# Rock Art Portal to Passage: An Ancient Desert Footpath Near Needles, California

Stephen P. Horne and Ruth Musser-Lopez

#### Abstract

Coursing through an extensive field of boulders near the threshold to Eagle Pass east of Needles, California, in the Sacramento Mountains is an approximately 2,400 m prehistoric footpath, named the Eagle Pass trail and recorded as CA-SBR-214. Similar to other prehistoric trails and trail segments in the region, many of the boulders adjacent to or bordering Eagle Pass trail bear petroglyphs while boulders farther away from the trail were not utilized in this way. Most of the panels are so oriented as to allow passersby to view them whether traveling toward or away from the Colorado River Valley; few are oriented in such a way as to not be visible from the trail. We give subjective consideration of this social space taken together with the surrounding natural environment to propose that passage along the footpath could have evoked a compelling cognitive experience in travelers approaching or exiting the threshold of Eagle Pass. This arranged cultural space appears to have functioned as an extended portal for Eagle Pass.

#### Introduction

The extensive network of prehistoric footpaths worn by persistent use into the pavement of the Mojave Desert forms a tracery of archaeological features linking vast geographical areas. Connecting places is, of course, the purpose of trails, but it is also understood that archaeological and ethnographically documented landscapes have complex systems of prehistoric footpaths as central elements. Native individuals and groups traveled over great distances in the Mojave Desert (Kroeber 1925); it is generally accepted that trails represent movement for subsistence, ceremony, community, conflict, and trade (Rogers 1939, 1966; Sample 1950; Musser 1979b; von Werlhof 1988; Becker and Altschul 2008; Cleland 2008:4; Snead et al. 2009; Apple 2012).

Most early efforts of archaeologists toward the study of prehistoric trails directed attention toward the physical, directly observable fabric of trails, that is, topography, provenance, form, dimensions, direction, and associations with artifacts and such features as rock art, monuments, and cleared circles.

Early work of Malcolm J. Rogers, Ruth A. Musser, and Jay von Werlhof were notable exceptions, treating trails as materializations of human movement and cultural expression. This understanding of trails has become increasingly more accepted as archaeologists, ethnographers, Native scholars, and others engaged in the modern study of prehistoric trails in the Mojave Desert have taken a broad, nuanced, and humanistic approach, seeking an understanding of the landscape, setting, and cognitive environment of trails and trail networks as central elements in understanding human movement through the landscape (Snead et al. 2009). This approach includes explication and explanation of trails and trail networks and their associations with culturally significant natural landscape features, culturally modified spaces, and cultural boundaries; connections to cultural beliefs, myths, and meaning; and the processes involved in trail usage.

Prehistoric trails in the Mojave Desert clearly are more than tracks on the landscape. They are part of the fabric of ancient culture—channeling human movement, sustaining economies, and connecting ancient communities. Their importance for understanding Mojave Desert prehistory is fundamental. They have taken on renewed cultural importance with the study, often undertaken or assisted by Native scholars, of ethnographic trails and trails that have persisted only in mythic form. The Salt Song Trail Project (Cultural Conservancy 2010), for instance, has both preserved *Nuwuvi* songs and produced a map of the larger cultural landscape of the mythic Salt Song Trail.

Only a few of the many prehistoric trails or trail systems in the Mojave Desert are identified in ethnographic or historical accounts, such as Francisco Garcés' 1776 route (Coues 1900), often referred to as the Mojave Trade Route (Farmer 1935) and simplified colloquially as the "Mojave Trail"; the *Xam Kwatca 'n* trail system (Cleland 2008); and the Chemehuevi trails described by Laird (1976) and Kelly (primary source materials cited in Fowler 2009:92) and figuratively reconstructed by Laird (1976) and Fowler (2009).

Most ancient trails in the Mojave Desert are now anonymous, discontinuous segments, with uncertain or nonexistent links to written and oral information. This paper focuses on one such anonymous footpath known as the Eagle Pass trail (CA-SBR-214), situated southwest of Needles in the arid eastern Mojave Desert of southeastern California and in the vicinity Eagle Pass and Eagle Peak in the Sacramento Mountains on the west side of the lower Colorado River Valley (Figure 1). Presented here are preliminary observations regarding this approximately 2,400 m footpath at the eastern portal of Eagle Pass. Our examination is directed toward two aspects of the Eagle Pass trail: (1) its physically observable manifestations, particularly the pathway, its visible tread, and its petroglyph boulders and (2) the engagement of prehistoric travelers with the pathway and its rock art. We suggest

that these cultural elements taken together with its setting at the eastern threshold of Eagle Pass signaled a meaningful social place of passage and transition.

#### **Eagle Pass Trail and Its Geographic Setting**

Eagle Pass trail connects with Eagle Pass at the terminus of a relict ridgeline between the large wash issuing from the pass and another, smaller dry wash situated immediately to the north. The trail follows the ridgeline, an austere, narrow, undulating, and flat-topped landform naturally covered with darkly patinated desert pavement and densely spaced boulders. The trail extends northeast from the eastern threshold of Eagle Pass for 2400 m after which it disappears into a sandy wash draining toward the lower Colorado River Valley.

Based on sporadic archaeological manifestations, the Eagle Pass trail may have linked with a trail or trails crossing the Colorado River near Needles to intersect routes paralleling the river, then merging with the well-known Mojave Trail at a point near Sitgreaves Pass or Oatman, Arizona, on the opposite side of the valley. The Mojave Trail was appropriated in the 1850s for military and immigrant movement; the old government road is also referred to variously as the "35th Parallel Route," "Beale's Camel Road," or simply the "Mojave Road" (Casebier and King 1976) and continues in use today as a dirt track.

A. P. Miller, who corresponded with Julian Steward in the 1920s, furnished evidence of a connection of the Eagle Pass trail to a trail network to the west of Eagle Pass. He traversed the Eagle Pass trail when it was likely to have been more apparent than it is today and wrote that the trail "seems to run [from the west end of Eagle Pass] ... north" to springs near Las Vegas (Steward 1929:83). A reference for a north-south trail bounding the west side of the Sacramento Range and linking springs is also found in Laird (1976). Today, the discernible trail beyond the western portal of Eagle Pass disappears in the sandy alluvial fan extending Rock Art Portal to Passage: An Ancient Desert Footpath Near Needles, California

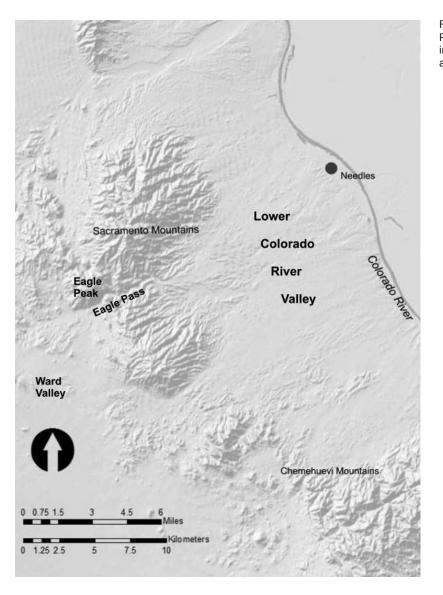


Figure 1. Location map. The Eagle Pass trail, or CA-SBR-214, is not indicated in order to protect the rock art from vandalism.

into Ward Valley, but it is believed to have once connected beyond to other trails in a network that included the "Mojave War Trail" and perhaps a potential physical referent of the mythic "Salt Song Trail" (Musser-Lopez and Miller 2010).

A west-bound Native traveler leaving the prehistoric Mojave villages near Needles would have transitioned from a comparatively well-watered oasis into a much drier, harsher, and more forbidding land and would have engaged the Eagle Pass trail southwest across a Quaternary bajada sparsely vegetated with creosote bush scrub and scattered ocotillo, cut by rills and channels draining eastward to the Colorado River (Figure 2). From a distance, Eagle Pass appears as just another fold in the hillside invisible until closely approached, however the distinctive Eagle Peak promontory (Figure 2), projecting well above the western threshold of the pass. would likely have served as a navigation marker.



Figure 2. Eagle Pass trail ascends the crest of a ridge on a dissected alluvial fan with a surface of highly patinated gravel including darkly varnished, porphyry boulders. The promontory on the horizon at right is Eagle Peak.

# Rock Art Portal at the Eastern Threshold of Eagle Pass

The manner in which rock art has been positioned on boulders bordering Eagle Pass trail is highly unusual. The pattern of placement has drawn the attention of several scholars who have previously surveyed and documented the trail to varying degrees (Golomshtok 1927; Haenszel 1964; Christensen and Dickey 1993), and it is cited in several publications (Steward 1929:83, Plate 41; Heizer and Clewlow 1973; Christensen and Dickey 1994). The documentation of Christensen and Dickey and our own study are based in comprehensive surveys of the landform, the pathway and its tread, the petroglyphs, and associated features and artifacts. Our analysis here utilizes our own data derived from field observations, both archival and recent, and information previously recorded by Haenszel (1964) and Christensen and Dickey (1993).

The exact location of the trail has not been disclosed here to protect this fragile resource from harm. Concern over public exposure of the trail is warranted. In one short stretch the tread of the trail has become imperceptible, presumably as a result of World War II maneuvers. Weathered light vehicle tracks are apparent in other parts of the trail, appearing to be many years old. Defacement has fouled several boulders, and we have identified several instances where boulders have been repositioned, possibly to gain photographic advantage. Many of the petroglyphs are found on small, light boulders-a temptation for relic hunters. One petroglyph boulder was removed in the 1990s (Christensen and Dickey 1993), and petroglyphs illustrated by either Steward (1929) or Haenszel (1964) are no longer present. The extent and nature of the complete original suite of petroglyphs will never be known because the petroglyphs have only recently been comprehensively recorded. We have excluded from our analysis boulders that have been or are believed to have been repositioned and other boulders that have been marked only with modern graffiti or inscriptions.

Christensen and Dickey (1994) analyzed the Eagle Pass trail in their consideration of rock art and trail associations in the Needles region, finding a close spatial association of rock art boulders with the trail, as did Haenszel (1964); they noted that the rock art is visible from the trail, found "no apparent correlation of any particular motif or groups of rock art images associated" with the trail (Christensen and Dickey 1994:35), and found it particularly notable that the site lacks an association with water or water sources (Christensen and Dickey 1994:21, 32). However, a spring exists in a nearby side canyon within Eagle Pass. Also, adjacent to the point where the western end of the observable pathway is lost at the eastern threshold of Eagle Pass, a recently guarried and reduced rhyolite dike may have once impounded seasonal water.

The Eagle Pass trail follows a narrow, undulating, and flat-topped ridge. Shoulder to shoulder, the ridge top is typically 40–50 m wide but occasionally narrows to 20 m in saddles. The maximum width of the ridge top is approximately 80 m. The trail generally follows the northeast-southwest trending, mildly sloping centerline of the ridge, threading its way in soft curves through boulder fields, over small rises, and across minor saddles.

In general, trails and trail segments most frequently encountered in the desert exhibit an observable tread created mainly through use, sometimes with associated stacked rock monuments and shrines, cleared circles, and scatters of pottery sherds, and they frequently lead to water sources around which petroglyphs are often clustered. The Eagle Pass trail is unusual in that it is loosely bounded on both sides of its length by intermittently spaced trailside porphyry boulders having glyphs on one or more patinated surfaces. A large number of unmodified boulders with darkly patinated surfaces that appear suitable for hosting rock art images are also located along the ridge top. However, with few exceptions, only boulders near the pathway possess glyphs. The trailside glyphs and other cultural elements, including cleared spaces, pecked and scarred boulders, shards of white quartz, and grinding surfaces on porphyry boulders and slabs, create a gently curving, linear aggregation of culturally modified elements.

A different but physically proximate trail, closer to Needles and lower in elevation, was documented by Musser-Lopez (1979a). That unnamed trail has a similar arrangement of patinated boulder petroglyph and contains a tight cluster of seven distinct cleared circles of the type often referred to as "sleeping circles." In contrast, the Eagle Pass trail has no such definite cleared circles.

However, we did observe several rimless, ovoid to amorphous areas clear of most patinated gravel on the Eagle Pass trail in locations that correspond generally to petroglyph loci delineated by Christensen and Dickey (1993). Four of six of these earthen features are associated with small numbers of artifacts, including grinding stones and very low frequencies of chalcedony and porphyry debitage. Although these enigmatic features are still under investigation, to us they suggest transient activity areas. The central and uniting feature of the Eagle Pass trail is the pathway. Its location in relationship to topography and cultural features has been described by Christensen and Dickey (1993) and slightly refined by us based on our field investigations. The tread of the pathway is visually discernible to varying degrees for much of its length, ranges from 30 to 60 cm in width, and typically is only slightly depressed ( $\leq 2$  cm) below the level of the surrounding natural pavement.

The pathway's tread has been developed largely through pedestrian use rather than purposeful construction. However, it is apparent that larger fragments of angular and subangular gravel, encountered in abundance elsewhere in the adjacent desert pavement, had been cleared here and there from the tread, accumulating along the path's margins in a subtle, low profile berm. The tread, where relatively undisturbed, is composed largely of pebble-size rocks tamped by usage into the underlying sediments. There is no evidence of aligned rocks to border the pathway's margins. However, at intervals, white quartz fragments appear to have been placed along the margins of the tread. Fowler (2009:88) and Musser-Lopez and Miller (2010) cite references that suggest white rocks placed near trails served as markers for nighttime travelers and runners. Also suggestive of such markers is an abundance of previously unrecorded nicked and pecked boulders observed intermittently along the trail. The many naturally darkened patinated boulders bearing lighter scars of nicks and pecks have not been formally recorded, and it remains unclear whether they are the product of deliberate marking or random scarring resulting from trail use. Additionally, previously unrecorded side trails were recently observed; one spurring from the trail between Locus 7 and Locus 8 is marked by petroglyphs and trends northeast off the ridge.

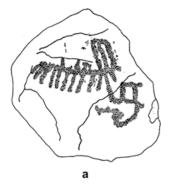
Nine boulders and slabs with grinding surfaces were documented by Christensen and Dickey (1993) near the trail, within 1 to 3 m from the pathway centerline, occurring in one cluster of four and singly at five isolated locations along the trail. The grinding surfaces are subtle and shallow, indicating an absence of protracted use, and no hand stones remain in association. The grinding surfaces, with two exceptions, occur on unadorned boulders. Two unusual slab-like boulders, one (Locus 15, Boulder 4) recorded by Christensen and Dickey (1993) and by Haenszel (1964) and another recently recorded by Musser-Lopez, bear grinding surfaces and petroglyphs on the same rock face.

Reuse of grinding surfaces is also evident; one grinding surface is highly repatinated with a contrasting area of more recent, less patinated surface abrasion. During recent fieldwork, Musser-Lopez identified additional grinding surfaces with similar characteristics and associations as those reported by Christensen and Dickey (1993) in amorphously cleared areas to the side of the trail.

Musser-Lopez also documented an interesting feature within Locus 10. This feature consists of an anvil stone (20 cm x 25 cm) partially embedded in the desert pavement in association with fragmentary white quartz rocks. The anvil stone and most of the fractured quartz are distributed within a loose, 1 m diameter arrangement of rocks, suggestive of a circle, embedded in the surrounding pavement. The surface within this feature contains the majority of the quartz rock fragments, but it is not cleared of other naturally occurring stones. At the outset, we focused our analysis on 86 boulders that bear 356 pecked (and, to a lesser extent, etched) rock art images associated with the trail as recorded by Christensen and Dickey (1993). One of the important contributions of their work is an expertly hand-drawn graphic catalog of each individual image, showing a variety of abstract and representational images (Figure 3) keyed to a topographic sketch map.

The images on individual boulders range from simple to complex and occur on single or multiple faces. The petroglyphs are repatinated to varying degrees even within the same panel (Figure 3b). Christensen and Dickey also observed instances of repecking and reetching, which they suggest is evidence of renewal. Multiple instances of differing degrees of apparent patination of petroglyphs on the same boulder face and the occurrence of renewal on several boulders indicate multiple creative events.

The distribution of the rock art boulders, as described by Christensen and Dickey (1993), occurs in 15 generally discontinuous and loosely delineated loci. We have followed their topographic organization in our research. Within the loci are tight clusters of multiple rock art boulders, while other petroglyphs are situated in a more widely spaced, irregular pattern along the trail as segregated boulders or small groupings. The cluster of rock art boulders in Locus 15 is illustrative of the irregular pattern. This portion of the trail contains 21 rock art boulders with an interboulder spacing



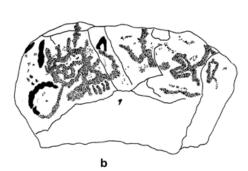


Figure 3. Petroglyphs along Eagle Pass trail. (a) Locus 8, Boulder 2; (b) Locus 2, Boulder 6, showing figures with differing degrees of patination. The darker lines indicate very light patination; stippled lines indicate light to medium patination (Christensen and Dickey 1993).

PCAS Quarterly 51(1)

range of 1 to 30 m, a median spacing value of 12.5 m, and modal values of 1, 4, 5, 15, and 17 m.

#### **Eagle Pass Trail as a Culturally Important Place**

Eagle Pass trail is a culturally important place, a portal to Eagle Pass made through modification of selected rock surfaces and passage along the trail over time. The sense of importance is readily apparent in its dominant features: its physical location at the eastern threshold of Eagle Pass, the rock art, and the interplay of rock art and the pathway. We believe that it is important to begin developing an understanding of the trail and its rock art associations by first trying to perceive the cultural importance of the place itself, even though such perceptions are limited by our own modern cognitive biases.

A hypothetical Native traveler bound southwest and upward along the Eagle Pass trail toward the eastern threshold of Eagle Pass would have emerged from a sandy wash, moving upwards onto the ridgeline. From this point the traveler would have become engaged in a process of progressive revelation of rock art images. As that traveler crested rises on the trail, rock art images would have entered the field of view, some from a distance and others only upon closer approach. Following the trail on the gradual climb along the top of the finger ridge, image after image would have come into view, appearing isolated from the surrounding geography by the narrow landform.

We cannot experience what a prehistoric Native traveler would have experienced, but when we followed the imagined footsteps of that ancient traveler, we found that the effect of progressive revelation evoked pause and was both powerful and moving, though certainly not measurable in any objective sense.

More accessible to us is exploring anthropological meaning through description and analysis of the intrasite spatial structure of the place. We argue here that the observable, physical pattern of the rock art bordering the Eagle Pass trail appears to be a deliberate attempt at staging, reflecting an intention by prehistoric makers to add meaning to this place. Our objective was a simple one: to assess whether the selection by prehistoric artists of specific boulders from among the many potential choices and the selection of surface orientation on the boulders are indications of an effort to stage the presentation of images for travelers. To examine this question, we consider the proximity of the selected boulders to the trail and also examine whether the positioning of images on individual boulders was done in such a way as to be viewable from the trail, thus providing a traveler an opportunity to experience the encoded meaning of the images.

While the 86 boulders in our study were selected by prehistoric artists for the creation of rock art images, this number represents comparatively few of the multitude of potential candidate boulders rising above the desert pavement along the trail (Figure 2). Though angular to subangular patinated boulders with suitable faces exist outside the petroglyph trail border, these were not selected as surfaces for rock art images. The rock art boulders, as we observed, are close to the trail, and most are clearly visible from it (Figures 4 and 5). Of the 86 rock art boulders, we eliminated 12 boulders that have been or may have been repositioned, that could not be relocated, or that are situated in areas where the location of the actual tread of the trail is not established. The remaining 74 boulders comprise the population for this analysis.

Attempting to understand the process of a prehistoric traveler's engagement with the rock art along the Eagle Pass trail involves considerations of whether and how rock art images may be viewed from the trail. Thinking about how noticeable a rock art image would have been to a Native traveler involves consideration of such factors as visual dynamics, the extent to which an individual actively scans the environment, physical

Figure 4. Pathway in close proximity to petroglyph boulders. Locus 15, Boulders 5–6.



Figure 5. Pathway in close proximity to petroglyph boulder. Locus 6, Boulder 1.



placement of an object within the potential human field of view, distance from the viewer, and contrast with the surrounding environment.

The visual attention of travelers along the trail is processed preferentially by whatever enters the field of view. Researchers in visual perception sometimes refer to this as an "attentional spotlight" (Posner et al. 1980; Mueller et al. 2003) and suggest that this focal point is continually present in a process of visual scanning, alerting a viewer's attention to visual stimuli. The normal human field of view, excluding peripheral vision, is around 100 degrees of horizontal arc. Though we used an angle of 100 degrees centered on the trail as the nominal field of view of a prehistoric traveler, the effective angle for an individual involved in actively scanning the environment is certainly much wider. Thus, the approach we take is conservative and does not account for the likelihood that the visual scan of prehistoric travelers was broader than the nominal field of view.

Weathering and patination have affected how viewable individual images are to a modern observer on the trail. The petroglyph images along the Eagle Pass trail are now patinated to varying degrees and thus do not necessarily contrast in a significant way with the background patination of the boulder. When the images were fresher with more strongly contrasting albedo, they would have been more apparent from a greater distance than they are today.

In thinking about the spatial arrangement of the rock art along the trail, we considered several questions having to do with how closely the rock art boulders are situated in relation to the trail and how travelers might have observed them in the past. These questions are both preliminary and basic, designed as a way for us to evaluate the potential for and possible direction of future research.

Proximity of petroglyphs to the trail is an important variable where trailside visibility would have been of concern to prehistoric artists. Of the population of 74 rock art boulders, 63 (85.1 percent) are situated within 3 m of the trail, and 68 (91.9 percent) are situated within 4 m. Of all the many available boulders found on the ridge top, prehistoric artists overwhelmingly selected those close to the trail and thus likely to be visually accessible to travelers. Of the 74 rock art boulders we consider in this analysis, 68 have images that are viewable from some point along the trail.

In the case of the Eagle Pass trail, travel is either toward the northeast and the lower Colorado River valley or toward the southwest and the pass leading toward the West Mojave Desert, the Mojave River, and the coast. We explored the idea that the frequency of images viewable from one direction of travel may have differed from the frequency of images viewable from the other. To answer this question, we considered the aspect of the rock art panels as recorded by Christensen and Dickey (1993), observed by Musser-Lopez during investigations in 1979, and field-verified more recently, and then we compared those angles to a roughly 100-degree horizontal view, centered on the trail, of an approaching traveler. The panels are visible in one of two ways: (1) either exposed on planes (panels or faces) facing an approaching traveler from one direction or (2) situated in such a way as at the top or zenith position of a low boulder so as to have been observed by travelers approaching from either direction.

Travelers directing their steps southwest toward the threshold of Eagle Pass and the harsher desert beyond potentially would have viewed one or more faces containing rock art images on 58 separate boulders (85.3 percent of 68 viewable images), viewable either facing directly toward the traveler and thus not readily observable from the opposite direction or viewable from both directions (Figure 6).

Conversely, a traveler bound northeast toward the lower Colorado River valley would have visually



Figure 6. Example of rock art, Locus 15, Boulder 21, in the zenith position and viewable on the trail from both directions.

encountered images on 59 similarly situated boulders (86.8 percent of viewable images). Since the relative opportunities for visual recognition from either direction of travel are virtually identical, we conclude that the architecture of viewable imagery established by prehistoric artists shows no preference for displaying images for travelers headed in one direction over the other.

We then considered the subset of boulders with images viewable only during travel from one direction. We asked whether there is significant difference in the frequency of boulders with images viewable only during southwest travel in comparison to the frequency of boulders with images viewable only traveling toward the northeast. Again, we found the frequencies to be virtually identical. Eleven boulders have images viewable only during southwest travel, while 13 have images viewable only during northeast travel. We conclude that prehistoric artists displayed no strong preference for placement of images so that solely travelers in one direction would have encountered them.

When taken together, images viewable from only one direction, regardless of that direction (N = 24), is less than half the number of images viewable from both directions of travel. Thus, placement of images so as to be viewable from a single direction is a much weaker artistic preference than the preference for images viewable from both directions of travel. Although we tend to think of artistic preference as the major variable, we have yet to sort out the role that availability of suitable surfaces contributed to the placement of rock art images.

Nevertheless, we considered whether the prehistoric artisans were engaged in public staging so as to draw the attentional spotlight of travelers to the images along the trail. From all the many boulders naturally scattered across the ridge top, artists chose boulders positioned close to the trail to the almost complete exclusion of boulders farther afield. The images for the most part are visible from the trail because of proximity and orientation. Further, the images were made visually accessible with no clear preference for travelers heading in either direction.

## Discussion

Selection of specific boulders for the creation of images was most likely, in part, a function of artistic preference; however, selection was also dependent upon the availability of suitable boulders and faces near the trail. In order to better understand the selection process, we intend to compare the distribution of suitable but unaltered rock surfaces along the trail to the distribution of boulders selected for rock art. The distribution of rock art may have other associations that are less apparent; we are considering for future analysis possible association of the boulder clusters with other newly recorded features along the trail.

The petroglyph images along the Eagle Pass trail, taken as a body, are a display of rock art of a very public kind, seemingly presented with the intention of being viewed and experienced by travelers. This suggests that travelers were led to engage with the place itself.

The location of this important place at the eastern portal of Eagle Pass is significant. Eagle Pass represents a geographic transition point along the trail where the traveler is either entering or leaving the lower Colorado River valley. It marks a transition between the Colorado River oasis in the valley below and the arid, open Mojave Desert to the west.

We speculate that the encoded information in this particular setting as well as for locations of rock art along other Mojave Desert trails has to do with communications regarding ritual actions, ceremonial commemoration of mythical events, territorial claims (e.g., clan ownership), proclamation of supernatural power associated with these places, and such more prosaic but critical information as water locations and trail directions. While the specific meanings are likely beyond knowing, the rock art and the way it is displayed affirms to us the cultural importance of the Eagle Pass trail.

Other aspects of staging not examined here include: (1) selection of rocks for shape, possibly to mimic the profile of prominent landscape, skyline, or geographic features; (2) the effect of clustering of images in circumscribed areas along the trail; (3) the play of light and shadow; (4) the degree of elaboration of rock art on particular boulders; and (5) the extent to which the displays of rock art are associated with an observer's changing visual field, as in cresting a rise. All are beyond the very basic focus of this paper but are ideas related to staging that we hope to continue to explore along the Eagle Pass trail.

There is a long tradition of spatial approaches in archaeology and rock art research and a similar long tradition of considering trails in association with their natural surroundings, archaeological features, and Native tradition. In the Mojave Desert area, Jay von Werlhof was a leader in applying these approaches to the respectful study of trails, earthen art, and rock art. In our contribution to this issue honoring Jay, we follow his example in applying both objective and cognitive perspectives to understanding the archaeological record at the Eagle Pass trail.

### Acknowledgments

We thank Don Laylander, Hank Koerper, and Rene Brace for valuable editorial suggestions; Sarah Murray, Needles BLM, for assistance in providing site records and field notes; Robin Laska, San Bernardino County Museum, for providing site data and contact information; Catherine Fowler for consulting on ethnographic references relating to Eagle Peak; and Don Christensen for providing documents and expanding on his work. We also express appreciation, now belated, to Arda Haenszel and to Needles residents Mac and Maggie McShan and Tom and Corrine More, early pioneers in guardianship of the archaeology and rock art in the Needles area.

#### **References Cited**

Apple, Rebecca

2012 Ancient Trails and Rock Features. Paper presented at the 46th Annual Meeting of the Society for California Archaeology, San Diego.

Becker, Kenneth M., and Jeffrey H. Altschul

2008 Path Finding. In Fragile Patterns: The Archaeology of the Western Papagueria, edited by Jeffrey H. Altschul and Adrianne G. Rankin, pp. 419–446. SRI Press, Tucson, Arizona.

Casebier, Dennis G., and Chester King

1976 Background to Historic and Prehistoric Resources of the East Mojave. Report prepared by the Archaeological Research Unit, University of California, Riverside. Report prepared for the United States Department of the Interior, Bureau of Land Management, Riverside, California.

Christensen, Don D., and Jerry Dickey

- 1993 Archaeological Site Record, 4SBR214. San Bernardino Archeological Information Center, Redlands, California.
- 1994 Rock Art with Prehistoric Trail Associations: A Study in the Needles Region, Mojave Desert, California. In *Rock Art Papers*, Vol. 13, pp. 31–44. San Diego Museum Papers No. 35, San Diego Museum of Man, San Diego.

# Cleland, James H.

2008 Ethnographic Trail Systems as Large-Scale Cultural Landscapes: Preservation and Management Issues. In *Exploring the Boundaries of Historic Landscape Preservation,* edited by Cari Goetcheus and Eric MacDonald, pp. 41–55. Electronic document, http://www.clemson.edu/caah/cedp/ cudp/pubs/alliance/index.html, accessed January 20, 2010.

## Coues, Elliott

1900 On the Trail of a Spanish Pioneer: The Diary and Itinerary of Francisco Garces, Vol. I. Francis P. Harper, New York.

# Cultural Conservancy

2010 Salt Song Trail Project. Electronic document, http://www.nativeland.org/saltsong.html, accessed February 5, 2010.

## Farmer, Malcom F.

1935 The Mojave Trade Route. *The Masterkey* 9(5):154–157.

## Fowler, Catherine S.

2009 Reconstructing Southern Paiute-Chemehuevi Trails in the Mojave Desert of Southern Nevada and California: Ethnographic Perspectives from the 1930s. In *Landscapes* of Movement: Trails, Paths, and Roads in Anthropological Perspective, edited by James E. Snead, Clark L. Erickson, and J. Andrew Darling, pp. 84–105. University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia.

## Golomshtok, Eugene

1927 Archaeological Site Record, CA-SBR-214.San Bernardino Archeological Information Center, Redlands, California.

# Haenszel, Arda M.

1964 Archaeological Site Record, 4SBR214. San Bernardino Archeological Information Center, Redlands, California.

## Heizer, Robert F., and C. William Clewlow, Jr.

1973 Prehistoric Rock Art of California. 2 vols. Ballena Press, Ramona.

# Kroeber, Alfred L.

1925 *Handbook of the Indians of California.* Smithsonian Institution, Bureau of American Ethnology Bulletin No. 78. Government Printing Office, Washington, D.C.

#### Laird, Carobeth

- 1976 *The Chemehuevis*. Malki Museum Press, Banning.
- Mueller, A. M., P. Malinowski, T. Gruber, and S. A. Hillyard
- 2003 Sustained Division of the Attentional Spotlight. *Nature* 424:309–312.

#### Musser, Ruth A.

- 1979a Field notes, Eagle Pass trail. Manuscript, drawings, and map. On file, Bureau of Land Management, Needles, California.
- 1979b Notes on the Blythe Petroglyphs. *Pacific Coast Archaeological Society Quarterly* 15(2):33–49.

#### Musser-Lopez, Ruth A., and Steve Miller

- 2010 Archaeological Trails and Ethnographic Trails: Can They Meet? *Proceedings of the Society for California Archaeology* 24. Chico.
- Posner, Michael I., Charles R. R. Snyder, and Brian J. Davidson
- 1980 Attention and the Detection of Signals. *Journal* of Experimental Psychology 109(2):160–174.

94

# Rogers, Malcolm J.

- 1939 Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas. San Diego Museum Papers No. 3. San Diego Museum of Man, San Diego.
- 1966 *Ancient Hunters of the Far West*. Union-Tribune, San Diego.

# Sample, Laetitia L.

- 1950 Trade and Trails in Aboriginal California.
  University of California Archaeological
  Survey No. 8. Department of Anthropology,
  Berkeley.
- Snead, James E., Clark L. Erickson, and J. Andrew Darling
- 2009 Landscapes of Movement: Trails, Paths, and Roads in Anthropological Perspective. University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia.

Steward, Julian H.

 1929 Petroglyphs of California and Adjoining States. University of California Publications in American Archaeology and Ethnology Vol. 24, No. 2. University of California Press, Berkeley.

# von Werlhof, Jay

1988 Trails in Eastern San Diego County and Imperial County: Interim Report. *Pacific Coast Archaeological Society Quarterly* 24(1):51–75.