

# Three Rock Art Sites at Coral Mountain, La Quinta, Riverside County, California

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## Abstract

This report considers three petroglyph sites, CA-RIV-193, CA-RIV-1715, and CA-RIV-6404, which are located at Coral Mountain along the eastern slope of the Santa Rosa Mountains in the Coachella Valley, Riverside County, California. The petroglyphs were placed on tufa-coated boulders along the shoreline of Ancient Lake Cahuilla. Twenty-six panels of prehistoric petroglyphs were documented for the three sites along with historic graffiti, including three panels of Japanese kanji ideographs.

## Introduction

Coral Mountain is in the central-western portion of the Coachella Valley near La Quinta, Riverside County, California. Three petroglyph sites, CA-RIV-193, CA-RIV-1715, and CA-RIV-6404, are located along the southeastern and northeastern sides of Coral Mountain (Figure 1). At each site, petroglyphs have been carved into the tufa-coated boulders along the ancient shoreline of Lake Cahuilla. Two of the three sites and much of the surrounding area have been designated as part of a regional park administered by the Coachella Valley Recreation and Parks District and will be open to the public in the near future (McCarthy and Mouriquand 2003). Plans are in preparation for providing interpretative trails and for disseminating information about the Cahuilla Indians who have resided in the area for hundreds of years.

This study provides information on a number of petroglyph boulders at RIV-193, RIV-1715 and

RIV-6404 and attempts to place the petroglyphs in temporal and cultural contexts. Sections are included on documentation procedures, descriptions, and interpretations of the identified rock art. A baseline set of data will allow the rock art to be monitored for short-term and long-term impacts.

Rock art sites are frequently recorded but often without providing much detailed information on the quantity and quality of the images. Rock art documentation can be completed in phases (McCarthy 1994), and simply recording the presence of rock art might be considered the first phase. Full documentation requires that the rock art be mapped in relationship to other associated artifacts and features and that it be described in detail which includes photographs and, most importantly, scaled drawings of each rock/panel.

The study (McCarthy and Mouriquand 2003) on which this paper is based included identification and mapping of all boulders and petroglyph panels in relation to other identified cultural features. An annotated photographic inventory, using digital technology, was provided for all panels, element(s) and their contexts within the site. Detailed, scaled drawings of all rock art panels were also produced. In addition, historic graffiti was mapped and photographed to serve as a baseline of information on current site conditions. This paper summarizes all fieldwork procedures and observations.

The goal of rock art documentation is threefold. The first goal is to establish a permanent record of all images and their current condition. This record will add significantly to the inventory of images known for the region. Second, this record will allow comparative studies of images and their distribution and further refinement in style definition and distribution. This detailed documentation will serve as both a permanent record and as an aid in monitoring deterioration from natural or human agents over time. Third, complete recording provides information to guide protection, conservation, and interpretative efforts.

An Appendix contains scaled drawings. Researchers interested in reviewing the entire study including a complete photographic inventory and updated site records should consult McCarthy and Mouriquand (2003).

### Documentation Procedures

The primary technique used to record the petroglyphs (including historic graffiti) was photography. The end goal, however, was to prepare accurate, scaled drawings that would be the basis of an inventory or catalog of images. Photographic documentation confirms the state of preservation, current condition, and setting of the rock art. It helps record weathering of the rock surface and the presence or absence of vandalism. Photographs were taken and placed in a sequence first to document the geographic setting of the site. Second, closer views were taken to record each rock, panel, and image. Photography by itself seldom suffices as detailed documentation of the rock art images even in the best of circumstances (McCarthy 1989:4, 1990, 1995; Loubser 1997). Many of the petroglyphs at Coral Mountain are difficult to photograph due to

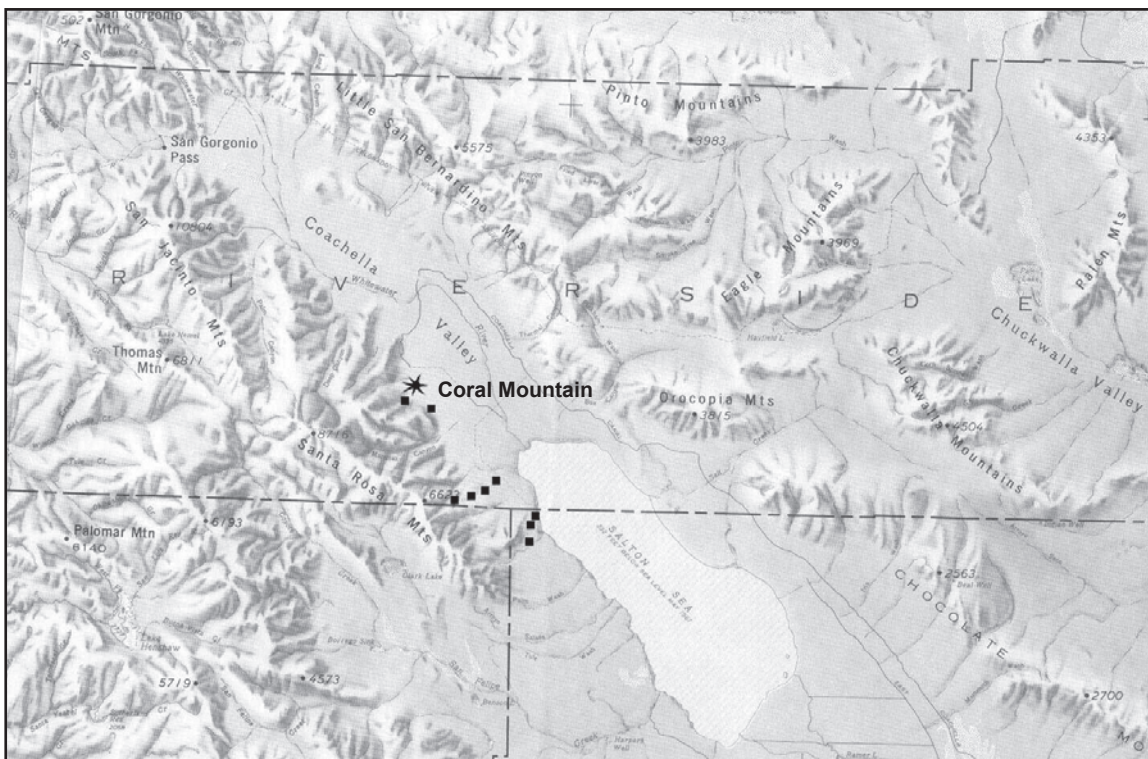


Figure 1. Location of Coral Mountain, Riverside County, indicated by star symbol. Other rock art sites within the area are indicated by a solid square (■). Adapted from the USGS State of California map, Scale 1:1,000,000.

differences in surface color, weathering, and lack of contrast between the rock surface color and the image itself. All areas displaying petroglyph images were committed to scaled drawings.

Each panel was photographed using a digital camera. Scaled drawings were produced in one of two ways, either from photographs or from tracings. Areas of exfoliation and vandalism (painting, carving, or scratching of names, dates, or other symbols) were noted on the drawings. Panels were designated as containing either petroglyphs or historic graffiti. In many instances rock art covers more than one face or facet of the same rock. Each boulder or rock surface was identified as a panel of that one rock. A special form was used to record the number of surfaces containing rock art. Using this information, it was possible to quantify the boulders containing rock art, count the number of panels, and provide the total number of images present at a site. These data can be used for quantitative comparisons with rock art at other sites. Additional information included panel designation (in cases of more than one panel per boulder), the direction of a panel's face, degree of surface inclination, type of rock, panel size, area of decoration, occurrences of superimposition, and condition of panel.

An initial visit was made to the site on January 25, 2003, with most of the fieldwork completed on weekends between February and April of 2003. Low level aerial photographs were taken to provide a geographic context for the sites and as an aid in mapping the locations of milling and rock art features. Subsequent to locating the glyph-bearing boulders, each rock/panel was mapped and plotted on an aerial photograph.

Observations were made concerning the current condition of each panel, and these were contrasted with earlier descriptions and sketches when available. Field notes were incorporated into the descriptions and into an updated site record form focusing on the rock art.

Efforts to locate early photographs or sketches through archival research were not fruitful. The principal author had a set of photos taken in 1987 that were useful for comparison. A complete set of photographs was taken to document the setting, boulder context, panel, and images of the rock art.

### **Rock Art Styles**

Before describing the petroglyphs at Coral Mountain, a brief overview of rock art styles in the region is presented to provide context. Few rock art studies were done in southern California prior to 1970. With the relatively few sites investigated, petroglyph and pictograph styles were poorly described, and interpretations were based on limited ethnographic data and limited knowledge of designs and their distribution (Steward 1929; Fenenga 1949; True 1954; Heizer and Baumhoff 1962; Heizer and Clewlow 1973).

Hedges (1970, 1973, 1979, 1989) has taken the lead in analyzing many of the sites in southern California and northern Baja California and has identified additional styles of rock art for the region. In the past rock art style had been defined on the basis of method of execution (cf., Heizer and Baumhoff 1962; Heizer and Clewlow 1973) and the presence or absence of particular designs. In some areas, certain styles are represented in both petroglyph and pictograph form, where one method of execution is much less abundant. Generally, attempts at a classification scheme or nomenclature of individual design elements have not been successful, as there appears to be some overlap in geographic, spatial, and temporal distributions. Recognized styles of rock art in southern California are summarized based on a classification by Whitley (2000) (Table 1 and Figure 2).

Whitley (2000) has developed a classification of rock art for much of California based on function. He has argued that nearly all rock art is the product of shamanism, in which shamans are seeking power

Table 1. Concordance of Rock Art Classification Systems for Southern California.

Whitley Nomenclature (2000)	Conventional Styles	References
<b>California Tradition</b>	<b>Painted Styles</b>	
South-Central Painted Variant*	Santa Barbara Style*	Heizer and Clewlow (1973)
	Peninsular Range Representational	Hedges (1973)
Southwestern Painted Variant*	San Luis Rey Style*	True (1954); Hedges (1970, 1973, 1979); McCarthy (1991); Freers (1998); Heizer and Clewlow (1973)
	Rancho Bernardo Style	Hedges (1973, 1989); McCarthy (1991)
	<b>Petroglyph Styles</b>	Heizer and Clewlow (1973)
California Engraved Variant	Western Archaic Style	Hedges (1982); McCarthy (1993)
	Riverside Maze	Hedges (1973); McCarthy (1989); Freers (1998)
<b>Far Western Pit-and-Groove Tradition</b>	Pit-and-Groove	Heizer and Baumhoff (1962); Payen (1966); Hedges (1973); Minor (1975)
Northern Pit-and-Groove Variant	Pit-and-Groove	Heizer and Baumhoff (1962); Payen (1966); Hedges (1973); Minor (1975)
Southern Cupule Variant	Cupule	Hedges (1973); Minor (1975); Smith and Lerch (1984); McCarthy (1989)

\*Style well outside the study area

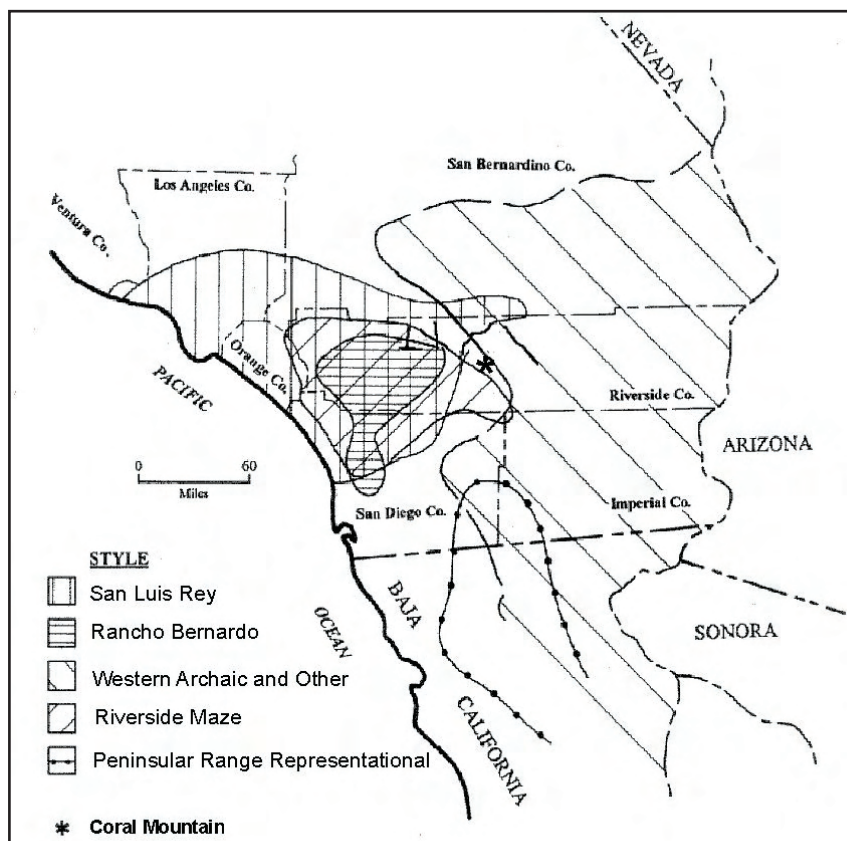


Figure 2. Rock art styles in Southern California. Cupule petroglyphs are found throughout the region. Adapted from Hedges (1973) and McCarthy (1978).

through contacting the other world(s) to tap into knowledge and power. The production of rock art imagery is part of that process. Whitley refers to his classification as the “California Tradition” and maintains that rock art is associated with shamanic vision quests serving as portals into supernatural worlds. He has argued that the California ethnographic record does not support stylistic differences based on culture or time period of manufacture. Yet, there is greater diversity in the styles of rock art within California than previously recognized. These styles span across the landscape (cultural/tribal boundaries recognized today) as well as over long periods of time. The production of rock art likely served several functions within the same culture at the same time.

The purposes behind identifying variations in subject matter and methods of execution in rock art has often been to infer differences in age, cultural affiliations, functions, and meanings. Even where specific functions of the rock art are unknown, recognizable patterns allow other kinds of interpretations (i.e., the who, where, and when). Other researchers less clear about the meanings and functions of rock art have attempted to classify rock art by method of execution and subject matter. For that purpose, the regional rock art has been fitted into styles; these are briefly described here as they may relate to the Coral Mountain region. Only petroglyphs were identified at Coral Mountain; no rock paintings were observed. Styles currently in use in the region of the study area are briefly described below.

#### *Desert Archaic Style*

The Desert Archaic style is named in part for the general time frame in which the rock art was produced. This style is not well defined; however, it represents a long tradition of petroglyph manufacture throughout the Desert West. Previous investigators have further divided Desert Archaic

petroglyphs by design, referring to Great Basin Abstract (curvilinear and rectilinear) and Representational styles (Heizer and Baumhoff 1962; Heizer and Clewlow 1973). Due to limited sampling and misconceptions over image distribution, definitions of these styles are now considered outdated (Hedges 1982). Petroglyph images in the Desert Archaic style have a far wider distribution than the Great Basin and overlap cultural as well as temporal boundaries (McCarthy 1993).

While the age of Desert Archaic petroglyph production is still in question, most researchers agree that the style is many thousands of years old. No glyphs within the project appear to represent this style.

#### *Pit-and-Groove/Cupule Style*

This style was named largely on evidence from one site in Nevada (Baumhoff et al. 1958). In areas of California and the Great Basin, the Pit-and-Groove style consists of small pits and worn grooved marks found together on the same rock surface. In the southern California region, the pits, or cupules as they are commonly called, are more typically found by themselves without grooves (Hedges 1973:21). The number of known cupule boulder sites has increased from approximately 50 known throughout the state in the early 1950s (Heizer 1953) to several hundred sites now known statewide. Often, cupules are associated with other petroglyphs and pictographs, but they rarely appear on the same panel. Minor (1975:Figure 3) illustrated the distribution of the style in southern California, noting that only nine of the 53 Pit-and-Groove style sites recorded at the time actually had grooves. Five of these sites were reported from western Riverside County. Smith and Lerch (1984) noted more than 50 cupule sites in San Bernardino County. A later study of archaeological site records for Riverside County on file at the Eastern Information Center noted 63 cupule sites and 10 pit-and-groove sites (McCarthy 1992).

As the name implies, this petroglyph style has pits associated with worn or polished grooves. Because the majority of pit-and-groove sites in southern California do not contain “grooves,” a separate “Cupule” style is designated here. The definition used to describe cupules considers their size as well as their placement on a rock surface and association with other features, particularly milling features. Throughout southern California, cupules are usually small, shallow, polished depressions on a vertical surface (McCarthy 1989). Similar features (small, mini-mortar-like) situated on a horizontal rock surface and associated with bedrock milling features are likely related to plant or animal food processing, and if so, they would not be considered as rock art.

Smith and Lerch (1984) noted similarities between the of Pit-and-Groove sites in southern California and those described by Payen (1966) for the southern Sierra Nevada. Smith and Lerch (1984:3-5) and Payen (1966) recognized the following categories of cupules: simple cupules, cupules and grooves, cupules with grooves and vulviforms, painted cupules, and cupules on portable stones. In general, cupules range in diameter from 20 mm to 80 mm and from 2 mm to 60 mm in depth.

The grooved elements may have been pecked out and then abraded to form a smooth, polished surface. They are usually worn less than two cm deep into the rock. Grooved designs in the southern California region are: (1) always associated with cupules on the same panel; (2) often single short lines; (3) sometimes connecting two or more cupules; or (4) sometimes in a horseshoe-shaped, or vulva-shaped, form; (5) more frequently on a vertical surface or surface at such an angle that would preclude food preparation (grinding/milling).

The best ethnographic accounts of these styles are from northern California. The Shasta Indians (Heizer 1953) manufactured cupules for the purpose

of controlling the weather where swollen rivers allowed salmon to travel upriver to spawn. Frequently, cupules are located at the favored fishing spots. Pomo women produced cupules to promote conception (Loeb 1926). Ethnographic information for the Diegueño (DuBois 1908b:231-232) suggests the possible use of pitted boulders in controlling the weather. Several ethnographic accounts from southern California hint at their use in initiation rites and as possible boundary markers (Minor 1975:15-17; see also True and Baumhoff 1981). Among the Cocopah, Kelly (1977:127) referenced the possible use of cupule rocks in association with the land of the dead.

#### *Riverside Maze Style*

Several carved maze-type designs are known in Riverside, San Bernardino, Orange, San Diego, and northwestern Imperial counties (see Hedges 1973:19-20). Of these, perhaps the best known example is the Hemet Maze Stone, CA-RIV-20 (Smith and Turner 1975; Schroth and McCarthy 1987). This maze-like design and several others located within a 75 mile radius of RIV-20 comprise the core area for the Riverside Maze petroglyph style. Coral Mountain is on the edge of that radius. Other maze-like designs occur at Travertine Rock located 15 km to the south of Coral Mountain.

This style and the Rancho Bernardo style overlap somewhat in distribution in northern San Diego County and the western half of Riverside County, including the Coachella Valley and the northern Peninsular Ranges. They share similar design elements and are often separated only by method of execution (i.e., petroglyph versus pictograph).

There are several examples of pecked mazes with added paint inside the lines (cf., CA-RIV-19 and CA-RIV-464) (McCarthy 1989). More examples of this combination may have existed, but weathering

and age have undoubtedly affected the recognition of pecked and painted maze sites. Like the Rancho Bernardo style, little is known of the age, meaning, and cultural affiliation of the Riverside Maize style. However, at least two sites, including Coral Mountain and Travertine Point, where mazes occur, are tentatively dated to ca. 450-500 years BP (McCarthy 1981). As a result of continued research, it is now recognized that many of the petroglyph maze panels are located in the historically known core area of the Cahuilla Indians (McDonald et al. 1996).

### Site Descriptions

Coral Mountain consists of a granitic rock exposure rising 465 feet from its base at sea level. The travertine deposit, or tufa, at Coral Mountain is a biogenic calcium carbonate with the chemical formula of  $\text{CaCO}_3$ . Biogenic means that it was created or initiated by a living organism. It is thought that green or blue-green algae provided the mechanism that precipitated this tufa (McCarthy 1981; Blodgett 2003). Tufa coats the rocks below the old high water shore line of Lake Cahuilla. There are three petroglyph sites located along the eastern base of Coral Mountain: RIV-193, RIV-1715, and RIV-6404. All three sites are within a one kilometer stretch between the southeastern and northeastern base of Coral Mountain (Figures 3 and 4). Scaled drawings of the rock art at these sites are in the Appendix.

Several studies have been conducted at Coral Mountain and surrounding areas (Scientific Resource Surveys, Inc. 1979; Westec Services, Inc. 1987; Love et al. 1998; Love et al. 2000; Drover and Smith 2002). The many sites recorded have been characterized as temporary occupations, ceramic scatters, or areas likely associated with gathering. These sites date after the last high water lake stand of Lake Cahuilla which occurred within the last 500 years.

### *CA-RIV-193*

Site RIV-193 is at the southeastern most extent of Coral Mountain and consists of six petroglyph panels, one bedrock metate, and a handful of ceramics. All the petroglyphs are carved into the relatively soft tufa covering the boulders at the base of the mountain. The depth of the tufa varies, but the range at this site is from several millimeters to over 60 cm (Figure 5). The ceramics include at least one rim and a dozen body sherds, all brownware. The site contains no midden, and the few observed ceramic artifacts are resting on exposed lake bed sediments. Sand and gravels occur at the very base of the rock exposure and are the result of wind action or erosion of the rock outcrop. Colluvium does not cover the surrounding lake bed deposits because the site is on the leeward side of Coral Mountain, which prevents the buildup of such deposits. The site measures approximately 90 m by 40 m (Figures 6 and 7).

Approximately 221 rock surfaces contain graffiti and other vandalism. This graffiti includes names, dates, or initials carved into the tufa. Only one panel has spray paint. Most of the petroglyph panels have some form of graffiti on them, but usually the graffiti is to the side of the petroglyphs and does not mask the images themselves.

### *CA-RIV-1715*

Site RIV-1715, at the northeast end of Coral Mountain, includes 14 petroglyph panels, 36 bedrock mortars, and three bedrock metates. Several metate fragments, manos, and over 150 ceramic sherds occur on the surface. The site is unique in that all of the mortars were formed in the tufa that presents a thick coat over most of the exposed bedrock surfaces (Figure 8). Many of the mortars are small and shallow (less than 8 cm in depth); several others are under 15 cm in width with depths reaching 30 cm.



Figure 3. General aerial view looking south at Coral Mountain with RIV-193 located to the far left and RIV-1715 located at the near left.



Figure 4. North end of Coral Mountain (and site RIV-1715) showing the "bath tub ring" of the old Lake Cahuilla shoreline.



Small patches of mesquite, less than one half acre in size, occur nearby. Much of the Coachella Valley was covered with mesquite in earlier times, and mesquite pods were most likely processed in the mortars. These mortars are the only ones in the valley known to have been formed in tufa deposits. RIV-1715 is only the second site recorded in the valley where bedrock mortars occur. Bedrock boulders or exposures do not occur on the valley floor but are located along the western edge of the valley. Ethnographic literature states that wooden mortars were used to process mesquite (Strong 1929; Bean 1972; Bean and Saubel 1972).

Graffiti occurs over many of the bedrock boulders at this site. Over 570 boulder surfaces (panels) of graffiti were counted. Graffiti includes scratched, carved, or incised names, dates, initials, and other images. Painted graffiti (spray or house paint) represents eight percent of the total graffiti. Many of the rocks have been used either as gun targets themselves or as backdrops for target shooting, resulting in many tufa surfaces being badly pock marked.

Surprisingly, few of the images determined to be prehistoric have been directly damaged. Vandalism does occur on the same panel next to the aboriginal images either in the form of incised or painted graffiti or bullet holes.

The site measures approximately 200 m by 300 m and is located along the base of the mountain (Figure 9). Detailed maps of these features are shown in Smith (2003). Current efforts to characterize the artifacts and features at RIV-1715 have identified many milling features in addition to the previously reported glyphs and ceramic scatters (Drover and Smith 2002; Smith 2003; Plymale-Schneeberger 2003; see McCarthy and Mouriquand 2003). After careful examination of the tufa covered bedrock and boulder surfaces, 14 panels of prehistoric rock art have been recorded. In addition to the larger parent (Rock 1), two other rocks along the base of the mountain were recorded that have petroglyphs. Rock 1 has 12 panels of petroglyphs on the various facets of the bedrock outcrop. The two individual boulders have one panel each.



Figure 5. View of tufa deposits showing various thicknesses on the same rock.

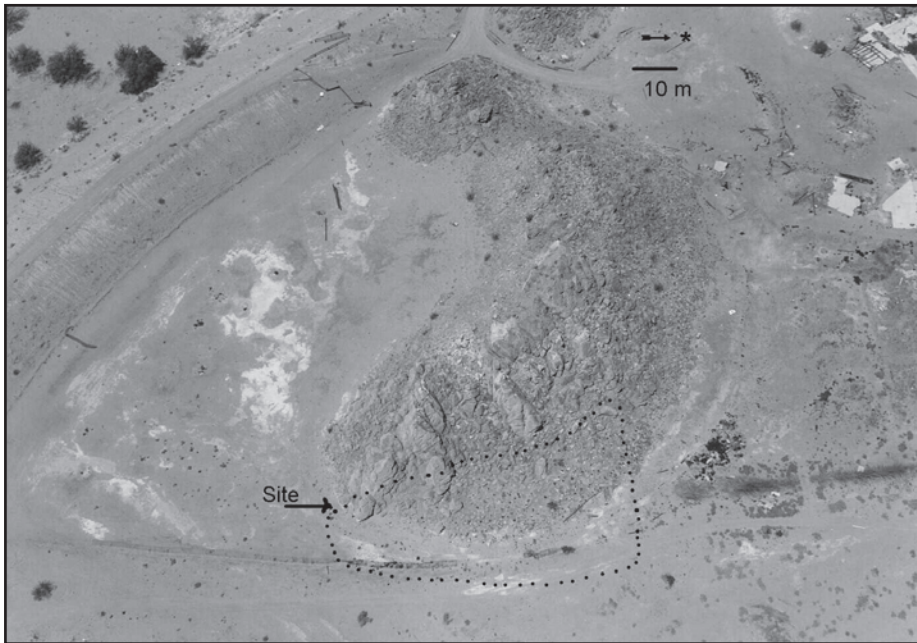


Figure 6. Aerial view of RIV-193. Top of photo is west.

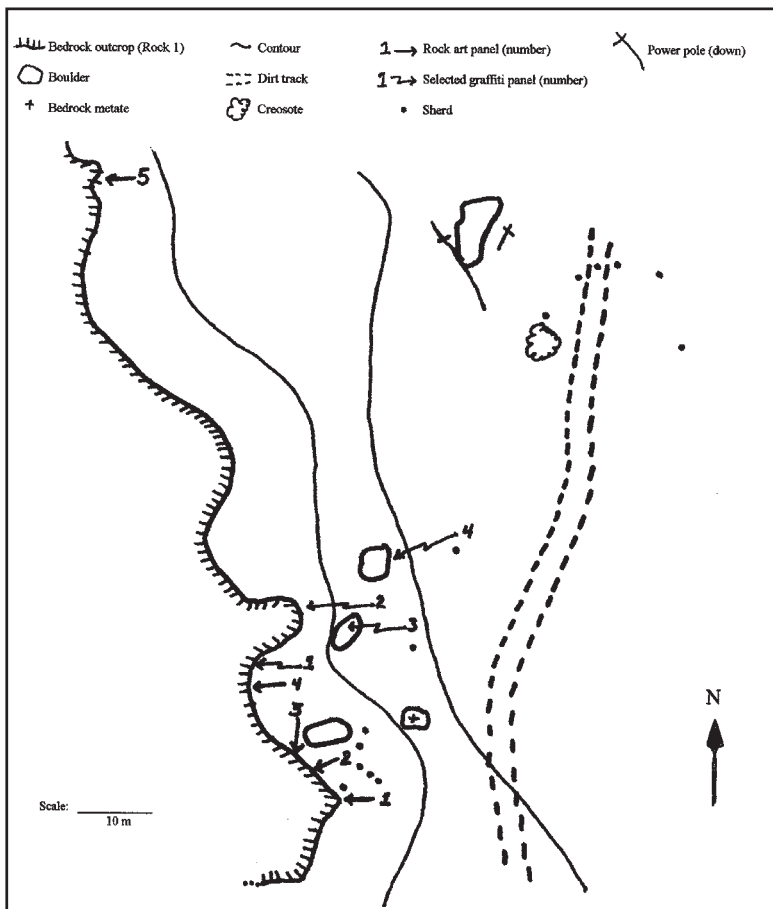


Figure 7. Site sketch map of RIV-193. Top of drawing is north.



Figure 8. Example of mortars in a tufa-coated boulder at site RIV-1715.

#### *CA-RIV-6064*

This is a small site with three boulders with petroglyphs and a handful of buffware ceramics (Figures 10 and 11). It is located about half way between sites RIV-193 and RIV-1715 along the base of Coral Mountain. RIV-6064 is similar to RIV-193 in that it is protected from alluvium washing in from the west so the site is below sea level, and the surrounding soil is lake bed sediments. The three boulders account for a total of six panels. Images occurring here include circles, concentric circles, bisected circles, and possibly an anthropomorphic figure.

#### **Coral Mountain Rock Art**

Steward (1929:86) provided the earliest published reference to the Coral Mountain sites. He included a brief description provided by W. Egbert Schenck who mentioned petroglyphs along the old shoreline of Lake Cahuilla as occurring at “Coral Reef” located near the Rau Ranch. This ranch was an early homestead at the northwest corner of Avenue 58 and Madison Street.

Along the shoreline the boulders are covered with tufa, resembling coral in appearance. Steward, referring to “the Coral Reef,” writes:

About 6-8 miles south and 4 miles west of Coachella near the Rau Ranch. A well-known landmark. Consists of an isolated ridge a few hundred feet long with the northeastern end exhibiting in striking form the old beach line of Lake Cahuilla.

At this place the beach line is perhaps 75 feet above the valley floor with the western side of the Reef above the old water line. The “line” is the point where the granite has ceased to be encrusted by the travertine deposits from the lake. Above the line the granite is clean; below the travertine varies from a trace to several inches in thickness, giving the rock somewhat the appearance of a coral formation. [Steward (1929:86)]

Later investigators (Stafford 1947; Shepard and Gearheart 1973) reported two petroglyph sites in the



Figure 9. Aerial view of site RIV-1715 showing base of mountain where petroglyphs and milling features are located. Site boundary extends north (right) and east (below) from this view.

vicinity, but insufficient data and poor site descriptions clouded the exact locations in an area that was relatively remote at the time. These sites were recorded as CA-RIV-37 and CA-RIV-193. Mr. Stafford reported RIV-37 as being at the mouth of Devils Canyon. He provided several drawings of petroglyphs but no exact locations. Eugene Shepard completed a site record for petroglyphs occurring in the same area, but again details in location were lacking. These accounts contributed data about the occurrence of petroglyphs, but information was vague regarding the number of glyph panels and associated cultural features.

During a survey of adjacent property, Scientific Resource Surveys, Inc. (1979) recorded site RIV-1715. Their report discusses a ceramic scatter along the base of Coral Mountain. McCarthy (1987) conducted a reconnaissance along the tufa covered boulders looking for rock art (Gallagos 1987). McCarthy visited the RIV-1715 area and determined that the glyphs occurring there may have been the same as

those reported at RIV-37. Access was limited to only a small portion of the tufa coated boulders along the north and eastern flank of Coral Mountain. Glyphs were found at two locations. Based on the then limited data and a few sketches of the rock art, these locations were assumed to match the earlier reports by Stafford and Shepard, and it was assumed that the abundance of graffiti masked or destroyed the previously reported images. The 1987 updates were completed to reflect more accurate locational information and better descriptions of the rock art. Graffiti and other vandalism were noted, and site sketch maps were provided for two locations of glyphs then identified as RIV-37 and RIV-193.

Subsequent surveys by other investigators of the greater area provided observations of three areas with petroglyphs at Coral Mountain; these include RIV-193, RIV-1715, and RIV-6404. RIV-37 is located 4 km southwest of Coral Mountain and will not be discussed further.



Figure 10. The RIV-6404 area.

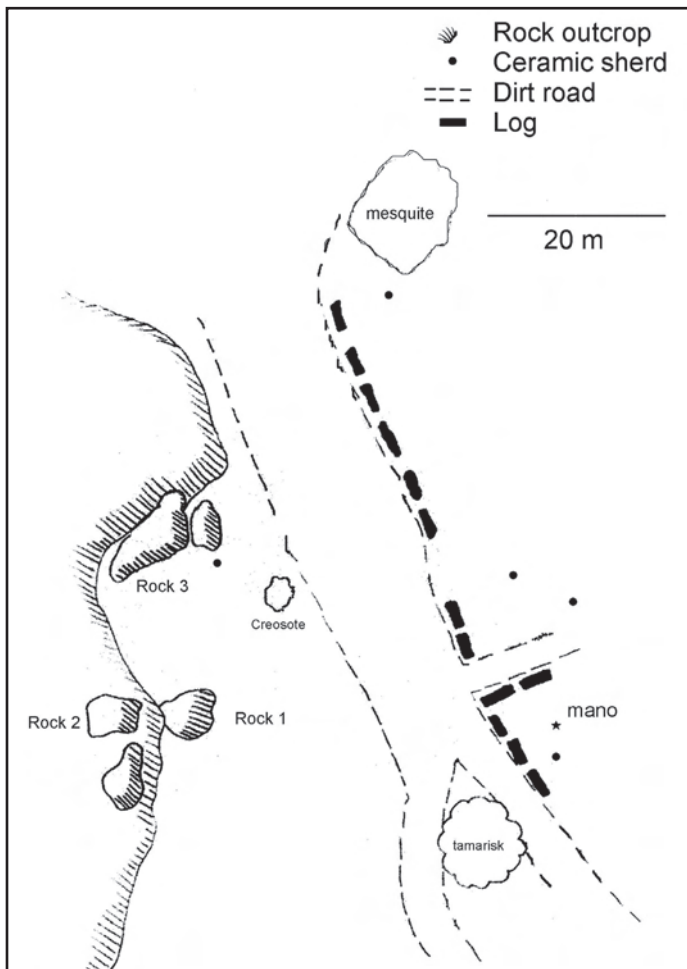


Figure 11. RIV-6404 site map.

Previous investigators had provided information and general locational data about the sites, but the rock art had not been subjected to formal documentation. Rocks (and panels) with petroglyphs were separated from panels with only graffiti. The vandalism was too extensive to map and record at the time.

The petroglyph panels located at RIV-193 and RIV-1715 are summarized with information including site, rock, and panel identification, panel size, and the number of images in Table 2. No superimposition occurs on any of the panels. The petroglyphs were executed using two methods, pecking and incising. The designs represent clear images but are sometimes difficult to distinguish from vandalism or the very porous nature and erosion of the tufa surface. Designs range from 1 to 2 cm in width and depth. Tufa does not develop any patina or desert varnish. However, the surface develops a light gray to black discoloration generally caused by weathering or resulting from colonies of lichen or moss growth.

One panel has several cupules associated with a long linear design. These cup-like depressions are different from other cupules identified throughout the region. Cupules are formed by first pecking out incipient holes. These holes are then enlarged by a grinding action to produce a polished, smooth surface. Rock 1, Panel 9 contains seven cups on a horizontal surface (Figures 12 and 13) located about four meters above the ground. These cups range in size from 10 to 80 mm in diameter and from 15 to 32 mm in depth.

The rock art at Coral Mountain is unique both from the standpoint of design inventory as well as location. Rock art on tufa covered rocks is known only at three other locations along the shoreline of Lake Cahuilla. These include several sites at Fish Spring, Travertine Rock, and Fish Traps, all located within 20 km south of Coral Mountain. No detailed studies have taken place at these sites; thus, the images are not well documented. However, what is apparent is the unusual

location and association with the former shoreline. Steward (1929:85) observed that some images were made before the last high water in-filling because they appear masked by later tufa growth caused by subsequent lake filling. This observation has been made by others investigators as well (Wilke and Wilke 1978; McCarthy 1981).

The glyph designs at Coral Mountain generally consist of linear elements such as crosses and circles. These elements include single, parallel and wavy lines (see Appendix). There is only one rectilinear image at Coral Mountain. However, there are several very elaborate maze-like panels occurring at Travertine Rock (CA-IMP-75) located 20 km south of the project area (Figure 14). These images represent the southeastern extent of the Riverside Maze style. The rectilinear image at RIV-1715 (Rock 1 Panel 6) is reminiscent of this style and may relate to that style, although the interior pattern is not as elaborate as most other examples (Figures 15 and 16). Anthropomorphs, rayed circles (sunbursts), diamonds, and other elements noted at other regional or Cahuilla sites are notably absent but do occur at a series of sites associated with a trail leading from the valley to the uplands (Worth 2003). Preliminary data on known sites within the region are provided in Table 3.

### **Rock Art Dating**

Given the context of the rock art at Coral Mountain, the petroglyphs were most likely produced after the last high-water lake stand. This would date the majority of the petroglyphs to sometime after ca. A.D. 1680. Early observers have noted the possibility that several of the Lake Cahuilla shoreline glyph panels may have been produced prior to the last high-water lake filling (McCarthy 1981). It appears that some panels have been filled in with tufa growth. Several panels at Coral Mountain may reflect this tufa growth including RIV-1715, Rock 1, Panel 6 and Panel 7. The designs are located low to the current ground level and are within

Table 2: Rock Art Attribute Data for Sites RIV-193 and RIV-1715.

Site	Rock/Panel *	Panel Size (L x W cm)	Number of Images	Image
RIV-193	1/1	90 x 70	2	linear
RIV-193	1/2	35 x 30	1	rake-like design
RIV-193	1/3	48 x 39	2	comb/rake-like
RIV-193	1/4	60 x 50	1	bisected circle
RIV-193	2/1	185 x 256	3	circular grids, vertical lines
RIV-193	3/1	55 x 40	1	vertical wavy lines
RIV-1715	1/1	36 x 42	2	circles
RIV-1715	1/2	43 x 7	2	vertical lines
RIV-1715	1/3	55 x 24.5	1	cross or anthropomorph (?)
RIV-1715	1/4	42 x 52	3	vertical lines
RIV-1715	1/5	45 x 55	4	vertical lines
RIV-1715	1/6	113 x 130	1	rectangular grid (maze-like design)
RIV-1715	1/7	39 x 39	1	nondescript
RIV-1715	1/8	19 x 52	3	horizontal lines
RIV-1715	1/9	155 x 60	8	wavey line, cupules
RIV-1715	1/10	60.5 x 64	1	cross
RIV-1715	1/11	46 x 5	1	vertical line
RIV-1715	1/12	105 x 50	2	vertical line, abstract
RIV-1715	2/1	83 x 95	4	meandering line, diamond chain (?)
RIV-1715	3/1	51 x 3.5	1	vertical line
RIV-6404	1/1	136 x 94	10	circles, concentric circles, and lines
RIV-6404	2/1	65 x 65	1	concentric circles
RIV-6404	3/1	112 x 100	4	circles
RIV-6404	3/2	138 x 110	3	circle, bisected circle, other
RIV-6404	3/3	90 x 65	2	lines, sectioned circle
RIV-6404	3/4	62 x 35	1	human stick figure (?)

\* Rock 1 is the bedrock or parent rock outcrop itself; other rocks are individual boulders separate from the bedrock exposure.



Figure 12. Photo of RIV-1715, Rock 1, Panel 9. Panel is on a horizontal plane and approximately 4 meters above the ground.

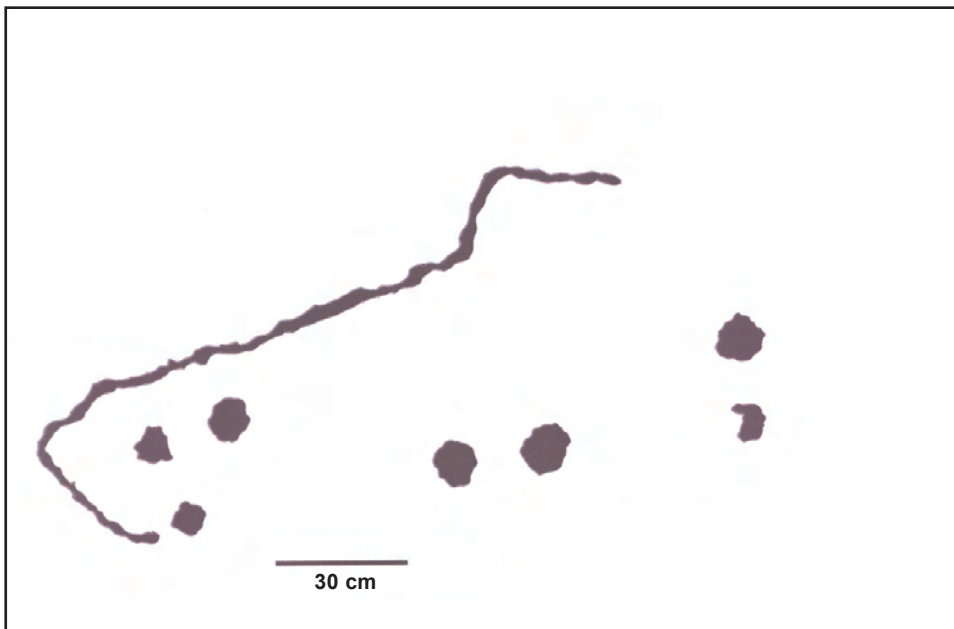


Figure 13. Drawing of RIV-1715, Rock 1, Panel 9 showing cupules with meandering line.



two meters of each other. If manufactured prior to the last high lake stand, their age would only be a few hundred years older. Had they been older, they would have been inundated several times, and tufa growth would have completely filled in the petroglyphs to the point of obscuring them.

### Interpretation of the Native Rock Art

We can gain some insight into why rock art was produced by studying the archaeological context and site infrastructure near the rock art. There has been a long tradition of creating petroglyphs and pictographs in southern California. Hundreds of rock art sites have

been recorded in Riverside County alone (McCarthy 1992). At least one pictograph site (Newberry Cave in the Mojave Desert) has been dated to ca. 3500 BP (Davis and Smith 1981). At other sites in western Riverside County, rock paintings were being made into the late eighteenth century. For example, sites located in Terwilliger Valley (CA-RIV-36) and Andreas Canyon (CA-RIV-68), both within historic Cahuilla territory, are dated by the subject matter of some of the pictographs (Thurman 1970; Quinn 1981; Hedges 1989). Easily recognizable historic theme paintings, usually executed in black, as well as petroglyphs, have been noted throughout the study area within Cahuilla territory. At site CA-RIV-36, there are several horse

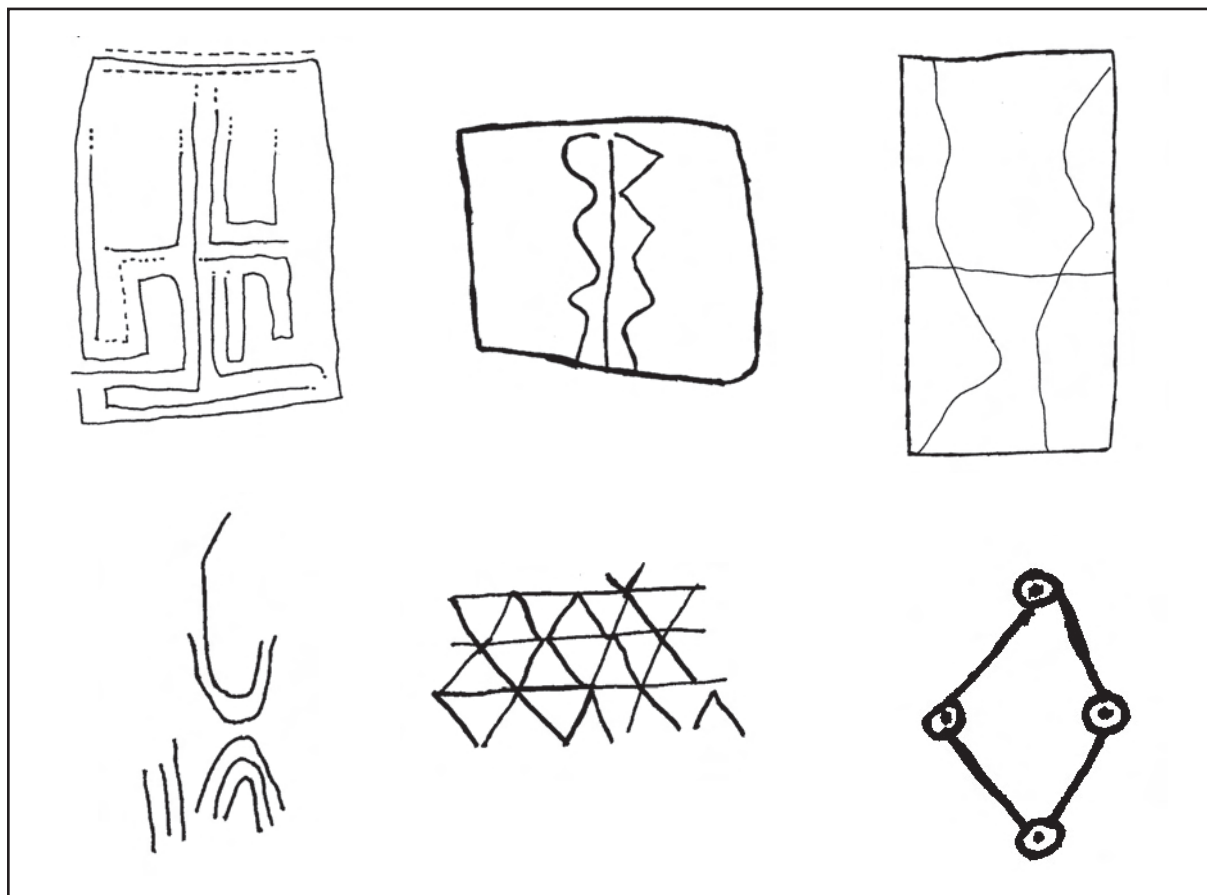


Figure 14. Examples of rectilinear, maze-like designs found at IMP-75.



Figure 15. RIV-1715, Rock 1, Panel 6. Photograph showing current condition with bullet holes and spray paint vandalizing panel.

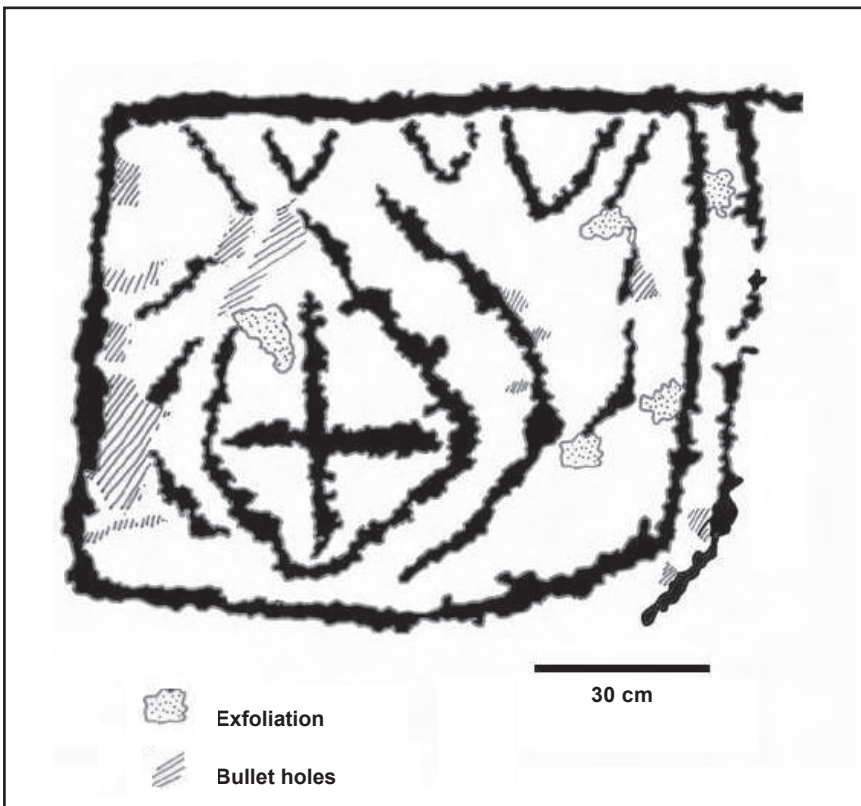


Figure 16. Drawing of RIV-1715, Rock 1, Panel 6.

Table 3. Additional Rock Art Sites in the Area.

Site (CA-)	No. of Panels	Superimposition	No. of Elements	Vandalism	Comments
IMP-33	17	no	unknown	yes	painted and pecked panels; on tufa
Fish Spring ( IMP)	4	no	unknown	no	on tufa
RIV-10	15 (estimated)	no	unknown	yes	on tufa; incomplete data
RIV-37	4	no	11	no	petroglyphs
RIV-193	6	no	10	yes	on tufa
RIV-1715	14	no	37	yes	on tufa
RIV-6404	6	no	21	yes	on tufa
Oasis Trail – A (RIV)	24	yes	77	yes	petroglyphs
Oasis Trail – B (RIV)	13	no	18	no	petroglyphs
Oasis Trail – D (RIV)	5	no	22	no	petroglyphs
Oasis Trail - E (RIV)	108	yes	220	yes	petroglyphs

and rider figures clearly representing the Spanish expedition of Juan Bautista de Anza. The explorer lead his party through Coyote Canyon in 1774 and stopped near a Cahuilla settlement (Bolton 1930).

Historical elements can be interpreted as to subject matter, but it is less clear why they were produced. Was it to record such an unusual event, seeing strange white men in control of and riding animals, or were they images painted by a shaman to understand and control these unusual spirits entering the realm of the Cahuilla? It is even more difficult to uncover the meanings and functions of rock art produced further back in time. Unlike historic graffiti, rock art was created or supervised by religious and spiritual leaders.

Repeated patterns, whether found individually or combined with other design elements, are considered clues to time and place of origin in rock art studies (Schaafsma 1971:3). Given the variety of rock art styles identified in the region, it seems apparent that each style could have served different functions or was executed by separate groups within the society (McGowan 1982; Rafter 1983; McCarthy 1989:10, 1995). Several examples of rock art

interpretation are available in the early ethnographies of southern California. Much of this interpretation relates to rock paintings incorporated into the Luiseño girls’ adolescence ceremonies. The Luiseño are a neighboring tribe to the west of the Cahuilla. Less is known about the function of petroglyphs.

Rock art is known to have served many functions, several of them within the context of shamanic rituals. Everything from recording historical events to overseeing archaeoastronomical phenomena may have been carried out to one degree or another by the shamans. Luiseño adolescent girls’ ceremonies were directed by shamans. Chumash shamans were responsible for keeping the balance in the universe and spiritual world. In this context, rock paintings have been attributed to archaeoastronomy (Hudson and Underhay 1978; Hudson et al. 1979) among the Chumash. However, with the exception of the Luiseño, no examples of specific designs are interpreted in the regional ethnographies (Oxendine 1980). More common are accounts that mention the production of rock art with no descriptions or examples of what images were produced (e.g., Dubois 1908a:92; Steward 1929:227; Strong 1929:257, 317).

In Cahuilla ethnography there are hints supporting rock art interpretation. Strong (1929:173) noted that "... no memories of any girl's race, face painting, or rock painting were remembered ..." Cahuilla rock painting is known in the area, but apparently its meaning has been lost. Bean (1972:125) stated that petroglyphs were used to mark territorial boundaries, which often were established by a culture hero (Patencio 1943). This may be the case at Coral Mountain.

Patencio's "markings" and "signs" may refer to rock art; however, it is sometimes unclear whether he is discussing pictographs or petroglyphs on rocks, or something else. For example, the Cahuilla culture hero *Evon ga net*, the fox, traveled throughout the area where

he lined the country in sections for his tribes to come in more generations, and he made the signs where certain tribes of his people were to come. The signs he made so that the people who came after would see and know. [Patencio 1943:52].

Bean (1972:75) described some areas within a village as "private and restricted to specific individuals because of ritual or sacred connotations." Bean stated that some of these localities contained rock art and

were places known to be dangerous because of the presence of powerful beings. Shamans and other ritual leaders frequently had sites of this kind for their own exclusive use, where they carried out esoteric activities. [Bean 1972:74]

There are morsels of information about rock art data, but not enough data exists to explain the abundance, distribution, and varied designs used over time. Research conducted by Whitley (1998) has supported the contention that rock art was produced directly or indirectly by shamans to control the spiritual and

physical worlds. The rock art at Coral Mountain contains a small subset of designs from several other unique sites located along the shoreline of ancient Lake Cahuilla and in the nearby mountains. Based on the current knowledge of rock art in the region, the images appear to have served several functions that centered around ritual activities. The Coral Mountain images are generally regarded by contemporary Native American Indians, and specifically the Cahuilla, (Bean and Vane 1978) as sacred and to be protected.

There are no substantial subsurface deposits at either RIV-193 or RIV-1715. While milling features occur at both sites, they are most abundant at RIV-1715, indicating milling was a major activity. Both sites were used to process small hard seeds as evidenced by the metates. Mesquite processing at RIV-1715 is inferred because of the abundance of mortars. Use of the sites seems generally to be casual and specific to rock art production and milling. The artifacts occur scattered along the base of Coral Mountain and are not associated with any substantial cultural deposits compared to nearby large, intense occupation sites.

### **Coral Mountain Graffiti**

The term graffiti is used to denote non-Native American historic designs, such as names, dates, initials, and other images carved or painted on the rocks. The graffiti is separated into historic (pre-1950) and recent (post-1950) graffiti. The earliest graffiti date is 1864 at RIV-1715. The 1864 date is associated with "BARNEY." Both the name and date appear to be old, as the entire panel is covered with old growth lichens or moss. "BARNEY" could not be linked to any specific person, but may, for instance, relate to some member of a mining or surveying party.

There is a date gap from 1864 until 1902. Additional early dates of 1909, 1910, and 1911 (twice) appear but without associated names. Graffiti that seems to be old is difficult to put into historic context when lacking

recognizable names and dates. Few names or initials are associated with dates. Dated graffiti prior to 1950 is listed in Table 4.

The name “Duro” appears on several panels (Table 4). A prominent Duro family lives at Torres-Martinez Indian Reservation. Lloyd P. Duro was contacted, and based on his recollections of nearly 60 years ago, he provided the following information (personal communication, 2003). Lloyd and his brothers, including John C., helped their father gather and load grapes from a nearby ranch in the mid 1940s. Sometimes after work, they would climb the rocks around Coral Mountain or target shoot .22 rifles. Lloyd Duro was 15 years old when he carved his name and the date (LPD

1946) at RIV-1715. Little additional information could be gathered on other names, initials, or dates inscribed at Coral Mountain.

Other graffiti occurs at both RIV-193 and RIV-1715. Of special interest are several historic designs that appear to represent “kanji,” an ethnic graffiti.

**Coral Mountain Kanji: Historic Japanese Graffiti**

Kanji refers to ideographic characters. Every character has a symbolic meaning and alone or with other characters corresponds to a word. The word kanji literally means “Chinese characters.” Kanji originated in China, and it was brought to Japan in the

Year	Actual Inscription	Site (RIV-)
1864	Barney 1864	1715 (Graffiti Panel R1P8)
1902	Todd 1902	193 (Graffiti Panel R1P1)
1909	1909	193 (Graffiti Panel R1P)
1909	1909	193 (Graffiti Panel R1P)
1910	1910	1715 (Graffiti Panel R1P5)
1911	1911	193 (Graffiti Panel R1P2)
1911	1911	1715 (Graffiti Panel R3P2)
1919	EM 1919	1715 (Graffiti Panel R1P9)
1922	R Nicholas 1922 //A.R. 1922	1715 (Graffiti Panel R3P1)
1932	1932	1715 (Graffiti Panel R1P6)
1937	D. S. ?-10-37	1715 (Graffiti Panel R12)
1939	J. Price / Saginaw / MICH / 39	193 (Graffiti Panel R1P4)
1940	1940 VMA	1715 (Graffiti Panel R1P7)
1941	J MERAS 1941	1715 (Graffiti Panel R1P4)
1941	WA 1941	193 (Graffiti Panel R1P3)
1943	B Lyons 1943	193 (Graffiti Panel R1P4)
1946	Lloyd Duro 1946	1715 (Graffiti Panel R1P2)
n.d. (1946?)	John L Duro; Anne / MJ + CAT	1715 (Graffiti Panel R3P11)
1946	LPD 1946	1715 (Graffiti Panel R1P3)
1946	Lloyd Duro 1946 // 4/20 // with gothic cross	1715 (Graffiti Panel R1P13)

Table 4. Dated Graffiti within the Study Area.

fifth century via Korea. Around the ninth century, the Japanese developed their own writing system based on syllables. Of the two writing systems, Hiragana and Kata kana, Hiragana is more cursive while Kata kana is more angular. Together these two systems are called Kana. Kana consists of 46 signs which were originally kanji, but were simplified over the centuries. Kanji is still used in Japan, but is considered an antiquated form of writing, not generally employed by the average Japanese citizen. Most Japanese names consist of two Kanji characters (Japan-guide.com 2003). The glyphs will be referred to in this report as kanji, although some of the individual ideograms may be Kana (either Hiragana or Kata kana).

There are over 49,000 individual kanji characters. Each character can have several different readings or interpretations depending upon context. A person literate in Chinese kanji will likely interpret them differently from a person literate in Japanese kanji (Omni-glot.com). Sino-Japanese readings are called “ON” readings, and pure Japanese readings are called “kun” readings (O’Neill 1973).

Symbolic characters denote particular things or concepts. Radical-and-phonetic characters consist of a basic element known as a radical to indicate the general area of meaning of a character and a phonetic element to show its sound or reading. There are extended usages in which a character was used for a meaning different from its original meaning and borrowed usage in which a character was used for a meaning quite unconnected with its original one.

Coral Mountain Japanese kanji graffiti is a unique rock art style for southern California. The term “ideoglyph” has been selected to describe the kanji petroglyphs found at Coral Mountain. In general linguistic terminology, kanji characters are termed “ideograms” since they are representational characters used in a traditional writing system. “Glyph” was selected because

the characters found at Coral Mountain have been incised into the tufa in general petroglyph fashion. An ideoglyph conveys an idea (ideo) and sometimes is composed of a single character but often several characters. Kanji is usually written left to right and top to bottom. Studying these ideoglyphs has involved a blend of historical linguistic analysis, contextual ethnographic research, and classic petroglyphic description and analysis.

Steward (1929) made the first published reference to the Coral Mountain kanji ideoglyphs. He conducted fieldwork among the Cahuilla in the region between 1924 and 1927. While compiling the information for his book, he sent numerous letters to solicit data from knowledgeable locals. Mr. W. E. Schenck provided the observation that they were “Japanese characters” (Steward 1929:86).

Later recorders provided sketches of some of the rock art and made no distinction between kanji and aboriginal petroglyphs. Preliminary inquiries of previous researchers and those familiar with the potential kanji glyphs resulted in negative identification of the glyphs as being kanji or any other form of Asian writing (Quinn, personal communication 2003).

In a survey of the Coral Mountain area, which included RIV-1715, Drover and Smith (2002) noted the rock art and made a recommendation for a focused, expert documentation effort. The literature on kanji rock art in southern California is sparse since these types of petroglyphs are rare. The only published report noted during the course of archival research on Asian petroglyphs found in southern California is by Turner (1971). These kanji were located on small granitic boulders at the Jeffrey’s Ranch above Del Rosa in 1938 and were subsequently moved to the San Bernardino County Museum. The glyphs were also discussed in a Master’s thesis by Gerald Smith (1939), who noted

their remarkable resemblance to ancient and modern Chinese writing. Turner's report noted that there was no evidence of Chinese settlers in this region. He incorporated translations by various Chinese, Japanese, and Mandarin speakers with mixed results. Turner concluded that the glyphs were likely of historic age and made with a steel chisel by a Japanese person (Turner 1971). Five kanji were translated with a level of confidence: "Great," "Japan," "Okayama," "North," and "America." Was this a memorial to the Japanese homeland and a commemoration of travel to America? Such memorials are found within traditional Japanese cultural practices (Charles Farley, personal communication 2003).

Two Coral Mountain sites have ideoglyphs of a kanji style. There are two panels at RIV-193. A single ideoglyph with four characters is incised into a boulder on the east face of a tufa-covered boulder, designated as Graffiti Rock 3, Panel 1 (Figure 17). The ideoglyph's dimensions are approximately 45 cm in length by 24 cm at the widest measurement. The average width of the carved lines is 2.5 cm, and the average depth of the lines is approximately 1.5 cm. The technique of manufacture of this ideoglyph is consistent with a hammer and chisel method given the precision and depth of the design. The glyph is eroding because of the nature of the tufa and its calcium carbonate composition. The second RIV-193 panel is a single ideogram, which has been translated as "east" or "higashi" (Suski and Suski, personal communication 2003). This panel will be discussed in more detail later.

The RIV-1715 kanji consists of two ideoglyphs also incised into the tufa. There are several characters in two parallel rows, all on the same panel, designated Graffiti Rock 1 Panel 1 (Figure 18). The rows measure approximately 48 cm by 95 cm and 46 cm by 170 cm, and the rows are located 40 cm apart. The width of the incised lines of these kanji averages 2.5 cm, and the average depth is 1.5 cm. These glyphs

were likely made by the hammer and chisel method using metal tools. The workmanship appears very consistent.

The Kanji in Row A consists of perhaps three characters. Originally, there may have been more characters at the bottom of Row A, but Row A has sustained some damage either by bullets, perhaps by climbers brushing past it while creating graffiti on the same panel, or through purposeful scraping a portion of the ideoglyph in creating an engraving of a horse. The Kanji in the longer row (Row B) consists of five characters and is only slightly impacted by erosion of the tufa.

Kanji characters can be described and categorized by the number of "strokes" they contain in order to aid in interpretation when a meaning is not known. Counting the strokes in each Coral Mountain character aided in interpretation efforts by narrowing down potential candidates. Kanji characters are written with specific ordering of strokes. However, no attempt was made in this study to determine which stroke came first on the tufa. It is doubtful that stroke order could be accurately determined unless an intense study of their manufacture is conducted.

An example is the simple two-stroke character shown in Figure 19. A figure similar to this (Row B, Glyph Element 2) found at RIV-1715 was originally used to represent a needle but has been "borrowed" to write the numeral "ten" (O'Neill 1973). The etymology of kanji is a complex study in itself. Through time the characters became more stylized and abbreviated into a form of shorthand. New characters are created and meanings assigned as needed.

The Coral Mountain kanji ideoglyphs were made between ca. 1910 and ca. 1927. The style of the kanji ideoglyphs at Coral Mountain is of the modern ideographic form and not a prehistoric or early historic form.

The first Japanese settlers to the Coachella Valley arrived in 1900 (Shibata 1985; Laffin 1998; Suski and Suski, personal communication 2003). There is some published and unpublished information about these pioneering families (Mitchell 1986).

Our research at the Coachella Valley Historical Museum revealed a list of family names of Japanese settlers in the valley that included the name “Higashi.” This name matches with the interpretation of the southern-most ideoglyph at RIV-193 that was interpreted by Suski and Suski as “higashi,” or east (Figure 20). That the glyph faces the east direction may be a coincidence. The Higashi

family came to the valley about 1910 and left the valley after a few years. Mr. Higashi may have been employed by the railroad, but he was not active in farming (Suski and Suski, personal communication 2003). Possibly, this glyph was carved by a member of the Higashi family sometime between 1910 and 1927, when Japanese characters were reported to Julian Steward (1929).

The Suskis (personal communication 2003) speculated that the Coral Mountain area may have been a picnic spot for local families, and during an outing, someone carved “Higashi” into the tufa. Use as a picnic spot was confirmed by Harry Quinn (personal communica-

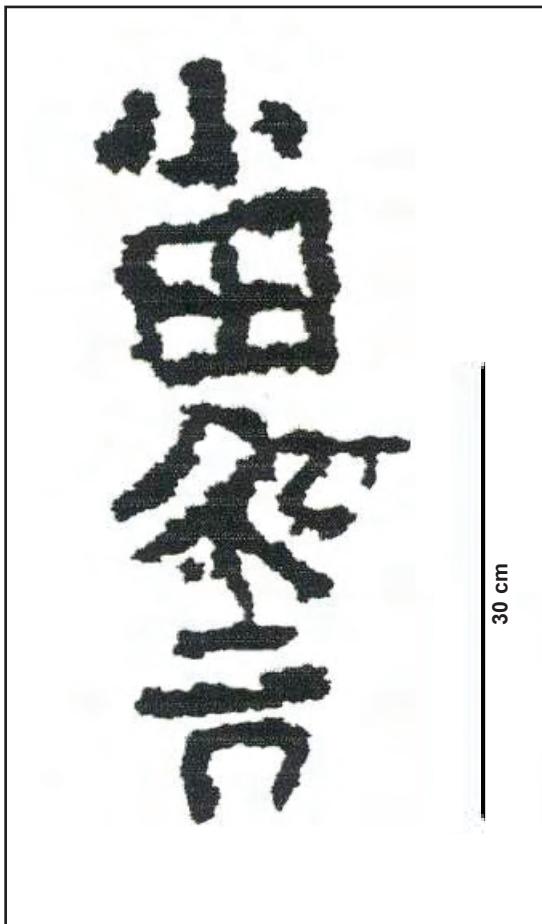


Figure 17. Kanji ideoglyph at RIV-193.

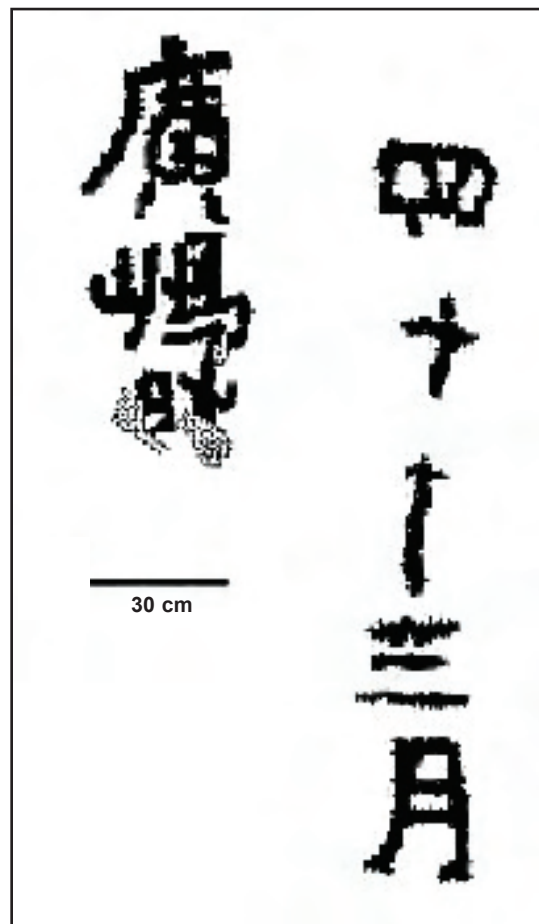


Figure 18. Kanji ideoglyphs at RIV-1715. Left is Row A; right is Row B.





Figure 19. Example of a two-stroke character. Adapted from O'Neill 2003.



Figure 20. Ideograph representing east in kanji. Adapted from O'Neill 2003.

tion 2003) in his interviews with Kathy Kirby. The Suskis recalled the Higashi family, especially the daughter Tokiko. Mr. Suski placed a telephone call to Mr. Charles Shibata, another Japanese American elder of Indio, and inquired about the whereabouts of Tokiko Higashi. Mr. Shibata recalled her, but could provide little information. It is rare when rock art can be interpreted with any level of confidence, much less the maker identified.

A portion of the kanji sequence at the north point of Coral Mountain (RIV-1715) can be interpreted literally as “three moon” and can be refined to “third month,” likely the month of March. Mrs. Suski also interpreted this glyph as third month, or March (Quinn, personal communication 2003). Generally, March has good weather conducive to picnicking.

Point Happy Ranch, homesteaded by Norman “Happy” Lundbeck, apparently employed ranch hands of Mexican, Japanese, and American descent around the turn of the nineteenth century. Housing was provided in a community setting on the ranch. The ranch was located in what later became La Quinta, not far away from the project area. The kanji could have been produced by workers from the ranch as well.

The kanji ideographs are distinct among the collection of rock art and graffiti at Coral Mountain because of their unique design and their consistent manufacture with deep and wide incisions. They are very unlike other petroglyphs observed at the site. Once located, the ideographs tend to stand out at various times in moving sunlight. They tend to photograph well during the early morning sunlight and again in the late afternoon light.

The Coral Mountain kanji petroglyphs are significant on several levels. They are a rare and ethnically unique form of historic rock art within the southern California region and within the Coachella Valley. The kanji are easily linked to the pioneering Japanese-American farming families living in the Coachella Valley. Descendants are still involved in this community, creating a continuum of Japanese-American presence in the desert valley for over a 100 years.

#### **Acknowledgments**

David M. Smith, The Keith Companies, Inc. and Renee Kolvet, Bureau of Reclamation, lent their support throughout the project. David provided maps, copies of reports of previous research, and a copy of their Phase 1 Survey Report of Coral Mountain. We are

most thankful to Mike Gorman, Landmark Photography, for taking the aerial photographs.

Bob Tyler was very helpful in providing further background information on historic places of the area. Jenny Worth provided much needed field assistance, worked on completing rock art recording forms and did an exemplary job producing the drawings. Michael Blodgett and Carolyn McCarthy provided assistance in conducting the fieldwork. It was through their good cheer that the authors were able to spend so much time completing this project. Special acknowledgment is given to Mr. Lloyd P. Duro for sharing his boyhood remembrances. The authors wish to thank the anonymous reviewers for their comments. The authors alone are responsible for any errors or omissions.

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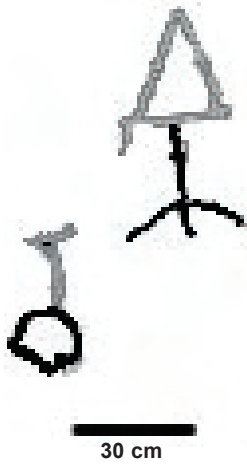
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### Appendix: Scaled Drawings

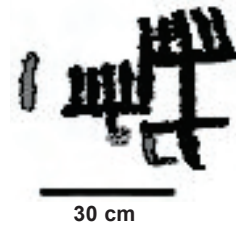
CA-RIV-193



Rock 1, Panel 1



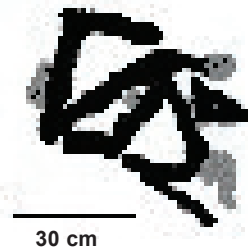
Rock 1, Panel 2



Rock 1, Panel 3



Rock 1, Panel 4



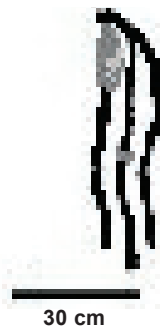
Rock 2, Panel 1, Element a



Rock 2, Panel 1, Element b



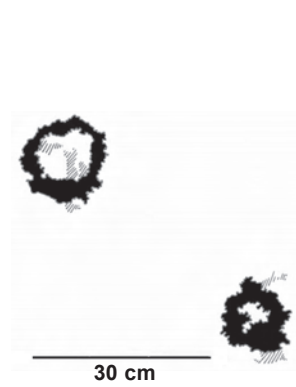
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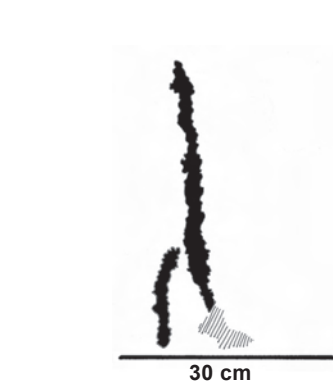
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CA-RIV-1715



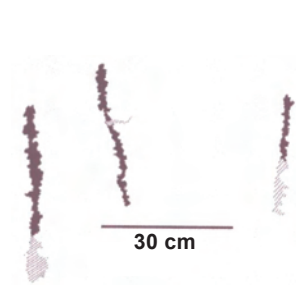
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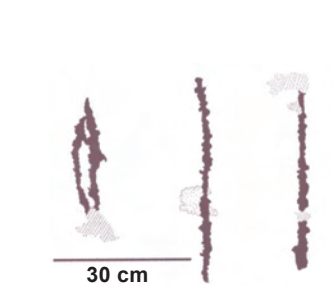
Rock 1, Panel 2



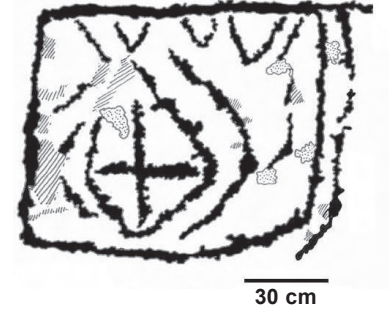
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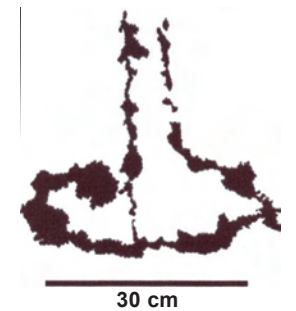
Rock 1, Panel 4



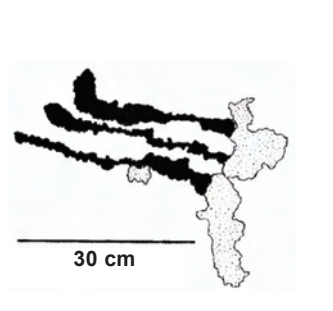
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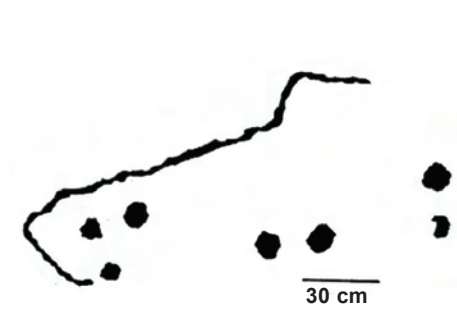
Rock 1, Panel 6



Rock 1, Panel 7



Rock 1, Panel 8



Rock 1, Panel 9



30 cm

Rock 1, Panel 10



30 cm

Rock 1, Panel 11



30 cm

Rock 1, Panel 12



30 cm

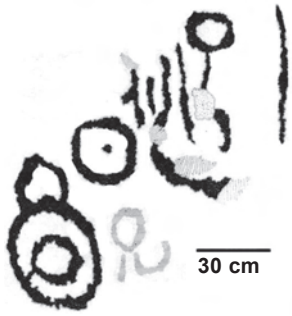
Rock 3, Panel 1



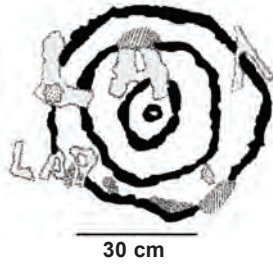
30 cm

Rock 2, Panel 1

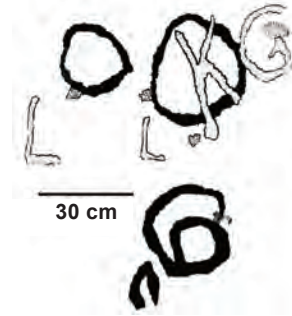
**CA-RIV-6404**



Rock 1 Panel 1



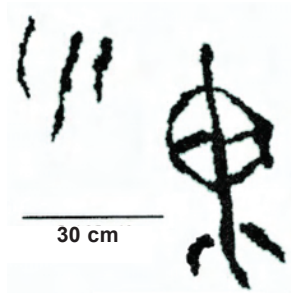
Rock 2 Panel 1



Rock 3 Panel 1



Rock 3 Panel 2



Rock 3 Panel 3



Rock 3 Panel 4

