



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.
Website: www.gsnv.org • E-mail: gsn@gsnv.org



February 2015, Vol. 31, No. 2

Published monthly except June and July

PRESIDENT

Jonathan Price
Jonathan G. Price, LLC
jprice@unr.edu

VICE PRESIDENT

Elizabeth Zbinden
Independent Geologist and Geochemist
E_Zbinden@geology.reno.nv.us

SECRETARY

Lori Carpenter
7Q10 Inc.
lcarpenter@7Q10.com

TREASURER

Bob Kastelic
Consulting Geologist
bob_kastelic@yahoo.com

MEMBERSHIP CHAIR

Bob Felder
Kinetic Gold (US) Inc.
bfelder@kineticgold.com

PUBLICATION CHAIR

Keith Fowlow
Trinity East Geoservices, LLC
Keith.Fowlow@gmail.com

OFFICE MANAGER

Laura Ruud
Geological Society of Nevada
gsn@gsnv.org

GSN BOARD OF DIRECTORS

Chairman: David Caldwell

GSN President
Jonathan Price, Current

Most Recent Past GSN President
Tommy Thompson

Elko Chapter President
Jon Powell

So. Nevada Chapter President
Josh Bonde

Winnemucca Chapter President
Pat Donovan

Class A, 2012-2015
Lynne Volpi
Randy Vance

Class B, 2013-2016
David Caldwell (Chairman)
Greg French

Class C, 2014-2017
David Shaddrick
Camille Prenn

CALENDAR OF GSN EVENTS

Feb. 5, 2015
Thursday

SO. NEVADA CHAPTER—(1st Thursday of the Month)

Please join members of the GSN Board of Directors at the So. NV Chapter meeting being held at the Las Vegas Natural History Museum, 900 Las Vegas Blvd. North, 5:30 p.m. Speaker: Dr. Arya Udry, UNLV. Title: "Martian geology. What we know from meteorites and rovers?". Please contact Josh Bonde for more information Joshua.bonde@unlv.edu. Details on page 9.

Feb. 9, 2015
Monday

G.S.N. 2015 DIRECTORY PICK-UP PARTY

The new GSN 2015 Membership Directories will be hot off the presses and ready to pickup in Reno on Monday, February 9, 2015! Great Basin Brewing Company, **RENO LOCATION**, 5525 S. Virginia St., Reno, NV. Time will be from 4 pm—7 pm. Save GSN postage by picking your directory up and have a drink on our sponsor for the evening, **SRK CONSULTING!**

Feb. 11, 2015
Wednesday

WINNEMUCCA CHAPTER MEETING (2nd Wednesday of the Month)

The meeting will be held at the Martin Hotel, 94 W. Railroad St. Drinks at 6 pm, Appetizers at 6:30 pm, Talk at 7:00 pm. **Speaker Eric Struhsacker, Renaissance Gold.** Title: "The Everson Deposit, an intrusion-related gold system at Buffalo Canyon in northern Nye County, Nevada". **Food & Drinks Sponsored by: TONATEC EXPLORATION, LLC.** Please contact Pat Donovan at pat.donovan@newmont.com for more information. See page 10 for details.

Feb. 19, 2015
Thursday

ELKO CHAPTER MEETING (3rd Thursday of the Month)

The meeting will be held at the Western Folklife Center, 501 Railroad St., Elko, NV. Refreshments & Appetizers at 6 pm, Talk at 7 pm. **Speaker: Moira Smith, Pilot Gold.** Title: "TV Tower: High Sulphidation Epithermal and Porphyry Au-Cu Mineralization in Western Turkey". **Food & Drinks Sponsored by: TIMBERLINE DRILLING.** Please contact Jon Powell at jon.powell@newmont.com for more information. See page 11 for details.

Feb. 20, 2015
Friday

GSN Regular Membership Meeting (3rd Friday of the Month)

The GSN's monthly meeting & dinner will be held at the Reno Elks Lodge, 597 Kumle Ln, Reno, NV. Drinks at 6 pm, Dinner at 7 pm, Talk at 7:45 pm (NOTE NEW TIME). **Speakers: MACKAY FACULTY MEMBERS. Various research topics will be presented in short intervals. Drinks Sponsored by: CGS MULE LLC.** Please make dinner reservations with Laura Ruud at the GSN Office, 775-323-3500 or gsn@gsnv.org. Dinner cost: \$25 each. Speakers and abstracts on page 3-4.

May 14-23,
2015

GSN 2015 SYMPOSIUM—"NEW CONCEPTS & DISCOVERIES"

Register online now for this don't-miss "once every 5 years" Technical Conference put on by volunteers of the GSN. **EARLY REGISTRATION DEADLINE IS FEBRUARY 28TH!!** <http://gsnv.org/2015-symposium/>

*Mark
Your
Calendar*

G.S.N. FEBRUARY 2015 MEETING SPONSOR



CGS MULE
COMPLETE GEOLOGICAL SUPPLIES

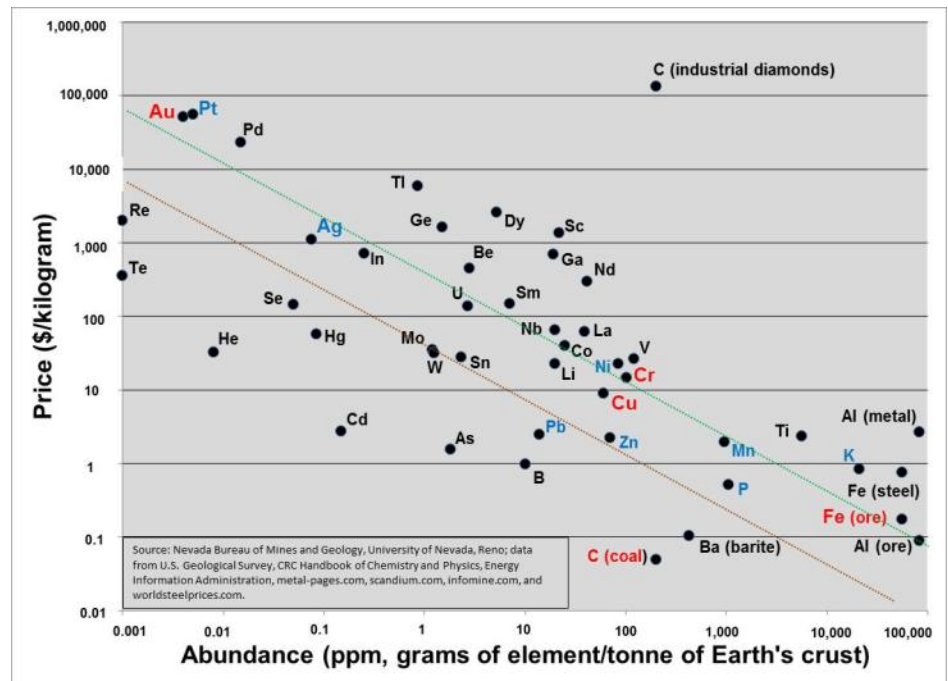
Everything but the mule, anywhere in the world!



FROM THE PRESIDENT, FEBRUARY 2015
“Another Reason to be in Nevada — Explore for the Best Commodities”
Jon Price, G.S.N. President 2014-2015

In exploration, we occasionally ask: for what commodities should we explore? There are many ways of analyzing the problem. One approach is to look for commodities with high prices relative to the ease of finding them, which can more or less be approximated by crustal abundance. Using the graph below, which shows commodity prices plotted against crustal abundances of selected elements, we realize that although there is a general trend, shown by the green and brown lines, of rarer elements costing more than abundant ones, there is lots of scatter.

It is probably better to explore for those elements with prices higher than the norm – those that plot above brown or green lines. There are good reasons why some relatively inexpensive elements plot below the brown line. For example, selenium and tellurium are primarily byproducts of copper production, rhenium is primarily a byproduct of molybdenum from porphyry copper-molybdenum deposits, and cadmium is primarily a byproduct of zinc. Toxicity also limits the demand (and therefore prices) for some elements, including arsenic, cadmium, mercury, and lead. Carbon is an anomaly, in that its elemental crustal abundance masks the fact that diamonds are exceptionally rare while coal is quite common.



Price is a reflection of not only rarity (the inverse of crustal abundance) but also demand. Another approach to choosing a commodity for exploration is the size of its market. The elements highlighted in red are those with global production (using 2011 data, soon to be updated with 2014 data) in excess of \$100 billion (chromium, coal, copper, gold, and iron), and those highlighted in blue are ones with global production greater than \$10 billion but less than \$100 billion (lead, nickel, manganese, phosphorus, platinum, potassium, silver, and zinc).

Nevada is definitely a great place to explore, largely because the state has abundant gold resources. Relative to its crustal abundance, gold commands a high price. It is also one of the five commodities on the chart with a market of over \$100 billion annually. There is always demand for gold that is newly mined. Nevada also has significant resources of other commodities in high demand based on annual markets, particularly silver, copper, lead, zinc, and iron ore. Nevada has produced minor amounts of manganese and does have known resources of phosphorus, but we have limited exposures of intrusive mafic rocks, which are typically associated with nickel, chromium, and platinum deposits. The only other commodity with both a high relative price and large global market is potassium (potash), which is mined primarily from evaporite deposits. Although evaporative potash deposits have not been identified in Nevada, there is potential for byproduct production of potassium from Nevada lithium deposits. Overall, Nevada is a great place for exploration.

Upcoming GSN Fridays include:

February 20 –UNR-Department of Geological Sciences and Engineering Faculty – A Sampling of Geoscience Research at UNR

March 20 – Alan Koenig, USGS, Denver – *Where the Trace Elements in Ore Deposits Live - Applications of a New Elemental Analysis Technique*

April 17 – UNR student posters and 5-minute presentations.

The year will be capped off with the GSN 2015 Symposium, May 14-24, including short courses and field trips. Registration is open through the GSN website. <http://gsnv.org/2015-symposium/>

GSN FEBRUARY 20, 2015 Membership Meeting

Reservations Are Required - Please Cancel if You Are Unable to Attend

Please e-mail gsn@gsnv.org or call 775-323-3500 by 4 p.m. on WEDNESDAY, FEBRUARY 18TH.

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, Nevada (off of Virginia, across from the Convention Center)

DINNER COST—\$25.00 per person. (You will be invoiced if you don't cancel your reservation)



UNIVERSITY OF NEVADA, MACKAY FACULTY NIGHT!

February's GSN meeting highlights research of some of the faculty in the Department of Geological Sciences and Engineering at the University of Nevada, Reno. Each professor will speak for about 7 minutes, and we'll have plenty of time for questions and answers. Come early and chat with the professors during the happy hour starting at 6:00. Dinner will be at 7:00, and the talks start at 7:45.



John N. Louie: *Clark County and Reno/Tahoe: Advancing Earthquake Hazard Assessment with Physics and Geology*

A significant challenge for engineers and urban planners is to promote community resilience to earthquakes, while not making the cost of compliance impossibly expensive. Current earthquake hazard maps miss details of localized basin depths, safer hard spots, and dangerous unknown soft spots that sparse geological and geotechnical data cannot predict, and only detailed direct measurements can find. In the wake of the Christchurch earthquakes and the degree of repeated liquefaction that occurred, the need for detailed site condition characterization in our metropolitan regions is evident. Hazard mapping and building codes worldwide

use the vertically time-averaged shear-wave velocity between the surface and 30 meters depth, V_{s30} , as one predictor of earthquake ground shaking. Neither building codes nor the USGS ShakeMap product currently include basin thickness or uncertainties as ground-motion predictors. Rodgers and others showed great variation in site response across Las Vegas Valley (LVV) from new and old recordings of nuclear explosions and regional earthquakes, with basin-over-rock amplification factors of almost a factor of ten at some sites. Site amplifications correlated with both basin thickness and shallow velocity structure, though peak amplification frequencies did not correlate with basin thickness. In the Reno-area basin Pancha showed similar correlations, and established further that basin amplification is highly dependent on the azimuth of the arriving earthquake waves. To better predict earthquake ground motions impacting Nevada urban areas, the Seismological Lab has developed Nevada ShakeZoning (NSZ) procedures to take advantage of all available 3D geological and geophysical information, at all scales from crustal to near the surface. Scenario shaking models have been computed so far for Las Vegas, Reno/Sparks, and South Lake Tahoe.



Paula Noble: *Three-Dimensional Models of Nevada's State Fossil, the Ichthyosaur.*

Paula is a paleontologist who specializes in siliceous microfossils (radiolarians and diatoms) and uses them in biostratigraphy, paleoecology, and paleoclimate research. Recently, she has become involved in an interesting outreach-related project focusing on our state fossil, the ichthyosaur *Shonisaurus popularis*. Paula, along with UNR students Paige dePolo and Steve Angster, have been collaborating with the Smithsonian Institution's Museum of Natural History to scan fossils from Berlin Ichthyosaur State Park using terrestrial LiDAR, Artec 3D light scanners, and photogrammetry. These data were collected during the fall semester, and the

project will test the applicability of terrestrial LiDAR technology to capturing high-resolution point cloud data from large *in situ* fossil sites. The Nevada Seismological Laboratory and the DeLaMare Library have given Paula and her team access to these high-tech instruments. A team from the Smithsonian has joined the UNR group in the field to capture the large fossil site using photogrammetry, and these two datasets will be compared. Additional work is underway to use Artec hand-held scanners to digitally capture parts of the holotype, which now resides at the Nevada State Museum in Las Vegas. Paige dePolo, a senior in the UNR Geology program is working on the LiDAR data for her senior thesis. (See picture of Paige dePolo posing as a scale bar for the front flipper of *S. popularis*.) (CONT. on PG 4)



(Mackay Faculty, CONT. from PG 3)



Graham Kent: *AlertTahoe*

AlertTahoe is the Nevada Seismological Laboratory's earthquake early warning (EEW), fire detection and tracking, and extreme weather platform for the region. The former two are operational, and there is growth in the third. Recent advances include incorporation of real-time global position system (GPS) data for EEW and recognition of "ARKstorms," atmospheric river events or megastorms.



James Trexler: *Improved Understanding of the Antler Allochthon Using Detrital Zircon Geochronology*
Distribution of Paleozoic rocks in central Nevada has been affected by complex original basin geometry and several phases of deformation. Overprinted on this complicated record is younger mineralization. We are working on understanding the distribution of Paleozoic rocks that may be hosts for gold deposits. Our previously completed work has included detailed stratigraphic and structural studies of upper Paleozoic rocks. My research group, now particularly graduate student Gwen Linde, is accumulating detrital zircon data from lower Paleozoic strata throughout the area. The goal is to determine the genetic origin of the units of interest based on their detrital zircon spectra. We have determined that some RMA units (e.g. the Harmony Fm.) are tectonically far-travelled, while other RMA strata have local origins.



Stacia Gordon: *Partial Melting in Orogenies*

Within the mid- to lower-crust of both active and ancient orogenic belts, there is evidence for a large quantity (potentially >40 vol. %) of partial melt. When partial melt is present within a system, it will concentrate the strain because it will be the rheologically weakest part of the system. Thus, the partial melt will have a great influence on how an orogen deforms and evolves through time. In this talk, I will briefly describe some examples from the western U.S. as well as other parts of the world where we have evidence for melt affecting the evolution of orogenic belts.



Pat Cashman: *Type "Comus Formation" at Iron Point: New Solutions to a Structural and Stratigraphic Paradox*

Pennsylvanian and Permian rocks of the "Antler Overlap Sequence" unconformably overlie the Cambrian Preble Formation at Edna Mountain, Humboldt Co., Nevada. A few hundred meters to the east at Iron Point, a thick and locally mineralized Ordovician and younger section separates the two. These Ordovician rocks are the type section of the "Comus Formation", a term now applied to host rocks along the Getchell Trend in the Osgood Mountains to the north. Fortuitous preservation of Pennsylvanian and Permian rocks tightly constrains the ages and kinematics of several fold sets at Edna Mountain. New stratigraphic and structural work at Iron Point suggests the stratigraphic significance of the "Comus Formation" there, and requires a significant regional structure between Iron Point and Edna Mountain.



Ronald Breitmeyer: *Moving Towards Mechanistic Hydrologic Modeling for Post-Closure Water Management in Mining*

The management of solution from mine process components in post-closure operations is a primary long-term environmental concern when regulatory agencies evaluate the closure of, or bond release for a mine site. Current projected post-closure management strategies, while protective of the environment, may ultimately prove infeasible and more expensive than necessary in the long term due to the high degree of uncertainty in models currently used for water-management planning. Our research is seeking to identify some of the main uncertainties and to help all stakeholders identify the best tools and information to help fill in the necessary missing pieces to better understand the long-term management of liquids on their future closed sites.

THANK YOU TO FALCON DRILLING and HARRIS EXPLORATION DRILLING & ASSOCIATES for sponsoring the JANUARY 16TH MEETING!



DAVID R. SHADDRICK—NEW G.S.N. HONORARY LIFETIME MEMBER!



Dave Shaddrick was born and raised in Minneapolis, Minnesota in an extended family with modest means and limited prospects. As with many families in this situation, education was seen clearly as the way forward and the seeds were sown very early for Dave's strong determination to get an education and have a professional career. The details, however, remained a mystery for many years. After a rather tempestuous and extended primary and secondary career, Dave surprised all of his relatives and friends by graduating from Richfield High School in 1961.



He joined the U.S. Air Force in 1961, received training in electronics and served as a Nuclear Weapons Fusing Systems Specialist based in Colorado, New York and the Philippines. During his military service he began his college career with evening classes at Long Island University where he earned the credits and GPA to allow him, following his honorable discharge in 1965, to enroll at the University of Minnesota, Institute of Technology.

At that point his only idea was that he enjoyed the challenge of science and engineering and wanted to work outdoors. His first course in Geology awakened a surprising sense of wonder and curiosity that settled the question quite definitively. Finances remained a challenge and Dave supported his university adventure with a full time job and, near the end of his undergraduate studies, part time work supplemented by assistance from the recently passed GI Bill for Vietnam Era Veterans. He earned a Bachelor of Science degree in geology from the Institute of Technology in 1968.

His choice of graduate school was dictated, again, primarily by the availability of financial assistance and the promise of in-state tuition. Although accepted by a number of schools, only the South Dakota School of Mines and Technology offered these essentials. He packed everything he owned in a 1960 Chevrolet station wagon (a story unto itself) and moved to Rapid City in the Black Hills of South Dakota in early 1969. He earned a Master of Science degree in geology from "The Mines" in 1971.

After graduate school, Dave accepted a position with Homestake Mining Company as an underground mine geologist at the Homestake Gold Mine in Lead, South Dakota. He spent the next 12 years with Homestake in numerous positions of increasing responsibility in operations, exploration and at the corporate headquarters in San Francisco. Dave likes to joke that he worked his way from the bottom (6500 level of the mine) to the top (11th floor of the corporate headquarters) of the mining industry. A notable highlight of this period in his career was the discovery of the Foley Ridge gold deposit (now the Wharf Mine) in South Dakota where he, with his colleague Terry Jennings, developed the original exploration model and did the initial mapping, sampling and drilling.

In 1983, Dave moved to Reno to build a team and manage a gold focused exploration program in the western US for Atlas Precious Metals. Dave's team discovered (1984) and developed (1985-87) the Gold Bar District in Eureka County, Nevada as well as the Grassy Mountain deposit (1987) in Oregon.

He left Atlas in 1987 and embarked on an independent consulting and project generation business which he has continued until the present. As an independent consultant and entrepreneur, Dave has worked in every capacity from prospector, field geologist and project manager to President and CEO of private and public exploration companies.

A particularly noteworthy highlight of Dave's career has been his long standing involvement and countless contributions to the Geological Society of Nevada. From his arrival in Reno in 1983 to the present, Dave has been a fixture of the society, as an enthusiastic member, a consistent participant in monthly membership meetings, field trips, symposia, picnics, golf tournaments and many other events, and a generous volunteer to the Society. Dave's volunteer roles began in 1990 as the first Chairman of the Education Committee, which he continued with for five years. He was involved in the formation and organization of the GSN Foundation, and sat on the committee that established the GSN Board of Directors. Dave was elected to the GSN Executive Committee as Vice President in 2000-2001 and became President in 2001-2002. He was appointed Director in 2005, and served on the Board of Directors to the present. He served as Chairman from 2011 to 2014. Dave has been involved in the Symposium Organizing Committees since the first one in 1987, and has successfully led the very important Fundraising Committee for the 2010 and the upcoming 2015 Symposium.

The success of a volunteer organization like GSN is due in large part to people like Dave, and his exemplary volunteer work and personal commitments have contributed greatly to the growth and success of the Society. It is with great pleasure that the Board of Directors and the Executive Committee of GSN have awarded Dave an Honorary Lifetime Membership to the Society. Thank you, Dave and congratulations!

“FACES OF GSN”

CALEB STROUP

For me, finding geology as a career was much less of an inevitability than many of the “Faces” I see featured here. As a boy I never had a mineral collection nor was I particularly interested in rocks. Perhaps this was largely due to the fact that I grew up in the flat post-glacial monotony that is farm country in southern Minnesota. I did always have a broad and intense interest in science. Though not necessarily nerdy (despite the fact that I would physically fight my older sisters to allow me to watch NOVA on PBS whenever it was on), I was very much interested in learning about biology, astronomy, and earth sciences. I was also always very keen on the concept of maps. From a young age I maintained a set of maps detailing crop rotation patterns, the location of fallow strips that pheasants lived in, and positions of wildlife I had spotted. This was mainly used for optimizing hunting strategy.

I remember thinking early on about process-oriented questions. In the summer before 6th grade, I was working in the fields and remember thinking for a long time about the fact that precious top soil is eroded into small creeks which flow into bigger creeks and ultimately into the Mississippi River, which I knew flowed into the ocean. I reasoned that there must be a whole lot of dirt in the Gulf of Mexico, and if this continues, eventually all of the dirt in the world would be in the oceans and everything would be flat. I consulted my encyclopedias and teachers to find out that on the first point I was right to a high precision (lots of dirt in the Gulf of Mexico) but flat wrong on the second point; this is when I first heard about Plate Tectonics.

After high school, I attended Winona State University along the Mississippi River in southwestern Minnesota where I became a composite materials engineering student. This seemed to me a good option for an applied scientific career where I would have an opportunity to work on practical problems. Growing up in a very blue-collar area instilled in me a pragmatic ideology and I was not much interested in the pure-science or academic aspects of things. I maintained a continued but pretty casual interest in geologic phenomenon until my second semester when in a moment of enlightenment I realized that life as an engineer would probably be spent behind a computer or in a lab. I decided that I wanted a more hands on career and dropped my major that day, eventually ending up in the office of a fresh-from-grad-school karst geomorphology professor named Toby Dogwiler (the name drew me in). In the next hour or so he answered any nagging geologic questions I had, introduced me to the concept of spelunking as a job and successfully fired me up on pursuing earth sciences. After my first semester in the geology department I knew it was for me. I particularly enjoyed learning about large-scale sed/strat and tectonic processes. This culminated in the summer 2003 when my mentor Cathy Summa set me up as a field assistant for a PhD student at USC, using sequence stratigraphy to correlate the Neoproterozoic White-Inyo Mountains stratigraphy with the greater Death Valley section. It was here that I realized I wanted to work and live in the mountains; rugged, remote and barren ones if possible.

After finishing my undergrad in 2006 I went on to a Masters program at Idaho State University in Pocatello in search of mountains and great geology; both of which I found in abundance. I worked under Paul Link on a regional basin development and tectonics thesis in Southwestern Montana. Paul’s career as an outstanding field geologist and his dedication to students and field campers is a continued inspiration. Any possibility of a return to the Midwest evaporated at ISU as I fell in love with Cordilleran geology and discovered rock climbing, skiing, mountain biking, and inter-mountain hunting and fishing.

In early 2007 Paul put me in touch with Jerry Zeig of NovaGold and I had my first introduction to mineral exploration that summer. Landing in Kotzebue, AK in late May before breakup to barking sled dogs, whale bones, and bush Alaska was a memorable introduction indeed. I spent the rest of that summer and the next mapping, prospecting, and soil sampling from a helicopter in the Brooks Range, Seward Peninsula, and Kuskokwim Mountains, finishing my Masters in early 2008 between field seasons. NovaGold was quite busy in Alaska during these years and employed an impressive number of younger geologist, most of which remain in the industry, now scattered far and wide. Many lasting relationships came out of these years and it was in Ambler in 2008 that I met my girlfriend Kristen Benchley who is now a successful Nevada geologist. **(Continued on page 7)**



Mapping the NovaGold Arctic VMS deposit area in the Brooks Range, AK with my eventual girlfriend and NV geo Kristen Benchley, 2008.

(Stroup, Continued from page 6)

Fall 2008 spelled disaster for NovaGold's exploration crew. While compiling data in Fairbanks after the field season we received an impromptu visit from management which resulted in most of us getting canned. This is where I developed my phobia of unannounced appearances by the boss, which does not seem like a completely irrational fear. I traveled through South and Central America through that winter and spring. One highlight (or low point) of that trip was being surrounded by armed men, with three other equally foolish geologists (and one random German kid) while attempting to cross a roadless and remote mountain range in Guatemala, which purportedly had not been traveled by white men since the civil war. Adventure was the objective and we found it.

Back in the states, a brief stint mudlogging on a geothermal project in Utah preceded another Alaska field season drilling a project in the Kuskokwims for a NovaGold spin-out. The after-work gold panning here was phenomenal but somewhat tempered by the remarkable bear and mosquito populations.

After being laid off again in the fall of 2009, I moved to Truckee to be with Kristen and got a job with Sierra Geothermal Power working on several geothermal exploration plays around Tonopah and Austin. This involved much time living out of a travel trailer in the thriving metropolis of Silver Peak. Frequent visits to the "Alternative", a plywood bar which lived up to its name, made the experience tolerable. Sierra Geothermal was eventually taken over by Ram Power and I went with (the only staff position I have ever had). With Ram I continued working on their Nevada portfolio and spent a fair bit of time in Nicaragua on a development-stage geothermal project nested between several active volcanoes. Drilling and collecting real-time temperature and geochemistry data from active geothermal systems, to >1500 meters, has given me a perspective and ability to visualize large-scale epithermal systems that I would otherwise not have had, and I am thankful for that opportunity.



One of the better weather days on the Corvus Gold Chisna Project in the eastern Alaska Range, 2011

In the spring of 2011 things were beginning to look glum for the geothermal industry in general and Ram in particular. I departed just before their rapid fall from around \$2.00 to \$0.005. Through a NovaGold connection, Bill Burnett, I found myself (and Kristen) working in the eastern Alaska Range until the end of 2011. This project involved brutal weather, steep terrain, and challenging helicopter work but all in an amazing, under-explored setting with great geology and new multi-gram gold mineralization to be discovered every day. While acting as project manager, one task involved disrupting the film crew of the Discovery Channel's "Alaska State Troopers" while the real Troopers apprehended a drunk and belligerent driller who had given his helper a beating that warranted 11 stitches. Not the reason you want to see your camp in the newspaper, although I sometimes wish we had the video to go along with the story.

project and eventually pursuing some exploration targets away from the defined resource areas. Kristen and I came to our senses and moved across the border to Verdi in 2012 where we bought a house and a dog. I continue to work nearly exclusively for Kinross as a consultant, generating early-stage projects, evaluating submittals, and working on active projects.

Since the first week of my rookie season in Alaska I don't think I have seriously doubted that I will spend my career in exploration of some variety. The blend of science, adventure, romance, and pragmatism I found hit the spot! The variety of geologic processes involved in understanding metallogenic systems, from the scale of a pyrite rim to a plate boundary, is enough challenge for several lifetimes and the concrete goal of discovery adds an element I'm not sure I could find elsewhere.

My free time these days is spent mostly skiing, hunting, fishing, and traveling with Kristen. I still try to take one or two big climbing trips a year to Yosemite or Zion National Park. Lately I have been consumed by chukar fever and have spent any available **(Continued on page 8)**



Working our way upward on a 2014 ascent of El Capitan in Yosemite

(Stroup, Continued from page 7)

time rattling my pickup around the state with my field assistant and bird detector Esmeralda, “Ezzy”, our yellow lab. Perhaps there are some parallels with exploring for new gold deposits in Nevada and hunting chukar. I’m quite sure both are out there, and what keeps me going is the thought that with lots of hard work, frustration, and a little luck maybe I can get my hands on one.



Family photo on the summit of Arc Dome in the Toiyabe wilderness, 2014. Our puppy Ezzy sneaking in a lick.



Ezzy and I looking for chukar (and alteration) in a remote NV range (left). After work beers in a Winnemucca geo hangout (right).

NEWS FROM THE FOUNDATION

The Christmas meeting and Foundation fundraiser was another success, we raised slightly over \$14,000. Thank you membership, and friends, for the strong support of the Foundation, it is truly appreciated. The Foundation Board approved an operating budget of \$45,000 for FY2014-2015, which will be distributed through our various programs. We will continue to contribute to the UNR geology and field camp scholarships, and we have made the first donation to the newly established UNLV geology scholarship. There is also funding available to support the Nevada Bureau of Mines and Geology mapping program. As one of our most important programs, the K-12 earth science field trip funding continues to expand. This program pays for transportation costs for students to attend earth science related trips. This year we are granting over \$16,000 for 3,077 students to take trips from schools in Reno, Sparks, Incline Village, Denio, Fernley, and Las Vegas. The point of the program is to expose young people to earth sciences, and hopefully some will consider it as a career path in college. Thank you again for supporting the Foundation.

Roger C. Steininger
Chair-GSN Foundation

G.S.N. LIFETIME MEMBERSHIP ENROLLMENT NOW AVAILABLE!

The G.S.N. Executive Committee and Board of Directors recently approved the availability to anyone to enroll as a lifetime GSN member! The cost is 25 times current dues of \$50 or \$1,250. Just think of never having to worry about renewing your dues again! There will be a prize for the oldest and youngest person to enroll. Please contact Laura Ruud by email gsn@gsnv.org for more information.



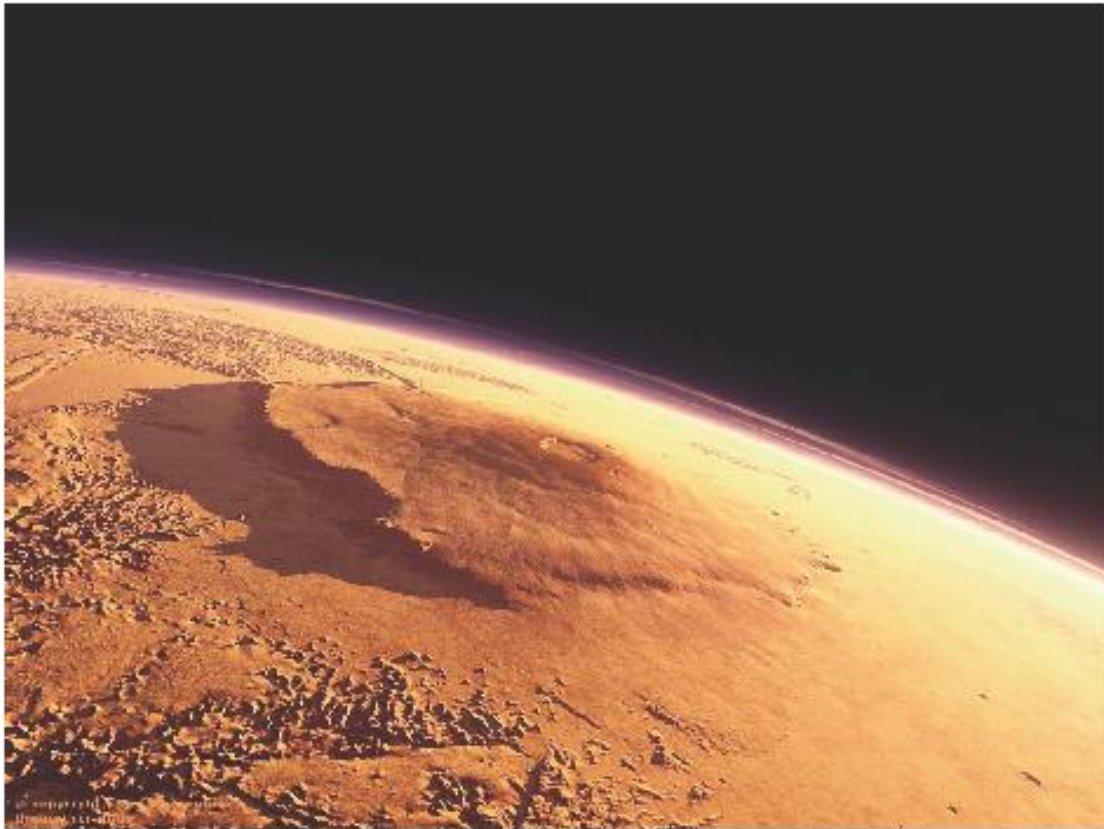


Geological Society of Nevada



Southern Nevada Chapter Meeting

This month's meeting will feature a talk by Dr. Arya Udry
**Martian geology: what we know from
meteorites and rovers?**



Bio: Dr. Udry was born and raised in Geneva, Switzerland. She did her Bachelor (2005-2008) and Masters (2008-2010) at the University of Lausanne (50 miles from Geneva), Switzerland. Her Master was specialized in igneous and metamorphic petrology and her thesis focused on Archean mafic bodies in the Lewisian gneiss in NW Scotland. After her Masters she moved to the US and did her PhD on various martian magmatic processes using meteorite and rover data at the University of Tennessee, Knoxville (2010-2014). Arya is now an Assistant Professor at UNLV and has lived in Las Vegas since August of 2014

The Meeting will be **February 5 at 5:30pm** at the Las Vegas Natural History Museum (900 Las Vegas Boulevard North)

Free Food and refreshments.

ALL ARE WELCOME!

For more information contact (bainw1@unlv.nevada.edu)

GSN WINNEMUCCA CHAPTER MEETING

WEDNESDAY, FEBRUARY 11, 2015

Location: The MARTIN HOTEL, WINNEMUCCA, NV

Time: Drinks @ 6:00 p.m.; Appetizers @ 6:30 p.m.; Talk @ 7:00 p.m.

Speaker: Eric Struhsacker, Vice President Exploration, Renaissance Gold Inc.

Title: “The Everson Deposit, an intrusion-related gold system at Buffalo Canyon in northern Nye County, Nevada”

**Co-authors: Mark F. Coolbaugh, Chief Geoscientist,
and Daniel W. Pace, Senior Geologist, Renaissance Gold Inc.**



Food and Drinks Sponsored by:

TonaTec Exploration, LLC



ABSTRACT:

The Buffalo Canyon property of Renaissance Gold Inc. contains a reduced intrusion-related gold system documented by a succession of exploration programs since 1992 beginning with those of Gold Field Mining Corporation, Santa Fe Pacific Gold Corporation, and Nevada Pacific Gold. Renaissance has elected to name this gold system the “Everson Deposit” in recognition of the contributions of our late colleague and friend, Curt Everson, to each of these programs.

The Buffalo Canyon property lies within the Union Mining District in northwestern Nye County, Nevada approximately 120 kilometers (75 miles) southeast of Fallon, and 4 to 7 kilometers (2 to 4 miles) south of the town of Lone.

Gold occurs in several styles of mineralization including: 1) stockwork and sheeted gold-bearing quartz-tourmaline and actinolite-albite-hornblende veins proximal to reduced oxidation-state intrusions, 2) mesothermal gold and base metal-bearing bull quartz veins distal to reduced oxidation-state intrusions, and 3) gold-bearing jasperoid within carbonate units, whose relationship to reduced or oxidized intrusions remains unclear. Of these styles, the stockwork veins proximal to reduced intrusions comprise the most significant targets identified to date.

The project area is underlain largely by regionally-metamorphosed siliciclastic, volcanoclastic, and volcanic rocks with minor limestone units of the Triassic-aged Knickerbocker Formation. These rocks have been intruded by a series of stocks and dikes of porphyritic to equigranular diorite, quartz diorite, granodiorite, and granite of undetermined age. Broad zones of biotite and pyrrhotite-bearing hornfels have formed around the intrusions, and magnetite skarns locally have formed adjacent to intrusive contacts.

Gold is associated with most of the intrusions throughout the project area, the style of alteration and mineralization varies, in-part with differences in the oxidation state of the intrusions. A reduced oxidation-state stock at the Everson area is associated with at least two stages of stockwork to sheeted veins. An early stage of granular to banded quartz veins was followed by later stages of hornblende-actinolite-albite and quartz-tourmaline+/-sulfide+/-calcite veins with albitic alteration selvages. The latter stages appear responsible for the majority of gold mineralization identified to date. In addition to gold, the veins are strongly anomalous in bismuth and moderately anomalous in copper. Drilling indicates that this gold mineralization is open-ended at depth, and throughout the pyrrhotite annulus.

This project adjoins the historic mining camps of Berlin and Lone in the Union Mining District where high-grade mesothermal quartz veins and quartz-adularia veins, respectively, were mined for gold and silver in the 19th and 20th centuries. At Berlin, approximately 40,000 ounces of gold have come from mesothermal bull quartz veins mined with underground methods. The possible distal relationship of these veins with the intrusion-related stockwork mineralization is consistent with observations from other reduced oxidation-state granitic intrusions, where the bulk of gold reserves are contained in the more proximal quartz vein stockworks. This underscores the potential for bulk-tonnage gold resources, particularly, in the Everson area, where mineralization appears to continue at depth and laterally, projecting beneath surface outcrops of gold-bearing bull quartz veins.

GSN ELKO CHAPTER MEETING

THURSDAY, FEBRUARY 19, 2015

Location: The WESTERN FOLKLIFE CENTER, 501 Railroad St., Elko, NV

Time: Refreshments/Appetizers @ 6:00 p.m., Talk @ 7:00 p.m.

Speaker: Moira Smith, Pilot Gold.

Title: "TV Tower: High Sulphidation Epithermal and Porphyry Au-Cu Mineralization in Western Turkey".

Food and Drinks Sponsored by: **TIMBERLINE DRILLING INC.**



W. M. Keck Museum Open House Saturday, February 7th 12:00 - 4:00 PM

Garrett Barmore, W.M. Keck Museum curator, is inviting all GSN members to visit the Keck Museum at the University of Nevada, Reno for guided tours of the museum and a special behind the scenes tour of the *Mackay-Stanford Mineral Research Collection*. The purpose of this open house is to reacquaint GSN members with the resources available to researchers at the Keck Museum.

When: Saturday, February 7th from 12:00 - 4:00 PM.

Where: W. M. Keck Earth Science & Mineral Engineering Museum, University of Nevada, Reno.

**For more information contact Garrett Barmore at 775-784-4528,
Email: gbarmore@unr.edu or visit the website: unr.edu/keck.**

The Mackay Stanford Ore Deposits Collection is a significant collection of more than ten thousand samples from ore deposits throughout the world donated by Stanford University to the University of Nevada, Reno. These samples will be used in teaching and research in economic geology, extractive metallurgy, and mining engineering at the Mackay School of Earth Sciences and Engineering, part of UNR's College of Science.

The renamed Mackay-Stanford Ore Deposits Collection helps bolster Mackay's reputation as a leading institution in research on ore deposits and as a premier university for the education of professionals in mineral-resource fields. Global demand for mineral and energy resources has risen dramatically in recent years and has created high demand for professionals in industry, government, and academia.

THANK YOU TO THE ELKO CHAPTER
JANUARY MEETING SPONSOR



THANK YOU TO THE WINNEMUCCA
JANUARY MEETING SPONSOR



Nevada Mineral Exploration Coalition

An Alert from the Nevada Mineral Exploration Coalition
by Elizabeth Zbinden

The BLM requires its districts to update their Resource Management Plans periodically. All districts in the state have either done so recently or are doing so at present. The Coalition has been made aware of the Carson City District's draft update of its Resource Management Plan. We believe that some of the provisions under consideration would severely limit the ability of explorers to access public lands and do the work necessary to make mineral discoveries. There are three items of particular concern:

- (1) a proposal to designate some areas as "Lands Managed to Maintain Wilderness Characteristics". These characteristics include (a) size: roadless area of 5,000 or more acres; (b) naturalness: "the imprint of human activity is substantially unnoticeable" (c) Offering solitude; opportunity for primitive, unconfined recreation.
- (2) large swaths of land with increased restrictions on motorized travel.
- (3) an increasing number of Areas of Critical Environmental Concern (ACECs).

These proposed actions are for the most part separate from and in addition to restrictions related to sage-grouse habitat. Much of this land has mineral potential, active mining claims, and historic mining districts.

You can download and read the draft plan and background material from the BLM website at <http://on.doi.gov/1uYBNGT>. The entire document is forbiddingly long. You can get a good overview by looking at Table 2-2 (not a short table: it goes from pg. 2-16 to pg. 2-264) and the maps of Appendix A.

We encourage you to submit comments to the BLM regarding the draft Resource Management Plan before the deadline of March 27th.

The Nevada Mineral Exploration Coalition is fighting against these proposed limitations on access to public lands.

To get involved with the Coalition, please contact Dave Shaddrick at DShaddrick@aol.com or 775-746-2071

Get involved

G.S.N. 2015 SYMPOSIUM ADVERTISERS NEEDED!!

The Publicity Committee for the GSN 2015 Symposium is soliciting advertisements for the Program with Abstracts (PWA) publication that will be given to every attendee of the GSN 2015 Symposium! Your Ad not only gets your company and name out there but supports the GSN organization as well.

Business Card Ad—\$150

Quarter Page Ad—\$400

Half Page Ad (horizontal or vertical) - \$800

Full Page Ad—\$1,200

Inside Back Cover—\$1,500

Please contact Holly McLachlan to advertise.
advertising@2015gsnsymposium.org.

Deadline for Copy is April 3, 2015!



The G.S.N. 2015 SYMPOSIUM is almost here! Mark your calendars for May 14-23, 2015! The dedicated Symposium Committee volunteers have been hard at work for almost 3 years lining up a great Technical Program, Field Trips, Short Courses, Exhibits and plenty of Social Events!

**EARLY REGISTRATION DEADLINE IS FEBRUARY 28TH!
(Price goes up on March 1st!)**

The Registration Committee encourages you to register online at: <http://www.gsnv.org/2015-symposium> then click on "CLICK HERE TO REGISTER" which will take you to the registration site.

I've included a registration form on page 13 for those of you who'd like to register with a check payment via U.S. Mail.

For hotel reservations at the J.A. Nugget Hotel (www.janugget.com), please call 1-800-648-1177 and use "GGSN" as the code to get the group reservation rate.



REGISTRATION FORM
Geological Society of Nevada 2015 Symposium
“New Concepts and Discoveries”
May 14th-23rd, 2015
J.A. Nugget Hotel, Sparks, Nevada



Exhibits and Technical Sessions **May 18th-21st**. Registration link and information are at <http://www.gsnv.org/2015-symposium>. Please call Molly Hunsaker at 775-340-0289, or e-mail Andrea Rascati, office manager at info@2015gsnsymposium.org.

Registrants for field trips and short courses must register in one of the four categories below, unless otherwise noted by price designation. All Technical Session Registrants will receive a **CD Version of the symposium volumes**.

*Cancellation fees apply. Please see registration website for more information.

Early (Registration must be received by February 28th, 2015) Member \$325/Non-member \$375	\$ _____
Regular (between March 1 st and April 30 th , 2015) \$375 Member/\$425 Non-member	\$ _____
On-Site/Late (after April 30 th , 2015) \$425 Member/\$475 Non-member	\$ _____
Student (must be able to show proof of student status) \$150	\$ _____
Exhibits-Only 4-Day Pass (may not attend technical sessions, no Symposium CD) \$75	\$ _____
Spouse 4-Day Pass (may not attend technical sessions, no Symposium CD) \$20	\$ _____

Pre-Meeting Field Trips and Short Courses (limited number of spaces)

Field Trip 1-Introduction to Carlin Gold Deposits Nevada (May 14-16) \$400	\$ _____
Field Trip 2-Epithermal Deposits of Northern Nevada , (May 14-16) \$450	\$ _____
Field Trip 3-Mining for the Non-Geologists: Exploration to Reclamation (May 14-16) \$375*	\$ _____
*Not required to register for the Symposium Technical Program	
Field Trip 4-Epithermal Deposits of Central Nevada (May 14-16) \$450	\$ _____
Short Course 1-Ore Reserve Estimates in the Real World (May 15 th -17 th)	
Registrant \$675 , Non-Registrant \$850 , Student \$150	\$ _____
Short Course 2-Modern Drilling Systems: The Hardware (May 13 th -14 th)	
Registrant \$450 , Non-Registrant \$550 , Student \$100	\$ _____
Short Course 3-Modern Drilling Fluids: The Software (May 15 th -16 th)	
Registrant \$450 , Non-Registrant \$550 , Student \$100	\$ _____
Short Course 4-Great Basin and Cordillera Mining Geophysics (May 16 th)	
Registrant \$225 , Non-Registrant \$350 , Student \$50	\$ _____
Short Course 5-Geochemical Analytic Methods (May 17 th)	
Registrant \$225 , Non-Registrant \$350 , Student \$50	\$ _____

Geological Society of Nevada and Society of Economic Geologists Forum—SUNDAY, MAY 17, 2015

on “*Carlin-Like Gold Deposits: What Can We Learn Beyond the Known Trends and Nevada?*”
 Symposium Registration not required, but encouraged; **Cost \$195.00, Students \$100** \$ _____

Keynote Luncheons

Monday, May 18th - Chuck Thorman, Keynote Speaker Cost \$35.00	\$ _____
Tuesday, May 19th - Andreas Audétat, Keynote Speaker Cost \$35.00	\$ _____
Wednesday, May 20th - Brent Cook, Keynote Speaker Cost \$35.00	\$ _____

Post-Meeting Field Trips and Short Courses (limited number of spaces)

Field Trip 5 - The Pequop Trend - Nevada’s Newest “Carlin” Trend (May 21 st -23 rd) \$450	\$ _____
Field Trip 6-Porphry-Related Deposits of Nevada (May 21 st -23 rd) \$425	\$ _____
Short Course 6-Epithermal Deposits: Characteristics of Processes (May 21 st -23 rd) in combination with	
Field Trip 7*-The Famous Comstock Gold and Silver District (May 22 nd)	
Registrant \$575 , Non-Registrant \$700 , Student \$125	\$ _____
*Will be open to field trip participation only in April, 2015	
Short Course 7 - Exploration and Environmental Geochemistry (May 22 nd)	
Registrant \$225 , Non-Registrant \$350 , Student \$50	\$ _____
Short Course 8 - Geometallurgy: Applied Metallurgy for Geologists (May 21 st -22 nd)	
Registrant \$450 , Non-Registrant \$550 , Student \$100	\$ _____
Short Course 9 - Leapfrog Modeling for Exploration and Development	
Registrant \$225 , Non-Registrant \$350 , Student \$50	\$ _____
Short Course 10 - Geochemical Data Analysis using loGas (TBD) Costs TBD	
Short Course 11- Paper to Electrons: Practical GIS for Geoscientists (May 22 nd)	
Registrant \$225 , Non-Registrant \$350 , Student \$50	\$ _____

GNSN MEMBERSHIP DUES \$50.00 \$ _____

TOTAL DUE: \$ _____

YOUR NAME: _____ TITLE: _____

EMPLOYER: _____

STREET ADDRESS: _____

CITY: _____ STATE: _____ COUNTRY: _____

WORK/CELL PHONE #: _____ E-MAIL: _____

If paying by credit card please go to <http://www.gsnv.org/2015-symposium> to find the registration link.

Please enclose check or money order, made payable to “**GNSN Symposium 2015**” & mail to GSN 2175 Raggio Parkway, Reno, NV 89512.

Please complete a separate registration form for your spouse.

Thank you to our generous donors in January!

G.S.N. FOUNDATION
Platinum Sponsors \$1,000+

Gold Sponsors \$500+

Douglas Silver

Silver Sponsors \$100-\$499

Bronze Sponsors \$1-\$99

**Ed Bartels
Jeffrey Blackmon
Roger Bond
William Durbin
Eric Lauha
Roger Newell
Clay Postlethwaite
Kim Roberts
Steve Sutherland**

STUDENT DINNER FUND

**Michael Derby
Hallet Elson
Edward Orbock
Joe Polovina
Leslie Rumph
Hendrick van Oss
John Zimmerman**

STUDENT FIELD TRIP FUND

**Jeffrey Abbott
David Colburn, Jr.
Rebecca Ely
Tyson Hasselquist
Roger Newell
Derek Unger
Hendrick van Oss
Terry White
John Zimmerman**

**The Geological Society of Nevada
Wishes to Thank GSN Member
JOHN CHURCHILL**

**For his volunteer service helping
Laura out in the office with filing
piles of paperwork!**

**Who should sign up for the
GSN 2015 Symposium's
Mining for Non-Geologists Field Trip?**

By J.A. Kizis, Jr. & Kristen Benchley – Field Trip Chairs

GSN's field trips generally target exploration, mining, and research geologists, but a great many non-geologists are associated with the mining business. Corporate finance and investor-relations personnel, investors, accountants, regulators, legislators, office managers, suppliers, etc. usually do not see the full spectrum of a mine's life cycle, from grass-roots exploration through development of a mine, to operation of a mine, and finally to closure at the end of a mine's life. This field trip is designed for anyone interested in the life cycle of non-renewable resources.

The three-day trip will be led by Buster Hunsaker, who many of you know has a diverse background that includes mine geology and exploration with major and junior exploration companies, and is now running his own consulting practice. The trip will include tours of active gold, copper, and industrial mineral mines, as well as stops that will examine new exploration and closure projects. The trip will traverse U.S. Highway 50 from Reno to Ely, through one of the greatest mineral regions in the world. The trip will leave from Reno early on May 14th and will return to Reno in the evening on May 16. The trip will visit Eagle Picher's industrial minerals mine near Fernley, the Mount Hope molybdenum mine near Eureka, Timberline Resources' Lookout Mountain Project, and the Robinson Porphyry copper mine near Ely, as well as shorter stops at other mineral projects.

The cost of the trip is \$375, which partially covers the cost of the bus, motel, lunches and dinners. Being a community outreach program for the GSN, it is not necessary to sign up for the entire Symposium. You can find a link to registration at: <https://www.regonline.com/register/checkin.aspx?eventid=1316703&int=29-110-1> or <http://www.gsnv.org/2015-symposium/>.



Activity Update

Mike Brady, December 2014

www.activityupdate.com

NEVADA

Silver Standard Resources Inc. announced that recent drill results at the Marigold/8 South Pit Project include 146.3-158.5 meters @ 0.90 gpt Au (MRA5971); 129.5-182.9 meters @ 2.35 gpt Au (MRA5972); 80.8-94.5 meters @ 0.65 gpt Au (MRA5975) and 128.0-141.8 meters @ 0.57 gpt Au (MRA5990). (reserve @ Marigold = 196,430,000 tonnes @ 0.52 gpt Au proven+probable) *Press Release:* December 12

Coeur Mining Inc. announced that it would merge with Paramount Gold and Silver Corp. through a 0.2016 share Coeur/1.0 share Paramount exchange basis valuing Paramount at \$146,000,000. Prior to the merger, Paramount Gold and Silver Corp. would spin-off the Sleeper Property into a new, separately listed company called Paramount Nevada Gold Corp. (resource @ Sleeper = 326,963,000 tonnes @ 0.33 gpt Au, 3.9 gpt Ag measured+indicated) *Press Release:* December 17

Gold Reserve Corp. announced that it acquired an option to earn a 100% interest in the Goose Property from Nevada Eagle LLC. for total payments of \$175,000. *Press Release:* December 18

Scorpio Gold Corp.(70%) announced that recent drill results at the Mineral Ridge/Mary LC Project include 35.05-41.15 meters @ 0.51 gpt Au (MR141180); 106.68-109.73 meters @ 1.05 gpt Au (MR141182); 9.14-18.29 meters @ 7.79 gpt Au (MR141183) and 0-4.57 meters @ 1.82 gpt Au (MR141188). (resource @ Mineral Ridge = 4,270,000 tonnes @ 1.47 gpt Au indicated) *Press Release:* December 16

Rye Patch Gold Corp. announced that it has now received \$2,610,000 during 2014 derived from the 3.4% NSR on the Rochester Mine owned by Coeur Mining Corp. (reserve @ Rochester = 72,657,000 tonnes @ 0.14 gpt Au, 19.1 gpt Ag proven+probable) *Press Release:* November 25

Pilot Gold Corp. announced that recent drill results at the Kinsley Mountain Project include 247.5-297.8 meters @ 1.15 gpt Au (PK173C); 287.1-332.8 meters @ 6.19 gpt Au (PK175C); 110.3-116.4 meters @ 6.88 gpt Au (PK177C) and 368.8-373.4 meters @ 0.52 gpt Au (PK178). *Press Release:* December 9

Nevada Copper Corp. announced that President Barack Obama signed a new law that authorizes the transfer of 10,400 acres of federal land from the government to the City of Yerington. (resource @ Pumpkin Hollow = 485,840,000 tonnes @ 0.45% Cu, 0.03 gpt Au measured+indicated) *Press Release:* December 22

Klondex Mines Ltd. announced that it would toll-mill ore from the Golden Wonder Mine near Lake City, Colorado owned by LKA Gold Inc. at its Midas Mill. *Press Release:* December 3

Goldspike Exploration Inc. announced that recent drill results at the Lone Mountain Project include 121.92-167.03 meters @ 11.62% Zn, 0.25% Pb (LM14-04); 112.78-182.88 meters @ 1.05% Zn, 1.82% Pb (LM14-05); 102.11-166.12 meters @ 5.87% Zn, 1.11% Pb (LM14-06) and 147.83-156.97 meters @ 2.99% Zn, 0.11% Pb (LM14-07). *Press Release:* December 11



The Women's Mining Coalition 2015 dues campaign has begun!

If you are a member or a potential new member, just visit the WMC website, www.wmc-usa.org, where you can renew, join, donate, and even purchase logo-wear.

Annual dues are still only \$30.00, a bargain for the opportunity to connect to a powerful network of women, as well as advocate in your state and in Washington D.C. for a robust domestic mining industry.

Renew or join today!

ROCK TALK

AEMA White Paper on sagebrush/Sage-grouse habitat restoration

AEMA Officers & Trustees
Public Lands & Environmental committees
Sage-grouse Task Force



As some of you may remember, in October and November letters to the Nevada Ecosystem Council and Congressman Mark Amodei, USFWS Pacific Southwest Region Director Ren Lohofener has stated the USFWS position that sagebrush ecosystems/sage-grouse habitat cannot be restored or created; or that if it can be restored/created, there is uncertainty that it will be used by sage-grouse. As a result of this position, USFWS is implying, and in some cases expressly stating, that priority habitat must be preserved by “avoiding” because of the inability/uncertainty of habitat restoration/creation through reclamation and other techniques. An avoidance strategy as opposed to the avoid, minimize, mitigate strategy could lead to mineral withdrawal recommendations in priority habitat. We understand that discussions along those lines are taking place at high levels within DOI.

We believe the USFWS position is contrary to the best available science and the on-the-ground experience of our members and others. In fact, BLM State Director Amy Lueders showed slides at the Boise Sage-grouse/Fire conference in November of sage-grouse returning to reclaimed areas within 3 years and within 24 hours where there was invasive species (pinion juniper) removal.

Thus, we have asked our consulting biologist Megan Maxwell to prepare a White Paper demonstrating with examples that sage-brush habitat can be restored/created through reclamation and other land use techniques and we need your help. Specifically, what Megan is looking for are examples of either use by Greater Sage-grouse post reclamation, or reclamation sites where sagebrush has been restored or is actively being restored/monitored. Also, examples of reclamation plans with specific sagebrush density targets would be helpful to her.

Please contact Megan directly at megan_maxwell@outlook.com or 720-290-1424.

Thank you!

Laura Skaer
Executive Director
American Exploration & Mining Association
(formerly Northwest Mining Association)
10 N Post St Ste 305
Spokane WA 99201
509-624-1158 x 16
www.miningamerica.org
www.themoreyoudig.com
Please note my new email address, lskaer@miningamerica.org
IT ALL STARTS WITH MINING

CLASSIFIED ADS



FOR SALE: NIKON brand microscope for transmitted light Thin-section work. Extra Lenses will be included.
Asking \$3,000/OBO.

Interested parties can contact Brenda Hardyman by text (775-225-4945) or by e-mail: bhardyman@ccnn4u.com

OTHER UPCOMING EVENTS

Feb. 5, 2015—Nevada Petroleum & Geothermal Society Meeting. *Speaker:* John N. Louie, Nevada Seismological Laboratory, University of Nevada. **Title:** Advanced seismic imaging of geothermal reservoirs in Nevada - is there a geothermal seismic signature? Ramada Reno Hotel, 1000 E. 6th Street, Reno, NV. Cocktail Reception 6:30, Skyline Bar, 14th Floor. Dinner 7 pm, Talk at 8 pm. NPS Members \$20; Non-members \$23; Students—\$10. RSVP by Feb. 3rd with the following link: <https://docs.google.com/forms/d/1o3irBGp9ldezwrtilS-nlwA5rGS0h5RtzbML61tE5MI/viewform>

Feb. 9, 2015—SME Northern Nevada Section. Happy Hour @ 6pm, Dinner @ 6:45 pm; Talk @ 7:30 pm. Circus-Circus Mandalay Room, Reno, Nevada. This meeting will showcase the work that UNR students are doing through the Mackay School, the Mine Design team, and the Mackay Muckers mining competition team. Members-\$25; Non-members \$30; Students free. Please make reservations by Wednesday, February 4. RSVP to Brooke Miller at: NNevSME@gmail.com.

Feb 15-18, 2015 SME Annual Conference & Expo./CMA 117th National Western Mining Conference. Colorado Convention Center. For more info: meetings@smenet.org; Website: <http://www.smeannualconference.com/>

March 1-4, 2015 PDAC—Prospectors and Developers Association of Canada, Metro Toronto Convention Center, Toronto, ON, Canada. Phone: 416-362-1969 email: convention@pdac.ca, Website: www.pdac.ca Come visit us at the GSN Booth #6301N in the NORTH TRADE SHOW HALL near the Intercontinental Hotel entrance.

14-23 MAY 2015, GSN SYMPOSIUM 2015: NEW CONCEPTS AND DISCOVERIES

Being held at J.A. Nugget, Sparks, Nevada. Pre- and Post-Field Trips, Short Courses, Exhibits, Technical Program and GSN-SEG Forum. For more information please contact Molly Hunsaker, mollymhunsaker@2015GSNsymposium.org. You can **REGISTER NOW** for the Technical Session, SEG Forum, Field Trips, Short Courses and Exhibits online at: www.gsnv.org/2015-symposium. **REGISTRATION IS OPEN & EXHIBITS ARE 80% SOLD!!**

PAID ADVERTISEMENTS



Carlin Trend Mining Supplies & Service

www.carlintrendminingservices.com

369 5th St., Elko, NV 89801
(775) 778-0668, Fax: (775) 778-0687, carlintrend@frontiernet.net

Geological Consulting - Claim Staking - Soil Sampling
Geology & Drafting Supplies - AutoCad & GIS
Temporary Employees In All Fields



Serving Mining in Nevada Since 1992

General Engineering Contractor

**Drill Pads
Road Building
Reclamation
Earthwork**

**Office: 775-753-5832
Mobile: 775-778-1681
Mobile: 775-934-1837
www.legarza.com**

NV License #35480

CA License #804120

AMERICAN ASSAY laboratories

Fire Assay, ICP-OES/MS,
XRF, LECO, Custom Prep, BLEG

Chris Ioannakis, Managing Director, Analytical Services

Corporate Office

1500 Glendale Avenue
Sparks, NV USA 89431-5902
Telephone: (775) 356-0606
Fax: (775) 356-1413

Elko Office

2320 Last Chance Road
Elko, NV USA 89801-4852
Telephone/Fax: (775) 738-9100

E-mail: AALADMIN@aallabs.com

Website: www.aallabs.com

JBA WORKS, INC.

Jo Beth Allen
Geologist

GIS, Presentation Maps & Data Graphics

GIS / CAD
Slide & print Graphics / Illustrator & Photoshop

1055 Joshua Drive
Reno, Nevada 89509

jobeth@jbaworks.com
Phone: 775-303-6818



JOSEPH R. ANZMAN

Exploration Geophysicist

- consulting
- interpretation
- project management
- geophysical surveys
- domestic & foreign

P.O. Box 370526
Denver, Colorado 80237

303-519-0658
geophjoe@gmail.com

Big Sky Geophysics

Clark Jorgensen, M.Sc.
Geophysicist

*Field Work
Processing
Interpretations*

P.O. Box 353
Bozeman, Montana 59771
USA

Phone/Fax +1 (406) 587-6330
Mobile +1 (406) 580-9718
clark@bigskygeo.com

**For more details, my background, and case studies,
visit my webpage at www.bigskygeo.com**

NORTH AMERICAN EXPLORATION

GEOLOGY • CLAIM STAKING • GEOCHEM SAMPLING • LANDWORK



DAVID MORRIS
PRESIDENT • GEOLOGIST

895 N. MARSHALL WAY, SUITE A
LAYTON, UT 84041

801.546.6453
DMORRIS@NAE-PLORATION.COM



Bureau Veritas Minerals

“Industry Leading Solutions for the Exploration and Mining Community”.

AcmeLabs and Inspectorate have completed a successful integration and now operate as Bureau Veritas Minerals in the mining sector.



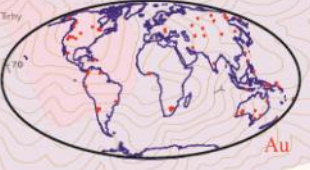
**BUREAU
VERITAS**

MINERALS

U.S. Ph: 775-359-6311; 605 Boxington Way, Suite 101, Sparks, NV 89431
Vancouver Ph: +1-604-253-3158 / Website: www.bureauveritas.com/unm

NEVADA EXPLORATION GIS DATA SETS

**MINERAL OCCURRENCES
GEOLOGY
CULTURE
POLITICAL
GEOGRAPHY
GEOPHYSICS
GEOCHEMISTRY**




website: www.greatbasingis.com
email: jaravic@frontiernet.net
phone: 775-777-8223

HARD ROCK WHEELS, INC.

4WD Pickup Rentals


<p>Howard J. Adams 14756 Pine Knolls Lane Reno, Nevada 89521 (775) 8520262 Fax (775) 852-2075</p>	<p>Taiga Ventures 2700 S. Cushman St. Fairbanks, Alaska 99701 (907) 452-6631</p>
-------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------

hardrockwheels@yahoo.com




Hyperspectral Mineralogy

Easy Integration of Complex Data Sets



- > Spectral imaging on core and other exploration samples
- > Routine and cost-effective analysis of high sample volumes
- > Timely interpretation of large data sets
- > Integrated visual interface in ALS CoreViewer™
- > Automated mineral identification from spectral traces

For more information, scan this QR code or visit www.alsglobal.com
Phone: +1 775-356-5395



MINERAL EXPLORATION SERVICES AND CONSULTING




Providing accurate, dependable, documented results.

We specialize in a full range of services including:

- Exploration Project Management
- Contract and Consulting Geology
- Data Compilation
- GIS & Remote Sensing
- 3D Modeling
- Disturbance Surveying
- Soil and Rock Chip Sampling
- Claim Staking
- Abandoned Mine Hazard Fencing
- Core Processing
- Warehouse Management
- Temp Services



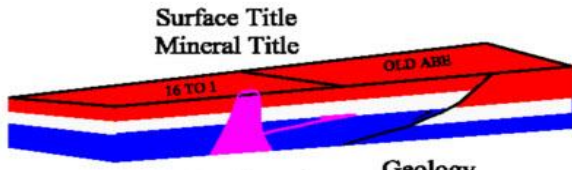


Call us at 775.340.2395 for a free estimate on your next project
For more information on our services visit our website at www.Rangefront.com

G.I.S. Land Services

**Greg Ekins M.S. R.P.L. #32306 President
Mineral Landman - Commissioned Abstractor
"From Courthouse Records to Final Map"**

**Mineral Title, Geothermal Title,
National Instrument (NI) 43-101 Title Review,
Due Diligence
3D AutoCad; ArcMap and MapInfo GIS**



**Surface Title
Mineral Title**

Geothermal Geology

A professional firm of
Landmen, Geologists, Draftsmen and Technicians
Providing Abstracts of Title, Land Status and
Exploration Geology Services
Utilizing AutoCad - ArcMap - MapInfo - PowerPoint
www.gislandservices.com

**241 Ridge St., Suite 250
Reno, NV 89501
Ph: 775-746-8803 Fax: 775-746-8802
email: greg@gislandservices.com**

GEOLOGICAL SOCIETY OF NEVADA



gsn@gsnv.org • www.gsnv.org
Telephone (775) 323-3500
Fax (775) 323-3599
2175 Raggio Parkway, Room 107
Reno, NV 89512 USA

