Preliminary Report: Baseline Site Condition and Vandalism Assessments of Archaeological Sites in Tenmile Canyon, Grand County, Utah

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Abstract

The Colorado Plateau Archaeological Alliance (CPAA) conducted intuitive surveys in Tenmile Canyon, an east-to-west trending tributary of the Green River, and three previously recorded sites were revisited and documented, and 18 unrecorded sites were identified and documented, all within an approximately 3 kilometer section of the canyon between Dripping Springs on the east and the Trail Canyon confluence on the west. These included four special use localities, two storage sites, four rock art sites and 11 sheltered residential sites, mostly alcoves. All sites were examined for evidence of adverse effects, including legal and illegal OHV traffic, vandalism, graffiti and pedestrian activities. The study found that almost all sheltered residential and storage sites in alcoves and rockshelters have suffered significantly from episodic vandalism over the past 75 years. Open sites (special use localities) are suffering significant adverse effects from cross-country OHV travel, even though off-trail vehicular traffic has been prohibited. Rock art localities remain in relatively pristine condition, although panels found in alcoves with residential detritus have occasionally been marred by graffiti.

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Introduction

The cultural resources found in the Tenmile Canyon drainage, located in the Green River Desert of southeastern Utah, have never been the focus of major scientific research, and the nature, density and diversity of sites remain largely undocumented and unknown. Only a handful of small clearance surveys and Bureau of Land Management monitoring efforts have been conducted in the region generally, and only eight sites have been formally documented in the entire canyon drainage, few of them to currently acceptable standards. Six additional sites have been documented on or near the north canyon rim. Despite the paucity of formally documented sites, it has long been assumed that this drainage, which features the only source of permanent flowing water in the Green River Desert, has considerable potential to contain abundant and significant cultural resources. Intuitive surveys conducted in early 2007 validated this assumption, demonstrating an exceptionally high density of archaeological sites, all of them eligible for listing on the National Register of Historic Places.

Tenmile Canyon has two unique qualities that augment the potential that nationally significant cultural resources will be located here: (1) It features the only perennial water source in the Green River Desert region. This water source appears to have been the focus of significant prehistoric occupations by Archaic hunters-gatherers and later Fremont farmer-foragers for many thousands of years. Given that human populations were tethered to a greater or lesser degree to predictable water sources, there is significant potential that large numbers of eligible archaeological sites will be located throughout the canyon drainage wherever there is permanent water. And (2) the drainage features Jurassic sandstone formations that have eroded to create an unusually large number of spectacularly large, dry alcoves that afforded natural shelters for human occupations throughout the millennia. Despite the prevalence of vandalism, these shelters have significant potential for deep cultural deposits that could contribute important insights into thousands of years of human adaptations in the arid American West.

It is widely acknowledged by public land managers and the public at large that vandalism of archaeological sites in southeastern Utah has been a persistent problem dating back many generations, and that it continues to the present, albeit more covertly than in the past when “digging” ancient sites was considered to be a socially acceptable practice. Generations of vandals and looters in search of Pre-Columbian artifacts certainly recognized that deep alcoves in Tenmile Canyon would contain significant cultural deposits. Evidence of such looting activities is ubiquitous, and inscriptions found at looted sites in Tenmile Canyon demonstrate that looting probably occurred as early as the 1920s, and that it has reoccurred over subsequent decades and may be ongoing. The most recent inscription at a vandalized site bears a date of 1997.

From March 30, 2007, through April 2, 2007, CPAA revisited three previously recorded sites in the upper portion of the Tenmile Canyon corridor to assess current site condition, including an examination of surface evidence of intentional vandalism, graffiti, ORV damage, illegal collecting, improper modern camping, site modification, littering, pedestrian impacts and recreation impacts evident on the site surface. Impacts caused by

livestock were noted, but these are not the focus of this report. Archaeological sites were also analyzed based on their visibility, accessibility and potential for adverse effects. During the course of identifying three previously documented sites, 18 additional sites were documented. All 21 sites, located on lands administered by the BLM, were recorded to IMACS standards and with a level of detail to assist land managers monitoring the cumulative effects of future public visitation. No systematic surveys were conducted.

Most archaeological site locations (e.g., alcoves, cliff faces) are visible from the existing ORV route through the bottom of Tenmile Canyon, where pedestrian access is generally easy. However, a proliferation of cross-country ORV travel has resulted in direct vehicular access and ongoing damage to the integrity of many of the historic properties discussed here. There is unequivocal evidence that individuals have used and continue to use motorized vehicles to gain access to archaeological sites, contributing both directly and indirectly to adverse effects to properties that are clearly eligible for listing on the National Register of Historic Places.

Although the surveys were not systematic, the CPAA data also demonstrate a potential of 12.5 to 15.5 archaeological sites per linear kilometer within the drainage – potentially a total of 310 to 385 sites. This high density of sites stands in decided contrast to the BLM's existing database (10 sites), and suggests that current BLM management decisions related to Tenmile Canyon are predicated on previous research that is clearly inadequate. These data, gathered by CPAA over a limited four-day period, also demonstrate that the BLM has expended little effort to determine the nature, diversity, density and distribution of sites throughout the canyon, and that it has failed to meet its obligations under Section 110 of the National Historic Preservation Act. The degradation of significant sites clearly eligible for the National Register of Historic Places remains a serious problem that warrants aggressive management.

Environment

It is generally agreed that the viability of human populations is constrained to a greater or lesser degree by the natural environment, including the distribution of plants and animals that can be procured with economic efficiency, the availability of shelter and fuel, and access to permanent water. In water-stressed desert environments, those locations that feature permanent water typically afford an optimal combination of plant and animal resources that were the focus of more intense and longer-term human adaptations than are evident in more arid areas. In the case of Tenmile Canyon, the perennial creek is the only source of permanent flowing water in the otherwise arid Green River Desert. Consequently, this drainage, which also features an abundance of natural shelters, should exhibit greater biological diversity conducive to human exploitation through all periods of human prehistory. It is also recognized that in areas of chronically low rainfall, an increase of a few inches per year would result in marked increases in the density and/or distribution of flora and fauna. In an arid environment, "such fluctuation in resources would have almost immediate consequences in the density and viability of the human population" (Jennings 1978:13). Such fluctuations should be evident in the archaeological record found throughout the Green River Desert.

Ten Mile Canyon is an east-to-west trending drainage located in the Mancos Shale physiographic unit of the Colorado Plateau (Stokes 1986). The Green River Desert is bordered on the north by the southern escarpment of the Book Cliffs, on the west by the Green River and on the south by the merging of the Green and Colorado Rivers. The roughly 60-by-60 kilometer area is characterized by rolling hills of light tan, gray and bluish-gray clays and alluvial gravels overlying Jurassic sandstone formations. The Green River Desert also features expansive aeolian dunes, as well as outcrops of eroded Cretaceous-age sandstone (Figure 1). This region is generally characterized as arid with only about 6 inches of annual rainfall. The drainage itself features elevations ranging from about 4400 feet on the east at Dripping Springs to about 4,000 feet at its confluence with the Green River.

Figure 1: Cretaceous-age outcrops on the mesa above Tenmile Canyon near Dripping Springs.

It is assumed, although not demonstrated empirically, that climatic conditions throughout the Green River Desert, including Tenmile Canyon, are similar to data collected in Green River, Utah, on the northwestern periphery of the Green River Desert. Based on weather data collected there, temperatures range from -42 degrees to +112 degrees Fahrenheit, a phenomenon attributed to the dry air and valley exposure (BLM 1980:2). The paucity of rainfall has resulted in vegetation communities comprised of blackbrush on the mesas above the Tenmile Canyon drainage, and sparse junipers, greasewood, saltbush and small sagebrush in the drainage itself (Figure 2). Specific floral species are consistent with taxa described for the Upper Sonoran Life Zone, although overall vegetative diversity and density can be characterized as sparse.

Figure 2: Sparse vegetation characteristic of the alluvial plains, ridges and side drainages.

Fed by intermittent springs originating in the underlying Jurassic sandstones, Tenmile Creek emerges as a consistent, flowing water source just east of Dripping Springs. The creek originates in the clay and shale deposits near the divide between the Colorado and Green Rivers, cutting deeper into white sandstone deposits as it moves from east to west. Tenmile Creek undulates to the west, merging with the Green River about 25 kilometers west of Dripping Springs. Subsequent erosion of the sandstone deposits has defined a clearly articulated canyon desert environment with white sandstone cliff walls, sloping expanses of white sandstone slickrock, a broad alluvial floodplain with soft, sandy soils and a riparian environment in proximity to the perennial water flow fed by seeps and springs that suggest a relatively high water table (Figure 3).

Episodic down-cutting and filling of the canyon bottom has likely occurred over many millennia, although geomorphology studies were not identified specific to Tenmile Canyon. The canyon is currently experiencing severe down-cutting of alluvial floodplains, as evidenced by the fact the creek is now located 3 to 20 meters below the alluvial plain. This down-cutting has resulted in vertical soil walls defining the lateral peripheries of the stream channel (Figure 4). Above these vertical walls are remnants of broad, relatively flat alluvial plains that range from 20 to 100 meters wide, sloping slightly upward toward an abutting cliff face.

Figure 3: Seep or spring located in front of 42Gr3840.

Figure 4: Down-cutting of the alluvial floodplain that characterizes upper Tenmile Canyon.

The areas where the alluvial plain adjoins the cliff walls are characterized by abundant natural rockshelters and alcoves ranging in size up to 100 meters wide by 30 meters deep (Figure 5). These are typically located at the edge of the floodplain, but are occasionally located in cliff faces above. Several of the alcoves feature natural seeps, and many feature generally flat or slightly sloping floor areas that were ideal shelters for a variety of mammals, including humans. These alcoves often feature deep aeolian deposits with remnants of human activities indicative of long periods of occupation. Roughly 50 alcoves were observed in the upper 3 kilometers of the canyon, but only about 20 were

investigated, 13 of which had evidence of human occupation or were storage locales. The abundance of natural shelters and the concurrent absence of evidence for permanent residential architecture is likely not coincidental.

Figure 5: Deep alcove typical of large shelters found throughout Tenmile Canyon.

It is not known if current environmental conditions are similar to those evident prehistorically. Despite the permanent water source there appears to be a general paucity of economic plant species. Wild grasses (e.g., rice grass, wheatgrass) were not observed in significant quantities. Prickly pear cacti are abundant on the alluvial plains, and juniper berries would also have provided a consistent food source. However, ethnographic studies indicate these food resources were typically used during seasons of nutritional stress (cf. Kelly 1964). It is possible that invasive species (e.g., tamarisk, cheat grass) and livestock grazing have destroyed the biotic diversity once exploited by prehistoric populations.

The abundance of groundstone tools evident at residential alcove sites suggests that seeds were indeed important food resources throughout prehistory, and that the economic return on gathering and processing seeds was worth the investment in time and energy. The abundant burned and unburned bone evident in looters' back dirt piles also indicates that mammals ranging in size from small rodents to large ungulates were exploited, and that considerable effort was expended to extract all nutritional value from the animals. Whether Tenmile Canyon was primarily a locality for wild plant foraging or hunting or both cannot be ascertained from the limited investigations conducted.

Previous Research

Throughout the Southwest, most areas with cultural resources were well known to local residents and had been at least cursorily investigated from the 1890s through the mid 1950s by a variety of field expeditions sponsored by museums and universities in search of artifacts and curiosities for public display (Janetski 1997). However, a review of Utah Division of State History site forms and reports, conducted in the spring of 2006, revealed no record of any archaeological research conducted in the Tenmile Canyon area prior to the mid-1970s. A subsequent records search at BLM offices in Moab and consultation with BLM archaeologist Donna Turnipseed, conducted on March 30, 2007, verified this initial assessment.

It remains a mystery as to how Tenmile Canyon escaped the attention of early researchers, whose competition among themselves for museum collections in the first half of the Twentieth Century resulted in research expeditions into the most isolated and remote regions of the state. Evidence that Green River residents were involved in the vandalism of sites in Tenmile Canyon in the 1930s is intriguing because Green River was a staging area for the landmark 1931 Claflin Emerson Expedition from the Peabody Museum at Harvard (Spangler et al. 2007), and later smaller archaeological expeditions that explored the Tavaputs Plateau to the north (Gaumer 1937, 1939; Leh 1937). It would seem highly unlikely that the presence of archaeologists in the small town would have gone unnoticed, or that local residents would not have spoken to them about where to find archaeological sites (early archaeologists almost always relied on local informants). A review of the Claflin Emerson field notes reveals no mention of Tenmile Canyon.

The first significant archaeological research in the region occurred on the northeastern periphery of the Green River Desert when Marie Wormington excavated several Fremont architectural sites at the base of the Book Cliffs near Cisco from 1939 through 1948. Her influential monograph (Wormington 1955) offered the first critical reevaluation of the Fremont Culture concept since Morss (1931) had initially proposed it more than two decades before, and it synthesized voluminous data generated by research throughout Utah and western Colorado to that time. There is no mention of Tenmile Canyon or the Green River Desert in her discussions, nor is the drainage illustrated on her maps of the region. However, there is recognition that sites in this area can be attributed to the Fremont culture, but with distinctive Ancestral Puebloan characteristics.

Research apparently did not resume until 1960 when Alice Hunt published the results of isolated surface discoveries of large numbers of late Pleistocene and early Archaic projectile points, dubbed the Moab Complex. These had been recovered by Dallas Tanner from the Green River Desert northwest of Moab. A closer reading the report reveals that Folsom and Pinto points were recovered about 5 miles from “the nearest flowing spring” (Hunt and Tanner 1960:111), probably Tenmile Creek. More than 400 artifacts were collected, among them Paleoindian points commonly dated to about 9000 B.C. One point was deemed virtually identical to Lindenmeier Folsom points.

Other Paleoindian points have since been recovered from surface contexts in the Green River Desert, although few have been formally reported in the professional literature. One exception is 42Gr1956, located in the Green River Desert a few kilometers south of the town of Green River. This site produced 188 tools, including two Folsom point fragments. In addition, the site yielded spurred transverse end scrapers, borers or gravers and numerous flakes with bifacial retouching with distinctive Folsom attributes. “The large amount of debitage, stone tools and weaponry implies a relatively large concentration of several families, possibly a band, who engaged in tool production and maintenance, faunal procurement and processing.” The accumulated evidence has prompted speculation that the rolling hills of the Green River Desert were once lush grasslands that responded to greater precipitation during Late Pleistocene times. These grasslands were conducive to large herbivores and the human populations who exploited them (Davis 1985:12).

The Uranium Surveys

The first formal research conducted in Tenmile Canyon resulted from proposed uranium exploration on the mesas above the drainage. In mid-1970s, the Tennessee Valley Authority (TVA) contracted with the Museum of Northern Arizona (MNA) to conduct clearance surveys of several hundred small tracts (drill holes) within the Robert G. Rees mining lease areas in and around Tenmile Canyon and elsewhere on the Green River Desert. From 1975 to 1976, MNA conducted numerous small Class III surveys in and around Tenmile Canyon, producing a final report (Keller 1975a) and at least three addendums relevant to this discussion (Keller 1976; Lipe 1975; Sant and Keller 1977) and two that are only peripherally related (Keller 1975b, 1975c).

The initial surveys in April 1975 (Project U-75-NI-011b) focused on 44 drill holes and access roads, at least 19 of them located on the north and south rims of Tenmile Canyon. Only one site was identified in Tenmile Canyon, a lithic scatter [redacted] Site 42Gr583 was recorded at that time as a "small but dense scatter of lithic waste located on a sandy knoll just back from the canyon alluvium.” No detailed description or site photographs were offered in the official site form, but the report submitted to TVA contains much more detailed descriptions, including a discussion of Jeddito Corrugated potsherds (Pueblo IV) found near the site (Keller 1975a). This site was re-documented in 2007.

These initial drill-hole surveys also resulted in the first examination of the lower Tenmile Canyon region. Two small areas on the north rim and four small areas on the south rim, along with associated southern tributaries, were investigated. These small surveys, which constituted the only archaeological investigations yet conducted in the lower canyon, did not examine the canyon bottom where cultural resources would be expected. No archaeological sites have yet been documented in the lower canyon.

A second MNA survey of 11 drill holes and access roads (Project U-75-NI-012b) was conducted in July 1975. This survey also focused on the mesa top and canyon rim areas on both sides of Tenmile Canyon, including six areas clustered within a one-square-mile area along the north rim of Tenmile Canyon just west of the Trail Canyon

confluence. Site 42Gr596 was identified around a sandstone outcrop near the north rim of the canyon. It was described as "several hundred lithic artifacts, mostly flakes, no tools, of white chert scattered around (a) sandstone outcrop." No detailed description or site photographs were offered in the state site form, although the report to TVA offers a much more detailed description that mentions the lithic scatter was localized around an outcrop 40 meters long by 3 meters high (Lipe 1975).

A series of three additional MNA surveys (Project U-75-NI-0021b) was conducted from September through December 1975 involving 93 different drill holes. Two additional sites were identified in the bottom of Tenmile Canyon, both in large alcoves on the north side of the canyon and [redacted]. Site 42Gr634 was described as a "burial and storage hardpan cists in floor of dry cave" with 1 meter of cultural fill. No detailed description or site photographs were offered in the state site form, although a report to TVA offers much greater detail. This report indicates there are three alcoves, and that about a meter of ashy cultural materials and human bone were found in the center alcove, along with several unlined cache pits or hardpan cists in the floor of the alcove. The report mentions that similar materials were observed in the other two alcoves, but in lesser amounts (Keller 1976).

Site 42Gr635 was described in state site forms as "hardpan cists in floor of dry cave." The site located on the north side of Ten Mile Canyon [redacted] The report to TVA offers little additional information other than the alcove was small and the hardpan cists were located in an otherwise sterile floor of the alcove with no other associated artifacts. At least six surveys were conducted from June to November 1976 that covered 217 additional areas, some located on the canyon rims above Tenmile Canyon. No additional sites were identified in the Tenmile Canyon vicinity (Sant and Keller 1977).

At the same time MNA was conducting clearance surveys for TVA, BLM archaeologists conducted a limited monitoring survey in Tenmile Canyon. No formal report was completed, but Bruce Louthan recorded two additional sites in the canyon bottom. Site 42Gr660 was recorded in 1976 as an alcove measuring 20 meters by 6 meters with cultural deposits that included lithic debitage and charcoal. A biface fragment was collected at that time. [redacted] No detailed descriptions were offered, and the photographs are of minimal quality. This site was re-documented in 2007.

The BLM at that time also recorded 42Gr661, described as a structure inside an alcove with a single chert flake and abundant charcoal. A lithic scatter was located 100 meters to the west. [redacted] The location of previous recorded sites in the Tenmile Canyon area specifically is indicated in Figure 6.

Figure 6: Location of sites identified during previous research in the Tenmile Canyon vicinity.

Clearance Surveys

Subsequent investigations in the Tenmile Canyon vicinity occurred sporadically over the next 25 years. These all involved surveys of small areas of 40 acres or less, or were linear in nature wherein only a narrow corridor was investigated. Despite the spatial limitations of these small clearance surveys, numerous significant lithic sites were identified, particularly in the north canyon rim [redacted]. These sites were not revisited during the 2007 intuitive surveys.

In 1983, the Division of Conservation Archaeology conducted a linear survey for Geosource Seismic along the north side of Tenmile Canyon, identifying three sites on the [redacted]. Site 42Gr2130 was described as an extensive scatter of lithic tools and artifacts located [redacted]. Among the artifacts were a Basketmaker II projectile point, four bifaces, three cores and a uniface. The site was interpreted as a camp utilized repeatedly throughout prehistory. Site 42Gr2131 was a lithic scatter of biface thinning flakes but without diagnostic artifacts located [redacted]. And 42Gr2132 was also a sparse lithic scatter without diagnostic artifacts, but at least four different tool-stone materials and potential for subsurface deposits. All three sites were deemed significant and potentially eligible for the National Register (Powers 1983).

In 1987, BLM archaeologist Julie Howard conducted a linear survey along a fence line on the north and south side of Tenmile Canyon. Three sites were identified, including 42Gr2131, a lithic scatter near [redacted]. This site featured about 50 biface thinning flakes and a base fragment of a projectile point. Site 42Gr2132 was identified on the north side of Tenmile Canyon [redacted]. It was described as quarry for reddish-white chert nodules located along the base of an Entrada sandstone outcrop. Site 42Gr2133 was located about 2 miles north of Tenmile Canyon and south of Duma Point. The site was described as a small scatter of 25 biface thinning flakes without diagnostic artifacts. The report contains no discussion of the sites other than the sites were deemed "non-significant due to lack of depth, datable materials and diagnostic artifacts" (Howard 1987).

In 1991, Senco-Phoenix conducted a small survey for Chevron of a 40-acre well pad and access road on the north rim of Tenmile Canyon [redacted]. Two sites were identified: 42Gr2434 was described as a small scatter of 13 primary and secondary flakes, and one core, and 42Gr2433 was described as a heavy concentration of secondary and tertiary chalcedony and jasper flakes, several utilized flakes, cores, a biface fragment, a Uinta side-notched point and a possible hearth. Both sites were deemed significant. Researchers determined that "the rim of Tenmile Canyon and the canyon itself contain potentially significant resources" (Senulis 1992:2).

A linear survey along the bottom of Tenmile Canyon was conducted in 2001 and 2002 by Montgomery Archaeological Consultants along a route for the proposed Bookcliff Rattlers Motorcycle Race. Two sites were recorded in Tenmile Canyon relevant to this discussion. Site 42Gr3261 was described as a scatter of 64 lithic flakes

and three metate fragments on exposed sandstone bedrock and aeolian dunes. The site is located on the north side of the canyon bottom [redacted]. And 42Gr3262 was described as a scatter of lithic debitage, a metate fragment, a biface and other stone tools on exposed sandstone bedrock and aeolian dunes. The site is located on the [redacted]. Both sites were deemed significant (Elkins and Montgomery 2002).

Although BLM efforts to document cultural resource in Tenmile Canyon have been negligible, it should be noted that volunteer efforts were initiated several years ago through a Challenge Cost Share Program grant to locate archaeological sites (Donna Turnipseed, personal communication 2007). Some 49 sites were identified and GPS locations noted. However, formal site documentation was never initiated, and the nature of these sites, as well as their eligibility for listing on the National Register, remains unknown. The location of these sites (Figure 7) indicates a tremendously high density of sites within the canyon corridor, most of which remain undocumented.

Survey Methods and Results

The 2007 intuitive surveys were conducted by a team of three experienced field archaeologists walking non-systematic transects across the bench areas abutting the stream and along the base of the first cliff level. Higher ledges and the canyon rim were not examined. Some bench areas were not examined due to the difficult access caused by severe down-cutting of the alluvial deposits in the bottom of the canyon. On March 30, the survey crew examined the north side of Tenmile Canyon [redacted]. The south side of the drainage was not examined during the course of the first two days. All nine sites encountered were recorded to IMACS standards.

To better determine the distribution and density of archaeological sites, efforts were initiated on April 1 and April 2 to more thoroughly examine a defined area of the canyon. An approximately 0.8 kilometer section of the canyon was selected, with the north rim access road, located approximately [redacted] west of Dripping Springs, defining the approximate center point. Both sides of the canyon were examined with a somewhat greater level of detail, although the surveys remained intuitive in nature in that topographic locations expected to contain cultural resources were examined. The south side of the canyon was examined in greater detail than was the north side, a bias precipitated by time constraints. Twelve sites were identified in this 0.8 kilometer portion of the canyon, nine on the south side and three on the north side. Additionally, two expansive lithic scatters were identified on the south side of the canyon within the same survey area but these were not recorded due to time constraints.

Figure 7: Location of undocumented sites identified in Tenmile Canyon through CCSP grant.

If environmental variables are consistent throughout the canyon, site density and distribution should be similar in those areas above and below that 0.8-kilometer section of the canyon selected by CPAA for more intensive examination. Given that assumption, Tenmile Canyon would be expected to have a site density of at least 12.5 to 15.5 sites per linear kilometer, and that these sites would be located in natural alcoves and rockshelters, on bench areas abutting the canyon bottom and at the base of the first cliff level, and that the same suite of archaeological sites would be located on both sides of the canyon. A more comprehensive Class III survey of the drainage that included higher ledges, canyon rims and a more thorough examination of areas along the canyon bottom could demonstrate an even greater density of sites than postulated here.

The 2007 intuitive surveys demonstrated that Tenmile Canyon contains a rich diversity of sites, including single-event localities indicative of tool manufacturing or maintenance activities; open special-use areas with lithics, groundstone and ceramics indicative of longer-term bi-gender activities; large alcoves with copious evidence of extended residential occupations and on-site storage; smaller shelters with residential detritus; storage facilities; and rock art localities. Temporally diagnostic artifacts are extremely rare, but include small numbers of corrugated and plain gray potsherds at four sites, maize remnants at three sites, Rose Springs points at two sites and possible Archaic dart points at two sites. Additionally, rock art images are indicative of styles attributed to Archaic and Fremont peoples of the northern Colorado Plateau. Material culture evidence observed at these sites is summarized in Table 1.

Tenmile Canyon is particularly noteworthy for the abundance of large alcoves suitable for human occupation and which exhibit significant potential for deep cultural deposits. Eleven alcove or rockshelter sites were identified as having potential depth of cultural deposits. However, surface deposits at 10 of these have been vandalized, although these looters' pits likely do not extend more than 1 meter deep. This conclusion is based on anecdotal evidence derived from controlled excavations at looted cave sites in the eastern Great Basin (e.g. Danger Cave) that indicate that vandals rarely dig more than about 1 to 1.5 meters below the present ground surface, and that cultural deposits below that point are usually intact. Also augmenting the potential for intact deposits is the fact soft aeolian sands, such as those characterizing alcove deposits in Tenmile Canyon, are not conducive to deep pits inasmuch as the wall profiles will collapse without reinforcement (Kevin T. Jones, personal communication 2007). As demonstrated at 42Gr3833, cultural deposits at sheltered sites in Tenmile Canyon have the potential to extend at least 2.2 meters below present ground surface.

The 21 sites documented by CPAA (Figure 8) are considered to be representative of the nature, density and distribution of sites that would be expected in other areas of the Tenmile Canyon drainage that have yet to be documented. Documented sites are herein discussed individually from east to west:

Figure 8: Location of Tenmile Canyon sites documented by CPAA in 2007.

42Gr583

This site consists of a lithic scatter located on the north side of Tenmile Canyon, [redacted]. This site was initially recorded in 1975 as a "small but dense scatter of lithic waste located on a sandy knoll just back from the canyon alluvium" (Keller 1975). Upon revisiting the site in 2007, it was found to consist of a discrete cluster of 33 chalcedony flakes and two chert flakes. Most were tightly clustered in an area 2 meters by 2 meters, or they were eroding downhill to the south from the cluster (Figure 9). Based on the characteristics of the flakes, this site appears to represent a single lithic-reduction event. In addition, all of the chalcedony flakes are from the same reduction sequence, consisting entirely of Middle Stage biface thinning flakes. The two chert flakes included one thinning flake and one Early Stage flake with a small amount of cortex remaining on one edge. The flakes were observed in soft, finely sorted sands overlying white slickrock. There is a possibility of subsurface deposits, but such deposits are likely no more than 30 centimeters deep.

Figure 9: View to north of 42Gr583. Note primary cluster of lithics at center-left.

42Gr3354

This site consists of a dispersed artifact scatter located on a bench area on the north side of Tenmile Canyon [redacted] The artifact assemblage is comprised of more than 150 chert and quartzite flakes and a single corrugated grayware potsherd found along a bench area extending about 80 by 80 meters (Figure 10). The flakes are predominantly tertiary biface thinning flakes, although a few secondary flakes were observed. The only lithic tools were a chert point tip and one broken biface. A complete inventory of artifacts was not conducted given that

this site is currently being documented by BLM archaeologist Donna Turnipseed. The co-occurrence of later-stage lithic debitage and the corrugated potsherd may be evidence this site was the focus of longer-term, bi-gender camping activities, and that subsurface features (e.g., hearths) might be associated with these activities. Corrugated ceramics appear on the northern Colorado Plateau no earlier than A.D. 1100, suggesting this may have been a late Fremont encampment.

Figure 10: View to the east of 42Gr3354 from existing vehicle route.

42Gr3829

This rock art site is located on the first cliff level on the north side of Tenmile Canyon [redacted]. The site consists of two panels of petroglyphs, one prehistoric and one historic, about 5 meters above present ground surface on a sheer cliff face. The western panel contains a variety of anthropomorphs and bighorn sheep depicted in a style commonly attributed to the Fremont culture (Figure 11), whereas the eastern panel depicts a scratched image of a horse. Their location high on the cliff face suggests that the original ground surface was originally much higher and that there has been significant erosion of the bench area below. This erosion has likely destroyed all cultural deposits that may have been associated with the site.

Figure 11: View to northwest of Fremont rock art panel at 42Gr3829.

42Gr3830

This rock art site is located on the first cliff level on the north side of Tenmile Canyon [redacted]. The panel consists of a single petroglyph of a vertical wavy line with a bulbous upper end (Figure 12). It is located on a vertical cliff face 1.6 meters above present ground surface, and it measures 1.3 meters high and has a maximum width of 5 centimeters. It is solidly pecked and moderately deep. The image is not temporally or culturally diagnostic, and no artifacts were observed in association with this site. Given the erosion of deposits below the panel, it is unlikely that cultural deposits are associated with this site.

Figure 12: View to north of petroglyph at 42Gr3830.

42Gr3831

This residential site is located below a slightly overhanging cliff at the base of the first cliff level on the north side of Tenmile Canyon [redacted] This site has been vandalized almost beyond recognition with a single looters' pit extending 14 meters across the suspected living area. However, significant quantities of lithic debitage, metate fragments, burned bone, ashy soils and charcoal were observed, mostly in the back dirt piles from looting activities. More than 150 flakes and two metate fragments were observed in an area 15 meters by 8 meters

(Figure 13). Artifacts extend south onto the bench area where they have likely eroded from the back dirt piles. There are likely intact cultural deposits on the bench area in front of the shelter, below the back dirt piles and perhaps below the looters' pits.

Figure 13: View to northeast of 42Gr3831. Pin flags denote artifacts.

42Gr3832

This alcove residential site is located in a large south-facing alcove at the base of the first cliff level on the north side of Tenmile Canyon [redacted] This site consists of a large, deep alcove with a low ceiling that features abundant residential detritus and at least three distinct clusters of rock art (Figure 14). Approximately 20 looters holes were observed on the interior. The shelter extends along 90 meters of cliff face and extends 4 to 5 meters deep (Figure 15). The height of the ceiling above present ground surface ranges from 1 to 2 meters. Residential detritus was noted throughout the shelter interior, primarily in back dirt piles found the entire length and width of the alcove. Artifacts include small numbers of grayware potsherds, lithic debitage, burned and unburned bone, and groundstone. There are likely undisturbed cultural deposits on the bench area in front of the shelter, below the back dirt piles and perhaps below the looters' pits.

Figure 14: One of three clusters of rock art at 42Gr3832.

Figure 15: View to north of large sheltered area comprising 42Gr3832.

42Gr3833

This alcove residential site is located in a small south-facing alcove at the base of the first cliff level on the north side of Tenmile Canyon [redacted] The floor area (Area A) measures about 7 meters east-west by about 5 meters north-south, and features a large looters' pit in the center (Figure 16). Artifacts are concentrated primarily around the west and east edges of floor, mostly

in the back dirt piles. These include lithic debitage, metate fragments and a single grayware potsherd. An indistinct petroglyph is located on the back shelter wall above the floor area. Lithic debitage was also observed on the bench area in front of Area A, extending at least 10 meters to the south of the alcove and indicating a potential for buried cultural deposits in front of the shelter.

Figure 16: View to northeast of Area A floor area. Pin flags denote artifact locations.

Runoff from the shelter drip line has down-cut the eastern edge of the floor in Area A, exposing a vertical profile with intact cultural deposits featuring burned bone, charcoal, debitage and one potsherd. Two distinct charcoal layers are visible in the profile, one at 1.5 meters below present ground surface and one a 1 meter below present ground surface. These layers are substantially below the suspected depth of the adjacent looters' pit. The layers are about 20 centimeters thick. The runoff continues to the east where it has cut through soils to a depth of more than 3 meters and exposed profiles indicating intact cultural deposits in this area (Area B) to a depth of at least 2.2 meters (Figure 17).

A small amount of charcoal associated with lithic debitage and burned bone was recovered at 2.2 meters below present ground surface for radiocarbon analysis. Subsequent testing of the sample by Beta Analytic (B-229701) returned a conventional radiocarbon date of 4300 $\pm$40 B.P. (2 Sigma calibrated at 3010 to 2880 B.C.) with a median intercept of 2900 B.C. The ephemeral runoff area below these deposits featured lithic debitage, biface tools and a potsherd that were found eroding to at least 30 meters to the east and southeast of Area B. Two grinding slicks were also observed on the bedrock surface directly above the alcove. Both grinding surfaces have entirely repatinated (Figure 18) and are likely of considerable age.

Figure 17: View to north of cultural deposits exposed in profile, Area B at 42Gr3833.

Figure 18: Repatinated grinding slicks at 42Gr3833.

42Gr3834

This alcove residential site is located in a large south-facing alcove at the base of the first cliff level on the north side of Tenmile Canyon [redacted] The C-shaped alcove extends 25 meters along the cliff wall and is about 5 meters deep (Figure 19). It has copious evidence of residential activities, including more than 300 lithic flakes, about 25 pieces of burned and unburned bone, and five metate fragments. A large looters' pit is located toward the front and center of the shelter that measures about 2 by 2 meters, although the large back dirt pile across the front indicates that a much larger area was looted. Deposits toward the back of the shelter appear to be intact, as well as those on the eastern periphery of the shelter. A sparse scattering of artifacts is located throughout the shelter, but most are concentrated in the back dirt piles and eroding down slope in front of the shelter. There are likely intact cultural deposits on the bench area in front of the shelter, below the back dirt piles and perhaps below the looters' pits.

Figure 19: View to east of 42Gr3834. Pin flags denote artifact locations.

42Gr3835

This scattering of lithic debitage and groundstone tools is located on a bench area abutting the creek on the north side of Tenmile Canyon [redacted] The lithic scatter is sparse but expansive, covering an area about 50 meters wide (east-west) by 150 meters long (north-south), covering the entire bench from the base of the cliff to the edge of the alluvial plain (Figure 20). The

flakes are mostly red, yellow and brown chert, white chalcedony and quartzite. The flakes are primarily tertiary biface thinning flakes, with small amounts of secondary flakes and shatter. No chipped-stone tools or tool fragments were observed. This site contains more than 500 flakes and was likely the focus of repeated stone tool manufacturing and maintenance activities. A discrete cluster of groundstone fragments were observed on the western periphery of the site. These fragments may have been part of the same metate. These indicate the bench area was likely the focus of longer-term, bi-gender food processing activities, and that subsurface features (e.g., hearths) might be associated with camping and tool maintenance activities.

Figure 20: View to north of artifact scatter at 42Gr3835 covering entire bench to the base of cliffs.

42Gr3836

This residential site is located in a large alcove near the head of a small unnamed wash on the north side of Tenmile Canyon, [redacted] At least two large looters pits are located at the front of the sheltered area, and the associated back dirt piles have abundant lithic artifacts (Figure 21). About 150 lithic flakes were identified in the back dirt piles, as well as one metate fragment, one battering implement, a dark maroon river cobble and abundant ashy soils. Erosion is significant inside the shelter where runoff has exposed profiles of intact cultural deposits. A major charcoal and ash layer is located 50 to 60 centimeters below present ground surface and is about 20 centimeters thick. There is a second ash layer on the western periphery of the shelter. The looting appears to have focused on the front part of the alcove, and the interior deposits may be intact. The portion of the alcove with cultural deposits appears to be about 15 meters long by up to 5 meters meter deep, although the erosion makes it difficult to ascertain the extent of residential activities.

Figure 21: View to northwest of 42Gr3836. Pin flags denote artifact locations.

42Gr3837

This residential and rock art site is located below a slightly overhanging cliff face at the base of the first cliff level on the north side of Ten Mile Canyon [redacted]. The site (Figure 22) extends along about 100 meters of cliff face and is comprised of three clusters of rock art images and five areas, all looted, with residential detritus in the back dirt piles and eroding on the bench area in front of the sheltered area. The rock art panels include heavily repatinated linear designs with circles and cross-hatches, the remains of a Fremont-like anthropomorph, and a petroglyph image of a hand and a star-like figure. Deep, finely sorted ashy soils are located directly below the third panel and in a looter's back dirt pile. The other four features were identified on the presence of oval and amorphous looters' pits with associated lithic flakes, groundstone, charcoal and ashy soils. There are likely intact cultural deposits on the bench area in front of the shelter, below the back dirt piles and below the looters' pits.

Figure 22: Site overview looking northeast of 42Gr3837. Site extends 100 meters along cliff base.

42Gr3838

This rock art site is located at the edge of a large north-facing alcove at the base of the first cliff level on the south side of Tenmile Canyon [redacted] The site includes a single panel of four Barrier Canyon style pictographs painted in red ochre and possibly yellow (Figure 23). One quadruped on the left is facing a large dominating anthropomorph in the center that is at

Figure 23: View of Barrier Canyon rock art panel at 42Gr3838.

least 1.3 meters high and 54 centimeters wide and it appears to be holding a vertical wavy line. A quadruped to the right appears to be painted in yellow pigment with a dark red outline. The interior is largely obscured with mud. On the far right are remnants of an unknown red figure, probably a quadruped. The entire panel measures 2.4 meters wide by 1.3 meters high, and is 2 meters above present ground surface. The panel is located at the north edge of a large, deep alcove that has been significantly and repeatedly vandalized, despite the paucity of obvious cultural deposits. The only artifacts observed inside the shelter were chunks of charcoal and acorn husks, which may or may not be cultural.

42Gr3839

This lithic scatter is located on a large bench area abutting the south side of Tenmile Creek near the northern edge of an unnamed southern tributary of Tenmile Canyon [redacted]. The site consists of a discrete scatter of predominantly tertiary flakes, a small number of secondary thinning flakes and two biface tools (Figure 24). The site extends 40 meters north-south by 50 meters east-west, and consists of approximately 300 flakes with a maximum density of 10 flakes per square meter. A majority are concentrated on the northern periphery of the site in a natural bowl area where they have likely eroded. There is a potential for subsurface deposits in the soft alluvial soils. The soils with potential deposits exhibit accelerated erosion due to ORV traffic throughout the site.

Figure 24: View to west of 42Gr3839. Pin flags denote artifact locations.

42Gr3840

This sheltered residential site is located in a large west-facing alcove at the base of the first cliff level near the northern edge of an unnamed southern tributary of Tenmile Canyon [redacted]. The alcove measures about 25 meters across the front by 25 meters deep (Figure 25). A pool of water, likely a seep, is located about 25 meters in front of the alcove. The shelter features numerous groundstone artifacts, including slab metates and bedrock grinding slicks. Other artifacts include sparse tertiary thinning flakes, some burned bone and abundant charcoal that may or may not be prehistoric. No culturally or temporally diagnostic artifacts were observed. The alcove has been severely looted with at least 25 discernible areas with looters holes or depressions. These pits have largely refilled with aeolian sands, making it difficult to determine their original depth. Based on erosion profiles, there is considerable potential for cultural deposits extending more than 2 meters deep. There are also likely intact cultural deposits in potential occupation areas in front of the shelter, below the back dirt piles and below the looters' pits.

Figure 25: View to northeast of 42Gr3840 living area within the alcove. Pin flags denote artifact locations. See also Figure 3.

42Gr3841

This sheltered residential site or campsite is located in a small west-facing alcove near the northern edge of an unnamed southern tributary of Tenmile Canyon [redacted]. The alcove (Figure 26) measures about 3 meters north-south by 2 meters east-west by 2.5 meters high. The sheltered area has sparse

remnants of human activities and exhibits no evidence of looting. Thick, dense ashy soils are eroding from the back of the shelter down slope toward the south. One piece of burned sandstone is located on the north side of the shelter, measuring about 15 by 10 centimeters. The ashy soils measure 1 meter wide by 4.5 meters long. Tertiary thinning flakes are located in the ashy deposits. Intact cultural deposits are being impacted by erosion and livestock.

Figure 26: View to northeast of 42Gr3841. Occupation area center frame in front of vegetation.

42Gr3842

This sheltered residential and storage site is located at the base of the first cliff level in a large west-facing alcove near the northern edge of an unnamed southern tributary of Tenmile Canyon [redacted]. The massive west-facing alcove is approximately 100 meters wide and 30 meters front to back at the widest point (Figure 27). Another small interior alcove at the rear extends another 3 to 4 meters and encloses a natural seep with a pool of water. The sheltered area features abundant residential detritus, one rock art panel, one circular storage structure and corncobs, corn husks and corn stalks. Artifacts were observed in front of the shelter extending 20 meters to the west and south, indicating the potential presence of occupation areas outside the alcove.

Artifacts inside the sheltered area consist mostly of tertiary thinning flakes, corn remnants, bedrock grinding slicks, burned and unburned bone, two hammerstones, one battering implement and chunks of charcoal that may or may not be prehistoric. The corn remnants are all clustered in an area about 30 meters south of the storage unit (Figure 28),

suggesting the presence of a second storage facility that has been dismantled and destroyed during the episodic looting at the shelter. The corn husks and corn stalks imply that farming occurred in the immediate area. Research indicates that those portions of corn plants without economic value would not be transported a significant distance (Metcalfe and Barlow (1992).

Figure 27: View to southeast of main occupation area at 42Gr3842.

Figure 28: View to north of artifact cluster, mostly maize remnants at 42Gr3842.

42Gr3843

This storage locale is located in a large east-facing alcove at the base of the first cliff level near the western edge of an unnamed southern tributary of Tenmile Canyon [redacted]. The site consists of a series of bell-shaped cists excavated into a hardpan clay matrix at the back of the alcove (Figure 29). The cists occupy the southern half of a sheltered area about 20 meters wide by 3 to 4 meters deep. At least six cists are discernible, and there are possible remnants of a seventh cist but these are not clearly articulated. The front walls of five of the six definable cists have collapsed outward (or were dismantled by vandals), exposing the interior chambers in profile. One of the cists is intact (Figure 30) and is about half filled with aeolian sand. A lithic scatter is located about 30 meters to the north-northeast of the cists. One biface fragment or possible Archaic dart point fragment was observed in this area.

Figure 29: View to west of hardpan storage cists at 42Gr3843.

Figure 30: View of intact cist at 42Gr3843

42Gr3844

This storage facility is located in a small north-facing alcove at the base of the first cliff level near the western edge of an unnamed southern tributary of Tenmile Canyon [redacted]. The site consists of the remnants of a D-shaped drylaid masonry structure, probably a granary that occupies the eastern portion of an alcove that measures 12 meters long by 3 meters deep by 2 to 4 meters high. The structure consisted of unmodified sandstone slabs stacked in a semicircular pattern with the back wall of the shelter comprising the back wall (Figure 31). No remnants of adobe were observed. Pieces of juniper matting are visible under the front wall and eroding down slope (Figure 32). The matting is most visible at the east edge of the structure. Based on the profile of the feature, interior deposits are no more than 5 centimeters deep.

Figure 31: View to east of drylaid storage structure at 42Gr3844.

Figure 32: View of juniper bark matting in stone matrix at 42Gr3844.

42Gr660

This sheltered residential site is located on the north side of Tenmile Canyon directly opposite the confluence of Trail Canyon, a southern tributary of Tenmile Canyon [redacted]. This site was initially recorded in 1976 as an alcove measuring 20 meters by 6 meters with cultural deposits that included lithic debitage and charcoal. A biface fragment was collected at that time. Upon revisiting the site in 2007, the site was found to be a large, south-facing alcove on the north side of Tenmile Canyon that features a steep, sloping floor and a relatively flat area at the back of the alcove that was the focus of residential activities (Figure 33). Residential detritus is eroding from the back of the shelter to the south along the sloping floor and onto the alluvial bench area directly below. A concentration of lithic debitage, groundstone tools, bone and potsherds was observed on the bench area directly below the alcove and extending east and west of the alcove a total of 30 meters east-west by 5 meters north-south (Figure 34).

Figure 33: View to north of 42Gr660, large alcove with residential detritus.

The flat living area inside the alcove is about 2 meters wide and the ceiling of the shelter is about 2.5 meters above present ground surface at this point. Deposits at this point are badly looted, but lithic debitage, corncobs and burned and unburned bone are visible in the deposits, although they are not abundant. Given the presence of groundstone tools, corrugated potsherds and corncobs, this site was likely the focus of residential activities during the late Formative (after A.D. 1100), perhaps by a small number of Fremont farmer-foragers. The south-facing aspect of the shelter implies that it

could have been occupied during colder seasons. There is a paucity of recognizable storage or architectural features, although this may be a function of repeated looting.

Figure 34: Location of artifacts eroding on front of and to the east of alcove at 42Gr660.

42Gr3845

This sheltered residential site is located in a large west-facing alcove about 5 meters above the base of the first cliff level [redacted] The alcove, which features a sloping and multi-leveled living surface measures about 50 meters north-south and has a maximum depth of 30 meters east-west on the southern periphery (Figure 35). The north end of the alcove features shallow deposits that have been looted to bedrock surfaces. This area features hand-and-toe holds carved into the vertical cliff face to facilitate access to the shelter. At the top of the hand-and-toe holds is a faded red pictograph panel. On the northern periphery of the alcove is a deep pit with vertical sides that may be remnants of a looted bedrock storage cist with a depth of about 50 centimeters.

The center portion of the alcove features a series of bedrock slicks, along with historic inscriptions dating to at least 1930. This area features an abundance of large, medium and small sandstone slabs that appear to have been discarded during the episodic looting of the shelter. This area features comparatively greater numbers of artifacts, including tertiary thinning flakes, unusually large corncobs (Figure 36), burned and unburned bone, charcoal, clumps of adobe with finger impressions and one possible coprolite. The southern portion of the alcove is the deepest but it contains comparatively fewer artifacts. Abundant stone slabs suggest that any architectural features in this area

were dismantled during looting. A sparse scattering of lithic debitage, charcoal and bone were observed in this area. There are likely intact cultural deposits in potential occupation areas in front of the shelter, below the back dirt piles and below the looters' pits.

Figure 35: View to south of south portion of alcove at 42Gr3945.

Figure 36: View of large corncobs at 42Gr3845.

42Gr3846

This rock art site is located at the base of the first cliff level on the south side of Tenmile Canyon, about [redacted], a tributary on the south side of the canyon. The site consists of two separate pictograph panels, one painted in vivid red colors that are visible from the canyon bottom. The second panel to the east is large faded and barely discernible. Panel 1 consists of a tall oval anthropomorph

with feet and horns that measures 76 centimeters high and is painted in dark red (Figure 37). The figure has a single line projecting from the head area. To the right is a Fremont-like anthropomorph with a triangular body, a long narrow neck and small round head. It is painted in the same dark red color. It is 35 centimeters tall and features no arms, legs or other appendages. Panel 2 is located just to the east and consists of a very faded red rectangular figure with a long neck, head and small arms. It appears to be holding something in its left hand. The figure measures 66 centimeters tall. The presence of one yellow-brown chert flake and one quartzite core below Panel 1 indicate the potential for cultural deposits on the slopes below the site, although the area directly below the panels is largely bedrock.

Figure 37: View to south of Panel A at 42Gr3846.

Miscellany

Two large lithic scatters were observed on the bench area below and to the east of 42Gr3846, but these were not recorded due to time constraints. The lithic scatters are about 100 meters apart, are located on the first broad bench area on the south side of the canyon [redacted]. Both feature 100 to 300 flakes of chert and chalcedony, primarily biface thinning flakes, located on the alluvial soils and abutting exposed bedrock surfaces. No finished tools were observed during a cursory examination of the sites. Both sites exhibited potential for subsurface deposits.

Culture History Discussion

The 2007 intuitive surveys documented four rock art sites located on cliff faces, four artifact scatters located on the bench areas abutting Tenmile Creek, two storage

localities in alcoves and 11 residential sites, nine of them in alcoves and two at the base of a slightly overhanging cliff. Some of these residential sites also contained rock art and storage features. These sites, which contain a variety of temporally diagnostic artifacts, are reflective of a broad range of human activities throughout the Archaic (5 sites) and Formative (8 sites) periods of time, including tool manufacturing and maintenance, temporary and longer-term camping by bi-gender groups of foragers, maize horticulture by sedentary or semi-sedentary farmers, food processing, food storage and ceremony (see Table 1).

No unequivocal evidence of Paleoindian occupations was identified, although there would appear to be significant potential that deep alcove sites found throughout Tenmile Canyon will contribute to a much broader understanding of the earliest human adaptations on the northern Colorado Plateau, perhaps during terminal Pleistocene times. To date, all evidence of a Paleoindian occupation in the Green River Desert region has resulted from open sites or isolated finds of distinctive artifacts. In Tenmile Canyon, there is an abundance of large, dry alcoves suitable for human occupation with cultural deposits of tremendous depth. Although surface deposits have been disturbed by looting, lower deposits of potential Paleoindian and Archaic age are likely intact. This was demonstrated at 42Gr3833, an alcove with a layer of charcoal, bone and stone debitage at 2.2 meters below present ground surface, and well below at least two other occupation levels.

Table 1: Summary of material culture evidence

Site No.	Site Type	Cultural Affiliation	Lithic Artifacts	Ceramics	Groundstone	Organics
42Gr583	Lithic Scatter	Unknown	Yes	No	No	No
42Gr660	Alcove	Fremont	Yes	Yes	Yes	Yes
42Gr3354	Artifact Scatter	Fremont	Yes	Yes	No	No
42Gr3829	Rock Art	Fremont	No	No	No	No
42Gr3830	Rock Art	Unknown	No	No	No	No
42Gr3831	Alcove	Unknown	Yes	No	Yes	No
42Gr3832	Alcove	Fremont	Yes	Yes	Yes	No
42Gr3833	Alcove	Fremont Archaic	Yes	Yes	Yes	No
42Gr3834	Alcove	Unknown	Yes	No	Yes	No
42Gr3835	Artifact Scatter	Unknown	Yes	No	No	No
42Gr3836	Alcove	Unknown	Yes	No	Yes	No
42Gr3837	Residential	Unknown	Yes	No	Yes	No
42Gr3838	Rock Art	Archaic	No	No	No	No
42Gr3839	Lithic Scatter	Archaic	Yes	No	No	No
42Gr3840	Alcove	Unknown	Yes	No	Yes	No
42Gr3841	Rockshelter	Unknown	Yes	No	No	No
42Gr3842	Alcove	Fremont	Yes	No	Yes	Yes
42Gr3843	Storage Cists	Archaic	Yes	No	No	No
42Gr3844	Granary	Unknown	No	No	No	Yes
42Gr3845	Alcove	Fremont	Yes	No	Yes	Yes
42Gr3846	Rock Art	Fremont	Yes	No	No	No

Evidence of Archaic adaptations was observed at five sites, four located on the south side of Tenmile Canyon and the fifth on the north side. Site 42Gr3838 consists of a single panel of four Barrier Canyon style pictographs painted in red ochre and possibly

yellow. The Barrier Canyon rock art style is generally attributed to Late Archaic times and is seen as antecedent to Fremont rock art on the northern Colorado Plateau. Named after a tributary of the Green River where the figures are particularly common, "The dominant motif in these paintings is the long, dark form of the human torso…. These highly abstracted and mummy-like anthropomorphs which seem to hover against the cliff walls determine the overall aesthetic impact of the Barrier Canyon Style, not only because of their repeated occurrence in each site, but also because of their great size in comparison with the few other elements occurring with them which are often tiny adjuncts to the major anthropomorph theme" (Schaafsma 1971:69). Tipps (1995) has since defined a temporal range of about 1900 B.C. to A.D. 300 for the Barrier Canyon rock art style.

Potential evidence of Archaic occupations was observed at 42Gr3839, a lithic scatter with the fragment of a large side-notched dart point, and at 42Gr3843, where a biface base fragment was consistent in size and shape with an atlatl dart point. This site also featured six or seven bell-shaped, hardpan cists. Hardpan cists were also observed at 42Gr634 and 42Gr635 by MNA crews, although no temporally diagnostic artifacts were observed there (Keller 1976). Bell-shaped subterranean storage chambers have typically been associated with Basketmaker or proto-Fremont occupations on the northern Colorado Plateau (cf. Reed 2000; Talbot and Richens 1996), although little has been reported about storage cists excavated into a hard clay matrix.

Although distinctively Archaic artifacts were rare, it should be noted that many alcoves featured aceramic deposits that may be attributed to Archaic adaptations. Even at those alcove sites with later Formative artifacts on the site surface, it is highly probable that these Formative deposits overlay Archaic deposits. This was evident at 42Gr3833 where an occupation level at least 2.2 meters below present ground surface returned a radiocarbon date of 4300 $\pm$40 B.P. (2900 B.C. calibrated), or within the Middle Archaic as traditionally defined on the northern Colorado Plateau (cf. Spangler 2002). This site also featured ceramics in the disturbed surface deposits, supporting the contention that Fremont occupations overlay earlier Archaic occupations. It is also probable that intact Archaic deposits are located below the lowest extent of looters' pits at many other alcove sites in the canyon.

Previous research in the Tenmile Canyon drainage had not identified Fremont horticultural adaptations. In fact, the only documented Fremont evidence from the region are distinctive rock art panels along the Colorado River to the south of Tenmile Canyon, and Fremont residential sites at the base of the Book Cliffs to the northeast (Wormington 1955). It is generally assumed that evidence of Formative adaptations (primarily maize horticulture, but also masonry architecture) from sites north and west of the Colorado River can be attributed to the Fremont culture (Jennings 1978). Generally, the Fremont have been described as highly adaptable farmers *and* foragers, switching from maize farming to foraging in response to changes in the availability of floral and faunal species and the viability of horticulture (Madsen and Simms 1998).

Proto-Fremont adaptations focused to a greater or lesser degree on maize appear across the northern Colorado Plateau as far north as the Uinta Basin as early as A.D. 250 (Talbot and Richens 1996). As discussed by Barlow (2006), the archaeological record from A.D. 300 to 600 consists predominantly of Archaic-like camps, but with the addition of open, aceramic farmer-forager habitation sites with shallow, dish-shaped habitation floors that could be shallow pit structures or wickiups. The artifact assemblages include Archaic dart points, arrow points, Archaic groundstone, bell-shaped storage pits, remains of wild flora and occasionally maize. Overall, assemblages "suggest that Archaic lifeways persisted throughout the region, but with maize horticulture playing an increasingly important role, perhaps in winter food storage, for some households or bands of foragers" (2006:6-2).

The beginning of the Formative on the northern Colorado Plateau is traditionally assigned to the appearance of ceramic technology and its concurrent implications for sedentism at about A.D. 600 (Spangler 2001, 2002). Hence, the presence of corncobs at residential sites might be associated with pre-Formative and/or Formative horticultural adaptations. Corncobs were observed at three alcove sites in Tenmile Canyon, all in the same area of the drainage within view of one another. Corncobs were observed at 42Gr660 and 42Gr3845, and corncobs, corn stalks and husks were observed at 42Gr3842. The identification of corncobs, corn husks and corn stalks suggests that horticulture was being practiced in Tenmile Canyon. As discussed by Metcalfe and Barlow (1992), corn stalks and husks are rarely, if ever, transported a significant distance from fields (Metcalfe and Barlow 1992).

The presence of arrow points is an equivocal temporal marker of Proto-Fremont and Fremont hunters. Archaeological evidence from northeastern Utah has demonstrated that bow and arrow technology appeared in northeastern Utah by about A.D. 100, perhaps as early as A.D. 1 (McKibbin 1992), but the bow and arrow did not replace the atlatl as the preferred hunting weapon until several centuries later. By about A.D. 400, projectile points found at archaeological sites in northeastern Utah are predominantly corner-notched arrow points referred to as Rose Spring, Eastgate or Rosegate Series. By inference, sites yielding Rose Spring points date no earlier than about A.D. 100, and probably after A.D. 400 when they become ubiquitous. Rose Spring arrow points (Figure 38) were observed at two sites in Tenmile Canyon, at 42Gr3832 and 42Gr3842, both of which are alcove sites (one with ceramics and one without). Both were observed within disturbed surface deposits.

Figure 38: Rose Spring point from 42Gr3842

Potsherds are extremely rare at sites in Tenmile Canyon, suggesting (1) local populations were extremely mobile and that this mobility was not conducive to the local manufacture of ceramics, or (2) because potsherds would have been located at or near the surface of the alcove deposits, they were removed during episodic

looting of the alcoves. It should be noted that Fremont adaptations on the Tavaputs Plateau immediately north of the Green River Desert, despite exhibiting considerable complexity, also exhibit a paucity of ceramic artifacts (Spangler 2000, 2002; Spangler et al. 2007). Three alcove residential sites contained evidence of grayware ceramics consistent with Fremont types observed elsewhere in eastern Utah. Two grayware potsherds were observed at 42Gr660, two additional grayware potsherds at 42Gr3833 and five potsherds at 42Gr3832, one with evidence of an applied ridge as decoration. All of the potsherds were body fragments that had been smoothed on the interior and exterior. All potsherds exhibited fine to coarse black stone tempering similar to tempering agents utilized by Fremont populations in the San Rafael Swell and Tavaputs Plateau.

The demise of the Fremont Complex north of the Colorado River is generally demarcated by the disappearance of agricultural lifeways and their accoutrements, including sophisticated ceramic technology and masonry architecture. Convincing evidence of a late Fremont presence in Tenmile Canyon is limited to two sites with temporally distinctive corrugated potsherds (42Gr3354 and 42Gr660). Corrugated ceramics appear on the northern Colorado Plateau after about A.D. 1100 (Spangler 2001), suggesting this site was occupied sometime at or after that point. This tentative date would be consistent with the Uinta side-notched point earlier described from 42Gr2493 on the north rim of Tenmile Canyon (Senulis 1992). Side-notched arrow points appear on the northern Colorado Plateau after about A.D. 1000 (Holmer and Weder 1980). The paucity of quantitative evidence precludes any discussion of late Formative adaptations.

No evidence has yet been reported from the Tenmile Canyon area of post-Formative occupations attributed to Numic-speaking populations after about A.D. 1250, nor was any evidence observed during the 2007 intuitive surveys. However, 42Gr3829 contains a representational rock art depiction of a horse (Figure 39) that potentially could be attributed to historic Ute occupations in the region. It also could be the work of cowboys and sheepherders.

Figure 39: Horse image at 42Gr3829.

Site Condition and Eligibility Assessments

Most of the 21 sites documented during the course of the 2007 intuitive surveys were found to have suffered significant and cumulative impacts from the combined effects of vandalism, vehicular traffic and livestock. Rock art panels found without associated features appear to have suffered the least adverse impacts, whereas alcove sites with deep aeolian deposits and associated features (e.g. architecture, rock art, grinding slicks) appear to have experienced the greatest amount of damage. Although the sample size is admittedly small, adverse impacts appear to be associated primarily with two factors: (1) the visibility of large alcoves from the canyon bottom, which has been accessible by vehicle since at least the 1960s, and (2) increased accessibility to the bench area above the creek by wheeled vehicles that are mechanically capable of extreme off-trail travel. Impacts caused by livestock are not addressed in detail in this report.

The visibility of the large alcoves has resulted in multiple episodes of vandalism and looting. Based on inscriptions observed at looted sites and the age of associated looters' detritus, this vandalism occurred as early as the 1920s and has continued through at least the late 1990s. This looting has been massive, with some sites exhibiting more than 20 individual looters' pits that have destroyed the surface context of 50 to 80 percent the living areas within the alcoves. The looting has also been systematic, with evidence that looters have used shovels, screens and artificial lighting. Based on the sandy, unstable nature of the aeolian sands, as well as the vertical profiles now evident in some looter's pits, the illegal excavations appear to have extended no more than 1 meter below present ground surface. Ten of 11 sheltered residential sites identified by CPAA had been vandalized, most of them seriously. The one site that was not vandalized was a small shelter, perhaps a temporary camp, with ephemeral residential detritus that may have gone unnoticed during the vandalism of two adjacent, much larger shelters.

Difficulty of access does not appear to have been a factor inhibiting vandalism. Nine of the sheltered residential areas and both sheltered storage sites are located in alcoves at the alluvial plain where access is extremely easy. Nine of these residential sites had been seriously looted, as had one of the storage sites. Both of the sheltered residential sites with difficult access were both seriously looted. Both are located in alcoves above the edge of the alluvial plain 3 to 5 meters. In the case of 42Gr660, it involves free-climbing about 3 meters of vertical cliff wall to a sloping area that leads to the interior of the shelter. In the case of 42Gr3845, hand-and-toe holds carved into the vertical cliff face lead up about 5 meters to the floor area of the alcove.

Bench areas on both sides of the canyon exhibit evidence of repeated off-trail motorized activities, and some of these activities occurred after a major rainstorm that occurred four days prior to the site documentation. In several cases, repeated off-trail use has resulted in heavily worn trails leading directly to the large alcoves and through associated archaeological deposits, or through potential deposits in front of sheltered residential sites. Four sites exhibited direct impacts to cultural deposits from mechanized vehicles, six sites exhibited tire tracks to within 30 meters of the site where there is

considerable potential for subsurface cultural deposits, and six additional sites had tracks to within 50 meters of the site.

It is emphasized that BLM prohibitions on off-trail travel are being routinely ignored. This was observed by CPAA crew members on April 1, 2007, when a group of motorcyclists descended from the north canyon rim on steep white slickrock, passing within a few meters of 42Gr3833 and 42Gr3834 before crossing the alluvial plain and the canyon bottom and then ascending the south cliff face (Figure 40). Both sites had been recorded earlier that day and exhibited no evidence at that time that mechanized vehicles were directly impacting cultural deposits. The sites were not revisited to determine if the off-trail activities observed by crew members had directly impacted cultural deposits at the two alcove sites. These observations, made from about 300 meters away, demonstrated that sites that initially appear to have little risk of direct impact from vehicles are, in fact, vulnerable given the enhanced mechanical capabilities of some vehicles, primarily motorcycles.

Figure 40: Motorcycles descending from north rim of canyon adjacent to 42Gr3833 and 42Gr3834.

All 21 sites evaluated by CPAA are recommended as eligible for listing on the National Register under Criteria A, C and/or D in that they contribute to broad patterns of Archaic and Formative prehistory on the northern Colorado Plateau; they embody distinctive characteristics of type, period or method of construction, or represent a significant and distinguishable entity, even if the individual sites lack distinction; and they are likely to yield important information about the prehistory of the region. The impacts and potential eligibility of these 21 sites are discussed here individually:

42Gr583

This small but dense scatter of lithic artifacts is located about 30 meters to the west of a heavily traveled ORV route (Figure 41). The site location is clearly visible from that route, and it is easily accessible to wheeled vehicles. No vehicle tracks were observed directly associated with the site, and the presence of some biotic crusts on existing soils suggests this site rarely receives visitation. Dune areas about 30 meters to the southwest of the site do have vehicle tracks, demonstrating the potential that off-trail ORV travel will eventually extend to the north and impact the integrity of this site. No evidence of pedestrian foot traffic, litter or vandalism was observed. This site remains in good condition.

Figure 41: View to south of 42Gr583 with existing vehicle route at center frame.

The absence of temporally diagnostic artifacts and the presence of potentially shallow deposits overlying bedrock militate against National Register eligibility. However, when the site is placed within the context of nearby special-use and alcove residential sites, this site is recommended as eligible under Criterion A in that it is associated with broad patterns of human prehistory on the Colorado Plateau, and under Criterion D it that it could contain subsurface deposits that would yield important information about prehistoric special-use sites, lithic procurement strategies and land-use patterns in the Tenmile Canyon area generally.

42Gr3354

This dispersed scatter of lithic and ceramic artifacts is located on both sides of a heavily traveled ORV route that leads into the bottom of Tenmile Canyon. The ORV route, the installation of a cattle guard and the construction of a fence line perpendicular to the ORV trail (Figure 42) have all impacted the integrity of the site, as well as potential cultural deposits. This site has also been heavily impacted by off-trail vehicle activities. The area around the cattle guard appears to have become a staging area for ORVs prior to descending into the bottom of the canyon. There is considerable evidence that vehicles have not remained on the trail at this point inasmuch as 20 to 25 vehicle trails were located on the bench area around the cattle guard (Figure 43). Most were single-tracks (motorcycles). Tracks on sloping areas of the site appear to have resulted in accelerated erosion, which has exposed artifacts, some of which were observed in the ruts of the tire tracks. [redacted]. However, this area also exhibits evidence of off-trail vehicle tracks. This was the only site identified by CPAA that had been directly impacted by the main ORV trail. This site is in fair condition due to the fact that the primary concentration of artifacts is located to the east of the road in areas impacted by vehicles to a lesser extent.

Figure 42: View to north of cattle guard and ORV trail at 42Gr3354. Pin flags denote artifacts.

This site is eligible under Criterion A in that it is associated with broad patterns of human prehistory on the Colorado Plateau, particularly during late Formative times when traditional boundaries between Fremont and Ancestral Puebloan groups collapsed, resulting in a blending of material culture traits after A.D. 1000 (cf. Madsen and Simms 1998). The presence of corrugated ceramics suggests this site was occupied after A.D. 1100. It is also eligible under Criterion D it that it could contain subsurface deposits that

would yield important information about prehistoric special-use sites, lithic procurement strategies, bi-gender foraging camps and land-use patterns in the region generally.

Figure 43: Fence line and vehicle tracts at 42Gr3354.

42Gr3829

This rock art site is located on a cliff face abutting a narrow north bench area directly above a 7-meter high vertical down-cut in the alluvial deposits. The site is visible from the main ORV trail in the bottom of the canyon about 120 meters to the south. The site is located high on a cliff face where it is not accessible to touching, tracing or rubbing, and is therefore in excellent condition. However, the bench area is littered with clay pigeons, indicating that shotgun blasts have been directed (probably inadvertently) at the rock art panels. Pedestrian access is easy, and there is no evidence that vehicles have yet breached the vertical down-cut to gain direct access to the bench. Such access would be difficult, but not impossible given evidence observed elsewhere in Tenmile Canyon. With the exception of the historic inscription of a horse unassociated with the prehistoric images, no other impacts were observed. This site is in excellent condition.

This site represents a remarkable example of Fremont rock art with precise pecking that has resulted in distinct anthropomorphic, zoomorphic and abstract images. As such, it is eligible under Criterion C in that it embodies distinctive characteristics of type, period or method of construction that constitutes a significant and distinguishable entity. It is also recommended as eligible under Criterion D in that it could contribute to an understanding of land-use patterns in the region generally, as well as to an understanding of prehistoric ceremonialism, religion and communication.

42Gr3830

This rock art site is located on a cliff face abutting a narrow bench area directly above a 10-meter high vertical down-cut in the alluvial deposits. The site is not visible from the main ORV trail in the bottom of the canyon about 100 meters to the south, and given the ephemeral nature of the single petroglyph image it has likely escaped notice from most pedestrian visitors. Pedestrian access is difficult due to the steep down-cutting of the alluvial deposits. No adverse human activities were observed at this site and there is no evidence it has been visited recently. No ORV tracks were observed on the bench area, and there is no evidence vehicles have attempted to breach the vertical down-cuts in this area. Vehicular access to the bench would be difficult but not impossible given evidence observed elsewhere in Tenmile Canyon. This site is in good condition.

The presence of a single, non-diagnostic image militates against National Register eligibility. However, this site is recommended as eligible under Criterion C in that it comprises a part of a significant and distinguishable catalog of images whose components may lack individual distinction but which collectively contribute to a broader understanding of spatial and temporal relationships between prehistoric populations. It is also recommended as eligible under Criterion D in that it could contribute to an understanding of land-use patterns in the region generally, as well as to an understanding of prehistoric ceremonialism, religion and communication.

42Gr3831

This sheltered residential site is located in an alcove abutting the north edge of a broad bench area above a 3-meter high vertical down-cut in the alluvial deposits. The alcove is visible from the main ORV trail about 50 meters to the south. The down-cut is easily negotiated by pedestrians and mechanized vehicles. Ephemeral vehicle tracks were observed on the bench area about 30 meters to the south of the alcove, and the down-cut has been worn down in several areas where vehicles have attempted access to the bench. Potential cultural deposits in front of the sheltered living area remain vulnerable to vehicle traffic. No pedestrian trails were observed on the bench area, but recent footprints were observed at the site. This site is not obvious as a residential locality except for evidence of massive looting that has exposed cultural materials.

The site consists of a sheltered area that has been excavated to a depth of at least 0.5 meters. The interior area of the shelter features what now appears to be a single trench about 14 meters long with an adjacent berm of back dirt along the trench in front of the sheltered area (see Figure 13). Abundant lithic debitage was observed in the back dirt piles and on the bench area in front, as well as burned stone and fragments of groundstone. The vandals likely used screens given the absence of finished stone tools, piles of lithic debitage that have been dumped in a single location and finely sorted back dirt. The vandalism is not recent as evidenced by some re-vegetation of the looters' trench and back dirt piles. Trash associated with the vandalism was minimal, consisting of an

aluminum can that had been discarded about 5 meters south of the site. The site has also been impacted by livestock. Surface deposits at this site are in poor condition.

Despite the extensive looting, this site is recommended as eligible under Criterion A because it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular the utilization of natural shelters by foraging populations during Formative and Archaic times. It is particularly eligible under Criterion D in that it likely contains significant subsurface deposits that would yield important information about prehistoric non-architectural residential occupations, lithic procurement strategies, bi-gender foraging camps and land-use patterns in the region generally. The abundant charcoal could also contribute important temporal context to prehistoric adaptations throughout the region; pollen evidence could contribute to an understanding of how those adaptations were influenced or constrained by changes to the local environment; and microrefuse analyses could contribute insights into prehistoric subsistence strategies. Although looting has destroyed a major section of the suspected living area, it is highly probable that intact cultural deposits are located below the area disturbed by looters, as well as below the back dirt piles and in undisturbed deposits in front of the shelter.

42Gr3832

This sheltered residential site with rock art is located in an alcove abutting the north edge of a broad bench area above a 3-meter-high vertical down-cut in the alluvial deposits. The alcove is visible from the main ORV trail about 50 meters to the south, and the down-cut is easily negotiated by pedestrians and mechanized vehicles. Ephemeral vehicle tracks were observed on the bench area about 30 meters to the south of the alcove, and the down-cut has been worn down in several areas where vehicles have attempted access to the bench. Potential cultural deposits in front of the sheltered living area remain vulnerable to vehicle traffic. This alcove has been severely looted with at least 20 looters' pits and/or depressions evident the entire length and width of the sheltered area. Some pits have eroded into shallow dish-shaped depressions, while others retain profiles with vertical sides. Some are about 1 meter in diameter and others appear to be about 2 to 4 meters in diameter (Figure 44). The pits extend at least 50 centimeters deep, although the original depth may have been greater. It does not appear that screens were used given the presence of potsherds and tools, and the absence of piles of discarded lithics. The looting appears to have been systematic given that the entire floor area has been disturbed. The back wall has been marred by graffiti, mostly black charcoal that has been rubbed on the surface and light scratch marks (Figure 45). The site is littered with broken brown beer bottles, aluminum cans, a steel can with an aluminum top, aluminum pull tabs and a Camel filters cigarette package (Figure 46). The site has also been impacted by livestock. Surface deposits at this site are in poor condition.

Despite the extensive looting, this site is recommended as eligible under Criterion A because it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular the utilization of natural shelters by foraging populations during Formative and Archaic times. The presence of rock art images suggests longer-term residency rather than single-event occupations. The rock art itself may be eligible

Figure 44: Shallow looters' pits at 42Gr3832.

under Criterion C in that it embodies distinctive characteristics of type, period or method of construction that, although lacking individual distinction, constitutes a significant and distinguishable entity. Most relevant, this site is eligible under Criterion D in that it likely contains significant subsurface deposits that would yield important information about prehistoric non-architectural residential occupations, lithic procurement strategies, bi-gender foraging camps and land-use patterns in the region generally. The pollen evidence and charcoal could also contribute important temporal context to prehistoric adaptations throughout the region, and how those adaptations were influenced or constrained by changes to the local environment. Microrefuse analyses could also contribute important insights into prehistoric subsistence. Although looting has destroyed some surface deposits, it is highly probable that intact cultural deposits are located below the area disturbed by looters, as well as below the back dirt piles and in the undisturbed alluvial deposits in front of the shelter.

Figure 45: Charcoal graffiti at 42Gr3832.

Figure 46: Litter at 42Gr3832.

42Gr3833

This sheltered residential and rock art site is located in a small alcove abutting the north edge of a broad bench area above a 3-meter high vertical down-cut in the alluvial deposits. The alcove is visible from the main ORV trail 100 meters to the south, and an ephemeral wash leads directly to the site. Both the wash and the down-cut can be easily negotiated by pedestrians and mechanized vehicles. At the time the site was recorded, no evidence of vehicular traffic was observed on the bench area adjacent to the site. However, motorcyclists were later observed passing within 25 to 50 meters of the site, and bench area probably now exhibits evidence of vehicle tracks. Potential cultural deposits in front of the sheltered living area remain vulnerable to vehicle traffic. No pedestrian trails or footprints were observed on or around this site at the time it was documented.

Approximately half of the alcove has been subjected to illegal excavations as evidenced by looters' back dirt piles around the exterior edges of the shelter floor and a single depression at the center that has largely refilled. The current pit is about 3 meters in diameter with a maximum profile of 50 centimeters in depth (see Figure 16). The back dirt piles have abundant artifacts, including lithics, groundstone and one potsherd. Sparse vegetation is growing in the back dirt piles, suggesting that the vandalism was not recent. An aluminum Budweiser can that had been discarded to the east is not weathered. The eastern half of the sheltered area has suffered extensive natural erosion that has exposed cultural deposits, but there is no evidence in the natural profiles that it has been vandalized. This site has also been impacted by livestock. This site is in fair condition although suffering extensively from erosion.

Despite the looting of the western portion of the alcove, this site is recommended as eligible under Criterion A because it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular the utilization of natural shelters by foraging populations during Formative and Archaic times. Most relevant, this site is eligible under Criterion D in that it likely contains significant subsurface deposits that would yield important information about prehistoric non-architectural residential occupations, lithic procurement strategies, bi-gender foraging camps and land-use patterns in the region generally. The pollen evidence and charcoal could also contribute important temporal context to prehistoric adaptations throughout the region, and how those adaptations were influenced or constrained by changes to the local environment. Microrefuse analyses could also contribute important insights into prehistoric subsistence. Although looting has destroyed some surface deposits, it is highly probable that intact cultural deposits are located below the area disturbed by looters, as well as below the back dirt piles and in the undisturbed alluvial deposits in front of the shelter.

42Gr3834

This sheltered residential site is located in a small alcove abutting the north edge of a broad bench area above a 3-meter high vertical down-cut in the alluvial deposits. The alcove is visible from the main ORV trail 120 meters to the south, and an ephemeral

wash leads directly to the site. Both the wash and the down-cut can be easily negotiated by pedestrians and mechanized vehicles. At the time the site was recorded, no evidence of vehicular traffic was observed on the bench area adjacent to the site. However, motorcyclists were later observed passing within about 25 meters of the site, and the bench area probably now exhibits evidence of vehicle tracks at the current time. Potential cultural deposits in front of the sheltered living area remain vulnerable to vehicle traffic. No pedestrian trails or recent footprints were observed at this site, although a game trail is located to the west of the alcove that could facilitate pedestrian traffic. A single large looters' pit located toward the front of the shelter measures about 2 meters by 2 meters and has a maximum depth of 50 centimeters (Figure 47). A second depression was observed on the west side of the alcove. Both have largely refilled through natural erosion. The back dirt piles in front of the shelter are substantial, indicating that original episodes of vandalism were more significant than is currently evident (see Figure 19). Artifacts were observed eroding down slope in front of the shelter about 5 meters. Discarded trash included a broken short-necked brown beer bottle and a rusted tin can. This site has also been impacted by large herbivores, perhaps sheep. This site is in fair condition.

Figure 47: Large looters' pit and associated back dirt pile at 42Gr3834.

Despite the extensive looting, this site is recommended as eligible under Criterion A because it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular the utilization of natural shelters by foraging populations. Most relevant, this site is eligible under Criterion D in that it likely contains significant subsurface deposits that would yield important information about prehistoric non-architectural residential occupations, lithic procurement strategies, bi-gender foraging

camps and land-use patterns in the region generally. The charcoal could also contribute important temporal context to prehistoric adaptations throughout the region, and pollen evidence could contribute to a greater understanding of how those adaptations were influenced or constrained by changes to the local environment. Microrefuse analyses could also contribute important insights into prehistoric subsistence. Although looting has destroyed some surface deposits, it is highly probable that intact cultural deposits are located below the area disturbed by looters, as well as below the back dirt piles and in the undisturbed alluvial deposits in front of the shelter.

42Gr3835

This expansive scatter of chipped-stone and groundstone artifacts extends along about 150 meters of a broad bench area that abuts the north cliff face and above a 5-meter-high down-cut in the alluvial deposits. The steep down-cut cannot be easily negotiated by pedestrians or mechanized vehicles at the point where the site is located, but the bench area can be accessed at other locations to the east of the site and through an ephemeral wash on the western edge of the site. The bench area is visible from main ORV trail about 30 meters south of the southern periphery of the site. A single set of motorcycle tracks were observed running across the site (see tire tracks in lower center frame of Figure 20), but these were not recent. However, the site remains vulnerable to wheeled vehicles. The only other adverse impact observed at this site was a cluster of lithic artifacts that had been stacked into a pile, suggesting the site has been surface collected (Figure 48). The site remains in relatively good condition.

Figure 48: Collector's pile of lithic artifacts observed at 42Gr3835.

Given the exceptionally expansive nature of this site, it is recommended as eligible under Criterion A because it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular the repeated utilization of a large area of the alluvial bench for tool maintenance and seed processing. Most relevant, this site is eligible under Criterion D in that it likely contains significant subsurface deposits that would yield important information about prehistoric, lithic procurement strategies, bi-gender foraging camps and land-use patterns in the region generally.

42Gr3836

This sheltered residential site is located in an alcove near the head of a small unnamed wash on the north side of the canyon. It is located about 200 meters north of the main ORV trail [redacted]. It is visible and easily accessible by pedestrians from both vehicle routes. It appears that some individuals have gained access to the site with motorized vehicles as there are ORV tracks leading to within 30 meters of the site and in the bottom of the wash. At least three separate motorcycle tracks (single-tracks) are located to the southwest of the alcove about 30 meters. Cultural deposits in front of the shelter remain vulnerable to vehicular traffic, although access would be steep and sandy. The site features at least two large looters pits, both of which have deflated due to interior water erosion and are currently 20 to 25 centimeters deep (Figure 49).

Figure 49: Looters' pits and exposed charcoal profiles from erosion at 42Gr3836.

A rusted, flat-bladed shovel found at the site is probably associated with the vandalism of the alcove (Figure 50). The level of rust, the absence of a wooden handle

and the nature of the deflated pits indicate that the vandalism was not recent. The site receives some visitation as evidenced by recent footprints. The site is littered with Coke, Pepsi and Shasta cans (Figure 51). The site has also been impacted by livestock. This site is in fair condition.

Figure 50: Rusted shovel blade at 42Gr3836.

Figure 51: Litter at 42Gr3836.

Despite the extensive looting, this site is recommended as eligible under Criterion A because it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular the utilization of natural shelters by foraging populations. Most relevant, this site is eligible under Criterion D in that it likely contains significant subsurface deposits that would yield important information about prehistoric non-architectural residential occupations, lithic procurement strategies, bi-gender foraging camps and land-use patterns in the region generally. The charcoal could also contribute important temporal context to prehistoric adaptations throughout the region, and pollen evidence could contribute to a greater understanding of how those adaptations were influenced or constrained by changes to the local environment. Microrefuse analyses could also contribute important insights into prehistoric subsistence. Although looting has destroyed some surface deposits, it is highly probable that intact cultural deposits are located below the area disturbed by looters, as well as below the back dirt piles and in the undisturbed alluvial deposits in front of the shelter.

42Gr3837

This sheltered residential and rock art site is located along the base of the first cliff level and above the bench area on the north side of Tenmile Canyon. The cliff area is visible from the main ORV access route 70 meters to the south, and from an alternate vehicular route from the north canyon rim about 70 meters to the east. Pedestrian access through the steep down-cuts is easy, and vehicular access would be possible, although

there is no evidence of this on the bench area in front of the site. Cultural deposits in front of the sheltered area remain vulnerable to vehicular traffic. Well-worn pedestrian trails lead to the site from the cattle guard on the alternate access route to the east, and recent footprints were observed throughout the site.

The site is marred by repeated episodes of vandalism and graffiti, perhaps since the 1930s. At least five looters' pits were identified. Copious evidence of residential activities is located at the base of the cliff, mostly in five back dirt piles resulting from illegal excavations. One looter's pit extends at least 1 meter deep, and others have profiles greater than 30 centimeters deep (Figure 52). Approximately 50 percent of the suspected residential area has been disturbed by looters, although much of the site appears to be relatively undisturbed. A stack of lithic artifacts on one boulder indicates that surface collection of artifacts continues to be a problem at this site. Inscriptions and graffiti dating as early as 1933 were observed on the cliff face around prehistoric rock art images (Figure 53). The site is littered with aluminum cans and broken green and brown bottle glass. This site has also been impacted by livestock. Overall, this site is in poor condition.

Figure 52: Looters' pit and adjacent collectors pile of artifacts at 42Gr3837.

Despite the extensive looting, this site is recommended as eligible under Criterion A because it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular the utilization of sheltered areas by foraging populations. This site also features rock art with distinct anthropomorphic, zoomorphic and abstract images. As such, it is eligible under Criterion C in that it embodies distinctive characteristics of type, period or method of construction that constitutes a significant and distinguishable entity, even if the images are not individually distinctive. Most relevant,

this site is eligible under Criterion D in that it likely contains significant subsurface deposits that would yield important information about prehistoric non-architectural residential occupations, lithic procurement strategies, bi-gender foraging camps and land-use patterns in the region generally. The charcoal could also contribute important temporal context to prehistoric adaptations throughout the region, and pollen evidence could contribute to a greater understanding of how those adaptations were influenced or constrained by changes to the local environment. Microrefuse analyses could also contribute important insights into prehistoric subsistence. Although looting has destroyed some surface deposits, it is highly probable that intact cultural deposits are located below the area disturbed by looters, as well as below the back dirt piles and in the undisturbed alluvial deposits in front of the shelter.

Figure 53: Graffiti scratching at 42Gr3837 with a date of 1937.

42Gr660

The sheltered residential site is located inside a large, prominent alcove on the north canyon wall that is easily visible from the main ORV trail in the canyon bottom about 50 meters to the south. The bench area directly below the alcove has been repeatedly accessed by motorized vehicles, which have cut trails from the creek through an 8 to 10-meter high down-cut in the alluvial deposits (Figure 54). Vehicle tracks were observed across the bench area below the site, including areas near the cliff face in proximity to artifact concentrations (but not through them). Cultural deposits in front of the alcove and along the base of the cliff to the east remain vulnerable to vehicular traffic. The alcove itself is about 6 meters above the base of the cliff, and access involves scaling a vertical cliff face about 3 meters and then a sloping cliff face another 3 meters to the

sloping alcove floor covered with deposits. Pedestrian access to the alcove is difficult but not impossible given the numerous footprints that suggest repeated visitation.

Figure 54: ORV access through alluvial down cutting leading to 42Gr660.

The interior of the alcove features significant, probably repeated episodes of vandalism. At least seven looters pits are visible along the back wall of the alcove, ranging in size from 80 centimeters to 1.5 meters in diameter. Most of the pits have refilled with eroded sands, and are currently 25 to 35 centimeters deep. Additionally, a rectangular impression in the sand at the rear of the shelter suggests that someone with a sleeping pad recently spent the night in the shelter. No litter was observed inside the shelter, and only small fragments of broken clear glass were observed on the bench area outside. This site is in poor condition.

Despite the extensive looting, this site is recommended as eligible under Criterion A because it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular the utilization of natural shelters by foraging populations. Most relevant, this site is eligible under Criterion D in that it likely contains significant subsurface deposits that would yield important information about prehistoric non-architectural residential occupations, lithic procurement strategies, bi-gender foraging camps and land-use patterns in the region generally. The charcoal could also contribute important temporal context to prehistoric adaptations throughout the region, and pollen evidence could contribute to a greater understanding of how those adaptations were influenced or constrained by changes to the local environment. Microrefuse analyses could also contribute important insights into prehistoric subsistence. Although looting has destroyed some surface deposits, it is highly probable that intact cultural deposits are

located below the area disturbed by looters, as well as below the back dirt piles and in the undisturbed alluvial deposits in front of the shelter.

42Gr3838

This rock art site is located at the edge of a large alcove at the base of the first cliff level near the head of an unnamed ephemeral wash on the south side of the canyon. The alcove is visible from the main ORV route about 300 meters to the north. No vehicle tracks lead to the site or up the ephemeral wash below, although tracks were observed on the bench area about 250 meters north and east of the site. Pedestrian access is easy, but vehicular access would be difficult. There are no well established pedestrian trails, but there were recent footprints leading to the site and within the adjacent alcove. The rock art itself has not suffered from vandalism. However, the large alcove next to the site has been subjected to repeated vandalism, as evidenced by a series of looters pits, graffiti and a plastic-coated metal hook.

At least seven looters pits were observed, although they are poorly defined and there is no convincing evidence the looters impacted cultural deposits. The pits, located mostly along the back wall of the alcove, range in depth from 25 to 35 centimeters. All are located along the back wall of the shelter (Figure 55). The vandalism appears to have occurred despite the absence of surface artifacts indicative of subsurface deposits. Given the abundant sandstone slabs inside the alcove, it is possible the looters were drawn to architectural features that were subsequently dismantled. Graffiti is common on boulders inside the shelter; one inscription bears a date of 1997 (Figure 56). The rubber or plastic-coated hook was screwed into the ceiling of the alcove directly above the looted area, probably to hang a light while excavating at night (Figure 57). The shelter has also been impacted by livestock.

Figure 55: Shallow looters' pits at the back of alcove adjacent to rock art at 42Gr3838.

This site is eligible under Criterion A in that it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular Archaic adaptations to water-stressed environments and perhaps utilization of rockshelters during seasonal foraging activities. This site is also recommended as eligible under Criterion C in that it comprises a part of a significant and distinguishable catalog of images whose components may lack individual distinction but which collectively contribute to a broader understanding of spatial and temporal relationships between prehistoric populations. It is also recommended as eligible under Criterion D in that it could contribute to an understanding of land-use patterns in the region generally, as well as to an understanding of prehistoric ceremonialism, religion and communication.

Figure 56: Graffiti at 42Gr3838.

Figure 57: Hook in ceiling of alcove at 42Gr3838.

42Gr3839

This dispersed lithic scatter is located on a bench area about 100 meters south of the main ORV route in the bottom of the canyon and at the mouth of a distinct amphitheater-like side canyon with multiple alcoves. Informal spur trails lead from the main ORV route over the bench area, through the deposits and into the side canyon toward several large alcoves that are visible from the main ORV route. Motorized travel to and from these alcoves has caused significant damage to the integrity of the surface deposits this site, including accelerated erosion along the tire tracks (artifacts were observed in the ruts) and disturbance of the spatial context of the artifacts (Figure 58). Vehicle tracks were attributed to at least six recent motorcycles (single tracks) and one ATV (dual tracks). The tire tracks were made sometime since a major rainstorm four days before the site was documented. Pedestrian access is easy. The presence of finished stone tools, in conjunction with the absence of piles of lithic artifacts, suggests this site has not been surface collected. However, the site remains vulnerable to surface collecting by individuals walking to the alcoves and to continued vehicle travel through the site. This site is in fair condition.

Figure 58: Tire tracks through 42Gr3839, looking south.

This site is eligible under Criterion A because it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular hunting and gathering during Archaic times. It is also eligible under Criterion D in that it could contain subsurface deposits that would yield important information about prehistoric special-use sites, lithic procurement and tool maintenance strategies and land-use patterns in the region generally. The presence of an atlatl dart point suggests this site could contain Archaic age deposits, and therefore may contribute important information about pre-farming adaptations in water-stressed environments.

42Gr3840

This sheltered residential site is located in a large alcove at the base of the first cliff level on the south side of canyon. It is easily visible and accessible from the main ORV route about 150 meters to the north. A well traveled ORV spur route leads from the main access route across the south bench to a point about 25 meters in front of the alcove (Figure 59). Lithic flakes and one biface tool were observed in the tire tracks in front of the shelter. Artifacts also extend in front of the shelter a considerable distance, indicating the potential for cultural deposits on the adjoining bench area that could be vulnerable to motorized vehicles. A well-worn pedestrian path leads from that point to the alcove interior, and footprints are prevalent throughout the shelter interior.

The interior deposits have been severely impacted by looting since about 1930. At least 25 looters pits or depressions with back dirt are visible with depths ranging up to 50 centimeters. Some pits have refilled and others retain profiles (Figure 60). At least 70 percent of the shelter surface has been impacted by looting. Modern and historic inscriptions are located throughout the site (Figure 61). Large chunks of charcoal on the shelter surface could be prehistoric, but may also be evidence of modern campfires. A comparison of the site to a photograph taken in 1998 indicates that one metate fragment has been removed since that time (Figure 62). The site has also been impacted by livestock. Surface deposits at this site are in poor condition.

Figure 59: ORV tracks leading to 42Gr3840. Isolated lithic artifacts were observed in tracks.

Figure 60: Looters' pits prevalent throughout 42Gr3840.

Despite the extensive looting, this site is recommended as eligible under Criterion A because it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular the utilization of natural shelters by foraging and farming populations. Most relevant, this site is eligible under Criterion D in that it likely contains significant subsurface deposits that would yield important information about prehistoric

Figure 61: Historic inscriptions over prehistoric bedrock metates at 42Gr3840.

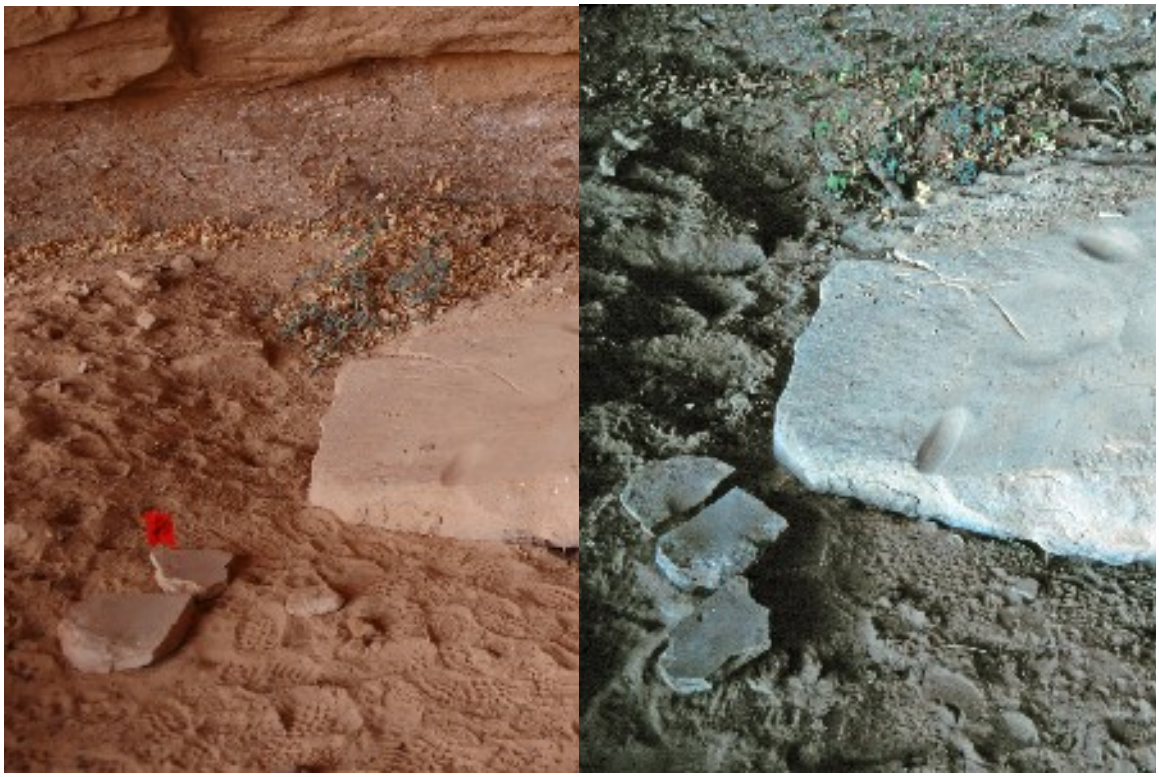

Figure 62: View of groundstone cluster in 2007 (left) versus same view in 1998 (right).

non-architectural residential occupations, lithic procurement strategies, bi-gender foraging camps, horticultural adaptations and land-use patterns in the region generally. The charcoal could also contribute important temporal context to prehistoric adaptations throughout the region, and pollen evidence could contribute to a greater understanding of how those adaptations were influenced or constrained by changes to the local environment. Microrefuse analyses could also contribute important insights into prehistoric subsistence. Although looting has destroyed some surface deposits, it is probable that intact cultural deposits are located below the area disturbed by looters, as well as below back dirt piles and in undisturbed alluvial deposits in front of the shelter.

42Gr3841

This sheltered residential site or camp is located in a small rockshelter at the base of the first cliff level on the south side of Tenmile Canyon. It is not visible from the main ORV route in the bottom of the canyon about 200 meters to the north, nor is it visible from vehicle spur routes 50 meters to the west that lead to larger, more prominent alcoves nearby. The cultural deposits are undisturbed, there are no footprints on or near the site, and vehicular traffic has bypassed the site to the west. The paucity of obvious surface cultural deposits, the small size of the shelter in relation to others nearby and a site location obscured from easy view have probably contributed to the absence of looting. This site is in good condition.

This site is recommended as eligible under Criterion A because it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular the utilization of natural shelters by foraging populations. Most relevant, this site is eligible under Criterion D in that it likely contains significant subsurface deposits that would yield important information about prehistoric non-architectural residential occupations, lithic procurement strategies and foraging camps. The charcoal could also contribute important temporal context to prehistoric adaptations throughout the region, and pollen evidence could contribute to a greater understanding of how those adaptations were influenced or constrained by changes to the local environment. This site appears to represent a small, ephemeral occupation, perhaps as a seasonal camp, that could contribute important insights to land-use patterns, in particular temporary camps and their relationship to more permanent alcove occupations nearby.

42Gr3842

This sheltered residential site is located in a large alcove at the base of the first cliff level on the south side of the canyon. The alcove is readily visible from the main ORV route about 300 meters to the north, and from an ORV spur route that leads to a point about 30 meters west of the alcove. Artifacts extend in front of the alcove a considerable distance, suggesting the potential for buried deposits that could be vulnerable to vehicular traffic. A few tertiary flakes and one biface fragment were observed in the tire tracks in front of the alcove. A pedestrian trail leads about 30 meters from the ORV spur trail to the interior of the alcove where there are an abundance of footprints suggesting this site receives significant visitation. The alcove interior has been

badly looted with approximately 75 percent of the site surface impacted by illegal digging activities. Eroded looters holes are evident across the entire site, and are believed to be attributed to episodic digging activities since the 1930s. Most of these holes have filled in through natural erosion and are 10 to 25 centimeters in depth, although some extend to more than 30 centimeters (Figure 63).

Figure 63: One of the deeper looters' pits at 42Gr3842.

Graffiti is prominent on three large boulders (Figure 64) and it has, in some cases, impacted the integrity of the bedrock grinding slicks inside the shelters. Another concentration of graffiti is found on an isolated boulder outside the alcove on the southern periphery of the site adjacent to the ORV spur trail. The storage unit on the north side of the alcove features stacked stones that were not evident in a 1998 photograph (Figure 65), suggesting the feature has been modified. Foil, a matchbook and old rusted tin cans (probably milk cans associated with the cowboy camp) are littered about the site. A discarded backpack strap appears to be recent. Livestock have impacted the residential area with isolated concentrations of dung and considerable bioturbation of the surface deposits. On the south periphery of the alcove are two vertical posts with a connecting wire and metal shower hook rings suggestive of a hitching rail for livestock (Figure 66). This implies the shelter was used as a cowboy camp, and that charcoal and burned beams on the site surface may be modern. The posts are firmly set into subsurface deposits. Surface deposits at this site are in poor condition.

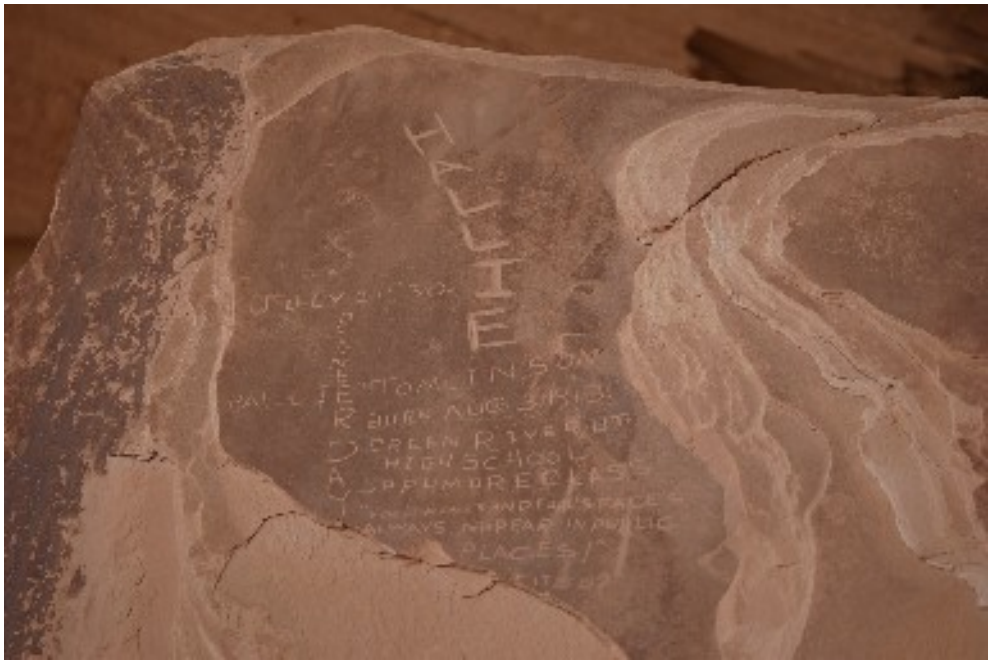

Figure 64: Extensive graffiti at 42Gr3842 dating to 1930s.


Figure 65: Storage facility at 42Gr3842 as seen in 2007 (left) and 1998 (right).

Despite the extensive looting, this site is recommended as eligible under Criterion A because it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular the utilization of natural shelters by farming and foraging populations. Most relevant, this site is eligible under Criterion D in that it likely contains significant subsurface deposits that would yield important information about prehistoric non-architectural residential occupations, lithic procurement strategies, bi-gender foraging and farming occupations, and land-use patterns in the region generally. Evidence that maize was being grown nearby could contribute important insights into prehistoric subsistence, in particular farming versus foraging, during Formative times. Microrefuse analyses could also contribute important insights into prehistoric subsistence. The storage facility also has a potential to contribute important insights into prehistoric subsistence, the production or acquisition of food surpluses that warranted their storage for future consumption, and the implications of storage strategies on prehistoric mobility and sedentism. It is emphasized that prehistoric architecture is

particularly rare in Tenmile Canyon, and little is known about the factors that influenced prehistoric populations to construct or eschew permanent residential and storage structures. The charcoal could also contribute important temporal context to prehistoric adaptations throughout the region, and pollen evidence could contribute to a greater understanding of how those adaptations were influenced or constrained by changes to the local environment. Although looting has destroyed some surface deposits, it is probable that intact cultural deposits are located below the area disturbed by looters, as well as below the back dirt piles and in the undisturbed alluvial deposits in front of the shelter.

Figure 66: Rusted tin cans and hitching posts at 42Gr3842. Note the seep in upper left frame.

Despite the extensive looting, this site is recommended as eligible under Criterion A because it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular the utilization of natural shelters by farming and foraging populations. Most relevant, this site is eligible under Criterion D in that it likely contains significant subsurface deposits that would yield important information about prehistoric non-architectural residential occupations, lithic procurement strategies, bi-gender foraging and farming occupations, and land-use patterns in the region generally. The charcoal could also contribute important temporal context to prehistoric adaptations throughout the region, and pollen evidence could contribute to a greater understanding of how those adaptations were influenced or constrained by changes to the local environment. Microrefuse analyses could also contribute important insights into prehistoric subsistence. Although looting has destroyed some surface deposits, it is probable that intact cultural deposits are located below the areas disturbed by looters, as well as below the back dirt piles and in alluvial deposition in front of the shelter.

42Gr3843

This site with bedrock cists in a natural clay matrix and associated lithic scatter is located within and adjacent to a large alcove in a side drainage on the south side of Tenmile Canyon and about 400 meters from the existing main ORV route. The alcove is readily visible from the ORV route, and ORV tracks lead from the bottom of the canyon to all prominent alcoves inside the side drainage where this site is located. Motorcycle tracks are located 5 meters in front of the alcove and through the adjacent lithic scatter (Figure 67). A second series of tracks is located about 50 meters down slope. This site is in poor condition with five out of six cists missing their front walls, probably due to dismantling by looters to expose interior deposits. Small and medium chunks of the clay matrix are visible in the front of the cists, but there is not enough remaining clay to have comprised the entire front walls of all five cists. The thin layer of aeolian sand in the bottom of the broken cists suggests that all deposits were removed at some point. The surrounding alcove floor has also been impacted by livestock.

Figure 67: ORV trails leading directly to 42Gr3843 and through associated lithic artifacts.

Despite the extensive looting, this site is recommended as eligible under Criterion A because it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular the utilization of natural shelters for storage, probably in late Archaic times. Most relevant, this site is eligible under Criterion D in that these storage features will likely yield important information about prehistoric subsistence and the role of food storage in the emergence of horticulture in the region and the consequent implications of storage on sedentism. It remains possible that cultural materials are located inside the intact storage cist. Furthermore, the nearby lithic scatter is located in an area with potential subsurface deposits. These deposits, which contain a possible Archaic

dart point fragment, could contribute to a greater understanding of land-use patterns in the region generally.

42Gr3844

This storage site is located in a small alcove on the south side of Tenmile Canyon. The small alcove is visible from the main ORV route in the bottom of the canyon about 100 meters to the north. Direct vehicular access to the structural feature is likely not feasible, but access to the slope below the site is possible. Motorcycle and ATV tracks are visible on the bench area about 75 meters to the north of the site. This architectural feature is badly deteriorated, probably due natural erosion resulting from the alcove's northern aspect. It is likely that bedrock is located only a few centimeters below the overlying deposits. There were no footprints leading to the site, no litter and no obvious evidence of vandalism. Several wall stones are lying in front of the outer wall, suggesting the possibility that the structure was partially dismantled in the past. This could, however, be a natural wall collapse. There is no obvious evidence this site is being adversely impacted by human activities. This site is in poor condition.

This site is recommended as eligible under Criterion A because it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular the emergence of masonry architectural features utilized for storage that is a hallmark of the Fremont culture. Most relevant, this site is eligible under Criterion D in that it constitutes a storage facility with a potential to contribute important insights into prehistoric subsistence, the production or acquisition of food surpluses that warranted their storage for future consumption, and the implications of storage strategies on prehistoric mobility and sedentism. It is emphasized that prehistoric architecture is particularly rare in Tenmile Canyon, and little is known about the factors that influenced prehistoric populations to construct or eschew permanent architectural features.

42Gr3845

This sheltered residential site is located in [redacted]. It is situated in a cliff face above the adjoining slope, requiring the use of hand-and-toe holds to gain access to the alcove residential area. The alcove is not visible from the main ORV route about 300 meters to the north. However, vehicles have traveled up the bottom of Trail Canyon, and motorcycle tracks (single-track) were observed in the bottom of the wash about 40 meters below the alcove. Direct vehicular access to cultural deposits below the alcove would be difficult but possible, whereas interior deposits are accessible to pedestrians with some difficulty. This site has been seriously vandalized, probably during repeated episodes dating to at least 1930. Approximately 80 percent of the site surface appears to have been impacted by illegal excavations and graffiti.

At least 22 looters pits were identified, either through notable depressions and/or associated back dirt piles. Most looters holes are only 10 to 20 centimeters deep, having re-filled through continued erosion and the collapse of unstable aeolian sand. A possible

cist (a pit with vertical sides) has been excavated to a depth of 50 centimeters (Figure 68). The abundance of stone slabs scattered about and stacked in circular patterns in the adjacent back dirt piles suggest that architectural features were indeed present but were dismantled during looting (Figure 69). The site is littered with trash, including pull-tab Olympia beer cans, a sardine can lid, brown bottle glass and a soda can. At some point, looting was facilitated with a two-person, quarter-inch mesh screen, the handles of which remain on the floor of the shelter (Figure 70). This site also contains numerous bedrock grinding slicks that have been marred by graffiti (Figure 71). Surface deposits at this site are in poor condition.

Figure 68: View of deflated looter's pit and deep pit with vertical sites at 42Gr3845.

Figure 69: View of looter's pit with stones discarded in a circular pattern at 42Gr3845.

Despite the extensive looting, this site is recommended as eligible under Criterion A because it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular the utilization of natural shelters by farming and foraging populations. Most relevant, this site is eligible under Criterion D in that it likely contains significant subsurface deposits that would yield important information about prehistoric non-architectural residential occupations, lithic procurement strategies, bi-gender foraging and farming occupations, and land-use patterns in the region generally. Evidence that maize was being grown nearby could contribute important insights into prehistoric subsistence, in particular farming versus foraging, during Formative times. Microrefuse analyses could also contribute important insights into prehistoric subsistence. The presence of potential subsurface cists also have a potential to contribute important insights into prehistoric subsistence, the production or acquisition of food surpluses that warranted their storage for future consumption, and the implications of storage strategies on prehistoric mobility and sedentism. The charcoal could also contribute important temporal context to prehistoric adaptations throughout the region, and pollen evidence could contribute to a greater understanding of how those adaptations were influenced or constrained by changes to the local environment. Although looting has destroyed some surface deposits, it is probable that intact cultural deposits are located below the area disturbed by looters, as well as below the back dirt piles and in the undisturbed alluvial deposits in front of the shelter.

Figure 70: Screen handles at 42Gr3845.

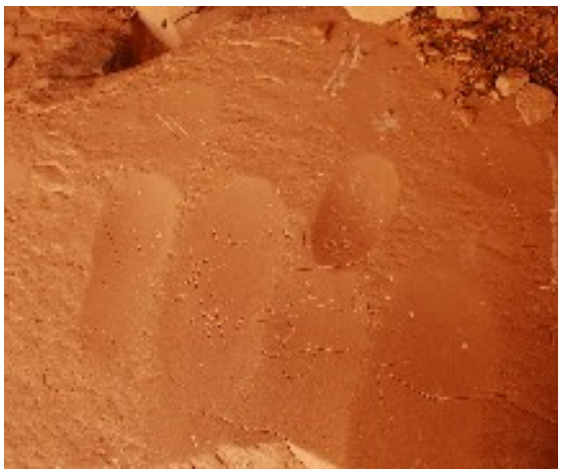

Figure 71: Graffiti at 42Gr3845.

42Gr3846

This rock art site is located at the base of the first major cliff level on the south side of Tenmile Canyon and it is readily visible from the main ORV route in the bottom of the canyon about 300 meters to the south. The bench area 150 to 200 meters north of the site features numerous ORV tracks, most of them parallel to the stream. However, one set of motorcycle tracks leads to within 40 meters of the site. There is no evidence that vehicles have yet gained access to the ledge where the site is located. The slope below the site features a number of ephemeral trails, either pedestrian or animal, that lead up slope in the general direction of the site. However, no recent footprints were observed at or near the site, and there is no evidence of graffiti or vandalism. It is likely that this

site receives considerable visitation given its visibility from the bottom of the canyon. The site remains in excellent condition.

This site is eligible under Criterion A in that it is associated with broad patterns of human prehistory on the northern Colorado Plateau, in particular Fremont adaptations. The rock art at this site is also recommended as eligible under Criterion C in that it comprises a part of a significant and distinguishable catalog of images whose components may lack individual distinction but which collectively contribute to a broader understanding of spatial and temporal relationships between prehistoric populations. It is also recommended as eligible under Criterion D in that it could contribute to an understanding of land-use patterns in the region generally, as well as to an understanding of prehistoric ceremonialism, religion and communication.

Discussion: Eligibility

Although many of the sites are badly vandalized, all of the sites examined during the course of the CPAA site analysis appear eligible for the National Register of Historic Places under one or more criteria. All 21 sites are eligible under Criterion A inasmuch as they collectively contribute to a broad understanding of prehistoric lifeways during Archaic and Formative times on the northern Colorado Plateau. These adaptations were characterized by small groups of hunter-gatherers who utilized plant and animal resources concentrated along a riparian corridor in an otherwise arid environment. During Formative times, some foragers also engaged in the cultivation of maize on the Tenmile Canyon floodplain where they appear to have been part of a larger Fremont Complex of farmer-foragers. Most sites in Tenmile Canyon reflect occupations by small nuclear or extended family units living in close proximity to permanent water.

Seven sites with rock art are recommended as eligible under Criterion C inasmuch as they are remarkable examples of prehistoric aboriginal rock art that embodies distinctive characteristics of different styles, periods of time and methods of construction. These rock art sites possess high artistic values attributed to Fremont and Archaic peoples who occupied the northern Colorado Plateau from ca. B.C. 2000 through A.D. 1300. Other rock art images represent a significant and distinguishable catalog of images whose components may lack individual distinction but which collectively contribute to a broader perspective of land use patterns through time. In addition to the aesthetic qualities, these images offer clues as to spatial and temporal relationships between prehistoric populations, as well as insights into prehistoric communication and ceremonialism.

Most importantly, all 21 sites are eligible under Criterion D inasmuch as they have significant potential to yield information important in prehistory, including land-use patterns, environmental constraints, ceremonialism and subsistence. As discussed above, extremely little research has been conducted into prehistoric manifestations in the Tenmile Canyon drainage, and little is known about how prehistoric foragers and agriculturalists adapted to this especially arid environment. Although surface deposits have been disturbed at many sites, probably to a depth of no more than 1 meter, it is highly probable that deposits extend a considerable distance below the zone of

disturbance, and that these deposits will yield new insights into prehistoric groups who occupied the canyon during Paleoindian, Archaic and Formative times.

In particular, these deposits offer significant potential to researchers attempting to explain how prehistoric groups responded to environmental changes through time. Because Tenmile Canyon in a transition zone between groups living south and east of the Colorado River and those living to the north and west, this drainage also offers considerable potential to provide important information related to socioeconomic interactions through time, including the introduction of cultigens to forager lifeways, the appearance and demise of various lithic and ceramic technologies, and the poorly understood relationship between the Fremont and Ancestral Puebloan cultures and the deterioration of ethnic boundaries after A.D. 1000 (cf. Madsen and Simms 1998).

Discussion: Adverse Impacts

An examination of 21 sites within a small portion of Tenmile Canyon revealed that (1) most of the sites identified are located in sheltered areas abutting or just above the floodplain, on cliff faces and on adjacent alluvial benches where they are easily visible and/or accessible to the public. (2) Most sites visible from the existing route have suffered significant vandalism, site degradation and illegal surface collecting from canyon visitors, and that these activities have been episodic over the past 75 years. (3) Off-road vehicles are damaging cultural deposits on the bench areas, and perhaps cultural deposits located in front of alcoves and rockshelters. (4) Illegal spur trails from the main ORV route have accelerated adverse impacts to cultural resources. And (5) many alcove sites have suffered impacts from livestock, including bioturbation and copious animal dung. Most impacts to archaeological sites in the Tenmile Canyon drainage can be attributed to two interrelated factors: vandalism (illegal excavations, site modifications, surface collecting, littering and graffiti) and vehicle impacts (increased accessibility facilitated by motorized access, and direct and indirect impacts caused by motorized vehicles). Adverse effects noted by CPAA are summarized in Table 2.

Vandalism

The malicious vandalism of archaeological sites in Tenmile Canyon appears to have a long tradition that extends almost eight decades. It is clear from the inscriptions found in alcove sites in Tenmile Canyon that the cultural resources of this area were well known to local residents perhaps as early as 1921 but certainly by 1930 when looting of cultural deposits in the canyon apparently became commonplace. Based on one particular inscription at 42Gr3842, dated July 24, 1930, these “excavations” may have been conducted by young adults from nearby Green River, Utah. Other inscriptions at 42Gr3837 dated to 1933 suggest individuals of Hispanic ethnicity may also have been involved in the looting of some sites.

Table 2: Summary of non-vehicular adverse effects

Site No.	Site Type	Looting	Graffiti	Site Modified	Surface Collection	Litter	Livestock	Foot Traffic
42Gr583	Lithic Scatter	No	No	No	No	No	No	No
42Gr660	Alcove	Yes	No	Unknown	Yes	Yes	No	Yes
42Gr3354	Artifact Scatter	No	No	No	No	No	Yes	No
42Gr3829	Rock Art	No	No	No	No	Yes	No	No
42Gr3830	Rock Art	No	No	No	No	No	No	No
42Gr3831	Alcove	Yes	No	Unknown	Yes	Yes	Yes	Yes
42Gr3832	Alcove	Yes	Yes	Unknown	Yes	Yes	Yes	Yes
42Gr3833	Alcove	Yes	No	Unknown	Yes	No	Yes	No
42Gr3834	Alcove	Yes	No	Unknown	Yes	Yes	Yes	Yes
42Gr3835	Artifact Scatter	No	No	No	Yes	No	No	No
42Gr3836	Alcove	Yes	No	Unknown	Yes	Yes	Yes	Yes
42Gr3837	Residential	Yes	Yes	Unknown	Yes	Yes	Yes	Yes
42Gr3838	Rock Art	Yes	Yes	Unknown	Yes	Yes	Yes	Yes
42Gr3839	Lithic Scatter	No	No	No	No	No	Yes	No
42Gr3840	Alcove	Yes	Yes	Unknown	Yes	Yes	Yes	Yes
42Gr3841	Rockshelter	No	No	No	No	No	No	No
42Gr3842	Alcove	Yes	Yes	Yes	Yes	Yes	Yes	Yes
42Gr3843	Storage Cists	Yes	No	Yes	Yes	No	Yes	No
42Gr3844	Granary	No	No	Possible	No	No	No	No
42Gr3845	Alcove	Yes	Yes	Unknown	Yes	Yes	No	Yes
42Gr3846	Rock Art	No	No	No	No	No	No	Yes

Archaeologists working throughout the northern Colorado Plateau in the 1930s were routinely bemoaning the proliferation of vandalism (cf. Gaumer 1937, 1939; Judd 1926), as did the Utah State Legislature, which banned "all exploration and excavations for, as well as prohibiting the removal of, prehistoric relics from the state without a permit from the State Parks Commissioners" (Struvell and Pulver 1935:C). However, there was little widespread social stigma associated with the looting of archaeological sites at that time, and such looting became traditional family activities all across southern Utah. Preliminary data from Tenmile Canyon suggest that this drainage was enveloped within that tradition, certainly by residents of Green River and perhaps elsewhere, and that looting has continued through recent times, as evidenced by a 1997 inscription at 42Gr3838.

At least 12 of the 21 sites (57 percent) documented by CPAA exhibited evidence of malicious vandalism, primarily in the form of illegal excavations involving shovels, screens and ancillary equipment (see Table 3). Illegal digging appears to have been focused primarily on highly visible sheltered areas with residential detritus and/or storage features. At least 12 of 14 sites located within alcoves or sheltered areas have been vandalized (86 percent), including one alcove next to a rock art site that had no obvious cultural deposits. There is no convincing evidence of malicious vandalism at other rock

art localities or open artifact scatters, although one featured lithic flakes assembled into a pile, presumably during the course of surface collection.

Evidence of vandalism was examined utilizing a model modified from Nickens et al. (1981), developed by CPAA for the Tavaputs Plateau just north of Tenmile Canyon. That study (Spangler, Arnold and Boomgarden 2006) examined the relationship of vandalism to controlled access points, distance from a road or ORV trail and site visibility. This study found that those sites visible from an existing route were more likely to have been vandalized regardless of distance, as were other sites within 200 meters of an existing vehicle route. These data are consistent with a recent CPAA study in southeastern Utah that demonstrated the greatest evidence of adverse human impacts were identified at sites that are visible from an existing ORV route (Spangler 2006).

Both CPAA studies are consistent with other vandalism research in the Southwest. Nickens et al. (1981) found that archaeological sites within 100 meters of an existing dirt road that were more than 20 miles from a town were more likely to have been vandalized; these findings were supported by interviews with known artifact collectors. Simms (1986) also observed a correlation between vandalism and visibility from the road, distance from the road and ease of access. Of note, all alcoves and rockshelters in Simms' sample had been vandalized. Ahlstrom et al. (1992) found site type to be a major factor in vandalism.

The data from all five studies would appear directly applicable to a study of vandalism in Tenmile Canyon where site type (residential and storage) and site visibility (large alcoves) appear to correlate with the prevalence of site vandalism. Twelve of 14 sites located in alcoves are readily visible from the main ORV access road in the bottom of Tenmile Canyon, and one additional site (42Gr3845) is visible from the bottom of Trail Canyon, an old access route from the south rim of Tenmile Canyon. The only alcove sites not vandalized are 42Gr3841, a small alcove with minimal residential detritus that is obscured from easy view by an adjacent knoll, and 42Gr3844, a small granary with shallow deposits that may never have been conducive to buried cultural deposits and was therefore ignored by looters despite the easy visibility of the alcove where the structure is located.

These findings are consistent with Spangler, Arnold and Boomgarden (2006) that visible alcove sites are particularly vulnerable to looting regardless of distance from a controlled access point or vehicle route. Indeed, distance from an access route was not a determining factor in site vandalism in Tenmile Canyon. Rather, looters appear to have focused their efforts on those alcoves visible from an access route. These observations are admittedly biased by the paucity of sites identified that are not visible from the access route, and the paucity of relevant survey data beyond those sites most visible from the Tenmile Canyon access route. It is noted that rock art sites visible from the main access route have not been vandalized, suggesting that malicious vandalism was focused on those localities with a potential for subsurface cultural deposits.

The looting of surface deposits within alcoves and rockshelters appears to have been comprehensive and systematic. Large alcoves commonly feature 20 or more looters pits, whereas small shelters feature one to five pits. The pits range in depth up to 1 meter, although most have refilled with aeolian sands and the original depth could not be determined. Given the unstable nature of the aeolian deposits, the depth of the pits is unlikely to have exceeded 1 meter before the side walls collapsed. Those pits with evidence of greatest depth (ca. 1 meter) are typically located in compacted clay and gravel deposits. The width of the pits ranges from less than a meter in diameter to trenches as long as 14 meters. The back dirt piles typically feature abundant charcoal, processed animal bone and bifacial thinning flakes, as well as occasional groundstone tool fragments and potsherds.

The relationship of vandalized sites to vehicular access is problematic given the absence of historical data related to when vehicular access into Tenmile Canyon was initiated. Circumstantial evidence suggests that vehicle access was initiated at about 1930 when several names and dates of several young adult males and females were incised into boulders inside alcoves. Given the distance of the drainage from Moab and Green River, it would seem unlikely that young adults on holiday outings would have ridden horses more than 30 kilometers to Tenmile Canyon for the express purpose of looting alcoves. It is also unlikely that primitive vehicular traffic would have been possible in the bottom of Tenmile Canyon given the episodic flooding and absence of four-wheel-drive technology and equipment to remove obstructions. It is more likely that vehicles traversed the relatively flat Green River Desert to the rim of Tenmile Canyon, and that individuals descended into the canyon bottom on foot.

Anecdotal evidence suggests vehicular access into the bottom of Tenmile Canyon was initiated in the 1960s (Donna Turnipseed, personal communication 2007). This is consistent with the dateable characteristics of the considerable trash left behind during the course of looting activities. This trash includes an abundance of aluminum “pop top” beverage cans, short-necked beer bottles and rusted metal items consistent with 1960s manufacture, although some of the litter clearly dates prior and subsequent to that time. Collectively, these data suggest that the opening of Tenmile Canyon to vehicular traffic precipitated considerable vandalism, including individuals who brought equipment for the express purpose of systematically looting sites (e.g., screens and shovels). This activity continued through at least the 1990s, as evidenced by inscriptions and a rubber-coated metal hook for hanging a light or screen from the ceiling of an alcove at 42Gr3838.

Some vandalism appears to have been incidental to other activities, probably the tending of livestock. The two Hispanic names inscribed at 42Gr2827 could be associated with livestock activities, although this is conjectural. More convincing is evidence at 42Gr3842, an alcove site that features a constructed railing and abundant rusted tin cans, probably milk and coffee cans, that are consistent with those used during the first half of the twentieth century. These data suggest that alcoves may have been used as “cowboy camps” and that looting of cultural deposits occurred during the course of tending livestock.

Table 3: Summary of vandalism evidence

Site No.	Site Type	Site Location	Looters Pits	Looter Detritus	Earliest Dates of Occurrence	Other Evidence
42Gr583	Lithic Scatter	Ridge	None	No	N/A	N/A
42Gr660	Residential	Alcove	7	No	Unknown	Trash
42Gr3354	Artifact Scatter	Ridge	None	No	N/A	N/A
42Gr3829	Rock Art	Cliff	None	No	N/A	N/A
42Gr3830	Rock Art	Cliff	None	No	N/A	N/A
42Gr3831	Residential	Alcove	1+	Yes	Unknown	Trash
42Gr3832	Residential	Alcove	20	Yes	1960	Trash
42Gr3833	Residential	Alcove	1	No	Unknown	N/A
42Gr3834	Residential	Alcove	2+	Yes	Unknown	Trash
42Gr3835	Artifact Scatter	Bench	None	No	N/A	N/A
42Gr3836	Residential	Alcove	2	Yes	Unknown	Shovel
42Gr3837	Residential	Shelter	4	Yes	1933	Trash
42Gr3838	Rock Art	Alcove	7	Yes	1997	Metal hook
42Gr3839	Lithic Scatter	Bench	None	No	N/A	N/A
42Gr3840	Residential	Alcove	25	Yes	1930	Trash
42Gr3841	Residential	Alcove	None	No	N/A	N/A
42Gr3842	Residential	Alcove	27	Yes	1930	Trash
42Gr3843	Storage Cists	Alcove	5*	No	Unknown	None
42Gr3844	Granary	Alcove	None	No	Unknown	None
42Gr3845	Residential	Alcove	22	Yes	1930	Screen
42Gr3846	Rock Art	Cliff	None	No	N/A	N/A

*Site 42Gr3843 features five hardpan cists that have been dismantled and emptied of cultural deposits. These were defined as looters' pits for the purposes of this study.

There is no convincing evidence that any of the 21 sites examined have been subjected to illegal excavations within the past five years. The only possible evidence is a discarded polyester strap with no weathering found at 42Gr3842, although there is nothing to link the strap to specific looting activities at the alcove. None of the other sites examined had trash that appeared to have been discarded during the past five years, although some aluminum cans could be of recent vintage. It is assumed that either (1) looting of cultural deposits has diminished in recent years, (2) looters are more careful not to leave behind incriminating evidence in light of highly publicized prosecutions, or (3) the absence of empirical evidence is a reflection of a small sample size.

The evidence from these 21 sites also indicates that unrestricted road access has resulted in greater access to archaeological sites, and that this access has facilitated vandalism since at least the 1960s. It remains equivocal as to whether road access influenced the prevalence of vandalism prior to that time. It is also evident that by the mid 1970s, when the area was under consideration for uranium development, that significant numbers of access routes were in existence throughout the area, including the

bottom of Tenmile Canyon, and that large alcove sites documented at that time had all been vandalized. It is highly probable, given that 10 of 12 sites located in alcoves visible from the vehicular access route have been vandalized, that the vandalism was facilitated by individuals arriving at site locations in vehicles.

ORV Impacts

Direct and indirect impacts from motorized vehicles are evident at a majority of the 21 sites investigated by CPAA. These impacts include multiple ATV and motorcycle tracks through open artifact scatters with potential for buried cultural deposits and spur routes leading from the main route to alcove sites where there is a high likelihood of buried cultural deposits in front of the shelters. It is emphasized that these impacts have been precipitated by inappropriate ORV use, and that proper adherence to existing rules and regulations would, in most instances, not have resulted in adverse effects to cultural sites. Only site 42Gr3354, an artifact scatter near Dripping Springs, is located along the legal access route. This site has been impacted by the installation of a cattle guard, fence and ORV route along the western periphery of the site. This site has also suffered extensively from vehicles traveling off the established route and through the exposed cultural materials unassociated with the vehicle route.

Direct impacts (vehicle tracks through cultural deposits) were observed at four sites, three of them concentrations of surface artifacts and the other a concentration of artifacts in front of an alcove with storage cists. Indirect impacts were observed at 12 sites where vehicle tracks were observed within 50 meters of archaeological sites where there is significant potential for subsurface deposits associated with the identified site (for the purposes of this analysis, these were identified as indirect impacts to cultural deposits inside the alcoves). The potential for deposits in areas adjacent to alcove occupations was evidenced at 42Gr3840, 42Gr3842 and 42Gr3842 where isolated lithic artifacts were observed on or adjacent to tire tracks, but not in sufficient numbers to warrant expanding the site dimensions (see Table 4).

The direct impacts range in degree of severity from a single vehicle track through 42Gr3835 and 42Gr3843 to more than five vehicle tracks at 42Gr3354 and 42Gr3839. In all four instances, cultural materials were observed in the tire tracks, which had disturbed the original context of the deposits. All four sites feature soft sands, mostly alluvial deposits but with some aeolian, that exhibit a potential for subsurface deposits. At three out of four sites, some vehicular impacts were inflicted within four days previous to their documentation, or since heavy rainfalls. These sites all featured evidence of vehicle tracks occurring prior to the rainfall.

A determination of indirect impacts was based on the absence of surface artifacts in association with tire tracks that would have validated a determination of direct impacts. However, subsequent erosion of the vehicle tracks could expose subsurface materials in the future, constituting a direct impact to cultural resources. Indirect impacts to archaeological sites have clearly resulted from vehicles that have veered from the main access route and across alluvial bench areas. In many instances, these vehicle tracks lead

directly to archaeological sites, mostly alcoves. Given that prehistoric human activities certainly occurred in areas in front of the alcoves, there is a high probability that subsurface cultural deposits in those areas will be impacted by vehicular traffic.

Figure 4: Summary of vehicular impacts to cultural sites

Site No.	Site Type	Distance to ORV Trail	ORV Tracks	Vehicle Impacts	Accessible to Vehicles
42Gr583	Lithic Scatter	50 meters	30 meters	Indirect	Yes
42Gr660	Alcove	50 meters	25 meters	Indirect	Yes
42Gr3354	Artifact Scatter	1 meters	On Site	Direct	Yes
42Gr3829	Rock Art	120 meters	120 meters	None	No
42Gr3830	Rock Art	100 meters	100 meters	None	No
42Gr3831	Alcove	60 meters	40 meters	Indirect	Yes
42Gr3832	Alcove	50 meters	40 meters	Indirect	Yes
42Gr3833	Alcove	100 meters	25 meters	Indirect	Yes
42Gr3834	Alcove	150 meters	50 meters	Indirect	Yes
42Gr3835	Artifact Scatter	30 meters	On Site	Direct	Yes
42Gr3836	Alcove	75 meters	30 meters	Indirect	Yes
42Gr3837	Residential	70 meters	70 meters	None	Yes
42Gr3838	Rock Art	300 meters	300 meters	None	No
42Gr3839	Lithic Scatter	100 meters	On Site	Direct	Yes
42Gr3840	Alcove	120 meters	25 meters	Indirect	Yes
42Gr3841	Rockshelter	170 meters	50 meters	Indirect	Yes
42Gr3842	Alcove	250 meters	30 meters	Indirect	Yes
42Gr3843	Storage Cists	400 meters	On Site	Direct	Yes
42Gr3844	Granary	200 meters	75 meters	None	No
42Gr3845	Alcove	300 meters	40 meters	Indirect	No
42Gr3846	Rock Art	300 meters	40 meters	Indirect	No

Summary

The above discussion constitutes the preliminary findings of intuitive surveys conducted in the Tenmile Canyon area in 2007. Tentative conclusions offered here as to site types, site densities and the nature and scope of adverse effects will be further tested in 2008 through additional intuitive surveys in the lower part of Tenmile Canyon. These data, in combination with those reported here, will be the subject of a final report in 2008 that will offer specific recommendations as to potential management strategies to foster the long-term preservation and protection of cultural resources in this area. The 21 sites identified and described here constitute remarkable cultural resources of tremendous aesthetic and scientific value. All are recommended as eligible for listing on the National Register under Criteria A, C and D.

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