FIRE ON THE MOUNTAIN: ARCHAEOLOGY IN PALOMAR MOUNTAIN STATE PARK BEFORE AND AFTER THE 2007 WITCH/POOMACHA FIRES, SAN DIEGO COUNTY, CALIFORNIA

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Wildfires are both destructive and constructive natural events. The 2007 Witch/Poomacha Fires burned 247,400 acres and 1,867 structures. Although it is difficult to put a positive spin on such an event, the fires did create opportunities for archaeologists to assess previously densely vegetated areas of Palomar Mountain State Park, San Diego County, California, which now had very good ground surface visibility. This paper will summarize pre-fire research in the park up to late 2007 and then present the results of post-fire archaeological studies conducted as part of a power pole replacement and realignment project by San Diego Gas & Electric (SDG&E), as well as several Natural Resources Conservation Service projects for the removal of dead, dying, and diseased trees.

On October 21, 2007, at about 12:30 p.m., Air Tanker Pilot Mike Venable reported a vegetation fire in the area of State Highway 78 and Santa Ysabel in northern San Diego County. At about 12:35 p.m., units from the California Department of Forestry and Fire Protection were dispatched. The fire was identified as the Witch Fire and turned out to be the largest of the October 2007 wildfires, surpassing the 1970 Laguna Fire as the second-largest fire in California history. The fire started in Witch Creek Canyon near Santa Ysabel and quickly spread to Ramona, Rancho Bernardo, Poway and Escondido (Figures 1 and 2). From there, the fire jumped over Interstate 15 and continued west, causing significant damage in Lake Hodges, Del Dios, and Rancho Santa Fe. The Poomacha Fire (or Mt. Palomar Fire) began as a structure fire on the La Jolla Indian Reservation, then established itself on Palomar Mountain, joined the Witch Fire, and entered the Agua Tibia Wilderness. Because of steep terrain, it continued to burn after all other October 2007 fires were put out, finally reaching full containment November 9, 2007. Between the Witch Fire and the Poomacha Fire, approximately 247,400 acres and 1,867 structures burned. The fires' extent was massive and had a lasting impact on the greater San Diego area (CAL FIRE 2009; Wikipedia 2009). For this paper, I'll take a look at how the fires have impacted the areas within Palomar Mountain State Park, primarily in terms of increasing ground surface visibility and helping archaeologists better understand mountain sites (Figure 3).

Much of Palomar Mountain State Park has been surveyed for cultural resources, beginning with studies in the 1950s by True, Meighan, and Crew (1974). The County of San Diego's Department of Public Works conducted a survey along Canfield Road in the 1970s (Fink and Corum 1979). The State has updated this research for specific projects, and volunteers have worked in the park to provide supplemental information. However, no comprehensive survey report for the park has been prepared. This paper is an attempt to synthesize in one place all the published data up to 2008 regarding prehistoric archaeological sites in the park.

ENVIRONMENTAL BACKGROUND

Palomar Mountain is actually a series of mountains or a mountain range located in northern San Diego County. It contains the headwaters of the San Luis Rey River, and faces the Anza-Borrego desert to the east. Its steep sides rise dramatically from the coastal mesas of northern San Diego County. Several major creeks cut through the ridges and slopes of the mountain, and wide valleys and meadows are located near the summit and on its eastern flanks.



Figure 1. Project location map.

Palomar Mountain is the wettest and coolest location in San Diego County. It receives between 30 and 70 in. of annual rainfall, averaging approximately 48 in. The mountain has up to 40 in. of annual snowfall. The average temperature is 85° F in July, and the January average is 32° F. The highest point is 6,140 ft. above sea level.

The high slopes and canyons of Palomar Mountain are covered with Montane Coniferous Forest vegetation (Beauchamp 1986). The forest contains large trees with thick understories. Tree species



Figure 2. Witch/Poomacha fire-affected area map.

present in the area include bigcone Douglas fir (*Pseudotsuga macrocarpa*), Jeffrey pine (*Pinus jeffreyi*), black oak (*Quercus kelloggii*), canyon live oak (*Quercus chrysolepis*), and coast live oak (*Quercus agrifolia*). Sparkman (1908:193-194) stated that the Luiseño Indians thought that the acorn of the black oak was the most palatable, followed by the coast live oak. The canyon live oak acorn was palatable but hard to grind. The black oak and canyon live oak are abundant in the higher elevations of Palomar Mountain, although groves of coast live oak are present on the mountain.

At lower elevations, Mixed and Chamise Chaparral vegetation covers the hillsides; there are also some areas of Montane Meadow Grassland. The meadows contain ethnobotanically important grasses such as deergrass (*Muhlenbergia rigens*), as well as rushes (*Juncus* spp.). Palomar Mountain is part of the Peninsular Range mountain system. These mountains, which extend from Riverside County into Baja California, are composed of igneous and metamorphic rocks that formed together in a batholith (Walawender 2000). The batholith dates to the Mesozoic era (approximately 100 million years ago), when the western part of the U.S. was the scene of extensive volcanic activity. The batholith contains a multitude of smaller igneous formations, each with its own geological signature; the most notable is the abundance of granitic rock outcrops, which provided the California Indians with materials for processing plant and animal products. Bedrock outcrops containing mortars, basins, and slicks are often found at prehistoric archaeological sites located within the Peninsular Range; bedrock milling features are common at archaeological sites on Palomar Mountain.



Figure 3. Ground surface cover and visibility both in fire-affected areas (foreground) and non-fire-affected areas (background).

PREVIOUS RESEARCH

Long before any of these recent fires, back in the spring of 1959, D. L. True conducted archaeological surveys within the boundaries of Palomar Mountain State Park (True et al. 1974). At the time, he located 31 sites for the mountaintop as a whole, which he figured to be about one-quarter of the potential sites in the area. His discoveries included the majority of the important villages in the western sector of the mountain. Most of the eastern portion of the mountain was not surveyed due to access issues on private property. In general, sites were located on ridges, knolls or exposed slopes along watercourses, or on the margins of open meadowlands. All the sites were in proximity to oak groves. No ceremonial sites were recorded, and no rock art locations could be found at the time. Additionally, True made attempts to relocate previously documented bark structures located within the park boundaries, with no luck.

True et al. (1974) identified two major types of prehistoric mountain sites:

- summer camping locations marked by a well-developed midden deposit and a substantial number of bedrock mortars; and
- small temporary camps or gathering stations marked by one or two bedrock mortars and a very sparse midden deposit.

ASM had been conducting research on Palomar Mountain since 2005 (Hector 2006a, 2006b, 2006c; Hector and Garnsey 2006), before the fires. In many instances, ground surface visibility was

obstructed by dense vegetation or duff cover. During ASM's post-fire surveys in late 2007 and 2008 (Akyüz 2008; Garcia-Herbst and Hector 2008a, 2008b), visibility was much improved in some areas as vegetation was burned off and bare ground was exposed, but in other places it was worsened by a thick deposit of ash on top of already dense duff cover. Regardless, the prehistoric sites we encountered were consistent with True's initial findings 50 years ago.

Large Camp Sites

SDI-217

The site was originally recorded by Treganza with no information other than location. In 1959, D. L. True recorded the site as Palomar 1, or *Pak-ku-ka*, a summer camp of the Pauma Indians referred to by True et al. (1974) as SDI-530. In 1974, Ken Hedges of the San Diego Museum of Man prepared a site update and confirmed True's observation of a pitted boulder, or cupules. The site was studied in depth by Georgie Waugh for her dissertation (Waugh 1986). Waugh mapped the site in detail and conducted test excavations. She excavated two units at the base of the cupule boulder. Radiocarbon dates obtained from materials excavated from the site provided dates of 930 and 1,300 radiocarbon years before present. Artifacts from subsurface deposits included modified flakes, scrapers, bifaces, Cottonwood triangular points, drills, choppers, cores, manos, pestles, hammers, anvils, tourmaline crystals, bone awls, schist beads, Tizon Brown Ware, and a ceramic pipe. Obsidian at the site was sourced to both the Sugarloaf Mountain source in the Coso Range and the Obsidian Butte source near the Salton Sea. The predominant faunal remains were rabbit and deer, and the predominant floral remains included acorns, *Chenopodium*, and *Phacelia* (Waugh 1986). The site was occupied into the ethnographic period and is known to the people of Pauma. There are marked trees near the outlying bedrock milling features along the northern edge of the site.

SDI-534

The site was originally recorded by D. L. True during his 1959 study of the Palomar area; he designated it as Palomar 5. True described it as a campsite with light midden and scattered stone flakes. He did not see any bedrock milling during his survey. An update was done by Jim Woodward, California Department of Parks and Recreation, in 1982. He noted that no midden and almost no lithic artifacts were observed. However, he expanded the site area to include 19 bedrock mortars, seven or more grinding slicks/bedrock metates, and eight or more small oval depressions, grouped into three loci across nine granitic boulders. One isolated quartz flake was also observed by Woodward, in addition to one triangular, concave-base projectile point and one utilized flake originally noted by True et al. (1974:131). The site area is covered with ferns and deergrass, and it is adjacent to Chimney Creek. The site is discussed in True et al. (1974:131) as possibly being affiliated with the upper Doane Valley complex, which was associated with the Pauma territory (Wavamai).

SDI-534, Locus C (42806-1)

This prehistoric site consists of bedrock milling features on an outcrop above Chimney Creek. Ground visibility during the ASM survey was very poor.

SDI-535

This site was recorded by D. L. True in 1959 as the village of Cha-kuli. It is located on a ridge above East Grade Road. There are many mortars located on the boulders and outcrops present in the site. Flakes were also noted. This site was mentioned by Oxendine (1983:153) as Cha-kuli. Sparkman (1908:192) noted Cha-kuli as an old village site on Palomar Mountain, and DuBois (1908:151) cited an informant who said that Cha-kuli was a village with empty houses on Palomar Mountain. True et al. (1974:134-135) noted the site as a summer camp probably belonging to the Japicha people, which the

authors considered to be part of La Jolla at that time. True et al. (1974) stated that this was a very important site, with abundant bedrock milling features, dark and ashy midden, and a large quantity of artifacts. They identified it as the acorn gathering area belonging to the Cueva family, according to ethnographic information. True (1993:22) stated that Jaculi, or SDI-535, has milling elements typical of a generalized processing site, and that it was described ethnographically as the winter village of Japicha. This is in contrast to an acorn processing site. ASM noted many bedrock milling features, pottery, stone tools, and quartz flakes. Burned bone, possibly from cremations, was also observed.

SDI-538

This site, originally recorded by D. L. True, is located adjacent to East Grade Road; road improvements over the past decades have removed much of this site. One of the bedrock milling features noted by True is no longer present at the side of the road. Gary Fink prepared a site update in 1978. The remaining site consists of milling features, including many mortars and slicks; cupules were also noted north of the GPS point taken for the site. True et al. (1974:137) identified it as a summer camp for the La Jolla people, although no ethnographic information was available. Quartz flakes, potsherds, and a mano were observed at the site during the present survey.

SDI-540

This site, also recorded by D. L. True in the 1950s, is a very large Late Prehistoric village located on top of a knoll. An updated site form was prepared by Dorothy Hall of the U.S. Forest Service. The site contains extensive, deep midden deposits and milling features. Milling features are present at the main area of the site and at two loci. Obsidian flakes, pottery, and stone tools were noted throughout the site area. Bone was also observed.

SDI-547

The site was originally recorded by D. L. True in 1959 as Palomar 18. He noted that a campground and parking lot had already destroyed much of the site. The campground and other Doane Valley facilities were built by the Civilian Conservation Corps (CCC) in the 1930s, as part of a large construction effort to improve state parks. Some of the original bridges and other structures from this period remain along the Palomar Mountain State Park road. A mano from the site is included in True et al. (1974). In 1997, archaeologists monitoring a native habitat restoration project discovered a buried midden component. As a result of this monitoring program and additional investigations, an updated site form was prepared in 2002 by Rae Schwaderer, Sue Wade, and Bonnie Bruce of the Department of Parks and Recreation, Colorado Desert District. One bedrock milling feature near a restroom was noted. There are marked trees near this feature.

SDI-548

This site was originally recorded by D. L. True as a large Late Prehistoric summer village for the Luiseño who lived in the San Luis Rey River valley below. RECON later noted that a pottery scatter, possibly a pot drop, was present at the site. ASM observed a substantial midden deposit and bedrock milling features. Visibility was poor in the area covered by ferns but good underneath the oak trees where the milling features are located.

SDI-549 (P37-000549)

D. L. True recorded this site in 1959 as a Pauma village that formed part of the Cedar Grove occupation area. It consisted of an unknown number of bedrock mortars and several areas of midden over a 5-acre area. Portions of the area had been planted with apple trees; remains of old buildings and a dirt road leading into the area were also noted.

SDI-593

D. L. True visited this site many times in the 1950s. He recorded it as Palomar 2, a semipermanent acorn gathering area in Cedar Grove campground. The Pauma Indians called this site area Pee-nav-angna. In 1961, a UCLA field class conducted an excavation at the site under the supervision of Claude Warren (Karst 1974). Late Prehistoric projectile points and beads, including a blue glass trade bead, were recovered from the site. A small incised slab, similar to one found at SDI-547, also was found. In 1988, the San Diego County Archaeological Society (SDCAS), working with State Parks archaeologist Phil Hines, updated the site form and mapped the site.

SDI-7923

This site was recorded by Gary Fink in 1979. It is next to a pond, and consists of a prehistoric camp containing many bedrock milling features, particularly mortars. No artifacts were observed, but they are likely to be present. Ground visibility was poor.

SDI-9859 (P37-009859)

This prehistoric bedrock milling station was recorded by Jim Woodward in 1982 as consisting of six bedrock mortars on four granitic boulders near Thunder Spring Trail.

SDI-15674

Although a separate site number was assigned, this site is probably the same as SDI-547. In his 1959 site form, D. L. True states that Palomar 18 is near the campground. This site number refers specifically to the portion of the site located near the Palomar Outdoor School facility. The site was rerecorded by C. Inoway and P. Easter of Applied Earthworks. Twenty bedrock outcrops at two site loci were recorded. These outcrops contain mortars and slicks; one cupule was noted.

SDI-17301

This site was recorded by Hector (2005) and is located on Canfield Road overlooking Iron Springs Creek. The site consists of a prehistoric camp with many bedrock milling features. Mortars and slicks are located on most of the bedrock outcrops visible at the site. A rock-walled enclosure was also identified at the site. A triangular-shaped mano was found at the site during the spring 2005 survey.

SDI-17948 (81706-1)

This site is a large prehistoric habitation area. It includes seven milling features with 14 milling surfaces. Thirteen of the 14 surfaces are mortars, consistent with the processing of acorns; all show signs of long-term use. The site is located on a small knoll overlooking a large seasonal drainage, just near a meadow on the Palomar Observatory property.

Vegetation on site includes canyon, black, and scrub oak as well as thick Douglas fir and incense cedar. The north face of the site is covered with very thick poison oak, and the meadow located to the east has large amounts of deergrass, basket bush, and ferns. It is very likely that midden deposits and cultural materials are present at the site, but heavy ground cover prevented good visibility. Observatory personnel reported finding artifacts at the site in the past.

Temporary Camps

SDI-542

D. L. True recorded this site at a school, and at the time he recorded it in 1959 it was already mostly destroyed. He only noted a small number of artifacts present at that time. The survey by ASM did not relocate the site.

SDI-555 (P37-000555)

D. L. True recorded this site in 1959 as a bedrock milling site designated as Palomar 26. It consisted of a bedrock milling station under oaks, with heavy leaf mold and limited, if any, midden. The milling features included six bedrock mortars, one oval slick, and three bedrock metates, and the artifacts included one unshaped pestle. True noted that this might be part of the Palomar 2 site.

SDI-5760

This site was recorded by Gary Fink in 1978 as a milling feature located on a bedrock outcrop. It was probably associated with SDI-535 but is now separated from that site by East Grade Road. Heavy ground cover at the site restricted observation of the surface of this site.

SDI-7925

This site was recorded by Gary Fink in 1979. It consists of a prehistoric temporary campsite and includes a boulder in a meadow with two cupules. On the site form, Fink stated that this site contains the "first reported pecked rocks on Palomar Mountain." The site also has bedrock mortars, located next to Canfield Road. No artifacts were observed at this site.

SDI-10587 (P37-010587)

Michael P. Sampson, California Department of Parks and Recreation, recorded this site in 1986. It is a prehistoric bedrock milling station consisting of three bedrock mortars across two boulders. No prehistoric artifacts were noted on the surrounding ground surface.

SDI-17695 (PFR-01)

This site consists of very dispersed milling features spread on bedrock outcrops along a hillside. The milling located at this site includes three oval mortars, two basin mortars, and three milling slicks. All of the milling features are found on large granite bedrock outcrops approximately 6 to 12 m in diameter on average. The milling features are evenly distributed on the small terrace and usually found with one feature per outcrop. The exceptions to this, Feature #5, a slick, and Feature #6, an oval mortar, are both located on the same outcrop. The mortars all tend to be relatively shallow, all around 5 to 8 cm deep. A large amount of the surface of both the ground and the rock outcrop is covered by fallen leaves. No artifacts were seen on the ground surface at this site.

SDI-17696 (PFR-02)

This site consists of two granite outcrops, close to each other, with a combined total of four separate milling areas. These outcrops are near the Palomar Cedars Church Camp main area. The larger of the two outcrops has two milling slicks and one mortar, which was found full of acorns as a learning aid for the campers. The second outcrop is more isolated down slope from the rest room and has one milling slick.

SDI-17924 (42806-3)

This site is a boulder located in a fern meadow near the ranger entry station. One shallow mortar was noted on the boulder. No other cultural material was noted, and no trees are located near the feature.

SDI-17926 (51606-1)

This site is an isolated boulder with a milling element. It was probably moved to a location near Mother's Kitchen during construction in this area. No artifacts or other cultural materials were identified during the survey. There are marked trees beyond the boulder.



Figure 4. SDI-217, large summer campsite.

ASM'S 2007-2008 POST-FIRE SURVEYS

The need for post-fire utility maintenance and fuel reduction activities in Palomar Mountain State Park created an opportunity for archaeologists to investigate the cultural resources in the burned sections of the park. After the fires in October and November of 2007, SDG&E contracted with ASM to survey and perform evaluations and data recovery at archaeological sites in support of their power pole maintenance activities (Akyüz and Hector 2008). Additionally, the Natural Resources Conservation Service contracted with ASM to survey areas along side roads and a 290-acre area in the center of the park targeted for fuel reduction (Garcia-Herbst and Hector 2008a, 2008b). Waugh's (1986) dissertation and ASM's work constituted the only archaeological studies in the area since True et al.'s (1974) publication, and they resulted in new discoveries through survey and reassessment of previously surveyed areas.

Previously Documented Sites

SDI-217

ASM surveyed this site and its vicinity to ensure that features and midden would not be impacted during pole replacement activities (Figure 4). Being in the fire area, the ground surface visibility was poor due to dense ash deposits. No new features were identified, but features 55 and 56 in the northeast portion of the site were relocated and noted to be close enough to a new proposed pole location to warrant the

excavation of test units to determine if midden deposits were present in the proposed locations of the new pole and two new anchors. The cultural deposits were as deep as 90 cm below the surface and contained two Cottonwood triangular points, one biface, 125 pieces of debitage, seven mano and five metate fragments, and one retouched flake, consistent with previous work at the site. Chert from the site was identified as coming from the Piedra de Lumbre source on Marine Corps Base Camp Pendleton. This information, along with the obsidian sourcing data, suggests that the Luiseño had extensive trade networks throughout the region.

SDI-534 (P37-000534)

This temporary camp was relocated by ASM in 2008, and all the features were relocated. This area was unaffected by the fire, but visibility remained low due to heavy fern and duff cover and ash deposits, obscuring any possible midden.

SDI-555 (P37-000555)

ASM relocated this temporary campsite in 2008 (Garcia-Herbst and Hector 2008a) and confirmed that the milling features included six bedrock mortars, one oval slick, and three bedrock metates, and the artifacts included one unshaped pestle. This area was also unaffected by the fire, but visibility remained low due to heavy duff and ash deposits, obscuring any possible midden.

SDI-9859 (P37-009859)

This temporary camp was relocated by ASM, and no prehistoric artifacts were noted on the surrounding ground surface, despite Loren Dietz, California Department of Parks and Recreation Ranger II, having noted widely scattered flakes in the area. The site condition remains the same as originally recorded in this area that was also unaffected by the fire, and visibility remains low due to heavy fern and duff deposits, obscuring any possible midden.

SDI-10587 (P37-010587)

In 2008, ASM relocated the site and its condition remains the same as originally recorded in this area that was also unaffected by the fire, and visibility remained low due to heavy duff deposits, obscuring any possible midden.

Newly Documented Sites

SDI-18882 (P37-029523) (BAS-1)

This temporary camp is located near the Boucher Lookout, along a finger ridge (Figure 5). It consists of a granite outcrop with seven mortars, one slick, and an associated ceramic and lithic scatter. It was first discovered by LSA Archaeologist Brooks Smith, and ASM fully documented this small temporary camp. It is in the fire area, and ground surface visibility was excellent, contributing to the discovery and documentation of the midden associated with the milling features.

SDI-18916 (P37-024213)

ASM recorded additional prehistoric features and prehistoric and historic-era artifacts in and near the previously recorded historic Boucher Apple Orchard site. This is the orchard that Asher and Beckler describe in their outlines of the Boucher homestead (Asher 2008:63; Beckler 2006:20). The additional features include a semicircular rock ring (Figure 6) found in the southern portion of the existing historic site and may represent a prehistoric house circle. A mano 20 m south of the possible house circle and historic orchard was also noted. An historic-period rock dam along a creek south of the site appears to be associated with the Boucher Apple Orchard. Newly-recorded artifacts include two prehistoric plain brown ware sherds, an historic-era trash scatter that includes 10+ white earthenware or porcelain clear-glazed



Figure 5. SDI-18882, small temporary campsite.

sherds, one white earthenware bowl fragment, one white earthenware plate fragment with a British Coat-of-Arms style "Ironstone" mark (probably late nineteenth century), two historic earthenware sherds, a light green bottle glass fragment, one clear glass bottle fragment, one white button, and one metal paint bucket. Two fragments of shell were observed; these may be prehistoric or historic in age.

SDI-19265

This temporary campsite is located along the edge of a heavily wooded plateau. It is a bedrock milling site consisting of one boulder with one mortar. It was also unaffected by the fire, and visibility remained low due to heavy duff deposits, as well as fallen branches, obscuring any possible midden.

CONCLUSIONS

Fire-induced damages to five previously documented and three newly recorded prehistoric archaeological sites in the fire-affected areas of Palomar Mountain State Park luckily were slight. Damages to bedrock grinding features similar to those noted after the 2003 Cedar Fire (McFarland 2006; Mealey 2007), where several instances of grinding slicks completely being exfoliated off the parent rock were noted in Cuyamaca Rancho State Park, were not observed. However, the loss of vegetation and ground cover increased ground surface visibility in some areas, allowing for the discovery of a new site type, a semicircular rock alignment, as well as increased post-fire damages from erosion all over the park. Fire-altered soils and thick deposits of ash made up of burned duff have decreased ground surface



Figure 6. SDI-18916, semicircular rock alignment.

visibility in more densely forested burned areas, lessening the chances of discovering isolated artifacts, artifact scatters, and midden, regardless of whether or not they are associated with obvious bedrock milling sites.

Overall, the exposure of sites by the Witch/Poomacha Fire resulted in a better understanding of site distribution and site types within Palomar Mountain State Park, but the potential damages that fire can cause also illustrate the need for improved recordation of site location, type, and condition prior to disasters, so that damages can be identified and assessed more effectively and efficiently. Additionally, the opportunity to learn more about mountain-setting sites, a under-researched data set in this region, could help archaeologists better understand the dynamics of regional and seasonal transhumance, as well as long-distance exchange networks in the region and the role that summer mountain sites may have played. It is the author's hope that, with future planned surveys along the Peninsular Ranges, our understanding of the role of these mountain sites in San Diego County prehistory will continue to grow.

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