



# Arizona Geological Society Newsletter

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DECEMBER 2013

## DECEMBER 3, 2013 DINNER MEETING

**Who:** **Stephen Jackson** will be our featured speaker. See abstract below.

**Where:** Sheraton Tucson Hotel and Suites, 5151 East Grant Road, at the intersection of Grant and Rosemont on the North side of Grant in the *Pima Room*. The Pima Room is located on the second floor in the northwest corner of the hotel.

**When:** Cash Bar at 6 p.m.—Dinner at 7 p.m.—Talk at 8 p.m.

**Cost:** Members \$27, Guests \$30, Students are free with an online dinner reservation (\$10 without).

**RESERVATIONS are REQUIRED by 11 a.m. Thursday, November 28. Reservations can be made on the AGS website ([www.arizonaageologicalsoc.org](http://www.arizonaageologicalsoc.org)). If you do not have internet access, you may call 520-663-5295.** Please indicate regular (tri-tip with au jus and A1 sauce, garlic mashed potatoes, and seasonal vegetables), cobb salad, or vegetarian meal preference. Please cancel by Thursday, November 28 at 11 a.m. if you are unable to attend.

## Envirotech Drilling LLC

**The December dinner meeting is sponsored by: Envirotech Drilling**

AGS is grateful for Envirotech Drilling's sponsorship, which helps to offset dinner meeting costs.

Go to [www.envirotechdrilling.com](http://www.envirotechdrilling.com) to learn more about **Envirotech Drilling**.

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## ABSTRACT

### **Looking forward from the past: Ecological impacts of climate change through the lens of history**

**Stephen Jackson, Director for the U.S. Department of the Interior Southwest Climate Science Center**

Forecasting the ecological consequences of climatic change represents a major interdisciplinary challenge for the earth and environmental sciences. Systematic monitoring and observational records of climate-driven ecological changes rarely span more than the past few decades or centuries. Looking backward into recent earth history expands our experience, providing a broad array of case studies in which diverse ecological systems have responded to climatic changes of different kinds, rates, and magnitudes. The geohistorical record identifies threats, opportunities, and challenges for resource managers and conservation planners confronting ongoing and future climate change. All species today are survivors of large-scale and often abrupt climatic changes of the past glacial/interglacial cycle. Although those climatic changes left casualties in the form of species extinctions and near-extinctions, most species living today

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have natural capacities for coping with climate change. Identifying those capacities will allow conservation managers to leverage them for more effective and efficient conservation efforts in a rapidly changing world. Meeting the challenges of global change will require unprecedented communication and engagement between the research community and diverse stakeholders.

**About the December Dinner Meeting Speaker**

**Stephen Jackson** is the Director for the U.S. Department of the Interior Southwest Climate Science Center, headquartered at The University of Arizona. Previously Jackson was a professor of botany and founding director of the doctoral program in ecology at the University of Wyoming. Before joining the University of Wyoming in 1995, he held faculty positions at Indiana University, Idaho State University, and Northern Arizona University. He is past president (2010-2012) of the American Quaternary Association and is on the governing board of the Ecological Society of America and the editorial boards for *Ecosystems*, *Frontiers in Ecology & Environment*, and *Trends in Ecology and Evolution*. His research employs tree-rings, fossil rodent-middens, and sediments from lakes and bogs to investigate how past climatic changes and human activities have affected species distributions, biodiversity, and ecosystem properties. Jackson received his Ph.D. in ecology and evolutionary biology from Indiana University and his B.A. and M.S. in botany and geology at Southern Illinois University at Carbondale. (Excerpted from USGS press release dated 8/27/2012)

**Online Arizona Oil & Gas Well Viewer**

Arizona Geological Survey recently launched a user-friendly, interactive Arizona Oil and Gas Well Viewer - <http://welldata.azogcc.az.gov/>. The viewer comprises ~1,110 wells drilled from 1905 to 2013, including a

**ARIZONA OIL AND GAS CONSERVATION COMMISSION** Home AZGS Map Search

**Map Search:** Press the Select Wells button and then draw a box around the area of interest.  
**LAS Download:** Clicking on the LAS data opens the LAS data as a text file, use the "Save Page As" function to save the file as a .las file.  
**Overview Map:** Click the arrow in the upper right corner to activate the map.  
**Map Navigation:** Use the mouse wheel to zoom in and out. Click and hold to pan.  
**Caution:** Chrome, Safari, Firefox IE9 or greater are required to properly view this page.

number of deep wells from northeastern Arizona that penetrated Precambrian basement and wells in oil and gas fields with the highest cumulative production. More than 2500 scanned tiff images of well logs are available, along with 275 logs from 120 wells digitized into LAS format.

*Arizona Oil & Gas Well Viewer portal.*

## 2013 Scholarship Winners

The AGS Scholarship Committee has chosen these students to receive the 2013 scholarships. The awards will be presented at the December AGS dinner meeting.

AGS Scholarship and Executive Committees would like to thank all the students that applied for the scholarships. We would also like to thank everyone who donated to the scholarship funds; your donations help make the scholarships possible. To learn more about AGS's scholarship program and how to make a tax-deductible contribution, please visit the AGS website ([www.arizonageologicalsoc.org/Default.aspx?pageId=1580766](http://www.arizonageologicalsoc.org/Default.aspx?pageId=1580766)).

### **Simone Runyon** – 2013 Courtright Scholarship Recipient

Simone received her B.S. in Geology from Illinois State University in May 2011, her M.S. in Geosciences from the University of Arizona, and is pursuing a Ph.D. in Economic Geology in the University of Arizona Geosciences Department. The topic of her dissertation is "Alteration Mapping in the Yerington Batholith, Yerington, Nevada," focusing in particular on the role of iron oxide-copper-gold mineralization in the Yerington District. Simone has played a key role in helping to revitalize the Society of Economic Geologist's Student Chapter at the University of Arizona.

### **Lily Jackson** – 2013 AGS Scholarship Co-Recipient

Lily is a senior in the Geosciences Department at the University of Arizona working toward a B.S. in Geology. She is participating in research efforts in the UA Tectonic Geodesy Laboratory as well as in the Paleolimnology Laboratory. She is interested in pursuing a Ph.D. and a career in earth-science studies that bear on human well-being. Lily is president of the University of Arizona Society of Earth Sciences Students and is active in planning the junior education section at the Tucson Gem and Mineral Show and other youth science events in the Tucson community.

### **J.D. Mizer** – 2013 AGS Scholarship Co-Recipient

After serving eight years in the U.S. Navy, J.D. received both his B.S. in Geology and a PSM in Economic Geology from the Geosciences Department at the University of Arizona. He currently is working toward a Ph.D. in Economic Geology at UA and is interested in studying porphyry copper systems. He is president of the Society of Economic Geologist's Student Chapter at the University of Arizona. J.D. was born in Arizona and is a claim-holder, tour-leader, and conservator at the Glove mine in the Santa Rita Mountains and the Flux mine near Patagonia. He hopes to have a Tucson-based career in mining-related geology.

## Looking for Christmas Presents for Your Favorite Geologist or Yourself?

- **In-print AGS publications** are available for sale at the Arizona Experience Store, located 416 W. Congress St., Tucson. Copies of current AGS Guidebooks and Digests are also for sale at a reduced price at AGS monthly dinner meetings. A list of in-print publications can be found on the AGS website ([www.arizonageologicalsoc.org/Default.aspx?pageId=1661759](http://www.arizonageologicalsoc.org/Default.aspx?pageId=1661759)).
- **Out-of-Print AGS Digests and Guidebooks** are provided by free download for the personal use and research of AGS members and the public ([www.arizonageologicalsoc.org/Default.aspx?pageId=1664230](http://www.arizonageologicalsoc.org/Default.aspx?pageId=1664230)).

## The 1990 Karpa Spring Fiasco in Western Australia A possible link to the Bre-X Debacle

Richard D. Jones, retired Senior Geologist, Reynolds Metals Co.

Those who heard Steve Van Nort's fascinating talk on Bre-X/Busang at the June AGS meeting may be interested in a case of salting which might have been a prologue to the main event at Busang.

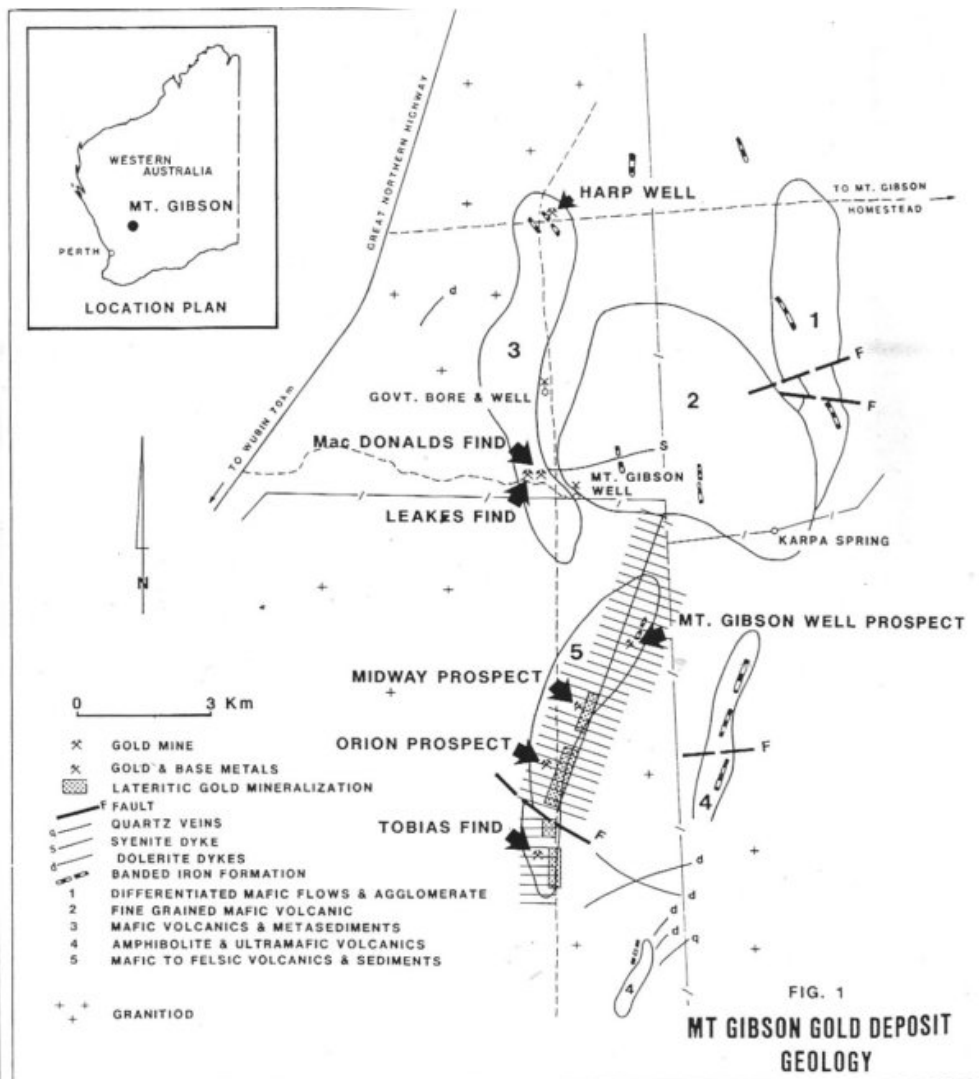
First, some background. In the mid-1980's, Reynolds Australia Mines undertook a fairly substantial gold exploration program following their discovery of the Boddington laterite-hosted gold deposit south of Perth, Western Australia. The Boddington gold deposit occurs within the much larger bauxite deposit (220+ million tonnes) then under development by the Worsley Alumina JV. Reynolds Metals held a 40% interest in the joint venture and was managing partner. The other partners were BHP (30%), Shell-Billiton (20%), and Kobe Alumina Associates, a Japanese consortium (10%).

With the Boddington model as a guide, Reynolds Australia Mines' geologists began to explore the vast areas of Western Australia masked by laterite. This effort resulted in the discovery of a small laterite-hosted gold deposit at Mt. Gibson, some 280 kilometers NNE of Perth.

As interest rates were sky high at the time, and Reynolds was strapped for cash due to the enormous outlays required at Worsley (\$1.2 Billion) and at Boddington, they accepted an offer from Forsayth NL, an Australian junior, to form a joint venture. Forsayth agreed to bear the cost of bringing Mt. Gibson into production in exchange for a 50% interest, and Reynolds Australia geologists would be in charge of the geological work. Since Reynolds had only about a half million dollars invested in the exploration at the time, it was a fantastic deal, and Reynolds jumped at it.

At Mt. Gibson, ore-grade laterite occurred right at the surface, and about half the deposit could have been stripped with a broom. The mine began production in 1986

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### **Karpa Springs Fiasco —Continued from Page 4**

with reserves of 5.3 million tonnes of lateritic ore grading 1.6 g/t Au, and mining costs were the lowest in Australia. The reserve was enlarged somewhat with the discovery of some high grade ore in the bedrock beneath the laterite. By the time the mine closed in 1997, it had produced about 800,000 troy oz Au.

In 1990, Perilya Mines reported a major gold discovery at Karpa Spring, right next door to the Mt. Gibson deposit. Figure 1 shows the location of Mt. Gibson with respect to Karpa Spring. The roughly north-south line slightly to the right of the center of the map is the boundary between the Mt. Gibson mineral tenement on the west and Karpa Spring ground to the east.

Naturally, Reynolds' management in Richmond wanted to know how the Reynolds Australia geologists could possibly have missed it. Reynolds' Aussie geologists were very good and insisted that they had been all over the neighboring ground when they explored Mt. Gibson, and turned up nothing worthwhile. As the press releases mounted, announcing ever greater reserves and higher and higher grades, Reynolds' Aussie geologists went over in the dead of night and sampled cuttings from as many RC holes as they could find. Assays of the cuttings revealed no significant gold. Shortly thereafter, the Karpa Spring balloon came down in flames.

The connection with Bre-X/Busang is very tenuous, but according to Trevor Sykes, who writes a column under the pseudonym "Pierpont" for Australia's Financial Review, Karpa Springs was discovered by three prospectors, Clark Easterday, and Len and Dean Ireland. High grade intersections were reported from reverse circulation drilling, including one of 38 meters grading 34 grams Au per tonne. Reported strike length was 1500 meters and open in all directions. Eight drill holes were said to have ended in mineralization.

The Karpa Springs prospectors offered the prospect to a geologist named Mike Novotny, who in turn took it to mining entrepreneurs Bill Galbraith and Geoff Stokes. The three formed the Aracus Syndicate, bought into Karpa Springs, and sold a half interest to an Australian junior company, Perilya Mines, who had an association with Noranda. Noranda and Perilya were to buy a 30% interest for \$6.15 million Australian, with an option to buy a further 20% for \$4 million, with Aracus retaining a 5% royalty.

According to Trevor Sykes, Perilya paid the first \$6 million, but one of their executives had some doubts, and went to a warehouse in Kalgoorlie to check out the samples supposedly stored there. He found no samples, and notified Perilya's managing director. After a meeting with the promoters, it was decided to stop payment on the checks already written and do some check drilling.

The check holes showed "a complete absence of gold," and Perilya sued the three prospectors to recover their money. The prospectors were charged with fraud, convicted of salting the samples, and served prison terms.

The link with Busang? Mike Novotny, the promoters' geologist, had once been a director of Pelsart Resources which was involved in several joint ventures in Kalimantan, Indonesia with another junior company called Jason Mining. One of Jason's directors was John Felderhof. Pelsart's field geologist was none other than the late (or maybe not) Michael de Guzman who later teamed up with Felderhof to sell Busang to Bre-X.

One curious thing which never appeared in print anywhere was that when the Karpa Spring scandal initially broke, Reynolds Australia geologists heard rumors that the Karpa Spring samples had been salted with placer gold from Indonesia. Since there is no shortage of placer gold in Western Australia, it seemed odd at the time that they went so far away to get it. Now, with a link established between Karpa Spring people and those at Busang, perhaps not so odd after all.



## Arizona Mining Review



Join host Lee Allison, Arizona State Geologist, for Episode 11

*Arizona Mining Review* video magazine – Live!

Day: Wednesday, 27 November Time: 10:00 – 10:30 a.m. (MST )

Where: Streaming online at the Arizona Mining Review Live Stream Channel

(<http://new.livestream.com/accounts/2496466/azminingreview>)

### Nov. 27 Topics

- **Mining News & Update.** Lee Allison and Nyal Niemuth explore the newest developments and challenges in Arizona mining.
- **Arizona Mining Association's Kelly Norton** – The impact of mining on Arizona's economy in 2012
- **Mineralogical Record's Tom Gressman** – Serving mineral collectors from beginners to curators

**Subscribe** to the Arizona Mining Review listserve (<http://azgeology.azgs.az.gov/newsletters/amr>) for regular reminders of upcoming episodes.

The Arizona Mining Review, a product of the Arizona Geological Survey, is broadcast live and recorded for later viewing at the AZGS YouTube Channel (<http://www.youtube.com/user/azgsweb>).

### Historic Arizona Mine Files

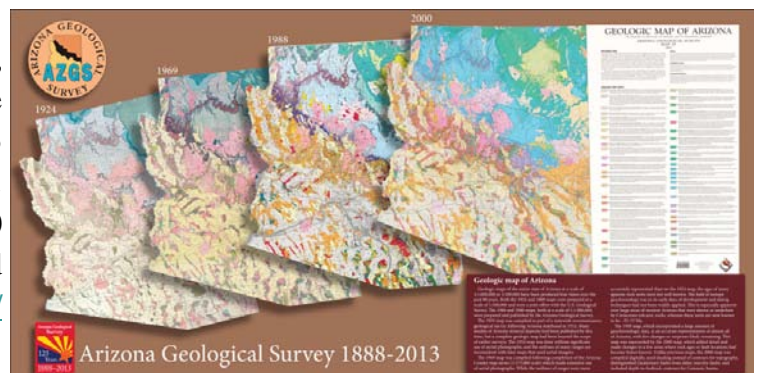
The AZGS Phoenix branch has been working feverishly to digitize and expose thousands of historic mine files, photographs, maps and reports previously held by the Arizona Dept. of Mines and Mineral Resources. Many of those documents are now available at <http://search.usgin.org>. In your search for documents from a specific mine, be sure to include “ADMMR” in your search term. For example, if searching for documents addressing the Empire Mine, stage your search like this “ADMMR Empire Mine” led to 41 results.

Got questions? Call Casey Brown (602-771-1603) or Mike Conway (520-209-4146).

### New Arizona Geological Survey Publications

AZGS publications are available as free, downloadable PDFs at the Arizona Geological Survey Document Repository ([repository.azgs.az.gov](http://repository.azgs.az.gov)).

As part of AZGS's 125th Anniversary celebration, AZGS constructed and displayed a History of the Geologic Map of Arizona poster at the 2013 Geological Society of America Annual Meeting. The poster shows the 1924, 1969, 1988 and 2000 Geologic Map of Arizona. To view and download the poster: [http://repository.azgs.az.gov/uri\\_gin/azgs/dlio/1547](http://repository.azgs.az.gov/uri_gin/azgs/dlio/1547)



## Welcome New AGS Members

Anna Schuh	Matthew Prieto	Ben Irvine	David Smith	Tarek Akif
Janette Steele	Jose Ramirez	Anthony Dalpiaz	Kenneth Fergason	Jesse Silverman
Ahalya Mohan	Jesus Sotelo	Michael Gorostiza	Brigette Martini	



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## AGS MEMBERSHIP APPLICATION OR RENEWAL FORM

Please mail check with membership form to: Arizona Geological Society, PO Box 40952, Tucson, AZ 85717

Dues (check box)  1 year: \$20;  2 years, \$35;  3 years: \$50;  full-time student (membership is free)

NEW MEMBER or RENEWAL (circle one) Date of submittal \_\_\_\_\_

Name: \_\_\_\_\_ Position: \_\_\_\_\_

Company: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Street: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Work Phone: \_\_\_\_\_ Home Phone: \_\_\_\_\_

Fax Number: \_\_\_\_\_ Cellular Phone: \_\_\_\_\_

E-mail: \_\_\_\_\_ Check this box if you do not have an email address

***All newsletters will be sent by email. If you do not have an email address, we will mail a hard copy to you, but we cannot guarantee timeliness.***

If you are a registered geologist/engineer, indicate your registration number and State: \_\_\_\_\_

Enclosed is a \_\_\_\_\_ tax-deductible contribution to the J. Harold Courtright Scholarship Fund.

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Enclosed is a \_\_\_\_\_ tax-deductible contribution to the AGS Greatest Needs Fund.