



EARTHQUAKE

e-Newsletter about what's movin' and shakin' at the Earth Science Museum

Earth Science Museum, 3215 W. Bethany Home Rd., Phoenix, AZ 85017
www.earthsciencemuseum.org, scote@earthsciencemuseum.org, 602-973-4291

April 2018
Volume 7, Issue 4

ESM Outreach Update:

By Mardy Zimmermann, Outreach and Education Coordinator; Photos by Dick Zimmermann

The month of April was busy on several fronts. With help from Lynne Wheeler, we made 10 modified Rock and Fossil Teacher Kits for third grade teachers in the Payson District. The Payson Rimstones host a rock and fossil event each year and ESM has been involved with supporting this event with specimens.

In keeping with our goal of getting our teacher kits into classrooms, we will be giving them to Payson, Heber, Pine, and Tonto Basin teachers.

In addition, we completed 25 additional Mineral Classroom Kits, and organized the specimens for 25 additional Rock and Fossil ones.

The ESM Outreach and Education Program also received a large donation of over 30 flats of rock, mineral and fossil specimens from Dana Slaughter of the Flagg Mineral Foundation. Most of them will go up to Forest Lakes as they will need sorting and some crushing. There were new rocks and minerals among the flats.

Finally, the six extremely heavy flats of fluorescent minerals from Bill Yedowitz were a treasure trove of Franklin, New Jersey material. At this point, we have 12 kits to use with teachers who have a UV light, or whose school has one. We will be testing this approach at the Flagg Foundation show in January.



Modified Rock & Fossil Kits



Mardy with Dana Slaughter's donation of over 30 boxes of misc. rocks & minerals

Egg Carton Program Origins and Evolution

By Shirley Coté

Thirty plus years ago Mardy Zimmermann and Dr. Ray Grant discussed the idea of promoting identified rock collections for children at shows like the Flag Gem and Mineral Show. Mardy, being a Special Ed teacher and Dr. Grant a Community College geology professor, believe that children learn by hands-on experiences.

For Mardy and Ray, both avid rock and mineral collectors and members of local rock & mineral clubs, getting samples was not going to be a problem. They wanted to give the children their choice of different rocks, minerals or fossil specimens with identifying labels rather than just unidentified samples. Mardy thought that an egg carton would be an easy way for the children to keep their collection together. Mardy started with fifty choices the first year and over the years that had increased to over 400, but currently she is trying to cut it back to around 300 choices.

In October 1993, the AZ Mining and Mineral Museum planned to have a Family Day with activities for kids. Mardy volunteered to bring her many specimens and offer attendees a chance to make their own collection. In February 1994, the AZ Prospectors Association, whose many members volunteered at the museum, wanted to sponsor a Prospectors Day with gold panning added to the activities.

As word spread around the state and beyond, the egg carton program has become a hit. Other rock and mineral clubs have taken up the idea and offer them at their own rock and gem shows which, being educators, greatly please Mardy and Ray.

The Daisy Mountain Rock and Mineral Club formed in 2010 and by 2014 the club started having shows. That first show year, Bill and Jeanne Smardo started the clubs egg carton program with 15 samples and like Mardy made labels to go with the specimens.



By 2016, Bill and Jeanne had taken their egg carton program to a whole new level. Bill built seven wood boxes, that Bill & Jeanne call “caskets”, complete with handles and covers for easy transport. These boxes have 5 main compartments that can be easily partitioned as the need arises to hold the many different samples that they offer. On each partition and/or divider, Bill has attached a metal label holder identifying the rock or mineral.

This past March, they offered 29 minerals for one egg carton and 29 rocks for the other. They have the children take all 29 specimens and double and triple up in each of the 12 sections of the egg carton. The reason being they have numbered every specimen and have a numbered list of the minerals or rocks pasted into the inside top of the egg carton. No loose labels to get lost. Bill and Jeanne have made their egg carton program a labor of love as they spend many hundreds of hours gathering, sorting and numbering the specimens. It's no wonder people say that the Daisy Mountain Rock and Mineral Club has The Best Egg Carton Program in the state thanks to Bill & Jeanne's dedication.



Bill and Jeanne Smardo at the Daisy Mountain Show in March with Claudia Marek in the background

Minerals of Arizona Symposium Overview

By Shirley Coté, Photos by Steve Kaminski

Over seventy mineral enthusiasts attended the Flagg Mineral Foundation's annual Minerals of Arizona Symposium. Six of the attendees were ESM board members. Events this year were held at a new venue, the Drury Inn in Tempe, and spanned three days with the main event held on Sat., April 14th.

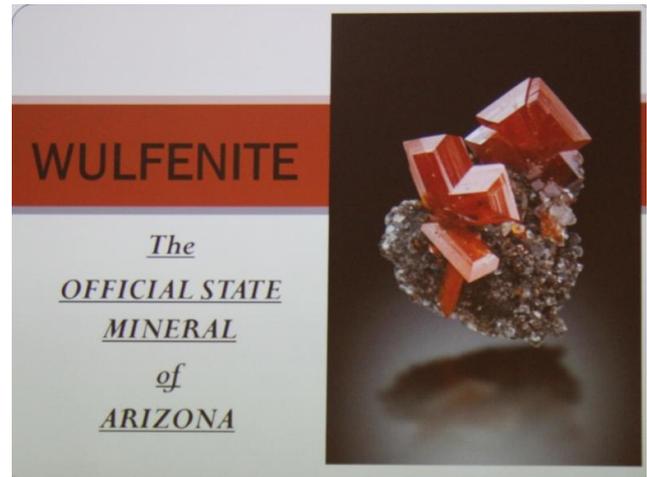
Seven speakers gave presentations throughout the day and evening. The presentations included beautiful photos of the mineral specimens discussed. The first presenter was Barbara Muntyan speaking on Arizona Pseudomorphs ("false form"). She said "The most common are the result of alteration in carbonate deposits - azurite to malachite or chrysocolla and perhaps the best-known are the "Roman sword" malachite after azurite clusters from several mines in Bisbee."



Malachite after azurite

The next presentation was by Evan Jones on How Wulfenite Became the Official State Mineral of Arizona. In 1974, turquoise became the state gemstone. Then in 1988 petrified wood became the state fossil and in 2015 copper was named the state metal. It was not until 2017 that a state mineral was approved by the Arizona Legislature after an unsuccessful attempt in 2016. Dr. Alex Schauss with the University of Arizona, Chris Whitney-Smith, president, Mineralogical Society of Arizona and many in

the mineral collecting community were instrumental in getting wulfenite named as Arizona's state mineral.



During the lunch break, Richard Zimmermann gave a fascinating presentation on the Causes of Color in Wulfenite. Wulfenite a lead molybdate is rarely found in its pure form as a colorless crystal. Most wulfenite is found in a rainbow of colors ranging from yellow, honey-yellow, yellow-orange, orange, reddish-orange, red, reddish-brown, greenish-brown, green, blue and even black. Richard explained that "wulfenite is a structurally simple mineral and its color is determined by a variety of different variables such as impurities like chromium and vanadium or structural defects that cause selective light absorption."

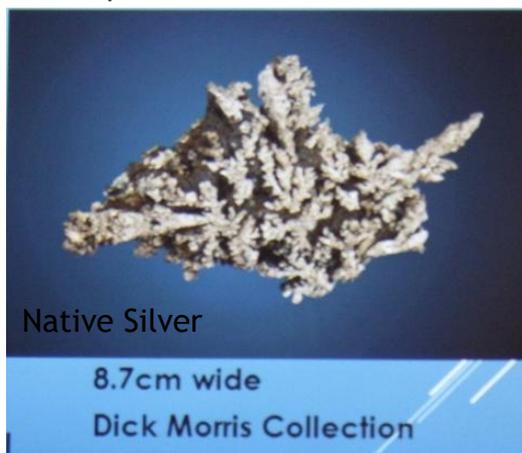


Wulfenite: Benahadux, Almería, Spain

Mineral Forum photo

"Sandwich" Clear and yellow-orange wulfenite

After lunch, Les Presmyk spoke on The Pioneer Mining District, Pinal County, Arizona. His talk included the mining history of the Silver King and Silver Queen (now Magma) Mines where some of the nation's best silver specimens were discovered between 1875 and 1885. Along with copper and silver, other mineral specimens found at the mines included barite, calcite, chalcocite, chalcopyrite, diopside, gypsum, pyrite and sphalerite.



Then, Anna Domitrovic of the Arizona-Sonora Desert Museum remembered Dr. Arthur Steadman Roe who volunteered there and at the UA Mineral Museum from 1971 until his passing in 1993. She said "Art was interested in microscopic minerals and while at both mineral museums he built their micro mount collections by encouraging donations and laboring over microscopes to add his own micro mount donations to each museum's collections."



Dr. A. Steadman Roe & Anna Domitrovic

The last speaker that afternoon was Dr. Erik Melchiorre of the Geology Department of California State University in San Bernardino who spoke about Heavy Metal: Gold, Silver, and Tungsten Mineral Collecting Opportunities around Quartzsite, AZ. Erik showed pictures of unusual pyritohedrons of crystalline gold (below) saying "These gold crystals are secondary, having formed through recrystallization of placer gold when a hot spring emerged along the range front and through the pre-existing placers."



Another interesting fact he mentioned was that "Tungsten has also been produced from the Quartzsite area, with the Tungsten Hill and Livingston Mines being the most significant producers. In both cases, the deposits were worked originally as a placer gold operation. However, the operations were confounded by abundant "heavy quartz" sands which were later determined to be scheelite. The scheelite is a distinctive light blue under shortwave UV light, and is now used as an indicator for richer placer gold strikes."

After the evening meal of Mexican food, Catie Carter, Curator of the Mining, Mineral and Natural Resources Educational Museum (formerly the Arizona Mining and Mineral Museum) gave her presentation. (Please see pages 5-6 for the complete abstract of her presentation at the Flagg Mineral Symposium).



AZ Mining, Mineral & Natural Resources Educational Museum Update April 2018

<http://tinyurl.com/SupportMM-NREMuseum>

The Arizona Mining, Mineral and Natural Resources Education (MMNRE) Museum: A rebirth of the Arizona Mining and Mineral Museum under the University of Arizona

By Catie Carter

2018 is an exciting time for the Arizona mineral community as the University of Arizona works to establish two new state-of-the-art museums: the Arizona Mining, Mineral and Natural Resources Education (MMNRE) Museum in Phoenix, a natural resource-centered rebirth of the former Arizona Mining and Mineral Museum, and the UA Gem and Mineral Museum in Tucson, currently relocating from the Flandrau Center on UA's campus to the historic Pima County Courthouse. This talk will focus specifically on the MMNRE Museum - its history, establishment, current updates, and our plans for the next few months.

The Arizona Mining and Mineral Museum was a beloved fixture in Phoenix for decades¹. The diverse mineral collection dates back to 1884 with an exhibit at the first Arizona Territorial Fair. In 1917, the Arizona State Legislature appropriated \$30,000 to build an exhibit hall on the Arizona State Fairgrounds in Phoenix, bolstered by funds from major mining companies of the day. In 1947, the Arizona Department of Mines and Mineral

Resources (ADMMR) moved to the Gem and Mineral Building and in 1953, a permanent museum was established. The first curator was Arthur L. Flagg, who held the position until his death in 1961.



“Mr. Rockhound” A.L. Flagg courtesy MSA website

In July of 1991, with financial support from Arizona's mining community, the Mining and Mineral Museum and the ADMMR offices were moved from the Fairgrounds to the El Zaribah Shrine Building (renamed the Polly Rosenbaum Building) at 1502 W. Washington St. on the Government mall. From 1991 to 2011, the Mining and Mineral Museum displayed thousands of minerals to tens of thousands of visitors and schoolchildren each year. They also hosted local clubs and groups, logged thousands of volunteer hours, and ran a lapidary shop. The outdoor mining exhibits, including a baby-gauge steam locomotive from Morenci, fully-reassembled Boras head frame, and working Swallow Mine stamp mill, were particularly popular as well.

In 2010 the Department of Mines and Mineral Resources was discontinued and the museum was transferred to the Arizona Historical Society (AHS). In 2011 the museum was closed to make way for the Centennial

¹ For a full history of the museum, photos, and further details, see Rasmussen, Jan, “Arizona Mining and Mineral Museum – History”
<http://www.miningmineralmuseum.com/history>

Museum, which was ultimately not established. After many attempts to reopen the museum through state legislation, Senate Bill 1530 passed in 2016, championed by Sen. Gail Griffin. The bill transferred the collection, curator position, and custodianship of the building to the Arizona Geological Survey (AZGS), under the University of Arizona. AZGS was charged with developing and operating a new natural resources museum called the Mining, Mineral and Natural Resources Education (MMNRE) Museum, with the project was headed by Chief of Geologic Extension Service Mike Conway. In 2017, Senate Bill 1415 moved responsibility from AZGS directly to the University of Arizona under the office of Research, Discovery and Innovation, with VP for Research R. Brooks Jeffery as project leader. Most notably, the bill permanently transferred full ownership of the building and collection from the state to the University.

The 20,000+ specimen mineral collection is at the heart of the MMNRE Museum. The collection includes spectacular specimens from Arizona's mines and mineral localities, as well as rocks, ores, industrial minerals, gemstones, mining artifacts, and Native American artifacts. While the minerals will be on display, state statute designates that the museum will have a broader scope, exploring the sustainable science of Arizona's other natural resources - agriculture, livestock, forestry, and tourism. In addition, we will showcase innovative technologies from UA's College of Engineering and College of Agriculture & Life Sciences. Early efforts to fundraise, identify industry partners, and develop our mission will be led by the Governor-appointed Advisory Board, consisting of members from each industry and legislators Sen. Griffin and Rep. Leach. As of April 2018, half of the board members have been officially appointed.

Right now, we push forward with building renovations and explore our options to engage the public in a phased approach. We have cleared out the building, cleaned the grounds and exterior, installed a new pigeon mitigation system, and begun the process of installing a new security system. Charlie Connell and the Monday Crew volunteers have devoted countless hours servicing the outdoor equipment, and we hope to hold a community event within the next few months. We will also undertake the daunting endeavor of moving the mineral collection from AHS back into the museum building once security and environmental controls are established. In the meantime, we are installing small displays at local museums, conducting outreach, and planning a revamped exhibit at the Arizona Capitol Museum down the street.

None of our current progress could be possible without the steadfast support system of our volunteers and stakeholders, including the Flagg Mineral Foundation. We are eternally grateful for the hours of work and limitless patience over the past two years. UA has big plans for this museum and will continue these partnerships in the future. Thanks to everyone for your help and support, and stay tuned for more developments later this year.

If you wish to help at the next museum workday, please contact Charlie Connell at minercon@aol.com or Catie Carter at cscarter@email.arizona.edu.

Support the Museum

Senator Gail Griffin led the way in establishing an account for the museum at the University of Arizona Foundation which can be accessed at the following link:

<http://tinyurl.com/SupportMM-NREmuseum>



Arizona Rocks 59

Text and photos by Ray Grant

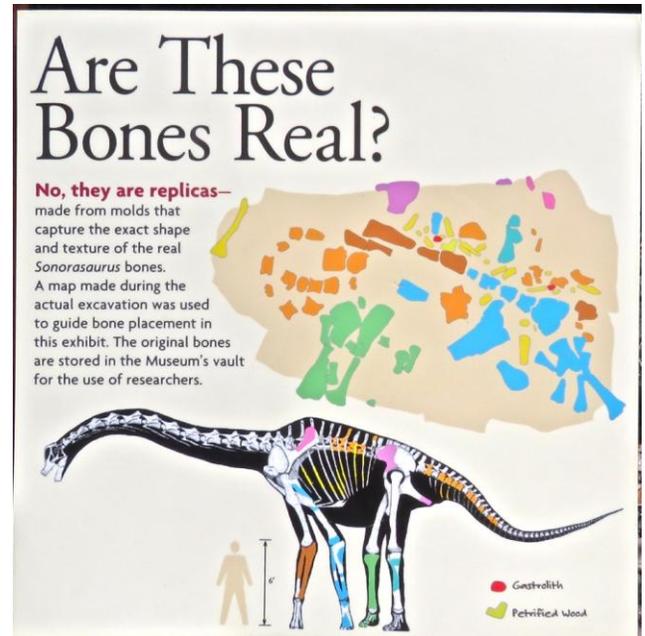
Arizona has an official state dinosaur. Governor Ducey signed a bill this month making *Sonorasaurus thompsoni* the official dinosaur of Arizona. The dinosaur was found in 1994 by Rich Thompson in Pima County near Sonoita. It was named for the discoverer and the Sonoran Desert.

Sonorasaurus is related to the sauropods, large four footed plant eaters. It was big, 27 feet tall; 50 feet long and weighed around 4,000 pounds. It is Mesozoic Era, Middle Cretaceous Period, in age, about 100 million years old. There are very few Mesozoic age rocks (age of the dinosaurs) in southern Arizona so this was the first dinosaur found here. There are many more rocks of this age found on the Colorado Plateau and many dinosaur fossils.

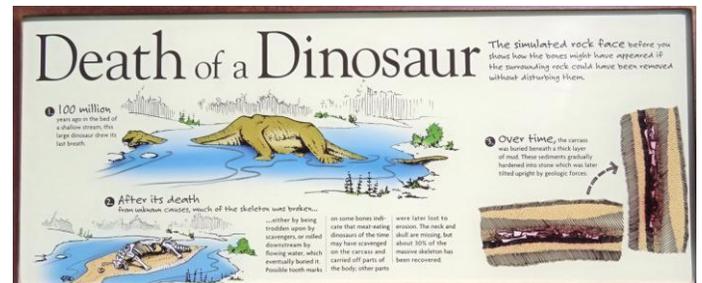
The dinosaur fossil is kept at the Arizona-Sonora Desert Museum in Tucson and they have great display about it. They have constructed a replica of the fossil bed with the dinosaur and have made a model of one of the legs, so if you want to learn more about our state dinosaur make a trip to the Desert Museum.



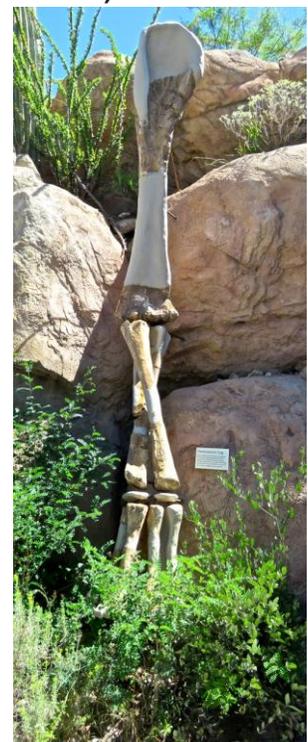
Replica of the fossil bed where *Sonorasaurus* was found at the Arizona-Sonora Desert Museum



Sign with the replica showing the different bones (*Arizona-Sonora Desert Museum*)



Another sign with the *Sonorasaurus* exhibit (*Arizona -Sonora Desert Museum*)



Model of *Sonorasaurus* leg at the Arizona-Sonora Desert Museum

AZ Rock & Gem Shows



**Mohave County Gemstoners
Annual Show**
May 5-6, 2018
Sat. 9-5, Sun. 9-4
 Free Admission
 Kingman Academy of Learning
 3420 N. Burbank
 Kingman, AZ



Coconino Lapidary Club
**6th Annual Gem, Mineral & Jewelry
Show**
June 1-3, 2018
Fri. & Sat. 9-5; Sun. 9-4
 Free Admission
 Silver Saddle Outdoor Market
 Hwy 89 N. & Silver Saddle Rd.
 Flagstaff, AZ



White Mountain Gem & Mineral Club
Annual Show
July 7-8, 2018
Sat. 9-6, Sun. 10-4
 Admission \$2
 Hon-Dah Casino & Resort
 777 Hwy. 260
 Pinetop, AZ



Prescott Gem & Mineral Club
**15th Annual Prescott Gem & Mineral
Show and Sale**
August 3-5, 2018
Fri., Sat. 9-5, Sun. 9-4
 Adults \$5, Seniors/Students \$4
 Children under 12 free w/paid adult
 Prescott Valley Event Center
 1301 Main St.
 Prescott Valley, AZ



West Valley Rock & Mineral Club
Annual Show
October 12-14, 2018
Fri., Sat. 9-5, Sun. 9-2
 Admission \$3, Children Free
 Buckeye Arena
 802 N. 1st St., Miller Road
 Buckeye, AZ
<http://www.westvalleyrockandmineralclub.com/>



Huachuca Mineral and Gem Club
Annual Show
October 13-14, 2018
Sat. 9-5, Sun. 10-4
 Free Admission
 Cochise College
 901 N Colombo Ave.
 Sierra Vista, AZ

**42nd Annual Rock-a-Rama Gem
& Mineral Show**
November 2-4, 2018
Fri. 9-4
Sat. 9-5
Sun. 9-4
 Free Admission
 High Desert Park
 19001 E. Jacie Lane
 Black Canyon City, AZ

Rock & Gem Clubs



Apache Junction Rock & Gem Club

Meetings are on the 2nd Thursday
Next Meeting: May 10, 2018, 6:30 pm

www.ajrockclub.com

@ Club Lapidary Shop

2151 W. Superstition Blvd., Apache Jct.



Daisy Mountain Rock & Mineral Club

Meetings are on the 1st Tuesday
Next Meeting: May 1, 2018, 6:30 p.m.

www.dmrmc.com

@ Anthem Civic Building

3701 W. Anthem Way, Anthem



Maricopa Lapidary Society, Inc

Meetings are on the 1st Monday
(unless a Holiday then 2nd Monday)
Next Meeting: May 7, 2018, 7:00 pm

www.maricopalapidarysociety.com

@ North Mountain Visitor Center

12950 N. 7th St., Phoenix



Mineralogical Society of Arizona

Meetings are on the 2nd Thursday
Next Meeting: May 10, 2018, 7:00 pm

www.msaz.org

@ Franciscan Renewal Center,

5802 E. Lincoln Dr., Scottsdale

Next Meeting



Pinal Gem & Mineral Society

Meetings are on the 3rd Wednesday
Next Meeting: May 16, 2018, 7:00 pm

www.pinalgemandmineralsociety.org

@ Artisan Village

351 N. Arizona Blvd., Coolidge



West Valley Rock & Mineral Club

Meetings are on the 2nd Tuesday
Next Meeting: May 8, 2018, 6:30 pm

www.westvalleyrockandmineralclub.com

@ American Legion Post #53

402 E. Narramore Ave., Buckeye



White Mountain Gem & Mineral Club

Meetings are on the 1st Sunday
(unless a Holiday then 2nd Sunday)
Next Meeting: May 6, 2018, 1:00 pm

www.whitemountain-azrockclub.org

@ VFW Hall

381 N. Central, Show Low



Wickenburg Gem & Mineral Society

Meetings are on the 2nd Friday
Next Meeting: May 11, 2018, 7:00 pm

www.wickenburggms.org

@ Coffinger Park Banquet Room

175 E. Swilling St., Wickenburg



Pinal Geology & Mineral Museum

Pinal Museum and Club News

Next Pinal Gem and Mineral Club meeting
Wednesday, May 16, 2018

www.pinalgemandmineralsociety.org

The Museum will be open the first three Fridays and Saturdays in May (last day is May 19) and will reopen in September.

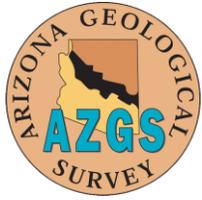
The Pinal Museum will be open Fridays, May 4, 11, and 18 from 10 to 2

Saturdays, May 5, 12, and 19 from 9 to 1.

The Museum will be closed for the summer and reopen in September, but tours are possible by calling (520)723-3009 (Coolidge Chamber of Commerce) to schedule a time.



New Museum exhibit of Arizona thumbnail specimens



Mike Conway
 Sr. Research Scientist,
 Arizona Geological Survey
 at the Univ. of Arizona

AZGS mine files spurs silver exploration in Arizona's Plomosa Mountains

Imagine a room crowded with file cabinets whose drawers are stuffed with 100,000s of pages of unpublished mine reports, correspondence, geologic maps, mine maps, drill hole data, rock chemistry, and assay results for more than 20,000 mines in Arizona. That room once existed at the Arizona Dept. of Mines and Mineral Resources. Neither the room nor the Department still exists. But the data lives on digitally, free for all to explore, discover, and download at the [AZGS Mining Data](#) site.

In 2014, Greg Hahn of Arizona Silver Exploration (ASE) stumbled on to 100s of unpublished pages at the mining data site for the Ramsey Mine in the Plomosa Mining District in western Arizona's La Paz County. From the AZGS Mining data files, Greg discovered, "Forty one holes around the periphery of the Ramsey mine intercepted mineralization. I was intrigued by the data. I wanted to see what else was out there..." By 2016, Greg and his ASE team had their own exploration project at the Ramsey Mine underway, complete with a funded drilling program.

ASE now holds over 1,000 acres of land and their drilling project, informed by results of earlier drilling reported at the AZGS Mining Data Site, is moving towards fruition.

A short note at '[Proactiveinvestors: USA and Canada](#)' has additional information on the ASE exploration program.

AZGS Mining Data Site is the result of a Herculean scanning, digitizing, and metadata construction program by Nyal Niemuth, Casey Brown, and Diane Bain, all former employees of the Arizona Geological Survey. As former, long-time employees of the Arizona Dept. of Mines and Mineral Resources, Nyal and Diane played a major role in collecting and curating the mine documents that make up the AZGS Mining Data site.



Mining Collections



ATTENTION TEACHERS



GeoTeachers 1st Annual Arizona Field Workshop for K-12 Earth Science Teachers

July 23 – July 27, 2018
Flagstaff, Arizona
Registration begins March 1, 2018

CEU's & Graduate Credit

As a professional development program GeoTeachers also provides support for educators seeking to translate their learning into effective lessons/activities for use in their educational environment via short courses, breakout sessions and key note presentations. Participants receive 43 Continuing Education Units. In addition, those participants seeking graduate credit can register for a 3-credit graduate course through the University of Northern Colorado for \$300.

Workshop Schedule

<i>Time</i>	<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>	<i>Thursday</i>	<i>Friday</i>
<i>AM</i>		<i>Field Trip</i>	<i>Field Trip</i>	<i>Field Trip</i>	<i>Curriculum Work</i>
<i>Noon</i>	<i>Workshop Opens</i>	<i>Field Lunch</i>	<i>Field Lunch</i>	<i>Field Lunch</i>	<i>Workshop Closes</i>
<i>PM</i>	<i>Short Courses</i>	<i>Field Lunch</i>	<i>Field Trip</i>	<i>Field Trip</i>	
<i>Evening</i>	<i>Keynote</i>				

Short course segments allow participants to choose from multiple topics relevant to their interest presented in 90-minute blocks. Field trips will focus on natural and industrial sites within 2 hours of Flagstaff. Details will be posted on the GeoTeachers website as they become available.

Questions?

Check out www.geosociety.org/geoteachers or
 Contact Dean Moosavi , Education Programs Coordinator at
 (303-357-1015) or smoosavi@geosociety.org

What is GeoTeachers

GeoTeachers is the Geological Society of America's (GSA) program supporting professional development for K-12 teachers of Earth Science. GSA recognizes that not all educators work in traditional classrooms and the society encourages informal educators, home school parents, university faculty serving teacher preparation programs and pre-service teachers to participate alongside classroom teachers.

With K-12 curricula and standards set at the local and state level GeoTeachers field workshops are designed with the local/state focus in mind. GeoTeachers field workshops provide participants with quality field trips focused on natural outcrops and sites demonstrating the key geologic processes needed to understand the geology of the host region. Field trip itineraries also include visits to industrial sites involved in resource extraction, processing and site mitigation, as these often provide great insight into subsurface geology while demonstrating where society acquires critical materials needed to build and sustain modern society.

Participants will have an opportunity to interact with professional geoscientists from industry, academia, and government agencies working in their diverse profession at field trip sites and as workshop presenters, mentors and trip leaders. GeoTeachers workshops are staffed by members of GSA who have chosen to volunteer their time to help teachers understand the field they love and help to improve general geoscience literacy of teachers and the next generation.

Host Site

GeoTeachers Arizona 2018 will be hosted at Northern Arizona University in Flagstaff. Meals will be provided in dining halls and by bag lunch with lodging for the workshop in university dormitories.

Registration

Registration for GeoTeachers workshops includes lodging (4 nights at double occupancy), meals, field trip transportation, and resources provided during the workshop. Transportation to and from Flagstaff is NOT provided in the workshop fee. Optional graduate credits are available for an extra fee.

Early registration is available at the reduced rate of \$500 for GSA members until May 1, 2018. The full workshop cost of \$700 for GSA members will be charged to registrants after April 1 until the maximum workshop capacity of 45 is reached. Non-members can register at higher rates. GSA membership for K-12 teachers is \$40/year.

Pre-registration is available at
<https://goo.gl/forms/8qOw4UHx0X7kRoD32>

Registration and further details will be available March 1 at: www.geosociety.org/geoteachers

ESM's Meeting Notice

ESM's next meeting will be at the Century Branch library, 1450 E. Highland, Phoenix, on Sunday, May 20, 2018, at 1:30 p.m.

BECOME A MEMBER!
Join the Earth Science Museum's



IS IT TIME TO RENEW YOUR MEMBERSHIP?
Please renew today! 😊😊😊

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**ESM Earth Science Investigation
 Team Membership Form**
 _____ New Member _____ Renewal

Membership levels:
 _____ ESI Family \$20
 _____ ESI Individual \$10

Membership benefits:

- ◆ Monthly e-newsletter *Earthquake*
- ◆ Official team membership card
- ◆ Knowledge that your contribution is making a difference in earth science education.

MANY THANKS TO OUR MAJOR DONORS!

- AZ Leaverite Rock & Gem Society
- Flagg Mineral Foundation
www.flaggmineralfoundation.org
- Friends of the AZ Mining & Mineral Museum
- Maricopa Lapidary Society
<http://maricopalapidarysociety.com/>
- Mineralogical Society of AZ
www.msaz.org
- Payson Rimstones Rock Club
- Sossaman Middle School
- White Mountain Gem & Mineral Club
www.whitemountain-azrockclub.org
- Wickenburg Gem & Mineral Society
<http://www.wickenburggms.org>
www.facebook.com/pages/Wickenburg-Gem-and-Mineral-Society/111216602326438
- Staples Foundation
www.staplesfoundation.org
- Anita Aiston
- Peter & Judy Ambelang
- Stan & Susan Celestian
- Russ Hart
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 scote@earthsciencemuseum.org

Mission
 Our Mission is to excite and inspire all generations about earth sciences through educational outreach.

Vision
 We envision a community where students and the general public have curiosity about, passion for, and understanding of the underlying principles of earth sciences.

For more information about the ESM, how to become a member or how to arrange for a school visit or Community function, go to:
www.earthsciencemuseum.org.

We're on the Web!

Visit us on  and at:
www.earthsciencemuseum.org

NOTICE:
 ESM's next meeting will be at the Century Branch library, 1450 E. Highland, Phoenix, on Sunday, May 20, 2018, at 1:30 p.m.

THANK YOU FOR YOUR CONTINUING INTEREST & SUPPORT!!!

**EARTH SCIENCE MUSEUM
 NON-PROFIT BOARD OF DIRECTORS**

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Mardy Zimmermann	VP Outreach
Robin Evans	Treasurer
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