Results of Geophysical Survey and Historic Names Research of the California Trail Segments Located within the Boundaries of the City of Rocks National Reserve, Cassia County, Idaho.

By
Albert M. LeBeau III,
Ashley J. Barnett, and Curtis H. Sedlacek

MIDWEST ARCHEOLOGICAL CENTER
Technical Report: No. 130

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RESULTS OF GEOPHYSICAL SURVEY AND HISTORIC NAMES RESEARCH OF THE CALIFORNIA TRAIL SEGMENTS LOCATED WITHIN THE BOUNDARIES OF THE CITY OF ROCKS NATIONAL RESERVE, CASSIA COUNTY, IDAHO.

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This report has been reviewed against the criteria contained in 43CFR Part 7, Subpart A, Section 7.18 (a) (1) and, upon recommendation of the Midwest Regional Office and the Midwest Archeological Center, has been classified as

Available

Making the report available meets the criteria of 43CFR Part 7, Subpart A, Section 7.18 (a) (1).

ABSTRACT

The City of Rocks National Reserve is a location with ties to America's emigrant past. The primary significance at the Reserve is the California Trail and associated features. The National Park Service's National Trails Intermountain Region requested the National Park Service's Midwest Archeological Center assist the City of Rocks National Reserve in geophysical survey and historic names research projects. The projects utilized geophysical prospection techniques to answer questions posed by the Reserve and researched historic names left by emigrants who passed through the Reserve. This report documents the methods and results of these projects.

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SECTION ONE

Introduction

Congress created the City of Rocks National Reserve ("the Reserve") through public law 100-696 in 1988. The Reserve is a unit of the National Park Service, managed by the Idaho Department of Parks and Recreation with multiple goals in mind. The Reserve is intended to preserve and protect the significant cultural resources within the Reserve boundaries related to the emigrant travel along the California National Historic Trail, protecting the rural historic setting up to 1988, the founding of the Reserve. The Reserve also seeks to manage the recreational use of the park, to protect and maintain the natural scenic quality of the Reserve, and to interpret for the public the national significance of the Reserve.

The City of Rocks National Reserve contacted the National Park Service Midwest Archeological Center (MWAC) to assess the viability of conducting a geophysical survey of the California Trail segments that lie within the boundaries of the Reserve. In association with the Reserve and the National Trails Intermountain Region (NTIR), MWAC archeologists considered the conditions of the Reserve based on telephone and email correspondence and decided that a geophysical survey was feasible. Furthermore, the Reserve requested that MWAC assist with conducting an historic names survey in order to expand interpretation resources of the Reserve and thus enhance visitor experience. This report discusses the methods, results and interpretations of the geophysical survey, as well as the research of historic names. It presents the research questions and provides analysis and suggested answers to those questions.

Environmental Context

The City of Rocks National Reserve is situated within southern Idaho's Albion Range and is characterized by granite spires and domes, which surround three upland valleys of the City of Rocks anticline. Elevations in the Reserve range from 5,650 Feet (1,720 m) at Circle Creek in the east to 8,867 feet (2,703 m) at Graham Peak in the north ("General Management Plan" draft:18-19). The Albion Range, unlike the sedimentary ranges that dominate much of the Basin and Range region, is largely composed of igneous and metamorphic rock. The dark igneous rock in the Reserve is part of the Green Creek Complex, which is one of the oldest rock formations in the United States at 2.5 billion years old, while the lighter igneous rock is part of the 25 million-year-old Almo Pluton. The Almo Pluton thrusts up through the Green Creek Complex (Harrison 1972; Thornberry 2010). Multiple periods of uplift throughout geologic time, combined with faulting and erosion (primarily fluvial), have produced the topography that exists today. Active geologic processes, including alluvial processes, mass wasting, and weathering, have more recently altered the landscape, as has tectonic activity centered along a fault that runs just east of the Reserve. The pinnacles that are the most obvious attributes of the landscape formed as a result of deep weathering of surrounding rock ("General Management Plan" draft:21).

The Reserve contains two important water sources. Graham Creek flows across the northeast corner of the Reserve and Circle Creek flows through the center of the Reserve (Thornberry 2010). The Reserve also contains two drainage basins, both of which drain into a tributary of the Raft River. The Circle Creek basin receives water from three different tributaries, the North, Center and South Circle creeks. This basin contains the concentration of granite outcroppings that give the Reserve its name, City of Rocks. The second basin is located southwest of Circle Creek, and drains through Heath Canyon (Thornberry 2010).

The granitic rocks of the Almo Pluton are the primary influences on the soil types present in the Reserve, though granites and granite gneiss of the Green Creek Complex and Elba quartzite and embedded schists are also present and, therefore, influence local soil formations ("General Management Plan" draft: 25-26). Soils in the Reserve mostly consist of Ola-Rock outcrop-Earcree, which is a well-drained soil composed of alluvium and colluvium derived from metamorphic rock (USDA et al. 2011). The soil composition at the Pinnacle Pass Survey Area consists of Riceton loamy coarse sand and Kanlee-Rock outcrop-Earcree complex. Riceton is a relatively young Mollisol that forms on alluvial fans. Because Riceton is a relatively young soil, horizons are generally poorly-developed, though calcium carbonate deposits do tend to accumulate ("General Management Plan" draft:27-28). Kanlee is also a young, poorly-developed Mollisol. Both of these soils occur in areas with slightly higher precipitation than other parts of the Reserve, leading to higher organic content at the surface due to the denser vegetation they support. Typically, Riceton and Kanlee soils support moderately dense shrub and grass growth ("General Management Plan" draft:27-28).

At the Quarry Site, soils are generally characterized as Itca-Birchcreek Rock outcrop complex with Arbone loam. In contrast to the young Mollisols at the Pinnacle Peak Survey Area, Itca and Birchcreek soils are well-developed Mollisols that form on south and west facing mountain slopes from alluvium and residuum of quartzite and mica schist (Noe and Kukachka 1994:10; "General Management Plan" draft:28). Arbone loam is a relatively young Mollisol that forms from alluvial fan remnants ("General Management Plan" draft:27-28). Like Riceton and Kanlee soils, Arbone loam also has a denser organic content at the surface than soils that form in dryer areas, as a result of the denser vegetation that the soil supports.

Soils at the South Side Survey Area are typically Arbone loam and Raft River loam (USDA et al. 2011). Raft River loam is an Aridisol that forms on south-facing slopes of the southwestern part of the Reserve ("General Management Plan" draft:27). Older than Arbone and Riceton soils, Raft River soil has existed long enough for carbonates to collect and form subsurface horizons. Silica has percolated through the soil and cemented these carbonate concentrations, creating duripans. Compared to Arbone loam, this soil supports significantly sparser vegetation, as Raft River loam forms under dry conditions which lead to low levels of microbial action and, thus lower organic content ("General Management Plan" draft:27-29).

The climate is semi arid, with the Reserve annually receiving only about 14 inches of precipitation in the lower elevations and 22 inches in the higher elevations (DRI 2011; USDA et al. 2011). Summers are typically warm and dry, while winters are usually cold

and moist ("General Management Plan" draft:26). Temperatures in the summer can vary widely, with temperatures at night occasionally approaching freezing and with daytime temperatures approaching 100 degrees Fahrenheit (DRI 2011; USDA et al. 2011). Mean annual air temperature below 6,800 feet is around 42 degrees Fahrenheit; above 7,400 feet, the mean annual temperature dips about 38 degrees Fahrenheit ("General Management Plan" draft:27). Additionally, altitudinal zonation causes temperature variations with elevation, while microclimates exist because of variation in aspect.

Plant life in the Reserve consists of clusters of juniper woodlands combined with mountain big sagebrush, curl-leaf mountain mahogany, and various short grasses (Harrison 1972). The Reserve includes the northernmost occurrence of pinyon pine, which was once a critical food resource for indigenous peoples of the area. The vegetation in the Pinnacle Pass Survey Area consists of juniper trees, pinyon pine, and mixed grasses. Vegetation at the South Side Survey Area consists mostly of mountain big sagebrush and some short grasses. The vegetation at the Quarry Site and Pinnacle Pass Survey Areas consists of mixed grasses with mountain big sagebrush.

Further information regarding the environmental context of the City of Rocks National Reserve, including expanded insights into the geology, soils, climate, and vegetation, are available in *Classification of City of Rocks National Reserve vegetation data to support the vegetation mapping program* NPS/UCBN/NRTR-2010/313 and *Natural Resource Condition Assessment City of Rocks National Reserve – Research Natural Area* NPS/UCBN/NRTR-2010/299 and Monitoring Sage Brush-steppe Vegetation in the Upper Columbia Basin Network 2008 Annual Monitoring Report, City of Rocks National Reserve, Hagerman Fossil Beds National Monument and John Day Fossil Beds National Monument NPS/UCBN/NRTR-2009/182. In addition, the City of Rocks General Management Plan and Draft Environmental Impact Statement is currently under development.

Historical Background

The region is rich in natural resources, making it an ideal location for habitation (see Figure 1). From the big game hunters of the late Pleistocene to modern day dry and irrigated farming, the area around the Reserve continues to support a thriving population. This oasis within the Snake River watershed became a stop for weary travelers moving west on the California Trail from the 1840s through the 1890s.

Though archeologists currently know relatively little about the Reserve's pre-contact human occupation, archeologists have dated nearby sites (such as Wilson Butte Cave, north of the Reserve) to as early as 15,000 BP (Bureau of Land Management 2011). During the Proto-historic and historic periods, the Shoshone and Bannock peoples called the project area home. The people were semi-nomadic and relied on local resources for subsistence. Within the tribes, there existed different groups/clans, which are identified by their primary means of subsistence (Murphy and Murphy 1986:287). According to Murphy and Murphy, the Shoshone group/clan that inhabited the research area was the *Tukudeka* (Sheep eaters). This name likely stems from the group/clan's dependence on the mountain sheep that inhabited the area.

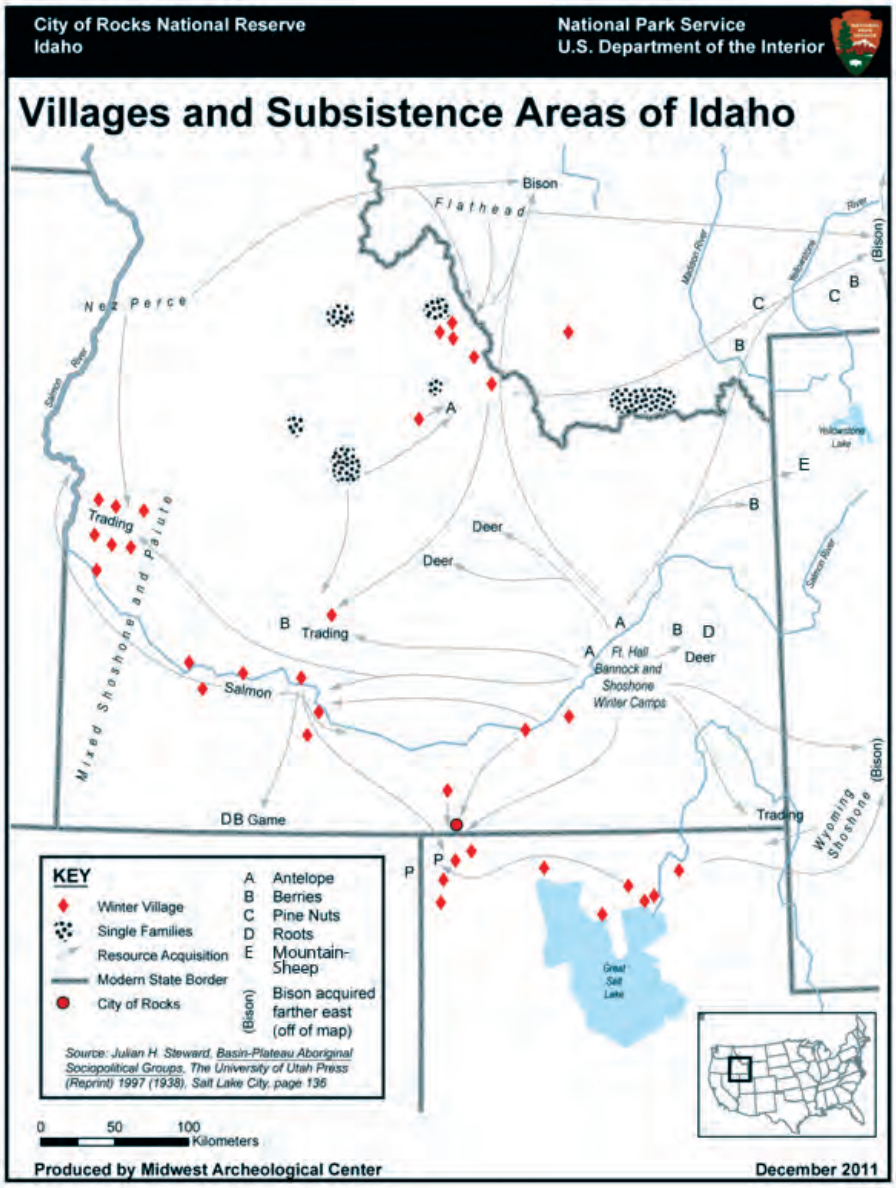

Figure 1. Villages and Subsistence Areas of Idaho.

Oral histories and written accounts from the height of the trail's use in this area tell of both positive and negative encounters between natives and emigrants. The influx of emigrants into and through the region raised tensions between the populations, largely because the emigrants and their livestock were consuming food resources that indigenous persons needed for survival.

The California Trail meandered from Independence, Missouri, through the Rocky Mountains and terminated at the western slopes of the Sierra Nevada and the Central Valley (Figure 2). Many missionaries followed American Indian trails from the Platte River to the Snake River in the late 1830s, while others blazed their own trails. The fur trade had established a route from Independence, Missouri, to Fort Hall, Idaho,

Figure 2. The California Trail.

based on existing American Indian trails. Fur traders and other 'mountain men' took missionaries west on the way to their annual fur rendezvous. Then, in 1841, the Bidwell-Bartleson Party blazed a way from Soda Springs, Idaho, to the Great Salt Lake, then west to the Humboldt River and through the Sierras. Over time, others refined the route, creating the system that came to be known as the California Trail.

It is important to note that the California Trail is not simply a single trail, but rather a system of numerous trails leading in the same direction (Bagley 2010:6). Many components of the historic California Trail have been designated by Congress as the California National Historic Trail. For example, the Salt Lake Alternate (also located within the Reserve) was a spur of the California Trail that lead from Salt Lake City north to what is now the Reserve. Thus, the Salt Lake Alternate is considered a part of the California Trail system. For the purpose of this report, the phrase "California Trail" refers to the trail system in its entirety.

Previous Archeological Research

Previous archeological research within the Reserve has focused primarily on the California Trail, though Section 106 surveys have been conducted on campgrounds, trails, wells, and other such areas (personal communication Kristen Bastis 08/04/2011; see Table 1). Limited funding and the late date (1988) of the Reserve's creation have limited the size and number of archaeological surveys in the Reserve. Table 1 gives a brief overview of the archeological work completed at the Reserve.

Table 1. Previous Archeological Work at City of Rocks National Reserve.

Author	Year	Report Title
Haines, Aubrey L.	1972	An Historical Report on the City of Rocks in Southern Idaho
Chance, David H.	1989	Tubaduka and Kamuduka Shoshoni of the City of Rocks and Surrounding Country
Chance, David H.; Chance, Jennifer V.	1990	The Archaeological Reconnaissance of the City of Rocks Reserve
Chance, David H.; Chance, Jennifer V.	1992	Archaeology at the City of Rocks, The Investigations of 1991
Attebery, Jennifer	1992	Annotated List of Sources for the History and Culture of City of Rocks, Cassia County, Idaho 1890-1940
Chance, David H.; Chance, Jennifer V.	1993	Riddles of Stagecoach Station and Other Questions at the City of Rocks
Little, William J.	1994	A Historical Overview of Livestock Use in the Area of City of Rocks National Reserve from Introduction to 1907
Meyers, Daniel L.	1994	An Ethnographic Overview and Assessment of the Hagerman Fossil Beds National Monument and Other Areas in Southern Idaho
Jenks, Michael	1995	Idaho Archaeological Survey Archaeological and Historical Sites Survey
Sammons, Dorothy	1996	City of Rocks Mapping Project CEEA 97-6
Sammons, Dorothy	1996	Mapping the California Trail: City of Rocks, Tebiwa 26 (1) p 92-117
National Park Service	1996	City of Rocks National Reserve Resource Management Plan
Historical Research Associates, Inc. and Amphion	1996	Historic Resources Study: City of Rocks National Reserve, Southcentral Idaho
Sammons, Dorothy	1997	Locating the California Trail at City of Rocks, Idaho in CRM Vol 20 No 1 1997 NPS
Mead, Holly, A.	1999	Archaeological and Historical Survey Report – OAR –ISU Summer Archaeological Investigations at the City of Rocks National Reserve
Thomson, James	2000	Pedestrian Archaeological Survey of a Proposed Campground for City of Rocks National reserve, Cassia County, Idaho
Lyon, Jason W.	2002	Castle Rock Addition Archaeological Survey NEPE CRM 01-05
Wilson, Douglas C.	2002	Phase 2 City of Rocks, Smoky Point Campground Archaeological Site Recording and Evaluation
Lohse, E.S., P Santarone, B.Benson, C.W. Clellan, C. Cordell, D. Ellis, R. Hitchcock, N. Holmburg	2006	Technical Paper 06-1: Shock and Awe Rockshelter Investigations IDSHPO
Idaho State University	2007	Technical Paper 07-4: Archaeological Testing of the Latrine Site, IDSHPO
Idaho State University	2007	Technical Paper 07-5: Archaeological Testing of Site 10-CA-1010, IDSHPO
Moser, Coral	2007	Letter Report 07-1: Archaeological Survey of Circle Creek Overlook Parking

Table 1. Concluded.

Author	Year	Report Title
Lohse, E.S, et al.	2007	Technical Paper 08-1: 2007 Archaeological Testing of the Buried Beach Site (10 CA 986), IDSHPO
Owens, Erica	2009	National Park Service Cultural Landscapes Inventory REVISED 2009 City of Rocks National Reserve
Guenther, Melissa and L. Suzanne Henrikson	2010	Intensive Archaeological Survey of 400 Acres Administered By The Bureau of Land Management Within the Castle Rocks Interagency Recreation Area. US Department of Interior, BLM, Twin falls District, Bulrey Field Office, Burley Idaho
Kvamme, Kenneth L.	2010	Final Report of Geophysical Investigations at Two Archaeological Sites Within Castle Rocks State Park
Bastis, Kristen J.	2011	Archaeological Survey of the Circle Creek Overlook Trails Project

Current Research

The researchers posed the following research question for the 2011 project to gather more information about the Reserve's past: How do the geophysical signatures of known trail segments and known two-track ranch roads compare to one another? Are the signatures unique or similar? Establishing a geophysical signature for each of these two transportation methods could assist in the documentation and verification of trail routes, not only at the Reserve, but also at other locations along major overland trails.

Survey Area

To answer this question, MWAC surveyed three areas (Figure 3). The first survey area is located to the south of Pinnacle Pass. This area is characterized by 5% to 10% slope with mountain big sagebrush, pinyon pine, and mixed grasses covering the ground. Surface visibility was good with greater than 30% of the ground surface visible. The second survey area is the Quarry Site, characterized by 2% to 3% slope with mountain big sagebrush and mixed grasses covering the ground. Surface visibility was good with greater than 30% of the surface visible. The third survey area is the South Side Site. This area is flat and lies on the floor of Junction Valley. The vegetation is mountain big sagebrush and mixed grasses. The ground visibility was also good at this site with greater than 30% visible ground surface. Good visibility in these areas was the result of lower-density vegetation, which in turn meant that the researchers could operate geophysical equipment in these areas.

Surface Features

At the Pinnacle Pass Survey Area (Figure 4), both the modern ranch road and historic trail are visible. The ranch road ranges from one meter to two-and-one-half meters wide with a maximum depth of 0.25 meter in the deeper ruts. The historic trail has a noticeable swale that ranges from one meter to two meters wide with a maximum depth of one meter.

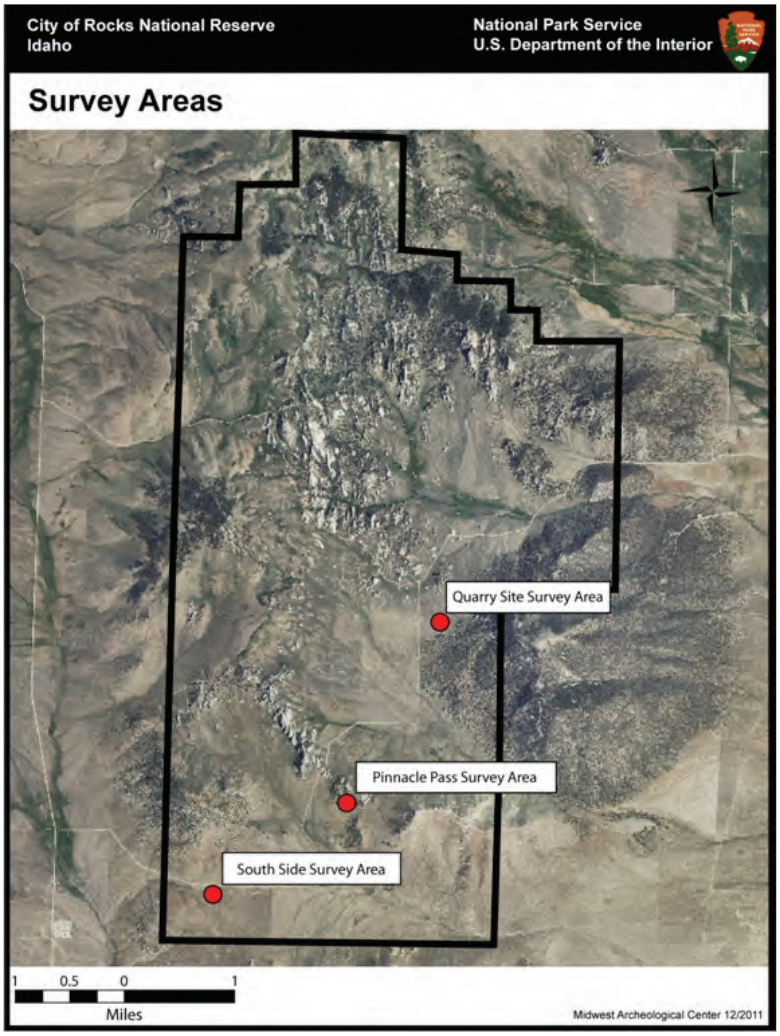

Figure 3. Map of Survey Areas.

Figure 4. Pinnacle Pass Survey Area (looking south).

At the Quarry Site Survey Area (Figure 5), the archeologists noticed the ranch road due to lack of dense vegetation compared to the surrounding vegetation. The ranch road at this site ranges from one meter to one-and-one-half meters with a depth of 0.25 meter in the deeper ruts. No historic trail existed at this location, so this location served as a control area, surveyed to identify the geophysical signature of a known ranch road with no possible confusion of a trail segment overlapping a ranch road.

Figure 5. Quarry Site Survey Area (looking east).

The third location was the South Side Survey Area (Figure 6). Two portions of the historic trail are visible at this location. The first section consists of a deep swale that is one meter to two meters across with a maximum depth of one meter. The second section is an ephemeral trail segment that is less obvious than the deeper section of trail. This trail segment is at surface level and is approximately one meter to one-and-one-half meters wide. The archeologists identified this section due to the decreased density of vegetation compared to the surrounding area.

Survey Methodology

MWAC staff employed magnetic gradient and resistance meter survey techniques to investigate and identify known segments of the California Trail and ranch roads in the survey areas to answer the research question. To lay out the grids at each survey area, the MWAC crew first placed a datum point (marked with a large orange plastic stake) just outside of the desired survey area. The crew measured off of this datum point to locate the corners of each grid, then placed wooden stakes at the corners of each grid. These stakes formed the outline of the grids.

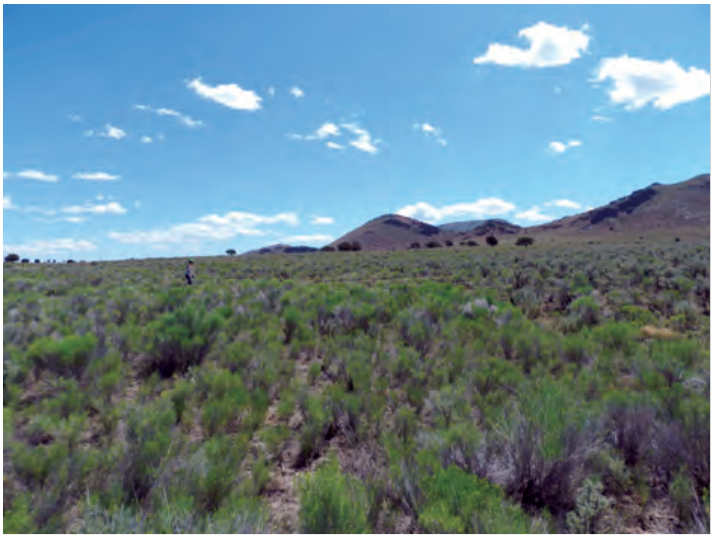

Figure 6. South Side Survey Area (looking east-southeast).

At Pinnacle Pass, the MWAC crew set up three 20-meter by 20-meter grids

aligned to magnetic north. Grid one at the Pinnacle Pass site was the southernmost and grid three was the northernmost (Figure 7). At the Quarry Site, the MWAC crew placed one 20-meter by 20-meter grid aligned to magnetic north (Figure 8). The MWAC crew placed two partial grids at the South Side location aligned to magnetic north (Figure 9). The first grid at the South Side location is approximately fifteen meters southeast of the datum and grid two is approximately fifteen meters northeast of the datum. Grid one is 20 meters by 15 meters and grid two is 20 meters by 10 meters. The crew elected to use partial (rather than full 20-meter by 20-meter) grids due to the vegetation density at the site.

MWAC staff used twenty-meter ropes to outline all of the grids, with the ropes spaced at two-meter intervals (oriented north to south). This method was used for all survey areas, regardless of the placement of full or partial grids. The ropes are marked with alternating colors (red and blue) that denote half meter and one-meter intervals, and are designed to aid in the surveying effort by keeping measurements equally spaced (Figure 10).

Figure 7. Pinnacle Pass Survey Area Map.

Archeologist LeBeau created sketch maps of each area at the time of each survey, noting obstacles and other features present and Archeological Technician Curtis Sedlacek used a Trimble Geo XH 3000-series hand-held global positioning satellite system (GPS) with an external antenna, capable of sub-one meter accuracy, to map the project areas. Additionally, LeBeau photographed each survey area using a Nikon Coolpix P500 14 megapixel camera.

Figure 8. Quarry Site Survey Area Map.

The geophysical instruments employed in this study begin recording data from the southwestern corner of each grid, running in a zigzag pattern to collect data. The instrument's operator begins recording data at the southwest corner of the grid, walking north along the rope. When the operator reaches the end of the line, s/he moves one half meter to the east (in between the first and second rope) and begins walking south as the machine again records data. Upon reaching the southern edge of the grid, the operator turns and repeats the process, until s/he has recorded data along all of the grid's transects. At that point, the grid is finished, and the operator moves on to the next grid.

Figure 9. South Side Survey Areas Map.

Figure 10. Example of 20-meter ropes arranged in a geophysical survey grid (South Side Survey Areas, looking east-southeast).

The three geophysical instruments used for this project were the Geoscan Research FM36 fluxgate gradiometer, the Geoscan FM256 fluxgate gradiometer, and the Geoscan Research RM15 resistance meter. Due to an equipment malfunction, the MWAC crew replaced the Geoscan Research FM36 with the Geoscan Research FM256. All grids that the crew surveyed with the FM36 were re-surveyed with the FM256 to maintain data consistency.

Magnetic Gradient Survey

Instrument:	Geoscan Research FM256 fluxgate gradiometer
Specifications:	0.05nT (nano-tesla) resolution, 1nT absolute accuracy.
Survey Type:	Magnetic gradient
Operators:	Ashley Barnett and Curtis Sedlacek

A magnetic gradient survey is a non-intrusive, passive geophysical survey that measures the magnetic variations of subsurface soils. The magnetometer measures both the magnitude and the direction of magnetic fields associated with subsurface deposits. Deposits with strong magnetic properties, such as ferrous metal objects, result in strong magnetic signatures. Archeologists trained in geophysics can also frequently identify less intense magnetic signatures associated with cultural deposits or activities, such as hearths, trails, and structural footprints (for additional details about magnetic surveys, see Bevan 1998:18-29, Clark 2000:64-98; David 1995:17-20; Gaffney and Gater 2003:36-42, 61-72; Gaffney et al. 1991:3-5, 2002:7-9; Heimmer and De Vore 1995:7-20, 2000:55-58; Kvamme 2001:357-358, 2003:441, 2005:430-433; Lowrie 1997:229-306; Milsom 2003:51-70; Mussett and Khan 2000:139-180; Scollar et al. 1990:375-519; Weymouth 1986:341-370; De Vore and LeBeau 2011: 13-27; and De Vore 2005:5-13). At all survey locations, the MWAC crew conducted the magnetic surveys at one-meter intervals with eight readings collected per meter (Figure 11).

Resistance Survey

Instrument:	Geoscan Research RM15 resistance meter with PA5 multiprobe array
Specifications:	0.05 ohms resolution, 0.1 ohms absolute accuracy
Survey type:	Resistance
Operators:	Ashley Barnett, Curtis Sedlacek, and Albert LeBeau

Resistance survey is a minimally intrusive, active geophysical technique that involves penetration of the ground with small probes. This type of survey sends a small electrical current through the ground to another set of probes (placed in the ground several meters away) to complete the circuit. The instrument measures the soil's resistance to the current. Since different soils and subsurface deposits are characterized by variations in resistance to electrical currents, archeologists can use resistance meters to identify variations in subsurface deposits, which may indicate cultural deposits (for additional information involving the technical aspects of resistance meters, see Bevan 1998:7-18; Carr 1982; Clark 2000:27-63; David 1995:27-28; Gaffney and Gater 2003:26-36; Gaffney et al. 1991:3-5, 2002:7-9; Heimmer and De Vore 1995:29-35, 2000:59-60; Kvamme 2001:358-362, 2003:441-442, 2005:434-436; Lowrie 1997:203-219; Milsom 2003:83-116; Mussett and Khan 2000:181-232; Scollar et al. 1990:307-374; Weymouth 1986:318-341; De Vore and LeBeau 2011:13-27; De Vore 2005:5-13). At all of the locations, the MWAC

Crew conducted the resistance survey at one-meter intervals with a one reading per meter collection rate (Figure 12).

Interpretations

Magnetometry

Initially, LeBeau was confident that processing and post-processing of the magnetic data would allow the archeologists to gain insights into the subsurface deposits in the Reserve. During the interpretation process, LeBeau used a zero mean traverse processing routine to remove heading errors. He then interpolated the X and Y-axes to smooth out the image and applied low pass filters to remove any high frequency, small-scale spatial detail to improve the visibility of larger, weak anomalies. These processing routines are standard procedures used to transform the raw (numerical) data recorded by the instrument into images that archeologists can effectively interpret.

After analyzing the data, it became evident that post-processing would be unable to overcome the effects of the large quantity of ferrous metal debris present at the Pinnacle Pass and South Side Survey Areas. Ferrous metal debris present throughout the survey areas (in this case both below the surface and in barbed wire fencing above the surface) causes strong magnetic anomalies that obscure the more subtle magnetic signatures of the trails and ranch roads, thus rendering the magnetic data ineffective for differentiating between cultural and environmental features in these survey areas.

Figure 11. Archeological Technician Ashley Barnett conducting magnetic survey (using a Geoscan Research FM256 fluxgate gradiometer) at South Side Survey Area (looking southeast).

The Quarry Site is the singular exception to the above-mentioned difficulty with the magnetic survey. Later research by Chief of Cultural Resources Kristen Basis (personal communication 11/09/2011) indicates that this site may never have been a true quarry, but was simply a place where the previous landowner removed surface rocks and disturbed vegetation. A massive anomaly, however, is located within the eastern portion of the grid (Figures 13-15). After applying the filters, LeBeau identified a linear feature. This linear feature corresponds with the location of the known ranch road (indicated by red lines in Figure 14). The light blue circle is a magnetic anomaly. The light yellow most likely indicates the western extent of the disturbed area.

Resistance

The resistance meter records soil variations in resistance to electrical current. A soil's resistance to an electrical current is affected by the soil's moisture content. Because compact soils have less air space between soil particles than non-compacted soils, the amount of moisture present in compact soils differs when compared to surrounding non-compacted soils. Thus, since resistance depends upon soil moisture, the resistance of compact soils will differ from the resistance of surrounding non-compacted soils.

Figure 12. Archeological Technicians Curtis Sedlacek and Ashley Barnett conducting resistance survey (using a Geoscan Research RM15 resistance meter with PA5 multiprobe array) at Pinnacle Pass Survey Area (looking north).

For this project, the resistance survey produced more functional data than the magnetic survey. LeBeau used de-spike routines, interpolation, and high pass filters to remove random measurements, creating an image that could be interpreted. High pass filters remove low frequency, large-scale spatial detail, such as a slow changing geological background trend. (For a more detailed explanation of these methods, please consult see Steven L. De Vore's forthcoming report "Geophysical Prospection and Archeological Investigations of the Proposed Bridge Replacement, Entrance Road Realignment, and New Visitor Parking Lost Project at the Fort Larned National Historic Site, 14PA305, Pawnee County, Kansas" [p. 21]).

LeBeau identified five anomalies within the grids at Pinnacle Pass (Figures 16 and 17). LeBeau interpreted the first anomaly as the (visible) swale left by the California Trail, while he interpreted the second as the ranch road. LeBeau interpreted the third anomaly as an ephemeral trail segment of the California Trail. The fourth is an as-yet unidentified anomaly, which remains unidentified because only a portion of the anomaly lies within the grid. As a result, there is not enough of the anomaly present in the data to allow for interpretation. The fifth anomaly may be another ephemeral California Trail segment. The features interpreted as trail segments all exhibit somewhat higher resistance than the surrounding soils, while the ranch road does not appear clearly in the image.

At the Quarry Site, the ranch road and disturbed area are visible in the resistance data. LeBeau identified a circular anomaly in the northwest corner of the grid (Figures 18-20). This may have been a staging area for heavy equipment when the quarry was in operation. A rectangular anomaly is present in the southeast portion of the grid. The anomaly consists of a high-resistance rectangular outline (which appears as a dark area) enclosing a low-resistance area (which appears as lighter shades within the darker

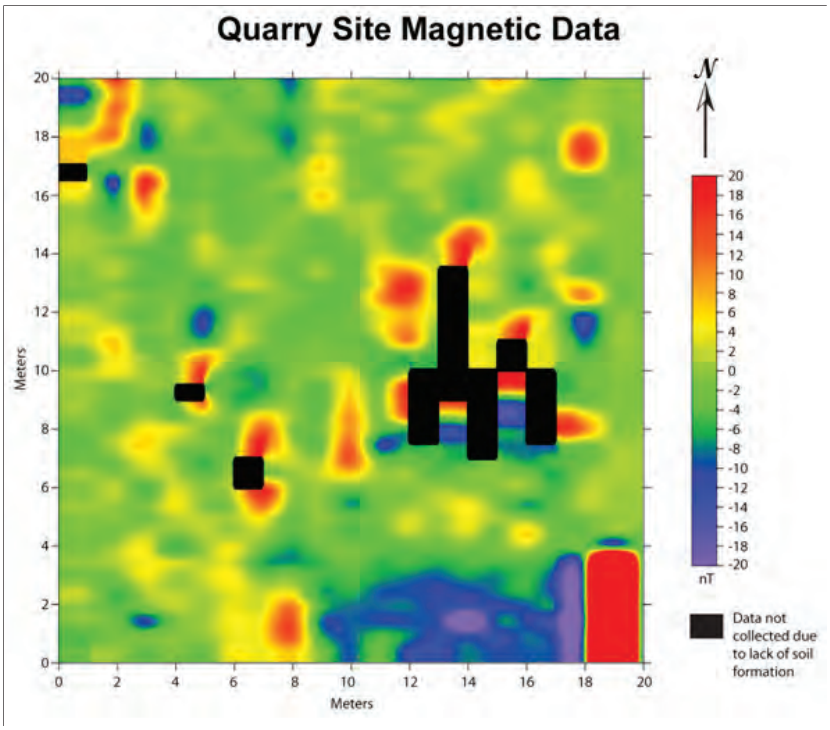

Figure 13. Quarry Site Survey Area magnetic data.

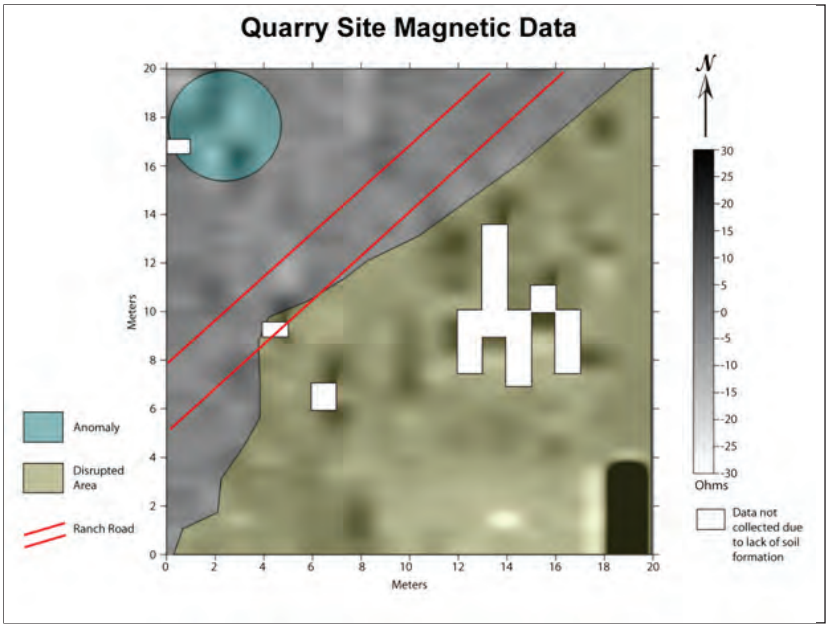

Figure 14. Quarry Site Survey Area magnetic data interpretation.

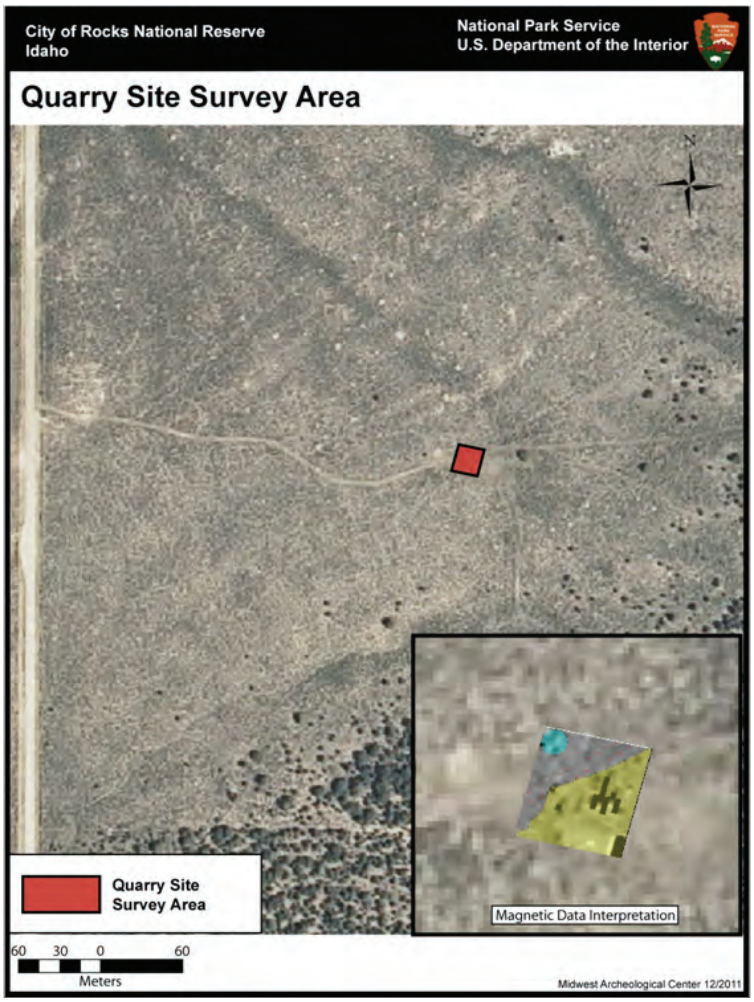

Figure 15. Quarry Site Survey Area Map with magnetic data interpretation overlay.

outline) (see Figure 19). The rectangular shape of the anomaly suggests some sort of enclosure (such as a corral or pen) or structure may have once been present at the site, or perhaps stones were piled in a rectangular heap in this area. This anomaly, in conjunction with the anomalies in the southwest portion of the grid, likely constitutes areas where the subsurface was (to some extent) disturbed, with a possible staging area in the northwest portion of the grid and a ranch road running between the two areas.

In the resistance data from the South Side Survey Area, the trail segments of both grids were apparent in the data compared to the surrounding landscape (Figures 21-23). In the northern grid, the ephemeral trail appeared as an area of lower resistance than the surrounding soil while, in the southern grid, the (visually) more distinct trail segment appeared as an area of higher resistance. The difference in resistance between the ephemeral and more distinct trail segments is due to the variation in soil compaction compared not only to the surrounding soils, but also compared to one another. LeBeau identified the other linear features present in the data as cow paths because they correspond to the cow paths located on the sketch and GPS maps. Furthermore, in the geophysical data, the cow trails exhibit slight variabilities in resistance depending upon surrounding

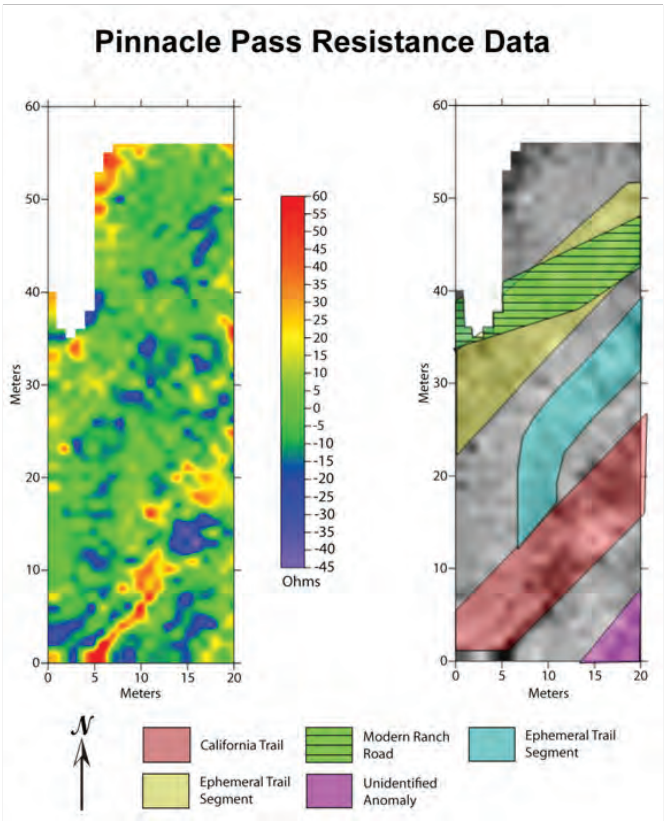

Figure 16. Pinnacle Pass Resistance Data (left) and Resistance Data Interpretation (right).

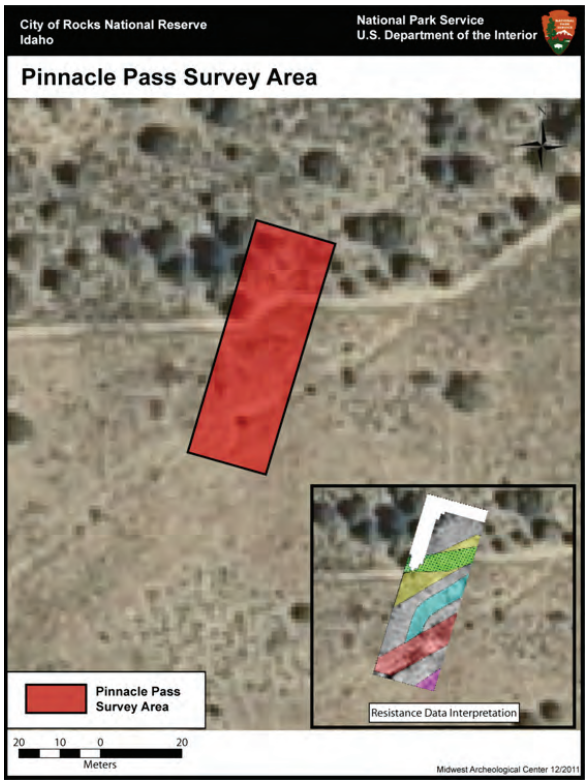

Figure 17. Pinnacle Pass Survey Area map with resistance data interpretation overlay.

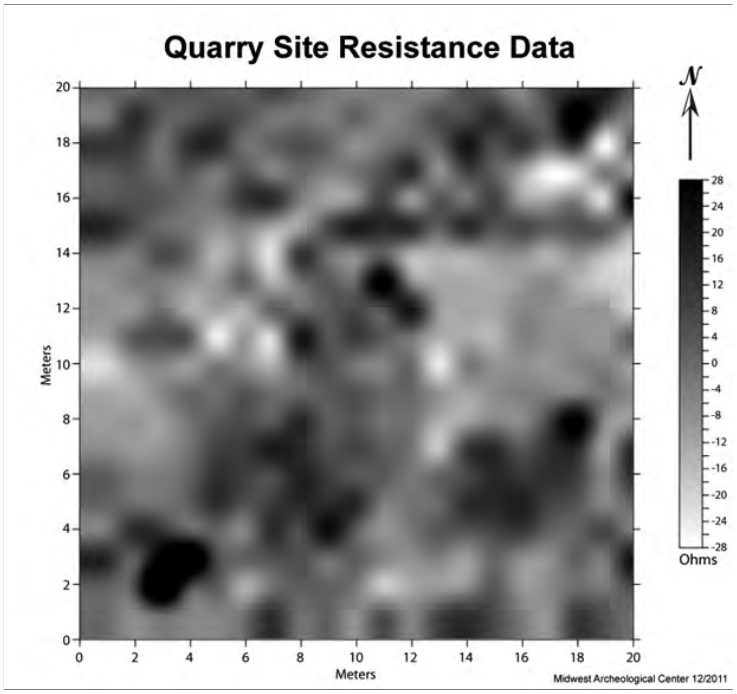

Figure 18. Quarry Site Survey Area resistance data.

soil conditions. These resistance values may be higher or lower, depending on surface conditions, soil compaction, moisture content, substrate material, and natural resistivity of the soils.

Results

This project has shown that geophysical techniques are capable of differentiating between historic trails and two-track ranch roads at the City of Rocks National Reserve. Using a Geoscan Research RM15 resistance meter with PA5 multiprobe array, MWAC archeologists discovered that the historic trails present in the Reserve exhibit clear differences from two-track ranch roads. Though the resistance signatures of the various trails are not consistent from one trail to the next (that is, some trails are highly resistant while others exhibit low resistance to electrical currents), the consistency lies in the clarity of the signatures.

In both the Pinnacle Pass Survey Area and the South Side Survey Area, known trails appear much more clearly than do the two-track ranch roads. The depth and compaction of the ruts and swales of the trails were well-developed. Due to the large numbers of emigrants who traveled via the trail for an extended period of time, the compaction of the soil of the ruts and swales of the trail enabled those features to retain moisture. Conversely, due to the differences in wheelbase, wheel materials, distribution of weight, and limited use, the ranch roads did not develop deep compact swales capable of retaining as much moisture as the California Trail swales. In the resistance data, the ranch roads are faint and hard to distinguish from the surrounding soils. In the trail segments, there is a distinct change in resistance compared to the surrounding soils, making the features more noticeable in the data. The South Side site is a good example of changes in the trail segment and background resistance, as there is a distinct separation between the trail and the surrounding soils (for example, see Figure 21).

It is important to note that, due to the heavy vegetation and rough terrain, the MWAC crew surveyed fewer grids than would have been ideal. While more information is necessary to make broad generalizations, the researchers feel they have established a foundation for future work.

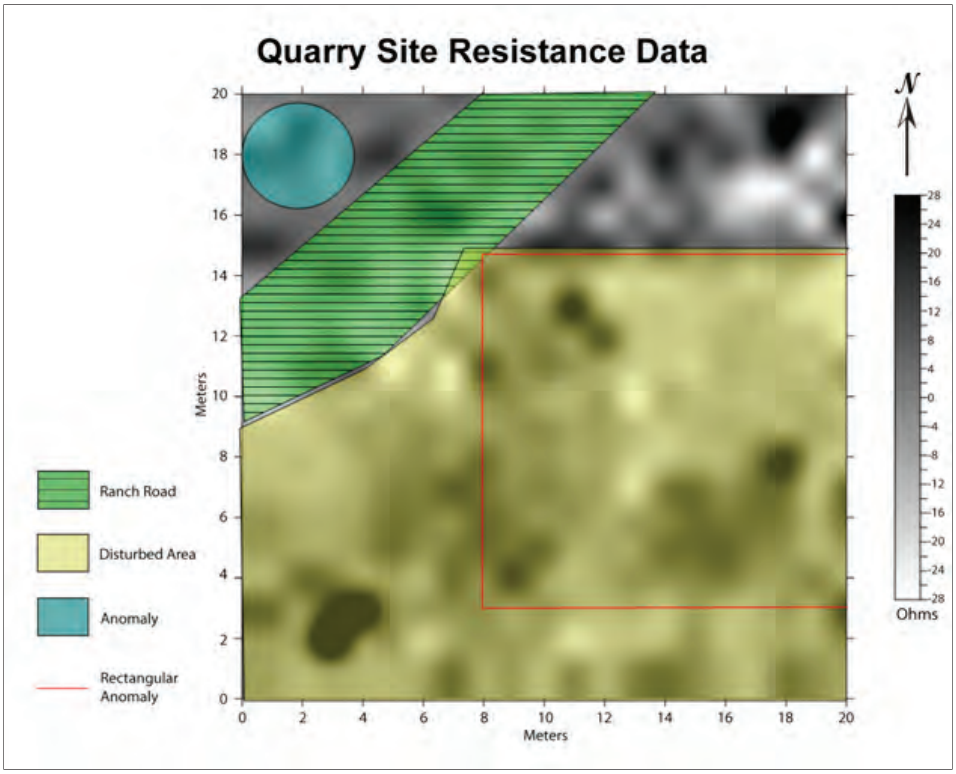

Figure 19. Quarry Site Survey Area resistance data interpretation.

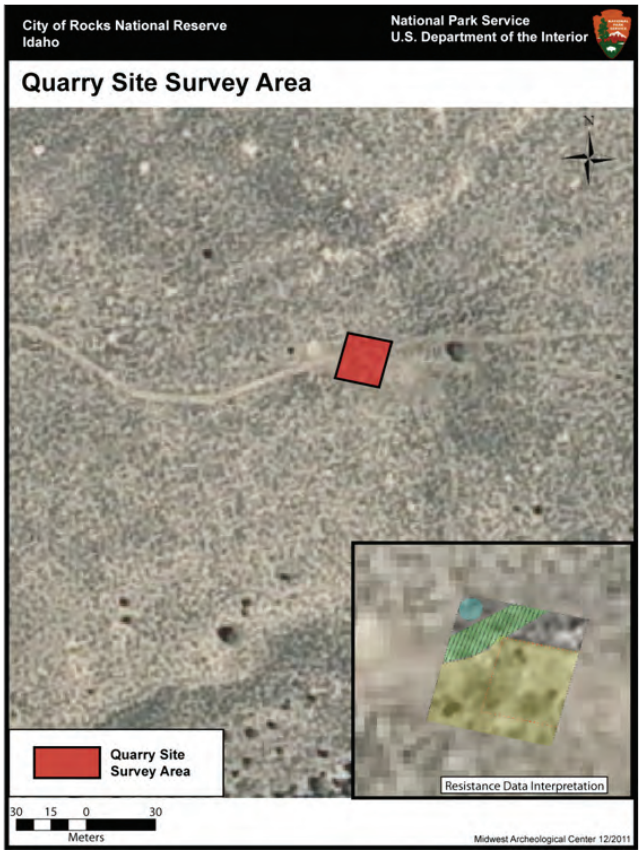

Figure 20. Quarry Site Survey Area map with resistance data interpretation overlay.

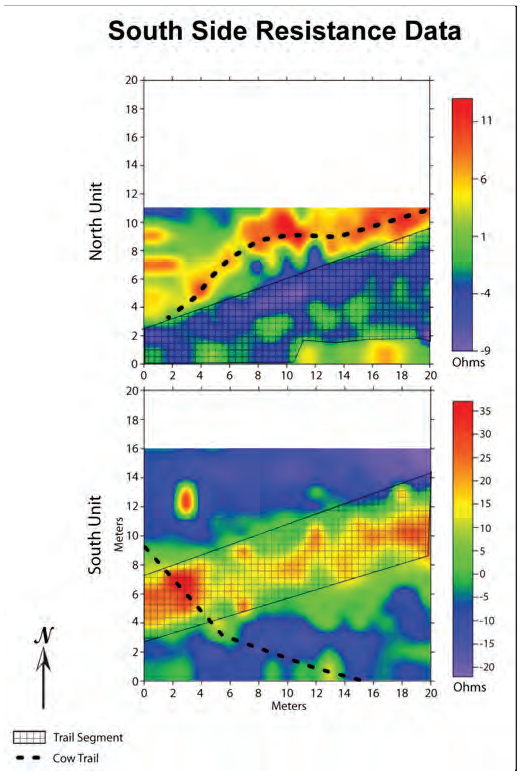

Figure 21. South Side Survey Area resistance data interpretations.

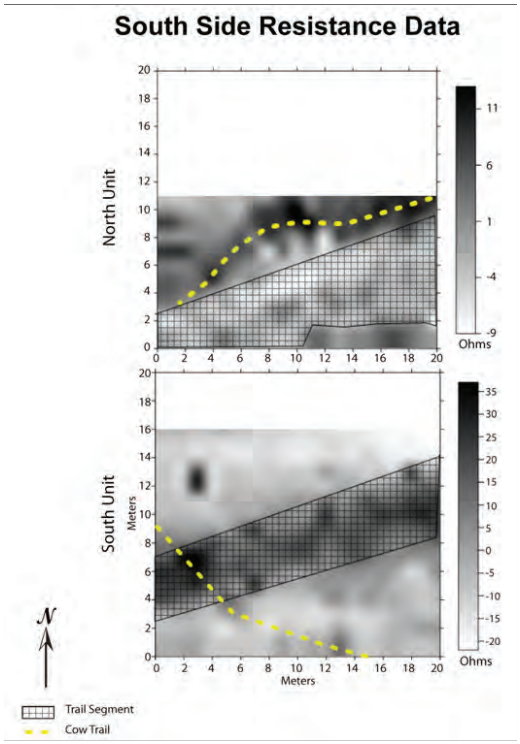

Figure 22. South Side Survey Area resistance interpretations.

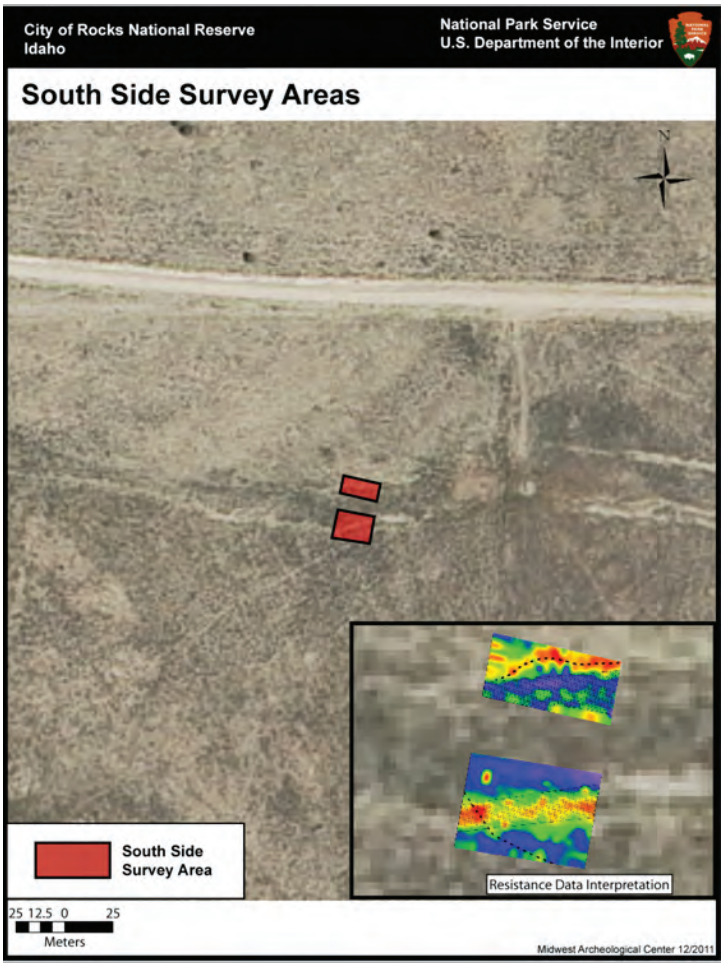

Figure 23. South Side Survey Area map with resistance data interpretation overlay.

SECTION TWO

Historic Names Research

City of Rocks National Reserve, located just north of the Nevada-Utah border of Idaho, is situated along a portion of the California Trail. While the area's rugged terrain presented challenges for emigrants (as well as a route through the mountains at Granite Pass), the unusual landscape also inspired the awe of persons traveling westward (National Park Service 2011). Many wrote their names (often with axle grease) on the monoliths that dot the landscape, recording their passages through this breathtaking environment. Though many names have faded from the monoliths due to the forces of erosion (including not only wind, rain, and snow, but also the past effects of cattle rubbing against the rocks), many remain legible. More than a simple curiosity, these names and dates offer the possibility of gaining greater insight into the individuals who traveled the California Trail, allowing the Reserve to educate visitors about the cultural history of the Reserve, and the complex reasons that led so many persons to pick up and move across a continent. Thus, the history of City of Rocks is not merely its own history, but is also part of a larger history of the hundreds of thousands of individuals who emigrated across North America, which is why the Reserve has been set aside for protection.

This study aims to identify as many individuals as possible who recorded their names on the rocks within the Reserve's boundaries during the period of historical significance (1842-1882). Therefore, to be included in the study, an inscription must be legible, must be written on a monolith that is on federal land within the Reserve's boundaries, and must include a name and a date no later than 1882. These parameters eliminated many of the names recorded on the stones throughout the area, as many are no longer legible, are written on rocks on private land, do not provide a date, or provide a date outside of the period of significance. Using a list compiled by Opal Durfee, Chief of Cultural Resources Kristen Bastis identified eleven names on two rock outcrops (Register Rock and Camp Rock) that conform to the study's parameters. On Register Rock (Figure 24), the following inscriptions have been included in the study:

"July 23, 1849, G. Meyer"
"W. Moorh. . ." (included due to proximity to G. Meyer)
"C. S. Peck & Lady, Buffalo, NY, Aug 10, 1860"
"A. Freeman June.12.50"
"D. Tickner June 12.50"
"H. Keck, June [July?] 29 [27?], 1850"
and "T. S. [or C?] Slate, Ju[ne? or July?] 3 '59"
From Camp Rock (Figure 25), the following names have been included in the study:
"John Galliher 1880"
"Ida Fullinwider Kans. July 12, 81"
"J. Keller July 25 1879"
and "David 1876"

Figure 24. Register Rock Overview, facing east.

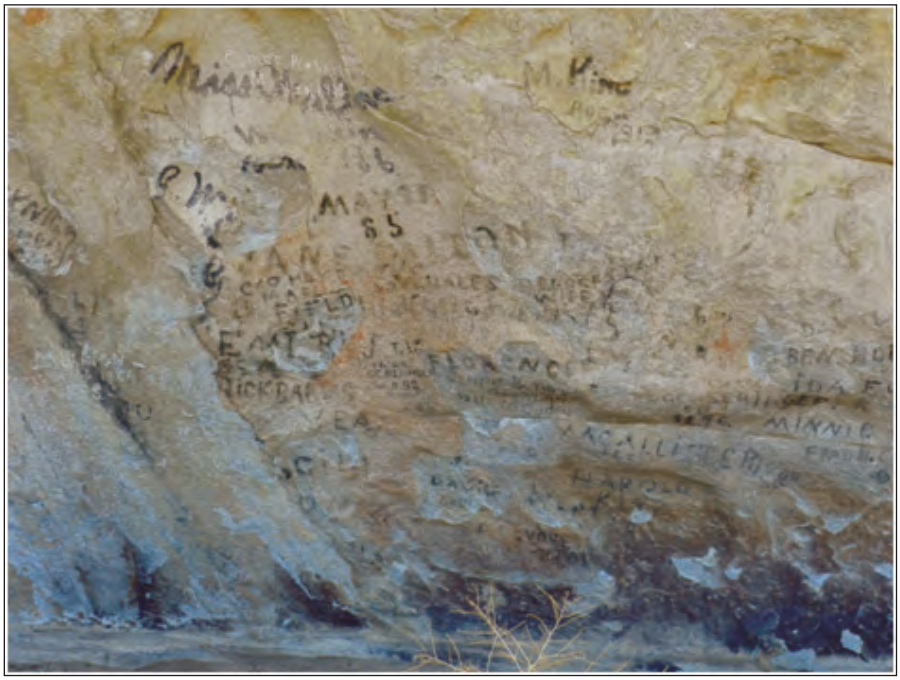

Figure 25. Camp Rock.

On 11 August 2011, Chief of Cultural Resources Bastis accompanied MWAC field crew members Curtis Sedlacek and Ashley Barnett to Register Rock and then to Camp Rock, where they located and recorded the inscriptions. Sedlacek took digital images of the inscriptions, while Barnett took black and white photographs and completed a photo log for both the digital images and photographs. All of the names identified by Chief of Cultural Resources Bastis were located and photographed for the study.

While Mrs. Durfee's list is invaluable, most specifically because of the ongoing and inevitable degradation of the inscriptions, the author has interpreted several of the inscriptions differently than Mrs. Durfee. Many of these differences in interpretation are the results of variations in perception of the writing styles. For example, the inscription that Archeological Technician Barnett interpreted as "G. Meyer," Ms. Durfee interpreted as "J. Weyer." Ultimately, however, these interpretive differences had no influence on the results of the study, as Archeological Technician Barnett was unable to trace any of these questionable names using either spelling.

In order to identify these individuals, the author used genealogical websites (primarily Ancestry.com and FamilySearch.org) in addition to general internet searches to illuminate their identities. Of the 11 inscriptions considered in this project, the author was able to identify the following five names with some degree of certainty: Ida Fullinwider, A. Freeman and D. Tickner (considered together, which is explained below), H. Keck, and C. S. Peck & Lady. The other inscriptions included names that were too common (i.e. "David"), incomplete (i.e. "Moorh…"), or lacking in temporal details (i.e. "John Galliher 1880") to identify with any degree of certainty. For three of the five identified individuals, however, the author has pieced together significant details about their lives.

Ida Fullinwider

Ida Fullinwider (Figure 26) was born in January of 1865 in Kansas, most likely in Washington Township in Anderson County, to Samuel L. and Amanda Fullinwider (1865 Kansas State Census [schedule No. 1] Washington Township, Anderson County, Kansas; p. 44, family 304, dwelling 269, lines 6-11, July 25, 1865). By 1875, the family was still living in Anderson County, but had moved to the town of Colony (1875 Kansas State Census [schedule No. 1] Colony, Ozark Township, Anderson County, Kansas; p. 3, family 25, dwelling 25, lines 33-40, March 1, 1875). From at least 1865 to 1875, Ida's father, Samuel, worked in agriculture, but by 1880, Samuel was "keeping hotel" (1880 United States Census [schedule No. 1] Ozark Township, Anderson County, Kansas; p. 6, family 43, dwelling 43, lines 23-31, June 4, 1880). When Ida was about 16 years old, in the spring of 1881, it appears that Samuel and Amanda decided to pack up their family, ostensibly including their seven children, ages four to twenty-one, and head to California.

It appears that Ida did not remain in California for long. On October 1, 1885, she married J. W. Carroll in Colony, Kansas (Carpenter 1998). Though they were married in Kansas, it is possible she met her husband during her travels west, as he was from Utah Territory (Carpenter 1998). It appears that Ida and J. W. eventually moved to Utah, as a Salt Lake County Death Record shows that Ida died on February 2, 1887, at age 22 in Salt Lake City from complications of paralysis. She was buried in section M of the Mt. Olivet

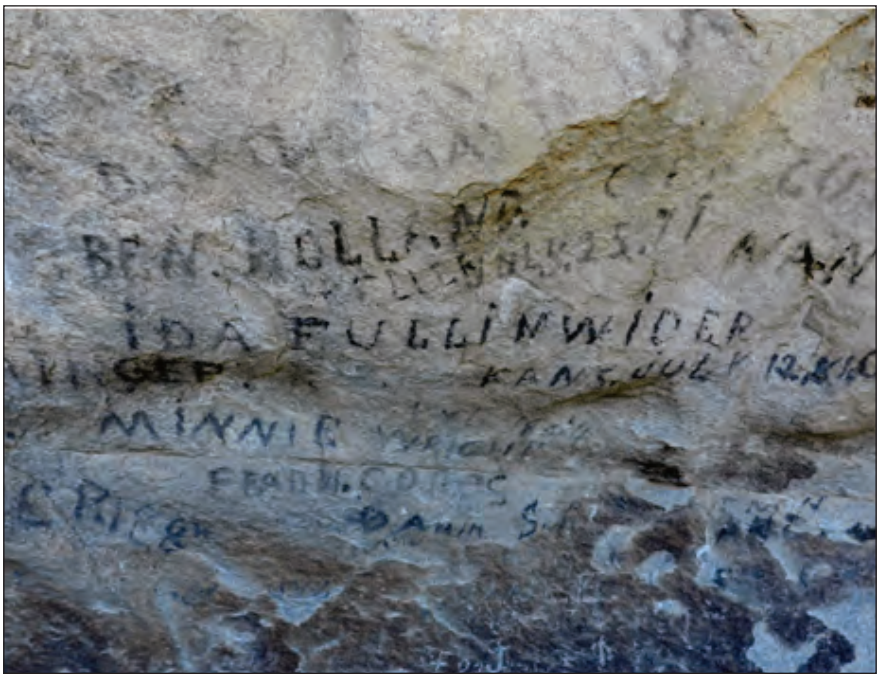

Figure 26. Ida Fullinwider, Kans. July 12.81 (Camp Rock).

Salt Lake City Cemetery, lot 101 (Utah State Historical Society 2000; Salt Lake City Death Records 1908-1949, digital folder 004139695, page 342, no. 13645). It is unclear whether Ida and J. W. ever had any children.

The information available about Ida Fullinwider is scarce, perhaps due to her gender and age as well as the social norms of the time. In the late 19th century, a woman's social status was directly tied to her husband's social status. As a result, women often appear less frequently in the historical record than do their male counterparts. This may very well explain why so little information exists about Ida (Fullinwider) Carroll.

A. Freeman & D. Tickner

According to the Oregon-California Trails Association's research materials (2011), Daniel Tickner was born in Graves End, Kent, England around 1812 and immigrated to the United States in 1826. He eventually settled in Albion, IL, with his parents and other family members. In 1840, Daniel married Mary Wood, and they made their home in Albion, where he worked as a blacksmith. Their first child, Ellis Sarah, was born in Albion in 1847. In 1850, Mary's parents asked Daniel to travel to California to retrieve his brother-in-law, John, who had gone in search of gold. A. Freeman, a friend of Daniel's, accompanied him on the trek (which they made on horseback). It was on this trip that Tickner and Freeman wrote their names in axle grease on Register Rock (Figure 27). Daniel apparently worked as a blacksmith in California while waiting, for an unknown reason, for John to return with them. Tickner, Freeman, and Wood took a different route home, traveling by horse or mule to Mexico City, then to Mt. Orizaba and Vera Cruz, where they boarded a ship which took them to New Orleans. From New Orleans, the group traveled via steamer up the Mississippi River back to Illinois, where

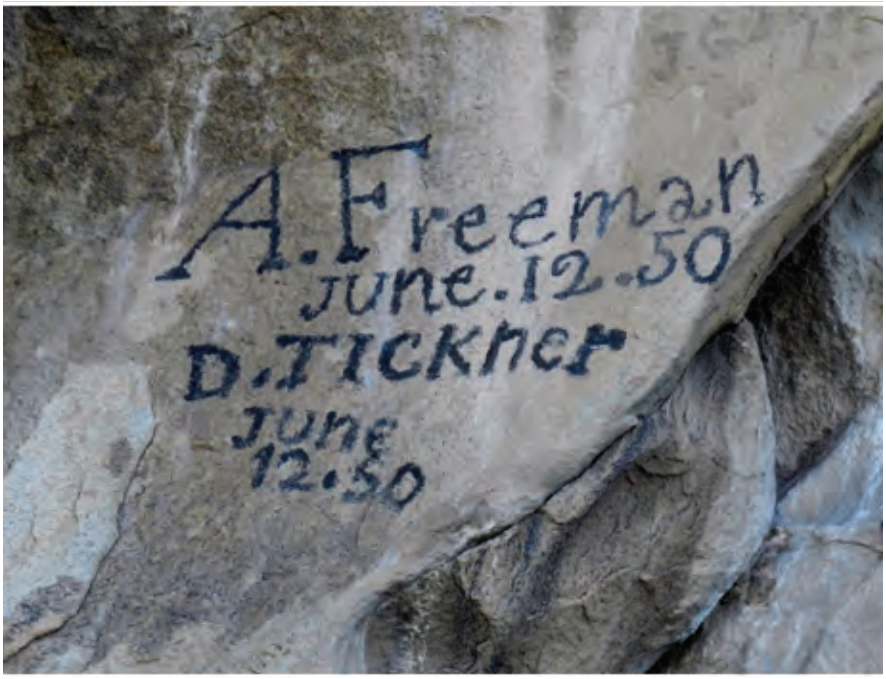

Figure 27. A. Freeman, June.12.50 and D. Tickner June 12.50 (Register Rock).

Tickner found that Mary had given birth to their second child, Leon Francisco (Oregon-California Trails Association 2011).

In 1852, Tickner once again headed to California, this time with his wife, children, and two brothers-in-law (Oregon-California Trails Association 2011). It is unclear whether John was one of his brothers-in-law who accompanied the family this time. The family made this trip in a covered wagon rather than on horseback. Tickner purchased land from the Estudillo family (land which had originally been obtained by the Estudillo family via Spanish land grant). Daniel continued working as a blacksmith, but also ran a ferry between Hayward and San Francisco (Haywards Journal 9 October 1906). Additionally, Daniel and his brothers-in-law farmed and sold the produce in San Francisco. Mary gave birth to another son, Frank Semor, in November 1854, and shortly thereafter the family decided to return to Illinois (1900 United States Census (schedule No. 1) Peachtree Township, Monterey County, California; p. 4, family 67, dwelling 67, line 78; June 6, 1900). This time, the family traveled by boat from California to the Pacific coast of Panama, then traveled via the new Panama Railway to the Gulf of Mexico, where they must have then boarded another ship, most likely to New Orleans, eventually returning to Illinois (Oregon-California Trails Association 2011).

In 1857, however, Daniel and Mary once again headed back to California, traveling this time with Mary's brothers William, Benjamin, and James, James' wife Catherine and son Ellis, and Mary's sister Martha and her husband John West (possibly the same John whom Daniel traveled to California to find in 1850) "and their children" (Oregon-California Trails Association 2011). Delayed in leaving Illinois by John's indecisiveness about departing, the group eventually pulled out of Omaha on the 5th of June. This trip would soon prove treacherous, as that night the group was attacked by American

Indians and one of Martha and John West's children, Laura, would die of cholera before they reached Ft. Laramie. Shortly after crossing the South Pass (in western Wyoming), they learned of Brigham Young's declaration of war against the United States and subsequently decided to take an alternate route to California (presumably through Idaho once again). After passing Thousand Springs Valley, Idaho, but before they reached the Humboldt River in Nevada, John and Martha West (with their children) separated from the Tickner and Woods families, taking a wagon and joining another group (Oakland Herald *"Oldest Mason"* 25 October 1905).

On August 12, the Tickner and Woods families again found themselves in jeopardy, reportedly outnumbered and attacked by a large group of Native Americans and white men (Oregon-California Trails Association 2011). The attack occurred along the Humboldt River, en route from Gravelly Ford to Stony Point in what is now Nevada. The convoy suffered significant losses, as Catherine, her unborn child, and her young child Ellis (accounts vary as to whether Ellis was a boy or girl) perished in the attack (Oakland Herald *"Oldest Mason"* 25 October 1905; Oregon-California Trails Association 2011). James, William, and Benjamin Wood all suffered gunshot wounds, but survived due to the assistance of a physician's widow traveling with a nearby ox-led caravan. In addition to the loss of life and injuries, the group also lost three mules and a wagon, as well as a significant amount of money in the incident. Some of the money was reportedly recovered at a later date, but it unclear how much or by what manner. The family regrouped, buried the dead the next morning, and then continued on in the company of the party that came to their aid (Oregon-California Trails Association 2011). Several of the men who attacked the group continued to follow the party, and the party managed to capture one of the native men. The captive later tried to escape, but was shot by one of the members of the party (Oregon-California Trails Association 2011).

The group pushed westward, likely crossing the Sierra Nevada via the Henness Pass Road (Oregon-California Trails Association 2011). By mid-to-late September, the Tickner family reached San Leandro, California. Daniel and Mary Tickner and William Wood purchased 160 acres of land in proximity to Richmond, California, and planted grain and potatoes on half of the acreage. The use of the remainder of the property is uncertain. Daniel again established himself as a blacksmith and bought a boat to ship crops to market in San Francisco. In January of 1858, Mary gave birth to a fourth child, Catherine Elena (Oregon-California Trails Association 2011; 1860 United States Census [free schedule], Township Number One, Contra Costa County, California; p. 41, family 315, dwelling 316, line 20; June 21, 1860).

Late in their lives, Daniel and Mary (Figure 28) resided with Mary's brother, James Wood, in Hayward, California (Oregon-California Trails Association 2011). At the age of 81, Daniel stood 5'10" tall, had gray eyes and gray hair, and was still working as a blacksmith (Great Register of Monterey County 1866-1896, page 71, no. 4710). The events of the family's last journey along the California Trail had so traumatized Daniel that he refused to discuss the events for quite some time (Oregon-California Trails Association 2011). Eventually, he shared his story in a newspaper interview in 1905 that honored him at 93 years old as the "oldest living Mason" in California at the time (Oregon-California Trails Association 2011). The *Oakland Herald* (*"Oldest Mason"* 25 October 1905) stated that Daniel had become "a member of Live Oak Lodge of Masons, in Oakland"

Figure 28. Undated photo of Daniel and Mary Tickner (image provided by Oregon-California Trails Association, used with permission).

during one of his first trips to California, but later formed a new lodge, Oakland Lodge No. 188, with several other members (Freemasons 1918:16). By age 93, Daniel's eyesight had diminished, but he continued to help Mary around the house and still participated in the lodge (Oakland Herald *"Oldest Mason"* 25 October 1905).

Daniel, who had become a naturalized citizen of the United States on August 28, 1867, after living in the U. S. for more than three and a half decades, passed away on October 8th, 1906, just over a year after the article detailing his life was published (Great Register of Santa Clara County 1866-1898, p. 98, no. 7661; *Haywards Journal* 9 October 1906). His funeral was held on Wednesday, October 10th, at Eucalyptus Lodge 243, F. & A.M, in Hayward (*Haywards Journal* 9 October 1906). He was survived by a large extended family, including Mary and their four children, Mary's brother James (with whom they lived), many grandchildren and great-grandchildren, and appears to have many descendents living in northern California and beyond (*Haywards Journal* 9 October 1906; Ancestry.com).

H. Keck

Henry Keck, Jr. was the son of Henry and Mary (Hardin) Keck and was born in Mercer County, Pennsylvania, on December 4th, 1823 (Keck, the Early Days" 2007; *Keosaqua Republican* July 18, 1918). The family moved from Greensburg, Pennsylvania, to a farm in Harrisburg Township near Utica, Iowa, in 1846 (Keck, "*The Early Days*" 2007). A discrepancy exists for the dates of this move. Joseph Keck reported that the family moved in 1846, but Henry's obituary stated that they moved in 1849. On March 27, 1850, Henry and his brother Joseph, along with 22 other men, departed Iowa with the goal of reaching California. They traveled in six ox-teams, with seven cows and three

horses in the company. Joseph kept a detailed journal of the trip, which has provided significant insight into their voyage west. His journal is available through the Van Buren County [Iowa] GenWeb Project (http://iavanburent.org/JAKeckPapers/KeckJournal.html). On April 26th, the group awoke in Kanesville (now Council Bluffs, Iowa) to discover their oxen and cows were missing; they managed to locate all but one ox and two cows. While in town looking for the three missing animals, Henry and Joseph met a Morman Mexican War veteran who gave them information about the route to Salt Lake City. Two members of the party stayed on the Iowa side of the Missouri River to search for the missing cattle, while the remainder crossed the river on April 27th. The following day, the men returned with the missing cattle, and the group was once again on their way west (Keck, *"To California"* 2007).

In mid-May, the group grew to 34 as two more teams joined the party. Across Nebraska, Joseph wrote frequently about the changes in landscape they experienced, as well as the vast herds of bison they encountered. The weather fluctuated often, ranging from snow to hailstorms, to scorching heat. Gnats plagued the teams, and Joseph reported on May 25th that many of their party were "covered with blotches" from gnat bites (Keck, *"To California"* 2007). They saw many people as they traversed Nebraska Territory, including people they had known back home. Keck wrote specifically about how friendly and outgoing the Native Americans who approached their group were. Some sought money, others sought food, and still others simply stopped to exchange pleasantries (Keck, *"To California"* 2007).

On May 29th, 1850, the convoy arrived at the ferry across the North Platte River from Ft. Laramie, where they waited for their turn to cross (Keck, *"To California"* 2007). Since they were towards the back of a long line, they settled in for the evening and entertained themselves with songs and Henry and Joseph took time to write letters home. Their journey across (present-day) Wyoming was characterized by ups and downs: physically, as the terrain become rougher, and emotionally, as the forces of nature wreaked havoc on the men and their animals. Henry and another member of the team became ill on June 20th with what Joseph described as "something like the mountain fever" (possibly Rocky Mountain Spotted Fever) (Keck, *"To California"* 2007).

The crew reached the Raft River, four miles east of the City of Rocks, on June 27th after a rough day of travel (Keck, *"To California"* 2007). One of their wagons had tipped over crossing a creek, resulting in not only the loss of food and other provisions, but also spilling Henry (who was still ill) into the water. Two days later, the group passed through City of Rocks (Figure 29), which Joseph called "Steeple Rocks" (a name frequently employed by other trail emigrants) and probably refers to Pinnacle Pass. Joseph wrote that "the passage through is just wide enough to admit a wagon" and that "the road… was rough and hilly and some places very sidling" (Keck, *"To California"* 2007). That night, they camped along Goose Creek. On July 2nd, the team awoke to tragedy. David Boner, one of their members, was missing. They found David's body in the creek near their camp, where he had gone to bathe the night before. Joseph noted that he had heard "splashing in the water," but assumed David was just swimming around in the creek. After finding David's clothes on shore and a handprint along the bank, they surmised that David had slipped into water that was deeper than he anticipated and then panicked when he could not climb up the steep, slippery bank. They buried David

Figure 29. June 27 1851 H. Keck.

"close to the road on the South side," and Joseph carved a "head board stating his name, cause of death, place of residence, and age" (Keck *"To California"* 2007).

On July 18th the team reached the desert of northern Nevada (Keck *"To California"* 2007). Like many others, they lightened their load by dropping off every item that was not a complete necessity; Joseph remarked on the array of items cast off along the trail throughout the desert: "…the West half of the desert is strewn with all manner of plunder that has been thrown away to lighten up the loads; wagons that were abandoned to pack through[,] casks[,] tents[,] log chains, guns[,] even clothing" (Keck *"To California"* 2007). They quickly approached the foothills of the Sierra Nevada, which signaled the beginning of yet another arduous stage of the journey. The next day brought much adventure, as the group had to lighten their load once again as they began to cross the Forty-mile Desert. Despite shedding the superfluous gear, the animals struggled under the heat and difficulty of walking in the sand. One of the oxen could not make it to water, so the team left it behind, and Henry and Joseph returned for it later with water and food. The animal, however, was gone when they returned, so Henry struck out looking for it. As it was late, Joseph elected to take a rest in an abandoned wagon while Henry searched. Joseph awoke and discovered an armed "Indian behind some Sage [*sic*] brush a sneaking up towards" him. He gave a shout, sending the would-be attacker running, but the event so deeply frightened Joseph that he would later compose a song about the incident (Keck *"To California"* 2007; Keck *"Letter Home"* 2007).

Henry went hunting on July 29 but returned only with strawberries. Three days later, Henry had better success, returning to camp around noon with a blacktail deer. They sold a portion of the meat for cash, and had also been selling milk from one of their cows as they made their way through the mountains. Someone had even offered to buy two of their cows for 150 dollars (a hefty sum, according to Joseph, as they had purchased

the cows for just ten and twelve dollars back in Iowa), but they turned down the offer because of the valuable milk the cow was producing (Keck *"To California"* 2007).

Joseph walked ahead on August 3rd to explore the relatively small settlement of Weavertown, but found little opportunity for the group there, and the group decided to continue to on Sacramento (Keck *"To California"* 2007). They arrived August 5th, and set about finding work. Henry and Joseph, along with Benjamin Keyes and an unidentified man from their team, found employment digging a well and, although Joseph seriously injured his foot, each of them made twelve and a half dollars that day. Since Joseph was injured, Henry and Joseph let the other two men finish digging the well, and Henry quickly found employment as a cook at a hotel. Joseph reported that Henry's salary was one hundred twenty-five dollars per month, plus room and board for both of them. After his foot healed somewhat, Joseph began working as a clerk at the same hotel (Keck *"To California"* 2007).

The brothers stayed on at the hotel for a month, then moved on to Mormon Island (about halfway between Sacramento and Sutter's Mill, along the American River) to mine, probably gold (Keck *"To California"* 2007). Joseph reported that they worked at Mormon Island for five weeks, earning 450 dollars. Henry and Joseph moved throughout the area frequently, constantly in search of better mining prospects. That fall, they mined in Auburn, Nevada City, Rough and Ready, and Ophir, where they built a log cabin in which to winter over. They made enough money that they were able to send some home to Iowa on at least one occasion (Keck *"To California"* 2007).

Henry and Joseph left Ophir on February 11th and relocated to Indian Canyon, where they were quite successful, bringing in 500 dollars each in five weeks (ostensibly from mining), according to Joseph's journal (Keck *"To California"* 2007). It is important to note that these figures have been taken directly from Joseph Keck's journal and that Joseph seems to have exaggerated at times. For example, on August 1, Joseph wrote that one of their cows "gave six to eight quarts of milk per day through the" Sierra Nevada, a volume which is extremely difficult to believe considering the physical stress the cow endured, such as walking many miles each day, often having little on which to graze. At the end of March, Henry headed back to Ophir, leaving his money with Joseph, who stayed behind in Indian Canyon. During Henry's absence, a man named Mr. Jackson reportedly stole 800 dollars of Henry's money from Joseph. Henry headed back to Ophir early, but was unsuccessful in getting his money back. Early May brought snowmelt and the increased water levels made mining difficult, so the brothers began working in the redwood logging industry. During this time, Henry continued living at their claim in Indian Canyon, while Joseph worked 10 miles away at Bear River (Keck *"Letter Home"* 2007).

In a letter dated June 4th, Joseph extolled the glories of California to another brother back home in Iowa. Besides the climate and abundant fresh produce, he also praised the ease with which one could earn a living. He also included in the letter the song he had written about their journey across the Nevada desert the summer before:

Song on Crossing the Desert by J. A. Keck

1. Dear Brother I will now tell you
What happened unto me
As I was coming 'cross the plains
This golden land to see

2. We crossed the desert in the night
It was a lonesome road
The road was long the sand was deep
We had a heavy load

3. Full forty miles it was across
No water on the way
And many cattle there was left
To rotten and decay

4. As we were coming cross the sand
The heaviest of the road
One of our steers did there give out
And so we left our load

5. We then did turn our cattle loose
And to the water drove
We got them all but one across
We could not make him move

6. Henry and I then started back
To take the steer some feed
We took some water in a sack
For he was much in need

7. 'Twas dark before we reached the place
Where we had left him lay
And when we came upon the spot
Behold he strayed away

8.Henry he then traveled on
To try and find the steer
And I then laid me down to rest
In a wagon that was near

9.I had not laid there very long
Before I locked [sic] around –
And there I saw before my eyes
And Indian on a mound

10. A crawling up on hands and feet
As slyly as a cat
With bow and arrows in his hands
To kill me as a rat

11. The moon was shining very bright
It was a pleasant eve
I gave one yell, the Indian ran
Im [sic] sure I did not grieve

12. For I was left there all alone
Amoung [sic] the savage crew
Without a weapon in my hand
An La, what could I do.

13. And when the Indian he had left
I traveled on the road
Towards the place where we had left
Our wagon and our load

14. I had not traveled very far
Before I saw a tent
I asked them if they had seen
Which way my Brother went

15. They told me they had seen him pass
Inquiring for a stray
He found a train a working him
And coming on the way

16. I saw him coming close at hand
I told him of my fright
We got the steer but could not drive
Him all the way that night

17. We drove him nearly into camp
When it was getting late
The steer was tired and would not go
We left him to his fate

18. I started early back net [sic] morn
To drive the steer to shore
I looked all around for him
And thought he was no more

19. I thought perhaps the Indians
Had drove him off to eat
Thinks I they'll have a jolly time

In eating his tough meat.

20. In the evening when we started back
To fetch our wagon too
We put six yoke of cattle on
And bid that place adieu.

F I N I S

(*Source: "Letter Home June 4th 1851,"* by Joseph A. Keck, transcribed by Rich and Nancy Lowe, 2007*)*

Henry's obituary in the *Keosaqua Republican* (July 18, 1918) stated that Henry returned to California in the spring of 1852 and stayed until 1855, after which he returned to Iowa and married Mary Nixon. The couple settled into the house in which Henry and his parents had moved a year after first relocating to Iowa (Keck *"Early Days"* 2007; *Keosaqua Republican* July 18, 1918). Henry and Mary had five children: Ella, Anna Bell, Sallie, Elmer, and Henry Judson, and many grandchildren and great-grandchildren. Ella and Anna Bell preceded Henry in death, and Mary passed away in 1899, but his other three children continued living nearby. Henry (Figure 30) passed away in the family home (in which he lived with Elmer) on July 5, 1918, at the age of 94 (*Keosaqua Republican* July 18, 1918). Of his thirteen siblings, only two sisters, Lida B. Ralston and Sophia E. Kerr, survived him. The obituary described Henry as "a kind and loving father, a good neighbor and commanded the love and esteem of an extensive acquaintance throughout the country" (*Keosaqua Republican* July 18, 1918). Henry had been a member of the Methodist Episcopal Church for his entire life, and his funeral took place at the church in Utica, Iowa. Henry was buried in Dibble Cemetery in Harrisburg Township (Figure 31).

C. S. Peck & Lady

Charles S. Peck was born in 1834 in Buffalo, New York (Outcalt 1925:60). Charles' brothers, James and John, headed to California in 1849, and Charles followed in 1852. They settled in the vicinity of the Merced River in Merced County, joined in 1853 by Frank, another brother. According to John Outcalt (1925:60), Charles "built the first stone building in Snelling [California]." He moved to Mariposa County at some point, where he mined for six years before heading back to New York in 1859. Upon returning to New York, he married a woman named Adaline Cook, and they had a son named James born in January of 1860 in Buffalo. A few months after James was born, Charles, like Henry Keck and Daniel Tickner, packed up his family and headed back to California, settling in Snelling once again (Outcalt 1925:60) (Figure 32). The following year, Adaline gave birth to a daughter, Jessie (1880 United States Census [schedule No. 1], Merced, Merced County, California; p. 360, family 230, dwelling 227, line 45; June 12, 1880). Around 1865, another daughter, Lydia, joined the family, followed five years later by Addie (1880 United States Census [schedule No. 1], Merced, Merced County, California; p. 360, family 230, dwelling 227, lines 46-47; June 12, 1880). The 1900 Census indicated that Adaline had given birth to five children, but only four survived to that point (1900 United States Census [schedule No. 1] Township No. 2, Merced County,

Figure 30. Undated photo of Henry Keck (image courtesy of Bob Richards, used with permission).

Figure 31. Henry Keck's gravestone, Dibble Cemetery, Van Buren County, Iowa (image courtesy of Bob Richards, used with permission).

Figure 32. C. S. Peck & Lady, Buffalo, NY, Aug 10, 1860 (Register Rock).

California; p. In 1870, Charles and his family still lived in Snelling (1870 United States Census [schedule No. 1], Snelling, Merced County, California; p 249, family 39, dwelling 48, lines 3-9). Charles worked as a brick mason at this time. In 1872, Charles may also have been farming seventy-five acres of land along the Merced River, possibly growing cotton (State of California 1874:315-316). The 1880 Census indicates that Charles was still employed as a brick mason, though he had been unemployed for part of the previous year (1880 United States Census [schedule No. 1], Merced, Merced County, California; p. 360, family 230, dwelling 227, line 42; June 12, 1880). By 1900, the census listed Charles not only as a [brick] mason, but also as a contractor (1900 United States Census [schedule No. 1] Township No. 2, Merced County, California; p. 304, family 362, dwelling 345, line 15). The Peck's daughter, Jessie, continued to live with her parents in 1900, having not married by that point. Charles passed away sometime between 1900 and 1920. The 1920 Census shows that Adaline was widowed and living with her daughter, Lydia and son-in-law William Buskir in Oakland, California, as well as with two of her nephews and a niece-in-law (1920 United States Census (schedule No. 1) Oakland, Brooklyn Township, Alameda County, California; p. 257, family 96, dwelling 72, lines 12-17; January 5, 1920).

Conclusions

The names considered for this project began as just that—names—but have become much more. Vital records, trip journals, ancestry web sites, and many other sources have brought life to the names. No longer just names scrawled in axle grease on Register Rock and Camp Rock, Ida Fullinwider, Daniel Tickner, Henry Keck, and Charles S. Peck were individuals, living at a time most visitors to the Reserve can only imagine. Perhaps they chose to write their names because so many others had before them (Joseph Keck certainly noted that many people had done so at Independence Rock [Keck *"To California"* 2007]), or perhaps they understood the implications of their actions: that they were participating in something greater than their own emigration,

that they were a small part in a mass movement of persons which would forever change the nation.

What may be most surprising is the fact that the individuals considered in this report, with the exception of Charles Peck's wife, Adaline, completed the dangerous westward journey more than once. Daniel Tickner's account of the attack on his family and Joseph Keck's harrowing tale of his near-demise demonstrate that death, whether by accident, suicide, murder, or disease, was always a possibility for everyone who traveled the California Trail. Even a successful journey along the trail, however, did not guarantee prosperity or longevity, as illustrated by Ida Fullinwider's short life. What the trail did guarantee was change: change in location, change in perspective, change in everyday life. While these individuals moved, often frequently, across the landscape in search of new beginnings, Register Rock and Camp Rock stood still, bearing witness to those who passed.

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USDA, NRCS, DOI, NPS
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