



# ARIZONA ARCHAEOLOGICAL COUNCIL

*in cooperation with*



**City of Phoenix**



PUEBLO  
GRANDE  
MUSEUM  
ARCHAEOLOGICAL PARK

*present*

## A Symposium on the Archaeology of Canals in the Arizona Desert

Friday, September 24, 2021, 9 AM-4 PM

Pueblo Grande Museum Community Room and simulcast on WebEx

### CONFERENCE AGENDA

- 8:00 AM Preconference tour of Park of the Four Waters
- 9:00 AM Networking Session
- 10:00 AM *Welcome* –Dan Garcia and Laurene Montero
- 10:10 AM *A review of the 2008 Conference on Canals* – Bruce Phillips
- 10:20 AM *Traditional Perspectives on Water, Canals, Archaeology, and Cultural Resources* – Angela Garcia-Lewis
- 10:40 AM *Refined Canal Ages and Implications for the Organization of Turney’s Canal System 2, Phoenix, Arizona* – Kathy Henderson
- 11:00 AM *Canals of Pueblo Viejo* – Jerryll Moreno and Mark Brodbeck
- 11:20 AM *Finding and Understanding Ancient Hohokam Irrigated Agricultural Fields in Southern Arizona* – Kyle Woodson
- 11:40 AM *A Critical Evaluation of Soil Salinization, Waterlogging, and Agricultural Fertility within Hohokam Irrigation of the Phoenix Basin* – Chris Caseldine and Dave Abbott
- 12:00 PM *Lunch Break*
- 1:15 PM *Announcements and AAC Election Results* – AAC Board
- 1:30 PM *Update: The Digital Archive of Huhugam Archaeology* – Chris Nicholson and Rachel Fernandez, Digital Antiquity
- 1:40 PM *Ancestral O’odham/Hohokam canal-side workspaces* – Steve Swanson and Ryan Arp
- 2:00 PM *The Pima Lateral: Historic-era Native American Irrigation Agriculture on the Lehi Terrace* – Chris Rayle
- 2:20 PM *Where did the water go?* – Reylynne Williams
- 2:40 PM Break
- 3:00 PM *Discussion* – Gary Huckleberry, Bruce Phillips, Kyle Woodson, and Chris Caseldine
- 4:30 PM Conference adjourns
- 4:45 PM Arizona Archaeology Happy Hour – Walter Station Brewery, 4056 E Washington, Phoenix

To register for the conference, please visit <http://arizonaarchaeologicalcouncil.org/event-4476616>

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DESERT ARCHAEOLOGY, INC.





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## A Symposium on the Archaeology of Canals in the Arizona Desert

Friday, September 24, 2021, 9 AM-4 PM

### Presentation Abstracts

**A review of the 2008 Conference on Canals** – Bruce Phillips, BGP Consulting LLC. *This presentation will be a review of the research presented at the last regional conference on canals which was organized by AAC and the Mesa Southwest Museum in 2008.*

**Traditional Perspectives on Water, Canals, Archaeology, and Cultural Resources** – Angela Garcia-Lewis, Salt River Pima-Maricopa Indian Community. *Research and excavation of ancient canals and archaeological sites is an academic pursuit for most archaeologists. For Native people, canals have a greater importance. Water is life, the return of irrigation water after so long is changing the landscape, emphasizing how the past is still important to living communities. This discussion will present Akimel O’odham perspectives on water and canals, why consultation about water and the past remains important, and how traditional frameworks can integrate into legal practice to facilitate consultation.*

**Refined Canal Ages and Implications for the Organization of Turney’s Canal System 2, Phoenix, Arizona** – T. Kathleen Henderson, Desert Archaeology, Inc. *Archaeological projects conducted by Desert Archaeology northwest of the Park of Four Waters provided opportunity to obtain refined ages for the use of the primary main canals that compose Turney’s Canal System 2. When canal age and destination are considered, as defined by the villages that the canals served, it is seen that System 2 is composed of four separate irrigation systems, each probably managed by separate irrigation groups. At least until the 1300s when a single massive canal was built that superseded the operation of the previous four systems. The evidence leading to these observations and conclusions will be the substance of this paper.*

**Canals of Pueblo Viejo** – Jeryll Moreno, AECOM, and Mark Brodbeck, HDR, Inc. *As early as 1887 Hemenway visited the Salt River Valley and placed Pueblo Viejo on the map for the first time. Other antiquarians and early archaeologists proceeded to map and document the network of prehistoric Hohokam canals south of the Salt River, which connected Pueblo Viejo with other Hohokam villages and settlements. We briefly review these early investigations with an emphasis on how they relate to preliminary, and currently speculative, results from the monitoring and data recovery work for the South Central Extension/Downtown Hub Light Rail Project in south-central Phoenix. In some cases the canals within Pueblo Viejo align with early maps, and in other cases they do not. With historical information about the changing landscape since the early 1900s, we look at the relationship of the canals to the site and subsequent settlement of the area, including what we think may be Canal Viejo / Canal 7, as well as other previously unmapped canal segments.*



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**Finding and Understanding Ancient Hohokam Irrigated Agricultural Fields in Southern Arizona** – Kyle Woodson, Gila River Indian Community. *For over a century, archaeologists have investigated the vast network of prehistoric Hohokam canal irrigation systems in the lower Salt and middle Gila river valleys, as well as in other areas of southern Arizona. However, documentation of the agricultural fields in which prehistoric farmers irrigated their crops generally was lacking until the last 25 years. This is largely a result of the difficulty in identifying ancient fields since they are not visible on the surface and have been obscured or destroyed by natural landscape processes as well as historic and modern disturbances. More recent archaeological investigations have revealed ancient Hohokam irrigated fields through innovative methods and excavation techniques that have exposed the faint traces of these fields. These discoveries occurred during projects conducted in compliance with the National Historic Preservation Act, enacted in 1966. In this presentation I will highlight these important studies that have expanded our view of ancient agricultural landscapes in southern Arizona.*

**A Critical Evaluation of Soil Salinization, Waterlogging, and Agricultural Fertility within Hohokam Irrigation of the Phoenix Basin** – Christopher R. Caseldine and David R. Abbott, Arizona State University. *In arid and semi-arid regions, soil salinization and waterlogging are thought to cause agricultural infertility and social change. Although common in irrigation models and theories, empirical evidence supporting a primary causal link among salinization, waterlogging, and infertility has proved elusive. Proxies and indirect measures (e.g., soil description maps and historic observations) are often held up as support in the absence of direct evidence. Recent subsurface soil health data from prehistoric and historic irrigated fields in central Arizona allow for direct assessment of factors which would have constrained agricultural success (e.g., sodium and nutrient accumulation levels). In this paper, we argue that despite historical assumptions, salinization and waterlogging were not likely to have been irreversible impediments to agriculture success. Instead, multiple lines of evidence, including irrigation system longevity and prehistoric soil studies, indicate Hohokam farmers could and did mediate both potential impacts. Our results reveal that deleterious impacts of salinization and waterlogging in the past should be demonstrated through direct measure and indicators, rather than inferred or assumed.*

**Update: The Digital Archive of Huhugam Archaeology** – Christopher Nicholson and Rachel Fernandez, Digital Antiquity. *Staff from the Center for Digital Antiquity will provide an update on the Digital Archive of Huhugam Archaeology (DAHA), which contains over 2000 digital datasets, documents, reports and images focused on the ancient Huhugam (1500 B.C. – 1450 A.D.) of the southwestern U.S. These files are primarily “grey literature,” that is, unpublished reports and data sets that would otherwise be difficult to obtain. Digital Antiquity received data and manuscripts from a number of other important partners and contributors, including the Amerind Foundation, City of Phoenix/ Pueblo Grande Museum, the Salt River Project (SRP), Desert Archaeology, Inc., SWCA Environmental Consultants, and Arizona State Parks, in addition to existing collections in tDAR. Each of these organizations generously made reports, images and data sets available, material that was not otherwise accessible outside of their offices. The archive is hosted on the Digital Archaeological Record (tDAR) and available for public search and access for free.*



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**Ancestral O’odham/Hohokam canal-side work spaces** – Steven Swanson and Ryan Arp, EPG, A Terracon Company. *EPG conducted Phase I data recovery at ancestral O’odham/Hohokam site AZ T:12:91(ASM) south of the Salt River in Laveen, Arizona. Excavation revealed a prehistoric distribution or branch canal and two laterals. Although Phase II data recovery was not warranted, we did perform stripping of overburden above the junction of the distribution canal and one of the laterals. This revealed a canal-side work area with several small features and cached tools. We compare the tool assemblage with other irrigation-related tool assemblages and contrast it with nearby dry-farming tool assemblages. We discuss implications for irrigation maintenance, cultivation and crop harvesting during the Hohokam Classic Period, and recommend that additional work at such canal-side locations is warranted and may provide insights into the social organization of land and labor.*

**The Pima Lateral: Historic-era Native American Irrigation Agriculture on the Lehi Terrace** – Christopher Rayle, North Wind Resource Consulting. *Recent data recovery operations conducted on the Salt River Pima-Maricopa Indian Community by North Wind Resource Consulting (North Wind) resulted in two subsurface exposures of the Pima Lateral, an historic irrigation canal that served as the principal irrigation work for the early northside community prior to the creation of the Salt River Indian Reservation in 1879. These efforts provided for a geomorphological analysis of the Pima Lateral and surrounding Lehi Terrace landform, as well as an examination of archival documents and maps in preparing an historic context to better understand the canal’s significance. This context not only informed on the on the developmental history of the Pima Lateral and the broader, northside irrigation system that emerged in the ensuing decades, but also on the social, political, economic, and environmental factors that affected the trajectory of federal modernization efforts on the early Salt River community during the late-nineteenth and early-twentieth centuries.*

**Where did the water go?** – Reyllynne Williams, Gila River Indian Community. *The Huhugam created a vast irrigation canal system that extended for miles feeding agricultural fields and villages along the Salt and Gila Rivers. When the Gila River ran dry the Gila River Indian Community worked hard to return the water to the people. The Pima-Maricopa Irrigation Project, the first tribally built irrigation system would deliver settlement waters to agricultural lands and riparian areas in the Gila River Indian Community.*