



GEOLOGICAL SOCIETY OF NEVADA NEWSLETTER

Geological Society of Nevada, 2175 Raggio Parkway, Room 107, Reno, NV 89512
(775) 323-3500 - Hours Tuesday -- Friday, 8 a.m. to 3 p.m. Monday by appointment.
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CALENDAR OF GSN EVENTS

Nov. 5, 2015
THURSDAY



ELKO & WINNEMUCCA JOINT CHAPTER MEETING in Battle Mountain!!
This 5th annual joint Chapter meeting will be held at the Owl Club banquet facility, 147 E. Front St., Battle Mountain NV. (this is the old furniture store across from Ming Dynasty Chinese Restaurant). Refreshments at 6:30 pm, Talk at 7:30 pm. **Speaker: Karen Kelley, 2015 SEG Thayer Lindsley Visiting Lecturer.** **Title: "The Giant Concealed Pebble Cu-Au-Mo Porphyry Deposit, Southwest Alaska: Evolution and Exploration Implications".** **Food & Drinks Sponsored by: NEWMONT MINING & BARRICK GOLD.** For more info please contact Mark Travis in Elko, mark.william.travis@gmail.com or James Carver in Winnemucca, icarver@silverstandard.com. Details abstract on page 7.

Nov. 10, 2015
TUESDAY



SO. NEVADA CHAPTER MEETING—Combined meeting with the AEG!
PLEASE NOTE CHANGE in DATE, LOCATION & TIME!
The monthly meeting will be held at the Embassy Suites, on Paradise just north of Twain/Sands, Las Vegas, NV. Meeting begins at 6:00 p.m. **Speaker: Alan Chamberlain, Cedar Strat. Topic: The geology of the new Basin & Range National Monument. Cost \$25/Members; \$10/Students.** Contact Josh Bonde for more information! Joshua.bonde@unlv.edu. Details on page 8.

Nov. 18, 2015
WEDNESDAY



G.S.N. REGULAR Membership Meeting (every 3rd Friday of the month)
The GSN Membership Meeting will be held at the Reno Elks Lodge, 597 Kumle Lane, Reno, NV. Drinks at 6:00 p.m., Dinner at 7:00 p.m., Talk at 8:00 p.m. **Speaker: Geordie Mark, Haywood Securities Inc. Title: "A Capital Markets Perspective of the Mining and Exploration Cycle: Obstacles and Opportunities".** **Drinks Sponsored by RUEN DRILLING Incorporated.** Dinner cost is \$25. Contact Laura Ruud at the GSN office, gsn@gsnv.org. Details on page 3.

Dec. 16, 2015
WEDNESDAY
CHRISTMAS
MEETING!



G.S.N. CHRISTMAS MEETING, SILENT AUCTION & RAFFLE!!
PLEASE DONATE RAFFLE & AUCTION ITEMS TODAY!
The GSN's annual Christmas meeting and Foundation Fundraiser will be held at the Nugget Casino Resort, Sparks, Nevada. **Speaker: Dr. David Beaty, NASA-JPL. Topic: Exploring for water that human astronauts could use on Mars! Cost for Dinner—\$40.00.** Please make reservations for dinner with Laura Ruud, by emailing gsn@gsnv.org. 775-323-3500. Details on page 14.

G.S.N. NOVEMBER MEETING SPONSOR



FROM THE PRESIDENT
Elizabeth Zbinden, G.S.N. President 2015-2016
NOVEMBER 2015

The 2015 Fall Field Trip was great! Al Coyner writes about the trip elsewhere in this newsletter but I want to share my favorite anecdote too: In one of the lava tubes we visited (Valentine Cave) our eyes were caught by something growing on the walls. I wanted to call it lichen; later research (reading the field trip guide!) told me it's called "lava-tube slime" (bacteria –not algae- and primitive fungi mixed with caliche). Droplets of water sparkled in our flashlight beams and it took very close examination to assure ourselves that there was no pyrite, only water spherules magnifying the surprising color of the slime. A cluster of us was admiring and discussing the phenomenon. One geo said "Somewhere in there is a cure for cancer!" Another geo replied "It's toe fungus!"

But on to other topics. You have no doubt noticed that the political campaign season is heating up. Many candidates for president are passing through our state. Races for US Senate and House, and Nevada State Senate and Assembly are still adding candidates. I encourage every member of GSN to educate herself/himself on the issues, and on the various candidates' positions on those issues, and to VOTE!

One issue of importance to geologists is access to public lands, which is a part of the larger question of management of public lands. Whether your fieldwork is directed at finding gold, getting your degree, solving a research question you can publish in an appropriate journal, or something else, you need access to the outcrops. Last month in this column I wrote about Land Use Planning regulations related to preserving the sage grouse and the sagebrush ecosystem that is its home. Those regulations seem to presuppose that most human activities other than walking are bad for sage brush and bad for sage grouse. Many other regulations (for example, the updated Resource Management Plans of the various BLM districts in the state) aim at expanding the areas where our activities are restricted. In other articles I have urged GSN members to make their opinions known to the BLM; in this one I encourage you to participate in getting elected officials who will support your views.

Only one presidential candidate has come out with a policy statement on Western land management. I hope there is more to it than just putting Department of Interior headquarters in a Western city; but even that is more than other candidates have thought about it. I hope other candidates will now feel the need to announce some sort of plan about Western land management, and that moderators in future debates will include questions about it.

Most Nevada elected officials and candidates have specific policies or statements one way or another about land management. Those policies and statements differ widely. Nevada's Governor, Lieutenant Governor, and Attorney General seem to define three orthogonal axes of viewpoints!! All the more reason for you the voter to educate yourself. What is important to you? What positions do the various candidates and elected officials have about those important things? How can you influence those positions?

Political campaigning is full of speechifying, trying to persuade you mostly by sound bites aimed at moving your emotions. I heard a Sunday sermon (of all things!) recently, discussing three figures of speech intended to grab your emotion. It's kind of entertaining to consider them and think about how political discourse uses them.

Cataplexis: Threatening or warning of bad things to come, which will be payback for some specified bad behavior. It can be directed against a person, a people, a city, a nation. The name comes from two Greek words, together meaning "awful menace". We hear this rhetorical device all the time, but the name is used rarely. It is so obscure, in fact, that there is no Wikipedia entry about it.

Philippic: A tirade, a fiery damning speech, delivered to condemn someone in particular. Sound familiar? It is named because Demosthenes (you've heard of him, right?) in ancient Greece directed some of his famous oratory against Philip II of Macedon.

Jeremiad: A long speech (not a sound bite) or written work lamenting the state of society and prophesying its imminent downfall. It can be seen as a whole lot of cataplexis strung together, which is why that figure of speech is included in this list. It is named after the Biblical prophet Jeremiah. And now you know why this discussion appeared in a Sunday sermon.

Coming back to the point about GSN members participating in the political process. It is a long time, obviously, until the general election. In the meantime, participate in the caucus of your party in your county to help choose the presidential candidates. In a caucus, one voice – yours!- can have a noticeable effect. For other offices, vote in the primaries in June. Stay engaged!

GSN Wednesday, November 18, 2015 Membership Meeting!

**NOTE THE MEETING IS ON WEDNESDAY THIS MONTH (NOT FRIDAY)
DUE TO A CONFLICT WITH THE ELKS LODGE!**

Please e-mail gsn@gsnv.org or call 775-323-3500 **by 5 p.m. on MONDAY NOV. 16, 2015.**

Social Hour begins @ 6:00 pm; Dinner @ 7:00 pm; Speaker @ 7:45 pm (NOTE EARLIER TIME!)

Location: Reno Elks Lodge, 597 Kumle Lane, Reno, NV (across from the Convention Center)

DINNER COST—\$25.00 per person (You will be invoiced if you do not cancel)

Guest Speaker: Geordie Mark, Co-Head Mining Research, Haywood Securities

**Title: “A Capital Markets Perspective of the Mining and Exploration Cycle:
Obstacles and Opportunities”**

Geordie Mark Bio:

Geordie rejoined Haywood in mid-2013 as Co-head of Mining Research, after being an analyst at a Hedge Fund in the Basic Materials Group. Prior to his time with that Fund, Geordie was a Mining Analyst at Haywood for more than 4 years, where he covered the uranium and bulk commodities sectors, and before held a VP Exploration role with an exploration company in Canada. Immediately prior to moving to Canada, Geordie was a Lecturer in Economic Geology and Logan Fellow at Monash University, Melbourne, Australia. Geordie is a Fellow of the Society of Economic Geologists, and holds a PhD in Science and graduated with a BSc Honors degree (Class I) from the National Key Centre in Economic Geology, James Cook University.

***The Geological Society of NV
wishes to thank the SPONSOR
OF OUR OCTOBER
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“FACES OF GSN”

Faces of GSN – November 2015

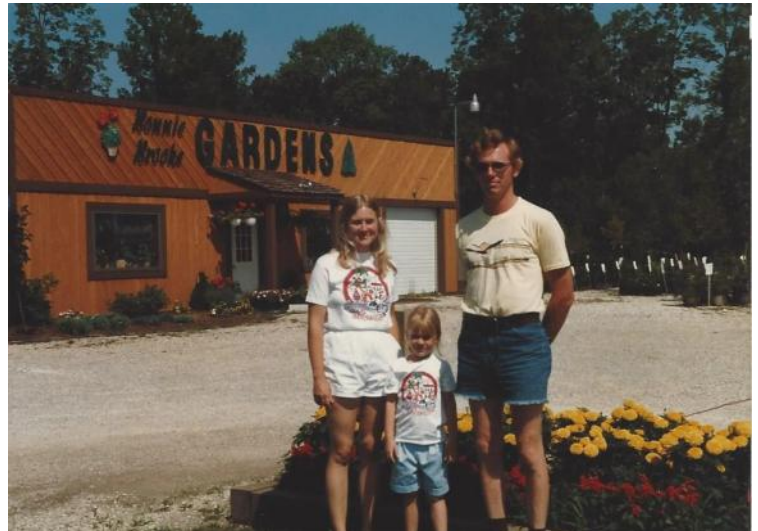
Brooke J. Miller, Geologist

If you search the Internet for your name, you might find many people who share it. Here is one of the search results about me; it is my current biography blurb from LinkedIn.

Brooke is a resource geologist in SRK's Reno office with over nine years of experience in exploration and mining projects in Nevada and California. She is a Qualified Person (“QP”) under CIM NI 43-101. Her primary expertise is in geologic modeling and data analysis, and she has contributed on many NI 43-101-compliant reports, from Resource to Feasibility stage. Field experience includes drill core and chip logging, highwall and drift mapping, and drilling program management. Software proficiency includes Leapfrog 3-D® Mining and Geology, MineSight 3D®, and familiarity in a variety of related programs.

How did the only child of horticulturalists and small business owners end up as a geologist in the mining industry? I occasionally ask myself the same question. Here is the explanation.

My home town is Sturgeon Bay, in northeastern Wisconsin. The geologic setting is the western edge of the Michigan Basin, on the same Silurian dolomite that forms Niagara Falls 450 air-miles to the east. This resistant crest of dolomite juts out of Lake Michigan to form the Door Peninsula. The landscape is beautiful, and isolated. Sturgeon Bay is the largest town in the county, with a population of about 8,000 people, and approximately three times as many Holstein cows. I am the only child of Ben and Bonnie, who have been co-owners of Bonnie Brooke Gardens since 1984. They met when they worked at the same tree nursery one summer, thanks to one of the office clerks who set them up. Horticulture must be in my blood, and I had the unique opportunity to grow up in the family business. This meant that I spent a lot of time at the garden center, and had to entertain myself or be put to work if I complained about being bored. I spent a lot of time reading- enough to read the original series of Nancy Drew mysteries, and then some, the summer between second and third grade. Maybe my quest to solve mysteries in geology started with this reading list?



Bonnie, Brooke, and Ben Miller, in 1985, the second season for Bonnie Brooke Gardens.



Brooke as the Drum Majorette, Eighth Grade, during the Homecoming Parade

I was lucky that my parents and grandparents were supportive of music in education. Starting in sixth grade, I was a band geek and immersed myself in all aspects. I don't remember why I became a drum majorette for a year, but there I was, and Mom and Dad were evidently proud because they took a bunch of photos of this parade! I was a flaky piano student through high school, but learned enough to play bass keyboard for the show choir and improve my performance on trombone.

Perhaps I should have worked harder in my math classes, and high school in general, but chemistry and physics were a breeze, and I didn't value pre-calculus over advanced music theory until I was in college... live and learn. When I began college at Lawrence University, I started as a physics major, and definitely had no concept of what I wanted to do when I grew up. It wasn't long before I decided that doing problem sets for the next 15 (Cont. on page 5)

(Cont. from page 4)

years to become a post-doctoral research assistant was not a good fit for me, and there had to be a more suitable major. The new women's Ultimate (Frisbee) team was recruiting during the spring of my freshman year, and because Lawrence's total enrollment was about 1,200 students, I knew several people on the team. I joined, and began to see the light. One day during practice, I was talking to the coach, Jeff Clark, who is also one of the geology faculty. I asked him "If I get a degree in geology, can I have a cool and interesting job?" He said yes, you can, and was he ever right!

I meandered through physics and chemistry to arrive at a declared geology major, and looking back, I would do it the same way, except I would find a way to study abroad for a semester. Because Lawrence is a liberal arts university, I had the opportunity to study philosophy, literature, drawing, and a variety of disciplines. My parents were supportive of all the classes I took, but may have steered me away from majoring in Art History. I value my liberal arts B.A. in Geology because I have an appreciation for the arts and education in general, and have become a lifelong learner.

Before fall term of my junior year, the Geology Department (all 14 of us, including two faculty members) went on a field trip to the High Plains and Wyoming for 12 days of mapping. This was the first time I experienced the Rocky Mountains, and I was hooked. My advisor, Tony Hoch, is a University of Wyoming alum, and I can't thank him enough for this awesome experience and all of the guidance during my time at Lawrence.

I found that geology applies all of the natural sciences, all at once, at nano- to mega-scale, through time. I found my calling. The discipline was a perfect fit for my interests- how things work, in general, and a way to achieve one of my goals in life- to have an interesting vocation.

In Wisconsin, the main application of geology is hydrogeology and contaminant transport in the phreatic zone. That may be an oversimplification, but as a wide-eyed college student, I saw my future in groundwater. I graduated in 2002 with a B.A. in Geology, and as I was deciding where to go next, the job market looked bleak. After the trip to Wyoming, I knew that I wanted to go west, and not only because there is gold in them thar hills.

I considered graduate studies at several schools west of the Front Range, and decided to go to The University of Oregon. The original plan was to complete a Masters thesis on geothermal systems in Iceland, but due to delayed well drilling, I completed a study of fluid inclusions in the Butte, Montana epithermal copper system. This was the first step on the slippery slope to the geology of ore deposits. It all started with my advisor, Mark Reed, and one of his former students, Rick Streiff, who hired me to be a mine geologist at (then) Newmont's Midas Mine.



During a geology field trip, somewhere in southern Wyoming, September 2000.

Sylvianne, Brooke, and Martha, on the Tahoe Rim Trail above Emerald Bay, July 2003, taken by Mark. Note that this photo was taken before the selfie stick was invented, so Mark is not pictured.



GSN will always have a special place in my heart, because a Winnemucca Chapter meeting was my introduction to the geology community in northern Nevada. My future colleagues at Midas invited me to attend the meeting when I was in town on a house-hunting trip before starting work. The next spring, I happened to meet Greg Ferdock at the 2005 GSN Symposium, and later worked for him at Idaho General Mines/ General Moly. Thanks to Greg, I spent over two years working at the Liberty (Hall) Moly Project near Tonopah. That opportunity, to sink or swim during a 5-rig coring program, taught me so much about the life of a geologist, how to manage a team, and how to entertain myself in central Nevada. Before I was lucky enough to move to northern Nevada, I hiked the southeastern part of the Tahoe Rim Trail with some friends from college. One is a Reno native who is now a geophysicist and lives in Houston. He took the photo on the left. (Cont. on pg. 6)

(Cont. from page 5)

Chuck and Marcia Growdon, Mark's parents, have unofficially adopted me, and have helped me navigate my career and life in general in countless ways. They have watched me leave Reno, and boomerang back, twice, and it is no coincidence that I bought a house in their neighborhood.

Fast forward several years. I have been with SRK Consulting since 2011, and have been lucky to work with Jay Pennington and the rest of the group in the Reno office. This is a great opportunity, with plenty of challenging projects, and always more to learn. Plus, Jay always smokes me during the weekly SRK mountain bike ride. Consulting presents opportunities for travel and work in a variety of aspects related to mineral extraction. It requires critical thinking, problem solving, teamwork, and all of the great science I've studied over the years. Despite what Earl Abbott told me, it is not "just pushing papers around your desk".

Here is a photo taken recently at Bonnie Brooke Gardens, 30 years later than the one at the beginning, with my wonderful boyfriend, Cameron. At times, my path seemed unclear and meandering, but things generally work out exactly as they should. In life, on or off the bike, I believe that there's always time to slow down and smell the roses, or check out the rocks.



Brooke and Cameron at Bonnie Brooke Gardens, July 2015.



GSN ELKO & WINNEMUCCA CHAPTERS **5th ANNUAL JOINT MEETING**

THURSDAY, NOVEMBER 5, 2015

Location: The OWL CLUB BANQUET FACILITY

147 E. Front Street, Battle Mountain NV

(this is the old furniture store across from Ming Dynasty Chinese Restaurant)



Time: 6:30 p.m.—Appetizers/Drinks

7:30 p.m.—Talk begins

GUEST SPEAKER: Karen D. Kelley, SEG Thayer Lindsley 2015 Visiting Lecturer

Food and Drinks Sponsored by:

NEWMONT MINING CORP. & BARRICK GOLD EXPLORATION, INC.



**“The Giant Concealed Pebble Cu-Au-Mo Porphyry Deposit, Southwest Alaska:
Evolution and Exploration Implications “**

Karen D. Kelley

2015 SEG Thayer Lindsley Visiting Lecturer

Abstract:

The Pebble deposit formed at ~90 Ma along the North American continental margin, probably far south of its present-day latitude and possibly during a transition from a contractional to a transpressional regime. Aeromagnetic anomalies in this largely covered region suggest Pebble is associated with one of a series of buried magmatic centers along the margin of a remnant ocean basin. The geologic evolution of the deposit is complex and includes at least 10 Ma of magmatism that led up to and coincided with mineralization. Grades of Cu and Au vary with alteration type, with the highest grades associated with relatively late development of pyrophyllite-sericite alteration. The highest Mo grades appear to be host rock controlled and are associated with intrusion of subalkalic granodiorite in the eastern part of the deposit.

Exploration geochemical and mineralogical studies were designed to determine whether the concealed deposit can be detected with surface samples and to better understand the processes of metal migration from the deposit to the surface. The tilted nature of the undisturbed orebody, varying depth of cover, and later glacial processes strongly influence the geochemical responses in various media. Hydrogeochemistry (ponds, streams, and springs) and porphyry copper indicator mineral (PCIM) studies in glacial till are the most effective regional methods for vectoring to mineralization. Low-level geochemical anomalies in circumneutral spring and pond waters from the more deeply buried part of the deposit are discernible only by using high resolution-inductively coupled plasma-mass spectrometry with lower limits of determination two and perhaps three orders of magnitude lower than traditional methods. The indicator minerals gold, jarosite, and andradite in till reveal a displaced mineralogical anomaly to the west and south of the Pebble orebody, as ore-related minerals were scraped from the orebody and deposited in till down-ice of the deposit.

Click here to read Karen Kelley's Bio: https://www.segweb.org/SEG/About_SEG/Lecturer_Series/SEG/About_SEG/Lecturer_Series/Thayer_Lindsley_Visiting_Lecturer.aspx

G.S.N. SOUTHERN NEVADA CHAPTER MONTHLY MEETING COMBINED WITH THE AEG MEETING!!

TUESDAY, NOVEMBER 10, 2015 (NOTE CHANGE!)

SPEAKER: Alan Chamberlain, Cedar Strat

TOPIC: The Geology of the new Basin & Range National Monument

**Location: the Embassy Suites (NOTE CHANGE!)
on Paradise just north of Twain/Sands, Las Vegas, NV**

Meeting Begins at 6:00 p.m. (NOTE NEW TIME!)

Cost \$25/Members; \$10/Students



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GSN will put this to good use!



Thank you to
Barrick Gold
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allowing the
GSN's Board of Directors
to hold its quarterly
meeting in their confer-
ence room in August!



GSN Fall Field Trip 2015 Wrap-Up

Alan Coyner, GSN VP and Field Trip Organizer

Thirty seven GSN members and guests enjoyed a two day trip to the far northwestern reaches of the Great Basin on October 17 and 18. The trip started unceremoniously as rain was encountered most of the way from Reno to Lakeview, OR. The dark skies began to lighten once we arrived in Lakeview at the exploration office of Quartz Mountain Gold. GSN member Wolf Schleiss was on hand with two of his exploration geologists to walk us through the geology and exploration history of the Quartz Mountain Gold Project. Even the non-geologists among us were using cool geo-terms like “endogenous domes” once we arrived at the property. The light drizzle did not keep us from visiting the mineralization at the Crone Hill and Quartz Butte deposits. We did see the “Alice Vein”, a high grade feeder structure, but I don’t think we ever found out where the name “Alice” came from.

We had a comfortable night’s stay in Klamath Falls, Oregon, complete with a wonderful social hour and meal at Mr. B’s steakhouse. The evening was capped by a very informative presentation by Julie Donnelly-Nolan from the USGS who has spent several decades studying and mapping the compositionally varied eruptive products of the Medicine Lake Volcano. We arose Sunday morning to patchy fog, which only added a sense of mystery to our historical journey past WWII detention camps and the infamous Captain Jack’s Stronghold of the Modoc Indian Wars. Upon arrival at the Lava Beds National Monument we broke out our flashlights and wandered through a couple of lava tubes, admiring lavacicles and lava dripstone trails found along the ceilings and walls of the caves. As we re-emerged into the daylight the sun was peeking through the clouds.

Our next stop was the Glass Mountain Glass Flows on the Medicine Lake Volcano. Julie Donnelly-Nolan was with us to tell the story of how the glass flows and the pumice deposits were formed including rates of formation of each (from a few years for the glass flows to a few days for the pumice air-fall deposits). We saw blocks of obsidian as big as Volkswagen cars and several of us got to do our best impression of Steve Reeves as Hercules holding up large boulders of pumice!

Our visit to the “Modoc” with its spectacular landscapes and geology was indeed a memorable field trip. Many thanks to our sponsors **American Assay, Boart Longyear, Geotemps/Geopros, and Pershing Gold** for helping make the field trip possible! (See group photo on page 10.)

Photo Credits: Elizabeth Zbinden, Laura Ruud, Steven Weiss, and Bob Kastelic.



Wolf Schleiss explaining the Quartz Mountain gold deposit.



Lindsay Craig impersonating Hercules.

UNR Mackay Student, Nathan Chapelle effortlessly juggles rocks at the pumice mine.





Field trip attendees at the Glass Mountain Pumice Pit left to right - First row: Julie Caldwell, Dave Caldwell; Second row: Laura Ruud, Tommy Thompson, Steve Alexander, Sandra Powers, Bob Kastelic, Elizabeth Zbinden (sitting on agglutinate), Lindsay Craig, Filiz Toprak, Dave Shaddrick, Chuck Whipple; Third row: Meghan Rector, Radu Conelea, Nathan Chapelle, Alan Coyner, Peggy Arps, Fleet Koutz, Earl Abbott, Sergio Pastor, Julie Donnelly-Nolan; Fourth Row: Dave Boden, Chris Coyner, Pauline Avery, Don Avery, Cameron Frank, Aaron Rimshaw, Joe Polovina, Don Hudson, Bob Thomas, Allison Thomas, Isaac Nelson, Eric Ruud, Catherine Lee, Steve Weiss.



Alan Coyner serving up pastries, coffee and fine spirits at a rest stop.



Inside a lava tube at Lava Beds National Monument!



The NMEC*

2015 Annual General Meeting

Friday, November 6, 2015



At the Silver Legacy Resort & Casino, 407 North Virginia Street, Reno, NV 89501

Meeting Rooms: Silver Baron One & Two
Luncheon & Reception: Rum Bullions Patio

Regular (Oct. 17 – Oct. 31): Member \$75; Non-Member \$95

Late and on site (Nov. 1 - Nov. 6): Member \$150; Non-Member \$200

Only one representative from a member company will be allowed to pay the member rate, unless the attendee is an individual member. Those that sign up and pay for membership at the door get the late/onsite Member rate. Payments made at the door must be with cash or check. No credit cards will be accepted.

To Register Online please go to this link: <https://www.nvmec.org/2015-annual-general-meeting-registration>

*From the NMEC Website:

The Nevada Mineral Exploration Coalition (NMEC) constitutes the only broad-based active voice for the Nevada exploration community. No other organization is aggressively defending our specific needs. The NMEC was established and successfully fought the onerous claim fees imposed by the State of Nevada in 2010. We urge your support of NMEC if you are not already a member. Please visit our website at www.nvmec.org.

Thank you to our generous donors in October!

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Sage Grouse Update

(Reprinted with permission from the American Exploration Mining Association-AEMA)

USFWS Issues "Not Warranted" Determination

On September 22, 2015, the U.S. Fish and Wildlife Service (FWS) concluded that a listing of the Greater Sage-grouse is "not warranted" under the Endangered Species Act. The [decision](#) was announced at the Rocky Mountain Arsenal Wildlife Refuge near Denver, Colorado by Department of the Interior Secretary Sally Jewell. She was joined at the announcement by Governors Matt Mead (R-WY), Brian Sandoval (R-NV), John Hickenlooper (D-CO) and Steve Bullock (D-MT). Also attending were FWS Director Dan Ashe and BLM Director Neil Kornze along with U.S. Dept. of Agriculture Undersecretary Robert Bonnie.

AEMA issued this [press release](#) in response to the announcement.

Land Use Plan Amendments - Worse than a Listing

At the same time Secretary Jewell was announcing the "not warranted" determination, BLM issued two Records of Decisions, one for the Great Basin states of Idaho, Nevada, Oregon and Utah and one for the Rocky Mountain states of Colorado, Montana and Wyoming adopting land use plan amendments to approximately 88 BLM and Forest Service land use management plans. With the exception of Wyoming, the land use management plans contain severe restrictions on surface occupancy and use, including 3% disturbance caps, three to four mile lek buffers, no surface occupancy for oil and gas operations and grazing restrictions. In addition, the land use management plan amendments were accompanied by a segregation and withdrawal notice for approximately 10 million acres published in the Federal Register on September 24, 2015. While BLM continues to describe the amount of acreage being withdrawn as approximately 10 million acres, the [Segregation Notice](#) published in the Federal Register described the segregation by township and totals almost 19 million acres. For example, the Final EIS describes 2.8 million acres recommended for withdrawal from mineral entry in the Nevada land use plan amendment, but the Segregation Notice totals 4.6 million acres. Likewise, Idaho was hit with 3.8 million acres, but the Segregation Notice describes 7.8 million acres.

The effect of the Segregation is that no new mining claims can be located for two years from September 24, 2015. The filing in the Federal Register commenced a 90 day comment period on the segregation withdrawal and a 90 day scoping period for the Environmental Impact Statement DOI is required to prepare in support of the mineral withdrawal. BLM makes it clear that only valid pre-existing claims will be honored/protected. That means claims with a discovery of a valuable mineral deposit. Any proposed work on unpatented claims within a Sagebrush Focal Area covered by the Segregation Notice will be subject to a validity examination at the expense of the mining claimant. The process will be long and drawn out because BLM has a limited number of certified mineral examiners, and there are a number of exams already in the queue. The costs will be in the tens to hundreds of thousands of dollars. Claims without a discovery will not be protected. Even if you have claims that survive a validity exam, you will not be able to work adjoining claims that do not have a discovery at the time of segregation or locate ancillary structures on adjoining claims.

AEMA will be filing comments opposing the segregation withdrawal and also will be filing scoping comments for the EIS. If you would like to assist with these efforts, please contact [Laura Skaer](#) or [Matt Ellsworth](#).

There's no question the restrictions in the land use plan amendments are more severe than the restrictions that would have accompanied an endangered finding under the ESA. In effect, the "not warranted" determination is hollow because the land use plan amendment is in effect a "back door listing." For over 3 years we have been telling the governors, Members of Congress and other industries that the LUPAs were a greater threat to multiple-use and economic activity on the public lands than a listing. Unfortunately, we have been proven correct.

Governors Otter and Herbert (R-UT) and several western Members of Congress expressed concern with the land use plan amendments and disappointed that DOI refused to adopt the state plans that are clearly working. (Cont on pg. 13)

(Cont. from page 12)

Litigation Commences

Less than two weeks after the land use plan amendments and "not warranted" determination were finalized and published in the Federal Register, Eureka and Elko Counties, Nevada joined by Quantum Minerals LLC and Western Exploration filed suit in Federal District Court for the District of Nevada challenging the Great Basin Record of Decision and Nevada land use plan amendments. A copy of the complaint is available [here](#). Subsequently the Nevada plaintiffs have filed a motion for a preliminary injunction prohibiting BLM from implementing the amendments.

About one week after the Nevada suit was filed, Idaho Governor C.L. "Butch" Otter and the Idaho legislature filed suit in the Federal District Court for Washington D.C. challenging the Great Basin Record of Decision and, specifically, the land use plan amendments for Idaho. A copy of Gov. Otter's complaint is available [here](#).

AEMA is working closely with Mountain States Legal Foundation and will be filing separate lawsuits challenging the Idaho, Nevada, Montana, Oregon, Utah and Big Horn Basin Wyoming land use plan amendments.

Several governors and Members of Congress strongly reacted to the federal land use plan amendments. Below is a sampling of their comments.

Public Lands

Groups Petition for Mining Regulation Changes

Environmental groups, tribes and Western communities are asking the Obama administration to adopt new rules to prevent mine spills. The petition for rulemaking to the departments of Interior and Agriculture stems from this month's release of wastewater from the shuttered Gold King mine in Colorado caused by the EPA.

Several anti-mining groups led by Grand Canyon Trust and Earthworks, have filed a rulemaking petition with the BLM & USFS pursuant to the Administrative Procedures Act (APA) seeking changes to BLM's 43 CFR 3809 and the USFS 36 CFR 228A regulations in 4 areas:

1. Limit duration of Plans of Operations to 20 years with an option to renew for additional 20 year terms. Each renewal would be required to go through the NEPA process and also review pursuant to the National Historic Preservation Act (NHPA) and possible consultation under ESA.
2. Require new approvals and updated NEPA, NHPA and ESA reviews if an approved mine is inactive for 10 or more years.
3. Require regular inspections during periods of mine inactivity and require mine operators to regularly disclose information about the status and condition of the mine(s). Require interim management plans for operations inactive for more than 180 days. Would require an application for approval of temporary cessation of operations, subject to public comment. Approval would be for 5 years with an option for a 5 year renewal.

Require reclamation to be completed within one year and expand impacts that must be addressed during reclamation to require long term (30 years), post-closure monitoring and mitigation of ground and surface water.

Many of these requirements are taken from the Rahall-Grijalva versions of Mining Law Reform. The petition states that these changes/additions are necessary to address adverse environmental and human health effects from the reopening of previously inoperative mining operations. The petition also addresses the recent Animas River spill and "the need to take front-end measures to prevent contamination from new mines."

Environmental Update

Waters of the US (WOTUS)

A federal appeals court halted the Obama Administration rule defining the scope of the Clean Water Act. The 6th U.S. Circuit Court of Appeals in Cincinnati issued a [ruling](#) granting states' request to stay the Waters of the U.S. rule while the court considers its legality.

The order comes in response to challenges by 18 states to the Waters of the U.S. rule from U.S. EPA and the Army Corps of Engineers and puts the regime on hold pending legal review. A number of lawsuits have been filed in both district and appeals courts, and it is yet to be determined which court will ultimately hear the consolidated challenges.

In late August, a North Dakota federal judge blocked the rule's implementation in the 13 states whose case appeared before him but declined to extend the injunction more broadly.

DONATIONS NEEDED FOR THE GSN FOUNDATION ROCK RAFFLE & AUCTION!!



G.S.N.'S ANNUAL CHRISTMAS MEETING, ROCK RAFFLE & AUCTION WEDNESDAY, DECEMBER 16, 2015 NUGGET CASINO RESORT, SPARKS, NEVADA

Dinner Cost - \$40.00/person

6 p.m. - Open Bar, Raffle & Silent Auction

7 p.m. - Dinner, 7:45 p.m. - Live Auction, 8 p.m. - Presentation

The Geological Society of Nevada Foundation's fundraiser "Rock Raffle and Silent Auction" will be held at the GSN's annual Christmas meeting on **WEDNESDAY, December 16, 2015**. We are seeking donations of any items suitable for the raffle or silent auction: gift baskets, attractive rock or mineral samples, gems or gemstones, jewelry, wine or other spirits, logo items, geological equipment, commemorative coins, GOLD, or any geology or mining-related items will be gratefully accepted.

Raffle proceeds support GSN Foundation's educational projects, which include grants to Nevada K-12 classes for transportation on earth science related field trips, scholarships to Nevada geology students, grants to the UNR DeLaMare Library, and grants for geologic mapping in Nevada.

Donors will have their names displayed on signs at the event as well as having their names listed in the January newsletter. The GSN Foundation is a 501(c)(3) public charity.

Please contact D.D. LaPointe to drop off donated items with her or to arrange pick-up of donated items in the Reno-Sparks-Carson City area. We need to have all items in hand by Monday, December 14, 2015. It would be great if you could let us know ASAP what you plan to donate in order to prepare labels and make bid sheets. Thank you for your support! D.D.'s cell number is 775-240-4916 and email is dlapoint@unr.edu.

You can also drop off donations this year with Cami Prenn at Mine Development Associates, 210 So. Rock Blvd., Reno, or with JoAnn Newbury at NuLegacy Gold, 5450 Riggins Court, Suite 1B. Reno, NV. Call JoAnn in advance at 775-224-1717 as her office hours are sporadic. You can drop off donations with me at the GSN office too!

OTHER UPCOMING EVENTS

3 November—AZ Geological Society meeting, Speaker: Karen Kelley, 2015 SEG Thayer Lindsley Lecturer. Title: *The Giant Concealed Pebble Cu-Au-Mo Porphyry Deposit, Southwest Alaska: Evolution and Exploration Implications*". Starts at 6 pm, Sheraton, 5151 E Grant Rd. (& Rosemont), Tucson, AZ. More information and online registration: [Karen Kelley presents The Giant Concealed Pebble Cu-Au-Mo Porphyry Deposit, Southwest Alaska](#).

5 November—NV Petroleum & Geothermal Society meeting –Speaker: Chandler Smith, Scientific Drilling International. Topic: Basic Directional Drilling Concepts and Magnetic Ranging Technologies including Steam Assisted Gravity Drainage, Synthetic Tool Face, Active and Passive Magnetic Techniques. Ramada Reno Hotel, 1000 East 6th St., Reno, NV. Cocktails—6:30 pm; Dinner—7 pm. Please RSVP by Monday, Nov 1st at the following link: https://docs.google.com/forms/d/1oGAJLY36OD5C_lp9hHZEaiWjDhTya9xWpm-XRLMo61k/viewform.

9 November—No. NV Chapter of the SME meeting at Circus Circus Mandalay Room, Reno, NV, Wayne Colwell, Round Mountain Mine. Title: *"Challenges and Opportunities of Process Solution Management Through pH Enhancement"*. Social Hour at 6pm; Dinner at 6:45pm; Talk Starts at 7:30pm. Member Dinner Cost: \$30, Nonmember Dinner Cost: \$35. Please RSVP by 5 PM, Wednesday, November 4th to Brooke Miller at [775-303-2835](tel:775-303-2835) or NNEvSME@gmail.com.

14-15 November—AZ Geological Society Fall Field Trip - Northern Plomosa Mountains and Bouse Formation in Blythe Basin. Meet at 10 am. Take Highway 95 north of Quartzsite for about 6 miles to Plomosa Road, head east until you reach milepost 114 or 115 (you will see a sign directing you to the site), travel on the only paved road heading east for about 5 miles. Park in the graveled area. Contact: Arizona Geological Society President, Mike Conway at michael.conway@azgs.az.gov or (520) 209-4146 if you have any additional questions. More information and online registration: [Fall Field Trip - Northern Plomosa Mountains and Bouse Formation in Blythe Basin](#)

Activity Update

Mike Brady, September 2015

www.activityupdate.com

NEVADA

Corvus Gold Inc. announced that recent drill results at the North Bullfrog/Eastern Project include 128.02-134.11 meters @ 0.19 gpt Au, 1.7 gpt Ag (NB15-260) and 111.25-115.82 meters @ 0.15 gpt Au, 0.3 gpt Ag (NB15-261). (resource = 15,230,000 tonnes @ 0.37 gpt Au indicated) *Press Release:* September 16

Klondex Mines Ltd. announced that based on recent drill results at the Fire Creek Mine, resources aggregate 388,000 tonnes @ 34.7 gpt Au, 26.8 gpt Ag measured+indicated and 968,100 tonnes @ 14.1 gpt Au, 10.9 gpt Ag inferred. (reserve = 168,900 tonnes @ 43.85 gpt Au, 31.6 gpt Ag proven+probable) *Press Release:* September 16

Klondex Mines Ltd. announced that based on recent drill results at the Midas Mine, resources aggregate 1,050,000 tonnes @ 12.2 gpt Au, 288 gpt Ag measured+indicated and 778,900 tonnes @ 8.1 gpt Au, 165.1 gpt Ag inferred. (reserve = 220,000 tonnes @ 12.9 gpt Au, 372.9 gpt Ag proven+probable) *Press Release:* September 16

Ashburton Ventures Inc. announced that it acquired an option to purchase a 100% interest in the Elon Property (lithium) from private interests for 5,000,000 shares. *Press Release:* September 15

Rye Patch Gold Corp. announced that recent in-fill drill results at the Lincoln Hill Project include 17.0-22.4 meters @ 0.20 gpt Au, 10.2 gpt Ag (LHC-010); 18.8-26.2 meters @ 0.41 gpt Au, 5.9 gpt Ag (LHC-011); 163.6-192.3 meters @ 0.07 gpt Au, 19.0 gpt Ag (LHC-012) and 68.2-79.4 meters @ 0.31 gpt Au, 1.2 gpt Ag (LHC-013). (resource = 26,402,000 tonnes @ 0.40 gpt Au, 11.5 gpt Ag measured+indicated) *Press Release:* September 15

Nevada Copper Corp. announced that recent drill results at the Pumpkin Hollow Project include 115.0-256.7 meters @ 0.64% Cu, 0.06 gpt Au (NC15-6); 322.2-350.5 meters @ 0.27% Cu, 0.04 gpt Au (NC15-17); 176.4-185.4 meters @ 0.24% Cu, 0.01 gpt Au (NC15-21) and 266.1-311.8 meters @ 0.18% Cu, 0.02 gpt Au (NC15-22). (resource = 485,840,000 tonnes @ 0.45% Cu, 0.03 gpt Au measured+indicated) *Press Release:* September 10

Miranda Gold Corp. announced that it terminated its leasehold interest in the Mustang Property of Nevada North Resources Ltd. although it retained a 1% NSR. *Press Release:* September 8

Silver Standard Resources Inc. announced that recent drill results at the Marigold/8 South Project include 158.5-228.6 meters @ 0.64 gpt Au (MR6127); 175.3-208.8 meters @ 2.05 gpt Au (MR6149); 176.8-245.4 meters @ 0.58 gpt Au (MR6150) and 140.2-199.6 meters @ 0.56 gpt Au (MR6158). (reserve @ Marigold = 196,430,000 tonnes @ 0.52 gpt Au proven+probable) *Press Release:* September 18

Nevada Canyon Gold Corp. announced that it acquired an option to earn a 50% interest in the Lapon Canyon Property from Walker River Resource Corp. for \$500,000 in exploration expenditures over 2 years. *Press Release:* September 16

Waterton Precious Metals Fund II announced that it offered to acquire Timberline Resources Corp. for \$0.58/share. (resource @ Lookout Mountain = 26,254,000 tonnes @ 0.62 gpt Au measured+indicated) *Press Release:* September 15

Pershing Gold Corp. announced that recent drill results at the Relief Canyon Project include 60.6-70.6 meters @ 0.69 gpt Au (RC15-325); 27.5-40.4 meters @ 1.18 gpt Au (RC15-326); 47.6-53.1 meters @ 1.13 gpt Au (RC15-329) and 27.3-39.8 meters @ 0.77 gpt Au (RC15-335). (resource = 24,270,000 tonnes @ 0.68 gpt Au measured+indicated) *Press Release:* September 16

Renaissance Gold Inc. announced that it acquired the Maggie Creek Property from Wolfpack Gold Ltd. for a 1% NSR that can be purchased at any time for \$1,500,000. *Press Release:* September 14

Nevada Sunrise Gold Corp. announced that it acquired a 100% interest in the Neptune Property (Li) from private interests for 1,000,000 shares over 2 years. *Press Release:* September 2

Columbus Gold Corp. announced that recent drill results at the Eastside Project include 193.5-221.0 meters @ 2.54 gpt Au (ES-39); 106.7-138.7 meters @ 1.25 gpt Au (ES-40); 248.4-277.4 meters @ 0.54 gpt Au (ES-42) and 185.9-245.4 meters @ 0.92 gpt Au (ES-45). *Press Release:* September 22



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- Discussion of techniques to assess hyperspectral mineralogy with geochemistry and other exploration data using geostatistical and software.

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- Sarah Rice**
Senior Geochemist
- Chris Sherry**
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Reno, NV – November 16

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Elko, NV – November 18

Elko Convention Center, 700 Moren Way
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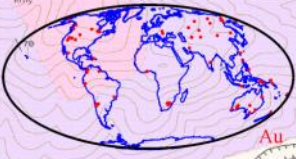
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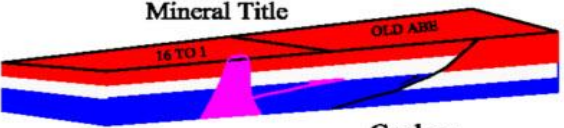


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Offices are located at NBMG's Great Basin Science Sample & Records Library at The Desert Research Institute
Walk-in Office hours: Tuesday through Friday, 8:00 AM - 3:00 PM. Mondays - Call or email for appointment.

The Geological Society of Nevada (GSN) is a non-profit, educational organization whose principal objective is to promote the advancement of geological sciences, especially as they relate to Nevada. GSN supports the dissemination of information through meetings, field trips, publications and academic endeavors. Membership is open to geologists, geophysicists, geochemists, engineers, educators, students, prospectors or anyone else with an interest in the geological sciences and/or the goals of the GSN. The organization is based in Reno with additional Chapters in Elko, Las Vegas and Winnemucca.

The GSN Fiscal Year begins June 1st. **Annual dues are \$50.00, Students \$25.00 or Lifetime Membership \$1,250.00.** Dues are due prior to December 31st each year. The GSN conducts a Field Trip in the Fall and one in the Spring of each year. Monthly meetings are held September through May in Reno, Elko, Winnemucca, and Las Vegas. If you would like to receive email announcements from one of the G.S.N. Chapters (Elko, Winnemucca or Southern Nevada) please check a box below.

Please help support the GSN Foundation, the Student Dinner Fund, or Student Field Trip Fund when renewing. Foundation dollars are used for the Kindergarten through 12th grade Field Trip Earth Science Grant Program, Nevada Mapping Grants, Field Camp Grants, and scholarships at the University of Nevada, Reno, Great Basin College and University of Nevada, Las Vegas.

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