



THE NARG MISSION STATEMENT

The mission of NARG is to provide a forum for individuals who possess a passionate interest in fossils. In the Pacific NW, we are responsible for a wealth in fossil record.

We document our findings and strive to improve communication for scientific contribution and public benefit.

Our goal is to develop an affiliation of fossil enthusiasts working together, to continue research, perform site investigation, have fun, and contribute to the growth and development of an active, premier group of avocational paleontologists.

Our belief: The total can be greater than the sum of its parts: By working together, we can create an informative, educational experience for a dynamic group of people. Our individual pursuits and interests will contribute and enhance scientific knowledge and the public record.

If your interests are research and exploration, collection or preparation, we welcome your participation and invite your enthusiasm!

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NARG Newsletter

North America Research Group

www.narg-online.com

Pacific Northwest Paleontology, Paleobotany, and Geology

VOLUME 1, ISSUE 11

APRIL 2005

A Story From NARG's Northern Chapter...

Into the Valley - An Alaskan Fossil Adventure

By Don Brizzolara & Greg Keith

My name is Don Brizzolara and my close friend Greg Keith and I have experienced many exciting fossil hunting trips in Alaska. It is the story of one such trip that we would like to share with NARG members. One must always remember the basic goals of a successful Alaska field trip... (1) Find and collect fossils, and (2) GET BACK ALIVE. Our story is one of adventure and survival in the great outback of Alaska. It is also a testament to fossil hunting and the complex interaction between two passionate collectors.

I am a petroleum geologist and have lived in Alaska about 25 years. My friend Greg is a geophysicist and has been in Alaska 8 years. We both share a common love for geology and the collection of fossils. Our basic code for living is such: family first... job second... fossils third. Well, maybe fossils second!!! Last July during our all too short Alaskan summer we ventured into the headwaters of Grizzly Creek, an extremely rugged region approximately 50 miles north of Anchorage in the eastern Talkeetna Mountains. Our objective was to collect Jurassic (Callovia) ammonites of the Chinitna Formation. We planned a day trip, leaving open the possibility of an overnight stay. In Alaska, even a day trip must be planned very carefully, as there are many hazards ranging from merely inconvenient to life threatening. They are, in decreasing order of severity: (1) very large and always unpredictable bears, (2) high river water, (3) unstable cliffs and slopes, (4) catastrophic vehicle failure, and (4) unbelievable hordes of biting flies and mosqui-

toes. For all of these Greg and I prepared to the best of our ability. Our gear included a high powered .44 magnum revolver for bears, communication equipment including a ground to air hand-held transceiver, food and water, sleeping bags, tent, lots of tools and spare parts for the ARGO (8-wheeled ATV), first aid



Greg descending the treacherous nasty path headed into the Grizzly Creek drainage.

gear and, of course, massive quantities of bug dope. Collecting equipment consisted mainly of rock hammers and sample bags. Unlike other Alaskan formations where ammonites are found typically entombed in dense concretions, those of the Chinitna are usually free in the bedding matrix or simply found loose as float within scree deposits.

Since distances seem to go forever in Alaska we needed an early start. Greg and I met at his home at 5:45 a.m., early by most standards, but long after sunrise for Alaska in July. At our latitude, we can count on 18 hours of usable daylight. We hit the local coffee hut in Eagle River for a large jolt of caffeine (to help with 18 hours of daylight) and off we went to strike pay dirt in the Talkeetna's. As with most of our adventures perhaps the most pleasant time is during the truck ride en route. Lots of good conversation and hopeful dreaming for finding that perfect, head-sized, Cadoceras with fully inflated whorls! Upon arrival at our jump off point tensions grew

as daydreams gave way to real logistics. What would the trail (or lack thereof!) be like today, muddy? dusty? will Grizzly Creek be tough to cross?, does Greg have ammo in his revolver (the ol'equilizer!!!)? The die was cast. Ready for adventure, we unloaded the ARGO and began our mission. For those of you folks not familiar with the ARGO it is an absolutely wonderful machine. Both powerful and seemingly reliable, it is an eight-wheeled affair that drives like (and sounds like) a tank. It holds four people and a ton of gear very comfortably. It surpasses a regular 4-wheeler by leaps and bounds. The machine is absolutely unstoppable and, as an added bonus, it floats and is capable of propelling itself like a boat. No doubt about it, this little beast is an amphib!!!

By Alaskan standards it turned out to be an exceptionally hot day with temperatures reaching into the mid-80s. This was both a blessing and a curse. The river should be down, boding well for our safety. The heat, however, would be oppressive along the exposed, vegetation free braid plain of Grizzly Creek and its tributaries. We were prepared with plenty of drinking water for the occasion. Even though the weather was gorgeous and hot we spied the tell tale signs of recent rains: portions of the pot-holed trail leading to the Grizzly Creek braid plain were filled with swimming-pool sized depressions deep with water. No problem for the mighty ARGO! We either maneuvered or swam our way through. Enjoying our successful travels so far, we looked ahead with a mix-

The Taxonomy Report #2

by Aaron Currier

“Decapoda is the Order containing most crabs, crayfish, lobsters and shrimp”

One of the important aspects of research is not only the labeling of specimens with accurate scientific binomial names, but understanding how a species fits into the hierarchal tree of life... otherwise known as the scientific system of classification, or taxonomy. In the "Taxonomy Report" we look at how species fit together, both in relation to other related species, as well as their ancestry.

Since Crustaceans seem to be enjoying an extreme level of popularity in NARG these days, it would be appropriate to take a look at this group of animals.

So, what exactly is a Crustacean? Does Crustacea refer to a Phylum, Class, Order, or Family? Are all crustaceans crabs? Are all crabs crustaceans?

Let's look at Pulalius, a common fossil crab found in northwest-area formations.

If we adopt the Interagency Taxonomic Information System (ITIS) described in the inaugural issue of our newsletter, we can assign the taxonomic word Crustacea to the Sub-Phylum level -- the Phylum, of course, being Arthropoda. Arthropods -- such as insects, spiders, barnacles, and yes, crabs -- as you know are invertebrates, and are grouped together because of their jointed legs. Crustaceans are those which have a shell and typically live in water. Class is the next major taxonomic level down and here's where it gets interesting.

Although one can find many references to crabs (as well as barnacles) categorized in the Class Crustacea, we already know that's incorrect. Crabs are actually in the Class Malacostraca, according to ITIS -- Recall Crustacea is the Sub-Phylum name. Research on the internet will also lead you to sources that list Malacostraca as the Sub-Class, which is obviously inconsistent and inaccurate according to ITIS. Barnacles on the other hand are in the Class Maxillapoda, but we'll look into that animal in another column. At the end of this article you will find a complete listing

of taxonomical names for Pulalius, but for now we'll stay with the primary names.

Decapoda is the Order containing most crabs, crayfish, lobsters, and shrimp.

Almost all references match up with this name. There seems to be little argument about the classification of these animals by their common attributes of a carapace uniting the head and thorax and inclosing a gill chamber on each side, and usually five (rarely six) pairs of legs. They are divided into two primary groups (Infraorder) Brachyura and Macrura -- Brachyura representing most of the fossil crabs we find. From there, it breaks out in a multitude of families, which change or are updated quite often.

One of the drawbacks of ITIS is their lack of inclusion of extinct or fossil organisms. However, working backward from Genus, we can find other resources that document some taxonomic information, including Family. Professional publications, such as Martin & Davis, 2001* benefit us greatly because they almost always list Family names as well as the Order. However, it can be a challenge to decide for yourself which resource you believe when you are faced with inconsistencies. Names are being changed and species are being reclassified all the time.

With a little research on the net and in professional publications, and a lot of cross-referencing, this is what we find for Pulalius. Pulalius was formerly called Zanthopsis**. Along with the name change, it's been moved from the Family Xanthidae. (Note the Z and X spelling difference -- that's not a type error!) to the Family Pilumnidae***, both of which are classified together under the Superfamily Xanthoidea.* I found this information by searching "pulalius" through Google. I subsequently found Pilumnidae on ITIS, which then gave me the taxonomic classifications on up to Kingdom. In summary: ITIS validates the Family Pilumnidae but does not list generic names; Schweitzer lists Pulalius in Pilumnidae in a posted Word docu-

ment***; and Martin & Davis describe Pilumnidae in the Xanthoidea Superfamily.*

Although many times you may be lucky and find taxonomic information just by searching google or even referring to a publication in your library, it's very convenient (when it works) to have such in-depth information from an accurate source. However, it's always a good idea to cross-reference or even check with a NARG advisor!

Classification for Pulalius vulgaris
Kingdom Animalia -- animals
Phylum Arthropoda -- arthropods
Subphylum Crustacea Brönnich, 1772 -
- crustaceans Class Malacostraca Latreille, 1802 Subclass Eumalacostraca Grobben, 1892 Superorder Eucarida Calman, 1904 Order Decapoda Latreille, 1802 -- crabs, crayfish, lobsters, prawns, shrimp Suborder Pleocyemata Burkenroad, 1963 Infraorder Brachyura Latreille, 1802 -- true crabs Superfamily Xanthoidea MacLeay, 1838 -- mud crabs Family Pilumnidae Samouelle, 1819

Genus Pulalius Schweitzer et. al., 2000
References:

The website for the ITIS taxonomic search engine is: www.itis.usda.gov

*An Updated Classification of the Recent Crustacea, Joel W. Martin and George E. Davis, Natural History Museum of Los Angeles County, Science Series 39, 2001. A pdf of this publication can be found at:

www.nhm.org/research/publications/CrustaceaClassification.pdf

**The alteration of the generic name (or more precisely, the removal from the genus Zanthopsis and inclusion in the new genus, Pulalius) came in an article in the "Annals of Carnegie Museum", Volume 69, Number 1, Pp.23-67.

18 February 2000. The article itself is titled, "Eocene Decapod Crustaceans from Pulali Point, Washington" by Schweitzer, Feldmann, Tucker and Berglund.

www.journalofpaleontology.org/datasets/Schweitzer/Table4.doc

Trip Report for 10/04

Departed Thursday afternoon from Oregon City and picked up Steven on our way to Mitchell, Oregon. Stopped for grub in Madras and after another 1.5 hours of driving

found our campsite near the Painted Hills Unit in Mitchell.

Friday AM we headed to check out a new location North of Mitchell. This was the first time we've ventured into this area mainly due to

most of the land is private property. We found several exposures of the Cretaceous Hudspeth Formation down a gravel road several miles. We decided to head back to the nearest house and find out what the

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ture of guarded optimism and dread: near the base of the trail leading to Grizzly Creek is a hellacious section of trail, reminiscent to the military history buffs of the battle-torn landscape of the Somme River or Paschendaele in WWI Flanders. Deep crater filled water, up-rooted trees, craggy boulders, deep sticky mud, vehicle-swallowing bogs: the ultimate ATV trail test! We knew this stretch was ahead and we knew it would make or break the entire trip. If we conquered it and successfully crossed Grizzly Creek, ammonite nirvana would be ours. Into the valley of death we rode with all our senses on high alert. Upon encountering the first treacherous stretch I dismounted the ARGO and let Greg ride his machine alone. I took point on foot, leading the way and helping Greg navigate the best course through the boggy mire. Greg didn't have much time to react, as a moment's hesitation would result in sinking into the bog like a modern day mammoth at the La Brea tar pits! Greg was up to the task, and the newly appointed bog-master conquered the course. It was time for the next challenge, crossing Grizzly Creek.

Navigating across Grizzly Creek at its lower reaches can be tricky if the water is high, but on that particular day the waters were shallow and the current calm. We attacked diagonally, letting the current assist us in getting the approximately 100

feet across to the far shore. We cut a wake like the bloated duck we were, achieving a state of flotation that proved the claims of the ARGO guidebook. Safely on the opposite shore, we found ourselves on the braid plain of Grizzly Creek. Now it was time to start the long trek upstream, crossing the anastomosing creek perhaps 20 more times. Fortunately, the water depth diminished with each crossing, and by the end of the day we wouldn't think twice about entering the water.

The long glacial valley of Grizzly Creek is flanked by spectacular geology that includes lower Jurassic to upper Cretaceous marine deposits and more youthful Tertiary non-marine and volcanic units. Although we wanted to concentrate on a particular poorly explored drainage which promised to expose the highly fossiliferous middle Jurassic Chinitna Formation, we agreed other locations along the way were also fair game. As we proceeded up the braid-plain our trail vanished, leaving us on our own with only the faint tracks of previous explorers to help guide our way. The ARGO handled the cobble strewn wasteland very well. Compared to the pot-hole filled, muddy, rocky trail we had endured getting to Grizzly Creek, traveling this valley was a pleasure. After a couple miles we stopped to get our bearings. Greg noticed a short drainage to our west that had eroded into the upper Cretaceous Matanuska Formation. Ready for a much

needed break from the trail, we thought we might take a quick hike up for a look see. It was getting hot in the exposed valley, and after quenching our thirst we started up the small drainage.

Almost immediately Greg picked up a large fairly complete Pachydiscus ammonite with beautifully sutured outer whorls. Although it was a well weathered specimen, Greg deemed it worthy of future study (a fine choice given how nicely it prepped out later.) In this part of the world Pachydiscus comes in a handful of species, some attaining gargantuan proportions. Several years earlier I collected a specimen weighing close to 80 pounds, thankfully with the assistance of a crew with a helicopter. As we continued moving upstream I found a few fragments but nothing to write home about, just the random Inoceramus pelecypod and other small ammonite pieces. But then, Whoa! I noticed a nice Gaudryceras ammonite about 4 inches in diameter and beautifully ribbed, just laying there at my feet. Greg admired it, and proclaimed it a great candidate for future prep work and into my sample bag it went. We didn't want to dally here too long as time was rapidly marching on. It was a good future location. We noted it on our maps and named the site Cretaceous Creek. As the sun climbed higher we were starting to fry so after more water, back to the trail we went.

Onward, onward, we traveled, up the seemingly endless Grizzly Creek plain.



“Almost immediately Greg picked up a large fairly complete Pachydiscus ammonite with beautifully sutured outer whorls. “

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property ownership was. We stopped a farmer out plowing his field and he pointed out a nearby hill where ammonites have been found and indicated it was his property and was nice enough to allow us to collect. Bill and I headed up to where he pointed out and Steven took off to check out other exposures nearby. It was obvious this area hasn't been collected in years as Bill and I picked up many concretions containing ammonites. In addition to many different species of ammonites we also found wood, gastropods, and various species of bivalves. Steven wasn't having as much luck. The hill he walked up took him out of the Hudspeth formation and into the Gable Creek fm., which is conglomerate formation created by an alluvial fan.

We headed back to camp for a quick lunch then returned to the new site. Before we reached the new site we stopped along the road at another exposure, which only pro-

duced a couple of partial ammonites. We stopped at the ranch house and introduced our self to the lady of the house and let her know we were out collecting on their property.

Again we surface collected the hill and did about as well as earlier in the morning. The shadows were getting long, making it hard to surface collect so we headed back to camp and picked up some wood along the way for a campfire.

Saturday AM we headed back. Since we pretty much picked up everything on the surface we started to pick through the formation using screwdrivers. There was much to be found in the way of ammonites, bivalves.

After lunch in camp we decided to check out a site we've collected in the past Southwest of Mitchell. I took off over to see what was over the next ridge. Although there

was a lot of Hudspeth exposure it didn't produce any fossil. I worked my way back to a couple of hills that produced in the past and found 2 claws from a Callianopsis (mud shrimp) and picked up a couple of ammonites.

Luckily we setup a tent for this trip. It was primarily used for storage and we slept under the stars on our cots. Early Sunday around 2AM the clouds moved in and it started to rain. Up to this point the weather had been fantastic with sunny sky's and temperatures in the 70's. We cleared out the tent and tossed in our sleeping bags for the remainder of the morning.

After we broke down camp we headed West and checked out a few exposures as to traveled up to the Ochoco Forest. We stopped briefly at a Clarno Formation flora site but didn't find anything worth packing out.

Trip Participants:
Steven Bland, Andrew Bland, Bill Sullivan



NARG

North America Research Group

NARG meets the first Wednesday of every month at the following location:

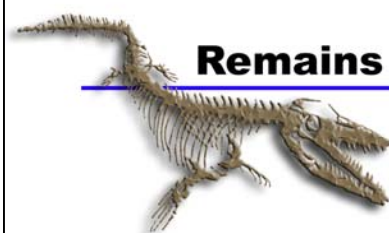
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In the far distance rugged terrain loomed in castle-like forms. Exposures of middle Jurassic Chinitna Formation overlain by upper Jurassic Naknek Formation dominated the horizon. The ancient Jurassic seas laden with their whorled denizens lay ahead. As the hot, stifling sun burned down, even the breeze produced by our forward motion didn't seem to help. My location next to the ARGO's exhaust pipe DEFINITELY didn't help. At top speeds of 10-12 mph, onward we went. Closer and bigger the distant castles became until we were finally at their foot. It was time for a break, and for another quick hike up another, larger side drainage. Guarding this drainage like a lone sentinel was a heat-crazed bull caribou. The poor creature had a delirious look in its eyes that I noted I probably bore as well. We Alaskans, human or animal, don't seem to handle heat very well. One of the wonderful things about heat in Alaska (temps over 85oF) is that mosquitoes don't handle it well either. Like us, they look for shade and calm down

into a state of quiescent torpor!

We agreed with our multi-tined caribou friend on one subject, blessed be the heat for there were no mosquitoes today!!!! Dragging our sweaty bodies up this next drainage we immediately encountered ammonites in a talus cone of Chinitna debris. We discovered beautiful, exquisitely preserved Stenocadoceras. Many of the blocks contained so many specimens that we correctly called them ammonite coquina. Our sample bags rapidly filled and became bloated with gorgeous specimens. Unfortunately, the day was growing longer and we knew we had a least 6 more miles to go to our final destination, the destination we had dreamed about for weeks. We wrenched ourselves away from our new found discovery and started our return to the ARGO. Dang! It was getting hot! But wait, what the heck was this? There was a fist-sized object with a faintly familiar outline calling to be noticed. Outstanding! It was my first Cado-ceras ammonite of the day and a real beauty. For the first time that day I could see that tell-tale look in Greg's eye... "Why couldn't that have been mine?" Yes, even with best of friends there is always a bit of competition in the land of the Jurassic.

This unnamed drainage would forever be named "Caddy Creek" on our field maps in honor of my one great find.

We continued upstream as time was running short and our main objective still lay several miles ahead. However; on the way we noted a side draw that looked very inviting. A short box canyon dominated by shear walls of Chinitna Formation. Why not? One more short side trip wouldn't hurt. It was very hot though and the pale-colored walls of the draw reflected heat with great intensity. As we approached we became increasingly uncomfortable. Every few paces we dipped our hats in a nearby stream and recapped to cool our frying brains. Further up the canyon we progressed but still no sign of fossil material. Disappointed, I finally staggered to the canyon headwall at the terminus of the draw. The heat must have been approaching 105F. I became woozy and began losing my motor control, so with my remaining sense, I started to withdraw from the canyon, the fossil equivalent of a dry-hole.

The story continues with the next NARG Newsletter publication.