

Introduction to the Archaeology of the Naval Air Weapons Station, China Lake, California

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Background

The Naval Air Weapons Station, China Lake (NAWS), referred to as the Base, is an active military station composed of two large-scale ranges, known as the North Range and the South Range (Fig. 1). The South Range also is referred to as the Mojave B Range. It is situated on 1.1 million acres of high desert terrain in the northwestern Mojave Desert and southwestern Great Basin. These two ranges are connected by Randsburg Wash Road, an approximate twenty mile road linking the North with the South Ranges. To the west of the ranges are the rapidly ascending Sierra Nevada Mountains that cause the Base to be in a rain shadow, depriving it of moisture. To the east are Panamint Valley and Death Valley, two of the most arid regions in the western United States, both rich in desert lore and archaeology. To the south the Mojave River flows from the San Bernardino Mountains into the Mojave Sink, and to the north the Great Basin continues until it reaches the high plains of Wyoming and Montana, and is stopped by the Rocky Mountains. Elevations for the Base range from approximately 1,500 feet above mean sea level near the Searles Lake Basin to nearly 9,000 feet above mean sea level at Maturango Peak in the Argus

Mountain Range. Vegetation ranges from creosote scrub in the south and near the edges of playas such as Lake China and Lake Searles, which once held thousands of acre feet of water, to verdant pinyon forests which occupy the higher elevations of the Coso and Argus Mountain Ranges.

There are 16,000 recorded archaeological sites on the Base. Only two locations are currently listed in the *National Register of Historic Places* (NRHP). These are Coso Hot Springs NRHP District and the Coso Rock Art National Historic Landmark (NHL). Coso Hot Springs is important for its Native American religious significance as well as the Coso Hot Springs Resort, which occupied the area at the turn of the twentieth century.

This National Historic Landmark is the largest NHL on property managed by the Department of Navy and, at 36,000 acres, rivals in size, the nearby El Paso Mountains Archaeological District which contains over 64,000 acres and located just south of Ridgecrest, California. Many sites eligible for listing in the NRHP occur throughout the Base. Through the years, several nominations have been submitted to the Navy's Federal Historic Preservation Office, in Washington, D.C.,

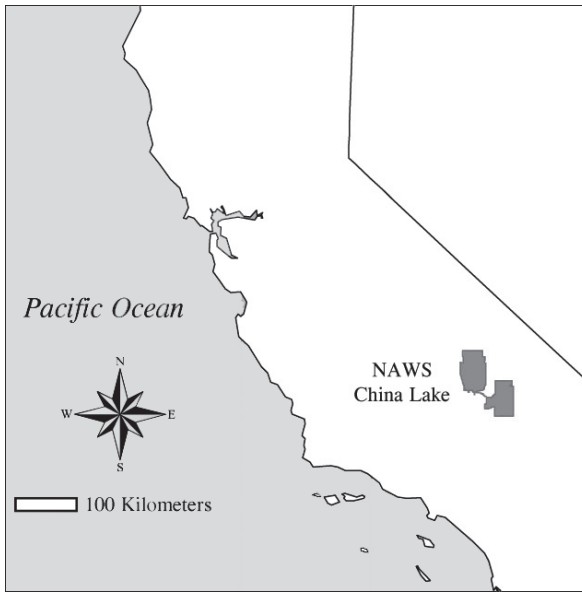


Fig. 1. Location of Naval Air Weapons Station, China Lake.

but for a variety of reasons, they have not been forwarded to the Keeper of the *National Register* for nomination. Included among these nominations are the Sugarloaf Obsidian Quarry, Cactus Flats Archaeological District, and Pothunter Springs Archaeological District. Based upon our best information, it is estimated that the site density on the Base is approximately one site per ten acres. This means that, if the past 35 years of site identification is representative of the density of cultural resources that are located on the Base, approximately 110,000 sites could be expected to be present. As of 2007, approximate 12 percent of the Base had been surveyed, beginning in the early 1970s.

The Base has had only a few staff archaeologists over the past 40 years, generally only one at a time. Carolyn Shepherd served as the Base's anthropologist and archaeologist for many years and retired as the Director of Planning and Resources in 2007. She was responsible for the development of the Base's program and for working closely with local researchers and Native Americans. She was also responsible for the NRHP nomination and the

development of the NHL. William Eckhardt was the Base Archaeologist for more than 15 years, working closely with researchers and continuing the development of a Cultural Resources Program. Elva Younkin, Robert Yohe, Meg McDonald, Theresa Clewlow and Jan Moore worked for a number of years conducting inventory related to the National Historic Preservation Act. This author was the Command Archaeologist from 2003-2007, continuing where his predecessors left off and working to establish a renewed relationship with tribes and local publics, and initiating the China Lake Curation Facility and Archaeological Laboratory and the Friends of China Lake Archaeology. The current Base archaeologist, Mike Baskerville, brings to the job his experience of working for the Bureau of Land Management, United States Forest Service, and the Department of Navy, Fallon, Nevada. In December, 2009, Ms. Kish La Pierre was hired as a second archaeologist for the Base.

Publication History for the Base

Early researchers who focused on portions of what was to become the Base include published articles by Steward (1929, 1933, 1938), Farmer (1937), and Harrington (1948a, 1948b, 1951). Unpublished research by Baldwin (1931), Summers (1923), Ross (1938), and site records and preliminary reports by Al Mohr and Agnes Bierman (Bierman and Mohr 1947-1951) on work conducted during the late 1940s and early 1950s has been summarized by Kaldenberg (2005), Monastero (2007), and Wells and Backes (2007). Grant (1968), Davis (1974, 1975, 1978a, 1978b, 1978c, 1978d, 1979, 1981 and 1982), Panlaqui (1974) and Davis and Panlaqui (1978) published their research efforts, generally associated with Lake China on the North Range. Schroth and Kearney (2007) have summarized miscellaneous archaeological work and the resultant collections from the South Range.

Focused graduate level archaeological and ethnological research on the Base has been scarce. Two PhD dissertations (Hillebrand 1972, Whitley 1982a) and one Masters Thesis (Monastero 2007) have been completed within the boundaries of the Base. Also, Whitley has published a remarkable number of articles on rock art and cultural history related to the Base. These include many examples: Whitley 1982b, 1987, 1992, 1994a, 1994b, 1994c, 1996, 1998a, 1998b, 1998c, 1998d, 2000a, 2000b, 2001, 2005, 2006, 2009; Whitley, Gumerman, Simon and Rose 1988; Whitley, Simon and Dorn 1999, and Whitley and Dorn 1987. Currently, La Pierre (this issue) is completing her thesis, on an archaeological complex in the Searles Lake Valley.

Over two hundred cultural resource reports and several dozen professional papers on the cultural resources of the Base have been generated since the enactment of the National Historic Preservation Act of 1966, as amended, at NAWS (Zelko 2007). The majority of these reports are part of the grey literature which has been generated as a result of cultural resource management. A few have resulted in professional publications, but most have not. These reports constitute the basis for on-going research and are available for professional perusal at the NAWS, China Lake, Curation Facility. Some are also located at the California Historical Resources Information Centers at Bakersfield, Riverside, and Redlands, California.

Until recently, *Desert Magazine* had published more articles regarding the archaeological and historical resources (Budlong and Brooks 1997) than any other single source. This might still be the case for any geographic location. Also, *Desert Magazine* had an interest in the history of the area including NAWS beginning as early as the 1930s with Scott (1938:28), Allen (1944:6) and Smith 1944:5–7). Until the demise of the magazine, articles continued being published about areas within the Base (Grantham 1984:8).

Most of the publication history of the archaeology of the Base relates to articles on the Coso-style rock art. Besides Whitley's outstanding record, other significant publications include the following peer reviewed articles and monographs-style articles: Gilreath (1999); Garfinkel (1978, 1982, 2003); Garfinkel, Marcom, and Schiffman (2007); Garfinkel and Pringle (2004); Gilreath and Hildebrandt (2008); Quinlan (2000a, 2000b); Yohe, Sutton, and McCarthy (1986).

Hildebrandt and Ruby provide excellent articles on the discovery of two historic bows on the Base (2004) as well as a detailed account of pinyon nut exploitation in the Coso Mountain Range (2006). Recent syntheses also include discussions of Little Petroglyph Canyon (Younkin 1998) and the Coso Rock Art National Historic Landmark (Gilreath 1999; Kaldenberg, Reed, Waechter, and Cannon 2009).

Articles by Basgall (1989), Eerkens and Rosenthal (2002, 2004), Eerkens et. al. (2007), Gilreath and Hildebrandt (1997), Hughes (1988), King (2004), Laylander (2000), and Rogers (2008) focus on the rich geophysical phenomena at the Base, including the obsidian quarries. Basgall also reexamines the early work of Davis (Basgall 2007a; 2007b) and with Giambastiani (Basgall and Giambastiani 1995) examines the geography of the prehistoric use of the northwestern portion of the Base.

In order to review the publications related to the cultural resources found on the Base, I also inventoried the articles in the *Pacific Coast Archaeological Quarterly*, the *Proceedings of the Society for California Archaeology*, and the *Journal of California and Great Basin Anthropology*.

Only one article is listed as having been published in the *Proceedings of the Society for California Archaeology* (McCarthy 1998). The article is

Davis's (1978d) description of the use of hot air balloons for geoscientific mapping. Since McCarthy's useful compilation four more articles have been published (Kaldenberg 2005; Laylander 2000; Maniery 2005; and Ruby 2005).

The *Journal of California and Great Basin Anthropology* has published a total of nine articles referencing the archaeology of the Base (Garfinkel 1978, Yohe, Sutton, and McCarthy 1986; Hildebrandt and Ruby 2004, 2006; Quinlan 2000a and Quinlan 2000b; Whitley 2000a and 2000b; and Gilreath and Hildebrandt 2008).

The Society for American Archaeology's *American Antiquity* has at least two articles that provide information regarding the resources of the Base (Hildebrandt and McGuire 2002; Keyser and Whitley 2006).

Published archaeological literature on the South Range is the most scarce. Peck and Smith (1957) is followed only by Walsh (2000), Allen (2006), Wells and Backes (2007), and Schroth and Kearney (2007). This is on 500,000 acres of landscape in the Mojave Desert. It is remarkable how scarce the professional literature has been, because the potential for finding cultural resources in this region is high.

In preparing this introduction, I located only two articles on the historical resources of the Base. Both of these are in the *Proceedings of the Society for California Archaeology* (Ruby 2005 and Maniery 2005). This limited number is somewhat surprising because of the incredibly rich history of the Base. This inventory, of course, does not take into account newsletter articles or research related to the Base's rich military history (Christman 1971, Gerrard-Gough and Christman 1978, Westrum 1999).

Nor are there any published journal articles on the ethnographic resources of NAWS, other than

Steward's (1938) scant references to historic Native American sites on what is now the North Range of the Base. When the Base was created in 1943, local Koso Shoshone families still lived on it part time, and used its natural resources, particular pinyon groves, water resources, and other plant and animal resources. In a series of personal interviews and field trips with some of the Koso people, I have learned a great deal about their life in the Coso Mountains and Darwin Wash areas. Harold Bevers (Bevers, personal communication 2004-2007) discussed living at Cole Springs and Darwin. He, his daughter Merle, niece Shirley Summers, and extended family members Ellie and Leroy Jackson, shared information regarding living at Indian Garden Springs and Coles Flats, as well as collecting pine nuts at Coso Peak (Summers and Bevers, personal communication 2005-2007). During discussions, Harold also shared information regarding "bad doctors" seemingly making petroglyphs, and his mother making him come into the house when they heard the pecking sound of rock on rock, while she sprinkled flour throughout the house to keep bad spirits away. I personally observed Summers and others members of her family make scratched petroglyphs near Coso Peak while they were talking with each other waiting for others to finish the pine nut collecting.

Both Harold Bevers and Mike Hansen have related stories of hunting for rabbits, deer, and bighorn sheep in the Darwin Wash area (Bevers and Hansen, personal communication 2007). Mr. Bevers indicated that his grandfather was a bighorn sheep hunter and he hunted bighorn sheep with a spear not with a bow and arrow. Mr. Hansen (Mike Hansen, personal communication 2007) related stories of grazing use of the North Range where his family had cattle, goats, horses and sheep in the Darwin Wash and Argus Mountains. Petroglyphs representing his family's livestock brands as well as initials, some with dates, can be found throughout the Argus and Coso Mountains.

H. J. Summers noted the petroglyphs in the Coso Mountains during a visit with author Phillip Johnston. He stated that the petroglyphs “were numerous and the legends of the modern Piute Indians who wander over the country is that sometime in the past some Piutes went to sleep in the canyons, woke up and found that spirits had made pictures... and of these mountain sheep predominate... even today there are great numbers of mountain sheep and they are the wildest things on four feet (Summers 1923:1-3). Bevers indicated that his grandfather was a bighorn sheep hunter in the Coso Mountains. When he hunted he did so only with a spear which he used to jab the sheep. He says that sheep were never hunted by his grandfather with a bow and arrow.

In 1959 Jay C. von Werlhof began his work in the area, studying rock art and stone features. He described a comment made by an unnamed Indian boy who would not go near rock circles or mounds in the area because “the devil was there” (von Werlhof 1959:1-2). A great deal of information undoubtedly can still be found in unpublished sources and through oral interviews. Additional Native American interviews, augmented by those conducted by this author, Lynn Johnson, and Molly Molenaar, could provide additional invaluable knowledge of Native American use of the Base.

This issue of the *PCAS Quarterly* nearly doubles the articles published in the *Quarterly* on the archaeology of NAWs. McCarthy’s valuable index of the key words of published works found within the *Quarterly* (2008:127), indicate that there are four articles which have been published on the archaeology of China Lake beginning in 1988. Going through the *Quarterly* Volume Contents and Author Index (McCarthy 2008:1-67) at least five additional articles discuss the resources of the Base beginning with Hillebrand’s (1972) article, and concluding with Rogers’ (2007) reassessment of Ray Cave and

his discussion of Coso Volcanic field artifacts in 2008 (Rogers 2008).

This Issue of the *PCAS Quarterly*

The nine articles in this issue of the *PCAS Quarterly* illustrate the type of information that is contained within the sites on the Base. Except for an absence of articles on the historical resources, the articles range from the earliest dated sites (Giambastiani and Bullard) to the proto-historic resources near a spring site in the Argus Mountains (Allen). Three authors, Mark Basgall, Andrew Monastero, and Alexander Rogers offered papers for this issue but due to various circumstances, the articles have not been included in this issue; their important papers will be or have been published elsewhere.

Mark Allen contributes two articles to this issue. One covers his work in the Pilot Knob area of Mojave B Range in San Bernardino County and the other reports on a proto-historic site in the Argus Mountains at New House Spring in Inyo County. Both articles are excellent for the data which they contain adds to our knowledge of these regions.

Alan Garfinkel summarizes information regarding the Rose Spring period for areas surrounding the Base. His article helps define the regional perspective for this time period.

Mark Giambastiani and Thomas Bullard contribute an article about a site on the eastern shoreline of Lake China, which adds greatly to our knowledge of the late paleo-Indian or early Holocene. Their work documents and analyzes the archaeological resources which are located in an area of Pleistocene Lake China, which were previously unrecorded.

Mr. Kaldenberg’s article summarizes the materials and collections available to family and academic

researchers at the China Lake Archaeological Repository and Curation Facility. A facility that volunteers created with their donated time and efforts.

Kish D. La Pierre summarizes her thesis research, which is focused on an area near the eastern shoreline of Lake Searles. Her research includes the study of several dozen rock alignments and mounds which contain data important to understanding the history of Searles Valley.

Michael Walsh's article on Seep Spring, also on the Mojave B Range, is an example of how data that was collected nearly half a century ago can be valuable for addressing new research questions. His work also updates the archaeological site records and ensures that the resources are well documented.

Helen Wells and Clarus Backes's article contributes to placing the archaeological sites on the South Range into a regional perspective. Their rock art emphasis merits particular attention as their discussion focuses on the ritual use of rock art, both pictographs and petroglyphs in an area where only a few of the archaeological sites have been studied.

David Whitley and Ronald Dorn conclude this issue with an overview of different opinions on the meaning and interpretation of the rock art found throughout the Coso Mountains in the North Range of the Base.

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References Cited

- Allen, Mark W.
2006 In the Footsteps of Malcolm Rogers: Archaeological Site Recordation at Indian Spring, South Range, China Lake Naval Air Weapons Station. In, *a Festschrift Honoring the Contributions of California Archaeologist Jay von Werlhof*, edited by Russell L. Kaldenberg, Maturango Museum Publication No. 20, Ridgecrest, California.
- Allen, Norton
1944 Coso Range Petroglyphs (map). *Desert Magazine*, 7(5):6.
- Baldwin, Clifford P.
1931 Archaeological Exploration and Survey in Inyo County, California. Unpublished manuscript on file at Eastern California Museum, Independence, California.
- Basgall, Mark E.
1989 Obsidian Acquisition and Use in Prehistoric Central Eastern California: A Preliminary Assessment. In, *Current Directions in California Obsidian Studies*, edited by Richard E. Hughes, pp. 111–126. *Contributions of the University*

- of California Archaeological Research Facility* No. 48, Berkeley, California.
- 2007a Prehistoric People in an Evolving Landscape: A Sample Survey of the Lake China Basin and its Implications for Paleoindian Land Use. Archeological Research Center Technical Report 06–116, Department of Anthropology, California State University, Sacramento. Report prepared for the Naval Air Weapons Station, China Lake through Epsilon Systems, Inc., San Diego, California.
- 2007b Another Look at the Ancient Californians: Resurvey of the Emma Lou Davis Stake Areas and Reassessment of Collections, Naval Air Weapons Station, China Lake, Kern County, California. Archeological Research Center Technical Report 05-95, Department of Anthropology California State University, Sacramento. Report prepared for the Naval Air Weapons Station, China Lake, China Lake under contract to the Department of Army, Corps of Engineers, Sacramento, California.
- Basgall, Mark E. and Mark A. Giambastiani
1995 Prehistoric Use of a Marginal Environment: Continuity and Change in Occupation of the Volcanic Tablelands, Mono and Inyo Counties, California. *Center for Archaeological Research at Davis Publication* No. 12, Davis, California.
- Bierman, Agnes and Al Mohr
1947-1951 Archaeological Site Records and Field notes for Bierman Caves. On file at the Naval Air Weapons Station, China Lake, California.
- Budlong, Tom, and Joan Brooks
1997 The Desert Magazine Subject Index: All 534 Issues of *Desert Magazine* November, 1937 to June/July, 1985, plus All Five Issues of *American Desert Magazine* November/December, 1992–1993. The Arthur H. Clark Company, Spokane.
- Christman, Albert B.
1971 History of the Naval Weapons Center, China Lake, California Volume 1: Sailors, Scientist, and Rockets, Volume 1. Origins of the Navy Rocket Program and of the Naval Ordnance Test Station, Inyokern. Naval History Division, Washington, D. C.
- Davis, Emma Lou
1974 PaleoIndian Land Use Patterns at China Lake. *Pacific Coast Archaeological Society Quarterly* 10(12):1–16.
1975 The Exposed Archeology of China Lake, California. *American Antiquity*, 40 (1): 39–53.
1978a PaleoIndian Cultural History: China Lake. In, Selected Papers from the 14th Great Basin Anthropological Conference. *Archeology, Ethnology and History* 11:19–34. Ballena Press: Carson City, Nevada.
1978b Associations of People and a Rancholabrean Fauna at China Lake, California. In, *Early Man in America*, edited by Alan L. Bryan. Archaeological Researches International, Ltd, 183–217. University of Alberta Press, Edmonton.
1978c The Non-Destructive Archaeologist: Or How to Collect without Collecting. *Pacific Coast Archaeological Society Quarterly* 14(1):43–55.
1978d Balloon and Bulldozer: Tools for Geoarchaeological Interpretation. In, *Method and Theory in California Archaeology*, edited by G. S. Breschini. *Society for California Archaeology Occasional Papers* 2(1)–13. Society for California Archaeology, Fresno.

- 1979 Geoarcheology and Remote Sensing of Paleoamerican Sites. *Pacific Coast Archaeological Society Quarterly* 15 (4):1–19.
- 1981 Geoarchaeology: Pages Out of a Lake. *Pacific Coast Archaeological Society Quarterly* 17(4):58–62.
- 1982 The Geoarchaeology and History of China Lake, California. In, *Peopling of the Americas*, edited by J. Erickson, R. Berger and I. Taylor, pp. 203–228. Ballena Press: Menlo Park.
- Davis, Emma Lou, and Carol Panlaqui, editors
1978 *The Ancient Californians: Rancholabrean Hunters of the Mojave Lakes Country*. Los Angeles County Museum of Natural History, Science Series 29:4–152.
- Eerkens, Jelmer W., and Jeffrey S. Rosenthal
2002 Transition from Geotype to Seed Processing Evidence for Intensification from Thermal Features near China Lake, Northern Mojave Desert. *Pacific Coast Archaeological Society Quarterly* 38(2&3): 19–36.
- 2004 Are Obsidian Subsources Meaningful Units of Analysis? Temporal and Spatial Patterning of Subsources in the Coso Volcanic Field, Southeastern California. *Journal of Archaeological Science* 31:21–29.
- Eerkens, Jelmer W., Jeffrey S. Rosenthal, D. Craig Young, and Jay King
2007 Early Holocene Landscape Archaeology in the Coso Basin, Northwestern Mojave Desert, California. *North American Archaeologist* 28(2): 87–112.
- Farmer, Malcolm F.
1937 An Obsidian Quarry Near Coso Hot Springs. *Masterkey* 7:9.
- Garfinkel, Alan P.
1978 “Coso” Style Pictographs of the Southern Sierra Nevada. *Journal of California Anthropology* 5(1):94–101.
- 1982 The Identification of Prehistoric Aboriginal Groups Through the Study of Rock Art. In, *Pictographs of the Coso Region*, edited by R. Schiffman, D. Whitley, A. Garfinkel, and S. Andrews, *Bakersfield College Publications in Archaeology* 2:67–78. Bakersfield, California.
- 2003 Dating Classic Coso Style Sheep Petroglyphs in the Coso Range and El Paso Mountains: Implications for Regional Prehistory. *Society for California Archaeology Newsletter* 37(4):34–37.
- Garfinkel, Alan P., G. Marcom, and Robert A. Schiffman
2007 Cultural Crisis and Rock Art Intensification: Numic Ghost Dance Paintings and Coso Representational Petroglyphs. *American Rock Art* 33:84–104, edited by D. Christensen, American Rock Art Research Association, Tucson.
- Garfinkel, Alan P and J. Kenneth Pringle
2003 Dating the Rock Drawings of the Coso Range: Projectile Point Petroglyphs. *American Indian Rock Art*, 30:1–14. Edited by J. T. O’Conner. American Rock Art Research Association, Tucson.
- Gerrard-Gough, J.D. and Albert B. Christman
1978 History of the Naval Weapons Center, China Lake, California, Volume 2: The Grand Experiment at Inyokern. Narrative of the Naval Ordnance Test Station During

- the Second World War and the Immediate Postwar Years. Naval History Division, Washington, D. C.
- Gilreath, Amy J.
1999 The Archaeology and Petroglyphs of the Coso Rock Art Landmark. *American Indian Rock Art* 25:33–44.
- Gilreath, Amy J., and William R. Hildebrandt
1997 Prehistoric Use of the Coso Volcanic Field. *Contributions of the University of California Archaeological Research Facility* 56. Berkeley.
2008 Coso Rock Art Within Its Archaeological Context. *Journal of California and Great Basin Anthropology* 28(1):1–22.
- Grant, Campbell
1968 Rock Drawings of the Coso Range, Inyo County, California. *Maturango Museum Publication* No. 4. Ridgecrest, California.
- Grantham, D. W.
1984 Short descriptions of 69 Places in Death Valley vicinity, with some photos. *Desert Magazine*, 48(3):6–8.
- Harrington, Mark R.
1948a America's Oldest Dwelling. *Masterkey* 22(5):148–152.
1948b Shoshone Visitors. *Masterkey* 22(5):1–60.
1951 A Colossal Quarry. *Masterkey* 24(1):15–18.
- Hildebrandt, William R., and Kelly R. McGuire
2002 The Ascendance of Hunting during the California Middle Archaic: An Evolutionary Perspective. *American Antiquity* 67:231–256.
- Hildebrandt, William R., and Allika Ruby
2004 Archaeological Discovery of Two Wooden Bows from the Coso Range, Inyo County. *Journal of California and Great Basin Anthropology* 24(2):183–192.
2006 Prehistoric Pinyon Exploitation in the Southwestern Great Basin: A View from the Coso Range. *Journal of California and Great Basin Anthropology* 26(1):11–32.
- Hillebrand, Timothy S.
1972a The Archaeology of the Coso Locality of the Northern Mojave Desert Region. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Santa Barbara.
1972b Cultural Resources of the Neothermal in Two Localities of the Basin and Range Region of Eastern California. *Pacific Coast Archaeological Society Quarterly* 8(4):45–51.
1974 The Baird Site. In, *Excavation of Two Sites in the Coso Mountains of Inyo County, California*, edited by C. Panlaqui, K. Berry, and T. Hillebrand. *China Lake: Maturango Museum Monograph* No. 1.:63–86.
- Hughes, Richard E.
1988 The Coso Volcanic Field Reexamined: Implications for Obsidian Sourcing and Hydration Dating Research. *Geoarchaeology* 3(4):253–265.
- Kaldenberg, Russell L.
2005 A Short History of Archaeological Inquiry at China Lake Naval Air Weapons Station Between About 1930 and the Early 1950s. *Proceedings of the Society for California Archaeology* 18, edited by S. A. Waechter, D. Laylander and G. G. White, pp. 165–175, Society for California Archaeology, Chico, California

- Kaldenberg, Russell L., Judyth E. Reed, Sharon A. Waechter, and Amanda Cannon
 2009 Coso Rock Art, China Lake, and Sites in Joshua Tree National Park. In, *Archaeology in America: An Encyclopedia*, Volume 4, 100–103. *West Coast and Arctic/Subarctic*, F. P. McManamon, General ed, L. S. Cordell, K. G. Lightfoot, and G. R. Milner, editorial board, Greenwood Press: Westport, Connecticut.
- Keyser, James, and David S. Whitley
 2006 Sympathetic Magic in Western North American Rock Art. *American Antiquity* 71 (1):7–30.
- King, Jerome
 2004 Re-Examining Coso Obsidian Hydration Rates. In, *Proceedings of the Society for California Archaeology* 14, edited by S. Waechter, D. Day, K. Coulter, G. G. White, and R. K. White, pp. 135–142. Society for California Archaeology, Chico, California.
- Laylander, Don
 2000 Assessing the Magnitude of Hydration Chronology Error for Coso Obsidian in Western Inyo County. In, *Proceedings of the Society for California Archaeology* 15, edited by D. Day, S. A. Waechter, and K. Coulter, pp. 61–65. Society for California Archaeology, Fresno, California.
- Maniery, Mary L.
 2005 Life on the Edge: Soldiers and Miners on the Nineteenth-Century Coso Frontier. In, *Proceedings of the Society for California Archaeology* 18, edited by S. A. Waechter, D. Laylander and G. G. White, pp. 181–188. Society for California Archaeology, Chico, California.
- McCarthy, Daniel F., Compiler
 1998 Index to Proceedings of the Society for California Archaeology Volumes 1–X (1988–1997) and Occasional Papers, Nos. 1-4. M. McDonald, ed. *Society for California Archaeology Occasional Papers* 5. Society for California Archaeology, Fresno, California.
 2008 *Pacific Coast Archaeological Society Quarterly* Index Volumes 1–40 (1965–2008), 40 (3&4):vi-154.
- Monastero, Andrew P.
 2007 A Test of the Central Place Foraging Model at the Bierman Cave Site (CA-SBR-8), South Range, China Lake Naval Air Weapons Station, California. Masters Thesis. Department of Anthropology. California State University, Bakersfield.
- Panlaqui, Carol
 1974 The Ray Cave Site. In, *Excavation of Two Sites in the Coso Mountains of Inyo County, California*, edited by C. Panlaqui, K. Berry, and T. Hillebrand, *China Lake: Maturango Museum Monograph* No. 1:1–61.
- Peck, Stuart L., and Gerald A. Smith
 1957 The Archaeology of Seep Spring. *San Bernardino County Museum Association Quarterly* 4(4). Scientific Series No. 2.
- Quinlan, Angus R.
 2000a The Ventriloquist's Dummy: A Critical Review of Shamanism and Rock Art in Far Western North America. *Journal of California and Great Basin Anthropology* 22(1):92–108.
 2000b Reply to Whitley. *Journal of California and Great Basin Anthropology* 22(1):129–132.

- Rogers, Alexander K.
 2007 Rethinking the Chronology of Ray Cave. *Pacific Coast Archaeological Society Quarterly* 39(1):25–44.
 2008 A Reassessment of Obsidian Hydration Ages of Projectile Point Types from the Coso Volcanic Field. *Pacific Coast Archaeological Society Quarterly* 39(4):23–38.
- Ross, E. T.
 1938 Report on Preliminary Investigation of Painted Cave, Inyo County, California (sic CA-INY-428). Unpublished paper on file at China Lake Naval Air Weapons Center Archaeological Laboratory and Curation Facility, Ridgecrest, California.
- Ruby, Allika
 2005 Itinerant Industry: Nineteenth-Century Charcoal Production in the Coso Mountains. In, *Proceedings of the Society for California Archaeology* 18, edited by S. A. Waechter, D. Laylander, and G. G. White, pp. 176–180. Society for California Archaeology, Chico, California.
- Schroth, Adella, and Mary Kearney
 2007 Collections from China Lake, Previously Housed at the San Bernardino County Museum. *San Bernardino County Museum Association Quarterly* 53(3).
- Scott, Tracy M.
 1938 Desert Place Names-How Coso, Inyo Co., California got the name. *Desert Magazine*, 1(10):28.
- Smith, Vernon
 1944 Sheep Hunting Artifacts of Black Canyon Walls. *Desert Magazine*, 7(5):5–7.
- Summers, H. J.
 1923 Ancient California Petroglyphs. Unpublished report on file at Summers family archives, Corona del Mar, California.
- Steward, Julian H.
 1929 Petroglyphs of California and Adjoining States. University of California *Publications in American Archaeology and Ethnology* 24(2). Berkeley.
 1933 Ethnography of the Owens Valley Paiute. *University of California Publications in American Archaeology and Ethnology* 33(3) 233–350. Berkeley.
 1938 Basin-Plateau Aboriginal Sociopolitical Groups. *Smithsonian Institution Bureau of American Ethnology Bulletin* 120. United States Government Printing Office, Washington.
- von Werlhof, Jay C.
 1959 Archaeological Field Book, 1959-1960. Unpublished field notes on file at ASM Affiliates, Inc., Cheyenne, Wyoming.
- Walsh, Michael R.
 2000 Beyond the Digging Stick: Women and Flaked Stone Tools in the Desert West. In, *Archaeological Passages: A Volume in Honor of Claude Nelson Warren*, edited by J. S. Schneider, R. M. Yohe II, and J. K. Gardner, Western Center for Archaeology and Paleontology Publications in *Archaeology* 1:198–212. Hemet, California.
- Wells, Helen F., and Clarus J. Backes, Jr., with a Contribution by A. B. Babcock
 2007 Robbers Mountain: Revisiting the Archaeology and Rock Art of Bierman Caves. *San Bernardino County Museum Association Quarterly* 53(4).

- Westrum, Ron
1999 *Sidewinder: Creative Missile Development at China Lake*. Annapolis: Naval Institute Press.
- Whitley, David S.
1982a The Study of North American Rock Art. Ph.D. dissertation, Department of Anthropology, University of California, Los Angeles. Ann Arbor: University Microfilms.
1982b Notes on the Coso Petroglyphs, the Etiological Mythology of the Western Shoshone, and the Interpretation of Rock Art. *Journal of California and Great Basin Anthropology* 4(2):262–272.
1987 Socioreligious Context and Rock Art in East-Central California. *Journal of Anthropological Archaeology* 6:159–188.
1992 Shamanism and Rock Art in Far Western North America. *Cambridge Archaeological Journal* 2:89–113.
1994a By the Hunter, For the Gatherer: Art, Social Relations and Subsistence Change in the Prehistoric Great Basin. *World Archaeology* 25:356–377.
1994b Ethnography and Rock Art in the Far West: Some Archeological Implications. In, *New Light on Old Art: Recent Advances in Hunter-Gather Rock Art Research*, edited by D. S. Whitley and L. L. Lorendorf, pp. 13–36. University of California Press, Los Angeles.
1994c Shamanism, Natural Modeling and the Rock Art of Far Western North American hunters-Gatherers. In, *Shamanism and Rock Art in North America*, edited by S. A. Turpin, pp. 1–43. Special Publication 1, Rock Art Foundation, Inc., San Antonio.
1996 *A Guide to Rock Art Sites: Southern California and Southern Nevada*. Mountain Press Publishing Company, Missoula.
- 1998a History and Prehistory of the Coso Range: The Native American Past on the Western Edge of the Great Basin. In, *Coso Rock Art: a New Perspective*, edited by E. Younkin, pp. 29–68. Maturango Museum, Ridgecrest.
1998b Meaning & Metaphor in the Coso Petroglyphs: Understanding Great Basin Rock Art. In, *Coso Rock Art: a New Perspective*, edited by E. Younkin, pp. 109–174. Maturango Museum, Ridgecrest.
1998c Finding Rain in the Desert: Landscape, Gender, and Far Western North American Rock Art. In, *The Archaeology of Rock Art*, edited by C. Chippendale and P. S.C. Tacon, pp 11–29. Cambridge University Press, Cambridge.
1998d Cognitive Neuroscience, Shamanism and the Rock Art of Native California. *Anthropology of Consciousness* 9:22–37.
2000a *Art of the Shaman: Rock Art of California*. University of Utah Press, Salt Lake City.
2000b Response to Quinlan. *Journal of California and Great Basin Anthropology* 22(1):108–128.
2005 *Introduction to Rock Art Research*. Left Coast Press, Walnut Creek, California.
2006 U.S. Rock Art in the Twenty-first Century: Problems and Prospects. Conservation, *The Getty Conservation Institute Newsletter* 21(3):16–19.
2009 *Cave Paintings and the Human Spirit: the Origin of Creativity and Belief*. Prometheus Books, Amherst, New York.
- Whitley, David S., ed.
2001 *Handbook of Rock Art Research*. AltaMira Press, Walnut Creek, California.

- Whitley, David S., George Gumerman IV, Joseph M. Simon, and Edward H. Rose
1988 The Late Prehistoric Period in the Coso Range and Environs. *Pacific Coast Archaeological Society Quarterly* 24(1): 2–10.
- Whitley, David S., Joseph M. Simon, and Ronald I. Dorn
1999 The Vision Quest in the Coso Range. *American Indian Rock Art* 25:1–31, edited by S. M. Freers, American Rock Art Association, Tucson.
- Whitley, David S. and Ronald I. Dorn
1987 Rock Art Chronology in Eastern California. *World Archaeology* 19:150–164.
- Yohe, Robert M., II, Mark Q. Sutton, and Daniel F. McCarthy
1986 A Battle Scene Petroglyph Panel in the Coso Range. *Journal of California and Great Basin Anthropology* 8(1):133–137.
- Younkin, Elva, ed.
1998 *Coso Rock Art: A New Perspective*. Maturango Museum Publication No. 12, Ridgecrest, California.
- Zelko, Vanessa A.
2007 China Lake Electronic and Hard Copies Reports Available. Unpublished Excel Spread Sheet prepared for the China Lake Archaeological Repository and Curation Facility, Ridgecrest, California.