



NARG NEWSLETTER

Official Publication of the North America Research Group Spring 2016

Volume 5 Number 1

In Memory of William Sullivan Pg 1-3

2016 Newport Fossil Pg 4-6

2 known & 2 Lesser known Gem/Mineral/Fossil Sites on East Coast. Pg 7-9

New Penguin-like Bird Found Pg 10-11

Fossil Hunting in Glendive, MT Pg 12-17

Prep Tips Pg 18

Woodburn High Paleontology Display Pg 19

Beetle Photos from Woodburn High by Joe Cantrell Pg 19

Fossil Preparation & Collections Symposium 2016 Pg 20-22

Wyoming Nail Head Fossil Site Pg 23

NARG Library Pg 24

Membership Pg 24

2016 Fossil Calendar Pg 25

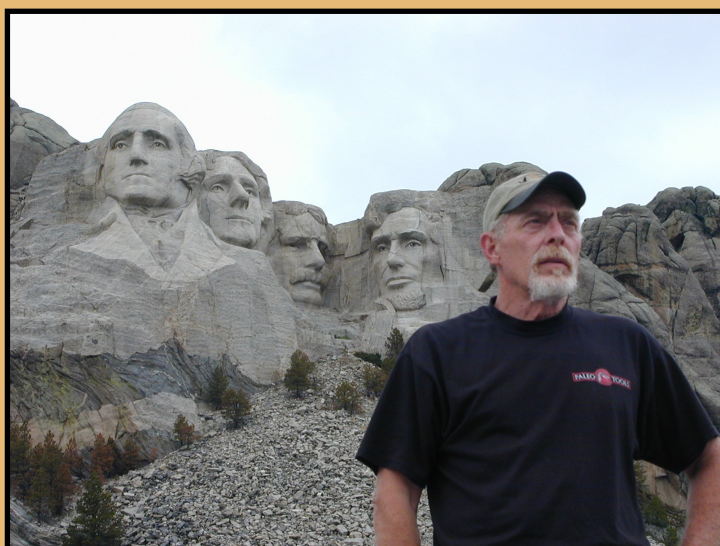
In Memory of William “Bill” Sullivan

NARG’s President 2004-2011

By Aaron Currier

In early Spring of 2004, Bill Sullivan, Andrew Bland and Jerry Rawdon were sitting around a campfire discussing fossil collecting and preservation philosophies. They arrived at the conclusion that there needed to be an official group of fossil enthusiasts who collaborated to be good stewards of our paleo resources.

By June, the North America Research Group (NARG) had been formed and Bill was installed as the first president. In the early years of NARG Bill worked hard to help develop collecting policies, search and rescue procedures, and more importantly, form relationships with private land owners to secure permission to hunt their properties for fossils. Bill always had the ability to talk with people to make them feel comfortable allowing NARG to explore their property.



Bill at Mt Rushmore, SD in 2005



Bill’s place out near Mist became the home base for “crab camp,” an annual gathering for NARG members. Bill hosted crab camp for 13 years, including this past year even as his health was declining. Over that time, dozens of members were introduced to the challenge and joy of hunting for crab concretions. Field trips from base camp led us to Knappton on the Columbia River, Gray’s River in SW Washington, Rock Creek near Vernonia, the Klatskanie River West of Jewell, and numerous points along the Nehalem River. Floating the Nehalem became a tradi-

tional event over the past few years. His positive relationships with neighbors along the river were invaluable, giving us much shorter routes to and from our favorite collecting spots and he was always helpful teaching members the fine arts of finding concretions, extracting them, cracking them open, and prepping the treasure inside. (Cont. on pg 2)

(cont. from pg 1)

Bill participated in field trip adventures as well. He particularly enjoyed the cross-country trip to Montana, South Dakota, Nebraska, and Wyoming. He was always willing and eager to stop at roadside geology attractions despite a rigid schedule devised by Andrew. He was also thrilled to have been a part of the Oregon Field Guide expedition to Eastern Oregon when they filmed NARG for one of their segments. Bill was shown searching the Hudspeth for ammonites, and then digging them out of the Four Corners locality in the Snowshoe.

After seven years as president of NARG, Bill stepped down. His passion for NARG never waned, however. He stayed involved in board decisions and helped to approve new policies and procedures.



Bill with his ammonite find on Mill Creek in the Ishi National Forest, CA

Bill's final gift to NARG is the donation of his entire collection of fossils to our group. His legacy will be permanent displays of fossil specimens from the Nehalem River Valley. Much of the material he collected over the years will be donated to the University of Oregon Condon Collection. Some specimens will be used for NARG displays, education, and enrichment.

A memorial celebration of Bill's life will be held this summer, and hosted by his family. In lieu of crab camp, members are invited to attend. Information on the event will be announced on the ListServe when it becomes available.

On Monday, May 16, 2016, Bill lost his battle with COPD and emphysema. Bill wanted everyone to know that his passion for NARG was deep and authentic. His dream of forming a group of responsible, respectful stewards of the northwest's paleo resources came true. He believed he was blessed to be a part of something special. He was proud to be with the group that was instrumental in major paleo discoveries – the plesiosaur, our crocodile *Zoneait nargorum*, Wally the Whale, and thalattosaur Bernie and friends to name a few.

In fact, Wally became nationally recognized as the “garage whale” thanks to years of storage and prep work done in Bill's garage shop. Bill and Wally are anticipated to be highlighted in the next travel book by Dr. Kirk Johnson and Ray Troll (Cruising the Eternal Coastline).

Bill dedicated 14 years to NARG and made a profound impact on both people and paleo resource preservation.



Andrew Bland, Stephan Bland, Bill Sullivan and Aaron Currier at Livingston, MT



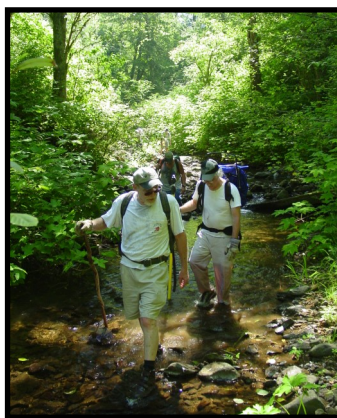
Bill and Andrew Berkholtz taking plaster off of Wally the Whale

Bill will be missed by all those who knew him. Bill's investment in NARG will last all of our lifetimes. We are forever grateful. Thank you Bill, for your vision to form NARG, your steadfast support of our mission, your donated collection, and your friendship. May you rest in peace.

One of our members commented, “Bill was always eager to share his knowledge of fossils, and where to collect. I remember the first year I joined NARG and went to crab camp at Bill's place on the Nehalem, he was very welcoming and he walked with me up the creek and showed me what to look for and made sure I was able to collect a couple of concretions, one of which contained a fossil crabs.”



Bill & Dr Jim Martin of SD School of Mines



Bill & Steve H. walking in Beneke Creek.



Andrew B., Rick J., Bill and Larry, O Working on Wally.



Andrew B., Bill, Michael S., Connor, O, Greg C & Linda F on the Nehalem near airport.



Mike, Jim S., Peg J., Greg C., Rick J., Larry P., Michael S., Bill & Aaron C. where we collected large plates of *Trigonia* in the Hornbrook Formation in Southern Oregon.



Bill talking to guests at NARG's NW FossilFest at the Rice NW Museum of Rocks and Minerals.

2016 Newport Fossil Fest

By Dan O'Loughlin

Another Valentine's weekend that started beautifully. The weather cooperated for us which always makes for a nice Fossil Fest. This year we did not have to compete with the Newport Seafood and Wine Festival. Due to health and other commitments, we were left a little shorthanded for members staffing the tables. Aaron was over with Dr. Bill Orr identifying fossils. He said there were a lot of unique fossils brought this time. Tim and Tonya Fisher were invaluable operating the t-shirt sales for us. Without their knowledge of taking payments using a phone, I would have been left with my abacus and coins. Garrett Romaine also helped with the t-shirts. Bruce Watson kept the kids at bay with the Moroccan shark tooth give away.



NARG Displays

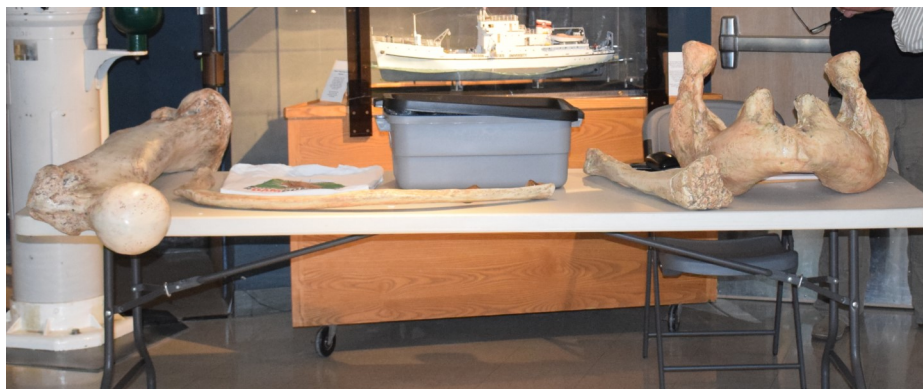
Our displays featured seeds for ginkgo and metasequoia, a coal formation display, crabs of the Pacific Northwest, and hands on fossils.



Willamette Valley Pleistocene Project Fossils



Casts of Fossils Similar to Those Found at Oregon State University



Other Displays



Dr. Loren Davis



Kent Gibson showing some of his beach finds.

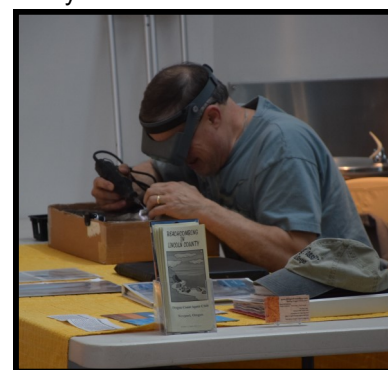


Lyle Hubbard



Dave Ellingson

Other members attending included Dr. Lyle Hubbard showing off Willamette Valley Pleistocene specimens, and Dave Ellingson talking about 3-D printing of fossils. In addition to NARG, Guy DiTorrice, Kent Gibson, Dr Loren Davis brought fossils or casts. Dr. Loren Davis, from OSU brought casts of prehistoric bones similar to some of the fossils recently found at Reser Sta-



Guy DiTorrice prepping fossils

(Cont. on pg 19)

Two Known and Two Lesser Known Gem/Mineral/Fossil Sites on the East Coast

By Matthew Porter

I had the opportunity to travel to the east coast and visit several locations which offer interesting gem, mineral and fossil viewing opportunities.

1) Smithsonian Museum of Natural History

I am sure most people have heard of this museum. Admission is free. The fossil exhibits were limited when we visited because they are building a whole new fossil wing on the museum. Currently on exhibit were a T-rex and a triceratops skeleton. They also had a nice collection of specimens from the Burgess Shale formation, and a wide variety of trilobites. I knew the fossil exhibits would be limited before I went, but the gem and mineral exhibits were outstanding. There were countless rooms dedicated to mineral specimens and gems. These were not small specimens. Many of the specimens were as big or bigger than the Alma Rose. It was impressive to see so many large specimens in one spot. They also had an exhibit documenting the evolution of human life. They had a collection of original and cast fossils ranging from Lucy up to Neanderthals. The kids enjoyed an exhibit which would take a picture of your face and then morph it to show how you would look as an earlier ancestor.

One thing I found surprising was the relatively limited number of petrified wood samples. The Rice Museum has a larger collection of petrified wood than any of the museums I visited on this trip.



2) Ogdensburg Mine

This is an old zinc mine which is open for tours. You can also pay to collect fluorescent mineral samples (\$5 to collect and \$1.50 per pound). We started by collecting a few samples of zinc ore and calcite which fluoresced under UV light. The collecting site is simply a rock pile behind the museum where you can pick up ore pieces they have dumped. There was also an area with specimens from other localities that you can collect from as well although the origin of those samples was not listed. They have a dark shed with a UV light installed so you can select the best samples before paying for them.

The tour includes a stop at their museum which contains a mineral exhibit, some information about the mine, and several other miscellaneous rock specimens including a nice crinoid panel from morocco, T-rex skull cast, as well as several ammonites and trilobites. You also stop in the fluorescent mineral museum as well. It consisted of 3 rooms ranging in size from 4-5x the Rice museum's exhibit room. You also get to tour the mine and visit various locations ranging from 1 to 3 floors below the surface. Along the way there are several rooms where the zinc ore is still in situ and they turn on the UV lights to make things fluoresce. I thought the pictures were photoshopped because they were so brilliant because it appeared less bright in person, but they mentioned that the older you get, the less light your eyes let in and the dimmer the colors look. Luckily, our cameras did not have that problem. The whole family thought this was an interesting tour. Our guide had worked in this mine or in another nearby so he was very knowledgeable about the mining practices. The total mine and museum tour took about 2 hours and cost \$12 per person.



3) The American Museum of Natural History

Nearly everyone has heard about the natural history museum near Central Park in New York City. Since the dinosaur exhibit was closed at the Smithsonian, I wanted to stop here. This is a public museum but you need a ticket to get in. When you get to the ticket counter they will give you the 'suggested' cost which turns out to be \$25 per person. You can pay that amount or any other amount you deem fit to get your ticket to enter the museum.

The museum had several excellent fossil exhibits. They had a whole area dedicated to mammal fossils from the earliest known examples, up thru the mammoths and mastodons of the Pleistocene. There was a nice chronology of horse evolution. I did not see any fossils that originated from Oregon in the museum.

The main attractions were the sauropod and theropod dinosaur exhibits. There were two large rooms filled with articulated fossils. They had examples of all of the most popular dinosaurs including T-rex, triceratops, stegosaurus, dionictus, allosaurus, and a huge Apatosaurus relative. They had several specimens with fossilized skin impressions. They had a range of presentation methods ranging from the old iron structures holding the bones, to covering the support structures with a plaster type material to make it look like the fossils were still in the original matrix. Nearly all of the exhibits had a Plexiglas wall between you and the specimen. This made it difficult to get good pictures without reflections.

The museum also had an exhibit on human evolution very similar in content and layout to the Smithsonian as well as a relatively small gem and minerals exhibit. The specimens were nice, but not as spectacular as the Smithsonian. The museum had a room dedicated to meteorites. There were many specimens ranging in size and type, but the Willamette Meteorite was not in this room. I was determined to see this Oregon treasure first hand. After a bit of online searching, I found it was not in the meteorite exhibit, but in the space and universe exhibit. It took me a good 10 minutes to navigate thru the maze of rooms before finally getting to the Willamette meteorite. It was impressive. They have it displayed in the same orientation it had when it fell to earth.

4) Astro Gallery of Gems- <http://astrogallery.com/>

While taking a tour of NYC, we walked by a rock shop near the Empire State building and our guide offered to take us in. This place was amazing and had fossil and mineral samples that rivaled any of the museums I visited on this trip. There were numerous specimens from the Green River formation in Wyoming, including a stingray, a shrimp and a large 5+ feet tall crinoid with fish swimming nearby. They had a complete, articulated cave bear skeleton (in the same pose as the specimen in the American museum of natural history). There were also numerous mineral specimens. The amazing thing was all of these were for sale, although many did not have price tags. The most expensive one I saw was \$40K for a relatively small mineral sample. I did not buy anything, but they had some really nice specimens. This is a hidden gem that is worth stopping at for any rockhound.



New Penguin-like Bird Found

A new genus and species of a flightless penguin-like seabird or ptopterid, found by Bruce Thiel in 2012, is described in the May issue of the Journal of Paleontology and named *Olympidytes thieli*. Bruce found three concretions in a slide above a remote area of Fossil Creek WA. and showed them to NARG advisor James Goedert, who suggested sending them to Dr. Gerald Mayr, fossil bird expert from the Senckenberg Museum, Frankfurt, Germany. The bones date from late Eocene or early Oligocene are the first documented bird fossils reported from the Lincoln Creek Formation. Because bird bones are hollow they are seldom preserved and no ptopteridae have been found fully articulated. This find was also unique in that it contained the first and only complete right tibiotarsus ever found. When asked about the size of the bird, Dr Mayr replied, "*Olympidytes thieli* may have been about the size of a larger extant penguin, such as the Emperor Penguin" (average height four feet). Ptopteridae have only been found in North America and in Japan.



Photograph of a ptopterid reconstruction on display in the Gunma Museum of Natural History in Japan.

Contained in the concretions were both femora, both tibiotarsi, two caudal vertebrae, and a pygostyle (tailbone). Not shown are a partial patella, parts of two sternal ribs and two gastroliths.



The original concretions were re-assembled to show the position in where they were found in 2012.



The concretions were found halfway up the face of this new slide in 2012. Jim Goedert suggested it to be checked each year, however nothing new has eroded and the brush and berries now cover much of the face. A large amount of log and tree debris in the creek and hillsides make hiking to the area difficult.



Here is part of one of the hollow bones that was protruding out one end of the concretion that indicated it might be from a bird.

This is the same hollow-bone concretion, partially prepared being examined by Jim Goedert and compared to a cast of pterosaur bone Jim received from Japan. The matrix was hard to separate from the bone, without damaging the surface and fine features such as muscle connection points, so mechanical preparation was stopped it was sent to Germany for acid preparation.



The largest concretion when broken showed several bones inside.

On the left is the same concretion partially prepared—the broken end was glued back on before it was prepared in Germany. The red line corresponds with the break shown in the first picture. Dr. Mayr said that they used a 4% solution of formic acid buffered with tri-calcium phosphate and each day the concretion was removed, dried, and any exposed bone was heavily coated with a paraloid-type solution to protect it from the acid. After the matrix-removal was completed, the protective coating on the bones was dissolved in acetone. Acid preparation was a slow process that only dissolved about 1mm a week of matrix and took many months to complete. Dr. Mayr said the preparation was based on a procedure described in the *Journal of Paleontology* in which the process was used for conodonts.



References:

Gerald Mayr and James L. Goedert (2016). "New late Eocene and Oligocene remains of the flightless, penguin-like pterosaurs (Aves, Pterosauridae) from western Washington State, U.S.A.". *Journal of Vertebrate Paleontology*. Online edition: e1163573.

Jeppsson, L., and R. Anehus. (1995). "A Buffered Formic Acid Technique for Conodont Extraction." *Journal of Paleontology*, 69:790–794.

Fossil Hunting in Glendive, Montana

By Gary Burgess

In June 2015 I revisited Glendive, Montana with my niece Rachel. We were there for multiple reasons. However, the most exciting part of this trip would be exploring the Pierre Shale Formation exposure south of Glendive for the first time.

We arrived one day early, so my niece Rachael and I spent the first day indulging in our other hobby, photography. We toured and photographed the Makoshika State Park located just south of Glendive. The park is located on an exposure of the late cretaceous Hell Creek Formation. The badlands exposed there have produced T-Rex and Triceratops fossils. There is an excellent visitor center at the entrance to the Makoshika State Park that displays some of the fossils found there. (<http://stateparks.mt.gov/makoshika/>).



This is a view of the exposed badlands of the Hell Creek Formation in Makoshika State Park.

The second day of our stay, we visited local Marine Invertebrate Paleontologist Tom Linn. Tom is with Early Earth Enterprises, a rock shop co-op that deals in rocks, fossils, minerals, consultation, and preparatory work. It is located on Highway 16 in Glendive.

Tom graciously invited us into his home and showed us his extensive and beautifully prepared marine invertebrate fossil collection from the region. He then took us out to the Pierre Shale exposure south of Glendive, where he gave us a description of the local geology.

We found very few fossils exposed on the ground. I finally resorted to breaking surface concretions to find an assortment of small to medium sized marine invertebrate fossils. After a few hours of climbing the hills and valleys we ended our collecting for the day and returned to Glendive for a late lunch.



This is a typical exposure of the Hell Creek Formation (66 MYA) on Marge Baisch's ranch.

Photo taken by Rachel Callahan



This photo of the Pierre Shale collecting area south of Glendive, MT, was taken from the edge of a nearby oil well pad.

After lunch, we visited the Frontier Gateway Museum and the Glendive Dinosaur and Fossil Museum. They are both located on Belle Prairie Frontage Road 300 next to I-94 in Glendive. We enjoyed viewing the displays of local history as well as the natural history items. The fossil displays and life-like dioramas were quite impressive.

The next morning we went to Marge Baisch's ranch just outside of Glendive. We spent two enjoyable days in near perfect weather with Marge searching for fossils in a different area of her ranch than we explored in 2014.



We examined this exposed dinosaur bone on Marge Baisch's ranch.

Photo taken by Rachel Callahan

We collected a few fossils and then Marge took us into an area littered with agatized wood. We easily collected our quota of petrified wood while we were there. After each day of collecting, we had the great pleasure of visiting with Marge at her home, viewing her fossils and minerals and discussing the subject of fossils. The website for her ranch is <http://dailydinosaur digs.com/>.

The colors varied in the agatized wood. The most common color we found was light brown, with black being the rarest.



The next day started with intermittent heavy rain showers. This eliminated the possibility of collecting fossils, so we stayed in town. We spent the morning collecting agates on a sandbar of the Yellowstone River east of Glendive.

That afternoon we visited Clyde and Teala's "Just for Rocks Shop". We enjoyed our visit so much; we ended up staying until closing time. The shop has moved since then. However, you can contact



We collected agates on this exposed sandbar of the Yellowstone River, east of Glendive.

The next morning was our last in Glendive, so we returned to the Pierre Shale site for a few hours of final collecting. We found a few more specimens, then called it a day and returned to the hotel to pack up.

The Pierre Shale Formation (formerly called the Fort Pierre Group) existed from 69 to 82 million years ago. The Pierre Shale formed in the Western Interior Pierre Seaway of North America (Larson, Neal L. et-al, 1997). The Pierre Shale Formation consists of nine stratigraphic layers (Boerngen, et-al, 1980).

This figure is from the report: **Composition and Properties of the Pierre Shale and Equivalent Rocks, Northern Great Plains Region (Report A) Boerngen, et-al, 1980.** It shows a generalized cross section of the Pierre Shale in relation to other formations in Eastern Montana and South Dakota.

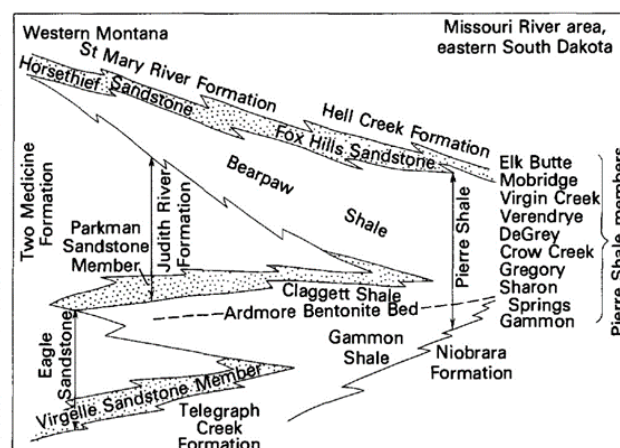


FIGURE 1.—Schematic cross section of the Pierre Shale and equivalent rocks, northern Great Plains Region. Marine sandstones are stippled, and rocks above and to the left of them are non-marine, whereas rocks below and to the right are marine shale. Not to scale.

The area southeast of Glendive is geologically known as the Cedar Creek Anticline. The Cedar Creek Anticline is an oil producing anticline from the Paleozoic period.

According to the article; History of the Cedar Creek Anticline, Southeast Montana (Davis, John, 2013), "Oil was discovered on the Cedar Creek Anticline in the Gas City Oil Field in 1951. Thirteen fields on the anticline have produced over a half billion barrels of oil from about 2,700 wells. The Cedar Creek Anticline is a collection of structural traps, inter-connected by various faulting styles, including some subsets of fracture pattern overprinting. Located in southeast Montana, the anticline stretches 115 miles southeast from Glendive, Montana to Buffalo, South Dakota."

The Glendive area surface geology can be observed by examining the Glendive 30x60 quadrangle geologic map. The Wibaux 30x60 geologic quadrangle map shows the surface geology to the southeast of Glendive. These maps can be obtained at The National Geologic Map Database. http://ngmdb.usgs.gov/ngmdb/ngmdb_home.html

The land south of Glendive is a mix of BLM, state trust, privately owned, state parks, and leased property. If you come here, I recommend you get a copy the land ownership maps for this area from the Montana State Library, Public and Private Lands Ownership Maps website; (http://mslapps.mt.gov/geographic_information/maps/land_ownership/Default). This will help ensure you don't end up on the wrong property. There are active oil well pads here. The oil companies prefer you do not block access to the pads or park on them, for these are working wells that require maintenance from large trucks.

Upon returning home, I gradually prepared my Pierre Shale fossil finds. They consisted of two species of clams, one species of oyster, one species of ammonite, several pieces of bacculites ranging from tiny to massive (species unidentified), and three species of gastropods.

The two species of clams I found were: *Inoceramus cripsii* var. *subcompressus* (Meek & Hayden 1860) and *Corbicula cytheriformis* (Meek & Hayden 1860).



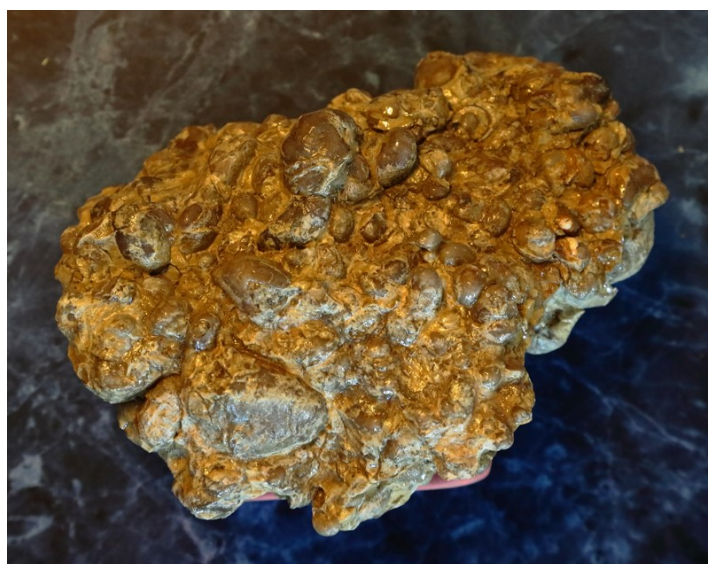
Inoceramus cripsii var. *subcompressus*



Corbicula cytheriformis (articulated)



Corbicula cytheriformis (Meek & Hayden 1860)
mass mortality cluster



The only oysters I found were two pieces (150 mm and 270mm)
of a mass mortality of *Gryphea* (Lamarck, 1801).

The only species of ammonite I found was *Scaphites nodosus* var. *plenus* (Meek & Hayden 1860). They ranged in size from 15 mm to 50 mm wide.



Scaphites nodosus var. *plenus* (20-35mm wide)



Scaphites nodosus var. *plenus* (15mm-50mm wide)

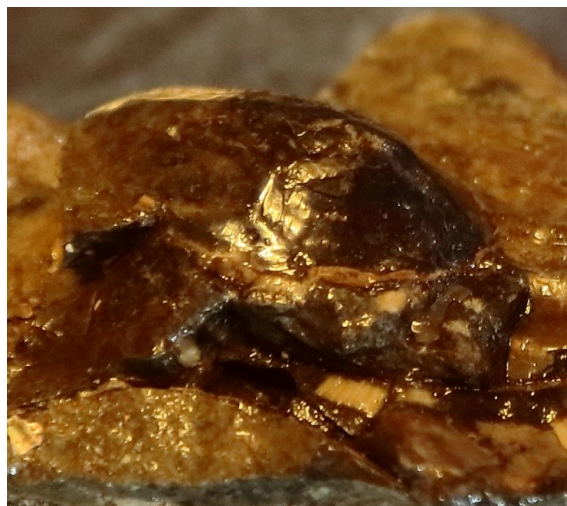


Scaphites nodosus var. *plenus*
with an *Inoceramus crispus* var.
subcompressus

I found three gastropods at this site: A limpid like *Anisomyon subovatus* (Meek & Hayden 1860), a tiny, cone shaped *Anisomyon shumardi* (Meek & Hayden 1860), and a small *Euspira subcrassa* (Meek 1856).



Anisomyon subcrassa (15 mm high)



Anisomyon subovatus (15mm wide)



Anisomyon shumardi (10mm) high)

I plan to continue exploring the Pierre Shale Formation in a southeasterly direction going into South Dakota. I hope to find some heteromorph ammonites there. They are conspicuously missing from my collection, but are on my bucket list of fossils to find.

Forever Curious

Gary H. Burgess A.T.A., B.S.

© 2015 Gary H. Burgess

References:

Boerngen, Josephine G.; Gill, James R.; Schultz, Leonard G.; Tourtelot, Harry A.; Composition and Properties of the Pierre Shale and Equivalent Rocks, Northern Great Plains Region (Report A) (1980) Geochemistry of the Pierre Shale and Equivalent Rocks of Late Cretaceous Age Geological Survey Professional Paper 1064.

Collier, Arthur J., Geology of Northeastern Montana; Shorter Contributions to General Geology, 1918.

Davis, John, History of the Cedar Creek Anticline, Southeast Montana, Denbury Resources Inc. (9/22-24/13) Downloaded 3:06 4-25-16.

<http://www.searchanddiscovery.com/abstracts/html/2013/90169rms/abstracts/davi.htm> AAPG Search and Discovery Article #90169©2013 AAPG Rocky Mountain Section 62nd Annual Meeting, Salt Lake City, Utah, September 22-24, 2013.

Farrar, Robert A.; Jorgenson, Steven D.; Larson, Neal L.; Larson, Peter L. (Larson, Neal L. [et al.]); Ammonites and the other Cephalopods of the Pierre Seaway, 1997.

Geologic Map of the Glendive 30' X 60' Quadrangle, Easter Montana and Adjacent North Dakota, Montana Bureau of Mines and Geology, Open File No. 371, 1998.

Geologic Map of the Wibaux 30' X 60' Quadrangle, Easter Montana and Adjacent North Dakota, Montana Bureau of Mines and Geology, Open File No. 465, 2003.

Landman (et-al), Scaphites of the "Nodosus Group" From the Upper Cretaceous (Campanian) Of the Western Interior of North America, Bulletin of The American Museum of Natural History, Number 342, 2010

Makoshika State Park (<http://stateparks.mt.gov/makoshika/>) downloaded 4/20/16

Meek, F. B., A Report on the Invertebrate Cretaceous and Tertiary Fossils of the Upper Missouri Country, Washington Government Printing Office. 1876

Shimer and Shrock, (May, 1944), Index Fossils of North America, Ninth Printing, April, 1972

Smith, W.D., The Development of Scaphites; The Journal of Geology, Volume 13, No. 7, 1905

The National Geologic Map Database http://ngmdb.usgs.gov/ngmdb/ngmdb_home.html

Montana State Library, Public and Private Lands Ownership Maps

http://mslapps.mt.gov/geographic_information/maps/land_ownership/Default

Landman (et-al), Scaphites of the "Nodosus Group" From the Upper Cretaceous (Campanian) Of the Western Interior of North America, Bulletin of The American Museum of Natural History, Number 342, 2010.

Makoshika State Park (<http://stateparks.mt.gov/makoshika/>) downloaded 4/20/16.

Meek, F. B., A Report on the Invertebrate Cretaceous and Tertiary Fossils of the Upper Missouri Country, Washington Government Printing Office. 1876.

Shimer and Shrock, (May, 1944), Index Fossils of North America, Ninth Printing, April, 1972.

Smith, W.D., The Development of Scaphites; The Journal of Geology, Volume 13, No. 7, 1905.

The National Geologic Map Database http://ngmdb.usgs.gov/ngmdb/ngmdb_home.html.

Montana State Library, Public and Private Lands Ownership Maps.

http://mslapps.mt.gov/geographic_information/maps/land_ownership/Default

)

(Continued from pg 5)

The talks were well attended. The talks included:

Dr. Bill Orr - "Lagerstätten: World Class Fossil Sites,"

Guy DiTorrice - "Douglas Emlong – Fossil Pioneer, Fossil Dreamer."

Dr. Loren Davis - "Reser Fossils"

As usual, we would like to thank Bill Hanshumaker, OSU marine educator and outreach specialist with the Hatfield center for organizing the entire event.

Prep tip

By Bruce Thiel

A tube of mini-shrink wrap works great for wrapping up broken concretions. It's available at A-Boy for \$3.99 and small enough to fit in a backpack. Here are 5 concretions containing pieces of crab that were split with a cold chisel,



and wrapped back up (with a sheet of toilet paper in between to prevent abrasion). If one decides to break open a concretion to see if it contains a fossil, a cold chisel hit with a sledge hammer makes a sharp clean break that's easier to glue back together. Just hitting the concretion with the sledge by itself sometimes causes the concretion to shatter into several pieces, and can ruin the fossil. It sometimes helps to make a groove in the concretion first with a dremel or air tool to seat the chisel and help prevent it from slipping. A cold chisel is made of tempered steel used for cutting cold metals, which is how it got its name. Mason chisels have a longer blade and are harder to handle on small concretions.

Editor Note: A 5in size can be found at other hardware stores. The wrap works great on fossil that are not in concretions. There are many benefits using the wrap, you can see what type of fossil you have, your wrap won't deteriorate like newspaper and aluminum foil. It also, forms a nice padding to protect your fossils.

Woodburn High School Paleontology Display



A display at Woodburn High School explaining the paleontology occurring there was recently put together. A student from the school, Timo Lopez, did the project as part of his Eagle Scout requirements. Volunteers from the community met April 16 to dig the foundation, build the bench, put in the interpretive sign, plant the shrub and flowers, and then spread bark dust. A big thank you to NARG and many of its members for making donations for the project. This years digs will happen August 15-21. All are invite to attend for the whole week or just one day.

Please contact David Ellingson at dellingson9@yahoo.com for any questions.

Donaciina onaciinae beetles from Woodburn, Oregon (photos by Joe Cantrell)





In April I had the pleasure of attending a meeting directed at fossil preparation. A few of our members have attended this meeting in the past. The annual meeting of The Association for Materials & Methods in Paleontology (<http://www.paleomethods.org/index.html>) brought nearly 150 fossil preparers to Colorado Springs, Colorado. The week-long event started off with a 2-day course on photogrammetry which is the use of computer programs to stitch together many camera pictures of a fossil resulting in a 3D image. Over the next 3 days we had lectures and wet labs on many aspects of preserving fossils. The main theme this year was on the 10 most common causes of loss of fossils. Preparers from all over the world attended. Many of the fun facts I learned can be found throughout this newsletter. It was great to meet people that had prepped out the *Tyrannosaurus rex* "Sue" and others that are working with our Thalattosaurs in Alaska. The wet labs were great and covered air abrasion, adhesives, gluing techniques, creating fossil cradles, field jacketing, basic fossil preparation, and many more. There were many meet and greets including an auction with a trivia contest. Field trips included the Denver Museum of Nature and Science, the Morrison Natural History Museum, The Florissant Fossil Beds National Monument, and Comanche National Grasslands. I strongly encourage members to attend this meeting. It is a great way to stay current on techniques used and accepted for the preservation of fossils. Next year it will be held in Austin, Texas.

Articles on photogrammetry:

<http://www.thefossilforum.com/index.php?/topic/56985-3d-fossil-scanning-w-photogrammetry/>

http://www.jpaleontologicaltechniques.org/pasta3/JPT%20N12/Pdf/JPT_n012_Jul.pdf

https://www.idigbio.org/wiki/images/4/4d/D_Miller_iDigBio_2014.pdf

<http://palaeo-electronica.org/content/issue1-2012technical-articles/92-3d-photogrammetry>



Field trip to Comanche National Grasslands



Bruce Shumaker, BLM paleontologist met us at the site.



Theropod track



Trip leader, Tom Nolan, showing us how to make a foam impression

Here is a list of causes of fossil loss due to differing relative humidity:

- Less than 40% causes ivory delamination
- Greater than 50% causes clay disintegration
- Greater than 60% causes pyrite deterioration
- Greater than 80% causes mold growth

Wyoming Nail Head Fossil Site

By Kaleb Reynolds (11 years old)

Have you ever wondered what it would be like to be a real paleontologist? I did. I have been interested in dinosaurs since I was 5 years old, that's over 5 years ago! I liked all sorts of dinosaurs even back then. My favorite was the Tyrannosaurus Rex because he is the king of all lizards. But did you know that T-Rex is not even a lizard? He is more like the king of all birds...

One day on my visit to see the fossils at OMSI, Greg Carr was telling me about the fossils in the museum and what he does there. I told him that when I was old enough wanted to visit a real live dinosaur dig. Greg said



“why wait” and invited me to come to a North American Research Group Meeting (NARG) held at the Rice Museum which just happens to be really close to where I live and is held on the first Wednesday of each month. Meeting are really cool. Each time they talk about their adventure in Oregon and around the world. Members bring in all kinds of fossils to look at and sometimes I can even buy them. I am growing quite a collection!

Two years ago was the first time I went to the Nail Head Quarry. What an experi-

ence! Greg helped me a lot. He showed me how to dig out fossils without damaging them and how to use vinack. I have met some really interesting people and made some great friends who have taught me lots of things. I'm looking forward to going back for a third time in August!

Editor note: The dates of the trip is Aug 6-27. If interested in going on this field trip contact Jerry Dodson at (360) 721-9492 cell (360) 571-9381 or email at jdodson01@msn.com

Why are many fossil trees ovoid rather than round? When trees fall over and are buried, the weight of the rock above distorts the softer wood below, flattening the log



Fossil Calendar 2016

July 29-31	NFMS/AFMS Show http://wamsi.org/content/2016-nfmsafms-show	Linn Co. Fair & Expo Building	Albany, Oregon
August 6-7	Summer Fest http://ricenorthwestmuseum.org/category/events	Rice NW Museum	Hillsboro, Oregon
August 7	Hatfield Marine Science Center 50th Anniversary http://hmsc.oregonstate.edu/main/50th-anniversary-hmsc	Hatfield Marine Science Center	Newport, Oregon
October 7-9	Portland Regional Gem and Mineral Show http://www.portlandregionalgemandmineral.org/	Washington County Fair Complex	Hillsboro, Oregon
October 12	National Fossil Day http://stonerosefossil.org/	Stonerose Interpretive Center	Republic, Washington
October 26-29	Society of Vertebrate Paleontology http://vertpaleo.org/Annual-Meeting/Home.aspx	Salt Lake, Utah	
November	NARG Auction http://NARGPaleo.org	Rice NW Museum of Rocks and Minerals	Hillsboro, Oregon

For a listing of local gem and mineral shows check out: <http://www.mineralcouncil.org/shows.pdf>

<http://orockon.com/> Click on Portland Area Rock Clubs, includes PNW Clubs)

2016 NFMS/AFMS Show
Treasures of the Northwest



Linn County Fair and Expo Building
Albany, Oregon
July 29th, 30th, and 31st, 2016

2016 NFMS/AFMS Show
Hosted by
Willamette Agate & Mineral Society
Presenting the event theme
Treasures of the Northwest
Featuring
Hundreds of Displays ♦ Field Trips
Silent Auction ♦ Dealers Galore
\$4 Admission, 12 and younger are free.
\$10 for a three-day pass!
July 29th, 30th, and 31st 2016
Friday and Saturday 10am to 6pm
Sunday 10am to 4pm
Albany, Oregon
Follow us at www.wamsi.org
Janice VanCura, Show chair, 541-753-2401, jvancura@peak.org



THE PORTLAND REGIONAL GEM & MINERAL SHOW ASSOC.
(A Non-Profit Organization) Presents
**The 36th Annual Show of
Rocks, Minerals, Fossils
and Jewelry**



SHOW INCLUDES:

- 100+ EXHIBITS
- SPEAKERS
- SILENT AUCTION
- KID AND FAMILY ACTIVITIES
- LAPIDARY DEMONSTRATIONS
- RAFFLES & DOOR PRIZES
- AND MORE

40+ VENDORS OFFERING:
GEMS AND MINERALS
FOSSILS
FACETING ROUGH
CARVINGS
LAPIDARY TOOLS & EQUIP.
JEWELRY MAKING SUPPLIES

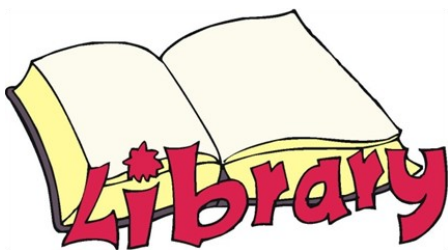
OCT. 7, 8, & 9, 2016
Fri. & Sat. 10-6, Sun. 10-5



Bring your Kids and the Camerita, Fred and Wilma Flintstone will be there all three days.
Best Value:
3 day Pass for \$8.
Like Us on Facebook
Plenty of Free Parking
Or take MAX



At The Washington Co. Fairplex
ADMISSION - ADULTS \$5, KIDS 12 & UNDER FREE
(873 NE 34th Ave., off of Cornell across from the Hillsboro Airport)
www.portlandregionalgemandmineral.com
Vendor Registration contact: L. Harvey at PortlandRegionalDealerChair@gmail.com



The NARG library has just become easier for members to use. The 430 books can be viewed by using the link below. Once you find a book you want, click on it and find its "index" number. Requests for books using the index number are made to danolough@aol.com. He will notify you if the book is already checked out. If it is not, he will bring it to the next NARG meeting. Members can check out 2 books at a time and should return them at one of the following 2 meetings.

<http://cloud.collectorz.com/danolough/books>

NARG Membership

NARG's membership dues for 2016 are due January 1, 2016

Individual Membership = \$25

Family Membership = \$40

Student Membership = \$10

You may pay for your membership by:

* Bring your money to our next NARG meeting..

* You can mail your payment to:

NARG
P.O. Box 2207
Beaverton, OR 97075-2207

* You can pay your dues thru Pay Pal. You don't need a Pay Pal account to pay this way. You can pay using a credit Card.

NARG Up Coming Activities

2016

*	FossilFest	Aug. 13	
*	Fieldtrip to Nail Quarry, WY	Aug. 6 until August 27	Contact Jerry Dodson
		jdodson01@msn.com	Cell 360 571-9381
*	Portland Regional	Oct. 7-9	
*	Auction & Potluck	Nov.	

Currently, the 7 most commonly accepted adhesives used for fossil preparation are:

Butvar B-98
 Butvar B-76
 Paraloid B-72
 Polyvinyl acetate-15 (Vinac)
 Cyanoacrylate
 Epoxy

NARG Officers:

President: Aaron Currier (503) 364-2979
 Vice President: Dan O'Loughlin (503) 866-5997
 Secretary: Tami Smith (503) 620-5317
 Treasurer: Peg Johnson (253) 370-8892

Directors:

Debbie Shannon
 Garret Romaine (503) 591-8622
 MacKenzie Smith (503) 403-8941
 Robert Rosé (541) 367-2052
 Linda Harvey (503) 310-3036

Honary Director:

Michael Santino (503) 981-8902

Committees:

Newsletter: Peg Johnson, Dan O'Loughlin
 Aaron Currier

FossilFest: Linda Harvey
 Dan O'Loughlin

NARG Auction: Linda Harvey
 Portland Regional: Dan O'Loughlin

NORTHWEST FOSSIL FEST

August 13, 2016

*A Celebration
of Paleontology in
the Pacific Northwest*

at the Rice Museum
in Hillsboro, Oregon



presented by the
North America
Research Group

FREE ADMISSION
nargpaleo.org