

# In-Situ



SPRING 2014

VOLUME 18, NUMBER 1

## INSIDE THIS ISSUE:

**Past-President's Corner,**  
**1**

### Articles

GBAC, 2  
Playing Cards, 2  
New Director, 3  
Battle Mtn Book, 3  
Student Spotlight, 4  
NAA Membership, 6

### Mini-Report

Valley of Fire, 8  
SAGE Radar Site, 13

### Chapter Reports

SHPO, 18  
NRAAF, 19  
Elko County, 20  
Archaeo-Nevada, 21

### Back Page

Upcoming Events, 21  
Membership Form!, 22

Photo Credit: BLM

## Craig Hauer, NAA Past-President\* Past-President's Corner

**H**ello! I hope everyone is enjoying Spring! As you know, this is a busy time for the NAA. Our annual conference was held in Gardnerville in May. This year we partnered with the Nevada Rock Art Foundation for a very successful conference. It was great to see so many new faces.

I would also like to talk to you about some recent events that have reminded me why the NAA needs to be active in the promotion of our shared cultural resources heritage. Earlier in March, Hidden Cave, one of Nevada's premier archaeological

sites located near Fallon, was defaced with spray painted graffiti. Archaeologists have conducted research at the site since the 1940s. The materials excavated from the cave have contributed to a better understanding of Nevada's prehis-

toric past, particularly prehistoric use of resources in the Carson Desert. I have included a link to an article in the [Nevada Appeal](#).

Of course, upon hearing of the vandalism, I was immediately shocked. How could someone do such a thing? But the second thought that came to mind is, how do we reach these people? What can we do to better engage the pub-



lic? Several things come to mind. Volunteer at local schools, give talks, and when the question comes up about what you do, don't shy away from the question. We have all been in situations where the response is

*(Continued on page 2)*

\* "Welcome!" to new NAA president, Jeffrey Wedding!



## Transitions

**T**he theme of the 34th Annual Great Basin Anthropological Conference (GBAC), being held in Boise from October 15th-18th, is "Transitions." Change is fundamental to the Great Basin as a natural and cul-

points of transition, challenges arise as new data and intellectual concepts emerge, new tools and techniques are employed, partnerships are forged and strengthened, and theoretical perspectives are expanded and refined. Our biennial gatherings provide opportunities to explore the transitions inherent in our work, sharing new data and concepts and reflecting on previous knowledge and interpretation. The theme of "Transitions" embraces many contemporary avenues of anthropological inquiry in Great Basin Anthropology and aims to encourage diverse presentations and lively discussion. Don't miss the opportunity to visit beautiful Boise and join in the fun! For more information on the GBAC visit [gbac.whsites.net](http://gbac.whsites.net).

tural place and to the perspectives and practice of Anthropology there over the past 60 years. At

## If You're Not Playing with a Full Deck . . .

**T**hen you should get **Nevada Heritage Playing Cards!** The Nevada Rock Art Foundation, along with the State Historic Preservation Office (SHPO) and the Nevada 150 Commission, created a deck of commemorative playing cards to highlight some of Nevada's spectacular cultural and natural resources. The cards will be available in May and will be distributed through the SHPO, State Parks, and partner organizations.



Steve Ranson, The Record Courier



(Continued from page 1)

not so friendly, or we are told the story about their collections. These are the people we need to engage; many times, they are the most interested in the history of our state. It would be great to get some ideas and continue this discussion on our Facebook page, so I hope to hear from everyone.

**Left: Volunteers and BLM archaeologists work on cleaning up graffiti from the Hidden Cave boardwalk.**

## Lost City Museum Welcomes New Director

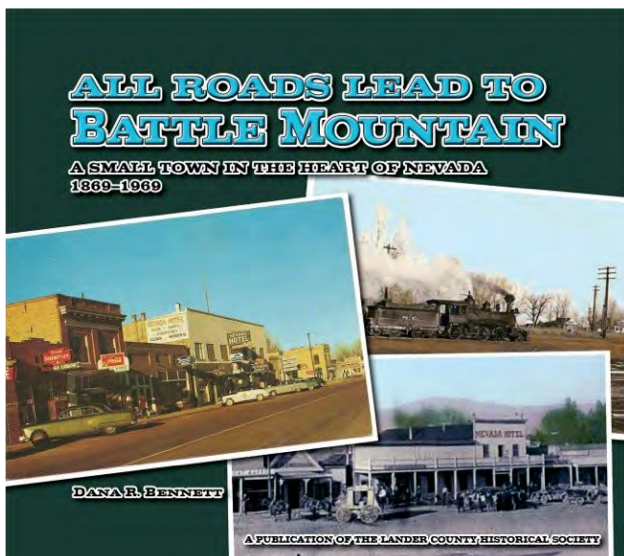
**J**errie Clarke became the Lost City Museum Director on July 1<sup>st</sup>, 2013 and she recently joined the NAA as a way of keeping up with all the archaeological happenings across the state. Jerrie moved from Haines in south-east Alaska and is enjoying immensely the sun and warmth of southeast Nevada; and a very interesting and important museum.



In Haines, Jerri was the Director of the Sheldon Museum and Cultural Center, a local history and art museum including exhibits and research information on the Tlingit Indians. She worked six seasons as collection manager for Dr. Matthew D. Adams and the New York University's Institute of Fine Arts at Abydos, Egypt; as well as a season each in Syria and northern Sudan. Since arriving in Overton, Jerrie has been busy soaking

up the local history and awaiting the arrival of archaeologist Dena Sedar's replacement. The Museum recently hired Molly Fierer-Donaldson as the new curator/archaeologist and she too joined the NAA. Look for her profile in the next edition of *In-Situ*. Please stop by the Lost City Museum the next time you're in Overton and say hello to your fellow NAA members! ☪

## All Roads Lead to Battle Mountain



**I**n July, the Lander County Historical Society expects to release a book about the history of the town of Battle Mountain. Titled *All Roads Lead to Battle Mountain: A Small Town in the Heart of Nevada, 1869-1969*, the book focuses on the town's establishment and first 100 years of development. Featuring many never-before published photographs and maps, *All Roads* was authored by Nevada historian Dana Bennett and has been designated an official Nevada Sesquicentennial Legacy Project. Additional information is available at [BattleMountainMuseum.com](http://BattleMountainMuseum.com). ☪





**Mark Giambastiani sat down with UNLV grad student and NAA member, Tim Ferguson, to talk shop.**

***Where are you attending college? When is your projected graduation date?***

I'm attending the University of Nevada - Las Vegas. I am hoping to graduate with my M.A. in December 2014.

***What initially got you interested in archaeology?***

When I was young I was an active member of the Boy Scouts of America creating all sorts of mischief in the great outdoors. With a keen interest in history, archaeology was the best combination of outdoor mischievousness and learning about the past. In my senior year of high school I went and excavated at Cahokia for the summer on my first

field school. This experience really solidified my choice of becoming an archaeologist. I've been in the field practically every summer since and I don't plan on stopping anytime soon.

***Can you briefly summarize your M.A. project?***

My M.A. project concerns the changing trade networks of southern Nevada during the Pueblo II and Pueblo III Periods. Current research indicates that there was clear trade between southern Nevada and the Arizona Strip. Ties between these two areas are demonstrated by the presence of Shivwits and Moapa Gray Ware pottery in southern Nevada assemblages. Petrographic and chemical analyzes have shown that these two pottery types were being produced on the Arizona Strip. However, during the Pueblo III Period, there was a clear and drastic decline of Moapa Gray and Shivwits Ware pottery in southern Nevada assemblages suggesting that ties with the Arizona Strip had collapsed. Concurrent with this collapse there was an increase in the production of Tusayan Virgin Series ceramics which may have been produced in either the St. George Basin or southern Nevada. This research is interested in understanding where exactly Tusayan Virgin Series pottery was being produced and if populations in southern Nevada were trading with the St. George Basin. Ecological studies have shown that to reduce the effect of climatic variation, populations will reach out to other environmental zones for resources. Thus it is hypothesized that populations in southern Nevada were trading with the St. George Basin more when the trade networks with the Arizona Strip had collapsed.


***What kinds of financial assistance (grants, etc.) have you received in completing your M.A. project?***

Besides the Nevada Archaeological Association Student Research Grant, I have received funding from the University of Nevada - Las Vegas Graduate and Professional Student Association, the Angela Peterson Scholarship (Department of Anthropology, UNLV), and the Roccio Scholarship (Department of Anthropology, UNLV).

***Any other interesting field or laboratory projects you are currently working on?***

I am currently working on a design style analysis for ceramics from the Lost City Complex. Because of my background in art history, I have decided to attempt to understand the ceramics and their designs from the perspective of visual culture. Since designs and objects are meant to be seen, there are underlying psychological aspects of perception that can allow archaeologists to understand the salient cultural traits that form the visual experience.

***Are you looking to a career in archaeology? If so, in academia or Cultural Resource Management? In the U.S. or abroad?***

I would love a career in Southwestern archaeology. At this point, I'm not too picky about where it is or in what sector as long as I'm doing archaeology. Although I do love teaching and collaborating with numerous individuals so I can definitely see myself in the academic world in the future. 

SUSAN EDWARDS, NAA MEMBERSHIP SECRETARY

# Just Do It!

*(you know you want to!)*



**H**ave you forgotten something?

Hmmm, you don't think so? New Year's resolutions made months ago and already discarded ☒, tax returns are in

☒, spring cleaning finished ☒, summer vacation plans made ☒. What could you be missing???

Maybe a quick check of the list below

will help jog your memory...

I've listed every New or Renewing NAA Membership I've received for 2014\* so a great big thank you to everyone who has already "done it". Now the rest of you just need to "do it."

And it couldn't be easier! If you're a fan of more traditional payment methods just fill out the membership form on the back page and mail your check or cash to: NAA P.O. Box 73145, Las Vegas, NV, 89170, or if you want a more immediate guilt fix, visit the NAA website [nvarch.org](http://nvarch.org) and renew or join online via *PayPal*.

G. WESLEY ALLEN◇	RICHARD BURNS∞	ERIN & ARTHUR EICHENBERG
CHRISTIAN ALVEZ◇	COLIN BUSBY	ROBERT ELSTON∞
JOHN & TERRIE ANDERSON	CHRISTINA CALLISTO	JULIE ERNSTEIN◇
ALICE & MICHAEL BALDRICA∞	DON CHRISTENSEN	CLIFF EVANS◇
BARBARA BANE	LEIF CHRISTIAN◇	JOHN L. FAGAN
PAT BARKER & LUCINDA LONG	ROBERT CLABAUGH	DANIELLE FELLING◇
COLLEEN BECK & KEITH KOLB∞	JERRIE CLARKE◇	TIM FERGUSON
ADAM BERG	VICKIE CLAY	MOLLY FIERER-DONALDSON◇
RUSS BELVILL◇	JERILYN & BOB CLAYTON∞	PAUL FINDLEY & KATRINA CANTRELL◇
LORI BIGHAM, PAUL SANCHEZ, GREGG HARMON & JIM McCARTY	DEANNA COMMONS	JERRY FULLER
WILLIAM BLOOMER	MARCEL CORBEIL	DON & KAY FOWLER∞
JONAH BLUSTAIN	CLIFF CREGER	FRED & JUDITH FRAMPTON
NANCY BRACKETT	EMILY DALE◇	OYVIND FROCK∞
PETER & SUSAN BRADLEY	JIM D'ANGELO	MARK & DAYNA GIAMBASTIANI
SARAH BRANCH	PATTI DeBUNCH & JIM BUNCH∞	LISA & TONY GILBERT
TOM BULLARD	ELIZABETH, JAMES & SOPHIA DICKEY	SHANNON GOSHEN◇
	SUSAN EDWARDS∞	TERRY GRAHAM◇

ROBERT HAFEY	ROBERT McQUEEN♦	CAROL SHIMER
JEREMY HALL♦	MARGO MEMMOTT♦	KRISTIN SIBLEY
JORDAN HASTINGS♦	JULIE MICHLER★	JENNIFER SIGLER♦
CRAIG HAUER, JOELLEN ROSS HAUER & FAMILY	MARY LU MOORE	DAVE SMEE
GREG HAYNES	CHRIS MORGAN♦	BETH & PATRICK SMITH
DON HENDRICKS	LESTER & EDNA MORRIS	LOU ANN SPEULDA-DREWS & MICHAEL DREWS
BRYAN HOCKETT	SUSAN MURPHY∞	KARI SPRENGELER
STEVEN HOLM	TIM & DONNA MURPHY∞	STEVE, BARBARA, JUSTIN & SPENCER STEARNS
ELAINE HOLMES	D. JEAN MYLES∞	KEITH & MARYANNA STEVER
MARK & YOLANDA HENDERSON∞	INGA NAGEL♦	ROBERT STOLTING♦
PAT HICKS∞	LINDA NATIONS	ED & CHERYL STONER
KARLA JAGEMAN & PAT MINGUS	LANA NOLAND♦	LINDA SULLIVAN
CAL & DEBBY JENNINGS	BENJAMIN ORCUTT, HAROLD BREWER & TYRELL MILLIRON	ROBERT & JOANNA SWAIN
EVA JENSEN	MAIDA O'BRIEN & SHERANDRA OWEN♦	DAVID THOMAS & LORANN PEN-DLETON THOMAS∞
DON JOHNS & FAMILY	GLENDEE ANE OSBORNE	KAREN TRACY
JAMES KANGAS♦	BRYANDRA OWEN	GORDON TUCKER, JR.
ROBERT KAUTZ	MEGAN OYARZUN♦	SALI UNDERWOOD
MONIQUE KIMBALL	LAUREEN PERRY	DAVID VALENTINE∞
LEE KLASSY♦	STAN PLUM♦	APRIL VAN WYKE
RENEE KOLVET	AMANDA RANKIN♦	BEVERLY & SHIRLEY VERMILLION & MATTHEW RASBERRY
CHIMALIS KUEHN♦	KEVIN RAFFERTY	ROBERT VIERRA
ROBERT C LEAVITT	RON RENO	CLAUDE & ELIZABETH WARREN∞
MICHAEL LENZI♦	PAULA REYNOSA	LORETTA WATSON
SPENCER LODGE	SARAH RICE♦	CHRIS WEBSTER
BRENDA LOPEZ	SHAUN RICHEY♦	JEFFREY WEDDING∞
MARGARET LYNEIS∞	JULIE RODMAN	WILLIAM WHITE
FARREL & MANETTA LYTLE	ELIZABETH ROYCROFT	DIANE WINSLOW
SHANNON MAHONEY♦	PENNY & MIKE RUCKS	ELLEN WRIGHT
BARBI MALINKY HARMON♦	KAT RUSSELL	CHRIS YOUNG & SABRA GILBERT-YOUNG
SIERRA MANDELKO	DAVID J. SCOTT	D. CRAIG & DESNA YOUNG
NAOMI MASON♦	PAUL, JON & MARK SCOTT	
ANNE McCONNELL	CAROLYN SHERVE-BYBEE	
BOBBIE McGONAGLE∞	JASPER SHIELDS♦	
JENNIFER FREDERICK-McGUIRE♦		

♦ = new members; ∞ = lifetime members; ★ = the first to renew for 2014 back in September!

**\* If you know you paid recently, but don't see your name *don't panic!* I'm current on the PayPal people, but behind on those of you who paid by check. This list is current as of May 15, 2014.**



## *Mini-Reports:*

### What's in Store for

# Valley of Fire?

By Kevin Rafferty and Sally Billings

**The anthropology/archaeology discipline in CSN's Department of Human Behavior has been quite active over the last couple of years. As we move forward into 2014-2015, it is appropriate to review what the department has accomplished and what it has planned for the next couple of years.**

#### ***Fieldwork Conducted Pre-2011***

In June and July, 1990, what was then called Clark County Community College (CCCC) conducted an archaeological survey field school in the Las Vegas Wash Region near Henderson, Clark County, Nevada (Rafferty 1990a, 1990b). The first year's efforts (1990) concentrated on an examination of the remaining archaeological resources within the Las Vegas Wash area, an area being developed into what is now called Lake Las Vegas Resort. A total of 230 acres was examined. This resulted in 20 new sites being recorded, including rock rings, lithic reduction loci, and a large, expedient quarry for the exploitation of chert for the purposes of tool manufacture. They ranged in age from the Archaic period (ca. 7500-2000 B.P.) to the Paiute period (ca. 800-100 B.P.).

The second field season in the summer of 1991 saw a return to the Las Vegas Wash survey area (Rafferty 1992a). Only two weeks were spent there as development of Lake Las Vegas had continued the majority of the likely locations where sites would have been found were either destroyed or already had been examined.

At this point, the field school shifted location to Icebox Canyon in the Red Rock Canyon National Recreation Area. The project spent a week at this location examining previously reported site locations and surveying new areas. Five sites and isolated artifacts were recorded, including a rock ring, a possible engraved petroglyph panel, at least one isolated sandstone metate, and a modern/recent Roman Catholic folk shrine containing religious statuary, rosaries, a necklace, and two votive candles. Some of this material was presented at professional conferences and some of the results of the survey have subsequently been published (Rafferty 1993a, 1996, 2009).

In the Summer of 1992, the field school at what was now known as the Community College of Southern Nevada (CCSN) conducted archaeological surveys in the northern Las Vegas Valley



(Rafferty 1992b, 1993b). Previous research in the area suggested that the survey area, along the extreme northern Las Vegas Wash region, would be extremely productive in terms of cultural materials, and would prove to have been occupied for a long span of time in the prehistory of the Las Vegas Valley. A total of 440 acres of property were examined. A total of 10 new cultural resource properties were recorded in the Las Vegas Wash area. The occupation span of these sites ranged from the Archaic period (ca. 7500-2000 B.P.) through the Paiute (ca. 800-100 B.P.).

In addition, 48 isolated artifacts were encountered. Included in this total were six Archaic points (five Pinto and one Elko), a late prehistoric point (one Eastgate, ca. A.D. 600-1100/1200), three point fragments, three preforms or biface fragments, four scrapers, and two cores. The remaining 29 artifacts consisted of flakes and waste material from the tool manufacturing process.

Unfortunately from 1992 to 2003 the field school program went into hibernation, for a number of different reasons. The originator, Kevin Rafferty, was in the process of building an anthropology program at CCSN/CSN and helping to hire new anthropologists and archaeologists to run the program. There was also the creation of new courses; putting together the degree sheet for the Associates of Arts

Degree in Anthropology; becoming the first chairman of the newly formed Department of Behavioral Sciences from 1992-1995; and life in general got in the way.

What served to revive the program? An important aspect of the program's revival was

finding a place where very little work has been conducted. Rafferty was pleasantly surprised to learn that Valley of Fire State Park had had very little work done in it, since Warren's excavations at Atlatl Rock in the mid-to-late 1970s (Warren *et al.* 1978; Warren 1983). So anything that the field school found and reported on added to the corpus of knowledge about southern Nevada archaeology.

Subsequently three surveys were conducted in the southern Valley of Fire and reported on prior to 2011. One was in the south-eastern portion of the park (Rafferty 2004), one in the south-central park region (Rafferty 2006), and one east of and adjacent to Atlatl Rock in the western portion of the park (Rafferty 2008). Thirty-six sites were recorded, including rockshelters, large campsites, small lithic scatters, petroglyph and pictograph panels, numerous isolated artifacts, and several historic/modern sites. The



**CSN Field School students recording 26CK4105 in Valley of Fire, 2011.**

sites ranged in age from the Lake Mojave period (ca. 10,000-7,000 B.P.) to the early 20<sup>th</sup> century.

During this time, two new CSN faculty members with archaeological backgrounds had been hired: Professors Sally Billings and Wil Wilreker. This has allowed the program to begin to

expand, work in areas other than Valley of Fire, establish an Anthropology Club for majors in the department, and begin to develop an Associate of Arts degree in Cultural Resource Management. The work undertaken since 2009 and future plans for the program are discussed below.

### ***Fieldwork Conducted in the Spring of 2011***

The Anthropology Club, under the supervision of Professors Sally Billings and Wil Wilreker, carried out field work in the vicinity of Mt. Potosi in the Spring Mountains in association with Kelly Turner of the U.S. Forest Service. A multicomponent site that included a historic mine and several prehistoric roasting pits was recorded. The site also included several prehistoric artifact scatters and concentrations. The presence of Pinto-style projectile points and historic mining equipment and artifacts indicates human activity in the area dating from the Late to Middle Archaic through the Historic Period.

The CSN Valley of Fire Field School (ANTH 225), under the direction of Dr. Kevin Rafferty, conducted two further surveys in Valley of Fire State Park in Clark County, Nevada. This followed up efforts made in 2009 by CSN with a previous field school class. The 2009 and 2011 CSN Survey Field Schools examined two areas of Valley of Fire State Park, both north and east of the Atlatl Rock sandstone formation. A total of 1,670 acres were inventoried between the two projects. These projects are a continuation of a cooperative agreement between Nevada Division of State Parks and the College of Southern Nevada, a partnership that has been in place since 2003.

The inventories resulted in a total of 63 cultural resource locations being recorded. Of this number 40 of the locations were isolated prehistoric and historic artifacts of various kinds. The isolates include rather amorphous flakes and cores typical of the lithic assemblage found commonly throughout every time period in southern Nevada prehistory, plus metal cans, wires, and other historic artifacts in various states of preservation (Rafferty 2013).

There were 18 prehistoric sites, 15 of which were newly recorded, and three which were previously recorded. Five sites were historic/modern in nature. Five of the sites contained significant and complicated panels of petroglyphs accompanying living areas or rock-shelters, while there were three sites that were just small panels or isolated examples of prehistoric rock art. The sites range in age from the Archaic period (ca. 7500 B.P.) through the modern era (ca. 1990s), a span of over 7500 years (Rafferty 2013).

### ***Fieldwork Conducted in the Spring of 2012***

The Anthropology Club, under the supervision of Professors Sally Billings and Wil Wilreker, carried out field work in the vicinity of Goldfield, Nevada in association with Kelly Turner of the U.S. Forest Service. An extensive prehistoric artifact scatter that included a historic component, and associated rock art, was recorded by this effort.

### ***Fieldwork Conducted in the Fall of 2012***

Fieldwork was carried out in the Spring Mountains as part of an archaeological field class, Anth 225, in partnership with the Bureau of Land Management. It was agreed upon by Professor Sally Billings and Mark Boatwright of the BLM that the class would survey several sections in the vicinity of Rainbow Springs, located on the western slopes of the Spring Mountain Range and approximately 3.5 kms north of Highway 160. Archaeologists from the BLM worked alongside students on this survey.

The main objective of the survey was to identify and record new thermal features or roasting pits, and to identify previously recorded features. In the course of eight field sessions we recorded three new roasting pits and one previously recorded pit. Each feature contained both prehistoric and historic artifacts, most notably painted and plain buffware ceramics which may imply a Patayan presence in the area. Grayware ceramics were also found.



**Students record a roasting pit at the 2012 Field School with the BLM.**

the purpose of this project is to train students in archaeological survey and site recording techniques, and bring the site records that were first written in 1974 up to modern standards. One interesting cultural property at the ranch locale is a scout camp that, when encountered in 1974, was not a minimum of 50 years old and thus

### ***Fieldwork Conducted in the Spring of 2013***

Additional fieldwork was carried out in the Spring Mountains in the area of Rainbow Springs over a three-day period in March of 2013. Students from the Anthropology Club volunteered to work over Spring break and were supervised by Professors Sally Billings and Wil Wilreker. Several BLM archaeologists from the Red Rock Wilderness Area also participated in the fieldwork.

The objective was the same as for the field class of 2012: identifying and recording or re-recording roasting pits. We identified two new sites and one old site. As with the sites recorded during the fall of 2012, by far the most common artifact was buffware ceramics, although grayware was also present at all sites. Historic artifacts were also identified.

### ***Plans for 2014 and Beyond***

Several projects are in the offing for 2014 and beyond. The Anthropology Club, in conjunction with the Archaeo-Nevada Society (the local amateur archaeological group) will undertake a resurvey and re-recording project at Spring Mountain Ranch State Park. Under the direction of Professor Wil Wilreker and Dr. Kevin Rafferty,

not a cultural property as defined by the National Historic Preservation Act of 1966. Research has indicated that it was used between 1948 and 1952, meaning that the property is now a minimum of 60 years old, and should be further investigated. Additional historic and prehistoric properties will also be recorded up to modern standards and a new report written and submitted to the Division of Nevada State Parks.

Further work is planned on lands managed by both Nevada State Parks and various federal and state agencies as the opportunities arise.

The Department of Human Behavior is also developing an Associate of Arts degree in Cultural Resource Management to be submitted to the Nevada System of Higher Education (NSHE) in academic year 2014-2015. The degree has been developed after consultation with the various state and federal agencies in the state, as well as soliciting input from the CRM contractors in the state regarding what they want students to know who might work with them as field technicians. We are very excited about the possibilities of this program and what it can do to help our students, our colleagues in the contracting community, state and federal agencies, and our colleagues in the four-year institutions in Nevada. ♀



## References

Rafferty, Kevin

- 1990a Las Vegas Wash Revisited: A Cultural Resource Survey and Inventory of Property Owned by the Lake at Las Vegas Joint Venture, Clark County, Nevada. *Clark County Community College Archaeological Paper* No. 1. Department of Social Sciences, Clark County Community College, North Las Vegas, Nevada.
- 1990b *Lacustrine/Upland Resource Utilization in the Las Vegas Wash Area, Southern Nevada* Paper Presented at the 22nd Biennial Great Basin Anthropological Conference, Reno, Nevada.
- 1992a Archaeology and Education in the Las Vegas Valley: A Cultural Resource Survey and Inventory in the Las Vegas Wash and Icebox Canyon Areas, Las Vegas, Clark County, Nevada. *Community College of Southern Nevada Archaeological Paper* No. 2. Department of Behavioral Sciences, Community College of Southern Nevada, North Las Vegas.
- 1992b *Occupation and Resource Exploitation in the Northern Las Vegas Valley*. Paper Presented at the Annual Meeting of the Nevada Archaeological Association, Ely, Nevada, October 3.
- 1993a *An Hispanic Folk Shrine in the Las Vegas Valley*. Paper Presented at the Annual Meeting of the Southwestern Anthropological Association, San Diego.
- 1993b Occupation and Resource Exploitation in the Northern Las Vegas Valley: The CCSN Summer Field School, 1992. *Community College of Southern Nevada Archaeological Paper* No. 3. Department of Behavioral Sciences, Community College of Southern Nevada, North Las Vegas.
- 1996 *Popular Religion on the Ground: Folk Shrines and Folk Religion in Las Vegas*. Paper Presented at the Annual Meetings of the Popular Culture Association, Las Vegas.
- 2003 Splendor Among the Rocks: The CCSN Valley of Fire Field School Project. *Community College of Southern Nevada Archaeological Paper* No. 4. Department of Human Behavior, Community College of Southern Nevada, Las Vegas.
- 2006 Continuing Research in the Valley of Fire State Park, Clark County, Nevada by The Survey Field School of The Community College of Southern Nevada. *Community College of Southern Nevada Archaeological Paper* No. 5. Department of Human Behavior, Community College of Southern Nevada, Las Vegas.
- 2008 Through the Wash and Over the Rocks: Prehistoric and Historic Research by the Survey Field School of the College of Southern Nevada in Valley of Fire State Park, Clark County, Nevada. *College of Southern Nevada Archaeological Paper* No. 6. Department of Human Behavior, Community College of Southern Nevada, Las Vegas.
- 2009 A Modern Folk Shrine in the Las Vegas Valley. *In Situ*, Vol. 13, No. 1:14-15.
- 2013 Campsites and Petroglyphs: The College of Southern Nevada 2009/2011 Field Schools in Valley of Fire State Park, Clark County, Nevada. *College of Southern Nevada Archaeological Paper* No. 7. Department of Human Behavior, College of Southern Nevada, Las Vegas.

Warren, Claude

- 1983 *Prehistoric Developments at Atlatl Rock*. Report Submitted to the Nevada Division of State Parks (P.O. 10-00130) by the Department of Anthropology, University of Nevada, Las Vegas.

Warren, Claude, Kathleen Bergin, David Ferraro, and Kathryn Olson

- 1978 *Archaeological Investigation at the Valley of Fire*. Archaeological Research Center, Museum of Natural History, University of Nevada, Las Vegas.



# *A Brief History of*

## **THE SEMI-AUTOMATIC GROUND ENVIRONMENT (SAGE) RADAR SITE ATOP WINNEMUCCA MOUNTAIN**

**BY PETE MATRANGA**

**FIGURE 1: WAFS RADAR AND OPERATIONS – LOOKING EAST. RADAR BUILDING NO. 1 IS TO THE RIGHT AND RADAR BUILDING NO. 2 IS TO THE LEFT. CONCRETE GENERATOR BUILDING AND DIESEL STORAGE TANKS ARE CENTER RIGHT.**

**W**innemucca Air Force Station (WAFS) is a closed United States Air Force (USAF) General Surveillance Radar Station. It is roughly three-miles north-northwest of Winnemucca, Nevada. The extant remains of the Semi-Automatic Ground Environment (SAGE) radar site atop Winnemucca Mountain were components of an automated control system for tracking potential enemy aircraft. The North American Aerospace Defense Command (NORAD) operated the site from 1954 to 1983. However, by the time the SAGE system was completely operational, the enemy aircraft threat had been placed by the enemy missile threat, for which SAGE was inadequate.

SAGE was, however, a significant project for the United States Department of Defense, demonstrating the government's ability to coordinate large-scale, diversified, and highly sophisticated computer research and development projects on a fast track. The SAGE air-defense system was extremely important for several reasons; advances in online systems and interactive comput-

ing, real-time computing, and data communications using modems. It is considered one of the most advanced and successful large computer systems ever developed and a landmark in the history of both radar and computing.

In 1948, Jay Forrester and George Valley from the Massachusetts Institute of Technology (MIT) Lincoln Laboratories conceived of a continental air-defense system that integrated radar, communications and computers designed to track and intercept incoming enemy aircraft. By 1954, the cost of the project, both in funding and the number of military, civilian, and contractor personnel involved, exceeded that of the Manhattan Project. The project name evolved over time from Project Lincoln, its original 1951 designator, to the Lincoln Transition System, and finally the Semi-Automatic Ground Environment, or SAGE.

Five main contractors were responsible for the development and deployment of the SAGE air-defense system: IBM for hardware; Burroughs for inter-center communications, Lincoln Laboratories for system integration; Western Electric for design and construction of buildings; and System Development Corporation (considered the world's first computer software company) for software. In 1958, the MITRE Corporation was formed out of the Computer System Division of Lincoln Laboratories. Much of MITRE's initial work focused on software development of SAGE's digital computer system, radar surveillance, communications, and weapons integration. MITRE also had the role of integrating the many complex elements that formed the SAGE air-defense system.

The operational concept for SAGE was similar to that of modern automated air defense systems. The SAGE system used ground-based radars, sea-based radars on ocean platforms called "Texas Towers," and airborne radars to detect incoming enemy aircraft. A vast network of radars would automatically detect an enemy bomber formation as it neared the U.S. mainland from any direction. Radar detections would then be transmitted over long-distance telephone lines to the nearest SAGE direction center, where they would be processed by an AN/FSQ7 computer. The direction center would then send out notification and continuous targeting information to the air bases best situated to carry out interception of the approaching bombers, as well as to a set of surface-to-air missile batteries. SAGE was linked to nuclear-tipped CIM-10 BOMARC—developed by Boeing (BO) and Michigan Aerospace Research Center (MARC)—and Nike Ajax and Hercules missiles (developed

by Bell Laboratories).

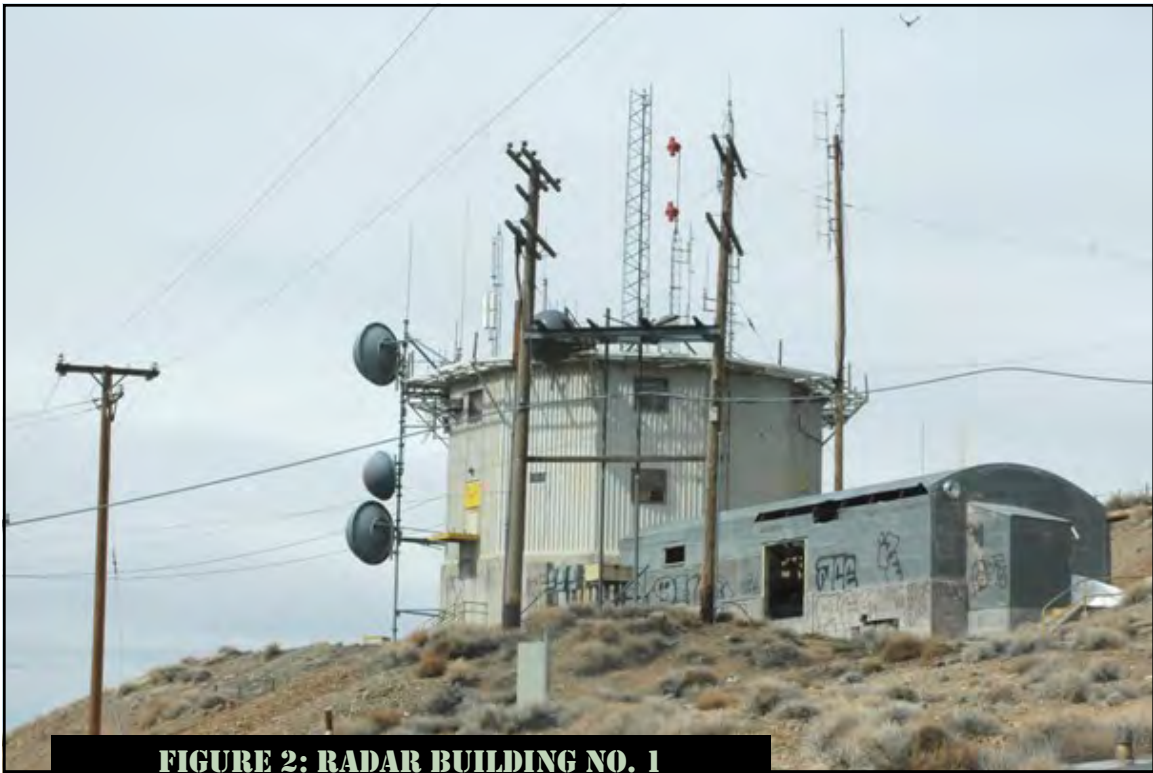
The direction center would also send data to and receive data from adjoining centers, and send situational awareness information to the command centers. As the fighters from the air bases scrambled and became airborne, the direction center would continue to process track data from multiple radars and transmit updated target positions in order to vector the intercepting aircraft to their targets. After the fighter aircraft intercepted the approaching bombers, they would send raid assessment data back to the direction center to determine whether additional aircraft or missile intercepts were necessary.

By the time of its full deployment, the SAGE system consisted of hundreds of radars,

**SAGE IS CONSIDERED ONE OF THE MOST  
ADVANCED AND SUCCESSFUL LARGE  
COMPUTER SYSTEMS EVER DEVELOPED  
AND A LANDMARK IN THE HISTORY OF  
BOTH RADAR AND COMPUTING.**

twenty-four direction centers, and three combat centers spread across the United States. Each was linked by long-distance telephone lines to more than

100 interoperating air defense elements. The direction centers were connected to hundreds of airfields and surface-to-air missile sites, providing a multi-layered engagement capability. Each center housed a dual redundant AN/FSQ7 computer that had evolved from MIT's experimental Whirlwind computer of the 1950s. Built by IBM, the AN/FSQ7 was the first full-production machine with a magnetic core memory (4 x 64K word) and the first to have a standby computer in case of machine failure. Each AN/FSQ7 weighed 250 tons and contained 60,000 vacuum tubes, 175,000 diodes, and 13,000 transistors all requiring three-megawatts of power and specialized generators and cooling systems. It took over 100 people to operate.



Pete Matranga

**FIGURE 2: RADAR BUILDING NO. 1**

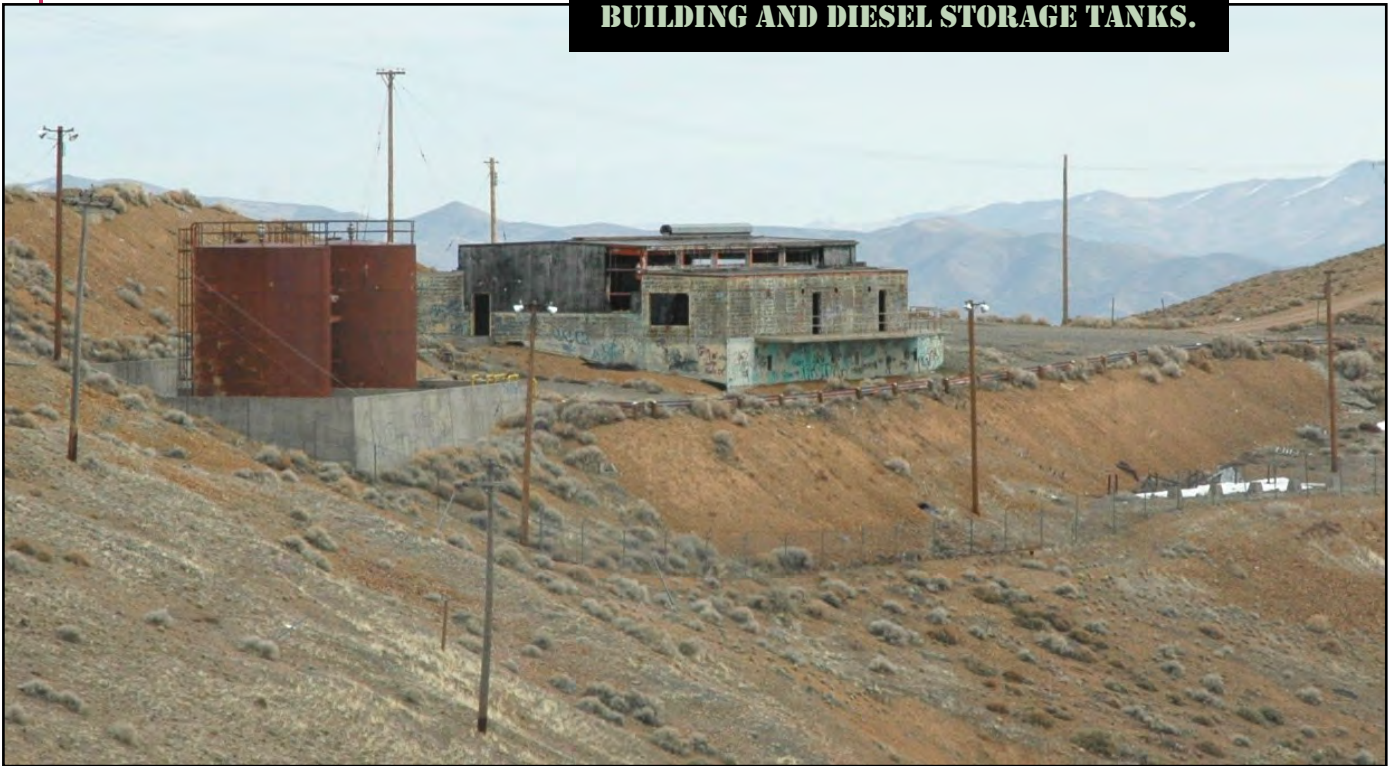


Pete Matranga

**FIGURE 3: RADAR BUILDING NO. 2**



**FIGURE 4: CONCRETE GENERATOR BUILDING AND DIESEL STORAGE TANKS.**



Pete Matranga

The software programs for the SAGE air-defense system were the largest computer programs written up to that time, with roughly 500,000 lines of code and able to execute over 25,000 instructions. During its design, some 7,000 programmers worked on various components of the SAGE program. SAGE programs automated information flow, processed and presented data to the 100 operator stations, and provided control information to weapons systems. Processed data, including aircraft tracks and identification, was displayed to operators on early cathode ray tube (CRT) displays. Operators accessed SAGE through the CRT displays and used a light pen to select tracks of potential hostile aircraft and manage their status.

The SAGE computer program used an area in system memory called COMPOOL

(Communication Pool). COMPOOL's purpose was to permit the sharing of System Data among many programs by providing a centralized data description that could be shared by several sub-routines. This would become one of the founding concepts for the Common Business-Oriented Language (COBOL). The communication devices developed by Burroughs allowed each center to communicate with other centers, creating one of the first large-scale computer networks.

Most of the human-machine interaction took place at large radar screens with light pens, rather than with punched cards or teletype terminals. The first test of SAGE directing an interceptor plane to a target occurred in April of 1951. The system performed well. However, it was not until July of 1958 that the first SAGE center went into regular operation. The system was fully operational by 1963. SAGE cost estimates range



from \$4 billion to \$12 billion, with \$8 billion a common estimate. Included were 56 IBM computers at \$30 million each.

The SAGE site atop Winnemucca Mountain typified some of the problems with the mobile radar program. Originally, the Winnemucca Air Force Station (AFS) was established as part of the planned deployment by Air Defense Command of forty-four mobile radar stations across the United States to support the permanent radar network established for the Cold War air defense of the United States. This deployment had been projected to be operational by 1952; however, funding, constant site changes, construction, and equipment delivery delayed deployment. Because the program received minimal funding, the cantonment area was constructed on Department of the Interior (DOI) land at the base of Winnemucca Mountain, rather than on adjacent land owned by the Southern Pacific Land Company.

The station was activated in 1955 after the 658<sup>th</sup> Aircraft Control and Warning Squadron was moved to the new station by the 28<sup>th</sup> Air Division. Operational status was finally achieved in 1956. The site used an AN/FPS-3 radar, and initially the station functioned as a Ground-Control Intercept (GCI) and warning station. As a GCI station, the squadron's role was to guide interceptor aircraft toward unidentified intruders picked up on the unit's radar scopes.


By 1959 this radar had been joined by a pair of AN/FPS-6B height-finder radars. In 1960 the AN/FPS-3 was replaced by an AN/FPS-20 search set. At the end of 1961 this search set had

**THE SAGE SITE ATOP WINNEMUCCA MOUNTAIN TYPIFIED SOME OF THE PROBLEMS WITH THE MOBILE RADAR PROGRAM.**

been upgraded into an AN/FPS-66. During 1961 Winnemucca AFS joined the SAGE system, initially feeding data to DC-21 at Stead AFB, Nevada. After joining, the squadron was re-designated as the 658<sup>th</sup> Radar Squadron (SAGE) in March of 1961. The radar squadron provided information 24/7 to the SAGE Direction Center where it was analyzed to determine range, direction altitude speed and whether or not aircraft were friendly or hostile. In 1963, the two height-finder radars were converted to AN/FPS-90 units, and the site was designated as NORAD ID Z-127.

In 1967, one AN/FPS-90 was removed from service. In addition to the main facility, Winnemucca AFS operated AN/FPS-14 Gap Filler sites at Quinn River Crossing, NV and Unionville, NV (M-127B).

The 658<sup>th</sup> Radar Squadron (SAGE) was deactivated in 1968 as a result of budget restrictions, and the general phase down of air defense radar stations. The former station is now a commercial transmitter site (Figure 1); the former Air Force radar towers still stand (Figures 2 and 3). Some of the support buildings at the site are standing in deteriorated condition (Figure 4).

Some of the former Air Force housing and support buildings in the cantonment and barracks areas are in use by Humboldt County and commercial firms, and the pool is now open to the public (in season). Several new buildings have also been constructed since the Air Force closed the base. The Officers' Quarters are now private housing. The area is now known as "Sage Heights," a reference to the SAGE air-defense system. 

## *Reports from Chapters and Affiliates:*



NEVADA STATE PRESERVATION OFFICE:

### **There's a New Deputy in Town**

**By Rebecca L. Palmer, State Historic Preservation Officer**

**I**t seems that every time I put pen to paper to update your readers on the status of the SHPO, I am writing about some new change occurring or proposed. This message is no exception.

I would like to introduce my new Deputy SHPO, Dr. Julie Earnstein. Julie has been a college professor, researcher, and cultural resources consultant for nearly three decades. She has taught at the University of Maryland, George Mason University, Washington College, the College of William and Mary, Northwestern State University, and St. Cloud State University where she has taught anthropology, historic preservation, and heritage resources. In that capacity, she has directed undergraduate and graduate thesis work, and taken students into the field for service learning, grant-funded, and/or contract projects. Julie has also worked for two archaeological professional journals and done technical editing on scholarly publications and reference works in historical archaeology, architectural history, and historic landscapes. To date, she has worked in the mid-Atlantic, New England, the South Central region, Upper Midwest, and is thrilled to have made it to

the Great Basin—where she hopes to stay put.

Julie recently compiled a management plan for Poverty Point State Historic Site, National Historic Landmark, and National Monument and assisted the larger effort to see that site designed as a World Heritage site. Julie has reviewed and prepared National Register nominations (including one for the Sharon Indian School in



**Mark and Julie get cozy.**

King William County, Virginia), undertaken SHPO grant review in Maryland and Louisiana, written context statements for state heritage areas, undertaken interpretive planning work for historic mining communities and an early 20<sup>th</sup> century

writer's home, and worked her way through the ranks as archaeological field and lab technician, Project Historian, Project Oral Historian, Project Archaeologist, on up through Principal Investigator on a range of cultural resource undertakings not limited to Section 106 compliance archaeology projects.

Since the late 1990s, Julie has been a member of Maryland's state review board for National Register nominations, a member of the Landscape Advisory Panel at Thomas Jefferson's Poplar Forest, and engaged in a wide range of professional service. Julie is a member of several archaeological and preservation professional organizations, has delivered numerous professional papers at national and international conferences, authored various compliance documents and reports, and published on a range of historical archaeology, cultural landscape, and preservation topics. She earned a M.A. and Ph.D. in Archaeology from Boston University, a B.A. in Anthropol-

ogy from the University of Maryland, and is a Registered Professional Archaeologist (RPA).

The office is currently without a program lead for our State and National Register programs following the departure of Sara Fogelquist. We here at SHPO wish Sara the best in all her future endeavors.<sup>†</sup> Despite the current vacancy, I would still like to add that the intent of the National Park Service is to ensure that the public can list resources on their own private land and on federal land. While the National Register form is somewhat lengthy, a knowledgeable member of the public can complete it. The State Register form is far more user friendly and can be completed for resources on private, state, or federal land with the agreement of the owner or land manager. Please consider the possibility that some of the significant resources that you value can be nominated for the National Register and encourage your federal partners to pursue archaeological listings. ☪

*†Since this article was written we have received terrible and unexpected news. Sara passed away on May 23rd. We grieve with her many friends and family and are grateful to have known Sara for the brief time we had. –Ed.*



NEVADA ROCK ART FOUNDATION:

## Northern Nevada Fieldwork

**D**uring 2014 the Nevada Rock Art Foundation will be carrying out fieldwork at sites in northern Nevada, assisted by a grant from the Bureau of Land Management, Carson District Of-

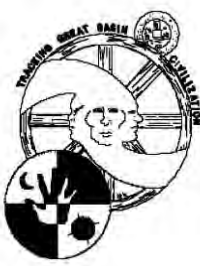
fice. Work includes documenting sites in the High Basin's Area of Critical Environmental Concern (ACEC) to support the preparation of a draft National Register district nomination for the area.



Work will also commence inventorying 580 acres of the Pistone Complex to establish the extent and character of the rock art and associated archaeological features at what is probably the largest rock art site in Nevada not to have been exhaustively recorded.

If you are interested in becoming a Nevada Rock Art Foundation volunteer, email [info@nvrockart.org](mailto:info@nvrockart.org), or call 775-323-6723 / 702-804-6723. ☪





ELKO COUNTY CHAPTER:

## Archaeology Fair!

by Donna Murphy, Secretary/  
Treasurer

**T**he Elko folks had a successful Archaeology Fair on Saturday, May 17<sup>th</sup> held at the Northeastern Nevada Museum. Approximately 96 visitors attended and enjoyed the displays, demonstrations and activities.

Among the activities were the popular amulets decorating and bead stringing that John and Terrie Anderson provide every year; a fossil display by our paleontology member, Don Johns; the seed grinding and pump drill station where the kids got some hands-on involvement; and the display of various replicated artifacts from the Traveling Colonial History Trunk which Pam talked about. Lester covered the Hunting Tools Display and Brenda talked about cordage making and how dogbane and other plant materials were used to make string. Tim and Linda switched off doing the Archaeology lab where kids measure, sketch, and analyze "artifacts recovered from an excavation." Susan talked about plant resources at the Native Plant Foods Display.

Folks were fascinated watching Tim Beasley's flint knapping demonstration and they enjoy the dioramas that Tim and Donna Murphy made of the Paleolithic Cave Art, an Archaeological Excavation, Basketmaker Pit houses, Southwestern Cliff House and a Shoshone Winter Camp.

The annual Trail Days Celebration at the California Trail Center in Elko was held on May 31<sup>st</sup> and June 1<sup>st</sup>. Members of our group assisted and demonstrating in the Shoshone Camp which was set up at the Trail Center and represents what life was like in the area before the Emigrants came through. There were replicated wickiups and a demonstrations of earth oven cooking, hot rock cooking, cordage making, flint knapping and food gathering. ♀



Tim Beasley presented the flint knapping demonstration.



Tim Murphy helping visitors fill out "lab forms" for a mock archaeological dig.



Lester explains the replicated prehistoric hunting tools to curious visitors.





ARCHAEO-NEVADA SOCIETY:

## New Projects in 2014

by Kevin Rafferty, ANS President

**O**ur slate of meetings and talks continues as it has in the past. In February A.J. Thompson of Knight & Leavitt Associates presented a talk on historic roads and trails in the Mormon Mesa area. March's speaker was Barbra Roth of the University of Nevada, Las Vegas, who spoke about excavations she is undertaking in New Mexico. April saw Mark Boatwright of the Bureau of Land Management (BLM) speaking about sample surveys the BLM is conducting in the Red Rock Canyon area. The speaker for May of 2014 has yet to be determined.

Starting in March, 2014, the Society (in conjunction with the College of Southern Nevada Anthropology Club) undertook a resurvey and re-recording project at Spring Mountain Ranch State Park. Under the direction of Professor Wil Wilreker and Dr. Kevin Rafferty, the purpose of this project was to train students in archaeological survey and site recording techniques, and bring the site records that were first written in 1974 up to modern standards.


One interesting cultural property at the ranch locale is a scout camp that, when encountered in 1974, was not a minimum of 50 years old and thus not a cultural property as defined by the National Historic Preservation Act of 1966. Re-

search has indicated that it was used between 1948 and 1952, meaning that the property is now a minimum of 60 years old, and should be further investigated. Additional historic and prehistoric properties will also be recorded to modern standards and a new report written and submitted to the Division of Nevada State Parks.

A number of Archaeo-Nevada Society (ANS) members are involved with the Friends of

Red Rock Canyon's Cultural Resource Team. They have recorded all the known rock art sites in Red Rock Canyon National Conservation Area and continue to monitor the sites. They assist the BLM Archaeologist, Mark Boatwright, when his staff has field survey work. Lastly, they are currently researching and documenting the historic

history of Red Rock Canyon. Some of the committee members who are also Archaeo-Nevada members are Gary Vetter, Harold Larson, Elaine Holmes, Anne McConnell, and Linda McCollum.

Also a group of ANS members have been assisting the National Park Service the past two years with site surveys and documentation. These individuals include Chuck Williams, Elaine Holmes, Anne McConnell, Gary Vetter, Linda Nations, and Paul Renois. 



**A.J. Thompson presented on historic roads in the Mormon Mesa Area.**

## The Nevada Archaeological Association

P.O. Box 73145  
Las Vegas, NV  
89170-3145

### Submit !!! To the NAA Newsletter

Submit your mini-reports (max. 5 pages plus references), articles (1/2- 2 pages), chapter reports, pictures, and upcoming events to:

NAA Newsletter  
c/o Elizabeth Dickey  
1105 West Sunset Way  
Carson City, NV 89703

Phone: 775-888-7478  
E-mail: [edickey@dot.state.nv.us](mailto:edickey@dot.state.nv.us)

*Hundreds of Good  
Looking  
Archaeologists  
Can't be Wrong!*

We're on the Web!

[www.nvarch.org](http://www.nvarch.org)



IN-SITU



The Sparks Library now serves as the Sparks Museum and Cultural Center. The Nevada Architectural History Alliance will be hosting a talk on its architect, Frederic DeLongchamps, on June 21, 2014 at the Museum.

## UPCOMING EVENTS 2014

For a complete listing of official Nevada Sesquicentennial Events see the [Nevada150.org](http://Nevada150.org).

June 21 , 12:30 PM-3:30 PM Inaugural meeting of the **Nevada Architectural History Alliance** at the Sparks Cultural Center. Mella Harmon will present "**DeLongchamps Sparks Interest in Architectural History.**" Sparks Museum & Cultural Center. 814 Victorian Ave, Sparks. Refreshments served. See [www.nevada-aha.org](http://www.nevada-aha.org) for more information. Free!

July 19 1:00 PM-4:00 PM **Quarterly NAA Board Meeting at the NV State Museum**, Las Vegas. Check the NAA website for more information, [Nvarch.org](http://Nvarch.org). All members are welcome. Free!

July 25-26 **John C. Fremont Symposium** at the Nevada State Museum, Carson City. Two days of lectures, presentations and panel discussions on the explorer known as "the Pathfinder." **Registration due on June 30th.** Contact Deborah Stevenson for more information, [dstevenson@nevadaculture.org](mailto:d Stevenson@nevadaculture.org). \$100 (includes Friday lunch, & Saturday dinner/entertainment).

August 1 All **Paper and Poster abstracts due** for the Great Basin Anthropological Conference. Visit "[Symposia & Papers](#)" for more information.

Oct 15-18 **34th Great Basin Anthropological Conference** in Boise, ID. Visit [gbac.whsites.net](http://gbac.whsites.net) for more information. Registration \$65 Students/Retired, \$75 Regular



## MEMBERSHIP APPLICATION

### Nevada Archaeological Association

Join the NAA! Just Fill out this form and return to:  
Nevada Archaeological Association  
PO Box 73145  
Las Vegas, NV 89170-3145  
Or apply online at [www.nvarch.org](http://www.nvarch.org)

☐ New Member ☐ Renewal

#### MEMBER INFORMATION *Please Print*

☐ Mr. ☐ Ms. ☐ Mrs. ☐ Dr.

Last Name: \_\_\_\_\_

First Name: \_\_\_\_\_

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

City: \_\_\_\_\_ State: \_\_\_\_\_

Country: \_\_\_\_\_ Postal/Zip code: \_\_\_\_\_

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

Email: \_\_\_\_\_

Additional Member Names: \_\_\_\_\_

(For Family Memberships) \_\_\_\_\_

#### Code of Ethics:

The purpose of the Nevada Archaeological Association (NAA) is to preserve Nevada's antiquities, encourage the study of archaeology, and to educate the public to the aims of archaeological research. Members and chapters of the NAA shall:

1. Uphold the purpose and intent of the NAA
2. Adhere to all antiquities laws
3. Seek the advice, consent, and assistance of professionals in archaeology and/or history in dealing with artifacts, sites, and other materials relating to antiquities
4. Assist professionals and educators in accomplishing the objectives of the NAA
5. Be a personal envoy of the NAA and responsible for conducting themselves in a manner so as to protect the integrity of the artifacts, sites, or other material

I hereby agree to abide by the Code of Ethics of the Nevada Archaeological Association.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

All members now receive an *In-Situ* newsletter automatically via email if one is provided. Would you like to help us reduce costs and protect the environment by discontinuing your hardcopy mailing? ☐ Yes ☐ No

# 2014

#### Membership Category\*

- ☐ Regular - \$20  
☐ Family - \$25  
☐ Student - \$10  
☐ Supporting - \$50  
☐ Corporate - \$50  
☐ Lifetime - \$500

#### Chapter Affiliation\*\*

(Check all that apply)

- ☐ Am-Arcs of Nevada  
☐ Archaeo-Nevada Society  
☐ Churchill County Chapter  
☐ Elko Chapter  
☐ Lincoln County Chapter  
☐ White Pine Historical & Archaeological Society  
☐ Nevada Rock Art Foundation  
☐ Site Steward  
☐ None (Member-At-Large)

\*Organizations wishing to be affiliated with the NAA must first apply in writing to the NAA Board. The applicant must include a current copy of the organization's bylaws and Code of Ethics. The NAA Board shall review applications at the next scheduled Board meeting following receipt of the application. Affiliated organizations pay dues at the Supporting level.

\*\*Members of the NAA may form local or topical chapters of the Association. Requests for new chapters must be made in writing to the NAA Board, and will be reviewed at the next scheduled NAA Board meeting.





Nevada Archaeological Association

P.O. Box 73145

Las Vegas, NV

89170-3145