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**Fall 2001 Trip Reports Summary:**

**Archaeological Site Monitoring and Management, and Colorado River Fund  
Activities Along the Colorado River in Grand Canyon National Park.**

Jennifer L. Kunde

**GRAND CANYON NATIONAL PARK**

RCMP Report No. 69  
Flagstaff, Arizona

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## Introduction

This report contains information gathered during the River Corridor Monitoring Project's (RCMP) archaeological monitoring, checkdam monitoring and maintenance, and Colorado River Fund (CRF) river trips. In total, three river trips were taken and the information gathered on those trips is presented here. The RCMP monitoring staff and Zuni Conservation Project (ZCP) members participated in an October, 2000 river trip. RCMP monitoring staff accompanied commercial river guides and NPS personnel on CRF trips in November, 2000 and December, 2000. The CRF Project Manager, Brian Hansen, has provided trip reports. These reports are presented in their entirety in the appendix of this trip report.

Site specific monitoring information is provided by the RCMP to enable PA members to have the most up to date information regarding monitored sites and a historical reference of previous work completed. The checkdam monitoring and maintenance information details the specific number of checkdams requiring work at each site visited. CRF river trips provide an opportunity for Grand Canyon National Park to address visitor-related impacts at sites along the Colorado River. While this work is not funded through the Programmatic Agreement, the work done is included here as these sites are within the Area of Potential Effect for dam operations and are part of the RCMP monitoring program.

## Site Specific Monitoring Recommendations

### B:11:281 Thermal Feature

#### Biennial Schedule

B:11:281 is an open artifact scatter with sherds, flakes, groundstone, chipped stone tools and fire-cracked rock. Ceramics indicate a PII Puebloan affiliation. A complete Parowan point was observed at this location indicating a trade connection to the North.

#### *Previous Work*

This site was initially recorded in January 1991 (Fairley, et al. 1994) and monitored in FY95 and FY99 (Coder, et al. 1995b) (Hubbard 1999a). This site was also included in the studies conducted by K. Thompson and A. Potochnik [Thompson, 1998 #278].

#### *Monitoring Recommendations*

Three nick points, each 20 centimeters deep are newly located at the gully located SE of Feature 1. This would be a very good gully to conduct research on for erosional rates. This gully will be measured by GRCA. Monitoring will continue biennially. Currently no artifacts or roasting materials are threatened.

### B:15:138 Thermal Feature

#### Annual Schedule

RCMP archaeologist identified and recorded this site in April 1997 (Leap, et al. 1997a) This site consists of two concentrations of fire-cracked rock and a sparse scatter of lithics and sherds. Feature 2 appears to be the remains of a slab-lined roasting feature. Feature 1 has no intact morphology and is an array of fire-cracked rock with associated artifacts. Multiple trails are on or near the site due to its proximity to a popular side canyon hiked by river runners.

#### *Previous Work*

RCMP staff recorded the site in 1997 (Leap 1997c). The trail directly below Feature 2 was obliterated at the time the site was recorded and a new trail was outlined below the site. Visitors (river runners) destroyed the work the following summer. In September 1997 a total station map was completed (Leap, et al. 1997a). Though the trail work was destroyed, a second round of obliteration was conducted in October 1998. FY98 monitors recommended planting vegetation. Additional trail work was completed in FY99 (Hubbard 1999b). Access was blocked off to the drainage by using dead brush found in the side canyon drainage. It was determined that the features are most vulnerable to hikers (river runners) coming back down to camp from the upper Tapeats Sandstone ledges. A small rock cairn was constructed and hidden in the ledges so it is only visible from above. Theoretically, lost hikers will see the cairn from

above, directing them down the ledges away from the site. RCMP staff placed deadfall in the drainage to block the upper portion of Feature 2. Approximately seven meters of the area was treated and all work was photographed. FY99 monitors recommended planting vegetation. Monitors and GRCA personnel have worked at this site in the past to divert trailing through the site and into the side canyon. Two camps are present near this site and the side canyon is a popular hike for commercial river passengers. The GRCA Revegetation crew suggested that four to five people could collect and plant seed and bunch grasses if a revegetation project is to be implemented. Also, dead brush placed on top of the newly planted grass will propagate vegetation growth.

#### *Monitoring Recommendations*

Active gullying is apparent at the bottom of the gully that bisects Feature 2. The gully at the feature is also getting wider, exposing and deteriorating the feature at an accelerated rate. All the gullying is a direct result of compaction by foot traffic and on-site camping. Data recovery at Feature 2 is highly recommended.

### **C:02:094 Historic Structure**

#### **Biennial Schedule**

The recorded portions of this site consist of a dugway that accessed the lower ferry on the left bank, numerous historic inscriptions associated with the dugway/ferry crossing, and large wooden posts on the right bank that were also associated with the crossing. These wooden posts are thought to be mooring posts. The ferry was established in 1873 and used until 1898; and built as a means of avoiding the Lee's Backbone road. There are many historic names and dates written in axle grease and/or tar on a rock surface plus four carved initials at the base of the dugway. Other inscriptions are located at the top of the dugway, but were not re-recorded by the 1990-91 survey crews. The names belong to mostly Mormon immigrants travelling on the Honeymoon Trail between the outposts on the Little Colorado River and the temple in St. George, Utah. Dated names cluster from 1890 to 1898 and were executed on a rock while passengers waited for a ride across the river. There is an ephemeral rock wall at the panel between the upstream and downstream portions of the panel, plus modern graffiti. RCMP monitors found two Tusayan corrugated sherds and less than five secondary flakes eroding from the surface approximately four meters below the panel in FY98. This new information changes the site class to both historic and prehistoric.

#### *Previous Work*

Portions of the site were originally recorded as part of the Lees Ferry Historic District by P. Geib in the 1980s under site number C:02:011. The 1990-91 survey crew, after recording both right and left bank areas, decided to isolate the lower ferry crossing as a site unto itself, which was designated C:02:094 (Fairley, et al. 1994). The site was monitored in FY92, FY93, FY96, FY97, FY98, and FY99 (Coder, et al. 1994a) (Coder, et al. 1994b) (Leap, et al. 1996b) (Leap, et al. 1997a) (Kunde 1998a, Leap, et al. 1998d). GRCA and RCMP staff removed graffiti associated with the panel in 1996 and documented the inscriptions with a medium format camera in FY97 (Leap, et al. 1997a).

#### *Monitoring Recommendations*

This site does not appear to have suffered any physical impacts since last monitoring in October, 1998. A fire ring is adjacent to the drainage where the sherds are located. Charcoal from this fire was used to vandalize the west facing wall. Several names have been added, the most prominent is "BCY 2000". River fluctuations this summer have likely added to visitation on-site since low steady summer flows required anglers to travel further downslope to the river. Recommend testing this site. Tusayan Corrugated sherds are present on-site. River patrol should stop here and watch for ARPA violations due to a history of vandalism on-site and the presence of prehistoric remains, or the Navajo Nation should participate in improved preservation of this site.

### **C:02:096 Structure-Thermal Feature Complex**

#### **Annual Schedule**

The site consists of two sheltered areas separated by a drainage and talus cone. The upstream area (Locus A) consists of a shallow overhang with an ephemeral wall. The wall consists of small, local limestone cobbles in a single ground level course. The front of the shelter ledge might exhibit some alignment and level preparation. One large tertiary flake of white-orange Kaibab Chert was noted, as well as a long, tapered river cobble (pestle shape), pecked on two faces with a smooth surface on another margin. Locus B is located about 60 meters downstream of Locus A under a west-facing Kaibab Limestone overhang. An arroyo flows beneath the overhang dripline, exposing layers of river-

deposited silt/sand inter-bedded with coarser sand and gravel colluvium. Several layers of charcoal and cultural features are exposed in the arroyo sidewalls as well. O'Connor and others (O'Connor, et al. 1994) reported finding fluvial-transported charcoal at a depth of about 2.5 m below present ground surface, near the bottom of the stratigraphic section. The radiocarbon dates from this research dated from 4567-4125 B.P. FY97 monitors recorded a partially mineralized, worked stick in Locus A. FY97 monitors discovered new lithics and a Moenkopi corrugated sherd eroding from the Locus B arroyo. FY00 monitors recorded a point base, charcoal and other lithic debitage on the arroyo floor.

*Previous Work*

Archaeologists originally recorded the site in 1991 (Fairley, et al. 1994) and the RCMP staff monitored it in FY95, FY96, FY97, FY98, FY99 and FY00 (Coder, et al. 1995b) (Leap, et al. 1996b) (Leap, et al. 1997a) (Leap, et al. 1998d) (Leap, et al. 2000). Monitors recommended checkdam installation in FY96. In FY97 the RCMP staff assessed this area for checkdam installation and determined that the arroyo system is at an active stage that would not be conducive to checkdam construction. Surveyors completed a total station map in FY97. In FY97, FY98, and FY99 monitors consistently recommended data recovery for the features exposed at Locus B. FY99 monitors collected charcoal samples for radio carbon dating from Features 2 and 9. This site was also included in the studies conducted by K. Thompson and A. Potochnik (Thompson and Potochnik 2000). The cultural PEP panel also visited this site. Carbon samples were returned and Feature 2 dates 3220 +/- 80 BP and Feature 9 dates 3560 +/- 70 BP.

*Monitoring Recommendations*

Bank slump is increasing at Features 8 and 9. The drainage has been very active. Features 4, 5, and 7 also appear to have slumped further into the arroyo. A large platform of the site has also calved off into the arroyo. New Moenkopi Corrugated ceramics were identified. Because new artifacts continue to be exposed at this extremely fragile and erosive site, data recovery is strongly recommended. Carbon dates at this site warrant further data recovery. Continue annual monitoring.

**C:02:098 Artifact Scatter**

**Annual Schedule**

The site consists of an overhang with a charcoal scatter, one sherd, one sandstone mano, and a flake scatter. The terrace at the base of the overhang has been cut by high water, and charcoal is eroding from this cut. Cultural affiliation is unknown.

*Previous Work*

Archaeologists recorded the site in 1991 (Fairley, et al. 1994) and RCMP staff monitored it in FY95, FY97, FY98, and FY99 (Coder, et al. 1995b, Hubbard 1999a, Leap, et al. 1997a, Leap, et al. 1998d). FY95 monitors recommended trail work, planting vegetation and testing for subsurface cultural material. The GRCA trail crew completed trail obliteration work in FY96. This site was recommended for data recovery in FY97. FY98 monitors recommended installing checkdams and surveyors completed a total station map in FY98. FY99 monitors noted that no new trails were apparent, however, erosion has obliterated some of the previous trail work. FY99 monitors and Zuni conservation personnel assessed the gullies/trails for checkdam construction and scheduled work in FY00. This site was also included in the studies conducted by K. Thompson and A. Potochnik (Thompson and Potochnik 2000).

Monitors have consistently recorded angler trails, trash, tackle and recent charcoal at one end of the overhang. FY97 and FY99 monitors observed channel initiation and several nick points within the old obliterated trails and the main trail. In FY2000 the GRCA Revegetation and Rehabilitation crew, determined that arrowweed would be planted in the active drainage leading from the overhang to the beach area. This location had previously been the focus of trail obliteration work by the GRCA during FY96 monitoring. Obliterating the trail would not be successful due to the entrenched nature of the trail beginning at the parking area upstream of this location. A replicated photograph was taken for use by the revegetation crew.

*Monitoring Recommendations*

The drainages below the site have become large arroyos since last monitored. Checkdams will not work here. The overhang remains unchanged. Visitation at this site is inevitable due to the extensive trail network leading from the

parking lot to the river, through this location. While obliteration is not possible, revegetation work should occur to maintain trails and avoid multiple trailing.

#### **C:05:031 Small Structure**

##### **Biennial Schedule**

The site consists of two Loci (A and B) with two structural features (Features 1 and 2) and three areas of fire-cracked rock concentrations (Features 3-5). Artifacts indicate a Pueblo I - early Pueblo II affiliation. Note: Feature 2 is natural, not cultural, according to investigations by the 97-2 monitors.

##### ***Previous Work***

NPS survey personnel recorded this site in 1990 (Fairley, et al. 1994). Monitoring occurred annually from FY92 through FY95. In FY94, however, the site was monitored twice. In FY95 the schedule changed to every other year (Coder, et al. 1994b, Coder, et al. 1995a, Coder, et al. 1995b, Coder, et al. 1994a, Hubbard 1999a, Leap, et al. 1997a).

##### ***Monitoring Recommendations***

The gully between Features 3 and 4 has almost completely filled in. Yet minor sheet wash has occurred on-site. The vegetation that is present seems to be stabilizing the upper dunes. Footprints are present from the pull-in above 24.5 Mile rapid to the site. It is apparent people have been on the site though no impacts have occurred. The Zuni Conservation Project recommends having the NPS Revegetation Crew plant some seeds on the dune at Feature 1. Continue biennial monitoring.

#### **C:09:050 Special Activity Locus**

##### **Semi-annual Schedule**

The site originally consisted of a single complete Tusayan Black-on-Red mug/pitcher eroding out of a cutbank, and nine rectangular rock cobbles in an alignment adjacent to Little Nankoweap Creek. After its discovery, the vessel was stabilized with local cobbles and boulders, then covered with sand. Park Archaeologist J. Balsom subsequently collected the vessel, and several others from the same locale, on a later visit. This is considered a Late Pueblo I-Early Pueblo II Formative site.

##### ***Previous Work***

This site was discovered and initially recorded by NPS survey personnel in September of 1990 (Fairley, et al. 1994). Due to the site's proximity to a major river camp and the precarious nature of their depositional situation, the four vessels were subsequently removed to the South Rim at the discretion of the Park Archaeologist. The site was monitored once in FY92 (Coder, et al. 1994b) and semi-annually from FY93 through FY00 (Coder, et al. 1994a) (Coder, et al. 1995a) (Coder, et al. 1995b) (Leap, et al. 1996b) (Leap, et al. 1997a) (Leap, et al. 1998d) (Leap, et al. 2000) (Leap and Kunde 2000). Medium format photographs of the pot cache were taken in FY95 and FY98 (Leap 1995a) (Leap 1998a). Hereford et al. included this site in their geomorphic map of the Nankoweap area (Hereford, et al. 1996a). In FY97 an extensive water diversion structure was constructed at the base of the cutbank to curtail further erosion from side canyon flooding and bank slump (Leap, et al. 1997a). Upon completion of the stabilization, a total station map was completed of the entire site. Andres Cheama from the Zuni Conservation Team noted that the NPS should plant grass seeds and possibly cacti on the slope for further stabilization. Frank Hayes from NPS revegetation could plant cactus on the slope on a future NPS river trip.

##### ***Monitoring Recommendations***

No physical changes were observed at this site. Due to the history of exposure of cultural remains at this site, it is recommended that semiannual monitoring continue. It is also recommended that the GRCA Rehabilitation and Revegetation crews annually assess the trail and camp locations. Camp sites have begun to move upwards onto the high terrace adjacent to the site.

**C:09:051 Pueblo  
Biennial Schedule**

This is a large Pueblo II camp area on the lower side of Nankoweap delta. The site was recorded in 1989 as three separate loci. The GRCA crew retained this scheme and added a fourth locus, located on the bank of the creek to the north and northwest. Locus A contains an L-shaped roomblock of four to six rooms consisting of discernable cobble alignments, wall fall, clay daub, ash, scattered rock, ceramics, and a midden. Locus B is an area of fire-cracked rock, a broken mano, and a few sherds; no feature designations were assigned. Locus C consists of shattered cobbles, a few ceramics and flakes, and no definable features. Locus D is situated on the bank of Nankoweap Creek northwest of Locus A. It consists of a poorly-defined roomblock, carbon, sherds, and fire-cracked rock eroding from the bank. A large San Juan Redware sherd was collected eroding out of the cutbank; the possibility of intact vessels is high and some stabilization is warranted. The FY97 monitors found a newly exposed charcoal stain with several artifacts in a cutbank in Locus D.

***Previous Work***

The site was originally recorded in 1989 and re-recorded by the NPS survey crews in 1990 (Fairley, et al. 1994). The site was visited once in FY92 and FY93 (Coder, et al. 1994a) (Coder, et al. 1994b), monitored semi-annually in FY94 and FY95 (Coder, et al. 1995a) (Coder, et al. 1995b), and then annually since FY96 (Leap, et al. 1996b) (Leap, et al. 1997a) (Kunde 1998a, Leap, et al. 1998d). The site has been the focus of trail obliteration work by the NPS Trail Crew prior to 1990. The RCMP conducted trail obliteration in FY96 and FY99 (Kunde 1999a, Leap, et al. 1996b). Hereford et al. included this site in their geomorphic map of the Nankoweap area (Hereford, et al. 1996b). Medium format photographs were taken to document Locus D in FY95, FY96 and FY98 (Leap 1995a, Leap 1996c, Leap 1998b). The site was mapped with a total station instrument in FY97, and a portion of Feature 4 was excavated in July, 1997 (Yeatts and Leap 1997). See Hereford et al. (Hereford, et al. 1996a) for photogrammetric topography mapping of the immediate area.

***Monitoring Recommendations***

Feature 4 has recent new slump off the top of the bank though the overall drainage appears unchanged. The site appears to be in fair condition and no new impacts were observed. No new recommendations were made, continue annual monitoring.

**C:13:006 Small Structure  
Annual Schedule**

The site is eroding out of a reworked dune at the mouth of a major side canyon. It consists of a Pueblo II Kayenta ceramic and lithic scatter eroding from a dune face with a fire-cracked rock and cobble-strewn, ashy midden. Survey personnel identified four to five possible rooms present but in fair to poor condition (RCMP staff question this observation even after mapping the site in detail with a total station instrument). Due to active erosion in the dune area, several additional features have been recorded since the river corridor survey. In FY95 monitors made several additions to the site map, including walls eroding out of gullies, an additional roasting pit, an artifact concentration, and several new drainage channels. Groundstone is present though no formal tools have been observed.

***Previous Work***

The site was recorded in the early 1960s, 1965, and 1984 and again in 1990 (Fairley, et al. 1994). River corridor archaeologists monitored this site annually in FY92 and FY93, semiannually in FY94 and FY95, and back to annual from FY95 to FY99 (Coder, et al. 1994b, Coder, et al. 1995a, Coder, et al. 1995b, Coder, et al. 1994a, Hubbard 1999a, Leap, et al. 1997a, Leap, et al. 1996b, Leap, et al. 1998d). In FY95 a stationary camera was placed across from the site (Coder, et al. 1995b), but was removed after FY96 because the photographs only showed stochastic changes (Leap, et al. 1996b). In FY95 the Zuni Conservation Project personnel assessed the site for checkdam installation. In FY96 a GRCA recreational specialist and revegetation employee assessed the site for planting vegetation and placing jute mat on the deflated areas. The site was mapped with a total station in FY96 (Leap, et al. 1996b), and medium format photographs were taken prior to the BHBF in 1996. Twelve checkdams were built in the two active gully systems and jute mat was laid in the deflated dune areas (Leap 1996d, Leap, et al. 1997a, Leap, et al. 1996b). Additional vegetation work was completed at this site in FY97. In FY97 and FY99 Zuni Conservation Project personnel conducted minor maintenance on some of the original checks. Increased sediment deposition demonstrated at this site is a result of checkdam construction. This area was researched by Thompson and others in 1998 and 1999 (Thompson and Potochnik 2000). It was determined that grass plugs and additional seed should be collected from the

slope directly across 60 Mile drainage from this site. Grass plugs could then be transplanted on-site to further anchor and secure the dune area. A revegetation staff member should accompany the RCMP staff on a subsequent river trip to conduct this work.

#### ***Monitoring Recommendations***

The drainages on-site have been active, a lot of water has washed over the entire dune area, evidenced by washed over vegetation. In the areas where loose sands are present, eolian action has reworked the dune. There is extensive deposition in the drainages where checkdams exist. Impacts are not significantly disturbing the site. It was recommended by the Zuni Conservation Project that additional vegetation be planted near Checkdam 13. Continue annual monitoring and annual checkdam maintenance.

#### **C:13:009 Pueblo Biennial Schedule**

C:13:009 is an extensive prehistoric habitation area containing structures, water control features, and numerous and diverse artifacts. The site occupies both sides of a major side canyon. This site was recorded and mapped in two distinct loci. The artifact assemblage is dominated by Pueblo II-early Pueblo III ceramics. Numerous tools used as percussion items and abraders were observed, but there is a curious lack of chipped stone and metates. A distinct prehistoric trail can still be seen above the site disappearing up into the cliffs.

#### ***Previous Work***

Portions of this site were previously recorded several times. The site was originally designated C:13:009 and 9A in 1965 by Euler and Taylor. C:13:009A corresponds to the GRCA river corridor survey Locus A (upstream of the side canyon), while C:13:009 corresponds with the GRCA Locus B (downstream of side canyon). Since that time various sherd collections have been conducted in 1976, 1984 and 1989. NPS survey personnel recorded the site in detail in 1990 (Fairley, et al. 1994). The site was monitored by RCMP staff in FY93, FY94, FY97 and FY99 (Coder, et al. 1994b, Coder, et al. 1995a, Kunde 1998a, Leap, et al. 1997a). This site was also included in the studies conducted by K. Thompson and A. Potochnik [Thompson, 1998 #278]. Additional monitoring research was conducted at this site during the research flow of 1996 (Balsom and Larralde 1996) including medium format photography. See Figure 21 for an example of a medium format photo showing the developed gullies located near Features 10 and 11.

#### ***Monitoring Recommendations***

Feature 16 has active surface erosion. Cryptogamic soils are present within the rooms though deflation is exposing more of the Dox Sandstone slabs. Feature 7 is showing more deflation in the rooms. Features 10 and 11 have increased slump and surface erosion. Feature 14 has increased erosion of large rocks at the feature. Feature 13 is unchanged with increased vegetation growth. Features 4, 5, 8, 9, and 12 are unchanged. Collection piles exist on site and are too numerous to completely disperse. Continued recommendation from FY99 is that this site be mapped in more detail and that data recovery be completed at Features 10 and 20. Continue biennial monitoring. This site is very large and can hold much information concerning the eastern portion of the Canyon in relation to the other large pueblos in the vicinity. While mapping the site, more ceramic documentation should be completed.

#### **C:13:010 Pueblo Annual Schedule**

This is a large, multi-component habitation site divided into three "locales." Locale 1 was recorded in 1965 and Locales 2 and 3 were discovered on a 1983 GRCA monitoring trip. Five structures and 21 features are assigned to Locale 1, including a pithouse, several one to two room masonry structures, a pueblo, cists/hearths, and rubble/wall alignments. Four structures and 16 features are noted at Locale 2, including rooms and rubble piles. Locale 3 contains two structures and five features, including a shelter, cists and wall/room remains. Testing results suggest the site may have had two to three occupations, including use by Pueblo I Cohonina and Pueblo II Puebloan; ceramics also suggest a late prehistoric-early historic Hopi connection. For details consult the 1984 excavation report (Jones 1986). The site contains numerous river-based drainages.

### *Previous Work*

Archaeologists conducted data recovery at this site in 1984 (Jones 1986) as a result of high water releases that inundated cultural remains along the river. GRCA closed this site to visitors in 1985 due to the fragility of the terrain. Geomorphologists completed a topographic map of C:13:010 in 1993 using photogrammetry (Hereford, et al. 1993). The RCMP staff monitored the site annually since FY95 (Coder, et al. 1995b, Hubbard 1999b, Leap, et al. 1997, Leap, et al. 1996, Leap, et al. 1998 (Leap, et al. 2000)). FY95 monitors recommended stabilization and total station mapping. FY96 monitors recommended installing checkdams and data recovery. During the 1996 research flow, the RCMP staff conducted supplemental monitoring efforts at this site (Balsom and Larralde 1996b). FY97 monitors recommended data recovery, total station mapping, stabilization, and checkdams. After an assessment in FY97, monitors determined that checkdams would not be effective. FY98 monitors recommended data recovery. The RCMP staff assessed the site for data recovery in FY97 and FY98. In FY98 and FY99 the RCMP staff implemented a limited data recovery project and completed medium format photography. The RCMP staff will complete a separate report detailing this work upon completion of the analyses. FY99 monitors recommended additional data recovery. This site was also included in the studies conducted by K. Thompson and A. Potochnik (Thompson and Potochnik 2000).

### *Monitoring Recommendations*

Feature 48 has increased arroyo cutting and surface erosion. Eolian deflation is also present. Feature 39 has active slump and surface erosion of fire-altered rock. The arroyo in the main drainage has been active. However, many of the features on-site are unchanged since last monitored. Continued data recovery is highly recommended at this site. Though many of the features are unchanged since last monitored, they are in extremely poor condition and significant, in situ artifacts are being lost. Continue annual monitoring.

## **C:13:069 Small Structure**

### **Annual Schedule**

This large site consists of several cists and masonry structures. Feature 1 is a slab-lined cist remnant. Feature 2 may be a masonry room with midden. Feature 3 is a masonry wall. Feature 4 consists of eroding slabs where additional architecture may be present. Feature 5 is a well-preserved cist. Feature 6 is a masonry room. Feature 6B is another masonry room outside of the main dune area. Ceramics suggest a Pueblo II-early Pueblo III affiliation. The site is near the Tanner Trail and a well-used beach camp.

### *Previous Work*

Prescott College personnel originally recorded this site in 1972. NPS personnel re-recorded this site in 1990 (Fairley, et al. 1994), and monitoring occurred in FY93, FY95, FY96, FY97 and FY99 (Coder, et al. 1994b, Coder, et al. 1995b, Leap, et al. 1997a, Leap, et al. 1996b) (Kunde 1998a). As part of the GCES Phase I program, Ted Melis took a carbon sample at this location. No information has been disseminated to the RCMP office concerning the results. In 1992, the GRCA Rehabilitation Project conducted trail obliteration, revegetation, and stabilization of minor drainages. Medium format photos were taken of this site in FY96 (Leap 1996b). Upon completion of a stabilization assessment in FY97, six checkdams were constructed along the drainage bisecting the features. One existing checkdam was reconstructed and five new checkdams were built. A total station map was also completed for this site in FY97. See Hereford (Hereford 1993, Hereford, et al. 1993)[Hereford, 1996 # 19] for photogrammetric topography mapping of the immediate area. Maintenance work on the checkdams was completed in FY99 (Hubbard 1999a). Monitoring staff observed that human impacts were high, and included distinct trails, trail caused erosion, and minimal site camping. This site was at particular risk due to the adjacent river camp that was highly used especially during the May to October season. Backpackers throughout the year also used the area and a major trail cut directly through the site. Retrailing and revegetation work carried out in 1992 has had a positive affect on the site.

### *Monitoring Recommendations*

The bank above Feature 2 has minor slump though not enough to impact the feature. Feature 3 has active surface erosion. Features 5 and 6 are unchanged since last monitored. It is evident that two people walked through Features 1, 2 and 3. Charcoal and ashy soil has been exposed. Continue checkdam maintenance and further revegetation work should be conducted here to keep people from straying off the trail onto the site. Maybe the trail should be re-routed. Continue annual monitoring.

## C:13:070 Small Structures

### Annual Schedule

This site has four loci (A-D) and is situated on a highly dissected structural terrace. Locus A has three artifact scatters near the drainage mouth and along the terrace edge to the northeast. Locus B is a rubble mound that suggests a small masonry structure. Abundant sherds and lithics are located around the structure and upslope. Locus C consists of a dense scatter of charcoal (historic) and artifacts scattered over the surface. Locus D includes several artifacts and three to four charred logs exposed in an arroyo that may be the remains of a roof. The quantity and diversity of artifacts suggests that this is a habitation site; however, few architectural features are visible. Artifacts indicate a Pueblo II-early Pueblo III occupation. In FY96 monitors found small mammal bones on the northeast edge of Locus A, and in FY97 they found a basalt axe fragment in the artifact concentration of Locus D. Both the roof remains and the axe fragment are rare in Grand Canyon.

### *Previous Work*

The site was originally recorded in 1973 and re-recorded in 1991 by NPS personnel Fairley, et al. 1994). The site was monitored in previous years by GRCA, and more recently monitored under the RCMP: once in FY93, twice in FY94, FY95, and FY96, and annually since then (Coder, et al. 1994a, Coder, et al. 1995a, Coder, et al. 1995b, Hubbard 1999b, Leap, et al. 1997, Leap, et al. 1996, Leap, et al. 1998 (Leap, et al. 2000)). In FY95 medium format photographs were taken for drainage documentation. In FY95 PA members wanted RCMP staff to select certain sites to measure artifact movement within one-meter square. These surface analysis units were removed in FY96 as per discussions with PA representatives (Leap, et al. 1996). The results of one year were inconclusive and highly subjective. In May 1996 the Zuni Cultural Resource Advisory Team (ZCRAT) monitored the site and their recommendation was to install several checkdams. A total station map of Loci B, C and D was completed in September 1997 in anticipation of some type of preservation treatment (Leap, et al. 1997). Upon further assessment in FY97 and FY99 with the Zuni Conservation Project personnel, they determined that installing checks "would be a time consuming, expensive and risky effort." It was determined that the arroyo systems were (are) too advanced for any practical stabilization effort. In FY99 samples were taken from the charred logs (possible roof fall) in Locus D. This site was also included in the studies conducted by K. Thompson and A. Potochnik (Thompson and Potochnik 2000). The PEP participants stopped at this location in March, 2000. Carbon samples taken from Locus D have dates of 870 +/-60 BP and 790 +/- 60 BP

### *Monitoring Recommendations*

Some bank slumpage has occurred at the charred roof beams. The artifact concentration at Locus D has been subjected to slow surface erosion. The arroyo to the north is active with bank retreat occurring along the west side. Gullying and arroyo cutting is active. Eolian activity is present in Locus B on the upstream side of the structure. Collection piles were dispersed in Locus C. A faint trail is visible just south of the upright mano, possibly from the PEP participants. Footprints are also evident at Locus A. It is recommended that trail work be conducted at Locus B. Data recovery is recommended at Locus D due to the fact that preservation in place is not an option. As previously recommended, additional work should be done to understand the relationship between this large multi-component site, the adjacent sites, and Unkar Delta (across the river). More cultural remains will be exposed and displaced if recovery options are not taken soon. This location should also be investigated from the perspective of alluvial deposition and erosion contrasted with old high water shoreline deposits. One approach may be to investigate how the terrace bank retreats at different flow levels and if river flows cause the arroyo mouths to change. Continue annual monitoring.

### Palisades Delta

The Palisades Delta complex, consists of several prehistoric and historic archaeological sites situated on predam alluvium and debris flows from Palisades Creek. Access to this delta is via two distinct trail networks extending north and south of the delta. Site types range from prehistoric multi-room pueblos to historic mining camps. The delta is accessed via the backcountry hiking trails and the river corridor. Visitors to the Palisades Delta will likely observe various cultural remains at sites C:13:098, C:13:099, C:13:100, C:13:272, and C:13:336. Recommended work such as additional revegetation along the Beamer Trail at C:13:099 may cause increased visitation to C:13:100 as visitors attempt to access the most visible site on the delta, C:13:098. Viewing work to be done in this location as improving visitor-related impacts to all the sites enables the NPS to complete the project more efficiently and considers the impacts of the region as a whole rather than treating one site at a time.

It has been suggested that C:13:098 be considered for an education and interpretation stop along the river corridor. Visitation to this site has resulted in impacts to the adjacent sites and increased gullying in places where incipient trailing exists. The creation of a loop trail around this site should be considered as a means for preventing further destruction to the other sites along the delta.

### **C:13:098 Historic Structure (Palisades Delta)**

#### **Annual Schedule**

This historic mine and cabin site contains two loci. Locus A consists of two mine adits at the base of the Palisades cliff along the Palisades fault. The main adit is situated about 10 m above the surrounding terrain with an extensive tailing pile below it. The second adit is located about 10 m below and 20 m south of the main adit. About 225 m S/SW is Locus B, which includes a log cabin constructed of driftwood logs. The cabin measures 2.6 x 4.1 m (interior) and is five courses high. The floor is partially paved with sandstone slabs, with a log/board bed frame in the northeast corner. A canvas tent probably formed the upper walls and roof. About four meters due south of the cabin door is a driftwood log "fence". This structure is made of stacked logs up to four courses high. It may have been a windbreak. Artifacts date from 1900-1920 to the mid-1930s. In FY98 monitors found a cist feature eroding in the drainage near the cabin.

#### ***Previous Work***

This site was initially recorded by Euler and Jones in 1978 and then re-recorded by NPS personnel in 1990 (Fairley, et al. 1994). GRCA documents from 1929 and 1930 reveal an investigation made by the Park Service on the lode mining claims by George W. McCormick and others in May 1913 (Busch 1930, Daly 1929). RCMP staff monitored the site semiannually from FY93 to FY98 (Coder, et al. 1994b, Coder, et al. 1995a, Coder, et al. 1995b, Leap, et al. 1997a, Leap, et al. 1996b, Leap, et al. 1998d). In FY98 it was determined that annual monitoring would suffice, therefore monitoring only occurred once in FY99 (Kunde 1998a). See Hereford (Hereford 1996, Hereford, et al. 1996a) for a photogrammetric topographic map of the immediate area. In FY95 the cabin and associated artifacts were photographed with a medium format camera. Currently, and prior to the inception of this program, NPS trail crews have maintained the trails in the area. From FY93 to the present monitors have observed visitor impacts (trailing and collection piles). This site is very visible and is located near a heavily used backcountry trail. Most of the visitor impacts were observed in the fall, after the summer season.

#### ***Monitoring Recommendations***

The site is unchanged related to physical impacts. Continue annual monitoring. Consider the construction of a loop trail to curtail visitor impacts on the way to the cabin.

### **C:13:099 Structure-Thermal Feature Complex (Palisades Delta)**

#### **Semi-annual Schedule**

This site contains two loci of fire-cracked rock, buried and collapsed structures and artifacts. Archaeologists identified several charcoal lenses, burned rock features and artifact concentrations. Many of the features are eroding out of the coppice dunes, bisected by a highly active drainage system. The drainage system has uncovered the majority of this site since 1978, evidenced by several newly exposed features recorded by GRCA and RCMP archaeologists. FY94 monitors recorded Features 6 and 7 eroding from the active drainage. FY95 monitors recorded Feature 8 eroding from the active arroyo. RCMP staff identified two new probable cists eroding from the active arroyo in FY98. RCMP archaeologists tested the probable features in FY99 and did not discover cultural material. Since 1990, RCMP staff discovered numerous lithics and sherds eroding from the active arroyo and scattered throughout the drainage system. An assemblage of forty sherds suggests an Early-mid Pueblo II Puebloan occupation. Lithic evidence from this site includes two mano-like objects, ground to create a knife-like edge, as well as pecked grinding stones and hammerstones. Five charcoal samples were taken from several features on-site in the early 1990s. Dates ranged from 140 years B.P. to 1410 years B.P.

#### ***Previous Work***

Archaeologists originally recorded the site in 1978. Prior to the implementation of the monitoring program (late 1980s) GRCA conducted excavation and collected samples of a deteriorating feature (Feature 3). The RCMP staff monitored C:13:099 semiannually since FY93 (Coder, et al. 1994b, Coder, et al. 1995a, Coder, et al. 1995b, Kunde 1998a, Leap 1995b, Leap 1996b, Leap 1997c, Leap 1997e, Leap 1998b, Leap and Hubbard 1996c). FY94 monitors

recommended trail work, installing checkdams, total station mapping and subsurface testing. FY95 monitors recommended trail work, planting vegetation, installing checkdams, subsurface testing, data recovery and total station mapping. In FY95 the GRCA trail crew performed trail obliteration work along the Beamer Trail, which relocated the hiking trail near the river to reduce visitor impacts.

In September 1995 RCMP staff and representatives from state and federal agencies, and tribal entities constructed 44 checkdams at C:13:099 (Leap 1995c). C:13:099 is the first location where Zuni-style checkdams were built in the river-corridor. Archaeologists used a photogrammetric map (Hereford, et al. 1993) for recording, prior to completion of a total station map in FY97. Each checkdam was photo-documented before and after its construction with 35mm prints and slides. FY96 monitors recommended additional trail work and planting vegetation. Trail obliteration work was completed in FY97. RCMP staff conducted additional monitoring efforts during the research flow of 1996 (Balsom and Larralde 1996). FY97 monitors recommended checkdam maintenance and data recovery. FY98 monitors recommended data recovery, planting vegetation and checkdam maintenance. Checkdam maintenance projects were completed in FY97 and FY98 (Leap, et al. 1997a, Leap, et al. 1998d). Monitors recommended medium format photography and projects were completed in FY95, FY96 and FY98 (Leap 1995a, Leap 1996b, Leap 1996c, Leap 1998a). FY99 monitors recommended trail work, planting vegetation and data recovery. Archaeologists conducted feature excavation and exploratory testing at Features 1, 3, 7, 9 and 10 in FY99. RCMP will disseminate the results of this project after an analysis is completed. FY99 monitors recommended more extensive excavation. This site was also included in the studies conducted by K. Thompson and A. Potochnik (Thompson and Potochnik 2000). Planting arrowweed, grasses and salt cedar along the side of the trail that borders this site may aid in curtailing increased visitation.

#### *Monitoring Recommendations*

All features look fair but unstable. The arroyo has been very active and there is a lot of clay and salt in the upper playa area. Checkdam maintenance is required here and should continue annually. Data recovery should also continue. Continue annual monitoring.

### **C:13:100 Pueblo (Palisades Delta)**

#### **Annual Schedule**

This site is an open Pueblo II habitation site. Feature 1 is a rectangular habitation room. Feature 2 is another probable habitation room with a possible south entrance; it has standing walls two to three courses high. Adjoining Feature 2 is Feature 3, a small, more difficult to define structure; there may be another room attached to the southwest wall of Feature 3. Feature 4 and Feature 8 are probably associated rooms. Both features are exposed in an arroyo, with walls two to three courses high. Features 5 and 6 are the remains of slab-lined cists of Dox Sandstone. A charcoal stain in a trail evidences feature 7. South of the dwellings is an eroding drainage two meters across and 50 cm deep. Lithics and ceramics are scattered down the slope directly above the drainage. There is a heavy groundstone concentration near Features 5 and 6. Groundstone/tools include six manos, four metates/slabs, eight hammerstones, and two sandstone knives. Seven ceramic sherds were also found. During the September 1995 erosion control project, archaeologists located a new feature (Feature 9) consisting of upright Dox slabs in an arroyo. FY97 monitors discovered two new features. Feature 10 is a charcoal lens north of Feature 7 and Feature 11 is a circular cist/hearth eroding from the drainage.

#### *Previous Work*

Archaeologists originally recorded C:13:100 in 1978 and it was monitored by GRCA archaeologists until FY92. Beginning in FY93, the RCMP staff monitored the site semi-annually (Coder, et al. 1994b, Coder, et al. 1995a, Coder, et al. 1995b, Kunde 1998a, Leap, et al. 1997a, Leap, et al. 1996b, Leap, et al. 1998d). FY94 monitors recommended revegetation work, trail work, checkdam installation, total station mapping and stabilization. FY95 monitors recommended planting vegetation and trail work due to heavy visitation. The RCMP staff conducted appropriate assessments and in FY95 trail work and checkdam installations were conducted (Leap and Coder 1995). FY95 monitors decided that no vegetation would be planted.

This site received additional monitoring during the research flow of 1996 (Balsom and Larralde 1996). FY96 monitors recommended additional trailwork. The area received further trail obliteration work in FY97 and surveyors completed a total station map in June 1997. Prior to completion of the total station map, RCMP staff used a photogrammetric

topography map to plot additional features (Hereford 1996). Monitors recommended medium format photography and projects were completed in FY95, FY96, and FY98 (Coder, et al. 1995b, Leap, et al. 1996b, Leap, et al. 1998d). FY98 monitors recommended checkdam maintenance, testing and data recovery at Features 5, 6, 7, 9, 10, and 11 before losing more cultural information. The RCMP staff and Zuni conservators completed checkdam maintenance in February 1998. FY99 monitors again recommended data recovery at Features 5, 6, 9, and 11 and recommended annual maintenance of checkdams. This site was also included in the studies conducted by K. Thompson and A. Potochnik (Thompson and Potochnik 2000).

An extensive photographic record of the Palisades delta extends back to the early 1900s. RCMP staff used this record to reconstruct the predam Palisades environment. Long-term photographic replications indicate the pervasive loss of beaches and sediment in this area since the construction of Glen Canyon Dam. A 1909 Stone expedition photo confirms that the predam Palisades shoreline consisted of broad beaches and abundant sediment. Currently, the shoreline is devoid of sediment consisting of a large expanse of exposed river cobbles. It was suggested by the GRCA Revegetation crew that intensive planting in this area between the trail the site occur, filling in the dune with arrowweed, grasses and salt cedar to curtail future visitation.

### *Monitoring Recommendations*

Features 5, 6 and 9 have had slight movement of sediments and rocks. Features 2, 3 and 10 are unchanged since last monitored. Feature 7 appears to be completely gone, blown out by active gullying. Checkdam maintenance is recommended and annual monitoring should continue.

## **C:13:272 Small Structure (Palisades Delta)**

### **Biennial Schedule**

This is a multi-component site with two separate loci. Locus A consists of two masonry structures (Features 1 and 2) with a sparse scatter of artifacts, and a more ephemeral feature (Feature 3) consisting of a curving cluster of mostly small sandstone rocks eroding out of a deflated area. These rocks seem too small for building elements, but do not look fire-cracked either. Artifacts are generally sparse at this locus, but include sherds, lithics, a metate, a two-handed mano, and a small mano with a beveled face that may also have been used as a knife. Locus B contains two concentrations of sandstone cobbles (Features 4 and 5) that may be hearths. No artifacts are associated. Ceramics suggest a PII date for Locus A and a protohistoric date for Locus B.

### *Previous Work*

This site was originally documented by J. Balsom and H. Fairley in 1984 and recorded in greater detail by NPS survey personnel in 1990 (Fairley, et al. 1994). The site has been monitored annually since FY92 (Coder, et al. 1994b, Coder, et al. 1995a, Coder, et al. 1995b, Coder, et al. 1994a, Hubbard 1999a, Leap, et al. 1997a, Leap, et al. 1996b, Leap, et al. 1998d). The drainages situated within the site have been studied by geomorphologists [Hereford, 1993 #20; Thompson, 1998 #278] and have been mapped on a topographic map using aerial photogrammetry (Hereford 1993, Hereford, et al. 1993). In 1991 H. Fairly collected carbon from Feature 5. The dates range from 330+/- 50 to 40+/- 60. C:13:272 was also one of the sites monitored prior to and after the spike flow (Balsom and Larralde 1996, Burchett, et al. 1996). This monitoring included medium format photography. In FY99 a soil description encompassing the site area was completed by NRCS (Lindsey and Fisher 1999). The Beamer Trail transected the site prior to FY93, adding to the adverse impacts. The GRCA trail and rehabilitation crews rerouted the trail below the site in 1993. Since then, the old trail has not received use. NPS trail maintenance will continue.

### *Monitoring Recommendations*

Sediments have moved from within Feature 1. Feature 5 appears to have collapsed in the center. The remaining features are unchanged since last monitored. A faint trail is present across the delta but few footprints were observed on-site. Continue biennial monitoring and watch for visitation.

### C:13:273 Roaster Complex

#### Annual Schedule

This site consists of four roasting features, a slab-lined cist and two artifact concentrations. The roasting features all contain fire-cracked rock and charcoal. The artifact concentrations at AC-1 include over 50 items of lithic debitage and about 15-25 ceramic items. The artifact concentration at AC-2 consist of seven flakes, ten sherds, and one piece of groundstone. Feature 1, a large donut-shaped roasting feature, is similar in morphology to many of the roasters in the western Canyon. Ceramics indicate an early Pueblo I to Pueblo II Cohonina and Puebloan occupation. Radiocarbon dates taken from Feature 5 indicate an earlier occupation of AD 575 to AD 775.

#### *Previous Work*

Archaeologists recorded the site in 1990 and the RCMP staff monitored it in FY93, FY95, FY96, FY97, FY98 and FY99(Coder, et al. 1994b, Leap 1994a, Leap 1995b, Leap and Hubbard 1996c, Leap and Kunde 1998a). FY95 monitors recommended stabilization and retrailing. In FY95 RCMP staff conducted archaeological clearance work prior to a GRCA trail crew retrailing project (Leap 1995d). FY96 and FY97 monitors recommended stabilization for Feature 3 due to its precarious location on the edge of an active drainage. FY97 monitors recommended data recovery for Features 3 and 5. In FY97 surveyors mapped the site with a total station instrument, RCMP staff conducted a data recovery assessment and archaeologists excavated Feature 5 (Yeatts 1998). FY98 monitors recommended data recovery at Feature 3 due to its precarious position on the cutbank of an arroyo. FY99 monitors obliterated an access trail from the side canyon that directly impacted Feature 4. Because the Beamer Trail bisects the site, access and visitation are continued impacts. The GRCA trail crew maintains the trail in this area.

#### *Monitoring Recommendations*

Features 1, 2, and 3 are unchanged. Continue annual monitoring and NPS trail maintenance work. The site appears unchanged since April, 2000.

### C:13:291 Small Structure

#### Annual Schedule

The site consists of standing walls of several structures and Dox Sandstone cists. Feature 1 is a two-meter long wall and juniper post eroding downslope. Feature 2 is a slab-lined cist with a room exposed in a cutbank. Feature 3 is a wall exposed in a gully. Feature 4 is a hearth or cist. Feature 5 is a cluster of Dox slabs that may be coursed. Artifacts include nineteen sherds and lithics, including a chopper, a hammerstone, and a bi-edge tool. Sediment and slope wash cover the site to a depth of more than one meter in some areas. Apparently the site was constructed on a terrace, and has since been covered periodically by slope wash and fluvial sand. During the initial recording in 1988 a metate and mano were measured, documented and relocated. FY95 monitors noted that Feature 2 was completely obliterated by the river-based arroyo. FY96 monitors discovered a Tusayan Whiteware/Sosi Black-on-White sherd below Feature 3. Artifacts indicate a Mid-late Pueblo II Puebloan occupation.

#### *Previous Work*

Archaeologists originally recorded the site in 1988 and again in 1990 (Fairley, et al. 1994). During the initial recording a metate and mano were relocated above the site. The RCMP staff monitored the site annually since FY92 (Coder, et al. 1994b, Coder, et al. 1995a, Coder, et al. 1995b, Coder, et al. 1994a, Kunde 1998a, Leap, et al. 1997a, Leap, et al. 1996b, Leap, et al. 1998d). Monitors recommended checkdams and total station mapping in FY94, but after further assessment, the RCMP staff and Zuni conservators concluded that the drainages were too mature for checkdams. FY95 monitors recommended some form of stabilization for Features 1 and 4. During the research flow of 1996, visitors created a trail through the site on their way to Unkar Delta. The research flow created extensive cutbank erosion below the site, obliterating the formerly used trail. The RCMP staff obliterated the newly created trail in FY97, at which time a total station map was completed. Additional monitoring efforts including medium format photography were also conducted during the research flow (Balsom and Larralde 1996). FY98 monitors recommended testing, data recovery, radiocarbon samples, and dendro samples. FY99 monitors recommended data recovery for Features 1, 4 and 5, and continued trail maintenance. Minor trail maintenance was conducted in FY99. RCMP staff could not collect charcoal from the site in FY99 due to the charcoal disappearance through intensive erosion. This site was also included in the studies conducted by K. Thompson and A. Potochnik (Thompson and

Potochnik 2000). Continued on-site trailing has been attributed to river-runners walking from a nearby camp to the Unkar Delta. In FY2000 the GRCA Revegetation crew planted seedlings in the area above Feature 5.

#### *Monitoring Recommendations*

Feature 3 has had minor slump of sediments on the east side of the structure. Feature 6 looks as if minor slumping also occurred. The remaining features are unchanged. The trail bisecting Feature 5 is very visible and still in use. Ortho photos from the NPS may enable better measurements here to understand bank retreat rates. Continue annual monitoring for newly eroded materials. Personnel on the CRF trip will assess and work on the trail problem.

### **C:13:321 Roaster Complex**

#### **Annual Schedule**

This site consists of four roasting features and a rubble mound of Dox Sandstone. The rubble mound may be associated with a historic cabin (C:13:092) located south of this site. Ceramics, fire-cracked rock and a shaped Dox Sandstone "lid" were found on-site. Over thirty flakes were present in the roasting features, as well as groundstone including four mano fragments and two cobbles. Ceramic evidence includes several Puebloan sherds ranging from A.D. 1050-1200, though specific cultural affiliation remains undetermined.

#### *Previous Work*

Archaeologists originally recorded the site in 1989 and GRCA personnel monitored it until transferred to the River Corridor Monitoring Project. The RCMP staff have monitored the site annually since FY93 (Coder, et al. 1994a, Coder, et al. 1995a, Coder, et al. 1995b, Kunde 1998, Leap, et al. 1997, Leap, et al. 1996, Leap, et al. 1998, (Leap, et al. 2000)). FY94 monitors recommended total station mapping and radiocarbon dating of Feature 5. FY95 monitors recommended mapping, testing and stabilization of Feature 5 in FY95. This site was one of three sites selected for data recovery prior to the research flow in 1996. RCMP staff conducted excavation at Feature 4, the only feature that would have been impacted by the flood. After excavation, the RCMP staff determined that Feature 4 had no subsurface deposits (Balsom and Larralde 1996b). Monitors also conducted medium format photography before and after the flood (Leap 1996b, Leap 1996d). See Hereford (Hereford, et al. 1993) for photogrammetric mapping used prior to the completion of a total station map of the site in FY97. FY97 and FY98 monitors recommended observation of Feature 5 due to ongoing erosion. This site was also included in the studies conducted by K. Thompson and A. Potochnik (Thompson and Potochnik 2000). FY00 monitors replicated medium format photographs taken prior to and following the 1996 research flow.

#### *Monitoring Recommendations*

Minor eolian movement and exposure of artifacts is occurring at Features 1 and 2. Feature 3 has also had further exposure of cobbles and fire-cracked rock due to surface erosion and eolian movement of sands. The vegetation has died off in the center of Feature 5 and more rocks have been exposed at the base of the feature. Feature 6 is unchanged. Continue annual monitoring. The dunes have been extremely active and Feature 5 will likely be further exposed.

### **C:13:329 Small Structure**

#### **Inactive Schedule**

This is a Pueblo II site consisting of a small rockshelter with a charcoal and bone scatter, an artifact cluster, and a small circular rock feature. Only a small portion of the site may be visible, with the remainder buried under dune deposits. A single Tusayan White Ware sherd is present on-site. This site is located in a shallow overhang and an associated system of reworked dunes.

#### *Previous Work*

This site was initially recorded in 1990 (Fairley, et al. 1994) and monitored in FY92, FY93, FY95, FY97, and FY99 (Coder, et al. 1994b, Coder, et al. 1995b, Coder, et al. 1994a, Leap, et al. 1997a) (Hubbard 1999a).

#### *Monitoring Recommendations*

The gully and surface erosion at Feature 2 show signs of cutting and filling. No other physical impacts were observed. The gully is on a fairly steep slope and preservation methods may not be successful. Site integrity is questionable,

therefore it is recommended that monitoring be discontinued at this location and testing for buried *in-situ* cultural remains occur

### **C:13:336 Thermal Feature (Palisades Delta)**

#### **Three-year Schedule**

This site consists of two concentrations of lithics and sherds, a possible hearth and a roasting feature. A cobble alignment eroding out of a dune may be the remnants of a possible structure. FY94 monitoring staff recorded a new artifact concentration, Feature 4, not recorded during the survey. C:13:336 is a Puebloan occupation site located within the predam high-water zone adjacent to the Beamer Trail. This site is located in the vicinity of the Palisades Complex on an alluvial terrace proximal (48 m) to the river. A veneer of reworked sand covers the surface of the terrace and the site can be seen in the deflated areas between the low dune crests. The Beamer Trail also transects this site adding in some unspecified degree to the adverse impact.

#### ***Previous Work***

The site was originally recorded in 1986 and mapped in 1990 (Fairley, et al. 1994). This site has been monitored in FY92, FY94, FY96, and FY98 (Coder, et al. 1995a, Coder, et al. 1994a, Leap, et al. 1996b, Leap, et al. 1998d). This site is included in the topographic map produced by Hereford and others for the Palisades Creek region (Hereford 1993). Checkdam installation, recommended in FY97 was assessed in FY98. Five checkdams were constructed in FY98 (Hubbard 1999a). Trail obliteration work is on-going by the GRCA Rehabilitation trail crews.

#### ***GRCA Assessment***

Due to time constraints, this location was not visited by the GRCA crews. The three most impacted sites along the Palisades Delta were the focus of this stop. Because this site is located in the vicinity of sites that were assessed, the same assessment will be applied in this location. The existing trail will be assessed and the NPS Cultural Resource Program Manager will be consulted regarding creating a loop trail.

### **C:13:339 Small Structure**

#### **Annual Schedule**

The site consists of a mid-late Pueblo II habitation buried on an alluvial terrace, comprised of a burned rock midden, a buried hearth, and several rock alignments. The burned rock midden, with sparse lithics and ceramics, is located on the north side of the site. It is eroding out of a cutbank. Two historic hearths are also located on-site. The site is situated against a Dox Sandstone cliff.

#### ***Previous Work***

The site was originally recorded in 1990 (Fairley, et al. 1994) and monitored in FY93, FY95, FY96, FY97, FY98, and FY99 (Coder, et al. 1994b, Coder, et al. 1995b, Hubbard 1999a, Leap, et al. 1997a, Leap, et al. 1996b, Leap, et al. 1998d). Retrailing was conducted in FY95 after completion of archaeological clearance by the river corridor office (Leap 1994b). Total station mapping was also completed in September 1998. Mitigation was proposed for this site in FY95 (Leap 1995c). This site was also included in the studies conducted by K. Thompson and A. Potochnik (Thompson and Potochnik 2000). Human impacts observed during the survey included distinct trails, trail caused erosion, and rearrangement of rocks. The Beamer Trail intersects this area down to a lower terrace. Planting vegetation may help stabilize the cutbank where Features 5 and 6 are located.

#### ***Monitoring Recommendations***

Some flat rocks have disappeared off the top of the cutbank above Feature 6. Feature 5 has slightly active surface erosion off the top of the feature. Features 2 and 4 are unchanged. Footprints are present leading directly to Feature 2. This may be of concern to the Puebloan tribes. Trail maintenance is recommended as there are a lot of footprints and broken deadfall. Continue annual monitoring.

### C:13:343 Small Structure

#### Annual Schedule

This is a Pueblo II Kayenta/Virgin limited activity area with three slab-lined features, a small artifact scatter, a fire-cracked rock scatter, and a rock alignment. After testing Features 1 and 2 in FY99 archaeologists determined that they are not cultural features. Feature 3 is a small, circular, Dox Sandstone slab-lined feature. At the top of a dune are two rock alignments; one measures four meters long and the other consists of two Dox Sandstone slabs. Artifacts consist of sherds, lithics, and fire-cracked rock; one chert scraper was noted on the survey. FY98 monitors identified Dogozshi and Sosi Black-on-White sherds in the active side canyon cutbank.

#### Previous Work

Archaeologists recorded the site in 1990 (Fairley, et al. 1994) and the RCMP staff monitored it in FY92, FY93, FY95, FY97, FY98, FY99 and FY00 (Coder, et al. 1994a, Coder, et al. 1995a, Coder, et al. 1995b, Coder, et al. 1994b, Hubbard 1999b, Leap, et al. 1997, Leap, et al. 1998, (Leap, et al. 2000)). Surveyors completed a total station map in FY97 (Leap, et al. 1997). FY95, FY97 and FY99 monitors recommended testing at this site. RCMP staff tested Features 1 and 2 in FY99 and confirmed that the "probable cists" were actually naturally formed during a debris flow. RCMP staff performed a 100% surface collection of a 5 x 18 meter area on-site. This site was also included in the studies conducted by K. Thompson and A. Potochnik ((Thompson and Potochnik 2000)).

#### Monitoring Recommendations

Active arroyo cutting and bank slump have resulted in the movement of artifacts into the main drainage. Feature 3 has had rock movement on the surface. Impacts on-site do not appear significant at this time. Continue annual monitoring for newly exposed cultural remains until data recovery occurs at Feature 3. Artifacts and charcoal continue to move downslope and into the arroyo at this location.

### C:13:347 Small structure

#### Annual Schedule

This site consists of a masonry wall and metate eroding out of a steep arroyo. FY94 monitors discovered a serpentine pipe bowl fragment eroding from the arroyo next to the wall. The pipe was collected by RCMP archaeologists. FY95 monitors discovered a Black Mesa Black-on-White sherd eroding from the same location. RCMP staff collected the sherd during exploratory testing in FY99. No other artifacts were found.

#### Previous Work

Archaeologists recorded the site in 1990 (Fairley, et al. 1994) and the RCMP staff monitored it in FY92, FY93, FY95, FY96, FY97, FY98, FY99 and FY00 [Coder, et al. 1994a, Coder, et al. 1995b, Coder, et al. 1994b, Kunde 1998, Leap, et al. 1997, Leap, et al. 1996, Leap, et al. 1998, Leap, 2000 #356]. Monitors collected the pipe bowl fragment and curated it at the South Rim in FY94. The pipe was discovered while producing a total station map of the site. FY95 monitors recommended more extensive total station mapping. FY96 monitors conducted medium format photography before the Research Flow and recommended checkdam installation and data recovery. FY97 monitors recommended data recovery, testing and installing checkdams. Zuni conservators and RCMP staff assessed the site for preservation action in FY97 and instead determined that data recovery was appropriate. Surveyors completed a total station map for this site in FY97. FY98 monitors recommended data recovery before more cultural material was lost. RCMP staff conducted exploratory testing in FY99 to determine if the exposed wall continued into the arroyo cutbank. Testing indicated that the wall does extend into the sediment and that cultural materials are still intact. The large Black Mesa Black on White sherd was collected during exploratory testing in FY99 due to its vulnerable position in the arroyo. FY99 monitors recommended more extensive data recovery.

#### Monitoring Recommendations

The bank of the arroyo has slumped, filling in an area previously described as an animal burrow. The main arroyo has been active and a large nick point is present below the metate. Surface erosion, arroyo cutting, slump and side canyon erosion are all active. Data recovery is recommended here. It appears that two portions of the wall are now exposed. Further slump and continued arroyo cutting will result in a loss of this site. Continue annual monitoring.

### C:13:349 Historic Structure

#### Annual Schedule

This multi-component site consists of a historic cabin/dugout, fire-cracked rock, and artifacts. No artifacts indicating function were found in association with the structure. The prehistoric components are both pre-ceramic and PI-II Puebloan. Charcoal fragments were observed below the structure in a drainage but appear to pre-date the use of the historic structure. There are eight remaining wood pieces to the historic structure. The back of the structure, consisting now of just one foundation pine plank, is banked against a dune. The prehistoric fire-cracked rock midden/roasting pits have good assemblages of sherds and lithics, but no formal tools were noted. The site is located in mesquite-anchored dunes. New charcoal lenses and fire-cracked rock have been exposed since the initial recording of the site.

#### *Previous Work*

The site was originally recorded in 1990 (Fairley, et al. 1994) and monitored annually since FY93 (Coder, et al. 1994a, Coder, et al. 1995a, Coder, et al. 1995b, Leap, et al. 1997, Leap, et al. 1996, Leap, et al. 1998, (Leap, et al. 2000)). A profile was examined at this site to better understand flood and debris flows along the terrace (Hereford, et al. 1993) and incorporated into the Lower Tanner section of that report. The site was photographed with a medium format camera in FY96, FY97, and FY98 (Leap 1996b; Leap 1997b; Leap 1998a). A total station map of the site was completed in 1997 and the site was remapped in September 1998. The site was assessed for stabilization by the Zuni Conservation Project in FY97. Stabilization was determined to be inappropriate at this location. Feature 2 was completely excavated in FY99 (Kunde 1998). The report will be disseminated upon completion of artifact analysis. This site was also included in the studies conducted by K. Thompson and A. Potochnik (Thompson and Potochnik 2000).

#### *Monitoring Recommendations*

Feature 3 looks fairly stable with the exception of downslope rock movement. Feature 4 looks stable also. Continue annual monitoring due to the arroyo cut. The arroyo could expose new cultural remains as was the case with Features 2 and 5.

### C:13:371 Structure-Thermal Feature Complex

#### Semi-annual Schedule

This is a mid-late Pueblo II Puebloan habitation area situated on a debris fan and on both sides of an unnamed side canyon. It consists of several rockshelter overhangs, some with dry-laid masonry walls, possible room rubble, several fire-cracked rock concentrations, and a lithic/ceramic scatter. Feature 1 consists of two small rock overhangs each with two to three course dry-laid masonry walls, possibly the remains of storage features. Features 2, 3, and 4 are fire-cracked rock concentrations. Feature 5 is an architectural unit consisting of two rooms. Feature 6 consists of two fire-cracked rock concentrations, one three meters in diameter and the other three by five meters with artifacts. Feature 7 is a fire-cracked rock scatter with a few artifacts. In general, each fire-cracked rock area has at least some artifacts associated with it. FY97 monitors found a Tapeats Sandstone mano below Feature 6. FY00-1 monitors identified a small circular alignment located 2 meters south of Feature 5, exposed in the drainage. An overhang shelter with roasting feature was also identified on the talus slope above the site. Redwall and Kaibab Chert flakes are present in the overhang and charcoal is present inter-mixed in the roaster with fire-cracked rock.

#### *Previous Work*

Archaeologists recorded the site in 1990 (Fairley, et al. 1994) and the RCMP staff monitored it semi-annually since FY92 (Coder, et al. 1994a, Coder, et al. 1995a, Coder, et al. 1995b, Coder, et al. 1994b, Hubbard 1999a, Kunde 1998, Leap, et al. 1997, Leap, et al. 1996, Leap, et al. 1998, (Leap, et al. 2000)). Monitors recommended a combination of data recovery, testing, planting vegetation, and installing checkdams since FY94 (Coder, et al. 1995b, Leap, et al. 1997, Leap, et al. 1996, Leap, et al. 1998). FY94 monitors recommended total station mapping and collecting charcoal. In FY95 monitors recommended checkdams. In FY96 Zuni Conservation personnel, GRCA trail crew and RCMP personnel constructed three checkdams adjacent to Features 3 and 5 (Leap 1996f). FY95 also recommended planting vegetation. FY96 monitors assessed the site for planting vegetation and decided that none would be planted. FY96 monitors collected charcoal from Features 2 and 4. Radiocarbon dates with a 2 sigma, 95% probability indicate new Feature 2 dates ranging between AD 1665 and 1950 and a Feature 4 age range between AD 1445 and 1655 (Leap, et al. 1998). Prior to the research flow of 1996, Feature 8 was tested for subsurface deposits.

The results showed that Feature 8 was the remains of a debris flow (Balsom and Larralde 1996b). In FY96 the site was mapped with a total station instrument and medium format photos were taken before and after the Research Flow (Leap 1996b, Leap 1996d, Leap, et al. 1996). FY98 monitors recommended testing Feature 6 and 7, collecting a charcoal sample at Feature 3 and full data recovery of Feature 2. FY98 monitors also recommended obtaining a charcoal sample from Feature 3. FY98 monitors replicated medium format photos taken during the 1996 research flow. Zuni Conservation personnel completed checkdam maintenance at Checkdam 2 in FY99. FY99 monitors noted that Checkdams 1 and 3 were in stable condition. FY00 monitors replicated medium format photographs taken prior to and following the 1996 research flow.

#### ***Monitoring Recommendations***

Feature 2 has increased gullyng and surface erosion as seen by fire-cracked rock moving downslope. All features are in poor but stable condition. Continue semi-annual monitoring for newly exposed materials until excavations are completed (see data recovery recommendations in the FY99 synthesis report (Leap et al., 2000). Monitoring of the 3 checkdams will continue annually by the Zuni Conservation Project personnel.

### **C:13:385 Small Structure**

#### **Biennial Schedule**

C:13:385 is a 12th century Puebloan habitation site consisting of two slab-lined features and associated artifacts dominated by Kayenta ceramics with chipped stone and handtools, groundstone, and shaped slabs. The site is located on an alluvial terrace with an eolian component present on the surface.

#### ***Previous Work***

This site was initially recorded in April 1991 (Fairley, et al. 1994) and was monitored in FY93, FY94, FY95, and FY99 (Coder, et al. 1994b, Coder, et al. 1995a, Coder, et al. 1995b, Hubbard 1999a). A surface analysis unit was placed at this site in FY94, however, these units were discontinued by the project in FY96 (Leap 1996a).

#### ***Monitoring Recommendations***

Artifacts continue to erode downslope. The cist and hearth are also experiencing active surface erosion. Some artifacts are missing and likely have eroded down off the terrace. This site contains a high density of different lithics and ceramics. A thorough artifact analysis should be conducted here before more diagnostic artifacts are lost. Continue biennial monitoring.

### **C:13:386 Small Structure**

#### **Semi-annual Schedule**

The site consists of a slab-lined cist, a structure consisting of two upright sandstone slabs with a two-handed mano and trough metate. A pecked stone is also present. A Deadmans Black-on-Red partial bowl and a Sosi Black-on-White ladle have eroded from a dune between the cist and the activity area. The site is on a dune slope just above the mesquite and driftwood zone. Wind blown sands continue to uncover extensive materials.

#### ***Previous Work***

This site was originally recorded in 1991 (Fairley, et al. 1994) and monitored in FY93, FY94, FY96, FY98 and FY00 (Coder, et al. 1994a, Coder, et al. 1995a, Leap, et al. 1996, Leap, et al. 1998).

#### ***Monitoring Recommendations***

Eolian erosion and deposition is occurring at Structure 1. Some of the artifacts have been buried, some artifacts are now being exposed. The newly exposed Deadmans Black-on-Red bowl was reburied with the other artifacts. Continue semiannual monitoring due to the recent exposure of diagnostic artifacts.

## G:03:004 Roaster Complex

### Annual Schedule

The site is located at the mouth of a major side canyon and is situated less than 100 m from an established boat camp. This site contains several roasting features, two rockshelters, rock images, and historic remains. The two rockshelters have a midden containing charcoal, burned soil, fire-cracked rock, and artifacts. One shelter has several historic mason jars and other trash dating to the 1930s, plus the inscription "M BUNDY". The ceiling of this shelter, below the inscription, has some faint hematite figures. The remaining features are roasting pits. In addition to the historic component, the site may be affiliated with both Pueblo I-III occupation and late prehistoric-early historic Pai/Paiute. A fire-cracked rock concentration with no artifacts on the downstream side of Indian Canyon is probably affiliated with the main site. During FY96 monitors added historic cans to the site map, and in FY97 monitors discovered a newly exposed slab-lined feature (Feature 8) between Features 1 and 2. In FY98 archaeologists recorded a chert awl in the midden area that was not previously identified.

### *Previous Work*

This site was initially recorded in 1972 and revisited several times throughout the 1970s. Sherds were collected and analyzed and a few notes were taken. No further descriptive work or mapping was completed, but on each occasion more sherds were collected and typed. NPS survey personnel re-recorded the site in 1991 (Fairley, et al. 1994). From FY93 to FY95 the site was monitored twice a year and, in FY96 the monitoring schedule changed to annual (Coder, et al. 1994a, Coder, et al. 1995a, Coder, et al. 1995b, Kunde 1998, Leap, et al. 1997, Leap, et al. 1996, Leap, et al. 1998, (Leap, et al. 2000)). In FY95 retrailing and trail obliteration were completed and minimal work was completed on a total station map. In FY97 more trail work was needed and medium format black-and-white and color photographs were taken of the historic inscription. After trail work was completed in FY95 a letter was published in the Boatman's Quarterly requesting that visitors use the designated trail that leads directly to the "Bundy jars", and not traverse through the prehistoric areas (Bullets 1995 Summer). Commercial users did not honor this request and more trail work was needed in April 1997. RCMP staff drafted a second letter to the Park's concessionaire representative in June 1997 regarding commercial use of the area. This letter requested that the commercial guides use the new, designated trail or the commercial outfitters would be responsible for any necessary mitigation. To date, NPS allocated funds to address recreational impacts. However, this work is contingent on tribal consultations. A final assessment for trail maintenance was conducted in FY99. This assessment was to implement trail work prior to excavations and to produce a plan for a new trail after excavations are completed. This site was also included in the studies conducted by K. Thompson and A. Potochnik (Thompson and Potochnik 2000). The features were mapped with a total station instrument in FY00 in preparation for data recovery work with the GRCA Fee Demo program. Data recovery occurred in 11/2000 on a CRF river trip. A separate report is currently being produced.

### *Monitoring Recommendations*

Surface deflation and some compactions are occurring at Feature 4. Rodent burrows are present in the NW quadrant of the feature. Increase deflation is occurring at Feature 3. Surface erosion and wind deflation near Feature 6 have resulted in a loss of 2-3cm of soil. Rocks are being pedestaled here. The gully next to Feature 7 has been active, resulting in sediment loss. Feature 5 is unchanged. Features 2 and 8 have been excavated, the report will be completed by summer, 2001. The Bundy Jars have been disturbed by visitation. A plastic snake, ants and peanut butter have been placed inside the jars. Compaction of the midden area near the jars continues. Continue annual monitoring.

### Granite Park Delta

Several sites are located on the Granite Park Delta including G:03:002, G:03:003, G:03:024, G:03:025, G:03:026 and G:03:028. Trails on the delta have been a documented impact for over twenty years. GRCA, RCMP and the Hualapai have conducted trail obliteration projects in the 1990s with some success. Recently, much of the access trail obliteration work conducted by GRCA in FY96 and FY97 to close off the upper terraces has been removed and new access trails formed. However, several trails on the upper terrace show encouraging signs of recovery. Grasses and cryptogamic soil are abundant throughout the obliterated trails near G:03:026 and G:03:28 and G:03:025.

Despite some success to curtail visitor-related impact on the delta, a substantial work project is needed in the future. GRCA Revegetation, Trail Crew, and RCMP archaeologist agreed that the trail obliteration project could take two to three days and be conducted on a fall CRF trip. Consultation with the Hualapai is currently under way to approve such

a project and a request has been made to involve Hualapai cultural resources crew during the project. Detailed information regarding the current condition and recommendations for sites G:03:003, G:03:026 and G:03:028 are presented below.

### G:03:003 Roaster Complex (Granite Park)

#### Annual Schedule

The rockshelter (Feature 1) was originally recorded by G. Gumerman and R. Euler on 9/4/69, and the GRCA survey crew added four roasting features (Features 2-5) in 1991. Feature 1 is a shallow overhang and midden. There is a large amount of lithic debris, including obsidian flakes, an Elko base, a biface tip, and groundstone fragments. Charcoal, ashy soil, and fire-cracked rock are also present. Ceramics suggest both late Pueblo I to early Pueblo II Formative and late prehistoric-early historic Pai affiliations. The remaining features (Features 2-5) are roasters of varying sizes, some with tools and/or flakes, ceramics, etc. In the monitoring episode of FY92 monitors noted nails, more projectile points, and sherds, and the FY96 monitors found a projectile point at Feature 2 near the dripline and trail.

#### *Previous Work*

Euler and Gumerman initially recorded this site in minimal fashion in 1969. Sherds were collected and an analysis was completed. Field notes state that the condition of the site was "undisturbed" and the potential for a rewarding excavation was "excellent." Euler and Jones visited the site again in 1981. More sherds were collected and a simple sketch map was made. G:03:003 was recorded in more detail by NPS survey personnel in January of 1991 (Fairley, et al. 1994).

River corridor monitors visited the site in FY92 and FY93, twice in FY94, once in FY95 and then semiannually beginning in FY96 (Coder, et al. 1994a, Coder, et al. 1995a, Coder, et al. 1995b, Coder, et al. 1994b, Hubbard 1999a, Kunde 1998, Leap, et al. 1997, Leap, et al. 1996, Leap, et al. 1998). In FY95 site overviews were taken with a medium format camera. In FY96 the features were plotted with a total station unit and overlain on a topographic map created by Thompson and others (Thompson, et al. 1996; Leap 1997a; Leap, et al. 1996). At this time the Zuni Conservation Projects personnel also assessed the site for checkdam installation (Leap 1996f). Three checkdams were built in the river-based drainage downstream of the site (Leap 1996f, Leap, et al. 1996). They were placed in this drainage at the suggestion of K. Thompson and K. Burke in FY96. According to their aerial photogrammatic maps, this particular drainage could cause some substantial site destruction if untreated. From FY96 to FY98 the three checkdams were in good condition with little to no maintenance required. In FY99, however, a heavy rainstorm occurred, and as a result, the Zuni Conservation team and RCMP staff constructed ten new checkdams in the river-based drainage, and extensive work was completed on two of the original checkdams. A few large rocks were removed from the third original checkdam to define a central channel. The new checkdams need to be mapped in on the 1993 Hereford map with a total station. This site was also included in the studies conducted by K. Thompson and A. Potochnik (Thompson and Potochnik 2000).

The site receives a great number of visitors, and as a result, multiple trails bisect features and several collection piles exist. Aerial photographs taken over the last 25 years show a geometric increase in the social trailing at Granite Park in general. This trend is enhanced by the local big horn sheep that spend considerable time in this area due to the lush grass growth accompanied by the wet winters. NPS and Hualapai representatives have performed retrailing and trail obliteration in FY96 and FY97, yet people continue to visit the site. A letter was published in the Boatman's Quarterly by L. Jackson and L. Leap requesting river runners and researchers to minimize their impact to the area (Jackson and Leap 1996 Summer).

#### *Monitoring Recommendations*

The drainage leading off the talus to Feature 1 has several nickpoints and is deepening in some areas. Feature 3 has some minor deflation. Sheetwash is evident across Feature 5. Features 2 and 4 look to be in fair condition. Collection piles at the shelter were dispersed. Trails are all over the dune and the trail leading to Feature 1 is now a drainage. Continue annual checkdam maintenance. Assess in conjunction with the NPS Revegetation crew for planting vegetation at trail access points to the sites. Consult with the Hualapai for solutions to visitation problems. The trail leading to Feature 1 should be treated. Continue annual monitoring.

### G:03:026 Roaster Complex (Granite Park)

#### Three-year Schedule

The site consists of seven roasting pits and two activity areas exhibiting several different phases of use and existing in various stages of deflation, from pristine to nearly eroded to their original baselevel. The sherds (and other artifacts) indicate late prehistoric-early historic and mid-historic (1850-1900) Pai use. Some flakes and tools were observed, including two biface items and an obsidian point. Groundstone was also located. Two fragments of pressed purple glass were observed near activity area A; perhaps pieces of a small candy or relish dish.

#### *Previous Work*

The site was originally recorded in 1991 (Fairley, et al. 1994) and monitored at least annually since FY92 (Coder, et al. 1994a, Coder, et al. 1995a, Coder, et al. 1995b, Coder, et al. 1994b, Hubbard 1999b, Leap, et al. 1997, Leap, et al. 1996, Leap, et al. 1998). Carbon samples for Hereford's geomorphological research were collected from Features 2, 3 and 8 prior to the RCMP. Dates range from 190 +/- 50 to 520 +/- 50 B.P. Trail obliteration, retrailing, and vegetation work was conducted in FY96 and FY97 by NPS and RCMP staff. Upon completion of the trail work, the Hualapai and RCMP staff submitted a letter to the Boatman's Quarterly requesting no more visitation by commercial passengers and a decrease in the research conducted at Granite Park (Jackson and Leap 1996 Summer). In FY96 the features were plotted using a total station instrument and overlain onto a topographic map created by Thompson and others (Leap, et al. 1996, Thompson, et al. 1996). The site was assessed in FY96 and as a result, five checkdams were constructed in the side canyon-based drainage (Leap 1996f, Leap, et al. 1996). In FY99 four of these checks were slightly altered and one new check was built. In FY99 personnel from the Natural Resources Conservation Services (NRCS) conducted some soil sieving and wrote a small report on the findings (Lindsey 1999). This site was also included in the studies conducted by K. Thompson and A. Potochnik (Thompson and Potochnik 2000). Since FY92 visitor-related impacts (by river runners and researchers) have been consistently recorded. Trailing from tourists and researchers has been evident everywhere, and the problem is compounded by bighorn sheep living in the area. FY93 monitors initiated the recommendation for retrailing and trail obliteration. This recommendation continued until FY98 when only trail maintenance was warranted. Impacts from visitors and researchers continued to come and go, therefore, trail maintenance was recommended on an as needed basis.

#### *Monitoring Recommendations*

It is recommended that the trail work be completed here on a CRF trip. The project will take an estimated three days to complete the work at all the sites on the Granite Park Delta. The Hualapai will be consulted about the proposal for work on the delta in March 2000. There are three access trails that lead to this site. Two of the trails are on the west slope near the camp and one is near the side canyon. Both trails need extensive trail obliteration and revegetation. Some of the trails on-site have recovered since the FY96 trail obliteration effort, however, new trails are located alongside some of the previously obliterated trails.

Trail obliteration and planting cactus and grasses should be completed on a Spring 2001 CRF trip. Prickly pear planted in FY96 has established throughout some of the trails. Deadfall could be collected on the delta and across the river for use in the trail obliteration effort.

### G:03:028 Roaster Complex (Granite Park)

#### Biennial Schedule

The site is divided into six loci of activity (A-F). Locus A consists of two roasting features with fire-cracked rock, ash, charcoal, a lithic concentration and some ceramics. Locus B is a light scatter of lithic debitage, including a point base, and a sherd. Locus C is a tight concentration of about 20 flakes and a sherd. Locus D contains three "blow-out" or "dug-out" areas that may be wickiup depressions with associated flakes and fire-cracked rock, plus additional fire-cracked rock and lithic concentrations and a grouping of buried slabs. Locus E is an area of possible domestic activity, represented by four possible wickiup depressions--some with encircling stone "foundations", and associated lithics, sherds, groundstone, and fire-cracked rock. Locus F has one well-defined roaster, and other fire-cracked rock concentrations that may represent more roasting features. Lithic debitage consists of a wide variety of cherts and obsidian, and reflects expedient reduction. Pueblo II Formative sherds dominate at Loci A, B, and E, while late prehistoric-early historic Pai sherds are seen at Loci C, D, and also E. The site is located on low stabilized dunes covering an alluvial terrace.

### *Previous Work*

The site was officially recorded in 1991 by NPS personnel (Fairley, et al. 1994) and monitored in FY93, twice in FY94, once in FY95, FY97, and FY99 (Coder, et al. 1994a, Coder, et al. 1995a, Coder, et al. 1995b, Hubbard 1999b, Leap, et al. 1997). The GRCA trail crew obliterated extensive trailing in FY95. In FY96 the features were located with a total station instrument and overlain on the 1995 topographic map produced by Hereford (Hereford, et al. 1996b). In FY96 GRCA trail crew also completed trail obliteration, retrailing, and vegetation to deter visitation (Leap 1996f). This site was also included in the studies conducted by K. Thompson and A. Potochnik (Thompson and Potochnik 2000). FY2000 monitors recommended that trail obliteration and planting cactus and grasses should be completed. All of the work on the delta will take an estimated three days. Deadfall could be collected on the delta and across the river for use in the trail obliteration effort. The Hualapai will be consulted about the proposal for work on the delta.

### *Monitoring Recommendations*

Surface erosion is evident in three of the loci. The most significant erosion is occurring along the south side of Feature 1. Piping is occurring below Feature 3, and this is moving towards the feature. Faint trails are still present and still in use. Trailing is primarily located in and around Features 1 and 2. Trail maintenance should continue by the GRCA Rehabilitation crew annually in conjunction with Hualapai Tribal consultation. The area will be assessed for work on an upcoming CRF trip.

## **G:03:020 Roaster complex**

### **Annual Schedule**

The site is comprised of seven main features divided into two loci: A and B, each on opposite sides of a large side canyon. Locus A contains Features 1, 2, 5, 6, 7, 8 (a newly exposed hearth feature recorded by RCMP staff last year), and 9, a newly exposed charcoal concentration found during the FY99 excavations at this site. Locus B contains Features 3 and 4. Feature 1 was originally described as being two charcoal lenses eroding from a high dune with associated fragments of burned bone. Feature 2 is a large "classic" donut-shaped roasting pit with a number of manos, charcoal, and a few flakes. Feature 3 is an eroding roasting pit with a discernable rock outline on top. Feature 4 is a diffuse scatter of fire-cracked rock. Feature 5 is a disturbed area of fire-cracked rock at the edge of the side canyon. Feature 6 is another eroding fire-cracked rock area with bone, and Feature 7 is a roaster deposit exposed by a small arroyo. Cultural affiliation is unknown, but presumed to be Pai and or Paiute.

### *Previous Work*

The site was originally recorded in 1978 by R. Euler with further recording by NPS personnel in 1991 (Fairley, et al. 1994). The site has been monitored at least annually since FY92 (Coder, et al. 1994a, Coder, et al. 1995a, Coder, et al. 1995b, Coder, et al. 1994b, Hubbard 1999b, Leap, et al. 1997, Leap, et al. 1996, Leap, et al. 1998 (Leap, et al. 2000)). Zuni Conservation Project personnel assessed the site in the fall of FY99 and determined that checkdams were not an appropriate stabilization procedure. In FY97 a total station map of the site was completed (Leap, et al. 1997). This site was also included in the studies conducted by K. Thompson and A. Potochnik (Thompson and Potochnik 2000). In the spring of FY99 Features 7, 8 and 9 were excavated. Results of the excavation will be written and sent to PA members after the collected samples are sent to the appropriate analysts. Currently, the samples are housed at the Flagstaff office until funding is provided. After excavations, trails were obliterated. The Zuni Conservation Project staff determined that the gullies and arroyo are too advanced to install checkdams. Mapping rate, depth and width of these drainages through time could provide excellent data on the progression and rate of erosional processes effecting cultural resources at this location.

### *Monitoring Recommendations*

The main concern is gully advancement up to and within the east side of Feature 2 (the roaster). The arroyo that is below the gully has also been very active and exhibiting headward erosion. In general, the area has experienced heavy rains and overall surface erosion. The same gully NE of Feature 2 exhibits channel deepening by five centimeters. The arroyo needs to be remapped to study the rate of erosion. We already have a base map from 1997 in this location. Data recovery of Feature 2 is recommended. New artifacts have eroded from the gully at Feature 2, including a Partridge Creek Obsidian biface/uniface and a possible coyote canine from the same area.

### G:03:034 Roaster Complex

#### Three-year Schedule

The site is located on both sides of a drainage that cuts through a dune-covered alluvial fan. Locus A is on the downstream side of the drainage and Locus B is on the upstream side. Features 1 through 6 and Feature 10 are located in Locus A. All features but Feature 2 are roasting/fire features (one of which, Feature 5, has an associated pot break). Feature 2 is a rock cairn and rebar that attests to some form of historic activity. Archaeologists discovered a few chert and rhyolite flakes, a biface knife base, and a hammerstone. Features 7 through 9, at Locus B, are all roasting features. This site may be related to G:03:031, a rockshelter located slightly upstream and above this site. Prehistoric artifacts, including ten Shinarump Grayware sherds, suggest a Pueblo I-early Pueblo II Virgin affiliation. FY94 monitors found what they believed could be a burial just downslope of Feature 6.

#### *Previous Work*

Archaeologists recorded the site in 1991 (Fairley, et al. 1994) and the RCMP staff monitored it in FY94, FY95, FY97, and FY99 (Coder, et al. 1995a, Coder, et al. 1995b, Hubbard 1999a, Leap, et al. 1997a). FY94 monitors recommended total station mapping and FY95 monitors recommended testing for subsurface cultural materials. This area was assessed in April 1997, and RCMP staff determined that no data recovery was warranted. RCMP staff conducted an assessment for charcoal samples in FY99 and determined that sampling would disturb the features' stability.

#### *Monitoring Recommendations*

Feature 6 has had a lot of sediment loss to the fire-cracked rock. Vegetation is also less apparent. Feature 5 has increased cryptogamic soils and looks very good. Features 2, 3, 4, 7, 8 and 9 are unchanged. Feature 1 has had rock fall and surface erosion and the arroyo adjacent to Feature 1 has been recently active.

### G:03:041 Roaster Complex

#### Annual Schedule

This site consists of three large roasting features. Archaeologists recorded a sparse lithic scatter, two cores, a chopper, and one Tizon wiped sherd on-site. The late prehistoric-early historic Pai site appears to have been a temporary hunting camp, based on the absence of grinding implements and the abundance of bone.

#### *Previous Work*

Archaeologists recorded the site in 1991 and the RCMP staff monitored it in FY96, FY98, FY99, and FY00. The RCMP staff recommended stabilization in FY96. In FY97 the site was assessed for checkdams and Zuni Conservation Project personnel constructed three rock and brush linings in the drainages below the site. A total station map was completed in FY97. FY98 monitors recommended planting vegetation and obliterating trails caused by remedial work projects. RCMP staff assessed this area for trail obliteration and planting vegetation in FY99 and found that the trails were recovering naturally. Checkdam maintenance occurred at one checkdam and six additional checkdams were built in FY99. This site was also included in the studies conducted by K. Thompson and A. Potochnik.

#### *Monitoring Recommendations*

Deadfall remains in the same spot since photographed in 1996. Feature 1 is unchanged. Feature 2 is losing surrounding soils but the rocks of the feature appear unchanged. The drainage at Feature 3 has been very active and entrenched. Continue annual checkdam monitoring and maintenance. Continue annual monitoring.

### G:03:064 Roaster complex

#### Annual Schedule

This site consists of 15 features including mostly roasting features. Charcoal lenses are present in several of the arroyo cuts. Artifacts associated with the roasting features include lithics, ceramics, a shell bead, and groundstone. Lithics include a flake drill and a reworked Elko Corner-Notched projectile point. The ceramic assemblage suggests a multi-component site: Pueblo I-III Formative and late prehistoric-early historic Pai/Paiute. This could be one of the most informative sites in western Grand Canyon with potential for dating and chronology-building. FY96 monitors

discovered a large Redwall Chert point tip exposed in the river-based drainage across from Feature 1. FY97 monitors discovered a chert awl at Feature 6. RCMP staff on the September 1997 mapping trip discovered newly exposed Jeddito Yellow ware sherds, obsidian flakes, an olivella shell bead, and two new probable roasting features/fire-cracked rock scatters exposed by the river-based arroyo. FY98 monitors discovered new fire-cracked rock features exposed by the arroyo. FY99 monitors discovered seven new charcoal lenses exposed in the river-based arroyo.

#### *Previous Work*

Archaeologists recorded the site in 1991 (Fairley, et al. 1994) and RCMP staff monitored it at least annually since FY94 (Coder, et al. 1995a, Coder, et al. 1995b, Hubbard 1999b, Leap, et al. 1997, Leap, et al. 1996, Leap, et al. 1998, (Leap, et al. 2000)). In FY93 archaeologists collected radiocarbon samples resulting in a range of dates from 170 +/- 50 BP to 2670 +/- 140 BP. FY94 monitors recommended planting vegetation, installing checkdams, and total station mapping. FY95 monitors conducted medium format photography of the active drainage (Leap 1995a). FY95 and FY96 monitors recommended testing and total station mapping. In FY95 total station mapping began and in FY97 a complete map was produced. During the intensive mapping, archaeologists discovered two new roasting features, new lithics, ceramics and an olivella shell bead. FY96 monitors also recommended either an attempt at stabilization or full site excavation. FY98 monitors recommended obliterating trails caused from five days of intensive site mapping and data recovery. After further assessment it was determined that the trails were recovering naturally. FY99 monitors recommended data recovery and remapping of the arroyo headcuts to identify their rate of advancement. The RCMP collected charcoal samples from Charcoal Lens D and Feature 1 in FY99. The samples will be sent for dating in the near future. This site was also included in the studies conducted by K. Thompson and A. Potochnik ((Thompson and Potochnik 2000)).

#### *Monitoring Recommendations*

Feature 14 has nick point advancement with a substantial plunge pool, 30 centimeters deep. Not much significance remains at this feature due to the erosion. Feature 13 has a new nick point below the feature and advancement east of the feature 30 centimeters in depth. Feature 12 gully on NW side has advanced, exposing more fire-cracked rock. Feature 11 has abalone shell and 2 biface fragments exposed. No change was observed at Features 9 and 10. Feature 9 does have a newly exposed chert biface that is almost perforated. The metate that was partially exposed in an arroyo wall since the survey, has been lost to the expanding arroyo and bank slump. Feature 1 has been compacted by rain but no real change has occurred. Feature 15 has nick point advancement toward the feature. Features 2 - 7 are unchanged since last monitored. Overall, several new artifacts have been exposed in the widening arroyos. Data recovery should occur. Annual monitoring will continue due to the exposure of artifacts and drainage advancement.

The Hualapai and Paiute should be consulted on preservation and recovery options for this site. This area, referred to as Arroyo Grande, continues to exhibit extensive erosional activity on an area that is very significant to these tribes.

### **G:03:067 Roasting Feature**

#### **Biennial Schedule**

The site consists of five fire-cracked rock middens with associated lithics and a dispersed flake scatter. Archaeologists discovered two thin bifaces and one Moapa Brown Ware sherd upslope of Feature 1, suggestive of a late Pueblo I-early Pueblo II Virgin affiliation.

#### *Previous Work*

Archaeologists recorded the site in 1991 (Fairley, et al. 1994) and the RCMP staff monitored it annually from FY92 to FY95 (Coder, et al. 1994a, Coder, et al. 1995a, Coder, et al. 1995b, Coder, et al. 1994b). In FY95 the monitoring schedule changed to biennial and the RCMP staff monitored the site in FY97 and FY99 (Leap 1995a, Leap, et al. 1997). FY94 and FY95 monitors recommend obliterating on-site trails. The GRCA trail crew conducted trail obliteration in FY96. FY99 monitors recommended trail maintenance and assessment for brush and rock linings in the drainages near Features 1 and 4. RCMP staff assessed the site and determined that no checkdams would be built. GRCA trail maintenance is warranted due to three large and heavily used camps below this site. In FY2000, a trail near Feature 1 was obliterated. Feature 2 was recommended for testing and is located directly in the path of the previously defined trail work. Feature 2 should be tested for subsurface extent and integrity.

### *Monitoring Recommendations*

Features 2, 3, and 4 are unchanged since last monitored. A healthy layer of cryptogamic soils covers the surface in the vicinity of these features. Feature 5 has lost large driftwood pieces from the feature and fire-cracked rock is eroding downslope into the drainage. Trail work completed by the GRCA Rehabilitation crew continues to successfully deter visitation on-site. GRCA trail maintenance will continue, as will biennial monitoring.

### **G:03:072 Roaster Complex**

#### **Annual Schedule**

This is an extensive roasting feature complex that includes an overhang shelter previously recorded as historic site G:03:023. The prehistoric component of that site is described here as G:03:072. Fourteen features (Features 1-14) are present. All but Feature 1 are roasting features or hearth/fire-cracked rock scatters of various shapes and sizes, some with associated groundstone, lithics, and sherds. Feature 1 is the overhang shelter, which, in addition to the historic component described as site G:03:023, has a prehistoric component consisting of a lithic scatter downslope of the shelter and in the shelter fill. Ceramics observed indicate that this may be a multi-component site, with both late Pueblo I-early Pueblo II Virgin occupation and late prehistoric-early historic Pai and Paiute occupations. On a total station mapping trip in FY98 RCMP monitors identified newly exposed diagnostic artifacts in a gully. They include one biface, sherds and groundstone.

#### *Previous Work*

The site was originally recorded in 1991 (Fairley, et al. 1994), monitored once in FY93, and monitored annually since FY95 (Coder, et al. 1994a, Coder, et al. 1995b, Hubbard 1999b, Leap, et al. 1997, Leap, et al. 1996, Leap, et al. 1998, (Leap, et al. 2000)). In FY96 an assessment was made for checkdam installation. In FY97 a total station map was completed and 14 checkdams were placed in three river-based and side canyon-based drainages (Leap, et al. 1997). In FY99 checkdam maintenance resulted in building two new checkdams and altering one original checkdam. Minor to moderate alluvial deposition as a result of building checkdams is evident in two of the four drainages with checkdams. Data recovery has been recommended at Features 11, 12, and 14.

### *Monitoring Recommendations*

Feature 12 has had a lot of sediment deposition to where only three rocks are exposed and there is no vegetation. Gully erosion is deeper at Feature 11. Feature 9 is stable but has some signs of surface erosion. No change was observed at Feature 10. Feature 7 appears stable. Features 5 and 6 have exhibited minor surface erosion. Surface erosion is also noticeable at Features 2, 3 and 4. Annual monitoring will continue as is the recommendation for data recovery at Features 11, 12, and 14.

### **G:03:080 Structure-Thermal Feature Complex**

#### **Annual Schedule**

The site is divided into two loci. Locus A contains numerous lithics, sherds, hand tools, and extensive rock images. The pictographs and lone petroglyph are in poor condition. Spalling and salt seep have covered several of the images. This locus is on a sheltered bench at the base of a basalt cliff, just upstream from the dune that Locus B is located on. Locus B consists of nine separate structural and fire features. Numerous artifacts are present, including fire-cracked rock, lithics, ceramics, groundstone, tools, shell fragments, and charcoal. This site has excellent potential for buried materials and datable features. Ceramics suggest a late prehistoric-early historic Pai affiliation. In March of FY95 monitors recorded a newly exposed thermal feature (Feature 9).

#### *Previous Work*

The site was originally recorded in 1991 (Fairley, et al. 1994), monitored once in FY92 and FY93, and annually since FY95 (Coder, et al. 1994a, Coder, et al. 1995b, Coder, et al. 1994b, Hubbard 1999b, Leap, et al. 1997, Leap, et al. 1996, Leap, et al. 1998). In FY97, medium format black-and-white and color prints were taken of Locus A, and an attempt was made to sketch several of the distinct rock art figures. In FY99 visitor-related impacts (trailing) were observed at an all time high. Trails led from the camp, across Locus B, to Locus A. The pictographs (Locus A) are a popular attraction stop for commercial river runners and Hualapai river-runners who make the uprun.

In FY99 RCMP staff suggested annual monitoring. It was also recommended that several trails be obliterated by planting vegetation throughout the site. They noted that visitor-related impacts, in particular trailing, should be addressed and managed by the Hualapai Nation.

***Monitoring Recommendations***

Feature 8 has two large animal burrows. A lot of vegetation has died off at Feature 5 and the drainage headcut is 50 centimeters below the feature. Feature 4 is unchanged though there is no vegetation at all on the feature. The grasses are gone and cryptogamic soils are dying. Features 3, 6, and 7 are unchanged. Feature 2 has sheet wash which may develop into a gully. Surface erosion is evident throughout the site. Four collection piles were dispersed at Locus A. The Hualapai Tribe should contact the Hualapai River-runners regarding upruns to this site. If the Hualapai decide to bring tours here, they should consider data recovery or the development of the area as an interpretive site.

### Checkdam Work

In October, 2000 the RCMP monitoring staff and Zuni Conservation Project member Gabriel Yuselew visited the 28 archaeological sites containing checkdams or water diversion structures designed to preserve, in place, archaeological remains vulnerable to exposure in drainages downcutting predam alluvial terraces. 62 of the 264 total checkdams required some kind of maintenance work. This means that 23% of the checkdams required maintenance. Maintenance work entailed using a total of 96 buckets of rocks and 27 buckets of gravels.

### Monitoring and Maintenance

#### A:15:005- 5 Checkdams

The checkdams are holding steady and there is collection of sediments behind and within the two checkdams and three rock linings. No work was necessary.

#### A:16:149- 7 Checkdams

No work was necessary.

#### A:16:174- 8 Checkdams

A total of 10 buckets of rock was used between Checkdams 3 and 4. Baseball cobbles were lined up to a depth of 15cm. Checkdams 3 and 4 are now joined to form one checkdam. At checkdams 6, 7, & 8 the nick points were filled in with gravels and now these three checkdams are joined into one checkdam.

#### A:16:180- 7 Checkdams

Twelve buckets of rock were used to reinforce existing checkdams 2, 4 and 5. A rock lining was created and a new checkdam, Checkdam 7 was constructed. Checkdam 7 consists of an alignment of large rock in the artifact scatter area.

#### B:14:107- 1 Water diversion structure

Along the western end of the structure, rocks were rearranged and gravels were moved closer to the structure.

#### C:02:101- 17 Checkdams

Checkdams 5, 6, 9, 10, 15, and 16 required 17 buckets of rock and gravels to fill in nick points and redefine rock linings along the drainage floor.

#### C:09:050- 1 Water diversion structure

No work necessary. The creek is undercutting the upstream side but there is really nothing that can be done here.

#### C:13:006- 14 Checkdams

Maintenance was required at Checkdam 3 and two new rock linings were constructed. Five and one-half buckets of rock were used.

#### C:13:069- 6 Checkdams

No work was necessary. A lot of sediment deposition has occurred especially at Checkdams 2, 3, and 4.

#### C:13:099- 46 Checkdams

Minor maintenance occurred at five checkdams and one new rock lining was added. Two and one-half buckets of gravels and cobbles were used for the maintenance work and two buckets of gravel were used for the rock lining.

#### C:13:100- 26 Checkdams

A single bucket of gravel and cobbles was added to the downstream side of Checkdam 5, a log checkdam, to fill in a plunge pool.

#### C:13:327- 3 Checkdams

No maintenance work was needed. Two new checkdams were completed, numbers 4 and 5. Checkdams 1 and 2 are covered with sand due to eolian deposition. Checkdam 3 has some deposition and appears to be holding up well. Checkdam 4 is a single course structure running perpendicular to the arroyo. Checkdam 5 is another rock alignment

and abuts perpendicularly to Checkdam 3. 7 buckets of cobbles and gravels were used in the construction of the two new alignments.

#### **C:13:336- 5 Checkdams**

These five checkdams were in great condition. An experiment was conducted at this location, building up the four existing checkdams (Checkdam 5 is a nick point treatment). Six buckets of Cardenas Basalt was used to build up the checkdams to see if they could hold more sediment.

#### **C:13:346- 9 Checkdams**

No work was needed. Lots of new vegetation has grown between Checkdams 2 and 4. A significant amount of sediment is building up between Checkdams 1 and 2, 5, 6, and 9.

#### **C:13:348- 5 Checkdams**

No work was needed. Most of the sediment is trapped behind Checkdam 3. All other checkdams are working well.

#### **C:13:359- 4 Checkdams**

The drainage has been active. There is debris present such as mesquite duff. The area around the drainage is hard pan, capped with cryptogamic soils. Only minor amounts of sediments have accumulated in the checkdams. No work was needed.

#### **C:13:371- 3 Checkdams**

No water has drained through this gully. The checkdams are unchanged and no maintenance work was necessary.

#### **C:13:381- 3 Checkdams**

The drainage has been active, moving debris, sediments, and rock downstream. Checkdam 3 has a lot of sediments built up behind it. Checkdams 2 and 3 have each had minor breaching of the downstream portions of each checkdam. Burned bone and ashy soil is exposed between Checkdams 2 and 3. A new checkdam (4) was constructed to curtail further loss of the feature. Two buckets of cobbles, 26 large rocks, and one bucket of gravel were used to construct Checkdam 4.

#### **G:03:002- 5 Checkdams**

Checkdam 1 has experienced minor headcut advancement and four buckets of small granite were added to the upstream side of the checkdam. Rocks were rearranged and logs placed in the area of Checkdam 2 to treat a two meter deep nick point.

#### **G:03:003- 11 Checkdams**

There were nick points present between several of the checkdams and so the spaces between the checkdams were filled in to create a rock lining. Checkdams 10, 11, and 12 have been combined into one checkdam. A nick point intersecting the drainage from the north between Checkdams 11 and 12 was filled in. The area above Checkdam 9 was filled to the checkdam and several buckets were added to Checkdam 4. A new checkdam, Checkdam 14 was created with large limestone rocks between Checkdams 9 and 12.

#### **G:03:024- 14 Checkdams**

The lower drainage was very active, the headcut did not advance but deepened substantially at Checkdam 14. Checkdam 4 collapsed and was undermined. Checkdam 11 was blown downstream. No work was done at Checkdam 11. Checkdams 4 and 14 required 9 buckets of rock and 2 buckets of gravels. In the gully adjacent to Feature 3, six checkdams were constructed, each consisting of a single bucket of granite rock and a small amount of gravels.

#### **G:03:025- 3 Checkdams**

The drainage was thick with clay and silt and was still damp from rain two days prior to our visit. Twelve buckets of rock and four buckets of gravel were used to fill in the breaching of the checkdams. The nick point between Checkdams 1 and 2 also required filling.

#### **G:03:026- 5 Checkdams**

The drainage has been very active with several large nick points and plunge pools. Eight buckets of large rock were added to the five existing checkdams.

**G:03:038- 23 Checkdams**

These checkdams have received maintenance every year since they were installed. No further checkdam maintenance work will be done at this site. Other preservation methods may be implemented at this location. Data recovery may be completed.

**G:03:040- 2 Checkdams**

A lot of silt has filled in the area between Checkdams 3 and 4. The brush checkdams look very good. Grasses have grown in through the brush. No additional work was required.

**G:03:041- 9 Checkdams**

Several drainages on-site have been extremely active. The drainage at Feature 3 is entrenched below Checkdam 5 and work was completed here and at Checkdams 6, 7, 8, and 9. Eight buckets of rock were used. Checkdams 6 - 9 were obliterated and two checkdams (6 and 8) were reconstructed. A small plunge pool at the base of Checkdam 1 should be assessed upon the next maintenance and monitoring visit.

**G:03:058- 6 Checkdams**

No work was necessary. Sediments are filling in behind the reconstructed checkdams.

**G:03:072-16 Checkdams**

One and one-half buckets of gravel were sifted through Checkdam 16 to fill in some voids. No other maintenance work was required.

### Colorado River Fund Trips

As part of the continuing efforts by Grand Canyon National Park to mitigate visitor impacts, the third Colorado River Fund (CRF) river trip of 2000, emphasized trail rehabilitation and revegetation along the river corridor. Because many of the areas identified by Park staff are located in sensitive archaeological areas, archaeologists accompanied Park and Commercial guide staff to insure no disturbance of cultural remains occurred. Areas that had been identified as areas of concern by archaeologists were also revisited to confirm continued success of previous mitigation efforts.

The CRF trip consisted of Park staff from our maintenance/trail division, river operations, revegetation program and the Science Center. OARs staff also participated, providing 6 rafts and staff to participate in Park directed projects and work. This section refers specifically to sites within the project area for the River Corridor Monitoring Project where NPS mitigation work is ongoing or targeted for future trips. Maps are included for location orientation, following the site descriptions. Brian Hansen, the CRF Project Manager, has provided detailed accounts of all types work completed and the CRF trip reports for November and December are included in the appendix.

### River Corridor Monitoring Project Sites Visited

#### C:09:030 Special Activity Locus

The site consists of two historic but unrelated graves, the grave of Peter Hansbrough from the Stanton-Brown expedition, 1889 and the grave of a Boy Scout named David Quigley, 1951. Locus A is the grave of Peter Hansbrough who died in July, 1889 on the Stanton and Brown expedition. His body was retrieved by the 1890 Stanton expedition and buried here. A carved inscription on a vertical face above the grave reads "PMH 1889". Hansbrough's grave is located under a Muav Limestone overhang. Locus B is the grave of a Boy Scout named David Quigley who drowned on June 26, 1951. It consists of an oval arrangement of river and talus cobbles with a taller rock as a headstone.

#### *GRCA Assessment*

Upon assessment, no work was recommended. NPS archaeologists, outdoor recreation planner, and revegetation crew members concurred that the existing trail adequately provides access at the camp while not adversely impacting archaeological remains.

#### C:09:031 Special Activity Locus

C:09:031 consists solely of the grave of Grand Canyoneer Wilson "Willie" Beigle Taylor who died of a heart attack during a river trip with Otis "Doc" Marston in June 1956. The grave is marked with a bronze plaque.

#### *GRCA Assessment*

This area is identified by the GRCA Revegetation crew as a potential problem area. No work was required at the time of our visit, as the trail appeared unused.

#### C:13:006 Small Structure

The site is eroding out of a reworked sand dune at the mouth of a major side canyon. It consists of a Pueblo II Kayenta ceramic and lithic scatter eroding from a dune face with a fire-cracked rock and cobble-strewn, ashy midden. Survey personnel identified four to five possible rooms present but in fair to poor condition. Due to active erosion in the dune area, several additional features have been exposed and recorded since the 1990 survey. In FY95 monitors made several additions to the site map, including walls eroding out of gullies, an additional roasting pit, an artifact concentration, and several new drainage channels. Groundstone is present though no formal tools have been observed.

#### *GRCA Assessment*

Revegetation staff suggested stopping at this location to observe the condition of the dune and anchoring vegetation. It was determined that NPS archaeologists would be best qualified to remove grass plugs from the adjacent side canyon slope and transplant these plugs to the dune where the site is located. Revegetation work should be conducted by qualified archaeologists only, due to the sensitive nature of the dune and the abundance of cultural remains on-site.

### Palisades Delta

The Palisades Delta complex, consists of several prehistoric and historic archaeological sites situated on predam alluvium and debris flows from Palisades Creek. Access to this delta is via two distinct trail networks extending north and south of the delta. Site types range from prehistoric multi-room pueblos to historic mining camps. The delta is accessed via backcountry hiking trails and the river corridor. Visitors to the Palisades delta will likely observe various cultural remains at sites C:13:098, C:13:099, C:13:100, C:13:272, and C:13:336. Visitation to the area has resulted in impacts to the adjacent sites and increased gullying in places where incipient trailing exists. Retrailing and revegetation have been recommended to discourage visitation to C:13:098 by crossing through sites C:13:099 and C:13:100.

#### *GRCA Assessment*

A member of the NPS Revegetation crew accompanied River Corridor Archaeology staff to assess vegetation efforts to curtail site visitation. It was recommended that arrowweed be transplanted along the southern edge of the Tanner/Beamer Trail. Building up high vegetation in this area will discourage pedestrian traffic between the numerous sand dunes on the delta. NPS and Commercial River-running personnel will complete this revegetation work on a future CRF trip.

#### C:13:098 Historic Structure

This historic mine and cabin site contains two loci. Locus A consists of two mine adits at the base of the Palisades cliff along the Palisades fault. The main adit is situated about 10 m above the surrounding terrain with an extensive tailing pile below it. The second adit is located about 10 m below and 20 m south of the main adit. About 225 m S/SW is Locus B, which includes a log cabin constructed of driftwood logs. The cabin measures 2.6 x 4.1 m (interior) and is five courses high. The floor is partially paved with sandstone slabs, with a log/board bed frame in the northeast corner. A canvas tent probably formed the upper walls and roof. About four meters due south of the cabin door is a driftwood log "fence". This structure is made of stacked logs up to four courses high. It may have been a windbreak. Artifacts date from 1900-1920 to the mid-1930s. In FY98 monitors found a cist feature eroding in the drainage near the cabin.

#### C:13:099 Structure-Thermal Feature Complex

This site contains two loci of fire-cracked rock, buried and collapsed structures and artifacts. Archaeologists identified several charcoal lenses, burned rock features and artifact concentrations. Many of the features are eroding out of the coppice dunes, bisected by a highly active drainage system. The drainage system has uncovered the majority of this site since 1978, evidenced by several newly exposed features recorded by NPS and river corridor archaeologists. FY94 monitors recorded Features 6 and 7 eroding from the active drainage. FY95 monitors recorded Feature 8 eroding from the active arroyo. River corridor staff identified two new probable cists eroding from the active arroyo in FY98. River corridor archaeologists tested the probable features in FY99 and did not discover cultural material. Since 1990, river corridor staff discovered numerous lithics and sherds eroding from the active arroyo and scattered throughout the drainage system. An assemblage of forty sherds suggests an Early-mid Pueblo II Puebloan occupation. Lithic evidence from this site includes two mano-like objects, ground to create a knife-like edge, as well as pecked grinding stones and hammerstones. Five charcoal samples were taken from several features on-site in the early 1990s. Dates ranged from 140 years B.P. to 1410 years B.P.

#### C:13:100 Pueblo

This site is an open Pueblo II habitation site. Feature 1 is a rectangular habitation room. Feature 2 is another probable habitation room with a possible south entrance; it has standing walls 2 to 4 courses high. Adjoining Feature 2 is Feature 3, a small, more difficult to define structure; there may be another room attached to the southwest wall of Feature 3. Feature 4 and Feature 8 are probably associated rooms. Both features are exposed in an arroyo, with walls two to three courses high. Features 5 and 6 are the remains of slab-lined cists of Dox Sandstone. A charcoal stain in a trail evidences Feature 7. South of the dwellings is an eroding drainage two meters across and 50 cm deep. Lithics and ceramics are scattered down the slope directly above the drainage. There is a heavy groundstone concentration near Features 5 and 6. Groundstone/tools include six manos, four metates/slabs, eight hammerstones, and two sandstone knives. Seven ceramic sherds were also found. During the September 1995 erosion control project, archaeologists located a new feature (Feature 9) consisting of upright Dox slabs in an arroyo. FY97 monitors discovered two new features. Feature 10 is a charcoal lens north of Feature 7 and Feature 11 is a circular cist/hearth eroding from the drainage.

#### C:13:272 Small Structure

This is a multi-component site with two separate loci. Locus A consists of two masonry structures (Features 1 and 2) with a sparse scatter of artifacts, and a more ephemeral feature (Feature 3) consisting of a curving cluster of mostly small sandstone rocks eroding out of a deflated area. These rocks seem too small for building elements, but do not look fire-cracked either. Artifacts are generally sparse at this locus, but include sherds, lithics, a metate, a two-handed mano, and a small mano with a beveled face that may also have been used as a knife. Locus B contains two concentrations of sandstone cobbles (Features 4 and 5) that may be hearths. No artifacts are associated. Ceramics suggest a PII date for Locus A and a protohistoric date for Locus B.

#### C:13:336 Thermal Feature

This site consists of two concentrations of lithics and sherds, a possible hearth and a roasting feature. A cobble alignment eroding out of a dune may be the remnants of a possible structure. FY94 monitoring staff recorded a new artifact concentration, Feature 4, not recorded during the survey. C:13:336 is a Puebloan occupation site located within the predam high-water zone adjacent to the Beamer Trail. This site is located in the vicinity of the Palisades Complex on an alluvial terrace proximal (48 m) to the river. A veneer of reworked sand covers the surface of the terrace and the site can be seen in the deflated areas between the low dune crests. The Beamer Trail also transects this site adding in some unspecified degree to the adverse impact.

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1998a *Archaeological River Monitoring Trip (98-3), February 22 - March 10, 1998*. River Corridor Monitoring Project. Report prepared for Grand Canyon National Park. (RCMP #55). Flagstaff, AZ.

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Leap, L. M., N. B. Andrews and J. L. Kunde

1996b *1996 Summary Report: Monitoring of Archaeological Sites along the Colorado River Corridor in Grand Canyon National Park*. Grand Canyon National Park (RCMP #37). Grand Canyon, AZ.

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Leap, L. M. and D. C. Hubbard

1996c *Archaeological River Monitoring Trip Report for Fiscal Year 97-1 (October 1 - 18, 1996)*. River Corridor Monitoring Project. Report prepared for Grand Canyon National Park (RCMP #38). Flagstaff, AZ.

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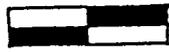
**APPENDIX A**

**Maps of Future Work Areas Identified November, 2000**



# AZ-C-13-336

- △ site tag
- ✱ artifact concen.
- ⊙ FCR
- metate
- ⌘ rock alignment
- ☁ vegetation



0 10m

N

PROPOSED  
ARROW WEED  
REVEG  
AREA

Beamer's  
Trail

75m to AZ-C-13-99B

dune

⊙ FI  
hearth

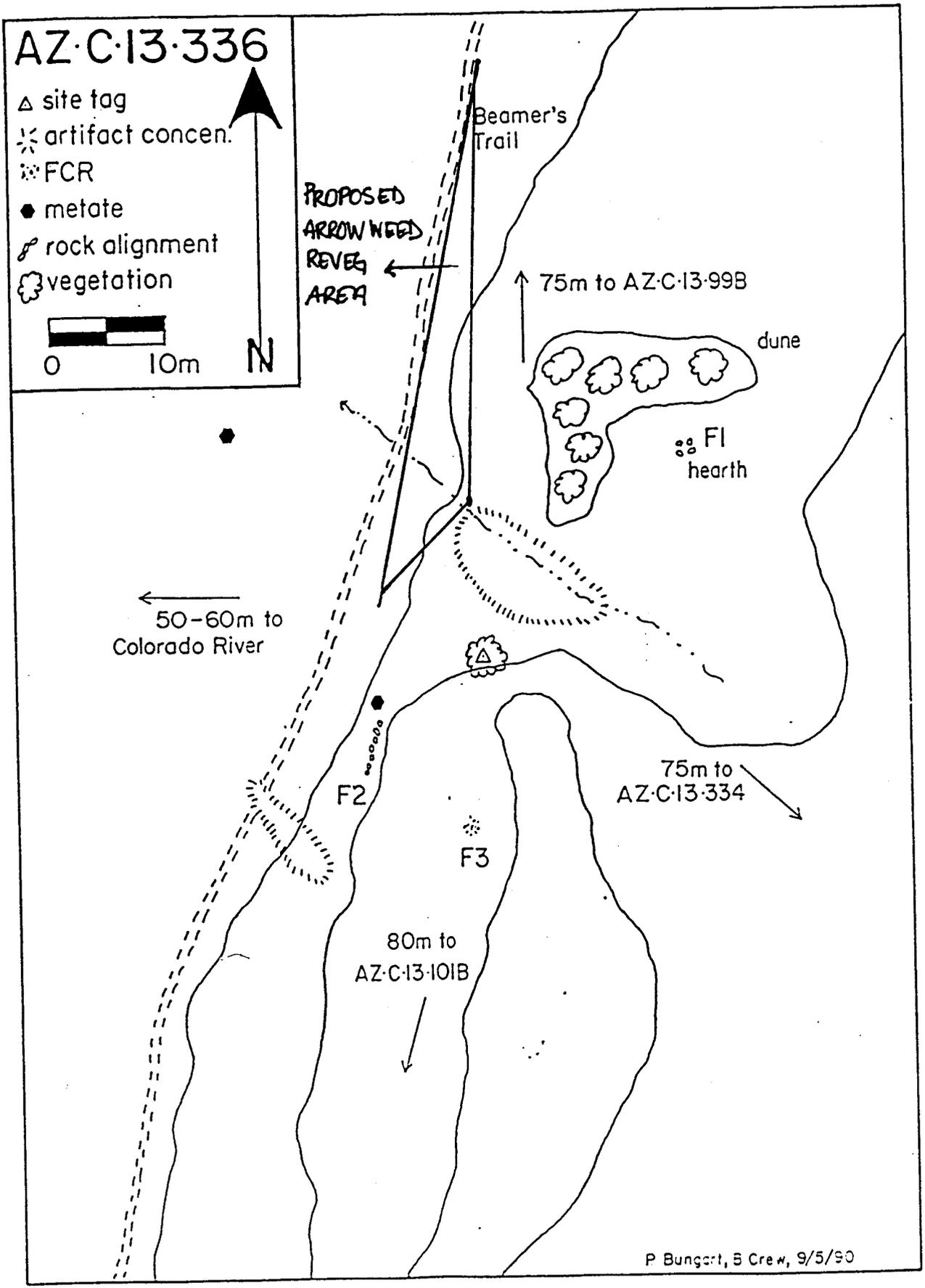
50-60m to  
Colorado River

F2

F3

75m to  
AZ-C-13-334

80m to  
AZ-C-13-101B



**APPENDIX B**  
**CRF Trip Report November, 2000**

Colorado River Fund – Resource Management  
 Trip # 3  
 November 2, 2000

Sponsor: OARS

Roster: Outfitters:

T.L. Mike Gaul  
 P.M. Brian Hansen  
 Guides/Labor:  
 Rebecca DeGroot  
 Bill Reideman  
 Gretchen Younghans  
 Dave Loeffler  
 Kathleen Ryan  
 Allison Smith  
 Marijka Billingsley  
 Cook: Kristina Ross

Park Service:

Trails: Bill Allen  
 Revegetation: Rachel Stanton  
 Archaeology:  
 Melissa Schroeder  
 Jennifer Kunde  
 Revegetation: Jennifer Allen  
 Guides/ Labor:  
 Linda Jalbert  
 Bryan Edwards

11/2/00

In the morning, the corridor from Lees Ferry to Badger Creek rapid was monitored for Ravenna grass and Russian olive.

One group went directly to Badger Creek and cleaned the beach, which involved 4 fire pits.

Soap Creek camp was looked at and was deemed an area for future work due to the recent flooding of the area.

One big horn sheep was sighted at 7.5 mile, and one bald eagle was sighted at 1.5 mile.

11/3/00

The whole party went to North Canyon and delineated the trail from the main camp to the top of the first dry fall.

Two eagles were spotted at 27.5 mile.

11/3/00

One bald eagle was sighted in the morning at South Canyon. The whole party broke into groups to do differing chores.

Three people repaired the trail at the first ascent from camp to the shelf where the arch sites are located.

Three others sifted charcoal from the beach where many fire pits were left by hikers. 65 pounds of charcoal were gathered. Because of the large impact from hikers in this area, much of which is fecal matter and toilet paper, the Park Service has chosen South Canyon as a future site for a Romtec toilet. This is going through compliance.

The archaeologists and two helpers did structure assessments for the main ruins on the shelf, which included measurement and drawings to determine the rate of impact by normal visitation from hikers and river parties.



These images show the repair that was done to the trail that ascends to the shelf where the archaeology sites are located. Several large logs were transported from the river and placed as checks to hinder erosion that may occur from rainwater runoff.

11/5/00

The trip split into two groups, with one going to Eminence Break and the other to do several arch. site surveys while in route. These surveys were done at Tatahatso, across from the Anasazi footbridge, and at Hansborough Point.

Those who went to Eminence repaired the trail just outside of camp, leading to the top of the Redwall. This entailed building a 17-step stairway made of logs carried from the river.

One eagle was sighted at 36.5 mile.

11/6/00

The trip split at Eminence. One group went to Saddle Canyon, while the other went to check on the status of Willie's Grave and then to Kwagunt to do more arch. surveys.

The main focus at Saddle was to scout for any areas for improvements to be done on the December trip, since this work will most likely be extensive due to the severity of the flooding this last summer.

At Kwagunt, 8 different sites were monitored, none of which were close to each other so the amount of terrain covered was significant. Almost all were unchanged. One, which is located adjacent to the main drainage, has become threatened by undercutting and is being considered for excavation.

One eagle was sighted at 47 mile.

11/7/00

At Kwagunt, the group split into three sections. One went to the Little Colorado to assess Beamer's Cabin. One went to 60 mile Canyon to monitor the site there, and then to Palisades to do the same. The remaining contingent went to Tanner and gathered an immense number of logs for the trail project to be done there.

At the Little Colorado, two things were determined: 1) the lintel on the exterior window of the structure is beginning to decay and rainwater is degrading some of the mortar from between some rocks on the east wall; 2) other rainwater runoff is beginning to erode the midden located next to the main structure.

To solve this problem would require a full days work involving trail work, revegetation of trail made by workers hauling material to the site, and a structural addition to the roof to divert rainwater. This project would be at least a year away as it will require compliance from SHPO (State Historical Preservation Organization).

11/8/00

A layover is anticipated for Tanner. This morning the party split into five groups, two to work on river right, the others to shuttle across the river.

On river right, the petroglyph rock and the ruins on the Dox hilltop were monitored, and several multiple trails were obliterated. It was determined from photographs taken in the 1980's that these sites have been greatly impacted from visitation. Most of this is manifest in the disappearance of pottery shards. Melissa will write a memo to river outfitters and to the Boatmen's Quarterly Review to alert private trips and commercial boatmen to the problem. If the problem remains uncorrected, the Park Service will consider closing the site to visitation.

On river left, all trails in the hiking campsites were delineated when needed, and one 30-meter section of trail was repaired with 20 log checks. One small group hiked from Tanner upstream to the Beamer Trail, repairing three pre-existing log checks and doing trail delineation.

11/9/00

Transit to Cremation Creek.

11/10/00

An exchange was made at Phantom Ranch.

Park Service In:	Park Service Out:	Outfitter In:
Adam Berg	Jennifer Kunde	John Weiss
Eric Whiteman	Jennifer Allen	Bryce Barnett
Duane Hubbard		

All Park Service personnel coming in are archaeologists.

11/11/00

Transit to 120 mile

11/12/00

One group of three went to 122 mile canyon to conduct a tamarisk transect. Their information was erroneous as there were none to be found beyond the riparian zone.

The remainder of the trip went to Blacktail Canyon to obliterate a multiple trail that leads to two arch. sites. Since previous attempts to save these sites have proven

ineffective, these are acquiring compliance from the Native American Programmatic Association.

After lunch, a group of four went up to the hiker's camp at Tapeats Creek to stir the composting toilet and to monitor the trail for future work.

A group of five hiked up Stone Creek to take photos for the post-flood vegetation photo-monitoring project, which has been in operation for one year. There was not enough time to do the entire project so some will have to be done in December.

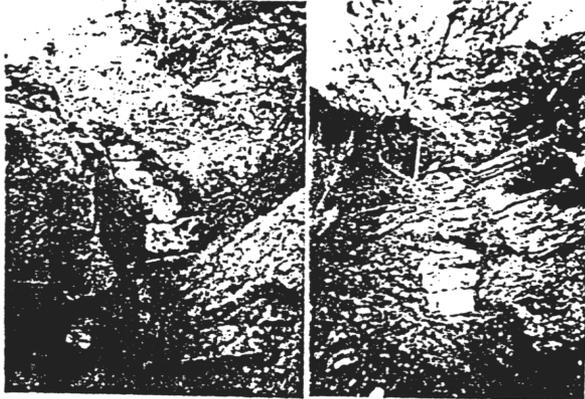
A layover at Deer Creek is planned.

One big horn was sighted at 121 mile, and one at 134.5 mile.

11/13/00

The archaeologists monitored the many sites in the Deer Creek valley, as well as giving approval for any work that took place next to any sites.

Five people obliterated the multiple trailing that was taking place by the Romtec toilet on the way to Dutton Spring. Three people built a rock stair at a deteriorated place in the trail 100 meters from the patio area.



These two images show the rock stair right at completion. All rocks were carried from the main creek bed

Three people cleared and repaired the trail from the main fall by the river to the patio area.

One person built a small wall to discourage river parties from using an unnecessary social trail that appeared at the poison ivy patch.

11/14/00

Two stops were made during the transit to National Canyon. The first was done at Kanab Creek where four people went to check on the Tree of Heaven. This non-indigenous tree was cut and treated with a defoliant two years ago. It exhibited no signs of growth and can be safely classified as dead.

The other stop was conducted at The Ledges to check on a reported ARPA violation. ARPA stands for the American Archaeology Protection Act. It was found that three holes had been excavated into the top surface of the large roasting pit that is located by the spring, the largest being 42 cm deep. There may be an investigation as this is a felony act.

11/15/00

Transit day to Whitmore Canyon. Melissa monitored two sites next to the pictograph panel. Some digging has been done at the midden, which gives the Park Service a sense of urgency in excavating the rest of this site before it is destroyed. The Park has made it

clear that visitation will not be stopped due to the volume of people who visit this particular site, and also due to the fact that half of the midden has already been excavated by them about 10 years ago.

Two of the other archaeologists stopped at Parashont Wash to assess the trail that leads to an arch. site. Duane wants to get permission to eradicate this trail.

Camp is at Indian Canyon where it is planned to layover for at least three days.

11/17/00

At Indian Canyon the trail to the site, which is a roasting pit, was delineated so that other sites in the area would not be accidentally disturbed. The actual site itself has been disturbed by visitation, but not by visitation to the site itself, but rather by people going to visit the 1930's vintage group of mason jars known as the Bundy jars. Over the past 8 years, the Park has unsuccessfully tried to reroute the trail. Photo documentation proved that the rate of deterioration was increasing, therefore excavation seemed to be the logical option. Permission for this project was asked of the Native American Programmatic Association in 1992, and compliance was given in the spring of 2000. This association includes the Paiutes, Zuni, Hopi, Navajo and Hualapai tribes.

Because only 11 people can work on the site at any one time, the work will be done in shifts.

11/18/00, 11/19/00

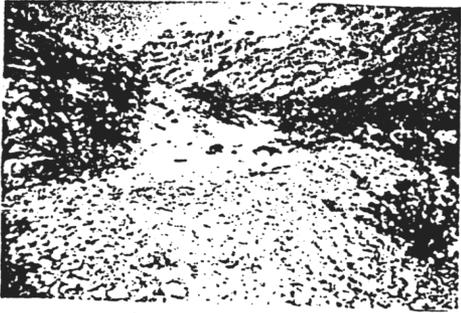
Three 1x3 meter holes were dug into the two sites being excavated. Duane and Melissa were in charge of the two in the large roaster, with Eric doing the smaller and more impacted roaster. Adam and his help were in charge of flagging the trail and performing test pits at various areas to determine if there was some undetected occupation.

Melissa was also in charge of mapping the pictograph panel located on the underside of the overhang next to the Bundy jars.

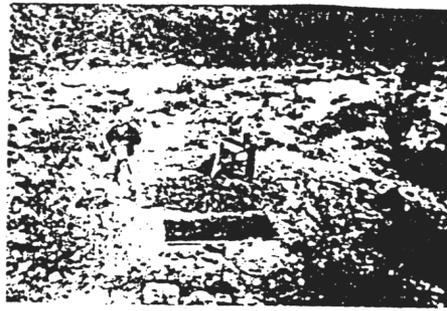
The revegetation crew identified and inventoried the plants in the vicinity, including the wash and the south-facing wall of Indian Canyon. This will aid the archaeologists in determining climatic and floral changes since the Pueblo 2 Anasazi.

The two days work resulted with the finding of many obsidian, chert, and jasper flakes discarded by the makers of arrow and spear points. Several softball sized 'source rocks' for the making of points were also found. Also in the artifact list were many pottery shards, some indicating that trade was conducted by these people with others far away in the Grand Canyon region.

As the picture images will indicate, most roasting pits in the park contained circularly placed "hearth stones" under the surface. Both of these sites produced this ring, and it was the imminent destruction of one of these rings that led to this excavation since erosion caused by the trail had it directly exposed to the elements and hiking shoes.



1



2



3

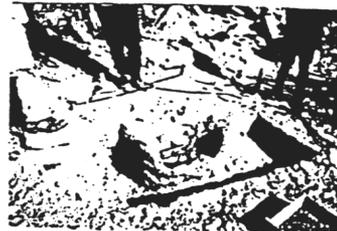
These top three images show the sites numbers one and two before, during and after excavation. The majority of the work was sifting the artifacts from the dirt through a  $\frac{1}{4}$  inch screen. These bottom three images show before, during and after the excavation of site three. Notice the 'hearth stone' feature and it's proximity to the surface.



1



2



3



4

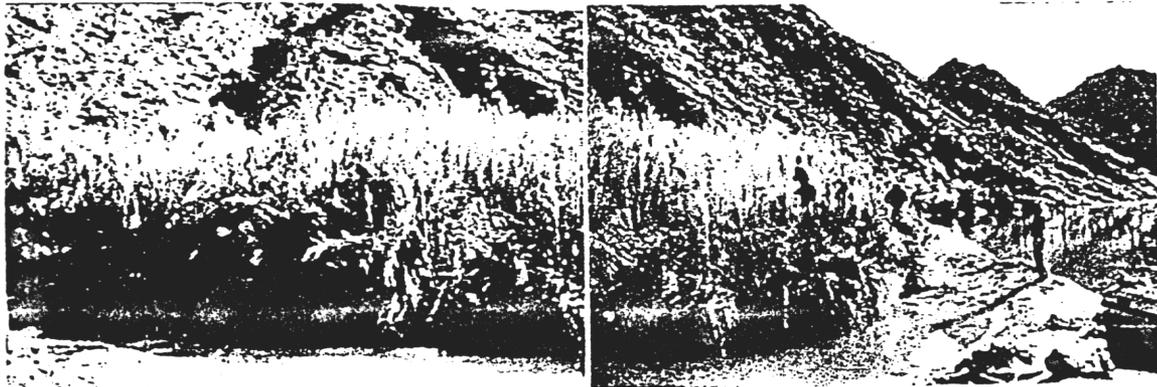
11/20/00

Seven people stayed in camp for a few hours to help finish the last documentation and to brush out any footprints. In a several months, the site should appear very nearly to what it was when we began.

Six people took two of the archaeologists to camp at mile 222 where another reported ARPA violation has occurred. It was found that animals, not humans, did the digging this time.

The remainder of the group went to 208 mile to dig Ravenna grass and found more than they had anticipated.

The takeout is on the 21<sup>st</sup>. Time to go home and eat turkey.



Killing the non-indigenous Ravenna plant.

**Appendix C**

**CRF Trip Report December, 2000**

Colorado River Fund-Resource Management  
 Trip # 4  
 December 1, 2000

Sponsor: AzRA

Roster: Outfitters:  
 T.L. Steve Lonie  
 P.M. Brian Hansen  
 Guides/ Labor:  
 Craig Ahrens  
 John Crowley  
 Mark Pillar  
 Suren Holbek  
 Rex Jenny  
 John Palmer  
 Martin Myers  
 Dave Loeffler  
 John Weiss  
 John Wiley  
 Cook: Tracy Bates

Park Service:  
 Trails: Bill Allen  
 Revegetation: Rachel Stanton  
 Camilla Atree  
 Wildlife: Rachel Gray  
 Archaeology: Lisa Leap  
 Guide/ Labor:  
 Bryan Edwards

12/1/00

The trip went to Badger Creek/ Jackass Canyon and split between the two destinations. Those that went to Badger conducted a cleanup that was a follow-up to the work that was done in November. Those that went to Jackass Canyon collected driftwood logs in the eddy to carry downstream to Soap Creek for the project to be done there. The only concern that we found was that the garbage pickup was not done as had been verbally agreed with the Lees Ferry ranger last November, and ravens have begun to pick at the bags.

The itinerary calls to layover at Soap Creek.

12/2/00

The group broke into four smaller work parties.

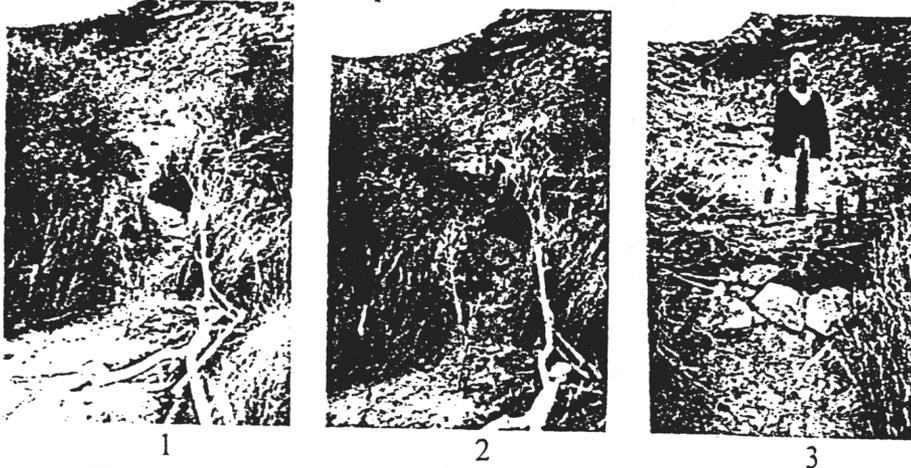
Bill Allen led a group of three in a project that was to take a campsite threatened by a growing gully, fill in the gully and stabilize the periphery of the area with log checks.

A group of three rerouted a gully that had presented itself in the center of the main campsite.

Another group of three went to the far downstream side of camp and cleared four areas in the rock delta that could be used as campsites in the future. This was absolutely necessary, as the last summers flooding by rainstorms had created a lot of damage.

Rachel Stanton led a group of three up the Soap Creek drainage to perform a tamarisk transect in the morning, and then, in the afternoon they brushed in some illegal campsites located directly upon the archaeology sites on the alluvial shelf above camp.

Lisa Leap led a group of three that monitored the multiple trailing that has funneled visitors through the arch. sites on the alluvial shelf. After discussion it was agreed that previous attempts to direct hikers through the wash had been unsuccessful and that a new trail, well defined and circumnavigating the most sensitive sites may be more effective. This was done. In the afternoon, this same contingent built a Zuni dam check to stop traffic at one trail in the center of camp.



These images show the construction of the Zuni dam check.

12/3/00

Transit day to South Canyon.

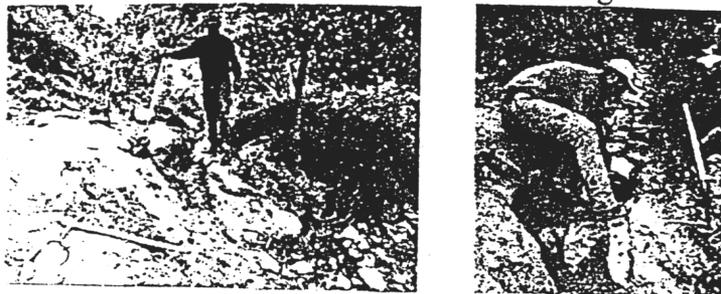
12/4/00

Lisa Leap removed a fake split twig figurine from Stanton's Cave that someone had fabricated and thrown past the iron gate.

Transit to Saddle Canyon.

12/5/00

The trip broke into three groups, two being trails projects and one being revegetation. Five people led by Bryan Edwards hiked up Saddle Canyon to reestablish the parts of the trail that had been destroyed by last summers flood. All together they built 16 rock checks at 8 different creek crossings, 6 eight-step stairways and numerous single rock checks. These two images show the repair at one of the crossings.



Bill Allen led a group of six on a large project that was located at the first steep slope that begins the trail to the inner canyon. A pulley was anchored to a large boulder which held the safety line that was used to control the path of several 600 lb boulders dragged up the side of the hill. This was the first time that such a device was used on a resource trip, so extreme caution was used. It turned out to be an excellent safety item.



These images show the area to be repaired, the pulley system in use, and the final product.

Rachel Stanton led a group of five people that remained at the main delta to obliterate several multiple trails. This problem always seems to plague this area and a definitive solution is still being sought.

12/6/00

Before leaving Saddle Canyon, the group broke into two sections. One went upstream to gather logs from the flood plain to carry down to Little Nankoweap Canyon. The other, smaller group waited in boats downstream to pick up the logs after group one threw them into the river. This was done because there is no good log source between Saddle and Little Nankoweap.

Upon arriving at the Nankoweap area, all these logs were dropped off at Little Nankoweap, while more were gathered at the mouth of the main drainage and carried to camp.

After camp was set up, Lisa went to monitor the granaries, the two Rachels went to monitor any multiple trailing to do the next day, and the remainder of the group built a 1 1/2' high retaining wall from logs brought to camp. Recent floods have been washing sand into the river that was deposited higher than the level of the controlled river flood of 45,000 cfs. This means that it is doubtful that any sand will be deposited at this level any time soon, and an effort to keep it up high is worthwhile.



These two images show the retaining wall during and after construction.

12/7/00

Today a group of four obliterated an unnecessary trail to the spot most river parties use as the toilet. One trail was kept and repaired with log checks.

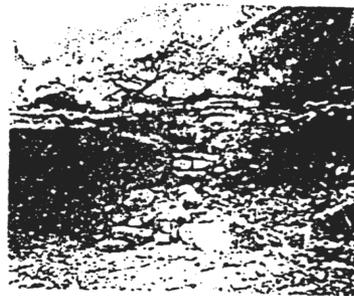
Lisa Leap monitored several archaeology sites at the base of the cliff next to the granaries and on the debris flow ridge next to the river. She found a previously unrecorded site 100 meters from the river's edge at the eastern point of the hill in the pre-dam alluvial deposit.

Rachel Stanton led a group of five to obliterate social trailing next to the debris ridge and also pruned the trail from the main camp to Little Nankoweap.

A group of three built a 15-step staircase at the last drainage on the trail to Little Nankoweap that was destroyed by flooding.



1



2

These two images show the construction and completion of this staircase.

A group of five finished another stage of the log crib/stair at the boat landing at Little Nankoweap. This is an ongoing project that has been, at this point, seven years in duration.



1



2



3

These images show the work being done at Little Nankoweap.

12/8/00

Everyone went to Carbon Creek and split the group. All boats then went to Lava Chuar to set up camp and do projects. The group that hiked the loop trail performed minor repairs, most of which entailed removing any rocks that have fallen into the trail during the course of the season.

In camp Billy led a small group in building two small log check stairs on the trail by the main drainage.

Upon monitoring the arch. sites above the riparian zone, Lisa found that the structural mesh that was used in the burlap matting placed here six years ago was not biodegrading in the manner that the manufacturer stated. This material was originally placed here to allow germination of seeds that were scattered by the revegetation crew. Removal was

necessary, and one large onion sack of this plastic mesh was gathered for removal to Phantom Ranch.

12/9/00

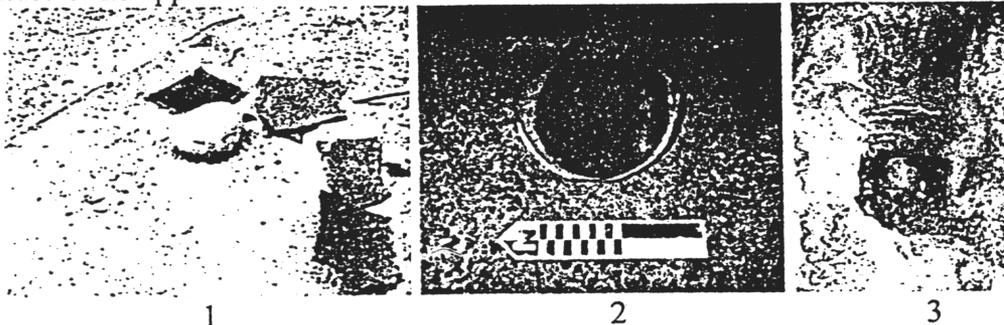
The trip split into two groups, one going to Tanner and one going to Unkar.

The Unkar group, headed by Lisa, went to the trail that connects the upper camp to the main delta where the majority of visited arch. sites are located. A multiple trail has appeared through this section, and happens to cut very close to an alluvial dune where a site is beginning to erode. Zuni advisors have said that trying to stem the erosion is futile, so the Park has no choice but to allow nature to take it's course. The concern, however, is if artifacts become visible on this new trail, this may invite treasure seekers up onto the alluvial shelf where more sites are hidden. For this reason an attempt to block and reroute the trail was made. If this is unsuccessful, the unfortunate option is to cut a new route through an existing and very old mesquite tree, and this is something that nobody wants.

A second trail on the main delta was to be blocked because it traveled by four existing sites. It was decided to leave this alone as all present commercial boatmen said that this trail was used extensively to scout the Unkar Rapid, and would only force another trail to open up elsewhere where more sensitive sites exist.

Billy led the Tanner group. Their focus was to stir the compost toilet at the hiker's camp and to gather garbage along the corridor to Nevills Rapid. A large amount of garbage was encountered, including three automobile tires complete with rims. This was probably due to a recent flood through the Little Colorado.

The last but most important task done today was the reburial of an Anasazi ceramic vessel. This artifact became exposed in the last few months and regular monitoring proved that complete loss of the artifact was certain unless it was removed or reburied. Since removal has not been in practice in the park for over a decade, the option for reburial was the logical choice. The exact location of the site should not be disclosed, as the nature of its appearance tends to indicate a human burial site.



These images show the artifact as it presented itself, its unburied appearance, and the manner of reburial.

12/10/00

Transit to Cremation Creek.

12/11/00

The Phantom exchange was made and garbage was airlifted out. John Weiss, Lisa Leap, Camilla Altree and Rachel Stanton hiked out, while Dean Reesc, Kim Fawcett and Amy Horn hiked in. Dean and Kim are revegetation; Amy is an archaeologist.

12/12/00

At Hermit Canyon we split into three groups. Three went up Hermit Canyon to stir the toilet and clean the campground. Amy led a group up Boucher Canyon to monitor the historical sites there. Billy and the rest went to Crystal Creek to camp and do some work.

At Crystal Creek campground, the trail to the hilltop scout was delineated and repaired with two log checks in one particularly bad spot. All the trails and campsites were pruned as they were becoming overgrown. Afterwards a large amount of camelthorn was killed to allow the camp to be usable for a few months.

12/13/00

We transited directly to Bass Camp. Upon arrival, Amy led a group of four to monitor the arch. sites upstream of camp. All others walked the trails to the historic Bass camp and the hilltop trail over the hill to Shinumo Creek. A large number of projects were found. We will not have time to complete them all, so we will focus on the more important ones.

12/14/00

Today the trip broke into many working parties that covered the entire Bass area. Amy led a group of six into the hills to find the elusive Anasazi fishing net that was reported to exist by a park employee named Tom Martin. Some new granaries were found, along with some previously unrecorded pottery caches, but no fishing net was found.

The total tally from over 3 miles of trail work came to 10 rock checks, 19 rock steps, and 2 3-tiered rock walls.

Rachel Gray and John Crowley went on a 15-hour search for big horn sheep up Hotauta Canyon and found nine.



These images represent a particularly well-crafted rock stair. The images are taken at different angles.

12/15/00

Amy went to finish monitoring some sites close to camp in the early morning. Afterwards we transited to Stone Creek.

12/16/00

Dean led a group up Stone Creek to finish monitoring the photo sites for the ongoing post-flood photo-monitoring project. This project is just over a year in operation. Afterwards, they went to Tapeats Creek to monitor the revegetation project that will be done in February. One vegetation transect and some minor trail obliteration was done

while there. This upcoming project will be extensive and require at least one-day layover time.

John and Rachel went to Tapeats Cave in search of big horn and found the trips' highest daily tally with 22.

Two hiked the Tapeats Creek- Deer Creek loop to scout for future trail work. Amy and the rest went to Back Eddy Camp to monitor the sites by that area.

12/17/00

Transit to National.

12/18/00

Transit to Whitmore.

12/19/00

Transit to 209.

12/20/00

Transit to 220. Takeout tomorrow. It is time to go home and open presents.

**Appendix D**

**Grand Canyon Archaeology Report December, 2000**

Dec 2000 CRF  
Arch Report, Lower Half  
Amy Horn

*Summary*

On the lower half of the trip, archeological work included site monitoring and architectural assessments. Seven sites were visited between December 11 and 21. Monitoring focused on heavily visited sites, where we evaluated threats and disturbances from visitors and natural forces; and identified any changes to the condition of the site. Architectural assessments were completed for Vanishing Treasures sites. Vanishing Treasures (VT) is the NPS ruins preservation program. A detailed assessment of each room is completed to document construction methods, previous preservation treatments, agents of deterioration, and overall condition. These data are used to identify and prioritize preservation treatment of sites. Treatment may include repointing of mortar and relaying of walls, erosion control, rodent control, vegetation control, or backfilling.

B:10:1 Poncho's Kitchen

This site consists of eight structures under a Tapeats Sandstone ledge near Poncho's Kitchen. This site is heavily visited by river parties and received minor preservation treatment in 1982 and 1987. We completed site monitoring and VT condition assessments at the four major, prehistoric structures at the site. Among the primary problems noted at the site are wall courses knocked over by visitors climbing over walls and walls threatening imminent failure due to unstable construction and visitor impacts. Assisted by Dave Loeffler, J.T. Wiley, and Steve Lonie.

B:15:1

This site consists of a number of structures in two loci near Shinumo Camp. During this trip, I completed monitoring at Locus A and a VT condition assessment for Structure 4. The site shows evidence of new trailing and increased gulying since 1996. Two of the structures are being impacted by visitation and brittlebush growing in the walls.

B:15:19

This small site consists of a room outline and three granaries tucked under a shallow alcove. The site had not been visited by archeologists since 1989. At that time, the site showed no evidence of visitation. During the current visit, visitation was indicated by a collection pile and a faint trail leading to the site. Overall, however, the site is in good condition and shows little change since 1989. We monitored the site and completed VT condition assessments. Assisted by Brian Hansen, Craig Ahrens, and Steve Lonie.

B:15:049 Bass' Shinumo Camp

This large site is the remains of Bass' camp along Shinumo Creek. It consists of a number of structures and numerous historic artifacts. We monitored the site and found that the main camp area had changed a great deal since 1997. Numerous artifacts had been moved and some had been stolen, including two metal cups and blue and white historic ceramics. Assisted by John Palmer, Steve Lonie, Suren Holbeck, Dean Reese, and Kim Fawcett.

B:15:112

This site consists of two small granaries tucked in a small ledge. We monitored the site, drew a site map, and completed VT assessments. Overall, the site is in good condition, with only minor threats and disturbances. Assisted by John Palmer, Steve Lonie, Suren Holbeck, Dean Reese, and Kim Fawcett.

B:16:049 Boucher's Camp, Boucher Creek

At this historic homestead and tourist camp, we monitored Structures 1, 2, and 3. Structure 1 showed new disturbances since 1996, primarily due to visitation and camping in the room. Disturbance included movement of historic artifacts, trampling of vegetation and soil, and modern trash left in the room. Structures 2 and 3 showed little change. Revegetation work and trail rerouting completed in the late 1980s is still effective. There is no evidence of camping and little evidence of visitation to that portion of the site. Assisted by Steve Lonie, John Palmer, and Kim Fawcett.

G:3:21 Historic Tent Platform and Cabin

At this historic site, we monitored the overall condition of the site and completed VT assessments of the chimney and retaining wall. Overall, the site is in good condition. The structures are in sound condition with few disturbances. A few of the historic artifacts at the site have been stolen. Assisted by Dave Loeffler, Steve Lonie, and Mark Piller.

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