

Verde Valley Archaeologist

A Quarterly Publication of the Verde Valley Archaeology Center

New Board Members

During the 2021 annual meeting, four current Board Members (Roberto Ancis, Linda Guarino, Dennis Shaw, Lynette Kovacovich) were re-elected for two-year terms. We are pleased to announce the election of two new Board Members - Linda Buchanan and Gay Chanler. Short biographies of the new members are provided on page 7. Linda Buchanan returns to us after a few years. Linda was on the Board of Trustees from 2011-2013. Some of you may recall that Gay Chanler developed the Non-Banquet Banquet Menu for last October's Virtual Gala. Gay not only developed the menus but provided the ingredients that were given to the first 25 people who purchased the Non-Banquet Banquet Ticket. These tickets quickly sold out.

Forest Service Request



The Center received a request from the Red Rock District of the Coconino National Forest for monitoring camera equipment and supplies for three archaeological sites that have recently been vandalized. The Center had previously provided similar camera monitoring equipment for archaeological sites. The mission of the VVAC Site Watch Program is to support the Forest Service and Park Service in the protection of archaeological sites. Funds for this equipment are covered by previous grants to the Site Watch account. This purchase has depleted the current fund balance so additional grants and donations will be sought to continue to assist the agencies in their preservation efforts.



Virtual Archaeology Month



It was almost shocking how successful our Virtual Gala turned out to be. We raised more funds, nationally, than we ever did with the usual sit-down Gala. Fortunately, the platform we used is still available to us for free, so we would be silly to not try something again. Watch for another virtual event in March with a silent auction and raffle, and other surprises.

Park Service Request

The VVAC is the official Nonprofit Partner of the National Park Service (NPS) for Montezuma Castle and Tuzigoot monuments. The Center received a request from the NPS for assistance in publishing the administrative history of the Tuzigoot National Monument, similar to a previous volume on Montezuma Castle. A paper was written several years ago but never published. They are looking for assistance in getting the paper into a printable format and possibly



have the VVAC Press publish the book. A first printable draft has been completed and is awaiting the delivery of some images and further editing. The Center is pleased to be able to assist in this way.

March is Archaeology Awareness Month

March is Archaeology and Heritage Awareness Month for the State of Arizona. Setting aside a month to celebrate archaeology highlights the importance of our shared past, as well as the social and economic impacts of archaeology in the state. Normally there are tours, events, and lectures on archaeology throughout the year, but every March usually brings extra opportunities. But this year, still in the throws of the pandemic, will limit these opportunities. Therefore, the VVAC will attempt to do a virtual program. Plans are currently being made and will be released by the end of February.



For example, the VVAC has over 40 archaeology documentary DVD's listed on the Yavapai County Library network. We will let you know how you can reserve a DVD for home-viewing for either pick up at the VVAC or we will mail the DVD to you as a member service. Watch for details!

Letter from the President



Who knew 12 months ago what a crazy year this would be? In spite of COVID, having to close shop for months, and not having an in person Board meeting since February of last year, the Center has continued to move forward. Now that the vaccine is more widely available, we hope to see a return to normalcy by the end of the year.

Congratulations to Dr. Todd Bostwick, our Archaeologist for the past 10 years, on publishing his book on the Dyck collection, "The Dyck Cliff Dwelling: a Sinagua Habitation Site Overlooking Beaver Creek, Central Arizona." It is 700 pages in two volumes. Todd and Ken are in the process of creating a 150-page version for the general public which will be available on Amazon and in our Gift Shop in March.

Another feather in our cap: On June 26 the Arizona Historical Society State Board approved our application as a Certified Historical Institution (CHI). CHIs demonstrate efforts to follow and apply standards or "best practices" established by the American Alliance of Museums. The recognition also qualifies us for a grant of up to \$2,000 annually.

In addition to the on-line classes mentioned in our summer newsletter, Ken also created a class for Verde River Region Site Stewards. VVAC is the regional coordinating organization for this area. This class relieves the pressure to hold in-person classes of large groups. We monitor approximately 110 sites and have over 85 active site stewards.

The laboratory was closed much of the year, but we hope to open again in February. We had a survey class in September and were able to go out in the field and complete surveying 6 of 10 sites given us by the Prescott Forest Service. Hopefully we can start again soon to complete the survey for the rest of the sites assigned to us.

What will 2021 bring? After much soul searching, research, discussion with the USDA and Board, as well as the impact both past and future of COVID, we have decided we cannot, in a financially responsible manner, move forward with the \$4.7 million dollar new museum on our property. We are looking at either building a smaller version on our property, or purchasing an existing building in Camp Verde which would provide us the needed space to expand our repository and museum space. We hope to finalize our decision soon.

No matter which direction we take, we have a lot of work ahead of us. There will be a need for more volunteers, and for board members with marketing, financial, fundraising, educational, and organizational skills. If you are interested in any of the above, please contact me or Ken Zoll.

Stay safe!

Cheri Meyerhofer



The mission of the Verde Valley Archaeology Center is to preserve archaeological sites and collections, to curate the collections locally, and to make them available for research and education; to develop partnerships with American Indians, cultural groups and the communities it serves; and to foster a deeper understanding of prehistory and American Indian history in the Verde Valley through the science of archaeology.

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NATIVE AMERICAN GARDEN & PATHWAY

Winter Activities

Rob Estrada



In November 2020, we began the project of preparing the garden for the Winter season. In October, Donna Ullner and I raked large piles of dried corn stalks, amaranth, squash vines, and Devil's Claw. The Copper Canyon Fire Department wouldn't issue any burn permits until we had our first precipitation. In the meantime, I decided to protect the agave following some damage by grazing deer.

We finally got our first decent rain of the season in early November, and we proceeded with the first of two burns. After all of the cuttings, I returned to burn the Siberian Thistle, which accumulated behind the tool shed. I spread the ash over the two areas where we plan to plant the 'Three Sisters' in the Spring. In 2021, I wish to double the size of the cornfield for better pollination.

I coiled up all of the ¼ inch irrigation lines along the fencing for safe storage until next year. This year, we purchased a small wood chipper. This tool provides savings by converting Mesquite branches into wood chips in our new compost pile. Donna has been very resourceful in acquiring raw materials such as horse manure and dried Sycamore leaves from local ranchers. The ash and manure were spread over the future maize field. I brought my rototiller over in early December and tilled the manure and ash into the topsoil. I estimated that between the ash, manure, leaves, and chippings, we have processed over ½ ton of compost in the garden this Winter! Hopefully, we'll have some good winter rainstorms to help the compost material distribute nitrogen deep into the topsoil.

I've given some thought to indigenous species utilized by the ancestors of the Yavapai-Apache in our region. These edible wild plants include sotal (see *Sotal* insert), soapweed, and Palmella. I'll attempt to learn how these 'weeds' were prepared in future conversations while I try to acquire some seed.

Sadly, early one morning, I noticed a pile of feathers at the base of one of the rock cairns at the garden's northeast corner. I approached with a sense of apprehension. Unfortunately, I realized my fears. The friendly and curious roadrunner, which would often watch my work, had been killed. I assume it fell prey to a raptor of some sort. Any mammal carnivore would be too large to enter the fenced area of the garden. I'll miss my little garden companion.



What is Sotal?

Sotal is a type of shrub, *Dasyliirion wheeleri*, more commonly called desert spoon. The pulpy central stems or "hearts" of sotal plants were baked and then pounded and formed into chewy patties which could be dried and stored.

Resembling a yucca plant, the desert spoon plant is a succulent with long, spiny leaves, that grows wild. It is found in Mexico's Chihuahua region, and as far north as Arizona, New Mexico and Texas.

Sotal can also produce a distillate similar to Tequila or mescal made from agave. Unlike agave, when desert spoon is harvested, the root remains intact and the plant will eventually re-grow.



Three Sisters?

The crops of corn, beans, and squash are known as the Three Sisters. For centuries these three crops have been the center of Native American agriculture. It is for good reason as these three crops complement each other in the garden as well as nutritionally.

Corn provides tall stalks for the beans to climb so that they are not out-competed by sprawling squash vines. Beans provide nitrogen to fertilize the soil while also stabilizing the tall corn during heavy winds. Beans are nitrogen-fixers meaning they host rhizobia on their roots that can take nitrogen, a much needed plant nutrient, from the air and convert it into forms that can be absorbed by plant roots. The large leaves of squash plants shade the ground which helps retain soil moisture and prevent weeds.

What is Palmella?



Common Names: Soaptree Yucca, Soaptree, Soapweed Yucca, Palmilla, Palmella, Amole
Duration: Perennial
Habit: Cactus/Succulent
Leaf Retention: Evergreen
Leaf Complexity: Simple
Leaf: Green
Size Class: 3-6 ft.
Bloom Color: White
Bloom Time: Apr, May, Jun



ARCHAEOLOGY 101: X-RAY FLUORESCENCE (XRF)

Archaeological research is usually concerned with the question of origin, dating, and attribution of cultural objects. As described in the discussion of Flaked Stone Tools, a technique known as X-Ray Fluorescence (XRF) was used to identify the source of the obsidian found in the Dyck Cliff Dwelling. The use of this technique is non-destructive and only needs minimal sampling so that after analysis, the unchanged sample is still available for further studies.

Obsidian sourcing is a well established method employed by archaeologists and anthropologists that has allowed trade distribution networks to be studied in the Mediterranean, the Americas, the Southwest Pacific, and in many other places. Being a volcanic glass, the physical properties of obsidian made it ideal for the manufacture of sharp edges, to be used as knives, scrapers, and spear or arrow points, while remaining resistant to breakage. But the rare property of obsidian that is advantageous to archaeologists is that it occurs in volcanic flows that are remarkably homogeneous in chemical composition within a flow, but preserve elemental signatures that are unique to volcanic centers, and in some cases individual flows. This provides the potential to trace worked obsidian right back to its place of origin.



Using a portable x-ray fluorescence (pXRF) spectrometer, analysts can determine which elements are present in each obsidian lithic. This is a nondestructive way to analyze a sample because pXRF simply sends an x-ray beam through the sample. Since pXRF determines which elements are present in the obsidian lithics, we can use this information to link each lithic to a plausible obsidian source. We can do this because when obsidian magma flows through the volcano to the

surface, it picks up small bits of minerals and elements on the way. These trace elements are unique to each volcano, like a fingerprint, and can be picked up by a pXRF Tracer. Handheld XRF power is much lower than imaging X-ray equipment, so XRF users' exposure is the same as or less than you get from naturally occurring sources.

The VVAC made a recent Arizona Site Steward monitoring visit to the Ottens (Sugarloaf) Pueblo in Cornville, accompanied by Michael Kellett. In addition to analyzing the obsidian within the Dyck Cliff Dwelling, Michael Kellett analyzed, on site, the elemental composition of 30 obsidian artifacts found at the Ottens Pueblo. He used an Olympus Delta Pro X-ray fluorescence spectrometer shown above. The results demonstrate consistency between all 30 of the Ottens Pueblo site artifacts and the Government Mountain reference samples. These results indicate that all 30 of the Ottens Pueblo artifacts came from the Government Mountain obsidian source area. This was not surprising given that most of the Dyck Cliff Dwelling obsidian was also from Government Mountain.

Flaked Stone Terminology

Artifact: An artifact is an object or remainder of an object, which was created, adapted, or used by humans. The word artifact can refer to almost anything found at an archaeological site, including everything from landscape patterns to the tiniest of trace elements clinging to a potsherd; All stone tools are artifacts.

Assemblage: Assemblage refers to the entire collection of artifacts recovered from a single site.

Blades: Blades are chipped stone tools which are always at least twice as long as they are wide with sharp edges on the long sides.

Core: The objective piece, or the rock, being reduced by the removal of flakes. **Cortex** is the outer layer of the rock.

Debitage: Debitage is the collective term used by archaeologists to refer to the sharp-edged waste material left over when someone creates a stone tool (knaps flint).

Flake: A portion of rock removed from an objective piece by percussion or pressure.

Lithics: Archaeologists use the (slightly ungrammatical) term 'lithics' to refer to all artifacts made of stone.

Projectile Point: Any object affixed to a pole or stick of some kind, which has been fashioned for use as a weapon, out of stone, metal, bone, or other material

Shatter: Waste resulting from stone toolmaking activities that are not otherwise diagnostic.



Arizona Obsidian Sources



EXPLORING THE DYCK CLIFF DWELLING ARTIFACTS

Chapter 8 Excerpt - FLAKED STONE ASSEMBLAGE

Melody Nowaczyk and Todd W. Bostwick

This excerpt focuses on obsidian in the collection. Referenced sources can be found in the full report. See Terminology insert on page 4.

Introduction. Archaeological excavations of the Dyck Cliff Dwelling unearthed 1,709 flaked stone artifacts. Analysis of these artifacts revealed that the site inhabitants practiced more of a simple, expedient tool strategy compared to a curated tool strategy where tools are designed and maintained, with most flaked stone tools at the site “manufactured, used, and discarded according to the needs of the moment.” Formal stone tools were few, consisting primarily of projectile points, cutting, drilling, scraping, and chopping implements. Similar to other Sinagua sites, lithic debitage accounted for the majority of the flaked stone assemblage recovered from site excavations.

Obsidian. The Dyck flaked stone assemblage contains 133 obsidian artifacts. X-ray fluorescence (XRF) analysis (see page 4) was conducted by Michael Kellett on 114 of the Dyck obsidian artifacts, revealing that material from at least five different obsidian sources are represented at the site: Government Mountain, Topaz Basin, Mule Creek (New Mexico), Partridge Creek, and West Sauceda (see map on page 4). XRF analysis of a sample of the Dyck obsidian by the Gila River Community Cultural Preservation Department also identified one piece from the Sauceda source.

Similar to several northern Arizona archaeological sites, the majority of the obsidian artifacts from the Dyck site were sourced as Government Mountain, accounting for 82.4% of the Dyck obsidian which underwent XRF analysis. Government Mountain obsidian in the Dyck assemblage consists of projectile points, a drill, a utilized blade, utilized cores, utilized flakes, unutilized flakes, utilized shatter, and unutilized shatter.

The Government Mountain obsidian source is part of the San Francisco Mountain volcanic field located on the Coconino Plateau. It is composed of a set of complex rhyolite domes that contain obsidian nodules within the sediment around the base of the dome structure. Most nodules are nearly opaque and exhibit little cortex, but some have a thin gray or brown weathered surface or red oxidation coloration.

Because of its large nodules and high quality for making stone tools, Government Mountain obsidian was used from Paleoindian through the historic periods. It has been found at archaeological sites as far south as the Arizona and Sonora border, at sites on Black Mesa in northeastern Arizona, and as far east as Chaco Canyon in New Mexico. Government Mountain obsidian is located approximately 80 miles from the Dyck Cliff Dwelling. Current data clearly



Obsidian
Micro-blade

indicates that the Sinagua favored Government Mountain obsidian over all other sources.

Fourteen percent of the obsidian is Topaz Basin obsidian. It consists of unworked nodules, projectile points, a cutting tool, utilized flakes, unutilized flakes, and shatter.

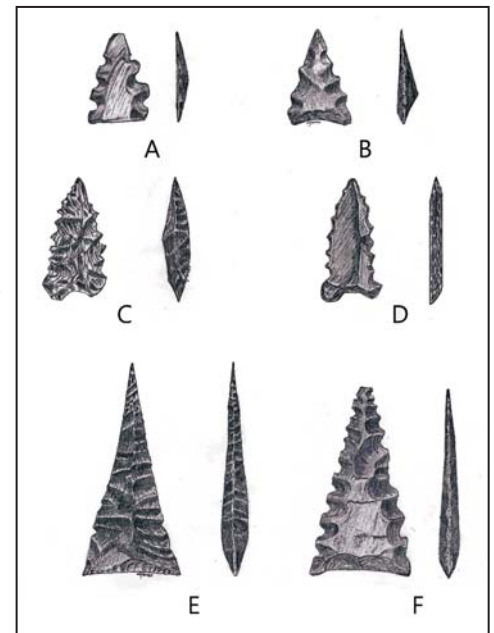
The Topaz Basin obsidian source is southwest of Camp Verde and south of SR 169. Topaz Basin nodules have been found in two localities, around a rhyolite dome remnant east of Interstate 17 and secondary deposits along Cienega Creek west of Interstate 17. Obsidian from this source is very transparent when flaked and nodules are typically small.



Topaz Basin obsidian

This volcanic glass is a good quality material for making stone tools but has not been frequently identified at archaeological sites.

Ethnographic research has documented that the Apache used obsidian as one of a several offerings that are employed in healing ceremonies. In addition to providing raw material for the production of tools, the Dyck obsidian nodules from Topaz Basin may have served as a symbolic object as well as one utilitarian in nature.



Projectile Points. A variety of point types are represented in the assemblage. Sixteen of the Dyck projectile points were made of obsidian and represent several different point types as shown in the illustration.

Illustrations of selected obsidian projectile points from the Dyck Cliff Dwelling showing variations in types C is Topaz Basin obsidian, F is Partridge Creek obsidian, and all others are Government Mountain obsidian. Illustrations by Keith Greiner.

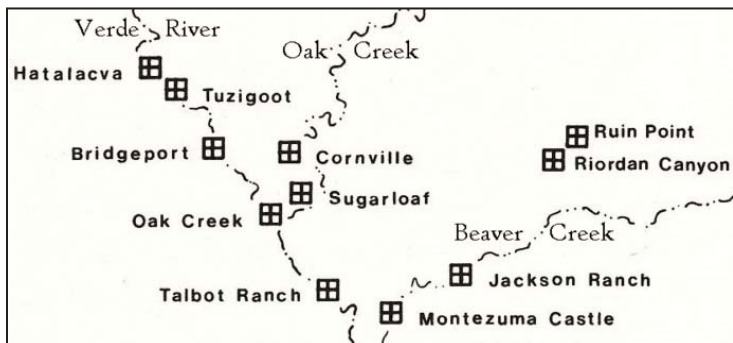
Projectile points will be a subject in the next *Verde Valley Archaeologist* edition.



THE ARCHAEOLOGICAL RECORD - THOENY PUEBLO

Upstream from the Dyck Cliff Dwelling are Montezuma Well (about 50 rooms) and Jackson Ranch/Thoeny Pueblo (30 rooms and 2 community rooms). The Thoeny site, AD 1150-1400, is located on a steep hill surrounded by a subdivision in the town of Lake Montezuma. It is one of several sites owned by the Archaeological Conservancy. The VVAC is the local managing organization for the Conservancy sites and it is monitored by the Arizona Site Steward program.

In 1930, Richard Piela recorded a number of sites in central and southern Arizona for the Museum of Northern Arizona. He discovered four Southern Sinagua sites in the Sugarloaf Ruin (now called the Ottens Pueblo) area. This group of sites later became known as the Sugarloaf Ruin Group. Earl Jackson, later custodian of Montezuma Castle, conducted a survey of the Verde River drainage system (1933) and noted that late pueblo sites in the Verde Valley were located in defensive locations such as on hilltops, which he attributed to internal and external conflicts due to population growth and inadequate agricultural land to support the local inhabitants.



As mentioned above, the site has about 30 masonry rooms that can be identified on the surface as well as two large community rooms. The drawing shown here was made by Shelby Coody in 1991. Shelby was the 2017 recipient of the Sherman Loy Memorial Award for his many detailed surveys of sites that had never been recorded before.

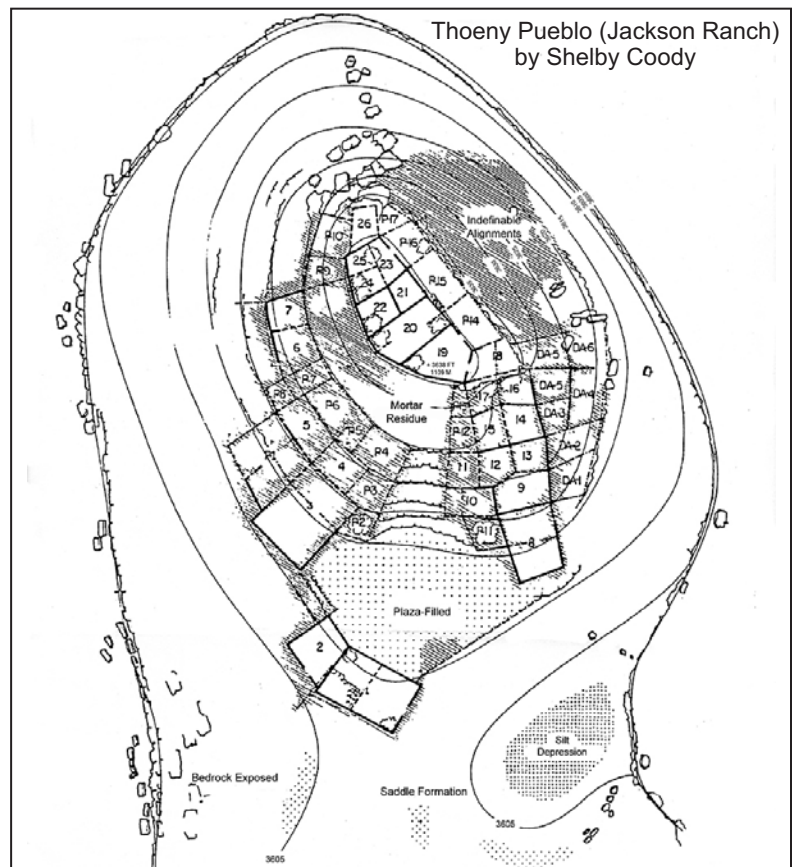


This 1992 photo of Thoeny Pueblo shows the lower Community Room shown in the drawing as Room 1. The remainder of the dwelling is on the top of the hill above. Only room outlines remain today.

Historical Reconstructions and Vandalism

Unfortunately, historic encroachment of urban development has not protected the site over the years. A 1991 report stated that it appeared that the prominent visible wall construction of two rooms had been historically reconstructed and disturbed. The walls and slab floor of one room appear to be superimposed over old rubble in some places and the old original foundation alignment has not been followed. The craftsmanship in the new wall construction is not consistent with the original builder technique. Double-course, rubble-fill construction was not followed through in all places. The mortar mix is not consistent and in some places is full of weathered sherds that compare to those in the soil of the adjacent residue of the plaza area. Reddish brown stain of the rock slabs used in the wall reconstruction would indicate they were pirated from other parts of the site where they had been unexposed and buried. A pile of the original wall rubble remains at the end of one room. This rubble was probably removed for ease of construction and it still retains the original grey patina.

Vandals have dug into two corners of the reconstruction and both inner and outer walls have been splattered with brown and green beer bottle broken glass. Corners of some of the rooms show pot-hunting. There is also a possibility that historically some stone has been removed and sledged down the elevation for use in historic projects. It would appear that the visible wall rubble scatter present does not exhibit the nice rectangular wall building slabs that should be present in proportion to the irregulars.



Meet the Board

Gay Chanler, M.A.

Gay Chanler was elected to the Board of Directors on January 19, 2021. She is a professionally trained chef by trade, with an MA in applied cultural anthropology from Northern Arizona University. A graduate internship with the Malpai Borderlands Group, an innovative working collaborative of ranchers, conservationists, scientist and government agencies, honed her insights about the need and possibilities for collaborative land management to preserve landscapes, ecosystems and the ranching culture and economy of the Southwest.



Gay taught cooking classes for many years in Flagstaff. She co- led the Slow Food USA chapter in Flagstaff for 4 years, and from 2006-2014 served as Slow Food Presidium coordinator for traditional Navajo shepherders who raise the vanishing heritage breed, the Navajo-Churro sheep. Her work with the shepherders led her to co-produce the film “A Gift from Talking God - The Story of the Navajo-Churro Sheep.”

When Gay moved to Sedona in 2013 she joined the Sedona Muses, an auxiliary of the Museum of Northern Arizona, eventually serving as Program Coordinator and VP for the group from 2015-2018. Currently, Gay works on biodiversity research for the Slow Food USA Ark of Taste and writes about food for Edible Phoenix magazine.

Linda Buchanan, M.Ed.

Linda Buchanan was elected to the Board of Directors on January 19, 2021. Linda is the Community Engagement coordinator at Yavapai College. She also serves on the Board of Directors for the Sustainable Economic Development Initiative (SEDI) of Northern Arizona; Arizona Forward Northern Council; and the Verde Valley Agriculture Coalition (VVAgC).



Linda advocates for balance between environmental quality and economic development, while seeking collaborative opportunities to protect the natural resources and showcase regional conservation initiatives in the Verde Valley.

Linda says that “Education, agriculture, water management, and access to recreation, arts, and culture are each ‘quality of life’ issues in rural Arizona. Our best efforts typically represent large corporations and small businesses, municipalities and government agencies, educators, non-profits, and concerned individuals working together to protect this beautiful place we call home.”

Notes from the Front Office

Hello to all of our wonderful members and a health new start in 2021! As always, thank you tremendously for your consideration and support! We have been working on our new membership database so we are curious to hear what you might have to say about it – the good and the not so good. Are you enjoying being able to print your our own membership cards? There have been some quirks along the way so thank you so much for your patience and kindness as we work our way through the challenges of data conversion.



As a special note, for those who will be renewing later as 2021 continues on, the password link that the system sends you requires 8 characters including an upper case letter, lowercase letters, and a special character such as #, !, or ?.

Please remember to help us market; talk about us to your neighbors, your friends, and family. Every membership counts! Thank you again for your support! It is so very much appreciated. As always, please call (928-567-0066) or email if I can be of any assistance (manager@vvarchcenter.org). Thank you all!

Susan

COVID-19 STATUS

As of last September, the Center’s Museum has been open for self-guided tours, by reservation ONLY. Available tour times are 10:00 am, Noon and 2:00 pm. This gives us time to do a wipe-down between visitors. Reservations can be made from our website home page at the top - click “Tickets.”

Even members are required to make a reservation so that we can control access safely. Members, and individuals under 18 and over 64, are FREE. The fee for all others is just \$5.

MASKS ARE REQUIRED OF VISITORS AND STAFF.
Thank you for your cooperation.

Unfortunately, due to the increase in cases, we have again suspended hikes and do not anticipate returning to “live” lectures until October.

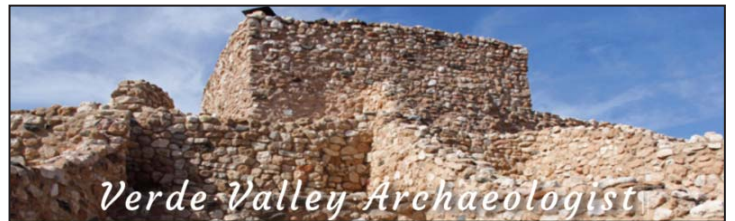


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ABOUT OUR COVER HEADER

- Tuzigoot National Monument was established by Presidential proclamation on July 25, 1939.
- Tuzigoot was first occupied about AD 1000
- Tuzigoot had 77 ground-floor rooms and 15 possible second-story rooms in one main room block and four smaller contiguous room blocks. Perhaps 225 people lived in the pueblo.
- The pueblo was constructed of native river boulders (basalt, sandstone, and limestone, as well as irregular blocks of limestone from outcrops on Tuzigoot Hill) and adobe mortar.
- A plaza area lies between the main room block and northern block of rooms.
- Tuzigoot was first explored during the 1932-33 survey of the Middle Verde. Over 411 burials holding the remains of 429 individuals were found. Nearly all of the excavated burials were reburied in the slope below the prehistoric pueblo close to the original cemetery in 1934.
- A vast amount of artifacts was recovered, including flaked and ground stone, ceramics, bone, shell, and some perishable items such as basketry, textiles, and wood.
- Tuzigoot means “crooked water” in the Apache language.