

## **AN ARCHAEOLOGICAL STUDY OF CA-LAN-192: A COMPLETE SURFACE SURVEY OF SORENSON PARK**

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*The site of Sorensen Park is a 110-acre site surrounded by urban development. The land itself is owned and controlled by Los Angeles County. The goal of the volunteer team, consisting of Dr. Bruce Love, Dr. Darcy Wiewall and student volunteers from Antelope Valley College, was to assess the site for prehistoric indigenous activity of the area. We were to determine if the site could be used for urban development. The area, which is part of Lovejoy Springs (CA-LAN-192), had numerous finds of archaeological and cultural significance.*

Ascertaining the cultural resource impact of potential development to a portion of CA-LAN-192 (Lovejoy Butte/Lovejoy Springs) adjacent to Sorensen Park was the focus of a recent surface study done between February 21 and May 30 in 2015. The project, directed by Dr. Bruce Love, was a systematic ground survey of a 110-acre (44.5-hectare) portion of a much larger site, LAN-192, located at Lovejoy Springs, Los Angeles County. The main focus of the survey was to establish what steps, if any, were needed to preserve possible archaeological data in the lower density portion of the site. For LAN-192 as a whole, there have been numerous data collections assembled since the 1920s, and technical reports have been produced in connection with county park construction at the site. However, analysis of data from the site has been made difficult by heavy grading damage in the late 1960s.

The site of Lovejoy Springs (LAN-192) is located within the zone of urban development of Lake Los Angeles, a desert town located to the east of Palmdale and Lancaster in northern Los Angeles County. The portion of the community adjacent to the site originally started as a real estate venture in 1967 when 4,000 acres were purchased by real estate developers wishing to build on Antelope Valley's boom of the 1960s. An artificial lake was constructed adjacent to Lovejoy Butte and stocked with freshwater fish. The idea was to create an area for recreational fishing and water sports for a planned adjacent housing development. A community building was also constructed on the site. A portion of the planned development was built immediately to the southwest of the artificial lake, which had its water supply shut-off some years later, as the image of a resort town never took hold. The Lake Los Angeles area has been in economic decline in recent years. In the 2000 census, there was a population of 11,523 with 23.35% of the population below the poverty line. That figure rose to 32.4% in 2010 (LADEC 2002; United States Census Bureau 2014). In 1987, local homeowners created "The Lake Los Angeles Park Association" to raise capital to develop recreational facilities to meet the needs of the local population (County of Los Angeles n.d.). A park was established by the mid-1990s. A major expansion and improvement project for this park was inaugurated in 2004 by the Los Angeles County Parks and Recreation, giving the community an indoor gymnasium, a baseball field and other outdoor amenities (Price et al. 2009:1). For this rural community and its blue-collar residents, the park was seen as sorely needed but is also a source of community identity and pride. The name was changed to Stephen Sorensen Park after a Los Angeles County Sheriff's deputy lost his life in the line of duty in the area.

### **THE ENVIRONMENTAL SETTING**

Site LAN-192 is located on the Western Mojave Desert floor in the southeastern Antelope Valley approximately 14 mi. (22.5 km) to the north of the San Gabriel Mountains foothills and 17 mi. (22.5 km) east of Palmdale.

Site LAN-192 is known to have been supported by a natural spring system, which was described geologically by Johnson (1911:52-53) and Thompson (1929:332). This spring system was created by an east-west line of buttes, including the Lovejoy Buttes, which impound subsurface water flow from the direction of the San Gabriel Mountains to the south. A ranch was located on the property by the beginning of the twentieth century, and a farm pond and concrete dam were constructed to the northwest of the springs in 1913. It is reported that the springs continued to flow until affected by the Tehachapi earthquake in 1952, a magnitude 7.3 temblor (USGS 2012). The water table was further impacted by the increase in settlement and farming in the latter half of the twentieth century, causing it to drop further (Price et al. 2009:4). The abundance of water yielded by the springs not only ensured prehistoric settlement at this location but attracted historic ranching activities that began the process of destruction of portions of the site.

There has also been speculation that the Lovejoy site was located on significant trade routes from the east at the Colorado River to the Pacific coastline (Price et al. 2009:29). This is further supported by the significant amount of artifacts, ecofacts and features found at this location. These have been recovered in the context of both CRM-related research and other data recovery, as described below.

### **PREVIOUS STUDIES**

The first data to be recorded at Lovejoy Buttes was in the 1920s by Bob Wubben. Mr. Wubben was the first of many relic hunters to plague the area. However, he did give us the first rudimentary map of the area haphazardly outlining the general location of the artifacts and related features, including an apparent house ring from an historic-era native occupation (Price et al. 2009:10). He conducted a ground surface survey revealing projectile points, pottery sherds, one of which was a sherd disk, and a historic-era metal trade token. There would only be one other survey which would reveal disk sherds of pottery (Price et al. 2009:116). This in itself is a point for further study of the site. Mr. Wubben's map can be observed in the Santa Barbara Natural History Museum, where it is displayed.

A second surface survey was conducted by the Archaeological Survey Association (ASA) of Southern California in 1954. The survey identified 79 pottery sherds accounting for 66% of the total ceramic samples found in the area (Price et al. 2009:3). Later construction was responsible for damage to what is now believed to be the 1954 survey area within the site (Love 2015a:6).

When the artificial lake was constructed in 1968, human remains were found, establishing the location of a mass burial site. An emergency salvage excavation was carried out by James Toney and other personnel from UCLA. It has been estimated that there were as many as nine individuals buried at this location with numerous artifacts recovered from the site, including more than 3000 shell beads. All items uncovered were associated with the grave site. The remains were dated by Dr. Love in 1993 using uncalibrated radiocarbon dating; this established a timeline of  $2720 \pm 70$  B.P. The remains are currently stored in the Fowler Museum of Anthropology at UCLA (Price et al. 2009:11).

Fieldwork was later conducted in 1989 over a three-month period just west of the area where human remains were discovered in 1968. Test excavations included seven 1-meter by 1-meter units, one of which extended to a depth of 260 cm. These units continually exposed cultural materials down to the 260 cm mark (Price et al. 2009:11). Most were ecofacts consisting of faunal remains. There were also flaked and ground stone tools, and at least one ceramic sherd. On unit 6, the deepest of the test pits, obsidian flakes were still being recovered at the 2-meter mark. The survey and excavations were not compiled into a report (Price et al. 2009:12).

A monitoring project in portions of the site was initiated ca. 1992, during construction of a strip mall in the former artificial lake bed. Much of the earth moving involved in this project, later abandoned, impacted only site materials that had been transported and dumped as fill during initial lake bed construction. There were significant amounts of artifacts found from backfill, including shell beads and bone ornaments taken from a simple shovel test. While the lack of provenance or context for these materials made it impossible to make any assertions about site stratigraphy, the salvage of artifacts in the disturbed deposit indicated a great abundance of ground stone milling artifacts (Price et al. 2009:13). This work also

helped to better define what areas of LAN-192 had been impacted by the housing development and lake bed construction of the late 1960s. Roger Robinson, an Anthropology Professor at Antelope Valley College, was engaged by the Los Angeles County Department of Parks and Recreation in 1994 and 1996 to conduct evaluations of an area of the site northwest of the lakebed, south of the 1992 drainage channel, and north of Avenue P to be developed as a county park. He concluded that prior development activities had done significant damage to the site. Yet the core area of the proposed park, the location of the 1989 excavations, still contained intact midden. This core area was then capped with protective fill. In 2004, the park was scheduled to be expanded to include a gymnasium, athletic fields, restrooms, and parking areas, as previously noted. Padon and Love (2004) surveyed the project area, and Applied EarthWorks carried out testing in December 2004 to identify areas of disturbed or intact deposit within the project area. During the fall of 2005, both construction monitoring and a phased series of data recovery excavations designed as mitigation for project impacts were carried out by Applied EarthWorks (Price et al. 2009).

The gymnasium was constructed after other facilities were installed, and was not finally opened and dedicated until July 3, 2013. Dr. Love, who had extensive involvement with the archaeology of LAN-192, was asked to monitor the gymnasium construction.

An undisturbed midden was exposed during preparation work for the gymnasium along the northern border of the park (Figure 1). The material consisted mainly of burnt bones, fire affected rocks and charcoal. This midden was exposed to a depth of two meters. Some of the charcoal was AMS-dated  $520 \pm 40$  B.P. for  $2\sigma$  (Beta 215484), giving a possible range of 1320-1340 cal A.D. ( $p=0.5$ ) and 1390-1440 cal A.D.1340 (Price et al. 2009:14). Prior to gymnasium construction, in 2004, Padon and Love had made an assessment where they suggested that as much as 85% of LAN-192 had been destroyed.

## **THE CURRENT PROJECT**

It was our goal to do an intensive surface survey to assess how much this survey area related to the core area of the Lovejoy Spring site in respect to artifacts and activities. Identifying the nature and extent of the survey area's prehistoric use will also contribute to identifying its cultural resource sensitivity in respect to future development of the area.

The survey was led by Dr. Love and assisted by Dr. Darcy Wiewall and several Antelope Valley College students. The research was conducted over ten Saturdays, from February 21 to May 30, 2015. This investigation has prompted this report and subsequent presentations. The parameters for the survey were to traverse across the 110-acres located within the Sorensen Park boundaries. A 5-meter interval was used between each person allowing for maximum ground coverage.

In order to provide a more qualitative understanding of the adjacent cultural resource, Dr. Love included a portion of LAN-3486, which was located immediately outside of the Sorensen Park boundary.

During the survey any materials or clusters of materials considered of cultural importance were flagged. At the discretion of the survey lead, a datum would be established. The datum was recorded on the survey map and each flag was given a number, the azimuth and pace count from the datum was then recorded. The survey resulted in the documentation of 315 flagged locations totaling 428 different artifacts and features. Table 1 demonstrates the variety of cultural resources discovered at Lovejoy Springs. Certain anomalies in the finds labeled as miscellaneous on the table were: cobble, chalcedony, vesicular basalt, opal flake, and a clam shell. One Cottonwood projectile point was also uncovered at the site (Figure 2). There was a significant amount of items spread across the 110 acres. While we have discussed earlier surveys, at no point has there been a survey so thorough and well-documented covering the entire 110 acres which is the outlying area of the entire Lovejoy Springs complex. While Mr. Wubben certainly covered the entire property, there was not this intensity of record keeping. There were only surface finds as no ground surface disturbances of any type were conducted. In many areas we can see the erosions of land due to flash floods, other natural and modern displacement. A number of middens, manos and metates were exposed due to natural weathering (Love 2015b:17). With this extensive surface level survey and the land displacement, we were also able to detail five previously undocumented bedrock mortar features.



Figure 1. Midden exposed during construction (Love 2015a:6)

Table 1. Total count of identified cultural materials, CA-LAN-192.

		SUB TOTAL	TOTAL
Features			8
	Bedrock Mortars	4	
	Hearth	1	
	Cupules (CA-LAN-3486)	3	
Lithics			389
	Mano Fragments	27	
	Mano Whole	19	
	Metate Fragments	15	
	Metate Whole	5	
	Pestle	4	
	Core Tool	5	
	Quartz Scraper	2	
	Projectile Point Chert	1	
	Quartz Flake	3	
	Schist fragments	138	
	Rhyolite Debitage	27	
	Jasper Debitage	23	
	Chert Debitage	32	
	Pottery Sherd	1	
	FAR	87	
Other			31
	Historic Items	26	
	Misc.	5	
	Total		428



*Figure 2. Cottonwood projectile point (photo courtesy of lead author).*

Two students, Sergio Romano and Chris Turner, from the Anthropology Department at Antelope Valley College took on the responsibility of the documentation for two of the newly identified features. This was done as part of course requirement for an honors project. Their role was to accurately record Features 1 and 2 respectively.

### **Feature 1**

Feature 1 was located approximately 40 meters from the midden at Locus B. The distance to Lovejoy Springs, probably the closest reliable water source, was approximately 150-200 meters. In the area surveyed there are numerous areas where granite bedrock is exposed. At this feature there were a total of eleven bedrock mortars: four conical mortars, three saucer mortars, and four possible mortars. The depth of these bedrock mortars varied, as did their shape and size (Table 2). Both the conical mortars and the saucer mortars were filled with soil. No excavation was conducted. Four of the mortars were identified as probable due to their minimal depth, no more than 3 cm, but still enough to support the hypothesis that these were used for food preparation.

### **Feature 2**

Feature 2 contained fewer mortars than Feature 1. These comprised a total of six shallow mortars. There were three oval mortars, two shallow mortars, and one possible mortar. All of these were soil filled and were not excavated (the dimensions are presented in Table 2). The feature itself was located on a rock rise about one meter above the intermittent stream. Feature 2 is approximately 40-60 meters away from Feature 1 and is at a steady upward incline. The ground is also rocky and requiring some surefootedness to negotiate the terrain from the springs which is some 200 to 250 meters away. The feature itself had fine sand covering areas of depression. Thus we were unable to tell if there were other mortars on the feature other than the six we recorded. While measuring, recording, and documenting the site we came across an interesting artifact—a brownware sherd (Figure 3). This was the only brownware sherd found during our ten weeks of survey, also it is the only documented brownware sherd found to date since 1968 (Love 2015a:6).



Figure 3. Brownware sherd, Feature 2 (photo courtesy of lead author).

Table 2. Bedrock mortars, CA-LAN-192.

FEATURE	TYPE OF MORTAR	LENGTH (CM)	WIDTH (CM)	DEPTH (CM)
1	Conical	20	20	29
1	Conical	8	8	13
1	Possible	5	5	1
1	Saucer	14	14	3
1	Saucer	20	20	8
1	Possible	9	9	3
1	Saucer	15	15	3
1	Possible	10	10	3
1	Conical	25	25	24
1	Possible	7	7	2
1	Conical	20	20	11
2	Saucer	10	10	2
2	Oval	10	8	2
2	Saucer	9	9	1.5
2	Oval	11	16	2
2	Oval	7	7	2
2	Possible	17	17	0.5

### INTERPRETATION

As discussed previously, at no point has there been a survey so thorough and well-documented covering the entire 110 acres of Sorensen Park, constituting the outlying area of the entire Lovejoy Springs complex. With the finding of various artifacts, including schist fragments and rhyolite debitage which are not local to the area, we can see there are possible trade routes established for importation of lithic materials. There was also a beautiful example of a Cottonwood triangular projectile point (see Figure 2). This small projectile point was the only complete projectile point discovered during this survey. The clustering of materials found is significant for Feature 1 with its close proximity to Locus B.



Bedrock mortars were used for food preparation and pestles were used to grind acorns or other nuts and grains. The number of bedrock mortars found in the survey area suggests the possibility that acorns were being imported to LAN-192. Both archaeological and ethnographic data make clear that at the time of Spanish contact and before, acorns were being exported out onto the floor of the Western Mojave Desert (Earle 2015:13-16). Other valley floor sites in the Antelope Valley are also associated with bedrock milling features. The proximity of the water source at Lovejoy Springs would have been important if acorns were being processed. In this survey no excavation was conducted, but having done an extensive surface survey we outlined potential areas where shovel test pits could be excavated to determine if there were any subsurface component. Additionally, another feature where cupules were found was located on a vertical rock on an unnamed butte just outside the park boundaries, but within the survey area. These cupules were first discovered in 2014 by Daniel McCarthy during a site visit and the feature was included in LAN-3486. Due to its close proximity to the artifact scattering and many of the other features, Dr. Love recommended including this feature within the boundaries of LAN-192. Not only were there seven definite features, there was one questionable feature which may have been a hearth at Location 305, which is found in the northeastern corner of the survey area. There were also two concentrations of artifacts associated with midden soil that have been designated Locus A and Locus B. It was ascertained that Locus B appeared to be associated with Feature 1, while Locus A does not appear to be associated with any bedrock mortar features. At Locus A there were both groundstone artifacts and lithic debitage associated with an area of midden soil. At Location 305 there were fire affected rocks and charcoal in the soil. This evidence of hearth activity strongly suggests the possibility of camping or other food preparation in these areas.

## CONCLUSION

It was outlined by Padon and Love (2004) that there was significant loss of cultural resources to LAN-192, with as much as 85% of the cultural material been damaged or destroyed due to development (Price et al. 2009). Our survey of the northwest portion of this very large site indicates the necessity for further survey of the peripheral areas of this site. Dr. Love concluded that further development of the park could continue, although he did note that there was a need for “creative ways to continue development” (Love 2015a:7). While Lovejoy Springs (LAN-192) is a well known site within Western Mojave Desert archaeological circles it has been very problematic to study. Many of the large scale studies in the Mojave Desert have been conducted on Federal land. These have primarily been conducted on several of the military installations found in the desert, such as Fort Irwin, Edwards Air Force Base, Twentynine Palms Marine Corp Base and Naval Air Weapons Station, China Lake (Sutton et al. 2010:229). Large desert sites on private land, particularly spring sites, often have been affected by parcelization into multiple holdings. This has been the case with LAN-192. Thus, only portions of this large complex have been treated by individual CRM projects. This gives us an incomplete picture of the entire site complex, particularly of the areas peripheral to the core midden zone. In addition, much of the development on LAN-192 occurred before the implementation of the California Environmental Quality Act. We see both of those effects abundantly clear in the history of archaeological work at LAN-192.

If we want to advance in our understanding of this site the local community can play an important role. This is a community that has raised funds to build a park to better their surroundings. Educating the population on the importance of the Lovejoy Springs site is a critical step in stewardship of the site complex, including site components that are located on private land. Public outreach is thus also important in soliciting cooperation from private landowners in identifying site boundaries and peripheral cultural landscapes for LAN-192.

In addition, work at the site to date offers archaeologists at varying levels (undergraduate to Ph.D.-level scholars) the opportunity to work with several extensive archaeological collections, which especially emphasize ground stone artifacts.

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