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North America Research Group

NARG NEWSLETTER

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NW FossilFest 2017 - Fossil Fish

By Dan O'Loughlin

Fossil fish was our theme this year and it was a huge success. It started with two new NARG trailers carrying much of the basics such as tables, awnings, and exhibit cases. This made for faster move in and take down. We had many members show up early to set up because the forecast was for high temperatures. The day of the show was busy due to a record crowd. We had over 700 guests attending which was our largest crowd ever. The demographics of our attendees was mostly young couples and their inquisitive children. There were 12 exhibit cases including four of Greg Carr's Thalattosaur model. Wayne King was present to show off bonsai techniques for both Metasequoia and Ginkgo trees we were selling. Tree sales were brisk. The Rice Museum had Kemmerer fish for sale. A booth representing the Stonerose Eocene Fossil Site in Washington garnished many visitors. It was staffed by Tom Wolken , his daughter Lauren, and Gregg Wilson all of Northwest Paleontological Association (http://nwpaleo.org/) associated with the Burke Museum on the University of Washington campus.

Our two fabulous speakers were NARG member, Gregg Wilson speaking on “Fossil fish from Republic, Washington” and Dr. Ed Davis from University of Oregon addressing “The Spike-toothed Salmon and other fossil fish from Oregon”. Kids events kept the young paleontologists entertained with plenty of free items for all. NARG president Aaron Currier along with Dr. Ed Davis were present to identify fossils for guests. Joe Cantrell was kept busy photographing fossils for members and guests.

Aaron at ID table.

Joe at his art cart, taking beautiful closeups of fossils.

Linda selling living fossils, Metasequoia and gingko trees.

Julian Grey at Rice Museum Table

Gerry holding this year T-shirt, the side-tooth salmon

Wayne King showing bonsai gingko and metasequoia trees.

Spiked-tooth salmon head. (tooth)

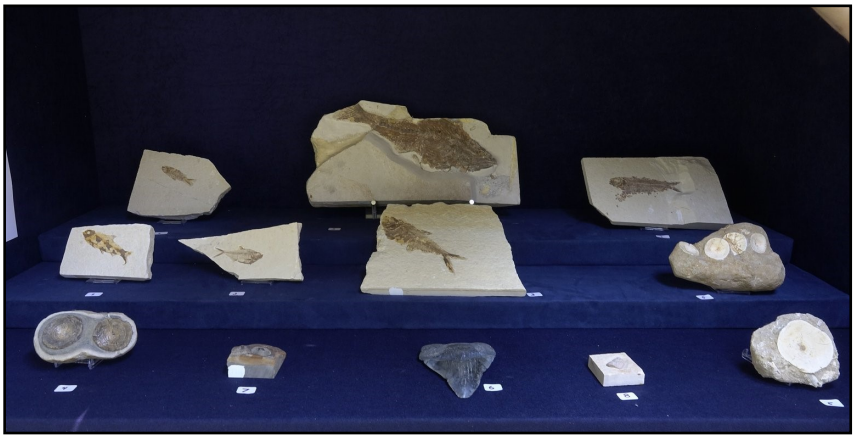
(continued from page 2)

Our t-shirt this year was a special edition. A favorite artist of NARG's, Ray Troll (http://www.trollart.com/), donated his time to design a shirt along with Aaron. It featured the side-toothed salmon. We had to put in a repeat order after the show so that NARG members could get one of their own. Our guests enjoyed a variety of smoothies supplied by Smart Smoothies. Overall, it was a very successful show. Our one day show is always well received. Thanks to all of the NARG members, and a few of my family members that helped make this show outstanding.

In memory of Jim Scheirbeck by Michael Santino

Rice Northwest Museum of Rocks & Minerals Display

Kemmer, WY fossil fish from Green River Formation



Oregon has a rich geologic history with many fossil bearing strata of varying ages distributed throughout the state.

Kid's Activities

Pat J. helping a budding paleontologist.

Meghan & Mike O'Loughlin helping out at kid's activity table.

Greg C. and Cindy helping in kids activities.

Woodburn Update for 2017

By Dave Ellingson

With two digs down and one to go, a lot of bones have been found so far at the Late Pleistocene sites in Woodburn. In July, 29 people helped look through the soils from two trenches at Legion Park. The most exciting find was a skull of an older, probable female bison. Unfortunately it was broken into several pieces, but with the help of High School students we hope to have it reassembled before the end of the year. Another important find was the mandible of a weasel sized animal. It is still to early to assign a species, but pictures will be sent to Dr. John Harris in Southern California for assistance.

The August dig at the High School was more productive with a total bone count of 275 different bones. Most were small, belonging to frogs, birds, and rodents, but some large turtle shell fragments, teeth of bison, and a partial skeleton of a large juvenile bird were discovered. The bones are currently in the process of being preserved for better identification. Joe Cantrell took some incredible pictures of some of the smaller samples, including some insect parts.

In total, 54 people helped out during the week. Debra Shannon was the big bone count winner with 61 bones. Screens made by Richard Kimbell were invaluable in finding many of the tiniest bones. Also, Gregg Carr constructed a Trommel that after some tweaking also produced bones from a large amount of soil. Thanks to Gregg for his work and energy.

There is plenty of good soil that has been left unsorted still at the High School, so when the student dig is completed (September 18- 22), the site will be open for all who want a last crack at the soils. (September 23-24).

One funny incident occurred which has given us a new procedure for looking for larger bones. A mother brought her three boys to the site to learn what was happening and possibly find a bone. I took the two oldest and showed them how to crumble a hand full of soil into a bucket and then carefully sift the soil through their fingers and feel for anything hard. Six year old River said it would be easier to just grab a large lump and throw it on the ground. Needless to say, after his second attempt at his method, he found a large carpometacarpus of a bird. So, if you come this September, feel free to try any method of extracting bones from the soil.

Fossil Lobster Named after Robert Manley

By Bruce Thiel

A small single part of a lobster was discovered by Bob Manley last year in the Lookingglass Formation, in the hills east of Agness, Oregon. When it was sent to Dr. Robert Feldmann, at Kent State University in Ohio, it was discovered to be a new species and was named *Scyllarella manleyi* after Bob. The lobster is important for several reasons in that extends the range of the genus into the Eocene and to the west coast of North America, where it is only the second occurrence of scyllarids in the fossil record for the North American west coast. The fossil, once it is described and named, is referred to as a holotype, and is now in the Condon Museum collection. Dr. Eric Gustafson has noted that the lobster is a member of a group called slipper lobsters—which, like spiny lobsters, do not have claws (chelae).

The Lookingglass Formation in SW Oregon has yielded numerous fossil specimens—primarily Oritoplax weaveri crabs, which are the most common find. Dr. Eric Gustafson of the University of Oregon, Condon Collection has studied the formation extensively and has identified at least nine fossil crabs and shrimp which he has curated at U of O.

Bob has also found an interesting crab, which appears different from those already found in the Lookingglass Fm. Dr.Torrey Nyborg and Eric are studying it and agree that it is probably a new genus and species, however we need to wait until their research is complete and published to find out if Bob will have a second discovery to his credit.

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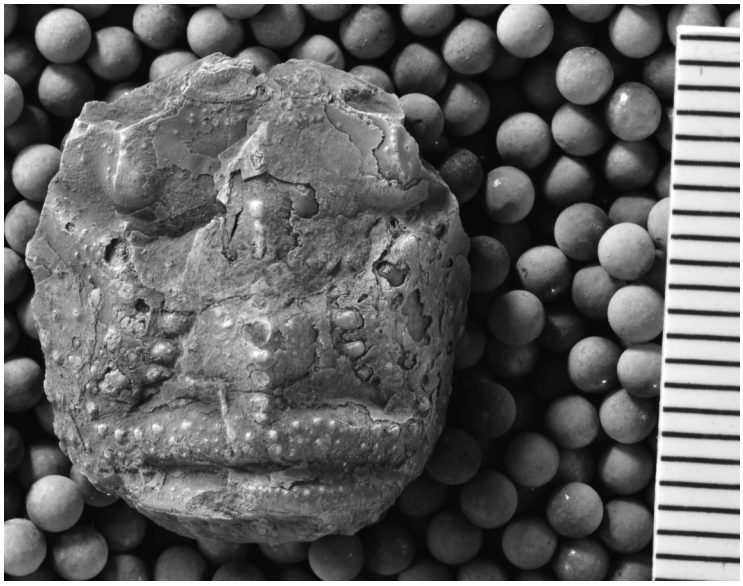
Reference: *Scyllarella* (Decapoda: Achelata: Scyllaridae) from the Lookingglass Formation (Eocene): first occurrence on western coast of North America. (Rodney M. Feldmann and Carrie E. Schweitzer): Bulletin of the Mizunami Fossil Museum, No 43 (2017), p. 11-15.



Trip Report to the Hossack's Limestone

By Gregory Car

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Background: The Hosselkuss Limestone is an outcropping of Triassic limestone located just north of Lake Shasta in northern California. It is famous for it's fossils of marine reptiles. Hundreds of specimens were recovered at the beginning of the 20th century, mostly between 1902 – 1906. No real expeditions have been mounted to the area since then except to recover some Ice Age fossils from an accessible cave. I have been invited to an expedition by Neil Kelly (Vanderbuilt University) this fall. I took this trip to survey land access to the formation for the fall expedition.

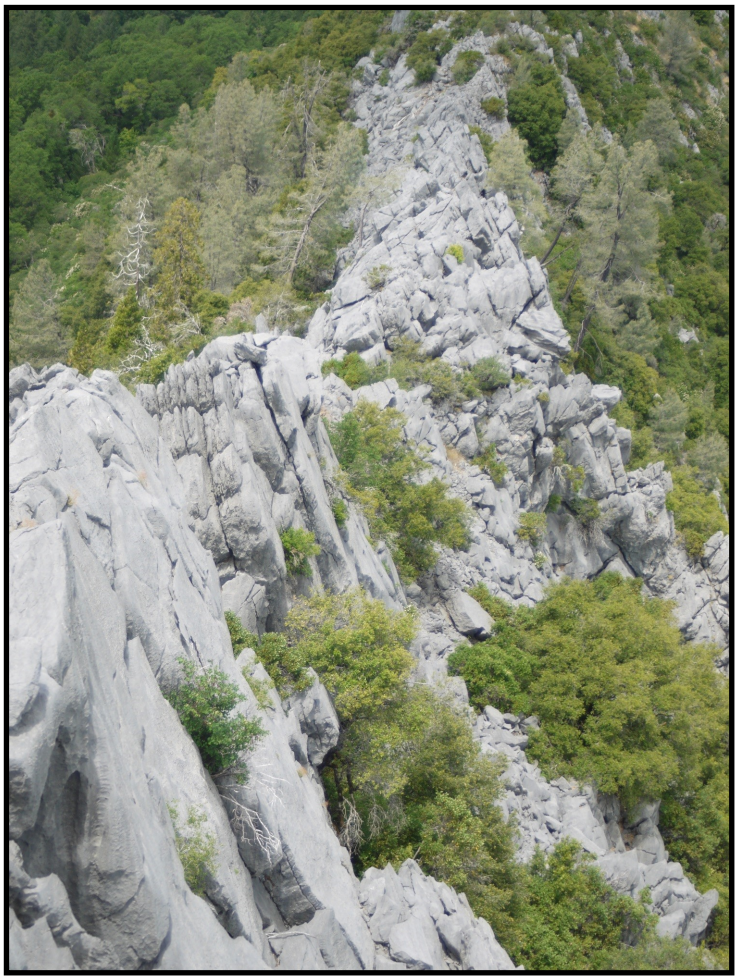
June 2-6, 2017

This report covers a visit to the Hosselkuss limestone in Northern California by Gregory Carr, scouting the road access to the formation on the Central and West side of the outcroppings.

Summary:

- Road access can get the explorer to within about ½ mile of the limestone outcroppings at both the West edge around Brock Mountain, and the center section of Low Pass. Road access to this area requires 4x4 high-clearance vehicle. Paint damage to vehicle will occur due to non-existent vegetation management.
- It takes about 2 ¼ hours from I-5 exist at Gilman road to Chirpchatter 'campground' (37 miles). Access from Chirpchatter to Low Pass, after some road clearing, is about ½ hour (3 miles). Access from Chirpchatter to trailhead off Brock Mountain lookout is about 1 hour (6 miles). Access from Chirpchatter around to the East to Highway 299 is about 2 hours (26 miles).
- The area is quite rugged and marked trails do not exist. All travel is by bush-whacking through dense vegetation (in most areas) requiring GPS mapping.
- The area is extensively covered with Poison Oak, about 25% of the vegetation. It cannot be avoided. Medical preparation in the form of prescription Prednisone taken before actual exposure is necessary and is apparently effective. I also washed at the end of each day with detergent water and did not re-wear clothes. Long sleeve shirts and long pants are also needed for protection against mosquitoes, brambles and poison oak. DEET mosquito repellant is necessary, at least in June (I have some 98% material!).
- Travel is very slow. Generally, it took me 3+ hours to travel about 1 mile. Much of the travel is bushwhacking through thickets, climbing up and down limestone faces, and continuous care. Twisting an ankle or worse would be a disaster. My GPS recorded ascent and descent legs with angles as high as 60+ degrees for hundreds of feet at a time. Rock scrabbling/bouldering abilities are necessary. Elevation changes are on the order of 900 feet.
- The proposal to approach the lower areas via boat from Lake Shasta ore the most promising. The lake is now re-filled and makes access much easier.
- Last but not least the area I covered has very few macrofossils – it is just massive limestone. A few small areas of ammonite mortality layers were found, perhaps a few square meters total. It is hard to believe that this is the same formation as described by the early explorers. Certainly, good fossil areas must be in some other parts – but not in the road-accessible areas.
- Actual note transcript follows, as written. Includes millage

A picture of the weathered top of the Hosselkuss Limestone Formation. Very difficult to climb around – I found out about this the hard way, getting trapped in part of it!



Here is a picture of the Gray Rocks Hogs-back. It is about 300 feet down to the left, 400 feet down to the right, and the strata slopes at about 80 degrees – very steep

A picture of the trees in bloom along with the weathered limestone:

- **6/2/2017** trip to Hosselkuss Start 07:45, 113,566 miles. Reset counters. Outside it's slight thin cloud cover, 52F
- Brief stop at Oak Cabin rest stop 10:28 150 miles travel at 2:26 113,716 miles
- Grabbed a Subway sandwich at Grant's Pass. Filled car & spare 5 gallon can, 22 gallons, 113,803 miles, 12:20
- Entered California at 1:30, 306 miles, 5 hours driving
- Stopped a Lakehead, last gas available. Only took 10.36 gallons, $33.14
- Exited freeway at salt creek road, 113,961 miles, 4:09 Outside 90F 6 hrs. 42 min driving time, 395.3 miles total.
- Gilman road access is a little more south. Gilman road is paved to head of the arm. Saw a yearling bear on the road, apparently begging. Got to end of arm where Gilman transitions to Fender's Ferry road. 113, 981 miles, sign says Squaw Creek 14 miles.
- Arrived at T intersection at squaw creek, 1 mile north of Chirpchatter 'campground' at 6:16 PM. First view of the limestone. It's pretty timbered so long view Made one wrong turn on the way, went left instead of straight ahead with about 4 miles to go to Squaw creek. Lost 15 minutes of so.
- Chirpchatter 'campground' – 4 picnic tables, 4 spots, one pit toilet, no water, river access. Thank goodness for DEET – lots of mosquitoes! Limestone not visible, creek rocks not limestone.

6/3/2017 07:04 leaving camp, going to Brock Mt lookout at south end. 113,999 miles at start.

- Arrived at 'trailhead' about 8:00. Pretty gnarly at the end, used 4x4 Lo from about the 4 mile mark to the end at 6 miles. Began walking at a T intersection where the road to the lookout continues and the side road to the hiking path starts. Too many downed trees to drive. Nice flat road to start, however. Parked at N40° 49.151' W122°07.909' 2420 feet
- Started walking at 09:00. At 11:00 took a break. I had mistakenly climbed the first big outcropping – very steep up & down. Wasted time, got exposed to Oak, got great pictures of dissolution pinnacles like in Madagascar. Now back on track – no real trail to follow, however. N40°49.304', W 112° 07.033'
- Saw one area of small ammonite mortality layer, took GPS - N40° 49.341' W122° 06.927' 2807 feet.
- Ate lunch at top of a high viewpoint N40°49.463', W 112° 06.833' 3038 feet high. Took a panoramic picture of the entire area, 360 degrees. Good view of the SE side basin down to Brock Creek. Rugged is right, will take a long time to get n from the top. The rock at the top of 'Gray Rocks" is not fossiliferous. The 'lunch' side is down about 300 feet to the West and 400 feet down to the East. About a 80 degree slope. Lots of great erosional/dissolution fluting, very pretty. Saw lots of big soaring turkey vultures. Took lots of pictures.
- Left lunch spot at 1:49, back to car.
- Arrived at car at 4:40. Washed real well with soapy water, took Prednisone, ate second ham sandwich, changed clothes and put contaminated clothes in a special bag. Cleaned rocks, cleaned parking spot, took off to campground at 5:20 PM. 114, 006 miles. Took about 60 minutes to get the 6 miles to campground. I did not try the lower 'trail' down to the lake.

6/4/2017

- Ate breakfast, finished up about 7:30 AM Light dew, had slept outside. Overcast in the morning, no sign of Poison Oak rash yet! I plan n cleaning out some downed trees on Low Pass road and going up there. Somewhat washed out but otherwise good. No gate, No signs, no mutton. On low pass, I will try to get to strata to the East of the main ridge, which I believe will have more bones. The West strata. Gray Rocks, doesn't have much stuff in it.
- 8:50 Ran up Low Pass road as far as I can. Large Maple across the road, scraping paint on both sides and top as well. Far enough. Left truck at N40°51.527', W 112° 06.549' 1591 feet. Left road at the 'Left' waymark N40° 51.390' W122° 05.875', 1823 ft. elevation at 9:43 AM. Nice and cool, damp even. Running stream down below, occasional glimpses of limestone cliffs above. Old-Growth Douglas Fir 5-6 foot dimeter – unexpected! Intercepted the south fork of the road up above after climbing through a hillside without much undergrowth. N-S ridge of limestone is quite prominent to the West. Will try to traverse East side, gaining elevation.
- 10:15 AM Climbed up a long slope with no undergrowth to the top where cliff starts no idea as to cause. 'TOP' mark is top of bare slope - N40° 51.257' W122° 05.917', 2127 feet. Then out onto the cliffs to the south.
- At 11:26 got up to top of ridge just East of the trail up to Devil's Rock. Nice view of Shasta and Lassen. No noticeable fossils in rock. A few turkey vultures earlier, none now.
- 1:07 arrived at saddle just East of Devil's rock. 2700 feet. 900 foot elevation gain in 31/2 hours – no fossils! Will go off Sough and East along ridge for another 2 hours, then turn around.
- Traverse is almost all through dwarf oak forest. I sure hate it. All the trees are 10-12 feet high, bent over, difficult to get through. Rocks have shown a few small ammonites N40° 50.705' W122° 06.052' 2596 feet. No bones.
- Took another stop at "Rest" N40° 50.705' W122° 05.986' 2691 feet. 2:18 PM. Nice grassy slopes, no fossils, down to 2 water bottles (started with 6). Turned around at 'Day 2 end' after getting a better view of the large bare cliff. N40° 50.594' W122° 05.876', 2459 feet. 3:03 PM It is a mile back to the road, cooling off just a little, lots of flowers and butterflies. Will head up over the saddle and try to intercept the 'path' from Devil's rock down to Low Pass road.
- Surprise – there's no path! 6:03 PM back at the road. Followed down a creek, very seep at the bottom, down around many 20 foot waterfalls. Lucky it's dry and I'm going down. When the water is running it would be quite a sight but I don't know how you would ever get to see them. Again, no fossils in any of the rocks going down.
- Overall – rugged, traveled 3 miles in 10 hours, no fossils, rate it D- except for the views.

6/5/2017

- Day 4 going home. Someone stole my brand new camping stove and old folding chair – bummer. Left at 07:00 AM. 114,017 miles. Stopped up the road about 2 miles to inspect the formation where it comes down to the river. Again, no fossils. Left formation at 7:27 AM
- Arrived at highway 299 at 8:55. 114,043 miles. Road got progressively better as I went, but it still took 1 ½ hours to go the 26 miles.
- Filled up at Red Bluff, 13.92 gallons, then went down to Mill creek for Cretaceous ammonites. No luck, river is too high to ford and vegetation too thick to bushwhack on fossil outcropping side. Gave up. Back home the next day

Robert Manley - 9th NARG Member to Have Discovered or Described New Genus or Species

by Bruce Thiel

"The recent fossil lobster NARG member Bob Manley found highlights the importance of discoveries made by amateurs and fossil club members. We should note these finds and contributions our members have made to science whenever someone proposes new rules to restrict fossil collecting on public lands. With this in mind, we think Bob is the NINETH NARG member to have discovered or described a new genus or species.

Finds and descriptions by the other seven NARG members or former members include:

- A crocodile found in Eastern Oregon by Andrew Bland with the species named after NARG, called *Zoneait nargorum* published in 2015. Andrew also led a NARG expedition to Coos Bay, OR, in 2007, to recover a Miocene whale skull that has not yet been studied or identified.
- A Jurassic seed cone found in Eastern Oregon by Greg Carr, named after him and called *Pararaucaria carrii,* published in 2013.
- Bernie the thalattosaur also found by Gloria & Greg Carr will also undoubtedly be a new addition to the fossil record, once it is described and published.
- A cancer crab from the Olympic Peninsula found by Seattle member David Starr, named *Metacarcinus starr*i published in 1996 and the oldest record for the dogwood family, *Suciacarpa starri,* a new genus and species which was found by David and described by Brian Atkinson, OSU, in 2016.
- A new species of Cretaceous fern from British Columbia named *Osmundacaulis whittlesii* was identified and described by MacKenzie Smith, Gar Rothwell and Ruth Stockey in 2015.
- A new genus & species of flightless penguin-like bird named *Olympidytes thieli* found by Bruce Thiel and published by Gerald Mayr in 2016.
- A thorough description of a Pliocene deer *Bretzia pseudalces,* by Eric Gustafson, published in 2015 by U of O. Originally found by Eric and a co-collector which they described earlier, Eric recently compiled a very thorough analysis and detailed description of its osteology and biology. See the NARG Spring 2015 Newsletter for additional information.
- A crab found by and later named in memory of Bill Sullivan called *Macrocheira sullivani* also published in 2016, and noted in the Spring 2017 NARG Newsletter.
- A green lacewing insect found by Gregg Wilson at Republic, WA named *Adamsochrysa wilsoni* after him
  The fossil *Adamsochrysa wilsoni* was published in the Journal of Paleontology V87 No1 in 1973.

This list does not include the numerous finds by amateur collector and NARG advisor Jim Goedert who has 18 genus or species named after him or his wife, Gail, with two more waiting for publication. Jim has also found several other fossils that he gave to researchers that were given other names and currently has over 100 publications in which he was an author or co-author. Jim and David Starr were also responsible for discovering the first dinosaur in Washington State, after finding a piece of tyrannosauroid legbone on Sucia Island and bringing it to the attention of the Burke Museum.

Tim Fisher and Greg Carr also made an important contribution with their find of early spike-tooth salmon (formerly known as saber-tooth salmon) bones and articulated vertebrae. They brought it to the attention of the University of Oregon Condon Collection, which excavated the site and removed two fish skulls which show a new arrangement of the teeth, sticking out sideways, perpendicular to the skull, different from the earlier original described format for the salmon, which showed them as frontal, and downward facing.

Fossil Insects Dancing in Columbian Copal

Photo's by Joe Cantrell

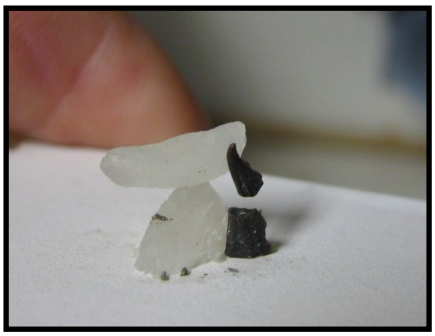
Repairing Crab Claws with Superglue

by Bruce Thiel

When prepping a crab with pneumatic tools, I sometimes end up breaking off a claw or part of one. I usually anticipate the possibility beforehand and clear all the debris and matrix pieces before prepping a fragile area. I've tried various methods to hold the pieces I want to reattach in place but the only thing that seems to work consistently for me is gravity.

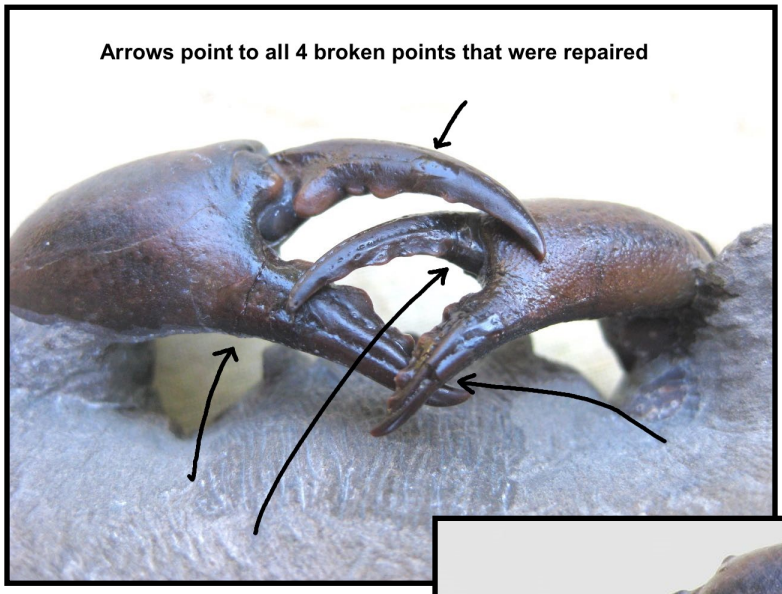
I discovered a product called, "wax candle adapters," from Biedermann & Sons, a waxy modeling clay-type blob that they advertise as being able to secure any candle to any holder. Luckily it also works to secure a broken piece of claw in an upright vertical position. Once held like that, gravity will seat the broken claw in place. There are other products available including modeling clay or sticky tac that can also be used as a flexible holder, I just happened to find this product in our kitchen junk drawer.

Before applying glue, set up the piece and do a dry fit to get the claw balanced in just the right manner so that it will seat and stay in place. Once the set-up is correct, I go ahead and apply superglue with a toothpick, placing the broken piece with watch-makers tweezers. Another method is to take a very small artists paintbrush and use saliva to hold the point of the claw in the bristles until you can jockey it into place.



This is a broken claw that I had to maneuver into just the right position utilizing the white wax candle adapter in order to balance it, before applying glue.

On the left is a small crab, a difficult prep, where I ended up breaking all four claws.



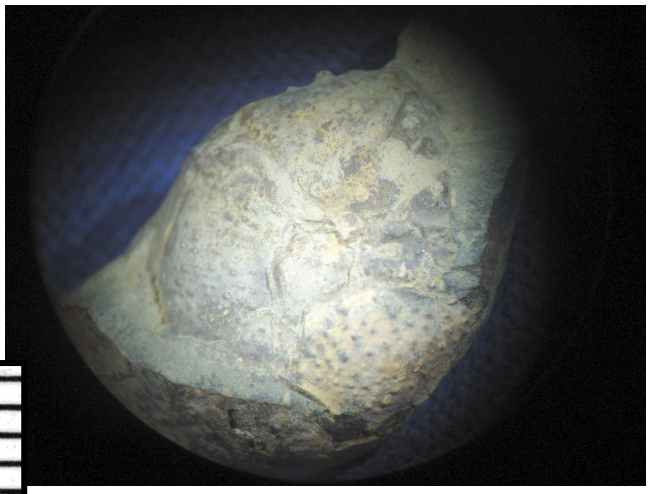
One claw was broken twice, so I stabilized it with a piece of candle wax holder and used a second piece to “swing it into position” and hold it while the glue dried. This was when I was first experimenting with the candle wax and used it as a lever. If I were doing it now, I would first seat the bottom piece in the wax so that it was level and the top half could balance on it before applying the glue. The candle wax is oily and can leave a paraffin residue, so I wipe the area clean with a Q-tip dipped in acetone.

A tub of pea-gravel also comes in handy to use to level out and balance a piece to be glued into place, utilizing gravity.

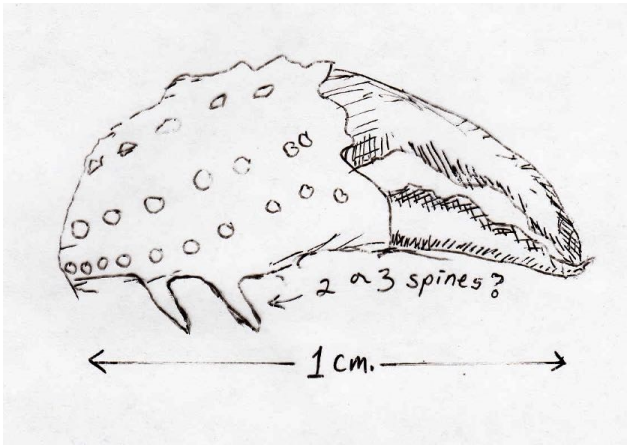
A Possible New Small Cretaceous Crab Found in the Hudspeth Formation

By Bruce Thiel

Robert Rosé found a few small concretions from the Hudspeth Formation several years ago and gave them to me to prep. Most were shrimp claws, but one contained a small crab. We sent it Dr. Feldmann at Kent State and he was puzzled by what it could be, however since the rostrum was not preserved, he could not make a definite ID. He wanted it put in the Condon Collection, so it would be available if another one was found.



The first picture I took, the second one Dr. Feldmann took after coating the specimen with ammonium chloride smoke, which makes the features stand out. There was also a small claw, which didn't photograph, but we made a drawing of it, from the microscope.



Fossil Collections—To Curate or Not

By Robert Rosé

To curate a collection you must do the following: All of us fossil enthusiasts have collections at home in various states of neglect. This article provides a path to dealing with collections and putting them in a form that can be used in displays, kept at home for bragging or sent to a museum for public use.

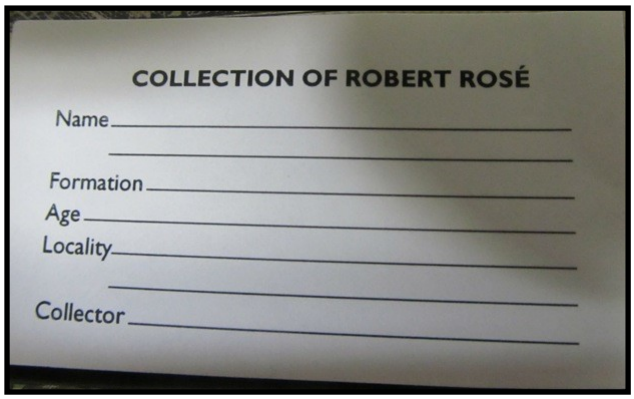
- Make sure all fossils are from one collecting site.
- Completely prepare all fossils that are to be in the collection
- Mark each fossil with a unique symbol (can be numbers, letters and numbers, or only letters)
- In some way protect each specimen from its neighbor
- Put labels with each specimen and/or place a listing of all specimens in the container you store the specimens in
- Put the curated specimens in a labeled container that is substantial enough to withstand the environment

Why curate?

- It provides you with already labeled and identified specimens; all the information for one particular site is in one place; if you want to donate the specimens to a museum the work is already done.

How to proceed:

- What I have done to begin is place all specimens from one site on a table or bench so they can be evaluated. Look at each one and determine if it warrants preparation or needs to be discarded. Completely prepare each specimen.
- Once this is done each specimen needs to have a unique identification symbol. What I have done is to devise a four-letter prefix from the site name (ARBK for Arbuckle) and then add the appropriate number. The sequence of numbers is up to you so long none are duplicated. If you have a part and counterpart just add an “a” and “b” to the number. The symbols you use can be added to the matrix surrounding the fossil or if no matrix then on the fossil itself. I use white acrylic paint on those specimens that are dark because India ink on dark specimens is very hard to see. Put a small rectangle on the matrix and when dry add the India ink. Put Vinac or Butvar under the paint and over the ink to make it easier to remove if necessary.



- If you put a label with each fossil, add scientific name where possible, formation name, where collected, and who collected it. A listing of all fossils in the curated collection with their unique symbols should be put in the container with the collection. If possible this container should be of archival quality.

To find information on scientific names for your fossils the most reliable sources are

- Scientific literature at a university library or other NARG members libraries.
- NARG members have specialties that can help with identification of certain fossils.
- University professors are also a good source.
- The internet has a lot of information but is often unreliable.

On your computer make a list of all four-letter site symbols together with a few brief words of explanation. Computer listings of your curated collections are also useful and can be printed and added to the container with the curated collection. Finally, it may be useful to take photos of your curated fossils and keep them in your computer. Remember that each photo needs to have a scale next to the fossils so its size is noted. Believe it or not preparing your fossils is enjoyable and lets you appreciate what nature has preserved. For reliable information on what to use to mark those fossils you want to curate see article ***Assembling an Archival Marking Kit for Paleontological Specimens*** on pg. 19. We want to thank Amy Davidson for giving her permission to post the article and Greg Carr for bring the article to our attention. It takes you to an outline of techniques to use by professional preparer.

Mystery Fossil

Can anyone tell me what this fossil is?

Assembling an Archival Marking Kit for Paleontological Specimens

Amy Davidson, Preparator, Division of Paleontology, American Museum of Natural History, New York, NY

Samantha Alderson, Objects Conservator, Division of Anthropology, American Museum of Natural History, New York, NY

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The use of proper application methods and archival materials results in numbers and labels that remain legible, durable, and removable over time. Assembling a marking kit makes archival marking of specimens convenient and more consistent throughout a department or institution.

Abstract

Will the number you put on your specimen, its tag, box or other housing, be legible in one hundred years? Is it rub-proof, water-proof, fade-proof? Will a future worker be able to remove it if necessary? This poster will present a plan for assembling an archival marking kit, adapted for fossils from a similar kit for anthropological objects. Having a well-designed kit saves time and can help improve and standardize marking practices. The proposed kit includes a variety of high quality materials, including India ink, acrylic paint, Acryloid/Paraloid B72 in a convenient nail-polish bottle and also in a tube, Japanese and archival papers, Bristol board and various dispensers, brushes, pens, etc. Possible additions to the kit (such as disposable pens) will be discussed. But even the best materials can fail if not used well. This poster illustrates marking failures and solutions for problematic fossil surfaces (dark, rough, friable, very small or fragile, etc.) and problematic materials such as coated surfaces and plastics. Also included are a discussion of permanence and removability, looking both at the materials included in the kit and others that could be used or have been used in the past.

NON-ARCHIVAL PRODUCTS CAN AGE POORLY - any commercial products used in the past should be avoided

Nail Polish is usually cellulose nitrate, an unstable resin that can yellow, become brittle and flake off of surfaces.

Correction Fluid can also become brittle and flake off over time.

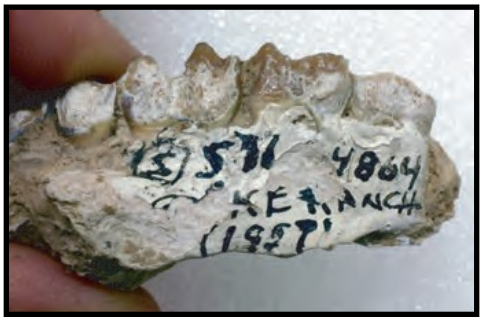
Commercial Pens (Bic, Flair, etc.) often utilize dye-based inks that fade severely. Even so-called "Permanent Markers" (Sharpies, etc.) are not lightfast, actually fading rapidly with light exposure. In this case "permanence" refers only to the fact that the markers are waterproof.

Self Adhesive Tape (Scotch, Masking, etc.) often ages poorly and falls off.

MARKING PROBLEMS

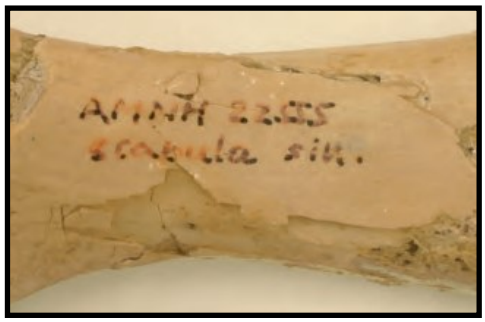
Improper marking techniques or use of non-archival materials can lead to illegible labels and numbers, resulting in loss of important information. Here are examples of such problems:

A number written on non-archival clear resin that is yellowing and flaking off.



An unstable white basecoat (probably typewriter correction fluid)

Ink on a rough, unconsolidated sandy surface rubbing off.



Dye-based ink fading with exposure to light.

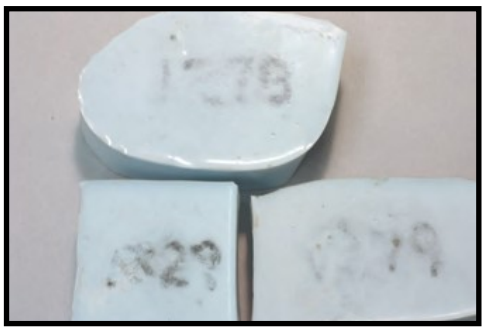
Severely darkened resin (shellac) that has almost completely obscured the number written

Ink applied on a handling point with no overcoat that is rubbing off.

A paper label lifting off of an unconsolidated surface.

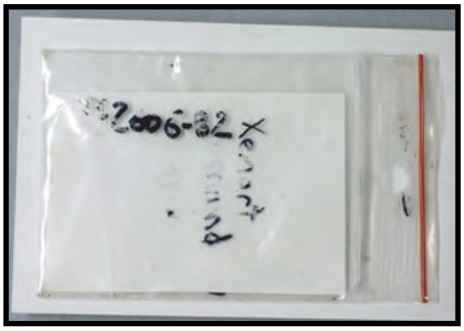
A paper label lifting off of an unconsolidated surface.

Brittle failure of non-archival paper, adhesive and coating.



Smeared marker on rubber.

Illegible marker ink on foam.



Marker ink rubbing off plastic

THE MARKING KIT

A marking kit may contain a variety of archival materials, applicators and tools. Here is a list for a sample kit that can be customized forindividual collections and users.

Thin Paraloid B-72 in Acetone in a Nail Polish Bottle. Used as a basecoat and overcoat for ink and paint markings. Paraloid B-72 in acetone 20% w/v (approximately 20g Paraloid B-72 in 80ml acetone) is prepared and placed in a nail polish bottle for easy dispensing. It is a good general-purpose acrylic resin with excellent aging properties.

Marking Kit

A small plastic container easily holds materials for a complete marking kit.

Black or White Ink

Ink can be used with a quill pen. The black ink must be carbon based, such as Pelikan Drawing Ink #17. The white ink should be titanium oxide based.

White acrylic paint Used to mark dark specimens. The paint must be composed of a stable pigment (titanium oxide). Golden Fluid Acrylics are a perfect consistency for application with brush or quill pen and are supplied in small handy dropper bottles.

Technical pen

Technical pens (rapidographs) such as Koh-I-Noor or Rotring are a convenient way to apply black ink numbers to specimens. 0.30 or 0.35 nibs are good for most marking, while 0.13 is the finest point and is useful when marking very small objects. The pen nibs are fragile and the pens must be carefully handled or they clog or leak.

Black ink for technical pens

The ink must be pigment based (carbon black) as this is light stable while dyes used in some inks are not Koh-I-Noor 3080f Universal Black Ink is one example.

Crow Quill Pen

Used for applying ink or paint to the undercoat. Some users prefer quill pens to technical pens on some or all surfaces.

Technical Pen Cleaning Solution

The pen point should be dipped in the solution after each use and capped without wiping to prevent clogging of the delicate nibs.

Archival pens

Commercial pens are not recommended for applying numbers to specimens as the ink contained in them a mixture of a wide range of ingredients that can be changed by the manufacturer at anytime. Thus the permanence and quality can not be guaranteed. In addition they often do not write well on the resin basecoat and can run when the overcoat is applied. However pigment based pens (such as Pigma) are useful for writing on paper labels and tags. For labeling plastic bags and containers Identi-pens are recommended as they are fade-proof and more rub resistant than other permanent markers.

A variety of useful tools

Brushes for applying ink or white paint, small scissors and tweezers.

MARKING SOLUTIONS

Archival marks are well adhered and durable. They are fade-proof, rub-proof and waterproof. It is also important that they be removable without damage to the specimen. Reasons for removal may include correcting catalog errors, molding, photography, analysis, or exhibition.

The Standard Method Carbon Based Ink Between Layers of Paraloid B-72.

The Basecoat: A layer of thin Paraloid B-72 in acetone seals and isolates the surface.

The basecoat provides a smooth, even surface for the number or label. It also allows the number to be easily removed from the specimen if necessary in the future.

Keep in mind that many surfaces must be properly consolidated prior to application of marks. If the surface is very friable or powdery the basecoat of Paraloid B-72 may not be sufficient to ensure durability.

The B-72 basecoat may sometimes bubble upon evaporation of the acetone. This can be remedied by adding some ethanol to slow down the evaporation rate. Note that the ethanol/acetone mixture may sometimes smear ink if used as an overcoat.

The Ink: Carbon-based ink is lightfast.

The basecoat should be allowed to dry completely before applying the ink.

Carbon black ink can be applied with a technical pen or crow quill pen. These inks adhere well to the basecoat. Many commercial pens are dye-based and should not be used as the numbers may fade over time. Others, such as Pigma pens, are more lightfast but may not adhere well to the

The Overcoat: A layer of thin Paraloid B-72 encapsulates the ink, making the mark more durable.

The ink should be allowed to dry thoroughly before application of the overcoat.

Avoid disturbing the ink by flowing on the overcoat with a heavily loaded brush without the bristles touching the surface.

Methods for Dark Surfaces

White paint or ink with a stable pigment (titanium oxide) can be used in two ways to mark a dark surface.

White paint or ink can be applied with a crow quill pen or fine brush to a basecoat of B-72, and then overcoated

A brushed on patch of white acrylic paint can be placed on top of the B-72 basecoat, then marked with carbon based ink and overcoated with B-72.

Rough and Uneven Surfaces

Some surfaces, such as coarse matrix, can be too rough to mark legibly with a pen or brush.

Paper labels can be useful in these cases. However, it should be noted that ink labels are always preferable, as there is less chance of separation and loss of information. If a paper label is used, the paper and ink used should be archival, and the label must be well adhered and completely saturated with Paraloid B-72 to prevent detachment. Paper labels should not be applied to powdery or friable surfaces that have not been consolidated, as they will peel off over time.

Materials for making paper labels can be included in the marking kit for easy access.

Papers

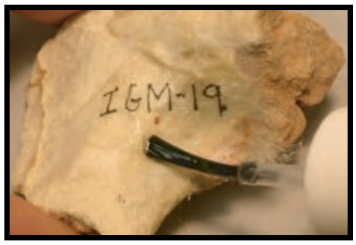
A variety of archival papers and boards, including Japanese rice paper, precut archival paper strips, and Bristol Board strips can be used for labels on specimens, casts, molds and storage housings.

Thick Paraloid B-72 in acetone in a tube.

Used to adhere paper labels to specimens, boxes, casts, jackets, etc. A concentrated solution of approximately 50% B-72 in acetone w/w is prepared and placed into an empty aluminum tube for easy use.

Torn edges grab better than cut edges. Japanese paper is especially flexible, allowing it to conform to irregular surfaces.

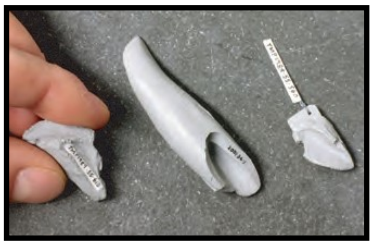
The paper label can be applied with thick Paraloid B-72 and should be pressed well into the surface.



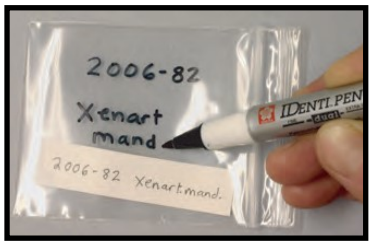
The label should be saturated with resin by dipping it in the solution or by coating it well after placement.

Marking Plastics

Silicone rubber can be marked by "tattooing" with a sharp point and rubbing India ink into the marks.



Casts can be marked in several ways including paper labels, black ink between layers of B-72 and paper tags.



Plastic bags and boxes can be marked with an Identipen which is lightfast and adheres well to plastic. A loose paper label inside can be used in addition.

Foam can be marked by inserting a stiff, folded Bristol board label into slits.

This paper label is adhered face-out to the inside of the lid with B-72. If acetone causes the plastic to cloud, alcohol or Jade glue can be used.

SUPPLIERS AND RECIPES

Paraloid B-72 (formerly Acryloid B-72 in the US) is an ethyl methacrylate co-polymer. It is sold as solid beads by conservation suppliers, such as Conservation Resources International—http://www.conservationresources.com, 800-634-6932 or Talas - http://talasonline.com, 212-219-0770. The beads dissolve in a variety of solvents including acetone and ethanol. For a discussion of how to prepare it in tubes see the Koob article referenced below.

Empty Nail Polish Bottles may be purchased from beauty suppliers or, more simply, a bottle of clear nail polish can be emptied, rinsed well with acetone and filled with a thin solution of Paraloid B-72.

Empty Aluminum Tubes. Available from Conservation Resources International http://www.conservationresources.com, 800-634-6932. Item #TUB-1, sold in boxes of 10 tubes.

All of the other pens, ink, paint, tools and papers listed are available from art or office supply stores.

REFERENCES

Alten, Helen. "Numbering Museum Collections." ICOM Ethnographic Conservation Newsletter, Number 17, April 1998. pp. 18-21. http://www.collectioncare.org/cci/ccin.html

Braun, Thomas. J. An Alternative Technique for Applying Accession Numbers to Museum Artifacts. JAIC, 46 (2007): 91-104.

Koob, Stephen P. The Use of Paraloid B-72 as an adhesive: Its Application for Archaeological Ceramics and Other Materials. Studies in Conservation, Vol. 31, No. 1 (Feb. 1986), pp. 7-14.

Sullivan, B. and D.R. Cumberland, Jr. "Use of Acryloid B-72 Lacquer for Labeling Museum Objects" Conserve O Gram Number 1/4 (July 1993) National Park Service

http://www.cr.nps.gov/museum/publications/conserveogram/01-04.pdf "Labeling and Marking Museum Objects" a fact sheet published by the MDA (Museum Documentation Association) of the UK http://www.mda.org.uk/labels.htm

"Appendix J: Marking" in The National Park Service Museum Handbook, Part II: Museum Records (2000) http://www.cr.nps.gov/museum/publications/MHII/mh2appj.pdf

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We would like to thank Amy Davidson for permission to Publish this article in our Newsletter.

Stonerose Interpretive Center & Fossil Site

Join us for our 7th Annual National Fossil Day (NFD) event. October 6 - October 8, 2017. The program will include Kid's Day on Friday...painting the popular geologic timeline on part of Kean Street; Saturday, scientific presentations and discussions; a dinner and silent auction; and lots of digging for fossils.

Our goal is to promote and enhance science education in order to broaden public knowledge and allow casual networking with the scientific community. All listed events are open to the public! Stonerose is located in Republic, Ferry Co., WA.

Fossil Coral

Photo by Joe Cantrell

Primitive Fish From Death Valley

The 2017 National Fossil Day artwork depicts a primitive group of fish known as heterostracans ("different shields"). The heterostracans represent an order of early jawless fish which existed between the Early Silurian and the Late Devonian when they became extinct (approximately 358 million years ago).

The heterostracans were characterized by an external covering of bony armor plates and by having only one common gill opening on each side of the head region. These early fish lacked any paired or mid-line fins and in many cases developed extensions of the armor plates that were not flexible but helped provide control in the water. Heterostracans lived in shallow marine environments around an ancient continent known as the Old Red Sandstone (ORS) Continent, which was composed of present day North America, the Canadian Arctic, and Western Europe.

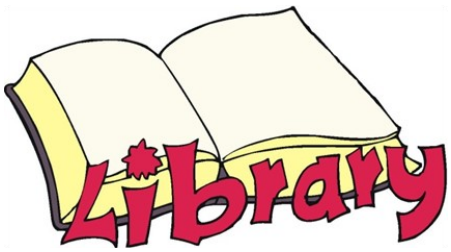
The primitive fish depicted in the artwork are based upon fossil specimens discovered and collected in Death Valley National Park. Paleontologist David Elliott, from Northern Arizona University, discovered these rare fossil fish in a remote locality in the park. The rocks in which the fish were preserved consist of sediments deposited in a channel, which may have been part of an estuary based on the asso-

The heterostracan species illustrated in the logo are *Panamintaspis snowii* in the foreground and *Phyllonaspis taphensis* in the background. *Panamintaspis* is named after the Panamint Mountains in Death Valley, which is where the original fossils were found and the species name recognizes the individual who helped to discover the specimen. *Phyllonaspis taphensis* means "leaf shield from the tomb" referring to the fact that the specimen comes from Death Valley. *Phyllonaspis* is particularly interesting as it is a member of a group that is otherwise only known from the Canadian Arctic, suggesting dispersal of these organisms from the arctic and around the margins of the Old Red Sandstone Continent.

https://www.nps.gov/articles/fossils-of-the-2017nationalfossil-day-artwork.htm

It's not too late to be a volunteer for Portland Regional Gem & Mineral Show.

NARG



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 2018 are due January 1, 2018

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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:

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Margaret Johnson
2220 179th Ave E
Lake Tapps, WA 98391

* 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.

Fossil Calendar

October 6-8	National Fossil Day Celebration http://stonerosefossil.org/	Stonerose Interpretive Center	Republic, Washington
October 11	National Fossil Day https://www.nps.gov/articles/fossils-of-the-2017-national-fossil-day-artwork.htm		
October 13-15	**Portland Regional Gem and Mineral Show** http://www.portlandregionalgemandmineral.org/	Washington County Fair Complex	Hillsboro, Oregon
October 22-25	GSA Annual Meeting http://gsa2017.org/	Washington State Convention Center	Seattle, WA
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://orerockon.com/ Click on Portland Area Rock Clubs, includes PNW Clubs)

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