster dalli* two center, *Diplodetus variabilis* below (Site 349)

Proraster, Schizaster

FIGS 168-169: Corsicana Formation echinoids *Schizaster americanus* center, *Hemiaster bexari* left, calcite crystal right, this page, *Hemiaster bexari* next page (Site 349)


TEXAS
1845

As darkness approached, the echinoids began to taper off, but the crabbing action picked up. Rays of western twilight illuminated several crabs *Dakoticancer australis*, most presenting as legless carapaces eroding out of marl nodules, others seemingly crawling out of the marl, frozen in time, their claws and appendages shattered but articulated in the sediment. Often the legs are too fragmented to recover as the marl is quite crumbly, so I rely on in situ photos capture the full splendor of these shattered specimens. Since 7 years of collecting every major rain at this site has fine tuned my shape recognition skills to spot the fossils present there, subconscious takes over at times and brings some good finds to the mix. For instance, without really thinking or registering things in my mind I instinctively reached under a bush to grab a strange globose form in the shadows, and it turned out to be another crab carapace scarcely recognizable even in better light. When they are partially covered in matrix they are often well preserved, and I hope this to be the case come prep time.

FIGS 170-179: Corsicana Formation crabs *Dakoticancer australis* this and next 9 pages (Site 349)


TEXAS
The Lone Star State
2004


2004

Moving along with my LED headlamp broadcasting a tight periphery of scrutiny onto the ground, my productivity began to wane…maybe 3 hours on hands and knees was wearing my knees out, maybe the changing lighting conditions confused my brain a little, or maybe I was getting light headed from blood loss as I moved through still thicker, pricklier vegetation to get to unhunted patches of ground. A couple more crabs ended up in my bag, then the shark teeth began to show up in my headlamp beam, glaring back at me plain as day. I took maybe 3 or 4 *Cretolamna maroccana* teeth and one *Squalicorax pristodontus*. None were perfect, all exhibiting a little root damage, but I was quite pleased with them as vertebrate remains aren't terribly common at this site.

FIGS 180-181: Corsicana Formation shark teeth *Squalicorax pristodontus* left and 3 *Cretolamna marrocana* this page, *Eutrephoceras* nautiloid and *Baculites* straight ammonite next page (Site 349)


TEXAS
1845

FIG 182: Corsicana Formation gastropods *Gyrodes, Bellifusus, Anchura, Napulus and Cypraea* (Site 349)

FIGS 183-184: Corsicana Formation *Napulus* gastropods below, bivalve *Lima guadalupensis* top left, *Neithea bexarensis* double next page (Site 349)

FIG 185: Corsicana Formation bivalves *Neithea bexarensis* above, *Trigonia castrovillensis* right, *Crassatella* left (Site 349)

FIG 186: Corsicana Formation worm tubes *Hamulus onyx* above, bryozoans *Dysnoetopora celleporoides* below (Site 349)

I pulled out around 10 PM after 3 hours of fun for one, and it made for a wonderful evening…the only drawback being that I woke up the next morning just 10 minutes before I was supposed to be at work!

August 22, 2012: Glen Rose Roundup (not quite)

Rain fell in varying amounts the previous weekend around South and Central Texas, and while copious precipitation served to freshen up the Corsicana Formation nicely as shown above, such was not so much the case in the Glen Rose Formation (108 MYA). Still, it was fun to get out on a week night. In short, I hit just one site that produces some oddball echinoids from the contact of the Upper and Lower Glen Rose, but no oddities came to hand this time. I was happy to round up a few *Leptosalenia texana* echinoids with maybe 2 nice keepers and the rest going into the kiddie donation box.

FIGS 187-188: Glen Rose Formation echinoids *Leptosalenia texana* this and next page (Site 445)

FIGS 189-190: Glen Rose Formation *Corbula* bivalves this page, praying mantis next page (Site 445)

August 25, 2012: Waylaying the Walnut Formation and Cornering the Comanche Peak

Our Saturday family outing was not intended to be a paleo centric venture, however I was pleased to see my fiancée throw her tools and backpack into the pontoon boat as we shoved off from port to explore a Texas

waterway exposing the Comanche Peak (106 MYA) and Walnut Formations (107 MYA). "By sheer coincidence" my backpack and knee pads also ended up in the boat. Ms. Brett had been asking for a boating day for quite some time, and this would be Weston's last hoo-rah for summer before becoming a 5th grader, so timing was perfect, and this was a great time to promote Weston from "cabin boy" to captain, letting him man the wheelhouse for most of the day. Running a 22 foot boat at age 10 should bring him some "street cred" in the school cafeteria the following week.

FIG 191: Captain Weston

At any rate we deftly maneuvered the craft on the leeward side of a partially submerged tree and looped it with the anchor rope, the bucking wind tightening up to position the stern just a 20 foot swim from an eroding bluff of Comanche Peak marl and limestone. The Comanche Peak is a formation I don't often get to collect, and I was glad to see my troops climbing all over the bluff with equal enthusiasm. The fauna to me seemed quite distinct from the more familiar Walnut, with the different gastropods being a glaring example of this difference.

FIGS 192-193: Ms Brett and Weston taking on the Comanche Peak Formation this and next page (Site 615)

Weston was first to score a good echinoid, a small *Coenholectypus ovatus* or similar. He then took a nice *Pinna* bivalve and several big gastropods. Brett scored a few *Heteraster* echinoids and I finally landed a *Phymosoma texanum* in matrix and gave it to Brett. Weston was still on high alert during his last few steps to the water's edge; a large and slightly distorted *Coenholectypus* echinoid did not escape his field of view.

FIGS 194-197: Weston and his Comanche Peak Formation *Coenholectypus* echinoids this and next 3 pages

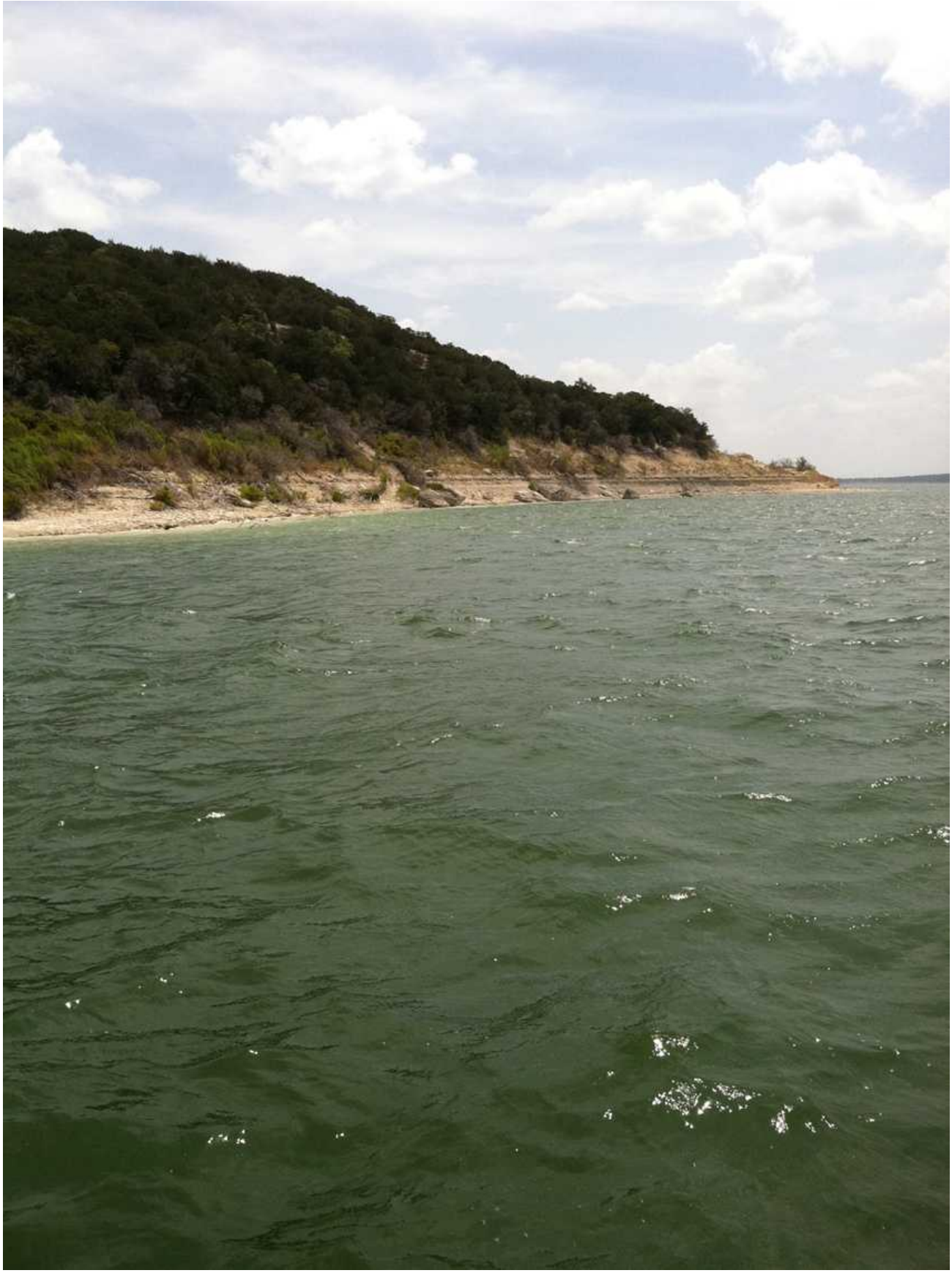
(Site 615)


TEXAS
1845
The
Lone Star
State
2004

FIGS 198-200: Weston and his Comanche Peak Formation *Pinna* bivalves and unidentified gastropod this and next 2 pages (Site 615)

FIG 201: Comanche Peak Formation echinoid *Phymosoma texanum* (Site 615)

Shoving off, we tooled around exploring for a while, then rounding a corner we lay eyes on a very prominent bluff of gray marl and nodular limestone. Stiff winds drove whitecaps which prompted us to sneak behind a small point near the exposure and again lasso a dead tree. We threw our tools to shore and Navy Sealed our way to a beach assault on what turned out to be the Walnut Formation as evidenced by familiar *Ceratostrean* oysters. Brett found a spot she liked and worked it slowly while Weston and I weaved around the rubbly beach at the base of the bluff.



FIGS 202-204: Views of Walnut Formation Site 616 this and next 2 pages

In areas where bedded clay met the shoreline we had considerable luck on echinoids dominated by *Phymosoma texanum* and sprinkled with a few *Heteraster texanus*. Later scrutiny of my echs revealed that one "*Phymosoma*" was actually a nice *Tetragramma* of similar size. No complaints!

FIGS 205-207: Walnut Formation echinoids *Phymosoma texanum* this and next 2 pages (Site 616)

FIG 208: Weston's Walnut Formation echinoids *Phymosoma texanum* and *Neithea* bivalve (Site 616)

FIGS 209-210: Walnut Formation *Tetragramma* echinoid this and next page (Site 616)

FIG 211: Walnut Formation *Heteraster texanus* echinoids (Site 616)

FIG 212: Walnut Formation echinoids *Tetragramma* sp. bottom 2, *Heteraster texanus* heart urchin, remainder *Phymosoma texanum* (Site 616)

Moving up section in the bluff, I pointed to a marly layer and told Weston to keep his eyes peeled there for well preserved regular echinoids. It was no sooner that the words left my mouth that he squealed and pointed, and we shared a lifetime memory...ours were the first human eyes ever to see this HUGE and perfectly preserved *Tetragramma taffi* echinoid peeking out of the marl, and Weston found it "all on his own". He soon remarked that "I had to act fast or my Dad would have gotten it!" With a few gentle hammer taps it was free and only then could its heft be felt. This thing was huge!

FIGS 213-224: Weston and his world class Walnut Formation echinoid *Tetragramma taffi* this and next 11 pages (Site 616)


Jackson Hole


Jackson Hole
Wyoming

I scored a couple more *Phymosoma* from this same layer on the way back to the boat, but they seemed superfluous and inconsequential at this point. Meeting back up with Brett, she had a couple *Phymosoma* of her own to show, so as a team we took about 10 *Phymosoma* and 2 *Tetragramma* from this site, not bad, not bad atall!

Our next pretty stretch of Walnut turned out to be rather sterile in terms of desirable fossil content, so we pressed on, and the next gray marl bluff did not disappoint. Weston swam near the boat while Brett went one way and I went the other. At the end of the exposure I picked up a thick, perfect *Engonoceras* ammonite about 5 inches in diameter, perhaps my largest complete specimen of that genus. The Walnut Formation often produces them compressed and/or broken in half, so I value this prize, the only whole ammonite of the day. Meeting back up with Brett, she had found and mined a seam of blue clay that gave up several very well preserved *Heteraster texanus* echinoids.

FIG 225: A scenic but fossil free Walnut Formation shoreline

FIGS 226-228: Walnut Formation *Engonoceras* ammonite this and next 2 pages (Site 617)

FIGS 229-230: Walnut Formation *Trigonia* bivalve this and next page (Site 617)

Low on time, we visited one last bluff, and it was fossil poor. However the water was an inviting clear green, and it was August in Texas, so we all broke out our snorkeling gear and enjoyed the cool depths. At one point just for kicks we had an underwater fossil hunting contest. A small *Heteraster* came to hand fortunately before anyone ran out of breath, then we ran back to port.

This was a great family outing largely because we were able to access lightly collected, remote exposures without much physical work. The time together cruising around under the shade of the Bimini top was quite welcome too, and I think we all chalked this up as one of life's great memories together as a team.

August 26, 2012: Return to Swine Guard Bluff

Still aware of the residual benefits of the previous weekend's rains, I took some time to resurvey the Indian campsite I had found 3 weeks prior. Access was again rather cumbersome, and perhaps that is what kept the site off the public radar….that or the nearly constant procession of packs of wild hogs that has kept me company both times I've visited the site so far, thus earning it the moniker "Swine Guard Bluff".

My radar was turned up to full sensitivity as I got out and began to walk the adjacent gravel bars, and soon I was rewarded handsomely. A piece of banded tan and brown flint caught my eye in the eroding gravel bank, that truncated triangular form being about ¾ of a Friday blade with the tip knocked off. It was a keeper by all means despite the damage, the material itself being quite impressive.

FIGS 231-232: Archaic Period Friday blade in situ this page, cleaned next page (Site 611)

Saving the bluff for last, I could soon see that more burned midden rock had eroded out in the open, and flint flakes were scattered about. Then I saw it plain as day, a beautiful Pedernales point about 3 inches long looking almost sky blue accented against the brown silt. It was so obvious that it might as well have been neon blue. Although it is missing about 1/8 inch of the tip, the very fine serrated edges stole my heart and made this an heirloom piece. I'm sure glad I kept the faith in this place after finding just half a point last time with the base and tip knocked off.

FIGS 233-234: Archaic Period midden eroding into view this and next page (Site 611)

FIGS 235-236: Beautiful serrated Archaic Period Pedernales point this and next page (Site 611)

By this time I could hear a big pack of hogs moving my way, and soon brush was shaking just 10 yards away as they prepared to storm the bluff. I literally had to throw midden rock into the brush to scare them away, and I'm sure that the ancient inhabitants of this campsite would take pride and perhaps find humor in my choice of hog repellent.

FIGS 237-238: Friday and Pedernales blades this and next page (Site 611)

Life is truly an adventure if you choose to make it so, and I have varied exploratory venues slated for the next couple of months, God willing. Good times!

Addendum:

FIGS 239-240: Fossil free exposure of Pecan Gap Chalk this and next page

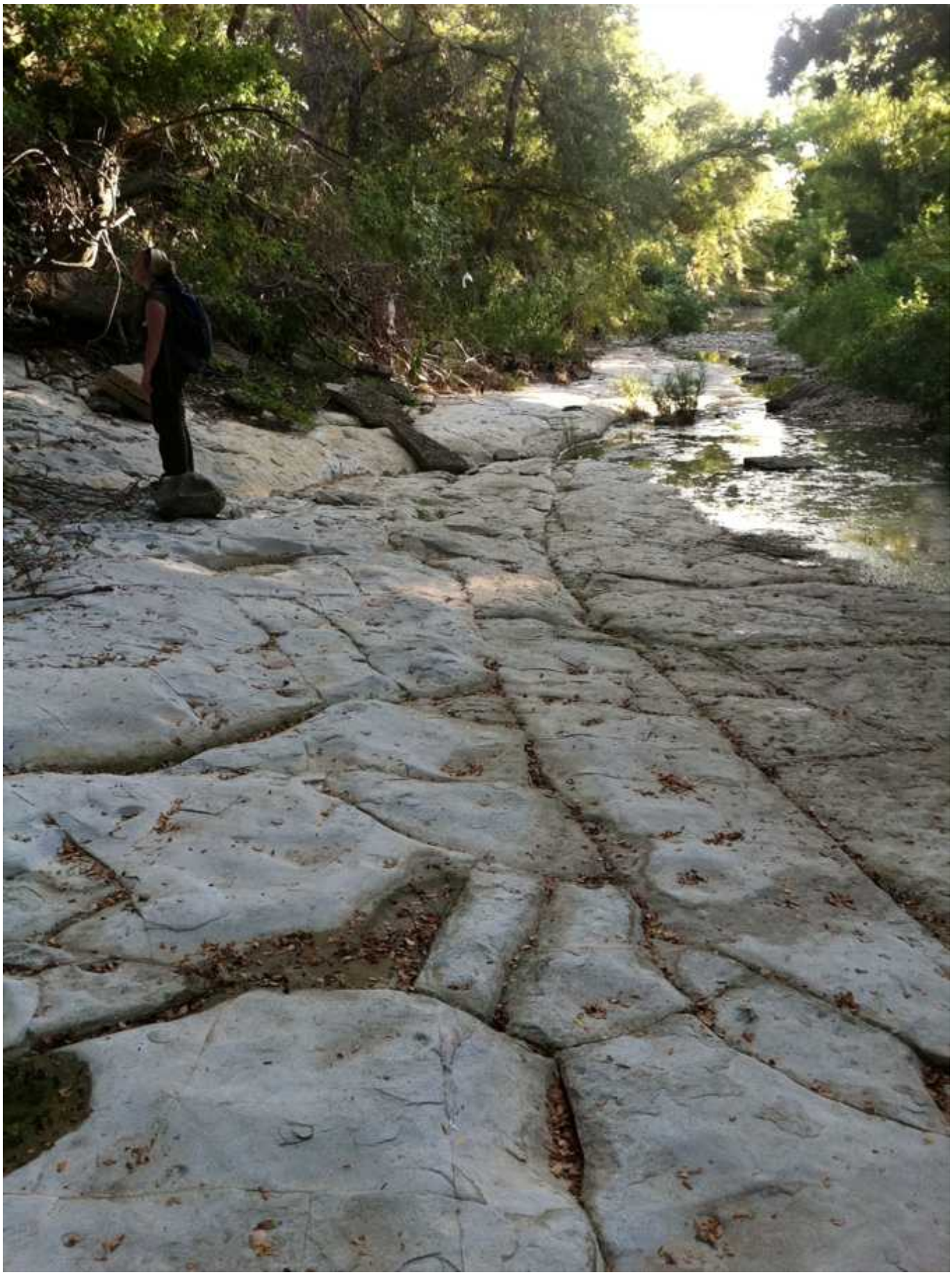


FIG 241: Stoneware jug found back in June, forgot to photograph it until now (Site 330)