



Geological Society of Nevada Southern Nevada Chapter Newsletter

September 2005

Decorative Landscaping Rock as a Source for Heavy Metal Contamination, Las Vegas NV

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DATE: Thursday, September 29, 2005

SPEAKER: Dr. Brenda Buck
UNLV Associate Professor of Geology

LOCATION: Room 105 Lilly Fong Geoscience Bldg.

TIME: 6:00 p.m. Social *Half-Hour*
6:30 p.m. Chapter Business
6:45 p.m. Presentation

SPONSOR: *We're still looking!*

Geological Society of Nevada, Southern Nevada Chapter

University of Nevada, Las Vegas
4505 Maryland Parkway, Box 4010, Las Vegas, NV 89154-4010
<http://geoscience.unlv.edu/GSN/gsnsc.htm>

Welcome back to another exciting year of GSN! We hope that everyone has had a fulfilling and restful summer. The other chapter officers and I have been busy planning upcoming meetings, fieldtrips and events for the 2005-

2006 year and it looks to be a very exhilarating year.

For those of you who are new to GSN I am including this statement from GSN:

"The Geological Society of Nevada (GSN) is a non-profit scientific society whose principal mission is to promote the advancement of the geological sciences, especially as they relate to Nevada. The Society encourages the dissemination of scientific and practical knowledge through semiformal presentations, field trips and symposia as well as by publishing the literature resulting from these activities. The Society has developed a secondary mission, through the GSN Foundation, of funding a number of earth science related charitable programs, including grants for K-12 field trips, university scholarships and grants for geological mapping."

We welcome everyone to our meetings and if you like what you see then

please consider becoming a GSN member. In addition to membership in a great professional organization, you can also hear some great talks, attend cool fieldtrips and events, and network with local scientists and academics. If you are a student and wish to work in the desert southwest in the future, or during your next few years in Las Vegas, these are just the contacts that will help you gain employment! And they're all really cool people to talk to ☺.

Let's all work to make this year even better than the last. See you on Sept. 29th.

~ Robyn

PARKING:

With the start of the new school year and current amount of construction around campus we ask that everyone pay attention to UNLV parking policies so that no one gets ticketed. Most of the area surrounding the Lilly Fong Geoscience building is faculty/staff permit parking from 7 am until 7 pm. Visitor parking is available in the metered spots near LFG, and in front of and behind the library. Metered parking is \$.75/hour (7 am until 7 pm) and is the cheapest parking available. You can also purchase a daily parking pass (\$2) from the Parking Services Office that will allow you to park in student parking (several minute walk to LFG). We understand that parking on campus may seem inconvenient but it is something that everyone must deal with as we continue to have meetings at UNLV. *Anyone who parks in spots requiring a permit does so at their own risk!*

For information on parking at UNLV please visit the UNLV parking services website at <http://parking.unlv.edu>. This site also includes maps of the campus and directions. We want to make sure that everyone has a place to park for our meetings.

ADS & SPONSORS:

GSN is a non-profit organization and our chapter relies on meeting sponsors and advertisements to keep our chapter up and running. If your business would like to

sponsor social hour at one of our southern Nevada chapter meetings please contact Robyn Howley. If you would like to place a paid advertisement in this newsletter and on our website please contact Jim O'Donnell at 702.293.5664 or jim.odonnell@cox.net. Please see our current advertisements at the end of this newsletter and support our sponsors.

MEMBERSHIP:

It's that time of year again! Time to renew your membership dues. The GSN membership year begins in June but dues are paid in fall. Dues for **regular membership is \$30** and **student membership is \$15**. It costs only \$5 more to become a member of our chapter. For your convenience we have included a membership form at the end of this newsletter. *FYI* the "Student Dinner Fund" is a donation to pay for the dinners of students who attend Reno meetings only. Please mail the form with your payment to GSN in Reno. *We are sorry but we cannot take payments here.* For more information on chapter membership please visit the main GSN website at www.gsnv.org.

Don't forget to check off the box to become a member of the Southern Nevada Chapter. **Becoming a chapter member only costs \$5 and is vital to our survival.** This \$5 is in turn matched by GSN. Every spring we receive a check that includes the \$5 everyone pays to become a chapter member plus an additional

\$5 per chapter member. Last year we had 71 paid chapter members that brought us \$355 which GSN matched totaling \$710. Hopefully everyone has enjoyed being a member of our chapter and will renew their membership. We appreciate all of the involvement and support that all of our members have provided. Let's keep up the good work and try to increase our membership!

GSN FOUNDATION:

The secondary philanthropic mission of GSN is funded by the GSN Foundation, a 501(c)(3) public charity. The Foundation derives funding from tax-deductible donations, fundraisers and grants from the GSN. Each year, through the GSN Education Committee, the Foundation contributes thousands of dollars toward transportation costs for earth science related, K-12 school field trips. The Education Committee also organizes a speaker's bureau and helps with judging of K-12 science fairs. The GSN Foundation also provides funds for **scholarships** and library grants at UNR and UNLV as well as geological mapping grants through the Nevada Bureau of Mines and Geology.

In the past scholarships distributed to UNLV students have gone through the University, and subsequent problems have arisen. We are working with GSN in Reno to alleviate some of these problems and we have also brought up the suggestion that current dues-paying student members should have priority over non-members in receiving GSN scholarships. We feel that this will help benefit those students who have given their time and effort to our chapter. Thank you letters from the student recipient to the GSN will also be encouraged.

CHAPTER WEBSITE:

Joe has been working very hard on our chapter website, keeping it updated with news and information. Please check it out at <http://geoscience.unlv.edu/GSN/gsnsc.htm>.

On this site we list information about our officers, past and future meetings, sponsors, members, fieldtrips and photos from various GSN activities. We also maintain a jobs page with job listings that may be of interest to local geologists and other scientists. If you are looking for a job this webpage is a good place to start.

FALL FIELDTRIP:

We are in the process of planning our fall fieldtrip to the Mojave National Preserve in California. After some discussion we've decided to make the trip a one-day event. The trip will be a loop through the Preserve with stops looking at rocks and related structures that represent key episodes in the geologic evolution of the southwest. Currently, we are considering the weekends of Oct 29 or Nov 5. As to whether it will be a Saturday or Sunday trip, that's where you come in. We're trying to keep information available on the webpage as the trip comes together, and we encourage interested parties to share their ideas with us. If Saturday is better than Sunday for you, let us know. We'd like the trip to be at the most opportune time for maximum attendance. So, if you're interested in seeing and discussing arc magmatism, fold-thrust belt tectonism, hinterland extension, young volcanism, and tectonic-topographic-climatic relationships to geomorphology, we'd like to have you with us in the field. Please stay tuned to the website and email for more information as it is created and made available!

Decorative Landscaping Rock as a Source for Heavy Metal Contamination, Las Vegas NV

Brenda J. Buck^{*}, Stephanie A. Mrozek, Amy L. Brock, Patrick J. Drohan
*Department of Geoscience, University of Nevada Las Vegas,
4505 Maryland Parkway, Las Vegas NV 89154, USA.*

Abstract

Recent drought conditions coupled with population growth throughout the southwestern United States have increased the demand for water efficient alternatives in landscaping projects. As a result, xeriscaping has become a popular form of landscaping. Currently, there are no regulations controlling the mineralogy of the decorative rocks that can be used for these purposes. In this study, we examined two public high schools and one city park in Las Vegas, NV, where green and white salt efflorescence was observed on recently emplaced decorative rocks used as ground cover. The landscaping rocks, underlying soil, surface salt crusts, irrigation water runoff, and plants were analyzed to determine their mineralogy and chemistry. Pyrite and high levels of copper were found in the decorative rock. Acid-rock drainage caused by the oxidation of pyrite has concentrated copper in Mg-sulfate salt crusts, and As, Cu, Mo, Pb, and Cr in plant tissues. These metals are not known to occur naturally in the soils of the Las Vegas Valley, and our results indicate that their source is the landscaping aggregate. The high solubility of the metal-containing salt crusts increases the potential for surface and aquifer contamination. The continued use of these products, especially as cover for school grounds and park recreation areas, should be stopped because of the increased potential for exposure of children to heavy metals. In addition, the increased costs associated with possible plant mortality, and increased sulfate salt production is not desirable. Regulations should be developed to prevent the use of rocks containing sulfides in future landscaping applications.

Speaker's Background & Education

Dr. Brenda J. Buck is an Associate Professor in the Department of Geoscience at UNLV. She studies the processes involved with the genesis of arid soils and paleosols and applies this knowledge to geomorphic, paleoclimatic, archaeological, land use, environmental problems, and salt tectonics. Current research projects involve Paleogene and Mesozoic paleosols and their application to salt tectonics (Utah and Mexico); heavy metal and radionuclide contamination, mobility, and distribution in soils (USA and Spain); genesis of petrocalcic horizons and their relationship to Colorado River geomorphology; salt mineralogy and genesis of soils in the Atacama Desert, Chile; Death Valley CA; and the Badia, Jordan, and their relationship to microbiology as analogues to Mars.

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GEOLOGICAL SOCIETY OF NEVADA

8/05

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Offices are located on the University of Nevada, Reno Campus, Laxalt Mineral Research Center, Room 266

Office hours: 9 am-12 noon, Monday through Friday • Office Manager: Laura Ruud

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 GSN membership year begins in June. Annual dues of \$30.00 (\$15.00 for full time students) are due in the fall. The GSN sponsors a Field Trip in the Fall and one in the Spring of each year. Monthly meetings are held on the third Friday of each month, September through May. The following are sanctioned Chapters of the GSN: Elko Chapter, based in Elko; Southern Nevada Chapter, based in Las Vegas, and the Winnemucca Chapter, based in Winnemucca. Additional dues to these Chapters are \$5.00 annually. The \$5 Chapter dues are matched by \$5 from the GSN and go directly to the respective Chapter.

Please remember the GSN Foundation when renewing. Foundation dollars are used for the Kindergarten through 12th grade Field Trip Grant Program, Nevada Mapping Grants and University of Nevada scholarships.

MEMBERSHIP APPLICATION/RENEWAL		DATE _____
NAME: _____		POSITION/TITLE _____
CONSULTANT <input type="checkbox"/> COMPANY NAME: _____		
STUDENT <input type="checkbox"/> UNIVERSITY: _____		
ADDRESS: _____		
CITY: _____		STATE/PROVINCE: _____
ZIP: _____		COUNTRY: _____
PHONE: WORK _____		FAX _____
CELL _____		RESIDENCE _____
E-MAIL: _____		WEB SITE: _____
<input type="checkbox"/> WOULD YOU LIKE TO HAVE AN ASTERISK BY YOUR NAME IN THE DIRECTORY INDICATING YOU ARE AVAILABLE FOR CONSULTING?		
<input type="checkbox"/> I HAVE MET THE LICENSING REQUIREMENTS AND WANT "QP" (QUALIFIED PERSON) BY MY NAME IN THE DIRECTORY.		
I authorize GSN to send to me, via email: GSN announcements, publication updates, employment opportunities, etc.		Yes <input type="checkbox"/> No <input type="checkbox"/>
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<input type="checkbox"/> Regular Membership Dues - hardcopy newsletter via postal service \$35.00	<input type="checkbox"/> Honorary	_____
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<input type="checkbox"/> International Membership Dues - hardcopy newsletter via postal service \$45.00		_____
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<input type="checkbox"/> I wish to be a member of the Winnemucca Chapter \$5.00		_____
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(Donated funds will be used for unrestricted grants and scholarships unless otherwise specified _____.)		
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Exp. Date _____ Signature (as it appears on card) _____		
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