

Baseline Site Condition Assessment of Historic Properties Near the Bureau of Land Management Ranger Station At Sand Wash, Uintah County: July 2007 Survey



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Abstract

In July 2007, the Colorado Plateau Archaeological Alliance conducted a brief intuitive reconnaissance in Sand Wash in the area around the BLM ranger headquarters, the boat launch area, designated camping areas and localities known to have historic properties that have never been formally documented. The purpose of the investigation was to document known and unknown resources in an area of considerable public visitation and assess the impacts of high levels of visitation on historic properties. Nine previously undocumented sites were identified, and three previously known sites were re-documented to current scientific standards. Two of the sites were prehistoric and 10 were historic resources related to the early development of the Sand Wash and Miles ferries. Most of the sites are in good condition despite pedestrian impacts, some graffiti and other adverse impacts from livestock, rodents, camping and possibly surface collection of historic artifacts. All 12 sites are recommended as eligible for listing on the National Register of Historic Places.

Table of Contents

Introduction	1
Methods and Results	2
Results	4
42Un349	4
42Un446	4
42Un513	5
42Un5906	7
42Un5907	9
42Un5908	9
42Un5909	11
42Un5910	11
42Un5911	12
42Un5912	15
42Un5913	15
42Un5914	16
Summary: Prehistoric Sites	17
Summary: Historic Sites	17
Site Condition Assessment and Recommendations	18
42Un349	19
Recommendations	19
42Un446	20
Recommendations	20
42Un513	20
Recommendations	20
42Un5906	22
Recommendations	22
42Un5907	23
Recommendations	23
42Un5908	23
Recommendations	24
42Un5909	24
Recommendations	24
42Un5910	25
Recommendations	25
42Un5911	25
Recommendations	25
42Un5912	26
Recommendations	27
42Un5913	28
Recommendations	28

42Un5914	28
Recommendations	28
Summary	28
Historical Overview	30
Explorers and Adventurers	30
William Ashley	31
John Wesley Powell Expeditions	33
1869 Expedition	34
1871 Expedition	35
Later Expeditions	36
The Ferryman	39
The River Runners	43
John Wesley Powell Slept Here	46
1869 Expedition	47
1871 Expedition	53
References Cited	62

List of Figures

Figure 1: Location of sites in the Sand Wash Ranger Station area	3
Figure 2: Rock art at 42Un349	4
Figure 3: Historic monument at 42Un446	5
Figure 4: Stewart Cabin (Feature A) at 42Un513	6
Figure 5: Out-building (Feature B) at 42Un513	7
Figure 6: Single-room structure (Feature 1) at 42Un5906	8
Figure 7: Rock alignment (Feature 2) at 42Un5906	8
Figure 8: Mine entrance at 42Un5907	9
Figure 9: Feature 1 mine entrance at 42Un5908	10
Figure 10: Feature 2 mine entrance at 42Un5908	10
Figure 11: Mine entrance at 42Un5909	11
Figure 12: Mine entrance at 42Un5910	12
Figure 13: Feature A log structure at 42Un5911	13
Figure 14: Feeding crib at Feature A at 42Un5911	14
Figure 15: One-room cabin (Feature B) at 42Un5911	14
Figure 16: Pole fence at 42Un5912	15
Figure 17: Stone wall at Miles Ferry (42Un5914)	16
Figure 18: Livestock impacts at 42Un349	19
Figure 19: Stabilization impacts at Feature A at 42Un513	21
Figure 20: Rodent impacts at Feature A at 42Un513	22
Figure 21: Stabilization impacts at 42Un5911	26
Figure 22: Camping impacts at 42Un5912	27
Figure 23: Sand Wash Ferry in 1931	41

Introduction

The Desolation Canyon Site Condition Assessment and Vandalism Analysis is a multi-phased, two-year research project initiated by the Colorado Plateau Archaeological Alliance (CPAA), in collaboration with the Bureau of Land Management, the National Park Service, and the Utah Division of State History. The project has two broad objectives: Document the nature of cultural resources in the Desolation Canyon and Gray Canyon corridors to better understand the spatial and temporal nature of prehistoric adaptations in this region, and (2) to determine baseline site conditions to measure the nature and extent of adverse impacts precipitated by human activities. The intent of both objectives is to provide federal land managers with data on the nature, distribution and current condition of cultural resources, thereby facilitating proactive management of those resources in a region subjected to significant recreational visitation.

The first phase of the study (Spangler, Davis et al. 2007) was conducted in September 2006 and consisted of intuitive surveys conducted primarily near the confluences of [REDACTED]. This research identified an unexpected spatial pattern consisting of masonry storage structures and rock art sites located near the confluences of these side drainages, but without convincing evidence of nearby residential occupations. The spatial distribution of these sites implied that prehistoric farmers occupied the Green River corridor only seasonally, perhaps during spring planting and fall harvests, and that they were never there in significant numbers or for any significant length of time. Two radiocarbon dates suggested this occupation occurred at about A.D. 1000 to 1050. There was also minimal evidence of recent adverse impacts from human activities.

CPAA revisited Desolation Canyon and Gray Canyon in May 2007 with the same objectives as those in September 2006 (Spangler, Boomgarden et al. 2007). However, the project had two additional, more specific goals: (1) Investigate the Jack Canyon, a western tributary of the Green River with a consistent water source, to determine if the spatial pattern of archaeological sites was similar to that observed in Flat Canyon, also a western tributary with consistent water much of the year. And (2) document sites the BLM knows receive significant public visitation, or were at risk of future visitation, to establish a baseline through which future management decisions could better protect those sites. These investigations revealed that the spatial distribution of archaeological sites in Jack Canyon to be inconsistent with that observed in Flat Canyon. CPAA also observed a greater prevalence of adverse impacts – primarily vandalism and graffiti –and that damage has occurred intermittently from about 1900 to 2006.

At the request of BLM river managers, CPAA, in collaboration with historian James Aton of Southern Utah University, returned to the Sand Wash area in July 2007 to conduct a brief intuitive reconnaissance in the area around the BLM ranger headquarters, the boat launch area, designated camping areas and localities known to have historic properties that have never been formally documented. The purpose of the three-day investigation was to document known and unknown resources in an area of considerable public visitation, assess the impacts of high levels of visitation on historic properties, and

offer recommendations to BLM managers as to their future management. Nine previously undocumented sites were identified, and three previously known sites were re-documented to current scientific standards. Two of the sites were prehistoric and 10 were historic resources related to the early development of the Sand Wash and Miles ferries (see Figure 1 for the location of all sites documented in July 2007).

Methods and Results

Field research was conducted over a three-day period from July 21 to July 23 by archaeologist Jerry D. Spangler, historian James M. Aton and assisting crew members Donna Spangler and Carrie L. Trenholm. BLM river rangers assisted the crew with the identification of certain site locations where the BLM desired formal documentation of historic resources. Due to time constraints, a formal pedestrian survey was not conducted, but rather most efforts were focused on the documentation of known-but-undocumented resources. Several unknown sites were identified during the course of the documentation, and at least one rock art locality known to rangers was not relocated.

The two prehistoric sites included one drylaid masonry structure in a small alcove above a permanent spring [REDACTED] and a pictograph panel [REDACTED]. Historic sites included two localities with log cabins and outbuildings, four localities with historic mine shafts, one corral, one historic road, remnants of a ferry crossing and one monument to the historic achievements of the 1869 Colorado River Exploring Expedition led by Major John Wesley Powell. [REDACTED] This site, located on Ute lands, was not documented pending a formal memorandum of understanding to conduct research on tribal lands.

The intuitive surveys involved documenting all sites to IMACS standards, as well as obtaining a photographic baseline whereby the sites in this area could be monitored for future impacts. It also included interviews with Arden Stewart, who spent his childhood at Sand Wash (interviews were conducted and archived by James Aton of Southern Utah University). Artifacts were not collected and no chronometric analysis was initiated. This report briefly describes the *historic* resources documented in the Sand Wash area and offers a brief overview of their historical context. It is not intended to be a comprehensive discussion of prehistoric and historic adaptations to local environments in the Sand Wash area. A more comprehensive discussion of the history and prehistory of the region will be offered in a final report in late 2008. See Spangler, Davis et al. (2007) for a discussion of local environments and previous research.

Figure 1: General location of 12 sites in the area of the Sand Wash ranger station.

Results

42Un349. This site is located [REDACTED]. It consists of a pictograph panel within a sheltered area with associated burned stone. The panel depicts a red deer or elk, as well as associated red pigment in amorphous and indistinct shapes. The quadruped, which is faded and eroded, measures 40 by 30 centimeters and is 30 centimeters above present ground surface (Figure 2). The protective overhang measures about 4 by 2 meters, and the floor area features burned shale. It is unknown if the burned stone is evidence of a prehistoric hearth feature or remnants of modern camping. No artifacts were observed.



Figure 2: Red pictograph at 42Un349. Note the vertical scratch marks above and left.

42Un446. This site consists of a historical marker (Figure 3) next to the Sand Wash boat ramp at the bottom of the Sand Wash Road in upper Desolation Canyon. Site was initially recorded in 1970 by William Civish, who noted "This site was important because John Wesley Powell spent the night here and it has been selected as a National Historic Landmark" and "Also, this is the site of the old Sand Wash Ferry."

The identification of this site as "historic" is problematic on two points. The actual boundary of the Desolation Canyon National Historic Landmark is located about 4 kilometers down river at the mouth of Nine Mile Canyon. And second, there is no evidence in the scant journal accounts of the 1869 Powell expedition that the crew ever

camped at this location (see discussion later in this report). The 1871 expedition may have camped near Sand Wash, but this evidence is equivocal. Furthermore, Powell was not on the expedition at that time. There is no dispute that the Powell expeditions of 1869 and 1871 are landmarks in the exploration of the West, and Sand Wash is an appropriate locale for a marker honoring those fetes. However, the assignment of a Smithsonian number to this locality based on the claim that Powell slept here appears to be unjustified.



Figure 3: Historic landmark monument honoring John Wesley Powell (42Un446).

The retention of a site number would be appropriate as a designation of the original site of the Sand Wash Ferry, as indicated in Civish's original documentation of the site. The actual location of the Sand Wash Ferry (Stewart Ferry) was not identified during the brief 2007 reconnaissance, but a sketch map included with the 1970 site report suggests it is located 50 to 100 meters to the south of the monument in an area now obscured by vegetation. It is also possible the remnants of the ferry have been obliterated by periodic flooding of the Green River.

42Un513. This site consists of the historic Stewart Cabin that was re-constructed at this locality in 1920 or 1921. [REDACTED]

[REDACTED] This site was initially recorded in 1976 by Richard Fike and Bruce Louthan as a "residence built in two stages (at least): main cabin and lean-to attached to the west. Shop has no roof; may have once had a corrugated iron roof. Old car parts in shop."

Upon revisiting the site in 2007, it was found to consist of a large, well preserved four-room log cabin (Figure 4) that was occupied by the Stewart family and subsequent

owners through the mid-1960s. Each of the four rooms has a separate entrance and heat source, and three of the four rooms have wooden plank flooring and the fourth a floor of large flat flagstones. There is also an adjacent log shed or out-building (Figure 5) now missing its roof about 20 meters to the northwest.

Feature A is the log cabin, a large 4-room cabin with separate entrances on each side. The walls were constructed of logs cut with a saw, and the roof is slightly pitched with the apex located over the two rooms on the northeast and southeast. The roof continues down at an angle over the adjoining rooms on the west, suggesting that these rooms may have been added at a later time. The roof has been covered with black plastic and mud, presumably as part of BLM stabilization efforts that have since eroded. One interior room measures 4.2 meters east-west by 3.9 meters north-south and has a maximum height on the west of 1.75 meters and on the east of 2.5 meters. Another room measures 3.3 meters north-south by 4.2 meters east-west, and has a maximum height on the west of 1.8 meters and on the east of 2.4 meters. Another room measures 3.4 meters north-south by 4.2 meters east-west and has a height of 2.3 meters at the roof apex. The other room measures 3.3 meters north-south by 4.2 meters east-west and has a maximum height of 2.6 meters at the roof apex. The exterior of the cabin measures 8.9 meters on the north and south walls, 7.5 meters on the east wall and 7.3 meters on the west wall.



Figure 4: Exterior view of Stewart Cabin (42Un513), Feature A.

Feature B, a shed or outbuilding now missing its roof, is also constructed of logs. It currently encloses an area measuring 5.9 meters long on the east, 5.8 meters on the north, 5.9 meters on the west and 5.7 meters on the south. A considerable amount of broken glass, tin cans and other historic artifacts are located around the two features. In

addition, Feature A has an inscription attributed to Rex Stewart, a son of Hank Stewart and half-brother of Arden Stewart, who lived in the house from about 1920 through 1927 when he was killed in a hunting accident in Nine Mile Canyon.



Figure 5: View of shed or out-building without roof at 42Un513 (Feature B).

42Un5906. This prehistoric site is located [REDACTED]

[REDACTED] The site consists of a small single-room structure of unmodified sandstone slabs (Feature 1) located within a small sheltered area, and an ephemeral alignment of stacked stones (Feature 2) on a nearby ledge. Feature 1 is D-shaped and the back wall of the shelter is the back wall of the structure (Figure 6). The remaining walls consist of two to four courses of small to medium stone slabs stacked horizontally. The front wall is set back from the outer edge of the shelter about 40 centimeters. The wall measures 15 to 25 centimeters high. There is no evidence of mud or adobe mortar. The interior deposits consist of loose shale and gravel intermixed with twigs and small bird bones. The structure faces due south and measures 1.6 meters east west by 1.3 meters north-south (interior dimensions). It occupies the west side of a sheltered area that measures 1.8 meters east-west by 1.5 meters north-south by 1.3 meters high. There is possible reddish-orange pigment on the back wall of the shelter. No artifacts were observed.

Feature 2 is a rock alignment (Figure 7) located just to the east and along a narrow lower ledge that provides access to the larger structure above. It consists of a D-shaped alignment of stones measuring 35 centimeters north-south by 60 centimeters east-west that is located about 2 meters above the top of the slope leading to the site. The small stones are stacked two to three courses high with no evidence of adobe or mud. Interior

deposits consist of eroded shale. The stones are round or oval river cobbles that are notably out of place on the ledge. No artifacts were observed.



Figure 6: Single-room structure (Feature 1) at 42Un5906.



Figure 7: Rock alignment (Feature 2) on ledge below main structure at 42Un5906.

42Un5907. This site consists of a horizontal mine tunnel (Figure 8) located near [REDACTED]. The tunnel features an opening 2 meters high by 1.4 meters wide, and it extends 4 meters laterally into the cliff. Tailings from the interior extend in front of the opening about 3 to 4 meters. The interior of the tunnel is marred by the addition of names, initials and dates ranging from 1947 to 1998. The site is one in a series of historic mines in the Sand Wash area that are associated with oil shale prospecting. According to Arden Stewart, they date to the 1920s and were initially developed by his father, John Henry "Hank" Stewart (see also Aton 2009).



Figure 8: Mine entrance and tailings pile at 52Un5907.

42Un5908. This site is comprised of three separate horizontal mine tunnels, all [REDACTED]. Feature 1 is located about 30 meters above the floodplain and features an opening 2.1 meters high by 1.7 meters wide (Figure 9). The tunnel extends into the cliff face 12 meters. Tailings are poorly defined on the steep slope below the opening, but they appear to extend down slope about 25 meters. Graffiti and inscriptions have been added to the interior, including faded initials and a date of "04." A well-worn pedestrian trail leads to this feature.

Feature 2 is located about 50 meters to the west of Feature 1 on the same level (Figure 10). The mine opening measures 1.6 meters wide by 1.9 meters high and the tunnel extends into the cliff face 16 meters. A moderately defined pedestrian trail leads to the feature. Tailings extend down slope about 25 meters. Feature 3 is located 60 meters above the floodplain. The mine opening is 1.3 meters wide by 1.9 meters high, and the tunnel extends into the cliff face 3.9 meters. Tailings are poorly defined but they appear to extend down slope about 25 meters. An ephemeral trail leads to the feature, and a moderate amount of graffiti is evident inside the tunnel. These tunnels are collectively part of a series of historic mines associated with oil shale prospecting in the Sand Wash area. According to Arden Stewart, they date to the 1920s and were initially developed by his father, John Henry "Hank" Stewart (see also Aton 2009).



Figure 9: Feature 1 mine portal at 42Un5908.



Figure 10: Feature 2 mine portal at 42Un5908.

42Un5909. This site is another mine tunnel associated with oil shale prospecting that is located [REDACTED]

[REDACTED]. It consists of a single, shallow mine tunnel that extends horizontally into the cliff face 2.43 meters. The tunnel opening is 85 centimeters wide by 1 meter high. There are minimal mining tailings in front of the tunnel due to the steep slope directly in front. According to Arden Stewart, the site is one in a series of historic mines in the Sand Wash area dating to the 1920s and initially developed by his father, John Henry "Hank" Stewart (see also Aton 2009).



Figure 11: Mine opening at 42Un5909 is upper right frame, second cliff level.

42Un5910. This mine tunnel is located [REDACTED]. The site consists of a single horizontal tunnel excavated into the base of the first cliff level to a distance of 8.5

meters (Figure 12). The opening is about 3 meters above the actual floodplain and measures 1.9 meters high by 1.5 meters wide. Tailings extend in front of the opening about 4 meters to the east and they range up to 3 meters wide. No artifacts were observed. The interior of the shaft features numerous inscriptions ranging from 1879 to 1978 although the earlier dates are considered to be spurious (the shafts were initially excavated in the 1920s). According to Arden Stewart, the site is one in a series of historic mines in the Sand Wash area dating to the 1920s and initially developed by John Henry "Hank" Stewart (see also Aton 2009).



Figure 12: Mine opening and tailings at 42Un5910.

42Un5911. This site consists of a cluster of historic log structures located on the Green River floodplain [REDACTED]. The two log structures were probably built in the early 1930s by Chuck Sands, who acquired the ferry in 1929 or 1930 from Hank Stewart. Feature A is roughly square and features cottonwood logs with ax-hewn ends with a few that had been cut with a saw (Figure 13). These were erected horizontally in a crossing notch pattern on the corners. The interstices were packed with white river mud or silt, and there is minimal gravel evident in the mud. The pole roof is slightly pitched and is overlaid with river mud and remnants of a black plastic tarp

(presumably placed there during a BLM effort to stabilize the structure). The lower portion of the log foundation has been buried by river sediments to a depth of 50 to 70 centimeters. There are two square windows on the west, one on the south and a doorway on the east. The door was constructed of milled lumber and may not be original to the structure. The cabin measures 4.9 meters on the east, 4.8 meters on the west and 4.4 meters on the north and south. The maximum height is 2.1 meters at the apex on the west side. On the interior, there is a north-south extending feed crib for livestock constructed of five horizontal poles on the west (Figure 14).



Figure 13: View of Feature A (livestock shelter) at 42Un5911.

Feature B (Figure 15) has similar notched-pole and notched-log construction as Feature A. The east wall measures 4.8 meters and the west wall 4.9 meters, the south wall 4.5 meters and the north wall 5.5 meters. Flood deposition has buried the lower part of the foundation to a depth of 1 meter. The log and pole construction features a combination of ax-hewn ends and ends that had been cut with a saw. The doorway faces west, and there is a single window on the south and three square windows on the east. The roof is identical to Feature A, including the use of white river mud overlaying black plastic. The cabin has a maximum height of 2 meters at the apex. Both cabins are located north of the Stewart Cabin and have been fenced by the BLM.



Figure 14: Manger or feeding crib (Feature A) at 42Un5911.



Figure 15: One-room cabin (Feature B) at 42Un5911.

42Un5912. This site is located on the west side of the Green River [REDACTED]. The site consists of a large corral complex of three distinct enclosures constructed in the 1920s by Hank Stewart for livestock used in his ferry operation. The enclosures are partly obscured by dense vegetation and other features may be present. The corral appears to have been modified in more recent times with the addition of milled 2-by-8-inch planks and galvanized barbed wire. Most of the poles used in the construction feature ax-hewn ends set horizontally between two vertical parallel poles. Four to seven rows of horizontal poles were then set one upon the other to a height of 1 to 1.5 meters (Figure 16). On the south edge of the site is a loading chute of 2-by-12-inch milled lumber and vertical railroad ties. The western components of the corrals incorporated the west cliff face as part of the enclosures. An old two-track road runs along the base of the cliff to this site and between a large enclosure on the northeast and a small enclosure on the southeast. One enclosure that incorporates the cliff face measures about 9 meters east-west by 25 meters long, another other to the east of that measures about 25 meters north-south by 10 meters east-west (but is polygonal in shape) and a small enclosure on the south measures about 6 by 6 meters.



Figure 16: View of pole fence construction at 42Un5912.

42Un5913. This site is located on a rolling bench area [REDACTED]. It consists of the remnants of an old two-track wagon road between the Miles Ferry and Sand Wash. The road is quite distinct in some locations on the north, but becomes more and more ephemeral farther to the south. The most visible road segment is about 2 meters wide and 200 meters long, but the road originally extended about 2 kilometers from a

[REDACTED], but these were not recorded due to time constraints. The ferry and road were used to transport sheep from 1905 to 1917. A single rusted tin can was observed and wooden remnants of a possible corral or fence area were observed on a bench area west of the road. This feature consists of heavily eroded wooden poles arranged in a linear pattern along a relatively barren bench. The road and nearby ferry (42Un5914) were constructed by a man named Miles, probably William “Billy” Allen Miles (Aton 2009).

42Un5914. This site is located on an outcrop [REDACTED]. Site consists of remnants of a ferry complex that operated from 1905 to 1913 by William "Billy" Allen Miles (cf. Aton 2009). When documented in 2007, the site consisted of the western terminus of the ferry where metal cables, metal artifacts and a stone retaining wall were observed (the eastern terminus of the ferry complex was not identified).

The stone wall (Figure 17) is located on the north side of a small dry wash that runs on the south side of an outcrop that served as the ferry anchor. The wall appears to have been drylaid using locally available sandstone slabs, and has a maximum width of 4 meters and maximum height of 1.8 meters. The stones range from larger stones 2 meters long by 30 centimeters thick to smaller slabs 15 to 20 centimeters long and 2 to 3 centimeters thick. At the base of the wall is an unknown metal artifact and rounded clamp with two holes on the end. A 22 caliber shell casing was observed above the wall.



Figure 17: Stone wall constructed at Miles Ferry (42Un5914).

Above the retaining wall are remnants of 1.5-inch-diameter twisted metal cable, smaller fragments of twisted one-half-inch cable, and galvanized metal loops through which the cable had been threaded. About 10 meters of the larger cable are evident and about 1.5 meters of the smaller cable. Additional cable appears to be buried in the sediments on top of the outcrop. About 7 meters east of the wall is a vertical wooden post and two horizontal posts that have been cut with a saw. There is rusted wire around the post. To the east of the post on the cliff face facing the river are the initials CTB.

Summary: Prehistoric Sites

Only two prehistoric sites were documented, a red pictograph at 42Un349 and a drylaid D-shaped structure at 42Un5906. The rock art image is somewhat similar to Fremont images in nearby Nine Mile Canyon, but it is not clearly diagnostic of a particular period of time or culture. Likewise, the drylaid structure is similar to D-shaped structures elsewhere in Desolation Canyon that have been attributed to Fremont occupations, but it also is not clearly temporally or culturally diagnostic. No artifacts of any kind were observed in association with these sites.

The prehistory of Desolation Canyon and nearby Nine Mile Canyon is summarized in other recent reports (Spangler 2002; Spangler, Davis et al. 2007; Spangler, Boomgarden et al. 2007), and these discussions are not repeated in this preliminary report. However, it is emphasized that there remains a high probability that significant numbers of prehistoric cultural resources will be identified in the Sand Wash area, probably associated with the permanent spring just inside the mouth of the canyon. The nature, diversity and distribution of these resources remain unknown and unstudied. It is considered likely that prehistoric adaptations in the Sand Wash area will be related to contemporaneous adaptations in lower Nine Mile Canyon, but they will likely reflect more ephemeral, temporary occupations.

Summary: Historic Sites

The 10 historic sites documented in 2007 all appear to be associated, either directly or peripherally, with two separate ferry operations established to facilitate the transportation of livestock between the East Tavaputs and West Tavaputs plateaus. These historic properties are associated with at least two prominent individuals of significance to the Euroamerican development of the Tavaputs Plateau and greater Uinta Basin: William “Billy” Allen Miles and John Henry “Hank” Stewart. Some of the features were modified or constructed by Chuck Sands and/or Ray Thompson, later owners of the ferry.

Miles was a Missouri native who had come West because of tuberculosis. He operated a ferry and cable crossing [REDACTED] from 1905 to 1913 to capitalize on the growing sheep industry, which required a means to move sheep back and forth across the Green River to access summer and winter ranges. Miles had earlier homesteaded in the Desbrough Canyon area of Nine Mile Canyon in 1905 or 1907, but he wintered in Salt Lake City. In 1914, Miles helped found the Roosevelt Banking Company and was its president until 1919. His name was still attached to the area in 1917 when the Utah

Power & Light survey passed through the area (Aton 2009). Remnants of the west side of the ferry complex (42Un5914) and the wagon road from the ferry to Sand Wash (42Un5913) are attributed to this operation (Aton 2009; see also the discussion below).

Historical accounts indicate that Hank Stewart and his 15-year-old bride, Elsie, were originally operating a ferry at Tia Juana Bottoms when conflicts with Utes in about 1920 prompted area sheep ranchers to encourage Stewart to move his ferry downriver to Sand Wash, a better location that was less contentious. In 1920 or 1921, Hank and Elsie floated the ferry down to Sand Wash and lived temporarily in a tent. That winter they tore apart their four-room cabin at Tia Juana Bottoms, marked the logs, dragged them down river on a bobsled on the frozen river and then reassembled them at their current location. It took three or four trips. Remnants of this cabin constitute site 42Un513, whereas log structures at 42Un5911 were constructed sometime after their arrival, probably by Chuck Sands in the early 1930s. The corrals at 42Un5212 were probably constructed by Stewart, but were also modified by later owners. As discussed above, site 42Un446 has been assigned to the ferry crossing, although remnants of the actual ferry crossing have not been identified.

While at Sand Wash, Stewart also pursued mining interests. He had come from a hard-rock mining background and had already worked copper claims on the Pariette Bench. At Sand Wash, he hand-dug tunnels in the cliffs above his cabins, looking for oil shale in the magnesium marlstone found in the Mahogany bed of the Parachute Creek member of the Green River Formation. A few others came after him and expanded the tunnels, but nothing came from the prospecting (Aton 2009). Six mine tunnels are associated with Stewart's prospecting (42Un5907, 42Un5908, 42Un5909 and 42Un5910), all of them located around the mouth of Sand Wash.

Site Condition Assessment and Recommendations

An examination of sites in proximity the Sand Wash boat launch site revealed historic properties have been and continue to be significantly impacted by visitation, but the level and nature of these impacts varies considerably depending on (1) visibility of the site from existing camps, and (2) ease of access from an existing camp. In effect, sites located a considerable distance from a designated camp site or that are not visible from the camp sites have less visible impacts than sites in close proximity. These impacts range from minor (footprints inside historic structures) to major (graffiti, using historic fence wood in fire pits). Other impacts, such as the collection of historic artifacts, are considered probable, but cannot be measured given the absence of baseline data.

All 12 sites were examined for evidence of human-caused impacts, including illegal excavations, graffiti and figure modifications, restacked or modified architecture, litter, pedestrian and vehicle impacts, and damage resulting from associated industrial development, road construction and modern ranching operations. Sites were also examined for livestock impacts. These impacts were also examined within the context of site visibility, proximity to and access from roads, trails and river camps, and difficulty of access (Table 1).

42Un349

This rock art site is easily accessible [REDACTED], although the actual panel is obscured by vegetation growing along the trail. An ephemeral pedestrian trail leads from the two-track to the site, indicating it does receive some visitation, probably from individuals camped at the Sand Wash launch. The site has been impacted in the past by livestock, as evidenced by copious amounts of desiccated livestock dung (Figure 18), but this does not appear recent. The burned shale inside the shelter may be evidence of modern camping activities, but this also does not appear recent. The old two-track is largely overgrown and there is no evidence of recent vehicular access to the site. There is no unequivocal evidence of vandalism or graffiti. The panel is eroded and it is difficult to ascertain if additional figures were once present. Generally, this site appears to be in the same condition as reported in 1973.



Figure 18: Livestock dung below rock art at 42Un349; note the fire scarring on back shelter wall.

Recommendations. This site remains fairly well known to river visitors and was once part of a BLM walking tour of historic sites in the area. Consequently, it probably still receives some visitation although evidence is sparse that this is significant. The site, given its location near ground level, remains especially vulnerable to touching and rubbing by large herbivores and people. Hence, disclosure of site location should only be accompanied with appropriate advisories on proper etiquette expected from river visitors, contact with rangers prior to visiting the site and limiting access to pedestrians only.

Consistent site monitoring is recommended. Future vandalism or other adverse effects could warrant closing the site to public visitation.

42Un446

The historical marker is in essentially the same condition today as when erected in 1969 (or thereabouts). No evidence of vandalism to the marker was observed. There is a pedestrian walkway around the marker and it undoubtedly receives significant visitation. Camping is occurring at designated sites near the marker.

Recommendations. This historical marker was erected for public visitation and educational outreach. Consequently, this locality would be appropriate for enhanced public outreach efforts, including more significant educational efforts on the history and significance of the region, and proper ethics expected of river visitors at all sites. Visitation is appropriate and no additional recommendations are offered.

42Un513

The site of the Stewart Cabin receives significant public visitation due to its proximity to and visibility from established BLM camps used by river runners at Sand Wash. Vegetation is worn down through repeated pedestrian traffic, and there are footprints inside and outside of the main cabin structure. There is considerable litter about the site, mostly broken glass that may or may not be historic. Camping has occurred next to Feature 2 (shed) and designated camps are within short easy walking distance of the cabin. There is evidence of two pits on the south and west sides of the cabin, perhaps looters pits, although these have deflated and are not recent. There is no recent evidence of malicious vandalism or graffiti. There are names inscribed on the cabin walls but at least some of them are historic. Surface collection of historic artifacts in this area must be considered highly probable since artifacts observed when the site was initially recorded are no longer evident (it is unknown if these were removed by the BLM during stabilization efforts).

The proximity of the road to the site has clearly impacted site setting, association and feel, and may have impacted cultural deposits associated with the structure. The proximity of camping shelters has undoubtedly resulted in extended visitation to the structures but this has not resulted in obvious evidence of recent vandalism or graffiti. There is no evidence that vehicles have recently breached the fence perimeter erected by the BLM to keep vehicles out. The roof of the cabin has been covered with black plastic and mud, presumably during past BLM stabilization efforts. The plastic is now exposed and weathered, creating a visual distraction to the integrity of the property (Figure 19). The interior of Feature A has also been compromised by rodents (Figure 20).

Recommendations. Management of this site is problematic given that the BLM has already designated camping facilities around the site and may have already impacted subsurface deposits during the course of these improvements. These adverse effects cannot easily be ameliorated after the fact. This site already receives daily monitoring by

river rangers who pass through or next to the site, and the site has been fenced to protect the structures from direct vehicular impacts. In light of these considerations, this site would be appropriate for public outreach initiatives to educate river visitors as to appropriate ethics when visiting sites of historic significance. These efforts should include advisories on the importance of not adding names and dates at historical and archaeological sites, federal laws applicable to vandalism and graffiti, proper behavior expected when visiting sites in the river corridor, and admonishments not to collect historic artifacts. The history associated with this site should also be included in a Sand Wash interpretive kiosk or brochure celebrating the historical significance of the individuals associated with the crossing.



Figure 19: Exposed black plastic on roof of Feature A at 42Un513.

It is also recommended the BLM initiate additional stabilization of the Stewart Cabin that conforms to currently acceptable Department of Interior standards, and that pedestrian traffic be better managed to direct visitors away from areas of potential risk (e.g., exposed nails) or vulnerability (e.g., direct access to historic artifacts). A more thorough documentation of the site, inscriptions and historic artifacts is warranted, preferably by specialists with demonstrated expertise in historic architecture and material culture. A complete catalog of historic artifacts and inscriptions should be compiled as a baseline for future monitoring of site degradation and historic research. As a matter of public health, stabilization efforts should also include strategies for rodent control.



Figure 20: Packrat nests inside iron stove, Feature A at 42Un513.

42Un5906

This prehistoric site is located [REDACTED] but had gone unnoticed by the rangers prior to this documentation. Access to the site up a narrow ledge is not difficult, and it is likely that the site has received some visitation in the past. No artifacts of any kind were observed, perhaps indicating that cultural materials were removed or discarded during looting of interior deposits. There is vehicular access to within 60 meters of the site, but no evidence that vehicles have left the road to access the site directly. There are no pedestrian trails to the site, nor are there footprints on or around the site. Livestock impacts are limited to desiccated cattle dung at the base of the cliff. There is no evidence of camping in the area, no litter and no modern modifications other than the road and cattle guard. There is no obvious evidence of looting. A recent spill of contaminated water from oil and gas development in the area passed along the bottom of the drainage but likely did not impact cultural deposits directly associated with this site. There remains a high potential for additional sites near the spring and along the bottom of Sand Wash where there is permanent flowing water.

Recommendations. Although this site appears to receive little visitation, it remains vulnerable to structural damage from individuals attempting to gain access to the feature by way of a narrow ledge. There is minimal room to maneuver once inside the sheltered area and it is difficult to avoid touching or leaning on the remaining walls once

inside the shelter. This creates significant potential for structural degradation. In light of this potential, disclosure of site location is strongly discouraged, and periodic monitoring of the site for future adverse effects is warranted. Furthermore, a more detailed survey of areas around the spring could ascertain the nature and distribution of prehistoric sites associated with this permanent water source, as well as the potential for adverse impacts from future development in the area.

42Un5907

This site is readily visible [REDACTED] 50 meters to the south, and it is easily accessible across a flat slope that rises only about 2 meters to the mine portal. This site appears to receive significant visitation as evidenced by a well worn pedestrian trail from the road to the opening and recent footprints leading to the site. There is no evidence of camping on or near the site, but it is well within the range of pedestrians camping at Sand Wash [REDACTED]. This site was once part of a BLM walking tour and still features a sign installed as part of that tour. Visitation is further evidenced by the presence of broken brown bottle glass. There is no evidence that ATVs have left the Sand Wash Road to gain access to the site, and no evidence of impacts due to livestock or agriculture. The site has been seriously impacted by repeated episodes of graffiti ranging from 1947 through at least 1998. Among the names, initials and dates: Brian Speed State Champs, Bennett #7, Bryans #15, Bryan #19, #19, 21 Oct. 90, Riohna, Dee, Nick, House, No De Today, Kyle 94, Pi6 94, JM, Chanrie, Uh, Engleman Leon 1947, Tyler, Kevin 98, Andrea 94, Kateira, and Eric 1968.

Recommendations. The visibility and easy access to this site makes limiting public visitation unrealistic. Given the absence of cultural deposits that would be impacted by visitation, as well as the proximity to the river camps, this site would be appropriate for public visitation if accompanied by outreach initiatives to educate river visitors as to appropriate ethics when visiting sites of historic significance. These efforts should include advisories on the importance of not adding names and dates at historical and archaeological sites, federal laws applicable to vandalism from graffiti, proper behavior expected of river visitors when visiting sites in the river corridor, and admonishments not to collect historic artifacts. The history associated with this site could also be included in a Sand Wash interpretive brochure celebrating the historical significance of the area. Periodic monitoring of this site for additional episodes of graffiti is warranted, and broken bottle glass should be removed.

42Un5908

All three mine portals are easily visible [REDACTED], and a major pedestrian trail leads directly to Feature 1 [REDACTED]. A moderate trail leads from Feature 1 to Feature 2, and an ephemeral trail leads to Feature 3 about 30 meters farther up slope. It appears that Feature 1 receives the greatest public visitation and that visitors less frequently explore the nearby portals. Direct impacts to this site are limited to graffiti at Feature 1 and Feature 3. Feature 1 includes faded initials and a date of "04." Shaft 3

includes the inscriptions: Sherlene, Ivie N, David Nerison, 1977 Forever, and Mark MC 1976. There is no convincing evidence that graffiti episodes have occurred in recent times. There is no evidence of livestock or agricultural impacts, no litter and no industrial development. ATVs have not attempted to directly access the site, but ATV tracks are visible on the floodplain below the site where they have left the established road. No camping impacts were observed near the site, but the site location is well within the range of pedestrians camped about 200 meters to the northeast.

Recommendations. The visibility and relatively easy access to this site makes limiting public visitation unrealistic. Given the absence of cultural deposits that would be impacted by visitation, as well as the proximity to the river camps, this site would be appropriate for public visitation if accompanied by outreach initiatives to educate river visitors as to appropriate ethics when visiting sites of historic significance. These efforts should include advisories on the importance of not adding names and dates at historical and archaeological sites, federal laws applicable to vandalism from graffiti, proper behavior expected of river visitors when visiting sites in the river corridor, and admonishments not to collect historic artifacts. The history associated with this site could also be included in a Sand Wash interpretive kiosk or brochure celebrating the historical significance of the area. Periodic monitoring of this site for additional episodes of graffiti is warranted.

42Un5909

This site is readily visible [REDACTED], but access to it involves hiking up a very steep slope and along a narrow ledge. There is no pedestrian trail to the site and no evidence of recent footprints. The site is inaccessible to motorized vehicles, there is no evidence of livestock or agricultural impacts, and there is no litter on or near the site. There are no inscriptions at this site, and there is no nearby camping, although the site remains within the range of pedestrian access from the river camps at the launch point about 200 meters to the southeast. It is likely that the site receives occasional visitation, although there is no evidence of adverse impacts.

Recommendations. Given the absence of cultural deposits that would be impacted by visitation, as well as the proximity to the river camps, this site would be appropriate for public visitation if accompanied by outreach initiatives to educate river visitors as to appropriate ethics when visiting sites of historic significance. These efforts should include advisories on the importance of not adding names and dates at historical and archaeological sites, federal laws applicable to vandalism from graffiti, proper behavior expected of river visitors when visiting sites in the river corridor, and admonishments not to collect historic artifacts. The history associated with this site could also be included in a Sand Wash interpretive kiosk or brochure celebrating the historical significance of the area. Periodic monitoring of this site for additional episodes of graffiti is warranted.

42Un5910

The visibility of this site [REDACTED] and its easy access from the floodplain have likely precipitated repeated visitation to the site over the years, as evidenced by numerous inscriptions and dates inside the mine. However, there are no pedestrian trails currently leading to the site and no recent footprints. There is no camping evidence near the site, although it is within easy range of pedestrians camped at the BLM river camps [REDACTED]. There is no evidence of direct impacts from livestock, agriculture or industrial development, and the only litter observed was broken green bottle glass. The inscriptions include: J.E. Ortega, Fluno 1894, John L. Johnson March 23 1879, John Herrera May 6 1978, Augustine Trungille, Ranchos of Love, New Mexico, May 6. The 1800s dates are probably spurious given the mine shafts are attributed to Hank Stewart, who prospected here in the 1920s during his tenure as ferry owner-operator.

Recommendations. Given the absence of cultural deposits that would be impacted by visitation, as well as the proximity to the river camps, this site would be appropriate for public visitation if accompanied by outreach initiatives to educate river visitors as to appropriate ethics when visiting sites of historic significance. These efforts should include advisories on the importance of not adding names and dates at historical and archaeological sites, federal laws applicable to vandalism from graffiti, proper behavior expected of river visitors when visiting sites in the river corridor, and admonishments not to collect historic artifacts. The history associated with this site could also be included in a Sand Wash interpretive kiosk or brochure celebrating the historical significance of the area. Periodic monitoring of this site for additional episodes of graffiti is warranted. Removal of the broken bottle glass is recommended.

42Un5911

This site is easily visible [REDACTED], easily accessible from adjacent river camps and is the subject of repeated visitation by most visitors to Sand Wash. The heavy visitation has prompted the BLM to construct a fence around the site that has limited direct vehicle impacts to the historic architecture. Evidence of footprints was observed inside and outside the historic structures. There is no evidence of litter or structural damage from visitors, although surface collection of historic artifacts in this area must be considered highly probable. The proximity of the road to the site has clearly impacted site setting, association and feel, and may have impacted cultural deposits associated with the structure. The proximity of the camping shelters has undoubtedly resulted in extended visitation to the structures by those individuals using the shelters, although there is no obvious evidence this has resulted in vandalism or graffiti at the site. The roofs of the cabin have exposed black plastic (Figure 21), probably part of past BLM stabilization efforts, and this is now a distraction to the historic integrity of the site.

Recommendations. Management of this site is problematic given that the BLM has already developed sheltered camping facilities around the site and may have already

impacted subsurface deposits. These adverse effects are not easily ameliorated after the fact. This site already receives daily monitoring by river rangers who pass through or next to the site, and the site has been fenced to protect the structures from direct vehicular impacts. In light of these considerations, this site would be appropriate for public outreach initiatives to educate river visitors as to appropriate ethics when visiting sites of historic significance. These efforts should include advisories on the importance of not adding names and dates at historical and archaeological sites, federal laws applicable to vandalism and graffiti, proper behavior expected of river visitors when visiting sites in the river corridor, and admonishments not to collect historic artifacts. The history associated with this site could also be included in a Sand Wash interpretive kiosk or brochure celebrating the historical significance of the Stewart family.



Figure 21: Eroding and exposed black plastic visible at 42Un5911.

It is also recommended the BLM initiate additional stabilization efforts that conform to Secretary of Interior standards, particularly of the roof areas. More proactive management strategies to protect, stabilize and interpret historic resources at Sand Wash could include better management of pedestrian traffic to avoid areas of potential safety risk (e.g., exposed nails) or vulnerability (e.g., areas where structural integrity could be compromised). It is also recommended that this site be more thoroughly documented, preferably by specialists in historic architecture and stabilization. This documentation should include a complete catalog of historic artifacts whereby a baseline for future monitoring and scientific research could be established.

42Un5912

This site is readily visible and accessible to pedestrians [REDACTED]. The site features considerable litter, including a soda can, rusted sardine can, broken glass and charcoal from campfires. A fire pit with broken glass is located near the base of the cliff (Figure 22). Rangers indicate that some teenagers recently accessed the site with a vehicle and that the thick vegetation caused damage to the vehicle (broken window glass was observed). These individuals left behind whiskey bottles, condoms and beer cans (all removed by rangers). Individuals camped at this locality also removed wood from the corral to burn in the fire pit, remnants of which are still visible. Evidence of livestock dung is present, but it is not recent, and there is no evidence of ongoing impacts from livestock or agriculture. Vehicular access is not easy given the thick vegetation along the floodplain and overhanging the road.



Figure 22: Recent fire ring constructed at 42Un5912. Burned fence wood is on the interior.

Recommendations. The ephemeral nature of this site (wooden corrals overgrown with vegetation) would not appear to be at significant risk of adverse human impacts. However, as demonstrated by recent activities at this site, it remains vulnerable to illegal and inappropriate vehicular access and camping wherein the corral itself could become a source for fuel wood. It is recommended the BLM make greater efforts to make the road impassable to vehicles (e.g., blocking the road access point with boulders) and to post and enforce the road closure. Remaining litter at the site should be removed, as should all evidence of the fire pit. Periodic monitoring of the site for future evidence of adverse impacts is warranted. This site will undoubtedly be inadvertently encountered by river visitors, but the site location should not be overtly disclosed.

42Un5913

This site is located just above the floodplain [REDACTED]

[REDACTED] there is no evidence that pedestrians regularly venture this far from the designated camps. There are no pedestrian trails, no footprints, no litter and no evidence of recent impacts. There are no roads and no evidence that ATVs have breached the area through cross-country travel. There is also no evidence of any industrial development, livestock impacts or agricultural modifications in the area. The site is ephemeral and likely has escaped detection by most individuals who have walked [REDACTED].

Recommendations. Given the ephemeral nature of the site and the absence of evidence for subsurface cultural deposits, this site remains at minimal risk of adverse human impacts. It is recommended that cross-country ATV travel not be permitted in this area inasmuch as vehicle tracks and subsequent erosion could damage the remaining road segments. Occasional monitoring of the site for adverse impacts is warranted. Disclosure of site location is not recommended due to the fact the road leads to 42Un5914, where historic artifacts and intact cultural deposits are prevalent.

42Un5914

This site is located [REDACTED]

[REDACTED] there is no evidence that pedestrians venture this far from the designated camps. There are no pedestrian trails, no footprints, no litter and no evidence of recent impacts. There are no roads and no evidence that ATVs have breached this area through cross-country travel. There is also no evidence of any industrial development, livestock impacts or agricultural modifications in the area. The site has likely has escaped detection by most individuals in the area, although it would be recognizable to anyone passing through the area.

Recommendations. Given the distance of this site from the Sand Wash ranger station and designated camps, it likely remains at minimal risk of adverse human impacts. It is recommended that cross-country ATV travel not be permitted in this area due to the sensitive nature of historic resources here, the potential for intact cultural deposits and the presence of portable historic artifacts that could be removed. Occasional monitoring of the site for future adverse impacts is warranted. Disclosure of the site location is strongly discouraged. A more thorough documentation of this site, preferably by a historian with specialized knowledge of ferry operations and equipment, is highly recommended to ascertain the nature and spatial extent of this site.

Summary

The spatial distribution of historic properties in the Sand Wash area is such that public visitation to most sites is unavoidable. In fact, such visitation is considered inevitable given the fact the BLM has already established designated camping spots amidst some of the more significant historic resources. This visitation will likely continue, warranting a more proactive BLM management of historic properties that includes thorough documentation, stabilization of architectural structures to accommodate unsupervised visitation, better management of pedestrian traffic around these sites, and outreach efforts to educate visitors as to the historic significance of the resources and the proper ethics expected of visitors to these sites.

Most adverse impacts observed in 2007 were either minor, such as pedestrian trails, or were not recent, as was the case with possible looters pits. One exception appears to be the prevalence of graffiti at mine tunnels [REDACTED] where names and dates have been added as recently as 2004. The presence of names and dates attributed to many different decades suggests that some visitors interpret the presence of graffiti as justification to add their own names and dates. This problem is ongoing in the Sand Wash area and reflects a pattern also observed in Desolation Canyon NHL where dates have been observed as recently as 2006 (Spangler, Davis et al. 2007). Consequently, it is recommended the BLM more aggressively address this problem throughout educational outreach, ideally at Sand Wash prior to disembarking.

Another strategy to deter graffiti could be the implementation of a mandatory register of all individuals arriving at Sand Wash. This approach is currently being used by the Utah Division of Wildlife Resources for visitors to Range Creek with the inherent assumption that individuals whose names are on file with the permitting agency are less likely to engage in graffiti, vandalism or other destructive activities. Currently at Sand Wash, only the names of the Desolation Canyon permit holders are on file with the BLM, but the names of all individuals traveling under that permit are usually not registered. A complete registry of names could also assist law enforcement in the identification of individuals responsible for new episodes of graffiti and vandalism throughout Desolation Canyon, including NHL and non-NHL lands managed by the BLM.

The historic resources at Sand Wash clearly constitute a coherent assemblage of sites related to individuals of national, regional and local significance, as defined in National Park Service Bulletin 16A. As discussed below, the historical significance of these resources are indisputably related to broader patterns of Euroamerican history and Native American prehistory on the Tavaputs Plateau, in particular Desolation Canyon, As defined in Criterion A. The historic resources here are clearly associated with individuals of regional and national significance (Criterion B), and some features here represent unique examples of Western frontier architecture that embody distinctive characteristics of type, period or method of construction, or represent a significant and distinguishable entity, even if the individual sites lack distinction (Criterion C). A most importantly, prehistoric and historic properties in the Sand Wash area are eligible under Criterion D in that they have yielded or are likely to yield important information about the prehistory and history of the region.

Historical Overview

The Euroamerican history of the Sand Wash area is reflected in two predominant themes: Individuals of national significance who passed through the area during various exploring expeditions or economic pursuits along the Green River, and individuals of regional significance who established river ferries in this area in the early 20th century to facilitate socioeconomic intercourse between ranchers living on the East Tavaputs and West Tavaputs plateaus. This history is inextricably linked to the broader history of the Tavaputs Plateau, including the florescence of the Uinta Basin fur trade in the first half of the 19th century, exploration of the American West in the latter half of the 19th century, the development of livestock operations in the late 1800s and early 1900s, brief flirtations with mining of oil shale, surveying for new dams and rail lines, and the emergence of recreation as a primary activity on the Green River.

Individuals of national significance include fur trader William Ashley, Western explorer John Wesley Powell and members of Powell's 1869 and 1871 expeditions (as discussed above, a National Register plaque commemorating the Powell expeditions is located at Sand Wash). Individuals of regional significance include William Allen Miles and John Henry Stewart, among others as discussed below.

The underlying factor relevant to both historic themes was the Green River, both as a means to facilitate transportation and a barrier to east-west transhumance. William Ashley's 1825 journals offer the first reference to the name Green River. The river had been known to the Spanish as the San Buenaventura, and to most trappers as the Seeds-ke-dee, a Crow word meaning prairie hen (Leigh 1961; Purdy 1960). The origin of the name Sand Wash is unknown, but is likely a name assigned by early ranchers. Given the name was used in the early 20th century, it is not, as commonly claimed by some professional river guides, a name attributed to Chuck Sands, who operated the ferry in the early 1930s. Today, Sand Wash is known almost exclusively as the launch point for the thousands of Desolation Canyon recreational river runners. The remarkable history of the region, summarized here, was originally compiled for *Desolation Canyon: History Along the Green River*, by James M. Aton. It will be released by Utah State University Press in 2009 and is cited here as such.

Explorers and Adventurers

The first Euroamericans to visit the Sand Wash area were undoubtedly fur trappers exploring out of the Uinta Basin to the north. Historical documents traditionally place the opening of the Uinta Basin fur trade at about 1824 with the arrival of French trapper Etienne Provost, who explored the region while traveling to the Great Salt Lake (Barton 1989; Hafen 1972). Also in 1824, Antoine Robidoux, a trapper from St. Louis, wrote the *Missouri Intelligencer* that he had led a trapping party to the Green River (in Barton 1989:34). It is possible Robidoux and Provost traveled together from New Mexico

to the Uinta Basin in 1824 and that Robidoux split off from Provost to explore the Green River region (Weber 1970:74).

William Hubbard, also of Missouri, led a third party into the Uinta Basin in 1824, indicating in a brief account in the *Missouri Intelligencer* that he "accidentally fell in with five other Americans, among whom was Mr. Rubideau" (in Barton 1989:35). Somewhere in the region, Antoine Robidoux's party was attacked by Arapaho Indians, who killed two trappers and confiscated furs and mules. Sometime after the attack, Robidoux met up with about 25 of Provost's men and traveled with them to Taos, New Mexico (1989:36). It is unknown if Provost, Robidoux, Hubbard or others ventured into the Green River area below the Uinta Basin, although Robidoux was known to prefer an overland route up Willow Creek, across the East Tavaputs Plateau and down Westwater Canyon.

William Ashley. A figure who may have ventured as far south as Sand Wash was the legendary trapper, trader and aspiring politician William Ashley. While camped in southwestern Wyoming, Ashley split his company into four parties, sending three overland while Ashley's group, consisting of seven trappers, were determined to travel to the Uinta Basin by floating the Green River (Morgan 1955a:158). Two boats were constructed of cottonwood poles 16 feet long and 7 feet wide, and were wrapped with buffalo hides. Lacking resin or tar, the seams in the hides were waterproofed with buffalo tallow. The first attempt by Euroamericans to float the Green River was a remarkable adventure filled with danger and disaster, particularly for Ashley who could not swim (Lavender 1982:35).

There remains considerable debate over just how far Ashley floated. Upon emerging from Split Mountain, Ashley's party encountered two French trappers from Taos belonging to the company of Etienne Provost and Francois Leclerc. Ashley cached trade goods just below the confluence of Ashley Creek, and a short distance beyond, on May 20, 1825, they abandoned the buffalo-hide boats, resorting to hollowed out cottonwood trunks. On May 21, Ashley's party reached the mouth of the "Tewinty River," (Morgan 1955a:175-177). Scholars generally agree the Tewinty River is the Duchesne River (known as the Uintah River in the last half the 19th century). Ashley noted that Provost had wintered two miles south at the mouth of the White River (a popular camp fur trappers through the 1830s), and there he found Provost's note directing his party to meet Leclerc at the mouth of Willow Creek about 6 miles below. Ashley discovered the Willow Creek camp deserted, but they cached their cargo there and three members of the party were dispatched to hunt game while Ashley and three others kept paddling down river (Aton 2009).

The journal indicates that on May 23, they traveled about 12 miles to "find the Country a barren heap of rocky mountains" (in Morgan 1955a:178). On May 24, Ashley began following Indian trails that led back up river and he directed his men "to return with the Canoe as expediceously as possible" (1955a:178). Aton (2008) believes Ashley traveled overland back to Willow Creek, where on May 27 they traded with Utes for horses and proceeded up the Duchesne River. A descent of 12 miles below the White

River would have placed the end of Ashley's exploration somewhere in the canyon country above Moon Bottom and well above Sand Wash and Desolation Canyon.

In the notes to the Ashley journal, Morgan cites a parallel and more descriptive account called the "Ashley Narrative" that indicates "I concluded to ascend this (Tewinty) river on my route returning, therefore deposited the cargoes of my boats in the found near it and continued my descent of the main river fifty miles to the point marked 5 on the topographic sketch I sent you. The whole of that distance the river is bounded by lofty mountains heaped together in the greatest disorder, exhibiting a surface as barren as can be imagined" (1955a:178). A descent of 50 miles from the mouth of the Duchesne River would have placed Ashley near the mouth of Rock House Canyon well into Desolation Canyon. Morgan believes he actually went about 26 miles, or no farther than the mouth of Nine Mile Canyon.

Scholars disagree over the locations indicated in Ashley's account. Some historians believe the "Tewinty River" is the Duchesne River today, and that the "Euwinty River" marked on a crude map is Nine Mile Creek (Gowans 1985:17; Lavender 1982; Morgan 1964:281; Smith 1987:109). Others believe Ashley floated as far as modern-day Green River, Utah (Morgan 1955a; Pedersen 1972:600). Barton indicated Ashley traveled only as far as the confluence of the White River (1989:37). Given the conflicting historical accounts and differing interpretations, there remains a distinct possibility that Ashley's journeys took him as far as Sand Wash and Nine Mile Canyon.

Another trapper of renown who probably passed by Sand Wash was Denis Julien, who is most famous for the inscriptions he left on cliff faces along the Green River and Colorado River corridors. A French-speaker from St. Louis, Julien came to the Green River country from Taos, New Mexico. Aton (2008) believes he probably trapped for the Robidoux brothers: Louis, Antoine, Michel, and Joseph. In 1828, Julien and William Reed traveled north out of Taos and established Reed Trading Post at the confluence of the Uintah and Whiterocks rivers; Julien was probably in his mid-fifties at the time. Within four years, Reed and Julien sold out to Antoine Robidoux, although Julien probably continued to work for Robidoux in the following years, trapping in the Uinta Basin and along the Green River into Desolation Canyon where he is believed to left his distinctive DJ inscription at the mouth of Chandler Creek (no date is affixed and some question its authenticity).

At Hell Roaring Canyon, above the confluence of the Green and Colorado, and in lower Cataract Canyon below Cove Canyon (now inundated by Lake Powell), Julien scratched the dates of "3 May 1836" and "16 May 1836," respectively. The Hell Roaring inscription also includes a boat with a mast, suggesting Julien could have traveled by boat rather than overland. If the Chandler Creek inscription is authentic, it suggests Julien could have been the first Euroamerican to float Desolation Canyon.

It is likely that the pursuit of furs led many trappers into the Sand Wash area and regions south in the years after 1825. It is unlikely that Nine Mile Creek, with its permanent water, would have escaped the attention of trappers as they expanded farther

and farther into the canyon wilderness in search of diminishing beaver resources. It is also evident from subsequent journal accounts in the 1860s through 1900s that the Green River itself throughout Desolation Canyon was teeming with beaver, and these also would not have gone unnoticed by earlier generations of trappers. However, there is a paucity of journal accounts from trappers and traders that mention this region.

The only possible exploration of the Green River through Desolation Canyon after Ashley's 1825 exploration and before the 1869 Powell expedition appears to be that of William Manly and a group of would-be prospectors, who in 1849, decided to float their way down the Green River from Wyoming to California on a modified ferry. After several portages, the ferry eventually ripped loose of its tethers and lodged upside down against a massive rock. According to Lavender (1982:60), the party then hollowed out three canoes and continued down river to the modern-day location of Green River, Utah. With most of their guns, ammunition and supplies lost along the way, the river trip was abandoned and the party walked to Utah Lake. Other historians disagree with Lavender's interpretation of the historical record, arguing Manly went only as far as the Uinta Basin.

John Wesley Powell Expeditions

The history of the region is inseparable from that of Major John Wesley Powell, whose landmark explorations of the Green River in 1869 and 1871 are hallmarks of Western exploration in the 19th century (cf. Darrah 1951; Stegner 1954; Worster 2000). The national significance of these expeditions prompted the designation of Desolation Canyon as a National Historic Landmark in 1968, with boundaries extending from the mouth of Nine Mile Creek on the north to Florence Creek on the south. A National Register plaque commemorating the achievements of the 1869 expedition (42Un446) is located at the Sand Wash boat launch.

It is unclear from the brief journal accounts what the 1869 expedition considered to be Desolation Canyon. This confusion is accentuated by what appears to be exaggerations of the miles floated each day. The first (and only journal) reference to Desolation Canyon was on July 10, 1869, when Bradley (1947:47) indicated they were nearing the end of the "Canyon of Desolation." Powell's account, compiled much later and apparently from notes no longer available to historians, assigns a July 8 date to the name when he recounts "we pass through a region of the wildest desolation" and "we are minded to call this the Canyon of Desolation" (1961:191). This would have been somewhere in the area of Steer Ridge Canyon in the middle of Desolation Canyon as it is known today.

The 1871 expedition made frequent references to the name Desolation Canyon, but there are also inconsistencies in what they considered to be Desolation Canyon. Dellenbaugh wrote "The Canyon of Desolation is 97 miles long. He had placed the end of Desolation Canyon at about Wire Fence Canyon, where he assigned the beginning of Gray Canyon (1962:91). This would have placed the beginning of Desolation Canyon some distance above the Duchesne River confluence. Stephen Vandiver Jones wrote that the distance from the Uintah River to the head of Desolation Canyon was 36 miles, that

Desolation Canyon was about 58.5 miles long, and that Coal (Gray) Canyon was 28.5 miles long, making a total of about 122.5 miles (Jones 1948:69). These estimates are fairly close the actual distance of about 117 miles from the mouth of the Duchesne River to Gunnison Butte.

Thompson's first reference to Desolation Canyon was on August 6, 1871, when he wrote "Very barren and desolate. Not even sage. Very few cacti. I think it merits the name of 'Desolation,'" (1939:32). This would have been somewhere above Moon Bottom well before they arrived at Nine Mile Canyon, the current beginning point of Desolation Canyon. Bishop's first reference came the next day (August 7) when he wrote "I believe they call this the head of the Canyon of Desolation, but apparently there is no well-defined head to this canyon" (1947:186). The location of the August 8 camp when the journal entry would have been made is uncertain. It could have been as far north as Sand Wash or as far south as Gold's Hole (the evidence seems to support the latter).

Clem Powell also mentions the name on August 7, writing "We have entered the Canyon of Desolation. These low bluffs are gradually growing higher and higher, and desolate enough it looks with its bare gray rocks and earth barren and sterile with never a shrub or green thing on them except at river's brink" (1948:294). Jones made reference to a country "as desolate as any we have yet seen" the first day after the Duchesne River camp (August 5), but does not use the Desolation Canyon name until August 8 when he mentioned they had run their first rapid in the Canyon of Desolation (1948:56-57). Dellenbaugh's literary narrative of the expedition does not use the name until the afternoon of August 8 when he noted they arrived in the afternoon at a small rapid (Tabyago Canyon) and "we knew that we were now fairly within the Canyon of Desolation" (1962:79)

The 1869 Expedition. Although not the first to float through Desolation Canyon, John Wesley Powell appears to have been the first to do so with scientific intentions. Powell had passed the winter of 1867-68 in western Colorado in the company of local mountaineers and guides, debating the possibility of exploring the unknown canyons of the Green and Colorado Rivers. He returned to Washington the following spring to secure federal funding for his Rocky Mountain Scientific Exploring Expedition. When congressional lobbying failed to secure an appropriation, the expedition was funded through grants from Eastern institutions. Powell additionally obtained U.S. Army rations through the efforts of Illinois congressmen, and scientific instruments were donated by the Smithsonian Institution (Lavender 1982:104). Powell, his wife and seven members of the Rocky Mountain Scientific Exploring Expedition spent the winter of 1868-69 on the banks of the White River (Bartlett 1962:235-236; Fowler, Euler and Fowler 1969:2; Lavender 1982:103).

The 1869 expedition departed Green River, Wyoming, on May 24, 1869, with four boats and 10 participants. Besides Powell, they included John Sumner, a guide and owner of a trading post at Middle Park, Colorado; George Young Bradley, a disgruntled military man who agreed to join if Powell could facilitate his release from the army (Lavender 1982:103); Andrew Hall; Frank Goodman; Walter Henry Powell, Major

Powell's younger brother; William Rhodes Hawkins (also known as Billy Rhodes); Oramel G. Howland, Seneca Howland and Bill Dunn.

Only three members of the expedition kept journals (Bradley 1947; Powell 1947; Sumner 1947), none of which offer significant details, and some additional information is provided in letters (Ghiglieri 2003). Many of the journal entries were, kept on scraps of paper that were later copied into journal format, but many were subsequently lost. The most detailed journal account is that of Bradley, a U.S. army infantryman discharged from the service under orders from the Secretary of War specifically to become Powell's chief boatman (Darrah 1947a). Another journal account is that of John C. Sumner, a well-known trader and guide who first signed on with Powell in 1867 during his exploration of Middle Park, Colorado (Darrah 1947b). Powell's journal is the most fragmentary of all, offering minimal description whereby the expedition itinerary could be reconstructed (Powell 1947). A more detailed account is offered in Powell's later recollections in *The Exploration of the Colorado River and Its Tributaries* (1961), but this is flawed by his compilation of notes and memories from both the 1869 and 1871 expeditions (Powell was actually not on the 1871 expedition through Desolation Canyon, and therefore his recollections of Desolation Canyon should be an accurate account). As discussed below, it is likely the expedition camped in the Hyde Bottom area on July 5 and July 6, 1869. They likely passed by Sand Wash on July 7 and reached Gunnison Butte on July 13.

1871 Expedition. Powell had already laid the groundwork for a second Colorado River expedition before the first had been completed (Darrah 1947a:149-153). The "success" of the 1869 expedition and Powell's subsequent celebrity status (Fowler, Euler and Fowler 1969:1) prompted a series of lectures through the winter of 1869-70. In response, on July 12, 1870, Congress appropriated \$10,000 for a "Geological and Topographical Survey of the Colorado River of the West," under the direction of the Smithsonian Institution (Darrah 1947a:149; Lavender 1982:115-116).

When the 11-member expedition embarked on May 22, 1871, the crew included photographer E.O. Beaman and boatman John K. Hillers, who also became an accomplished photographer who delivered more than 20,000 negatives to the U.S. Geological Survey and the Bureau of American Ethnology. The expedition also included Frederick Samuel Dellenbaugh, a 17-year-old artist, writer and assistant topographer; Powell's brother-in-law Almon Harris Thompson (called "Prof" in the journals), the party's geographer; Frank Bishop, a cartographer; John F. Steward, an amateur geologist; Stephen Vandiver Jones, a school teacher who served as assistant cartographer; Andy Hatton, the camp cook; Walter Clement Powell (called "Clem" in the journals), who was the major's cousin and the assistant camp photographer; and Frank Richardson, a friend of the Powell family who left the expedition before it arrived in Desolation Canyon.

As discussed in greater detail below, the expedition camped somewhere between Sheep Wash and Moon Bottom on August 5 and August 6, 1871. The August 7 camp was likely in the Gold Hole area, meaning they would have passed Sand Wash earlier that day but did not camp there. On August 17, 1871, they reached the mouth of what is today Rock Creek, but which was referred to in the journals as Nine Mile Creek. All journals

from the 1871 expedition contain good information on the flora, fauna, geology and topography of Desolation and Gray canyons (Bishop 1947; Dellenbaugh 1908, 1909; Jones 1948; W. Powell 1948; Steward 1948). There are also numerous references to photographs taken in the Tavaputs Plateau region.

The importance of the expeditions cannot be overstated. Not only did John Wesley Powell become one of the most influential scientists of late 19th century, heading the U.S. Geological Survey and Bureau of Ethnology, but members of the expeditions also rose to national prominence. Thompson went on to become chief cartographer for the U.S. Geological Survey. Beaman's photographs of the Green and Colorado were the first images of the canyon and established baseline photographs for subsequent geologists, hydrologists, photographers and botanists doing comparative studies along the river. Jack Hillers became chief photographer for the U.S. Geological Survey and is now acknowledged as one of the greats in Western photography.

Later Expeditions. Although the Powell expeditions of 1869 and 1871 brought national renown to Desolation Canyon in subsequent popularized accounts, the rough wilderness appears to have deterred frequent visitation to the region. It was not until the Birch Expedition of 1906, Carstarphen Expedition of 1911 and the Harmston Expedition of 1913 that developers began looking to the area as a potential transportation route for moving minerals and goods from the Uinta Basin to a rail head at Green River, Utah.

Born in Missouri in 1861, James Edwin Birch prospected for gold in Alaska and Colorado before drifting to the Uinta Basin near the turn of the century where he established the Indiuta Mining and Power Company, a branch of the Florence Mining Company. In the fall of 1906 he boated downriver with well-known trapper and river man, Nathaniel "Than" Galloway of Vernal. Like many after him, Birch was looking for a faster way to haul gilsonite from the Uinta Basin to the Denver and Rio Grande railhead near Green River, Utah. The October 25–31, 1905, trip through Desolation Canyon included four men in two boats. In his report the next year Birch was convinced that dynamiting the river would render it navigable by steamboats, possibly with the use of locks, at a cost of \$100,000 (Colorado Historical Society n.d.; Remington 1959; *Vernal Express* 1906). Nothing came of the idea.

Another who saw the Green river as a potential transportation route was Fred C. Carstarphen, a mining engineer from Denver who worked for a time at a gilsonite mine in Dragon near the Utah-Colorado border. In 1911 he moved to Myton to manage the Gilsonite Company, which with New York and Denver investors had begun to mine gilsonite on the Pariette Bench. Throughout the summer and fall of 1911, Cartarphen badgered the state of Utah to no avail to improve the Myton-to-Price road so that gilsonite could be transported by truck rather than wagon (Aton 2009, citing *Eastern Utah Advocate* and *Carbon County News*).

Carstarphen began to investigate the possibility of loading the gilsonite into steel drums and floating them down the Green River from Ouray to Green River, Utah. According to George E. Stewart Jr., his father, a stockholder in the company, built a

seventeen-foot, high-prow boat for a 1911 expedition down the Green River. The oarsmen were John Henry “Hank” Stewart, George Sr.’s brother, and the other was C.C. Larsen. Somewhere “above the mouth of Rock Creek,” possibly at Log Cabin Rapid, they wrecked their boat and were forced to walk out (Crampton and Madsen 1975; see also Aton 2009).

An equally improbable idea was the 1913 Harmston Expedition. Edgar Fernando Harmston was a teacher, surveyor, mining engineer, school board member, pharmacist, hardware store owner, founder of Roosevelt and promoter in the Uinta Basin who had in 1903 surveyed a wagon road from the Uintah Railway in Watson near the Utah-Colorado border to Vernal. A native of Missouri, he spent 35 years in Vernal and Roosevelt, and when he died in 1925, the local newspaper said that his funeral was the largest in Uinta Basin history (*Vernal Express* 1925; see also Aton 2009).

In 1913, Baron Von Horst of London, England, fronted the money for Harmston to survey a rail line from Roosevelt to Green River, Utah, through Desolation and Gray Canyons. Harmston’s team headed south from Ouray on August 10, 1913, with six men, three saddle horses, four pack horses, and one boat, called The Roosevelt. They made their way down the river for 13 days with Hank Stewart and C.C. Larsen again at the oars. After following a line on both sides of the river, Harmston concluded that the railroad would be easy to construct, but at a cost of \$3 million. He pointed out the economic benefits of a rail line in and out of the Uinta Basin, which he believed would soon become the most populous and prosperous section of Utah. He also noted this route “would be par excellence the ‘scenic route’ of America, excelling in grandeur the Royal Gorge and Black Canyon of the Gunnison [in Colorado], the magnificent and ever shifting panorama is unequalled in grandeur and magnificence on the continent” (Harmston 1913; see also in Aton 2009).

Nothing ever came of the proposal, although it does provide a valuable record of the canyon’s settlement and extractive industries at the time, the location of various ferries along the river, the fate of the Uteland Copper Mill, and various ranches along the river (Aton 2009). It should also be noted that Harmston’s report offers the first historical reference to the name Sand Wash, and he made reference to the Miles ferry and “the cable is still in place, but the boat broke loose and drifted down river....We find Miles' old ferry boat stranded on the sand bar at Gold Hole" (Harmston 1913:2)

The emergence of viable hydroelectric power in the early 1900s soon prompted considerable interest in the economic potential of Western rivers. In 1920, Congress passed the Federal Water Power Act that created the Federal Power Commission (FPC) with three members – the secretaries of Interior, War and Agriculture – who decided who could survey and build hydroelectric dams on public lands and waterways, including the Green River. Southern California Edison (SCE) and Utah Power and Light (UP&L) were eager to partner with Washington to develop the hydropower potential in the deep canyons of the Colorado River Basin. UP&L had already surveyed parts of the Green River in 1917 and 1919. Their 1917 survey consisted of a six-man horse pack trip on the west side of the river from Green River, Utah, north to Ouray. It commenced June 1 and

concluded July 12, and would have passed by Sand Wash. Expedition photographs show the river in flood stage. In 1919, a boat survey down the river established a baseline and set permanent bench marks. No records of that trip have survived (Larned 1917; Myers 1983; Woolley 1926, 1930; see also Aton 2009).

In 1922, UP&L planned a trip down river from Green River, Wyoming, to Green River, Utah. Heading up the survey was U. S. Geological Survey (USGS) topographical engineer Kelly W. Trimble, who had surveyed the year before on the San Juan River as part of an SCE survey. Two other veterans of that expedition, Bert Loper and H. Elwyn Blake, and Leigh B. Lint, a boatman for the 1921 Cataract/Glen Canyon survey, oared the three boats; John Clogston, a cook for the same party, manned the kitchen. UP&L footed the bill for the trip and sent H.L. Stoner, a veteran of their 1917 survey, as their field engineer; the USGS assigned geologist John B. Reeside Jr. and hydraulic engineer Ralf R. Woolley (Westwood 1992; see also Aton 2009).

They traversed the canyons in three Galloway-style boats which they named Wyoming, Colorado, and Utah after the three states they passed through. Two were 18 feet long and 4.5 feet at the beam; the other measured 16 feet by 4 feet. They were all made of oak planks and were flat bottomed; each contained two water-tight compartments fastened with nuts and sealed with a rubber gasket. The 1922 expedition sought to survey for dam sites all along the Green down to Green River, Utah. In addition, they mapped portions of the river, recounted the history of exploration of the area, and rendered a basic geology along the canyons. Woolley wrote the official report, *The Green River and Its Utilization*, a USGS Water Supply Paper (1930), although it took eight years to get it into print. He also wrote a popular account, but it never saw print (Woolley 1926).

The expedition entered Desolation Canyon on August 29 after six weeks on the river and as the water was dropping. They had to maneuver through rock-choked rapids, but had no major mishaps. Woolley concurred with Major Powell about the canyon's title, "Desolation." At Nine Mile Canyon he commented on the diggings of shale oil prospectors (Woolley 1926). There are no oil shale mines at the mouth of Nine Mile Canyon (there is one farther up the drainage but it is not visible from the river). Consequently, this reference may actually be to oil shale prospecting at the mouth of Sand Wash where mine portals are visible from the river.

Woolley also noted Preston Nutter's cabin, a 200-acre hay farm and cattle ranging in the area. Migrating geese and ducks there were so thick, he wrote, that "at some time the air along the horizon down the river would be litterally [sic] black with these birds" (Woolley 1926:49). Woolley reported two distinct possibilities for dam sites in Desolation and Gray canyons. At Rock Creek he projected a 190-foot dam that would store 300,000 acre feet of water and produce 75,000 kilowatts of power; and at Rattlesnake Rapid in Gray Canyon, some 30 miles below Rock Creek, a 275-foot dam with a reservoir that would reach to Rock Creek and produce 115,500 kilowatts of power (Woolley 1930:244-247).

The Ferrymen

The emergence of Sand Wash as a key location in the socioeconomic development of the Tavaputs Plateau is inextricably linked to the florescence of major livestock operations on the East Tavaputs and West Tavaputs, with the inherent need to transport herds back and forth across the Green River. A few cattlemen had been in the area since the late 1870s, but by the 1890s and early 1900s larger operations had moved into open ranges all across the Tavaputs Plateau. The largest of these was the Nutter Ranch, operated by Preston Nutter, who in addition to ranch headquarters in middle Nine Mile Canyon had a ranch at the mouth of Nine Mile Canyon just south of Sand Wash. Nutter and other ranchers undoubtedly knew of every point where the Green River could be crossed with minimal risk, including the river crossing at Sand Wash.

The first attempt to establish a ferry at or near Sand Wash was apparently that of a man named Miles, probably William “Billy” Allen Miles of Nine Mile Canyon. Miles sold his Nine Mile ranch to a man named Retan, who in turn sold it to the Pace brothers, who retained it through at least the 1930s. Miles subsequently operated a ferry and cable crossing at Boat Bottom, just above Sand Wash, from 1905 to 1913. A man named Charlie Brown was also associated with the ferry and was probably one of Miles’ hands (A. Stewart 1993). The Miles name was still attached to the ferry in 1917 when the UP&L survey came through (Woolley 1926). Miles died in Altonah, northwest of Roosevelt, in 1923 (Aton 2009). Little else is known about the Miles Ferry.

The history of a subsequent ferry at Sand Wash is tied largely to Hank Stewart. John Henry “Hank” Stewart was born in Mona, Utah May 1, 1868. His father, Simeon, was a company dentist for the nearby Eureka mines. The family moved to San Bernardino for a while, then returned to Mona, and for a time Hank and his brother George E. lived with an aunt and uncle in Puget Sound, Washington. They both later attended All Hallows College in Salt Lake City. Even though he came from educated parents, all Hank ever wanted, according to his son Arden, was to be a cowboy. As a youth he had devoured dime-store westerns and apparently yearned to be a part of that legendary life (A. Stewart 2004; see also Aton 2009).

In 1897, Stewart and his brother came into Castle Valley. Hank first worked for the Joseph B. Meeks and Pete Murning ranches in Castle Gate, apparently becoming friends with local outlaws working on a nearby ranch. He nearly got mixed up in the infamous Castle Gate Robbery, agreeing to let Butch Cassidy borrow a horse for a getaway to Robbers Roost in the San Rafael Swell (McElprang 1949; A. Stewart 1991). A year later, Hank married Minerva Van Wagoner, started a ranch in Argyle Canyon in upper Nine Mile Canyon, worked for various cattlemen like Preston Nutter, and eventually fathered three children. In 1904, he partnered with Dr. Frank Fiske, buying several hundred head of cattle which they wintered near Wellington and summered in Nine Mile. They were only in business together for a few years. In 1905 he had a summer-long conflict about water with his downstream neighbor Nutter (Nutter 1905).

He also did a little mining on the side. Some time in the first decade of the century Hank divorced Minerva, and she later married Stewart's good friend, Neal Hanks. She got the ranch in Nine Mile and custody of the children; Hank got the freedom to pursue mining and ferry ventures with his brother George (A. Stewart 2004).

Stewart next appears in the historical record in 1911 and 1913 when he rowed a boat for two improbable survey parties down Desolation Canyon (discussed above). The Stewart brothers had some small copper claims on Leland Bench, between Roosevelt and Ouray, around the same time as Hank was rowing for the survey parties. The two brothers also started a ferry at Tia Juana Bottom. Sheep that crossed it wintered on the West Tavaputs Plateau and summered on the East Tavaputs Plateau. Eventually Hank sold out his mining interests to George, who had become the manager of the Uteland Mining Company (more on this shortly), and George sold his interest in the ferry to Hank (A. Stewart 1993, 2002; see also Aton 2009).

Hank operated the ferry at Tia Juana Bottom from at least 1915 to 1920. He also contributed to a short-lived school for other ranchers' children at the confluence of Willow and Hill creeks. His oldest daughter, Eva Stewart Ashton, a recent BYU graduate, was the teacher. In September 1919, Hank Stewart, then 51, met and married Elsie Wardle, the 15-year-old daughter of Jedidiah Wardle. During this time Hank (the Utes called "Ma Oov Erats," or "Buckskin Shirt," for his frequent attire) had a run-in with the Uncompahgre Ute Red Moon. Generally, however, Hank got along well with the Utes, partly because of his friendly, accepting nature and partly because he spoke their language fluently. But conflicts with Utes eventually prompted the area's sheep ranchers to encourage Hank to move the ferry downriver to Sand Wash. Thus, in 1920 or 1921 Hank and Elsie floated the ferry down to Sand Wash where lived temporarily in a tent. That winter they tore apart their four-room cabin, marked the logs, and dragged them down on a bobsled on the frozen river. It took three or four trips (A. Stewart 1993, 2002; see also Aton 2009).

The freezing of the Green River is a common occurrence. The river usually solidifies in late November or early December and thaws in late February to mid March. The thick ice allowed for the easy transportation of the logs for the Hank and Elsie Stewart cabin. The ice had its uses as a refrigerant. Residents would cut ice blocks out of the river, pack them with snow in a shed, and cover them with a layer of gilsonite. The ice would last all summer. But ice could be deadly as well. When Vern Muse was working at Sand Wash in 1933, he let a team of horses loose to get a drink in the river. They broke through the ice and disappeared (Rowley 1969; A. Stewart 1993; *Vernal Express* 1969; see also Aton 2009).

The ferries themselves worked through the use of a windlass that allowed the ferry to use the current to push it across. There was an air space between the boat bottom and the floor. The front of the wooden boats had an apron to allow animals to have easy access on and off. Later a man named Peterson, probably Ole Peterson, brought in a metal ferry, which is now buried in the sand downstream of the boat launch. The ferry cable wrapped around large cottonwood trees on either side (A. Stewart 1993, 2002,

2004). Ferries also operated at Swallow Canyon, Jensen, Ouray, Tia Juana Bottom and Boat Bottom. The ferries were largely utilized by sheep ranchers. As many as 45,000 sheep passed through Sand Wash a year, 50 head at a time. Sheep were sheared on the east side of the river, and the wool sacked and freighted out by wagon to Vernal. Hank Stewart charged three cents a head; in his best year he made \$2,700 (A. Stewart 1993; see also Aton 2009).

Hank eventually grew tired of the ferry business some years after his son, Arden, was born in 1925. He sold out to Kentucky native Chuck Sands sometime between 1929 and 1930 and moved upriver to Willow Creek where he and Elsie bought her father's 160-acre homestead more than a mile up creek from the confluence. Sands, meanwhile, built the second cabin at the ferry. Sands would have been the owner of the ferry in 1931 when the Claflin Emerson Expedition, a landmark archaeological expedition from the Peabody Museum at Harvard University, crossed the ferry from east to west on their way to a base camp at the Pace Ranch in Nine Mile Canyon (see Gunnerson 1969; Scott 1931). The expedition notes refer to the ferry (Figure 23) as the Muse Ferry, probably a reference to Vern Muse who worked for Chuck Sands. Sands and his wife, Iola, had two children. He sold out to Peterson, and Peterson in turn sold to Ray Thompson in the mid-1930s. Ray Thompson was there in 1937 and 1938 when Haldane "Buzz" Holmstrom stopped by two years in a row, the second time with Amos Burg (Dimock 2003; see also Aton 2009).

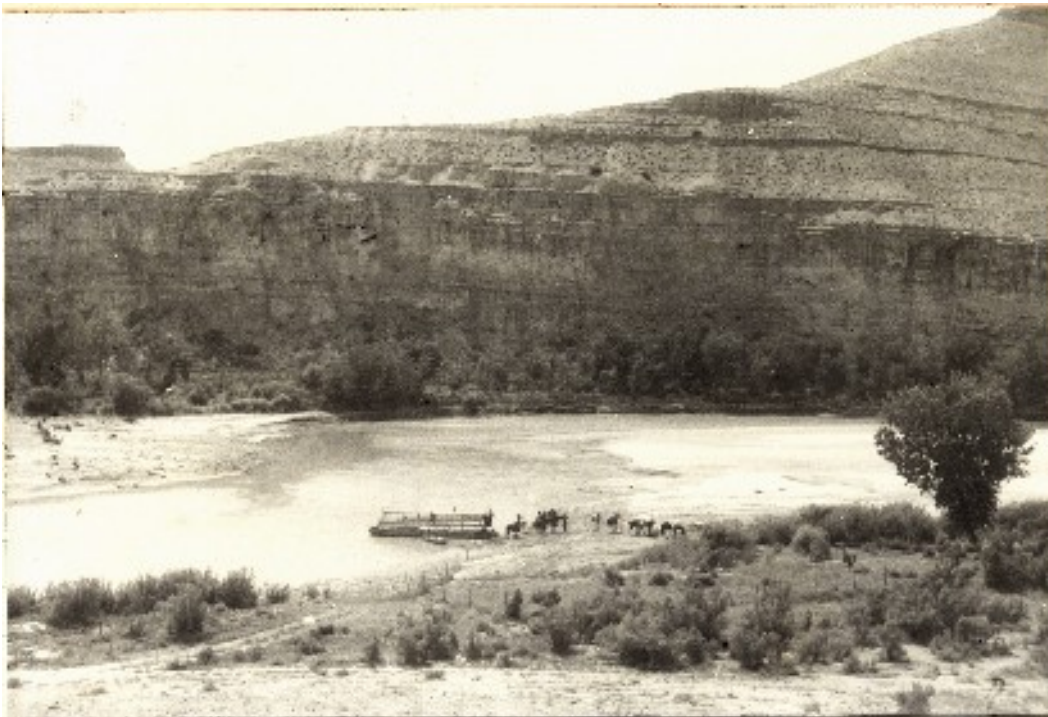


Figure 23: Sand Wash Ferry as it was being crossed by the Claflin-Emerson Expedition in 1931 (Photo U-31-179 courtesy of the Peabody Museum, Harvard University).

Thompson in his best year saw twenty thousand sheep pass through at five cents a head. He told Holmstrom that a 1935 flood had bought the rock and mud down Sand

Wash, burying the lower part of one cabin (Dimock 2003). The lower exteriors of all cabins at Sand Wash are still buried by sand to a depth of about 1 meter. The ferry business declined as bridges were being built upstream. Moreover, the 1934 Taylor Grazing Act, a major drought and the Great Depression all worked to reduce the size of sheep and cattle herds on public ranges. When a spring flood in 1952 ripped out Thompson's ferry boat and cable, he abandoned the ferry business, although he continued to run cattle in the area until 1965 or 1966 (A. Stewart 2004, 2005). None of the owners of the ferry ever filed a formal claim for the land at Sand Wash.

Stewart, meanwhile, remained at Willow Creek in the early 1930s, weathering the Great Depression better than most because they were largely self-sufficient. Besides ranching, Stewart contracted as a private postal delivery man. He picked up the mail at Ouray and delivered it to ranchers up and down Willow Creek (Burton 1998; A. Stewart 2005). On May 18, 1937, Stewart and a young ranch hand, Thomas McKenna, were ferrying a heavy disk harrow and a corn planter tongue across river in a small boat at Sand Wash. The boat filled with water and swamped. Both men's wives watched in horror as the tragedy unfolded. Stewart, 69, was knocked unconscious by the machinery and when he surfaced, McKenna tried to hold onto him and the capsized boat at the same time. Harry Aumiller swan his horse out, threw a rope to McKenna, but the young man missed it. Both men then disappeared in the flood-swollen river. Stewart's frantic wife attempted to ride and swim to rescue him, but Chuck Sands restrained her. For the next week a team of fifty men in eight boats searched for the bodies. They discovered them a few miles below the accident (A. Stewart 2005; *Vernal Express* 1937a, 1937b).

Elsie Stewart had to sell two hundred Herefords to pay off ranch debts. She kept the ranch and eventually remarried Jack Brewer the next year, which improved the family's finances (A. Stewart 2005). Stewart was an impulsive, hot-tempered man, but he was also known as a friendly, gregarious, much-beloved cowboy. In large headlines, a front page article in the local paper described him as "one of Utah's colorful pioneer stockman...Hale and hearty, able to ride and work hard, he did things a younger man would shirk...respected for his hardihood and straight-forward dealing with his fellow man" (*Vernal Express* 1937b).

Some of Hank's friends were associated with his ferry, some were moonshiners, some herded horses, some mined copper or gilsonite, and some did all four. One moonshining friend was Frank Hyde, who lived along the Green River at Hydes Bottom just above Sand Wash. The Missouri native was a big, heavy-set man, and to Hank's son Arden, he was an intimidating presence who always talked rough. Hyde had a still on the island across from his cabin. When people would visit him, he would insist on them having a drink, would get them drunk, and would then try to fight them. Later in the 1930s Hyde married a much younger woman and moved to Myton. He had two or three children and became a master blacksmith (A. Stewart 1990, 2005).

Another friend of Hank Stewart was Ray Thompson, the last owner of the Sand Wash Ferry. Thompson was a long, lean cowboy who came into Brown's Park in 1913 and then fought in World War I and returned disillusioned. As he told Amos Burg in

1938, he left Brown's Park sometime after the war, "Don't know why I quit but one day pulled up stakes & started drifting south & hit this country & been here ever since. Kinda nice for horses. All I do is sit here on bank & watch 'em grow. Been here 20 years & ain't filed or paid taxes yet. Maybe that's better in ownin' anything." Thompson charged five cents a head for sheep to cross on the ferry and did about \$500 business in 1938 (Dimock 2003). Before acquiring the Sand Wash ferry, Thompson had squatted in the bottom above Sand Wash, now called Ray's Bottom.

The River Runners

Sand Wash as a focal point for recreational river running has its roots deep in the history of the sport with pioneering boatmen like George Flavell, Nathaniel Galloway, Julius Stone, the Kolb brothers and Buzz Holmstrom. None of these expeditions launched from Sand Wash (all started from Green River, Wyoming), but each contributed to the emergence of a concept that the Green River could be floated for recreation, enjoyment and scenic wonder. Each would have passed by Sand Wash, some of them even referencing stopping at Sand Wash to visit with the ferry operator. The earliest to run the river with recreational intent (albeit with some economic incentives) actually preceded the development of ferries at Boat Bottom and Sand Wash.

Two of the greatest boatmen in Green and Colorado River running history, George F. Flavell and Nathaniel Galloway, both made epic runs down most of the Green and Colorado within months of each other in 1896 and 1897. They shared many things in common: they were frontier trappers at the very tail end of an era; they were skilled oarsmen; and they were boat-builders. Flavell is less well known than Galloway. Sometimes calling himself "George Clark" or "Clark the Trapper," Flavell was born in 1864, in the small New Jersey village of Jefferson and later lived in Philadelphia where he learned sailing and the shipwright trade. Some time before 1890 he migrated to southern California where he hunted and trapped in the Colorado Delta area. Flavell's brother Roland joined him for a time and they trapped beaver, coyote and just about any other animal whose hide or feathers translated into cash. Flavell was abundantly tattooed and was himself "an expert with the India ink" (Carmony and Brown 1987:5-6).

While in California, Flavell read Robert Brewster Stanton's account in Scribner's of his 1889-1890 trip through the Grand Canyon. Sufficiently inspired, Flavell and Ramon Montez traveled to Green River, Wyoming, in 1896, and built a fifteen-and-a-half-foot boat out of two-by-four Oregon pine and seven-eighths inch, tongue-in-groove planks. His craft sported a high bow and stern, canvas decking on the bow end, seven hundred fifty feet of rope, one set of oars, and a sweep oar. The trapper reinforced the bottom with iron skids, but neglected storage compartments. It appears Flavell did the serious rowing. Flavell kept a journal, or "log" of the trip in a tight, beautiful script. He clearly had a literary bent. Missing for fifty years, the *Log of the Panthon* is one of the little known, but classic accounts of river travel in the Colorado Basin (Carmony and Brown 1987; see also Aton 2009).

The two men paddled into the top of Desolation Canyon on September 17, which Flavell called Usher Canyon. Somewhere in upper Desolation he shot a “slow elk,” frontier-speak for poaching cows, and spent two days drying the meat. He marveled at the beauty of the canyon walls, which he called mountains. He wrote, they “have been more wonderful in their construction than any yet passed on the trip or, in fact, than any I have ever had the opportunity to witness.” Unlike the Powell expedition members, Flavell immediately fell in love with of the canyon, even though the landscape was a totally new aesthetic experience for him (Carmony and Brown 1987:32-33). Flavell died several years later in Mexico at age 37.

Flavell’s decade-older counterpart, Nathaniel Galloway, lived similarly to Flavell and made many more trips down the Green. He primarily trapped beaver, but also killed other animals. Born in Lehi, Utah, in 1854, Galloway spent most of his life in Vernal. He had trapped on the Green River since 1891, building his own boats, simplifying and perfecting the design over the years. Until the late 1930s when Norman Nevills introduced his “sadirion” cataract boat, the Galloway boat formed the prototype for almost all river boats. By the time he guided the Julius Stone Expedition in 1909, his evolved design called for a boat 16 feet 4 inches long, 16 inches deep, and 48 inches at the beam. It boasted a pointed bow and flat stern. Constructed out of five-eighths inch pine, the boat sported a flat bottom and a ten inch rake. Galloway also pioneered the rowing technique of facing downstream stern first (Reilly n.d., Stone 1923).

His partner on the 1896-97 expedition down the Green and Colorado rivers, William C. Richmond, said Galloway was, “one of the most determined men I have ever met, and also very careful and deliberate in action. A genius in his line of work” (Richmond n.d.). His friend and benefactor for the 1909 expedition, Julius Stone, said Galloway always had totally accurate information and understood what animals would do better than they themselves (Stone 1923). But another fellow trapper friend and the executor of his estate, Angus Fillmore, said that although Galloway was a fine man, he was away on trapping excursions most of the time and neglected his family (Reilly n.d.). Although physically fit for that strenuous life, Galloway had occasional epileptic fits. Apparently one of them hit him and caused a fatal stroke in 1913 (see and Aton 2009).

When he made his famous run all the way down the Green and Colorado rivers, Galloway had at least six trips on the Green under his belt. In 1895, he had rowed to the confluence with the Colorado. In the fall of 1896 Galloway had left Henry’s Fork, Wyoming with his thirteen-year-old son Parley. At Brown’s Hole they met William Richmond. The Kansas native, by way of Yakima, had floated there with his partner, Frank E. Leland, a prospector and former Red Stockings ball player from Boston. To both men he proposed a trip all the way. Leland thought they were crazy and abandoned them at Brown’s Hole. Galloway sent Parley back to his mother in Vernal, and on October 22 Galloway and Richmond headed down river (Reilly n.d.; Richmond n.d.; Stone 1923).

In Desolation they encountered rough water and portaged their loads around some rapids to keep their gear dry. Eventually Richmond tired of portaging and suggested a

modification. He took his sixteen ounce, eight-foot-by-fourteen foot canvas bedroll, cut it up, and used it as decking fore and aft, another modification that influenced later boat design (Richmond n.d.). Like Flavell, Galloway avoided trying to capitalize on his trip. His local paper, *The Vernal Express* (1898), however, ran a series of twelve articles from June 30 to October 13, 1898, entitled “Through the Grand Canyon of the Colorado: Adventure by Nathaniel Galloway.” Galloway continued to trap, and ultimately Ohio industrialist Julius F. Stone hired him to guide a recreational trip in 1909.

Stone had met Galloway while the trapper was working for Robert Brewster Stanton in a Glen Canyon gold mining venture; Stone helped finance Stanton’s scheme. The industrialist later hunted with Galloway in the Henry Mountains and on the Kaibab Plateau where the men became friends. Julius had read Powell’s narrative of his 1869 expedition, and it fired his imagination. Stone eventually proposed that Galloway guide him down the river so that he could make a complete photographic record (Marston n.d.).

Stone ordered four wooden boats from Pouliot Boat Company for two hundred fifty dollars a piece and even paid for Galloway to travel to Detroit to supervise their construction. The boats and their five crewmen launched from Green River, Wyoming, on September 12, 1909 (Marston n.d.). The Stone-Galloway expedition of 1909 may rank as the first guided trip through the canyons (Aton 2009). Although Stone rowed his own boat, as did Charles Sharp and Seymour Dubendorff, this was a trip for hire and for recreation. Stone also brought along a photographer, his brother-in-law, Raymond A. Cogswell, to document the trip (see Cogswell 1909 and Stone 1932).

The expedition passed Ouray on October 3 and entered Desolation, where Galloway trapped beaver, shot a deer and “lived in the fat of the land for several days.” South of Ouray they passed and commented on the “New Copper Plant” (the Uteland Mine) that was just being constructed. At the mouth of Nine Mile Canyon they ran into cattleman Preston Nutter at Nutter’s Bottom. Galloway knew him well. They also stopped at Jim McPherson’s Cradle M Ranch and feasted on peaches, pears, apples, watermelons, cantaloupes, and tomatoes, “all of the finest quality and flavor.” This prompted Stone to comment that “the unfailing courtesy received from everyone we met is in fine contrast to the scant consideration sometimes accorded wayfarers in the East” (Stone 1932:62-67; see also Galloway 1909 and Cogswell 1909)

Two years after the Stone-Galloway expedition, Emery and Ellsworth Kolb, two photographers from the South Rim of the Grand Canyon, by way of Smithfield, Pennsylvania, decided to run the whole route from Green River, Wyoming to the Sea of Cortez. They contacted Stone in Ohio, who sent blueprints for the Galloway-designed boats. Stone suggested they take Galloway along as a guide but instead wanted to row their own boats and accomplish the feat all by themselves. In doing so, they changed the way the American public viewed white water boating. What had seemed to be a one-way ticket to sure death became something that anyone with guts and determination could do (Suran 2003; see also Aton 2009).

The Kolb brothers' angle on the September 1911 trip, however, was almost entirely commercial. They brought a motion picture camera with them. They wanted "to bring out a record of the Colorado River as it is, a live thing, armed as it were with teeth, ready to crush and devour" (Kolb1940:4) Ellsworth Kolb's popular account of their journey is still in print and served as a guide to some river runners in the next few decades. Their film ran continuously at their South Rim studio, the longest running movie anywhere in the world. It introduced thousands, if not millions, of people to river running. Among other things, it "cemented the Galloway-style of rapid-water navigation, and eased its transition to the increasingly popular pastime that rafting has become today" (Brad Dimock, in Suran 2003:xiv).

The Kolbs eventually exited the river at Needles, California on January 18, 1912. Ellsworth returned in May 1913 and completed the trip to the Sea of Cortez (Aton 2009). After the Kolbs, it appeared that anyone could run the river, yet relatively few did until after World War II. Buzz Holmstrom in 1937 was an exception. Haldane "Buzz" Holmstrom's was the fifth trip to run from Green River, Wyoming, through the Grand Canyon. But he was the first to solo the entire run, and in combination with a second trip with Amos Burg the next year, he was the first and last person to run every rapid. He took the Galloway design and improved on it significantly, prompting Colorado River historian Otis "Dock" Marston to call his boat "the greatest whitewater boat of its time" (in Dimock 2003). Holmstrom's solo whitewater feat was amazing, but Holmstrom's biographer Brad Dimock said, "it is his soul, his vision, his sensitivity—all expressed in his writings—that draws Holmstrom into our hearts" (2003:115). On his two trips through Desolation in 1937 and 1938, he did not linger long, but each time he stopped at Sand Wash to chat with ferryman Ray Thompson.

In 1940, Norman Nevills organized a trip from Green River, Wyoming, to Lake Mead that included the first women to retrace Powell's journey: Doris Nevills and Mildred Baker. Future Arizona Senator Barry Goldwater joined the trip below Desolation at Green River, Utah. The Nevills and Bus Hatch are credited with the advent of commercial river-running on the Green River (Webb 2005:21-31).

John Wesley Powell Slept Here

The remarkable feats of Major John Wesley Powell and members of his 1869 and 1871 expeditions have fueled public fascination for more than 130 years. These accomplishments have been hailed in scores of books, biographies, magazine articles and newspaper accounts that continue to the present. As discussed above, the mere fact that "John Wesley Powell slept here" was enough reason to warrant the designation of a Smithsonian site number at Sand Wash, even though there is no historical evidence to suggest that either of the Powell expeditions camped at that locality.

The actual location of the camps used by the expeditions while in Desolation Canyon cannot, in most instances, be established with any certainty. However, a close reading of the journals reveals clues that may, through deductive reasoning, assist in the identification of general locations where the camps may have been. The following section

presents several possibilities for camp locations for the 1869 and 1871 expeditions. To avoid confusion, minimal citations are used in this discussion. Citations for the 1869 expedition include Powell (1947, 1961), Sumner (1947) and Bradley (1947). Citations for the 1871 expedition were limited to Thompson (1939), Bishop (1947), Clem Powell (1948), Jones (1948) Steward (1948) and Dellenbaugh (1962).

The 1869 Expedition. Only three members of the expedition kept journals, none of which offer significant details; many of the journal entries, kept on scraps of paper that were later copied into journal format, were subsequently lost. The most detailed journal account is that of Bradley, with Sumner's journal offering brief but important clues. Powell's journal is the most fragmentary of all, offering minimal description whereby the expedition itinerary could be reconstructed (Powell 1947). A more detailed account is offered in Powell's later recollections in *The Exploration of the Colorado River and Its Tributaries* (1961), but this is flawed by his compilation of notes and memories from both the 1869 and 1871 expeditions (Powell was actually not on the 1871 expedition through Desolation Canyon and in theory his observations there should be valid).

The location of the specific camps used by the 1869 crew remains difficult to ascertain given the absence of detail in the journals and the wildly exaggerated claims of mileage on given days. At least two camps can be identified based on the 1871 camps in the same location. A careful consideration of the clues offered in the journals suggests that all camps in Desolation and Gray canyons were on the east side of the river, and that:

- The July 6 camp location remains uncertain. It may have been located at or near Hyde's Bottom about 8 miles above Sand Wash, but could have been as far down river as Gold Hole.
- The July 7 camp was located below Jack Creek, probably near the mouth of Big Canyon.
- The July 8 camp was probably located below Cedar Ridge rapids near or slightly above Dripping Springs at Mile No. 64.5.
- The July 9 camp was probably located just below Chandler Creek and above Trail Canyon. They remained here on July 10.
- The July 11 camp was probably at the foot of Bull Canyon.
- The July 12 camp was probably located near Salaratus Canyon, although this camp location remains the most uncertain.
- The July 13 camp was at Gunnison Butte.

Of relevance to this discussion are the expedition's activities after leaving an extended camp at the mouth of Uintah River to its arrival at Gunnison Butte. All three journals indicate the expedition camped at the mouth of the Uintah River about 2 miles above the mouth of the White River on June 28, 1869; laid over on June 29 and June 30; and on July 1 went exploring for fossils about three miles up the White River. On July 2, three members of the party set off on foot for the Uintah Agency. The next two days were spent in camp waiting for the party to return from the agency, and a third day was spent in camp after its return. The journals agree the expedition resumed on July 6. Bradley's journal estimated they made 35 miles (Bradley 1947:45-46). Sumner's journal indicated

they made 37 miles and camped on the east side of the river in a cottonwood grove (Sumner 1947). Powell's journal, which is silent for most of the trip through Desolation Canyon, mentions only that they camped on the east side of the river.

If estimates offered by Sumner and Bradley are correct, the crew would have camped somewhere between the mouth of Nine Mile Creek (35 miles down river) and Nutters Hole (37 miles down river). In this general region, there are currently cottonwood groves on the east side of the Green River opposite Nutters Hole, but not opposite Nine Mile Creek. Farther up river, there are cottonwood groves on the east side of the river opposite Sand Wash (33 miles), Boat Bottom (30 miles) and Long Bottom (26 miles). All four locations should be considered possibilities for the July 6, 1869, camp. There is no evidence the 1869 expedition camped at Sand Wash on the west side of the river where the marker is currently located.

Another line of evidence suggests the crew could have camped at Hyde's Bottom (25 miles from the mouth of the Uintah River). Both Sumner and Bradley indicate that on the morning of July 7 they rowed downstream from the camp about 2 hours, starting at 7 a.m.. Sumner indicated they rowed 10 miles to a canyon, presumably a side canyon, and "stopped to measure the walls." At that point, Bradley indicated he climbed a hill on the west side of the river to take height measurements and

... found on one of them a pile of rocks placed as children call cob-house. Think it is the work of Indians for I could not find names or letters on any of the rocks. I re-piled them and added a long rock, over seven feet, which I placed on end and made very secure. I also put my name on a flat stone with name of expedition and date and fastened it up very strong [Bradley 1947:46].

The pile or rocks or cairns observed by the Colorado River Expedition of 1869 could have been one of three large dry-laid cairns (42Un1931, 42Un1932 and 42Un1933) overlooking Desolation Canyon near the confluence of Nine Mile Creek. These cairns are visible from the river and are located in association with the only major western canyon in this area of Desolation Canyon. If these cairns are indeed the "cob houses" referred to by Bradley, and the estimate of 10 miles floated prior to arriving there is accurate, the July 6 camp would have been in the Hydes Bottom area. If the mileage was over-estimated by 40 percent, the camp would have been located between Long Bottom and Boat Bottom at about Mile No. 99, meaning they actually traveled about 27 miles on the first day, not the 35 to 37 miles indicated.

The 1871 expedition, using a map created by the 1869 crew, repeatedly noted that the 1869 mileage estimates were greatly exaggerated. On the first day out of the Duchesne River camp, the 1871 expedition claimed to have floated about 16.5 miles, which Bishop noted was 27 miles by the 1869 map (1947:185). The next day on the river, the 1871 expedition noted they made 13 miles, which was equal to 20 miles for the 1869 crew (Bishop 1947:186). This supports a previous entry that the 1869 crew over-estimated mileage by about 35 to 40 percent (see also Bishop 1947:186).

Calculating the ratio of over-estimations of the 1869 expedition, the mileage of the 1869 expedition based on 1871 calculations would have been about 21 to 22 miles. This would have put the 1869 camp in the Kings Canyon area at Mile 107 to Mile 106, or about 1.5 miles above Hyde Bottom. A 10-mile float the next morning would have placed the “cob houses” near Sand Wash (no cairn architectural features have yet been identified in this area). If the 10-mile distance is discounted by 40 percent, the cob houses would have been farther up stream above Boat Bottom where no such cairn features have yet been identified (there have not been surveys in this area and it remains a possibility). A camp in the Hyde Bottom area is considered to be more likely based on the more certain location of the July 7 camp above Big Canyon.

Also noteworthy are the journal entries for July 7, the second day after departing the Duchesne River. Bradley indicates they traveled a total of 40 miles that day (Bradley 1947:46); Sumner indicated only that they resumed rowing at 10 a.m. and ended at 6 p.m., and made a total of 34 miles (Sumner 1947:113). If they were camped in the Hyde Bottom area, this would have placed the expedition camp that night somewhere between above Jack Canyon (34 miles) and Cedar Ridge Canyon (40 miles), not allowing for over-estimations of mileage.

Based on evidence in the 1871 accounts, it seems clear the July 7 camp was located river left above the Big Canyon Rapids and below Jack Canyon, perhaps in a flat area opposite Lunts Horse Pasture or somewhere just above the confluence of Big Canyon. Bishop (1947:187) indicated that on August 11, 1871, they camped at the same location as the 1869 camp and there was still evidence of the 1869 camp. If the 1869 crew had been camped the night before at Hyde Bottom, they would have traveled 36 miles that day, or much farther than allowed by the 40 percent discount. Powell’s later account in “Explorations” indicates the 1869 expedition traveled only 26 miles on July 7 and they camped on the west side of the river. The account also mentions that “Late in the afternoon we find the river very much rougher and come upon rapids, not dangerous, but still demanding close attention” (1961:190).

If the July 7 camp can be established with certainty at above the Big Canyon Rapids, extrapolating back from that point presents additional possibilities for the July 6 camp. Powell’s estimate of 26 miles would have placed the camp near Sand Wash (Mile 95.5); Bradley’s estimate of 40 miles would have placed the camp at Kings Canyon Bottom (Mile 106.5); and Sumner’s estimate of 36 miles would have placed it in upper Long Bottom (Mile 102.5). If the 1869 over-estimation of mileage noted in the 1871 journals is correct (ca. 40 percent), the camps would have been 20 to 22 miles back up river from Big Canyon, or between Tabyago Canyon and Gold Hole.

Additional clues are found in the journal references to the first rapids in Desolation Canyon. Bradley indicated on July 7 they ran “several” good rapids (1947:46) and Powell indicated in *Exploration* they encountered rapids late in the afternoon (1961). The first major rapids are at Jack Canyon, followed by Big Canyon, Firewater Canyon and Cedar Ridge Canyon. However, Sumner indicated they passed only two rapids that day

(1947:113). The first “rapids” in Desolation Canyon are minor riffles at Tabyago Canyon, followed by two consecutive riffles at Rock House Canyon, and a more substantial rapid at Jack Canyon. The next rapid is at Big Canyon.

If Powell’s estimate is more accurate, and the July 7 camp was in the area of Big Canyon, then the previous night’s camp would have been in the Nutters Hole area just below the Nine Mile confluence. This would have placed the “cob house” site mentioned by Bradley considerably farther down river between Maverick Canyon and Rock House Canyon, rather than Nine Mile Canyon, with the previous camp in the Gold Hole or Duches Hole area. This is considered possible given the references to encountering rapids in the late afternoon, in theory five or six hours after leaving the cob house site at 10 a.m. At a slow pace of 2 miles per hour that allows time to hike to overlooks, 12 miles above the Big Canyon camp would be near Rock House Canyon.

On July 8, the expedition did not launch until 1 p.m. and made about 12 miles (Bradley 1947:46) or 12.5 miles (Sumner 1947:113). The expedition camped above a dangerous rapid that Powell determined to portage. Powell’s account in *Exploration* indicates they fought fierce headwinds all afternoon, and at sunset ran a bad rapid and stopped for the night at the foot of the rapid (1961:191). These minor details are inconsistent with the journals, which say they camped above the rapids. Powell does not offer mileage estimates, but his reference to running a rapid at sunset suggests the expedition spent at least 8 hours on the river to travel only 12 miles. If the mileage estimates are correct, this camp could have been between Surprise Rapid and Log Cabin Rapid. If the mileage estimates are discounted by 40 percent, they would have traveled a little over 7 miles, which would have placed them above Fretwater Falls.

The actual location of the camp appears to have been even farther up river near the Flat Canyon confluence, perhaps at or just above Dripping Springs. The Dellenbaugh (1962) and Bishop (1947) accounts both indicated the 1871 expedition camped in the same location as the 1869 expedition (on August 12, 1871, or one river day before the 1871 party reached Fretwater Falls). The description of the camp in 1871 is consistent with a possible camp at Dripping Springs or just above there at Mile 64.5. This would have meant the 1869 expedition traveled only 4 to 6 miles on July 8, not the 12 indicated.

On July 9, Bradley described “A succession of rapids or rather a continuous rapid with a succession of cataracts for 20 miles” (1947:47). Sumner’s account concurs that they “ran 20 miles with that number of rapids, some of them very bad and 2 that compelled us to let down past them with ropes” (1947:113). Sumner mentioned that on July 9, after leaving camp, they passed “the mouth of a small stream coming in from the west” (1947:113). The only such stream in the middle portion of Desolation Canyon is Rock Creek, located about 7.5 miles below Dripping Springs and 9.5 miles below the suspected camp at Mile 94.5. Powell’s account offers no further clues other than in the afternoon they came to a rather open canyon valley on the west (1961:191). There are no broad valleys in this portion of the canyon, although Three Canyon may have appeared to be so from the river. This is entirely speculative.

If the Dripping Spring or Mile 64.5 below Cedar Ridge is a probability for the July 8 camp, and the expedition traveled 20 miles the following day, then the July 9 camp would have been near the mouth of Joe Hutch Canyon. If the estimates are discounted by 40 percent, the camp would have been near the mouth of Three Canyon. The journals offer few clues as to where the July 9 camp was. Sumner wrote that it was “country worthless, though imposing,” and indicated they camped on the east side of the river in a cottonwood grove (1947:114). The only clue in Bradley’s journal is a reference to a fierce wind storm blew sand that buried their bedrolls “while that from an island below filled the air until the canyon was no comfortable place for repose” (1947:47).

There are no prominent islands around the mouth of Three Canyon. The closest such island marked on today’s river maps is below the mouth of Chandler Creek 17 miles farther down river from the Mile 64.5 camp, or 14.5 miles down river from a camp at Dripping Springs. Another possibility is the island between Red Point and Joe Hutch Canyon, or 22.5 miles below a camp at Mile 64.5 and 20 miles below a camp at Dripping Springs. Given the dramatic over-estimations of mileage previously, the island below Chandler Creek is more likely, although it is puzzling that none of the crew mentioned a fresh water source at that location.

The reference to an island could also be the two large islands just below the mouth of Three Fords Canyon East, suggesting they could have camped in the broad floodplain area at the mouth of that canyon opposite the prominent islands. And there is a small island about 1.5 miles up river from Three Fords Canyon at Jack’s Rock between the Florence Creek Rapid and Wire Fence Rapid. Both scenarios are considered unlikely given they are too far down river.

Additional clues are evident in the sequence of events described on the morning of July 11. Powell’s account indicates that a short distance below the July 9-10 camp they ran a rapid during which one oar was lost and one was broken, both from the Emma Dean. Not seeing any wood to fashion new oars, they proceeded on and soon approached another rapid that swamped the Emma Dean and dumped passengers and equipment into the river (Powell 1961:192-195). This would suggest two major rapids in short succession. The two other journal accounts make passing reference to laying over at the camp on July 10, and on July 11 “pulled out early and ran $\frac{3}{4}$ mile; swamped the Emma Dean.... Got the boat ashore by vigorous kicking and camped on the east side to make oars and dry out” (Sumner 1947:114; see also Bradley 1947:48).

If Powell’s account is accurate and there were two sets of rapids, then two possibilities exist: the Red Point Rapids followed closely by those at Joe Hutch Canyon Rapids, or the Wire Fence Canyon rapids that are followed a short distance later by Three Fords Rapid. There is evidence militating against both scenarios. The journal entries indicate that on July 12, the expedition resumed its decent and traveled 16 miles and “passed 10 bad rapids” (Sumner 1947:114). Bradley indicated they made 15 miles and ran “several fine rapids,” including one “roarer” that appeared suddenly and swamped his boat (1947:48-49). This description matches Three Fords Rapid, a large noisy rapid that is located around a sharp bend in the river and is not visible until boaters are on top of it.

If it is indeed the case that Three Fords Rapid was encountered on July 12, the mishaps on July 11 would have been associated with two successive rapids farther up river, perhaps those at Red Point and Joe Hutch Canyon. The only possible camping location in this area with an island is just above the Joe Hutch Canyon Rapids. The problem with this scenario is Powell's reference to encountering the successive rapids after breaking camp on July 11. The Red Point Rapids are well above the island, which Bradley could not have seen from a camp at the Red Point Rapids.

This would seem to support the idea that they were camped on July 10 next to the large island below Chandler Falls, and that the successive rapids referred to on July 11 are Trail Canyon and Bull Canyon about 1 mile apart. Trail Canyon-Bull Canyon scenario would seem to be supported by Powell's colorful description of the large rapid encountered later on July 12, clearly the same "roarer" referred to by Bradley. He notes a "long bad fall where the channel is filled with rocks on the left which turn the waters to the right, where they pass under an overhanging rock." There is also a reference to a "swift chute into great waves to the right" (1961:196). These are the same river conditions still evident today at Three Fords Rapid.

Powell indicated they arrived at this point before noon and had passed "several" bad rapids since leaving camp. If it can be assumed the crew traveled at a modest rate of 2.5 miles per hour and Three Fords Rapid was encountered "before noon," it is possible the crew traveled at least six to eight miles before reaching Three Fords Rapid. This would have placed the July 11 camp somewhere between Red Point Rapids on the south and Trail Canyon Rapids on the north. This scenario is predicated on the assumption that Three Fords Rapid is the "roarer" referred to by Bradley on July 12. Indeed, it is the largest and noisiest of the rapids in this area of the canyon, and such an interpretation seems probable.

It is also noteworthy that on July 10 while laying over in the Trail or Bull Canyon area, Bradley wrote "The walls begin to get lower and there are indications that this Canon of Desolation in which we have already passed for 45 miles is coming to a close" (1947:47). This is the first reference in the journals to Desolation Canyon. This description is consistent with the topography here, although the canyon walls start to become noticeably less imposing at the mouth of Florence Creek about 5 miles farther down river. It is clear that Bradley considered the expedition to still be in Desolation Canyon at this point. Powell suggests the end of Desolation Canyon is located at that point where they emerged from the July 12 mishaps at Three Fords Rapid, when he noted "Just here we emerge from the Canyon of Desolation, as we have named it, into a more open country, which extends for a distance of nearly a mile" (1961:196).

Bradley offered no clues as to where the July 12 camp was located; Sumner indicated only that it was on a sandbar on the east side of the river. Different interpretations of the mileage estimates allow that the July 12 camp could have been located anywhere along 13 river miles. If they were camped at the foot of Bull Canyon on July 11, 16 miles would have placed the July 12 camp at Saleratus Canyon. If the

estimates are discounted by 40 percent, the camp would have been somewhere near Three Fords Canyon West. However, Powell indicated they continued to float throughout the afternoon after Three Fords Rapids, making this scenario unlikely.

The Saleratus Canyon scenario is supported by extrapolating backwards from the July 13 mileage estimates. Sumner mentioned that Price River confluence was 7 miles above the point where the Green River emerges from Gray Canyon at Gunnison Butte, an estimate that is remarkably accurate. He also indicated they traveled “18 miles” from the July 12 camp on July 13. If the 18 miles estimation is as accurate as his estimate of distance from the Price River, the July 12 camp would have been in the Saleratus Canyon area. The bottom of Bull Canyon Rapids is about 16 miles above Saleratus Canyon, which is also consistent with the journals. The journals do not provide enough detail to hypothesize a camp location with confidence, but the Saleratus Canyon area seems a likely possibility.

The expedition launched early in the morning of July 13 and ran 18 miles by noon when they emerged from the canyon into the valley that is now Green River, Utah (Sumner 1947:114; Bradley 1947:49). Both journals make mention of the confluence of the Price River (they called it White River No. 2), with Bradley noting “it is so small we doubt it a little” and Sumner noting it was about 7 miles above the noon camp in Green River Valley.

1871 Expedition. The location of the 1871 camps has, in many cases, been established with a high degree of confidence. In other cases, it can only be narrowed down to a range of possibilities. As discussed below, the most likely locations for the 1871 expedition camps are:

- August 5-6: Could have been as far north as Sheep Wash (Mile 115) or as far south as Moon Bottom (Mile 110).
- Aug 7: Could have been as far north as Boat Bottom (Mile 98), although Nine Mile (Mile 94) is a possibility, as is a camp at Gold Hole (Mile 88).
- August 8-9: Slough Grass opposite Maverick Canyon (Mile 85).
- August 10: Lighthouse Rock (Mile 72).
- August 11: Above Big Canyon Rapid (Mile 67.5).
- August 12-13: Mile 64.5 about a mile below Cedar Ridge Canyon confluence, or at Dripping Spring (Mile 62.5).
- August 14: Fretwater Falls (Mile 60.5).
- August 15-16: Surprise Rapid below Steer Ridge Canyon (Mile 56).
- August 17: Below Rock Creek (Mile 53.5).
- August 18: Between Snap Canyon and Three Canyon (Mile 50.5).
- August 19: Head of Trail Canyon Rapid (Mile 46).
- August 20: Bull Canyon (Mile 45.5).
- August 21: Head of Joe Hutch Rapids (Mile 40.5).
- August 22: Wire Fence Canyon (Mile 37).
- August 23: Mile 33 about a half mile above Last Chance Rapids.
- August 24: Mouth of Section Canyon (Mile 22).

- August 25: Mouth of Price River (Mile 18).
- August 26: Gunnison Butte (Mile 11).

The location of the first river camp (Camp 33) after leaving the mouth of the Uintah (Duchesne) River on August 5, 1871, is not firmly established. Four different journal accounts give differing mileages ranging from 16.25 miles to 17.75 miles. Thompson indicated they camped on an island river right, and Dellenbaugh indicated it was a large island. There is a large island at the mileage indicated by both Dellenbaugh and Thompson, at the upper end of Moon Bottom (Mile 110), as well as a smaller island about 1 mile farther up river consistent with the other mileages (Mile 111). Jones indicated the island was in the middle of the river where it runs "nearly south." The river and island at Moon Bottom run east-west, in theory precluding this island as a possibility. The river runs south at an island at Mile 112, as it does at another smaller island at Mile 114 and at a larger island at Wild Horse Bench (Mile 117). Given that Thompson often over-estimated mileage, it is likely the camp was on one of the smaller islands between Wild Horse Bench and Sheep Wash.

On Sunday, August 6 they remained in camp and Thompson wrote of the landscape "Very barren and desolate. Not even sage. Very few cacti. I think it merits the name of 'Desolation.'" (1939:32).

On August 7, Thompson indicated they floated 16.25 miles to Camp 34, Jones that it was 16.5 miles and Dellenbaugh that it was 17 miles. Bishop indicated it was only 13 miles. From the island at Sheep Wash (Mile 115), a float of 16 to 17 miles would have placed the August 7 camp in upper Boat Bottom (Mile 98). From a camp at Moon Bottom (if Thompson's estimates are accurate), the August 7 camp would have been have been just above the mouth of Nine Mile Creek (Mile 94). Jones and Bishop indicated this August 7 camp was on an island towards river left.

A key clue is offered by Dellenbaugh and Clem Powell. The following morning about a mile below the camp, the expedition stopped at what Dellenbaugh indicated "was a rough lateral canyon full of turrets and minarets" that provided an echo chamber for their amusement. Clem Powell's journal indicates that Beaman took photos of Echo Canyon on the following day after the crew had run a couple of miles and stopped for lunch. In theory, this should have been a short, narrow box canyon located between Nine Mile Creek on the south and Boat Bottom on the north. One possibility is the short box canyon about one-half mile up river from the Nine Mile confluence, which would have placed the previous night's camp near Sand Wash; however, there are currently no islands at Sand Wash (but there is about 1 mile farther up river). Two short canyons on river right and one on river left in the Boat Bottom area are too far back from the river to have likely produced the echoes that Dellenbaugh described. Sand Wash is likely too broad to have produced that effect.

Another key clue are references in the journals to a vast amphitheater at 3 miles down canyon from the camp. This could have been the amphitheater at Nutters Hole (Mile No. 91), in which case the August 7 camp would have been at about Sand Wash.

Or the vast amphitheater may have been that at Gold's Hole (Mile 89), in which case the camp the day before could have been on the large island above Blue Stem in Nutters Hole (Mile 92). If this was the case, then the box canyon should have been 1 or 2 miles below the camp. There is a short box canyon on river right (Mile 88) about 3.5 miles below a large island at Blue Stem, allowing for the possibility they were camped at Blue Stem and floated down to lower Gold Hole where they found Echo Canyon and then continued on to Sumner's Amphitheater.

Another line of evidence suggests the August 7 camp was actually on an island in upper Gold Hole and that Echo Canyon is the small box canyon about 1.25 miles farther down river. This would seem to be supported by Thompson's journal entry for August 8, when he indicated they left Camp 34 at 7:30 a.m., rowed down river about a mile and stopped for pictures, rowed another couple of miles and stopped again for pictures at a vast amphitheater and decided to camp (Camp 35). Thompson wrote that the river coursed 1.5 miles in a loop to within 500 feet of a complete circuit. Jones mentioned the river gooseneck described by Thompson and claimed that standing on top they could throw rocks into the river on both sides. Dellenbaugh named it Sumner's amphitheater in honor of Jack Sumner. River maps place Sumner's Amphitheater in the Slough Grass area (between Mile 86 and Mile 84). A distance of 3 miles above a camp at Sumner's Amphitheater places the August 7 camp in Gold Hole at about Mile 88.

Another key clue in the journals is a reference by Bishop and Thompson that they encountered a small rapid. This would be consistent with the small riffle at the mouth of Tabyago Canyon (although this can hardly be called a rapid). Thompson indicated they ran about 2 miles below the rapid, which would place the camp in the Slough Grass area (Mile 85) or perhaps Maverick Canyon area (Mile 84). A camp in the Slough Grass area would have been 3 miles below an August 7 camp on the island at the bottom of Gold Hole and 4 miles below an August 7 camp on an island in upper Gold Hole. The box canyon river right is 1 mile below the upper island, which is consistent with the journal accounts of Echo Canyon.

This also would mean mileage estimates for August 7 were short by about 9 miles, a scenario predicated on the assumption that the crew traveled 3 to 4 miles indicated by Thompson and Jones on August 8 before setting up camp. Clem Powell indicated a distance of only 2 miles, which is considered unlikely. It could also mean that the August 6 and August 7 runs were also under-estimated by 4 to 5 miles per day, in which case the August 6 camp would have been in the Kings Canyon area and the August 7 camp in lower Gold Hole, as discussed here.

On August 9, the crew hiked in the morning up a hill behind camp to take pictures, but it was cloudy so they decided to leave the camera gear and come back later. In the afternoon they crossed the river and explored a short canyon with steep side walls. This description would appear to be consistent with Maverick Canyon, or perhaps a much shorter unnamed canyon to the north. They remained at the same camp that night.

On August 10, Thompson indicated they went to take pictures in the morning and resumed floating at 11:30, stopping once for photos. Thompson indicated they floated 12 miles and camped on river left (Camp 37); Bishop noted they traveled 10.5 miles; and Jones indicated 10 miles. Thompson also indicated they passed one weak rapid, obviously a reference to the Rock House Riffles located 6 miles below a camp at Slough Grass. A distance of 12 miles would have placed the August 10 camp in lower Peters Point, whereas 10 miles would have placed them in the middle Peters Point area. The key reference is Dellenbaugh's account that states they camped on river left opposite Lighthouse Rock. Lighthouse Rock is 13 miles below the Slough Grass camp (or 12 miles if they had camped opposite Maverick Canyon). This would appear to support Thompson's estimate over those of Jones and Bishop.

On August 11, they spent the morning hiking in a side canyon on the west side of the river and taking pictures. Thompson indicated it took them an hour and a half to reach the top. Curiously, there are no notable side canyons in the Lighthouse Rock area on either river right or river left. They returned to camp by 10:30 a.m. and resumed floating at 1 p.m. "and ran about three miles when we came to a rapid" (Thompson 1939:34). This is undoubtedly the Jack Creek Rapid. Two boats hit a submerged rock, and the third boat, the Canonita, struck a different rock and punctured the side. They stopped to repair the Canonita and resumed floating at 3 p.m., going a total of 5 miles that day and camping "almost on the spot where the party camped before" (Thompson 1939:35).

Jack Creek is only 2 miles below the Lighthouse Rock camp. Jones indicated that after repairing boats from the Jack Canyon mishap they floated a short distance and camped above the next set of rapids, which would be the Big Canyon Rapids located about 3 miles below the Jack Canyon Rapids. Dellenbaugh's account is consistent, indicating the camp was located above the rapid that was "a starter" for the next day. Thompson indicated this was the same spot the 1869 expedition camped. As discussed above, this would have been a flat area on river left opposite Lunts Horse Pasture and above the Big Canyon Rapids.

On Saturday August 12, Thompson indicated they left camp at 7:45 a.m. and made 6.25 miles; Jones indicated 5.87 miles; and Dellenbaugh 6.75 miles; all noted they camped at the same location as the 1869 camp (Thompson noted the 1869 party called this 12 miles). The journals offer few clues as to where the camp was located. Six miles down river from Big Canyon would have placed the camp at or near Dripping Springs Rapid (Mile 61.5) just below the Flat Canyon confluence. Thompson said only that there were three fine views from the camp, Bishop indicated it was at or near the camp of the 1869 expedition, and Jones indicated that just below camp the river turned southwest and divides into two channels. That description is consistent with the channel below the Flat Canyon Rapids where the river splits around an island on a southeastern trend, and then curves to the southwest and splits around another island at Dripping Springs Rapid. If the mileage estimates are accurate, the camp was likely at or near Mile 62 about 0.5 miles below the mouth of Flat Canyon.

However, there is some indication that mileage estimates became exaggerated in this portion of the canyon. When the expedition resumed, the journals indicate they traveled about 5 miles to Fretwater Falls. However, Fretwater Falls is only 2 miles below Dripping Spring, which would not likely be confused for 5 miles. By extrapolating back from the Fretwater Falls camp, the August 12 camp could have been as far north as Cedar Ridge Canyon. In that case, they would have traveled only 2 miles on August 12, which also would not have been confused with the 6 miles they indicated.

One possible clue comes from the August 13 entries. They remained in camp on August 13, hiking to the top of a canyon wall to the *south* of Camp 38 and remaining at the same camp that night. This reference, although obscure, may indicate a camp about a mile below Cedar Ridge Canyon. The only area north of Dripping Springs where the river turns in such a way that the cliff is located to the south of river left is at Mile 64.5. This would have placed the number of miles traveled on August 12 at 4 miles instead of the 6 miles or more indicated. However, it must also be noted that a similar curve in the river whereby the cliff is located to the south of a potential camp on river left is located at Dripping Springs (Mile 62) at the mileage indicated in the journals.

The journals state the camp on August 14 was located 5.25 to 5.87 miles below the August 12-13 camp and that it was named Fretwater Falls. Fretwater Falls as now marked on river maps is only 2 miles below Dripping Springs. If they indeed traveled 5 miles or so from Dripping Springs, this suggests the camp would have been just above Steer Ridge Rapid. If the camp was at Mile 64.5 as suggested here, then 5 miles would have put the camp near Fretwater Falls (Mile No. 59.5), as indicated in the journals. They appear to have camped on river left just above Fretwater Falls where Bishop noted a fine little springs just above camp

On August 15, Thompson indicated they traveled another 4 miles and made camp (Camp 40) in a broad valley. Clem Powell and Jones indicated they camped on river right. Bishop indicates they began the day camped about one-quarter of a mile above a set of rapids, and after portaging the rapids went a short distance to where the river divided into three channels (probably just above Wild Horse Canyon). Jones indicated they camped where they could hear a rapid above and one below. Dellenbaugh's account describes Log Cabin Cliff that "had the appearance of an old fashioned log cabin" but in reality "was a butte of shale." Today, Log Cabin is the name given to that area just above the Rock Creek confluence on the east side of the river. It is not explicitly stated by Dellenbaugh that they camped at Log Cabin, but at this location it would be possible to hear the Log Cabin Rapids above and the Rock Creek Rapids below. The distance from Fretwater Falls to a camp at Log Cabin is about 4.5 miles. Thompson's journal offers few clues as to the location of this camp.

Additional clues are offered the following day to suggest the camp may have been farther up river. On August 16, they remained at Camp 40, crossed to the east side and hiked down river two or three miles. In the afternoon they hiked up river a mile or so and up a gulch where they found a spring. Jones' journal indicates they explored river left down river and found rapids just below camp and below that two portages. Clem Bishop

on this day mentions "on the bluff opposite is a butte for all the world like a street car." Thompson indicated they explored down river (river left) 2 or 3 miles, and that 300 feet above the camp they found a flowing spring. Bishop indicates the spring was located in a gulch about a mile up river, and that they followed the side canyon in about one-half mile. There is a very short unnamed side canyon about 1 mile above a potential camp across from Log Cabin (above Surprise Rapid), but it is more likely the gulch Bishop is referring to is Steer Ridge Canyon. At about 1 mile below Steer Ridge Canyon, this would have placed the August 15-16 camp at about Surprise Rapid at a point where Log Cabin Cliff could be seen down river. This would have made the August 15 float about 4 miles, as indicated in the journals.

On August 17, they spent the morning climbing a cliff on the west side of camp and at 2:20 p.m. resumed floating down the river 3.25 miles and through three rapids. They camped at 5:30 p.m. on river right in a sandy valley in grove of cottonwoods. Thompson indicated they had left Beaman three-quarters of a mile up river at the mouth of a stream (Nine Mile Creek) to take photos. This is clearly Rock Creek, the only clear perennial source of water in middle Desolation Canyon. The broad valley described by Thompson is probably the broad floodplain where the Rock Creek Ranch was later constructed. Thompson also referred to Beaman taking pictures of Log Cabin Cliff, which today is located opposite and just above the Rock Cliff confluence.

The distance from a camp at Surprise Rapids to Below Rock Creek would have been only about 2.5 miles, not the 3.25 indicated by Thompson, Bishop and Jones, nor the 3.5 miles indicated by Clem Powell or the 3.75 miles by Dellenbaugh. There is little doubt that the camp was located along the floodplain somewhere above the Calf Canyon confluence, probably in the area adjacent to where the Rock Creek Ranch is located today. It should be noted that editors of the journals confused the references to Nine Mile Canyon at this point with the canyon of that same name at Mile 94, which is about 40 miles up river. Before launching on August 18, three members of the party took photographic gear and hiked up "Nine Mile Creek" and took one image looking up the valley and one looking down.

On Friday, August 18, the journals agree they ran 4.5 miles or slightly more to Camp 42. Thompson noted at this point "our map does not correspond with the map made two years ago, so we are uncertain where we are, but think about 20 miles from White (Price) River" (1939:37). A distance of 4.5 miles would have placed the August 18 camp at Belknap Falls just below the Three Canyon confluence. Thompson noted the frequency of sand hills (sand dunes) in this area of the canyon. Bishop's journal indicated only they camped on river left. Jones also indicated they camped on river left in a sagebrush park with few cottonwoods and a rapid above (perhaps Three Canyon) and a rapid below (perhaps Belknap Falls). Dellenbaugh indicated they camped on a dune.

Any estimate of this camp location based on their mileage estimates is problematic given the consistent over-estimation of distances traveled. The dune fields along river left below the mouth of Three Canyon and above Belknap Falls (4.25 miles) seems a likely candidate. It is also possible they are referring to a floodplain area below

Snap Canyon but above Three Canyon, or about 3 miles from the Rock Creek camp. In the latter scenario, Snap Canyon Rapids and Three Canyon Rapids are separated by only about 1 mile and are in a straight line of sight, making it likely they could have heard both at the same time. This camp location would have been only about 3 miles below the Rock Creek camp, not the 4.5 miles indicated.

Journal accounts offer differing mileages for Saturday, August 19, ranging from 5.67 miles to 6 miles. The one consistency is that they stopped for lunch on river right opposite Chandler Falls. Thompson indicated Chandler Falls was 4.67 miles below the previous camp. By extrapolating back from Chandler Falls, this would have placed the August 18 camp near Snap Canyon (4 miles) or even slightly above. This would support an August 18 camp at mile 51.5 opposite the mouth of Snap Canyon. Given their habit for over-estimating miles in this section of the canyon, a camp farther down river at Belknap Falls (at Mile 49 or 49.5) remains a possibility, even though it is only 3 miles from there to Chandler Falls. After lunch at Chandler Falls, Beaman took photos and the crew named the creek on the east Chandler Creek. The party then proceeded another mile down river to make camp (Camp 43).

The location of the August 19 camp was probably above the Trail Canyon Rapids, located about 1 mile below Chandler Creek (the next rapids after that, Bull Canyon Rapids, are located almost 3 miles down river from Chandler Creek and it is unlikely they would have under-estimated mileage by that amount). This is further evidenced by the lack of references to running rapids after leaving Chandler Falls. Thompson mentioned the prevalence of dunes along the river. Bishop indicated the camp was on river right just above some rapids. Jones also indicated the camp was river right under a cliff on a sand bank at the head of a rapid.

On August 20, they let the boats down through the rapid and relocated camp (Camp 44) about 0.75 miles down river to a better camp “in a little valley under some old cottonwoods” (1939:38). Jones indicated the camp was on a dune on river right at the head of another rapid. If the portage of rapids referred to was at the Trail Canyon Rapids, the valley referred to could have been river left at Bluebell Creek and the camp would have been just above the Bull Canyon Rapids, about 1.5 miles below the previous camp. Thompson indicated the view up river was blocked by a canyon wall about one-half mile above, and the right bank was choked with greasewood and juniper. This description is consistent with a camp on river left at Mile 45 or 45.5. Just above the Trails Canyon Rapids, the river turns from a southeasterly flow to almost west and then south within a half mile; the east canyon wall would have blocked a view up river at this point.

On August 21, Thompson indicated they ran 6.37 miles, Bishop 6.5 miles, Clem Powell 5 miles, Jones 6.87 miles and Dellenbaugh that it was less than 7 miles. If they were camped just above Bull Canyon at Mile 45.5, a run of 6 miles would have placed Camp 45 that night in the area below the mouth of Florence Creek. Thompson only noted that the valleys were becoming wider, and Bishop that they camped on river right at the head of another set of rapids. Jones indicated they camped at the foot of one rapid and the

head of another. If the camp was at or near Florence Creek, there is no mention of a fresh water creek entering at that location.

The indication of two rapids is puzzling in that the rapids at Florence Creek are separated from the rapids at Joe Hutch Canyon by more than a mile. There are rapids in close succession at Moonwater and Red Point, but this is only 2 miles below the suspected Bull Canyon camp. There are also two rapids in short succession at Wire Fence Canyon and Three Fords, but these are located about 7 miles from the Bull Canyon camp. Both are considered unlikely scenarios. If the mileage estimates were somewhat exaggerated, as was often the case in this portion of the canyon, the camp may have been just above Joe Hutch Canyon Rapids and just below the Red Point Rapids, at Mile 42, making the total distance traveled about 3.5 miles, or half the amount estimated.

There are few clues in the entries for the following day. On August 22, three journals indicate they ran 5.25 miles to Camp 46. If they were camped at or just below Florence Creek, this distance would have placed them about a mile above Last Chance Canyon. If the August 21 camp was above Joe Hutch Rapids, a descent of 5 miles would have placed the camp in the area of the mouth of Three Fords Canyon West. Both of these scenarios would have placed the crew below Three Fords Rapid, the last major rapid in this portion of the canyon. Given they encountered additional bad rapids early the following day, an August 21 camp at Joe Hutch is more likely, with a descent on August 22 of only 3 to 4 miles instead of 5.25 miles. A descent of 3.5 miles would have placed them just above Three Fords Rapid in the area of Wire Fence Canyon. Bishop indicated they camped above a "rough looking rapid" with a fall of 10 to 15 feet, which could match the description of Three Fords Rapid. Jones also indicated they camped in a small valley among cottonwoods above another bad rapid. Thompson indicated they explored a dry gulch above camp, which could have been Wire Fence Canyon.

From the camp at or just below Wire Fence Canyon Rapids on August 22, the descent on August 23 was only 2.75 to 3 miles, according to all the journal accounts. This would have placed Camp 47 between Mile 35 and Mile 34, or about 1.5 to 2 miles above Last Chance Canyon. Bishop indicated they camped in river left but offered no other clues. His journal does indicate that after a 2.5 hour portage of the falls and just below the falls, they found a salt spring that led Steward to name the falls Salina Falls and Beaman to name it Sharp Rock Falls. Jones offered few clues of the camp location that night other than the presence of small hills on right rising back from the river, which is consistent with the topography at Mile No. 34. Jones account on the following morning (August 24) suggests the camp may have been farther down river, perhaps nearer to Mile 33 in upper Jacks Hole. Jones wrote they floated on flat water only about a half mile, then encountered a minor set of rapids (Last Chance Rapids), then two miles of flat water to a sharp left turn in the river before another bad set of rapids (Range Creek). The flat water between Last Chance Rapid and the sharp left above Range Creek Rapid is only about 1 mile, not 2 miles.

The journals agree that on August 24 they ran between 12.37 and 12.5 miles. A descent of 12 miles from Mile No. 35 would have placed the August 24 camp about a

mile above Rattlesnake/Section Canyon; 12 miles from Mile 34 would have put the camp across from Rattlesnake Canyon at the mouth of Section Canyon, and a camp at Mile 33 would have placed the camp below Rattlesnake and just above Nefertiti. Thompson offers few clues, mentioning only that the "sandstone wall is worn in many places into grottoes and alcoves. One near our camp is entered by a narrow channel that widens and winds for 6 or 8 rods, then expands into a rotunda 200 feet across, vertical at top for 200 feet" (1939:40). Jones indicated they camped on river right in a treeless area of dunes. "A lateral canyon, a very narrow (one), and (with) steep sides comes in just above camp" (1948:68). Clem Powell indicated they were camped at the head of a rapid. If the estimate of about 12 miles is correct, the location of the August 24 camp can be established by deducing which camp on river right has a lateral canyon above a set of rapids. The most logical choice is the mouth of Section Canyon (Rattlesnake Canyon is opposite this point).

There are very few prominent lateral canyons entering Gray Canyon from the right, and the next possibilities are 5 miles farther up river where there is a small unnamed drainage above Saleratus Rapid, and 6.5 miles up river above Curry Rapids. Both possibilities are reasonable given the consistent over-estimates of mileage. Based on the descriptions the following day of being five and a half miles above the Price River, the camp at the mouth of Section Canyon (Mile 22.5) is considered more likely.

The journals are consistent in that they indicate on August 25 they ran 5.5 to 5.75 miles and camped at the mouth of the Little White (Price River). The Price River had run dry and created a sandbar at the mouth. A hike up the Price River revealed water about a mile up. If the August 23 camp was at Section Canyon, the August 24 camp at the mouth of the Price River was only about 4 miles down river, not the 5.5 indicated in the journals. If their mileage estimates are accurate, then the August 23 camp was below Little Big Horn Mesa at about Mile 23.5. There are no rapids in this area and this scenario is considered unlikely. Nor is it likely the earlier camp was farther up river at Saleratus Canyon or Curry Canyon.

On August 26, two journal accounts indicate they ran 8.25 miles and a third that they ran 8.37 miles to where the Green River emerges from the Tavaputs Plateau into the Green River Valley, about five miles above the Old Spanish Crossing. The mileage indicated would have placed them at upper Willow Bend opposite Gunnison Butte, which is consistent with the journal descriptions.

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