Archeological Investigations: Bear River Massacre National Historic Landmark, Franklin County, Idaho

edited by
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Disclaimer

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ABSTRACT

In 2013, the sesquicentennial year of both the Bear River campaign and the establishment of Idaho Territory, the Idaho State Historical Society (ISHS) applied to the American Battlefield Protection Program (ABPP) for funding to survey, map, and evaluate the condition of selected parcels of the Bear River Massacre National Historic Landmark. One of four western Civil War battlefields recognized by the ABPP, the Bear River Massacre NHL was the site of an attack by Federal forces under Colonel Patrick Connor against a large Shoshone village in the winter of 1863. The engagement occurred during the height of the Civil War, and at a low point in Shoshone fortunes.

During the forty years preceding the attack, the Cache Valley Shoshone had undergone a population reduction of almost two-thirds, from 1,400 to 500. The bison, pronghorn, bighorn, elk and deer formerly so abundant in the region were largely gone by 1863. The Shoshones subsisted on smaller game, Mormon charity, and emigrant plunder. Conflicts escalated, culminating in Connor's attack. Four hours of fighting in bitterly cold conditions left the village sacked and burned, at least 250 of the inhabitants slain, and a third of the 200 attacking soldiers dead or wounded.

Although sometimes described as the least known military atrocity in American history, the details of the Bear River engagement are relatively well documented and have been told repeatedly over the past eighty years. Nevertheless, though locally commemorated since 1931 as an important historical site, and placed on the National Register of Historic Places and designated a National Historic Landmark in 1990, little was known of the property's archeological record or its landscape integrity when we began this project. Most of the many available narratives agree on the sequence of events, the numbers involved, and the outcome. However, none of these accounts have attempted to place the fixed historical facts within the dynamic geomorphology of the Landmark. This level of understanding is key to using the property for interpretation, visitation, public education, and management.

We sought answers to four questions:

1. Where was the Shoshone village?
2. Where was the core area of combat?
3. What are the boundaries of the battlefield, and what impacts have affected it since 1863?
4. What evidence survives for earlier occupations within the Landmark?

Prior to and continuing into the fieldwork phase, we reviewed the archeological, historic, ethnographic and ethnohistoric context for the study area, and evaluated evidence for the engagement from written, graphic, oral, and cartographic sources. To the extent feasible, we followed ABPP guidelines in analyzing the order of battle for both sides, while not neglecting tribal interpretations of the attack and its aftermath. A standard KOCOA analysis (key terrain, observation and fields of fire, cover and concealment, obstacles, and avenues of approach and withdrawal) broke the Landmark down into 15 elements. Parts of seven of them were examined during the field investigations reported here: East Plain, Cedar Point, Upper Ravine, West Bluff, Middle Ravine, Lower Ravine, and West Plain.

ISHS contracted with Utah State University Archeological Services (USUAS) to conduct a close-interval pedestrian survey of selected parcels of the Landmark, followed by metal detection survey transects of

selected units, and geophysical survey of up to ten 20 x 20 m blocks. Fieldwork was restricted to properties where we had obtained landowner permissions. The objectives were to locate structures and features associated with the Shoshone village, and evidence for artifact patterning related to the battle. The pedestrian survey covered six acres (2.4 ha) in the north pasture of the East Plain. Geophysical and metal detector survey examined just under 15,000 m^2 (1.5 ha or 3.7 acres), a small fraction of the Landmark's total area (1,691 acres or 684 ha). Nevertheless, the area examined included parts of seven of the 15 KOCOA elements defined for the battlefield. Finally, results of the fieldwork have been noninvasive and nonintrusive.

The historic background research suggested that Landmark surface features have undergone considerable change since 1863. Support from the Idaho Heritage Trust allowed us to retain a geologist from Utah State University (USU) to map relevant Quaternary sediments and develop a radiocarbon chronology for the inset terrace sequence within Battle Creek ravine. The resulting map positions the battlefield within the unstable deltaic sediments of Pleistocene Lake Bonneville. Many surfaces have been continuously reworked by channel meanders, floods, slope failures and landslides.

Analysis of three historic maps, two drafted by soldiers in 1863 and one with the help of witness testimony in 1926, and comparisons of these maps with the current USGS 7.5' Banida quadrangle, Google Earth imagery, and finally with our project-related map of Quaternary sediments, allowed us to model the 1863 channel positions of both Bear River and Battle Creek. These adjustments led us to reposition the Shoshone village and the core area of combat. One unexpected outcome of this analysis suggests that the area of the Landmark could be reduced in size by eliminating the area south of Bear River and west of Highway 91 without compromising historic interpretation.

The field investigations found no unambiguous evidence of the Shoshone village or the battle or massacre. Nor did we find much evidence of earlier occupation within the study area. A single lithic scatter was recorded but could not be dated, while a hearth remnant had a corrected calendar date of A.D. 922 $\pm$ 32. Nevertheless, both the historic background research and the field survey turned up evidence of significant post-1863 activity within the Landmark. Between 1877 and the present, the property has experienced homesteading, farming, and ranching, canal irrigation, a narrow-gauge railway and support community, and a paved and embanked highway, together with catastrophic flooding, landslides and slope failures, and channel changes to Bear River and Battle Creek. During the course of fieldwork and report preparation, plans were advanced by a local canal company, and then set aside by the Federal Energy Regulatory Commission, for a major wetland restoration initiative that would have threatened large parts of the Landmark.

The critical era in the battlefield's history occurred between 1863 and completion of the first upstream hydropower facilities in 1927. These 64 years saw major surface changes within the battlefield. The confluence of Bear River and Battle Creek shifted several hundred meters to the south, and construction of the West Cache Canal, Utah and Northern Railway, the support hamlet of Battle Creek, and the Old Yellowstone Highway destroyed parts of both the Shoshone village and remnant battlefield patterning of artifacts, and deeply buried other parts.

Intact remnants of the 1863 surface probably survive within the Battle Creek ravine, where geophysical signals may mark village features. However, we believe the largest undisturbed portion of the battlefield lies on the South Terrace, where Connor's force bivouacked on the night following the attack. This is

also the area least likely to contain archeological traces of the Shoshone dead and their belongings. We recommend that intensive survey and ground-truthing be focused here in the future.

Despite our failure to find unambiguous traces of either the Shoshone village or the battlefield, considerable tribal and public interest now exists in how the Landmark is managed and interpreted. While the artifact signature of this tragedy is still almost nonexistent, our integration of historic maps and contemporary data has clarified our understanding of the battlefield, avoided inadvertent impacts to human remains, and sparked public and media interest (field tours, newspaper and television coverage, academic research, lectures and presentations) at the local, regional, national, and even international level.

ACKNOWLEDGEMENTS

Several landowners and tenants who farm or lease parts of the Landmark have supported the work reported here. We would like to thank Ralph Johnson of the Ben Johnson Family Farm, Clare Bosen of the Twin Lakes Canal Company, Amy and Jack Lyman, the Lynn Price Family Farm, Ivan and Ramona Jorgensen, Rodney and Karen Peterson, John Cardis, and the executive council of the Northwestern Band of the Shoshone Nation. The tribe is headquartered in Brigham City, Utah with a tribal office in Pocatello, Idaho,

The authors thank Susan Bodrero of the Idaho State Historical Society's Franklin Relic Hall, for providing access to Franklin pioneer diaries, journals, and correspondence, and a framed variant of the 1926 Aitken map of the battlefield. David Matte, Idaho State Archivist, located the miscataloged original version of the 1926 Aitken map.

While Patrick Mahoney emphatically disagrees with our analysis of the battlefield, he has offered alternative perspectives on the significance of the two maps drafted in 1863, and generously shared information from his own researches on the weapons issued to the California Volunteers from the Benecia arsenal. Kenneth Swanson, former director of the Idaho State Museum, offered assistance concerning the firearms likely to have been used by the Shoshones.

Katherine Kirk and the trustees of the Idaho Heritage Trust supported the geomorphic investigations undertaken by Joel Pederson. Su Richards and the staff of the Fort Douglas Museum in Salt Lake City shared their archival and cartographic resources relating to the Bear River engagement. Ken Reid and Ken Cannon acknowledge the assistance of special collections staff at the Utah State University Library, where we reviewed the extraordinary efforts made by the late Newell Hart to assemble a comprehensive archive of the Bear River massacre.

Ken Reid thanks Richard Francaviglia (Willamette University) and Noel Carmack (Utah State University – Eastern Price Campus) for help with the cartography and handwriting of John Henry Martineau. Professor Carmack's long experience with Martineau's work helped clarify the recto-verso content of the map or "diagram" attributed here to both Martineau and Captain George Price. This crucial document was first brought to light by LDS church archivist Scott Christensen in 1999.

Reid also thanks Jacquee Alvord for information concerning her father's original placement of the Daughters of the Utah Pioneers monument on the west side of the Old Yellowstone Highway in 1931, Marc Münch of the Idaho Department of Transportation for the history of the Old Yellowstone Highway and U.S. 91, and riparian plant ecologist J. Chris Hoag for photographs of no-longer-present willow thickets that offer some idea of the "jungle" where the fighting culminated in Battle Creek ravine.

At various times during the fieldwork we were contacted or visited by lineal descendants of original participants, survivors, and eyewitnesses to what happened at Battle Creek on January 29th, 1863. These included Darren Parry and Patty Timbimboo, descendants of Sagwitch, the surviving Shoshone chief; Thomas Howell, a trustee of the Idaho Heritage Trust, descended from Preston Thomas, the Mormon bishop of Franklin at the time of the attack; Marcia Gerard-Walke, great-granddaughter of Edmund Nelson, Jr., one of two brothers from Franklin who led Connor's troops to the crossing then known as

the Nelson Ford; and Ricky Jones, whose ancestor, Private John S. Lee of Company K, 2nd California Volunteer Cavalry, still struggled for disability benefits well into the 20th century for bullet wounds received early in the attack.

Jan Boles (College of Idaho) took many of the photographs used in the KOCOA analysis. Joshua Hood and Houston Martin redrafted the historic maps. Pete L'Orange of the Idaho State Historical Society formatted the final report.

Finally, we have attended the January 29th commemorative event sponsored by the Northwestern Band of the Shoshone Nation each year since the sesquicentennial anniversary in 2013. These experiences at the Landmark – however cold and however deep the snow – have brought the emotional weight of the Bear River tragedy home to us in ways not provided by historic documents, maps, and artifacts. We deeply appreciate the welcome we have received from tribal members and staff of the Northwestern Band, and the support they have shown for the work reported here.

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CHAPTER 1
INTRODUCTION

Kenneth C. Reid

On January 29th, 1863, as the Civil War entered its third and decisive year, the Shoshone winter village of Bia Ogoi ("Big River") was destroyed by five companies of California Volunteers under the command of Colonel Patrick Connor. Three months earlier, Connor had been charged with securing the western sections of the overland mail, telegraph, and emigrant routes linking the Union's eastern with its remote western states and territories. Only seven days earlier, his battalion of cavalry, infantry, baggage wagons, and mountain howitzers, 300-strong, had started north toward Bear River from Camp Douglas at Salt Lake City. An infantry company escorted the baggage train by day, while the four cavalry companies broke a separate trail through the snow by night. Due to harsh winter conditions, only about two thirds of the soldiers completed the 140-mile march and participated in the dawn attack (Connor 1863).

The Shoshone position, barricaded, camouflaged, and alerted, was stoutly defended. Despite the marksmanship and determination of the defenders, destruction was complete. In four hours of fighting, 25 soldiers were killed or mortally wounded, and another 49 wounded severely enough to require surgical attention. Frostbite hospitalized almost as many more. Connor spent the remaining hours of daylight burning the Shoshone lodges, counting their dead and collecting their firearms, rounding up a herd of 175 ponies, and arranging for his own dead and wounded to be brought back across the river into a night bivouac. It had been a hard day, capping a hard week.

It had been much harder for the Shoshones. The count of their casualties varies with reporters and their closeness to the event, but was probably no fewer than 250 dead, with hundreds of survivors left wounded, homeless, and unattended. Connor's after-action report counted 224 dead, and 160 briefly-captive women and children. Two weeks later, Shoshone survivors reported 255 killed to Commissioner James Doty in Salt Lake City (Morgan 2007). Different eyewitnesses put the number of fighting men ("warriors," "braves," or "bucks") involved in the battle at 120, 136, 300, and 308. Reports of the number of men who escaped range between "about a dozen" to fifty, but must have been higher if the higher counts for warriors are accepted. At least some women fought beside the men, and as many as ninety women and children were killed. Bear Hunter, perhaps the most combative headman, was slain, while Sagwitch, another band leader, escaped with a wounded hand. Sagwitch went on to become a Mormon elder and helped convert his fellow survivors to that faith over the following two decades.

Today's Northwestern Band of the Shoshone Nation speaks as the descendent community of massacre survivors. They commemorate the tragedy with a ceremony at the site each January 29th. These anniversaries attract a growing and respectful non-Shoshone attendance.

The Bear River Massacre National Historic Landmark was established by the National Park Service in 1990 (Bearrs and Wells 1990). Prior to that date the property was known locally as the Bear River battlefield, and had been so commemorated since 1932, when the Daughters of the Utah Pioneers erected an obelisk with bronze plaques in a small pullout off present Highway 91, then known as the Old Yellowstone Highway (Hart 1982). The Landmark has a pentagonal shape that includes 1,691 acres of privately owned farm and ranch land in the northern Cache Valley of southeastern Idaho.

During the bitter winter of 1863, a composite band of nearly 500 Shoshone sheltered in as many as 70 lodges, clustered in the willow thickets along Battle Creek on the floor of the ravine. About ten miles to the south, the northernmost Mormon frontier village of Franklin had been established less than three years before the attack. Church doctrine at the time emphasized peaceful coexistence with the

"Lamanites" by feeding rather than fighting them. However, a relationship of increasingly lopsided dependence had evolved between Bear Hunter's village and the Franklin settlers by the winter of 1862-1863.

The Shoshones had helped the settlers through their first year in Franklin by showing them how to harvest native roots, but game became increasingly scarce for both communities. By the time of the attack the Indians had become dependent on Mormon grain and stock for their own survival (Danielson 1976; Heaton 1993, 1995). The ten percent tithe set aside in the bishop's storehouse sometimes threatened to become a virtual commissary for the hungry Shoshones. Tensions simmered in both communities. When Indians from the village killed a few miners attempting to cross Bear River, arrest warrants were drawn up for three of their chiefs by the federal authorities in Salt Lake City. However, by this time Connor had already decided to act.

Connor's defeat of Bear Hunter led to a series of treaties with the Shoshones, opened up the northern Cache Valley for rapid settlement by the Mormons, and – more controversially – contributed to securing parts of the Overland Trail such as the Hudspeth Cutoff and other lines of communication and emigration (Thompson 2013). When Connor's column left Camp Douglas on January 22nd, many Mormons feared his attack would be ineffectual and provoke a Shoshone strike on their own vulnerable communities. However, after the annihilation of the village, local settlers expressed both gratitude to the soldiers, and compassion and care for the handful of wounded Shoshone found on the field in the days afterward.

This interpretive dissonance continues to the present, as differing versions and commemorations of the events of that day have accumulated over time (Barnes 2008). The 1932 obelisk pays tribute to the soldiers and to the Mormon women who cared for their wounds, while the interpretive panels installed in 2005 at a scenic highway pullout on the northern rim of the valley stress the savagery of the soldiers and the innocence and vulnerability of the Shoshones. An internet search will show that the Bear River massacre is increasingly branded and marketed as both the worst and least known disaster to befall Native Americans at the hands of the American army.

Academic scholarship for Bear River traces the same curve. Following the early lead of Rogers (1938), ROTC staff rides and graduate theses from the 1960s and 70s described it as a battle or engagement (Barta 1962; McCarthy 1975; Jensen et al. 1987). However, by the 1980s and 90s, both academic and popular historians had come to understand it as more massacre than battle (Hart 1982; Madsen 1984, 1985, 1990; Josephy 1992). More recently, a feminist academic has rebuked the National Park Service for not re-naming the property the Bear River Massacre and Mass Rape National Historic Landmark (Fleisher 2004).

Tribal perspectives have been generally more muted, but now include Parry (1974) and separate entries in Hittman (2013) on the *Bear River Massacre* and *Sagwitch*. Crum (1994) details depredations of the California Volunteers in Nevada, but does not mention the Bear River engagement in his history of the western Shoshone. Other recent scholarship explores the sometimes contradictory oral traditions of Shoshone families descended from survivors of the massacre (Christensen 1999; Fleisher 2004; Crawford 2007).

In the burgeoning literature of battlefield visitation and dark tourism generally (Carman and Carman 2006; Sharpley and Stone 2009), the Bear River engagement is cited in the same context with the 1864 Sand Creek massacre in Colorado Territory (Greene and Scott 2004), Custer's 1868 attack on the Southern Cheyenne on the Washita (Green 2004), and the 1890 Wounded Knee massacre in Dakota Territory (Greene 2014; see also Clemmer 1995:x-xi and Russell 2014). Continuing into the 20th and 21st centuries, Bear River has been compared with both the 1968 My Lai massacre in Quang Ngai province in Vietnam, and the ethnic cleansing campaigns in the Balkans in the late 1990s (Fleisher 2004:247,250). These examples seem likely to continue. An Idaho historian has recently grouped the Bear River

massacre with "door-to-door searches in Baghdad and the carpet bombing of Hanoi" (Shallat 2013:23). A current scholarly overview titled *Ethnic Cleansing and the Indian* declares the Bear River massacre "the worst war crime ever committed by American soldiers against Indians" (Anderson 2014:244).

Most of these comparisons are casual and superficial, and offer little historical insight or instruction. For example, no one seems to have attempted a controlled comparison of the 1863 Bear River battle and massacre with the surprise attacks by the army on other winter villages in the west during same decade: Sand Creek (1864), the Washita (1868), and the Marias (1870). The four engagements differ significantly along scales measured by innocent or helpless lives lost, how captives were taken and treated, the level of resistance offered by Indians as reflected in army casualties, and the kinds of self-criticism they prompted in the army and the federal government afterward.

The Idaho State Historical Society focused on the site in 2013 because the 150th anniversary of the attack coincided with Idaho's territorial sesquicentennial. Recognizing that the location of this engagement will provoke continued public and academic interest, we sought a grant from the American Battlefield Protection Program (ABPP) to locate and map the boundaries of the battlefield, and determine whether -- and where -- portions of the Shoshone village might survive as intact archeological deposits. This information is needed for long term management and legal protection of the Landmark's intact remnants. The Northwestern Band of the Shoshone Nation has also expressed interest in the interpretive potential of the Landmark. From sorting through written sources, eyewitness and hearsay testimony, and several generations of oral history and tradition of both settlers and Shoshones, we hoped to learn, first, what could have happened that day, second, what probably did, and finally, where to look for surviving traces of it (Reid 2014).

After the grant was awarded, the Idaho State Historical Society contracted with Utah State University Archeological Services to perform the archeological fieldwork. This included surface survey, intensive close-interval metal detector survey, laboratory analysis of collected artifacts, and geophysical survey, including magnetometry and ground-penetrating radar. A subsequent technical assistance grant from the Idaho Heritage Trust funded the geomorphic reconnaissance and mapping of Quaternary units within the core area of the battlefield.

The report has seven parts. Following this *Introduction*, the *Site Description* (Chapter 2) describes the Bear River Massacre National Historic Landmark. The *Historic Background* (Chapter 3) provides detail relevant to the property's status as a National Historic Landmark as well as one of four western Civil War battlefields. This section evaluates various sources of historic information in terms of credibility and reliability, examines changes in interpretive tone over time as the engagement became commemorated first as a battle and later as a massacre, and concludes with a description of the attack and aftermath. The *KOCOA Analysis* (Chapter 4) identifies and describes the fifteen landforms that structured the progress and outcome of the engagement. Additional funding provided by the Idaho Heritage Trust supported a geomorphic reconnaissance and mapping of Quaternary sediments, summarized here as *Results of Geomorphic Investigations* (Chapter 5). The archeological field and laboratory studies include the geophysical fieldwork, limited ground-truthing of metal detector and magnetometer signals, and laboratory analysis of recovered artifacts and features (Chapter 6). The concluding *Assessment* section describes outreach and consultation, progress toward achieving goals, and archeological and management recommendations (Chapter 7).

Appendices include Archeological Survey of Idaho site inventory forms for 10FR70, 10FR71, 10FR72, and 10FR73; a completed Battlefield Questionnaire; and the original National Register of Historic Places nomination form for the Bear River Massacre National Historic Landmark.

CHAPTER 2
SITE DESCRIPTION

Kenneth C. Reid

In 1990 a Bear River Massacre Site National Historic Landmark nomination form was prepared by Edwin C. Bearss and Merle Wells. The Landmark boundary is shown in Figure 2.1, based on the USGS 7.5' Banida quadrangle. A draft special resource study and environmental assessment for the Bear River Massacre NHL was prepared by an NPS team in 1995. Ten years later, the Idaho Department of Transportation incorporated information from these documents into an array of seven interpretive panels at an overlook and turnout off U.S. Highway 91, north of the Daughters of the Utah Pioneers obelisk.

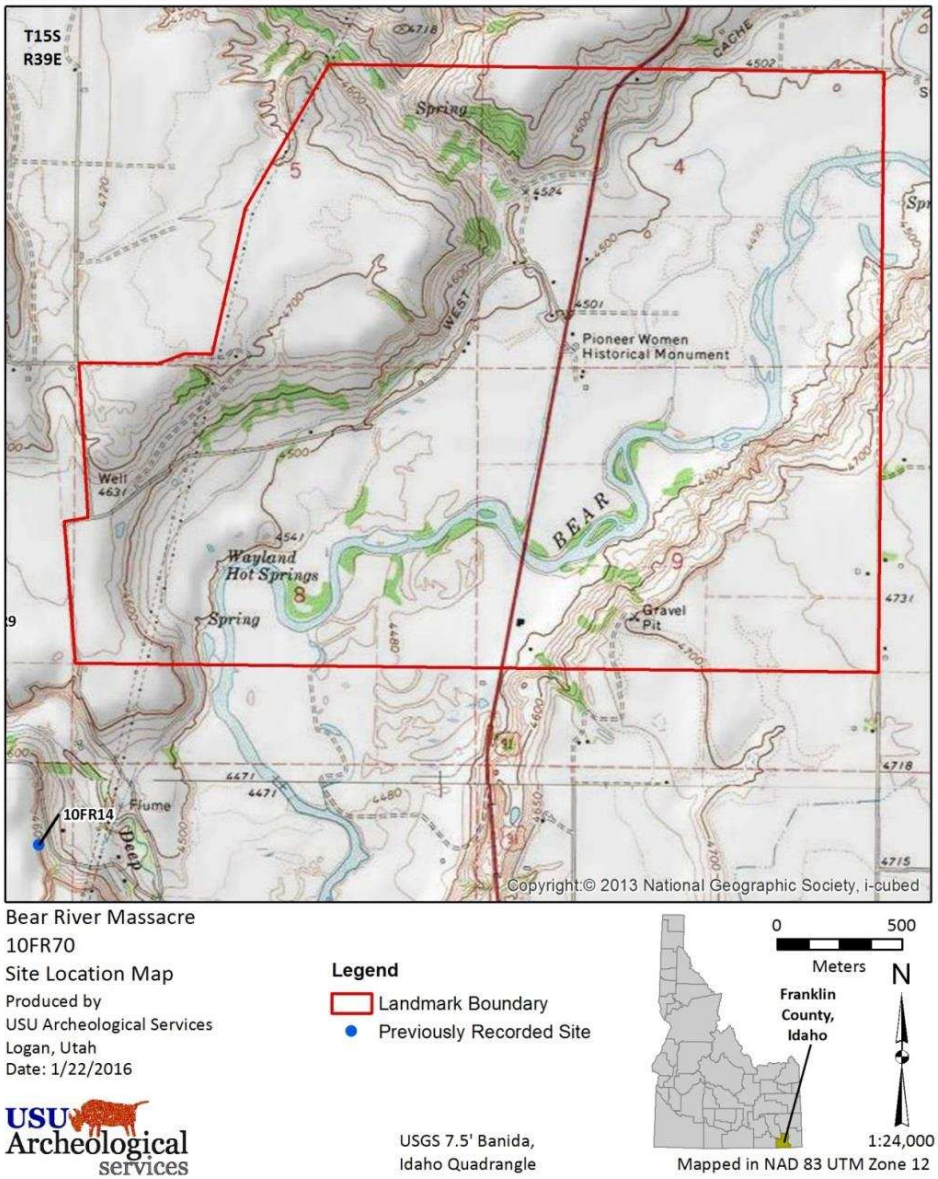

Figure 2.1: The Bear River Massacre National Historic Landmark

According to the American Battlefield Protection Program's September, 2012 *Update to the Civil War Sites Advisory Commission Report on the Nation's Civil War Battlefields* (draft v.6 for public review), the Bear River Massacre National Historic Landmark is classed as having had an observable influence on the outcome of a campaign, with a land use/threat key ranked as "slow and cumulative." The condition key is graded as "little change to the landscape." The site's priority rank has been raised from 3 to 2 since 1993; in other words, from having short- rather than long-range landscape scale protection opportunities. The property is recognized by the National Park Service as one of four western Civil War battlefields. However, the site had never been recorded for the Archeological Survey of Idaho inventory, and did not have a Smithsonian trinomial.

The Landmark includes 1,691 acres. All of it is privately owned except the right-of-way for U.S. Highway 91, and a 19-acre parcel with a seven-acre buffer purchased by the Trust for Public Land in 2003, then transferred to the Northwestern Band of the Shoshone Nation. At least 28 landowners held title to parts of the Landmark when it was established (Figure 2.2). For the planned field investigations in the **Core Area**, we have secured letters of support from the Northwestern Band of the Shoshone Nation, the Price Family Trust, Ivan and Ramona Jorgensen, and Rodney and Karen Peterson. Landowners with the single largest fraction of the property, the Ben Johnson Family Farm, denied access to their land.

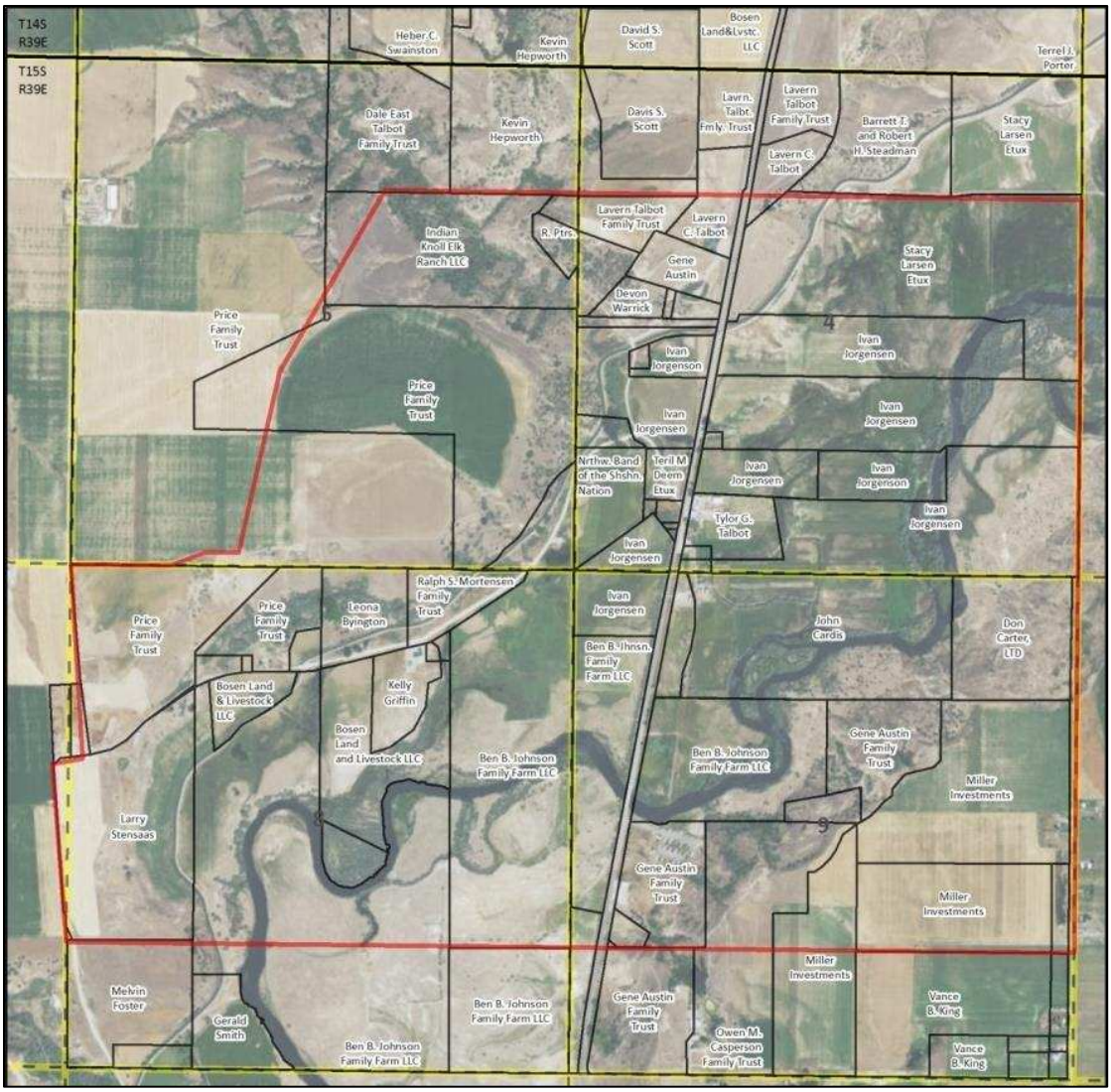

Figure 2.2: Landownership of the Bear River Massacre NHL

CHAPTER 3
HISTORIC BACKGROUND

Kenneth C. Reid

RESEARCH OBJECTIVES

Our first task was to gather, evaluate, and synthesize surviving evidence of what happened at Bia Ogoi on January 29th. We sought both original and derivative sources containing information relevant to reaching sound conclusions (Mills 2012). It sounds simple but it wasn't. The evidence now available concerning the Bear River engagement includes military, church, and private correspondence, genealogical records, journals and diaries, newspaper stories, casualty lists and a surgeon's report, maps, sketches and diagrams, interview transcripts, oral lore and traditions of both survivor and settler society descendants, and topographic, geomorphic, and archeological field studies of the National Historic Landmark. The background research required careful evaluation of sources, and assessing the motivations of their authors. The fieldwork itself was conditioned more by access, scheduling, weather, and funding.

GOALS

Little archeological information was available in the National Historic Register nomination form for the Bear River Massacre National Historic Landmark. When we began, the property lacked even an Archeological Survey of Idaho site inventory form or a Smithsonian trinomial. Research began with four questions (Reid 2014:19-20).

Where was the Shoshone village? Beginning with the Aitkin map of 1926 (first published in the back pocket of Hart 1982), scholars of the battle and massacre have placed the Shoshone village north of the 1855 Montana Road, in the narrow Upper Ravine between the West Bluff and Cedar Point. The Aitkin map shows the village flanked on the east and west by a "natural breastwork," and a "warriors ambush" on the east side of the Lower Ravine behind another "natural breastwork 10' high." Aitken places the confluence of Battle Creek and Bear River in an old meander loop about 400 ft. north of the southern edge of Section 4, at about the 4500' contour line. This same meander scar appears on Google Earth (2009) imagery. The Aitken map shows a segment of the "OLD U.N. Ry." running from the old Montana Road to the Battle Creek ravine. This marks part of the Utah and Northern Railway. Most maps in the secondary literature on Bear River follow the Aitken map, whether or not they realize or acknowledge it (Barta 1962; Fleisher 2004; Hart 1982; Josephy 1992; McCarthy 1975; Madsen 1984, 1985; Miller 2008; Rogers 1938; Jensen et al. 1987). However, recently discovered maps (Christensen 1999, Schindler 1999) drawn at the time of the battle, place the village further south in the broader Lower Ravine of Battle Creek, between the old Montana Road and Bear River.

Where was the core area of combat? Earlier scholarship implies a much larger **core area** where the combat and massacre were concentrated. The 1926 Aitken map gives a composite frontage for the village and the warrior redoubt of about 550 m. The village is shown between the West Cache Canal and the 4500' contour, while the "warrior ambush" is located in the Lower Ravine between the 4500' contour and Bear River. However, the 1999 maps imply that combat was concentrated along both sides of the Lower Ravine, that both the village and the pony herd were in the Lower Ravine, and that the **core area** for both the battle and massacre is the Lower Ravine.

Our approach to defining the core areas will employ a modified version of the KOCOA matrix developed by the American Battlefield Protection Program. The modifications reflect the fact that the

battle was fought between regular military units who left a spare but coherent written and cartographic record, and irregular warriors whose survivors left a fragmentary and anecdotal oral history and oral tradition.

What are the battlefield boundaries, and what impacts have affected it since 1863? Our research will show that the Bear River migrated several hundred meters to the south during an unusually wet interval shortly after the massacre. The Upper Ravine between Cedar Point and West Bluff has experienced several landslides in the 20th century. Other impacts documented during this project include the Old Montana Wagon Road (now Hot Springs Road); the dugway or dirt road to Winder Flats; the Utah-Northern railway and its support hub, the short-lived hamlet of Battle Creek; the West Cache Canal, including the earthen aqueduct built across Battle Creek, blown out by the flood of 1911, and rebuilt afterward; the grazing and farming activities that began in 1877 and continue to the present; construction of the Old Yellowstone Highway in 1937; and its replacement by U.S. Highway 91 in 1963.

What evidence is there for earlier occupations within the Landmark? The study area was visited over a twenty-year period by American and British fur trapping companies early in the nineteenth century. It was approached by one of Fremont's exploring expeditions, and patrolled by a regular army unit immediately prior to the Civil War. However, very little is known of the prehistory or early contact history of Cache Valley in terms of tangible cultural properties and archeological sites. We recorded one prehistoric lithic scatter at the surface, and one prehistoric hearth remnant 60 cm below surface in a stream cutbank. Parts of the Landmark do retain a high potential for intact buried archeological deposits.

METHODS

Our methods were straightforward and conventional, triangulating data sources and methodologies within the constraints of time and budget. We sought all available sources, including primary and secondary written documents, interviews with landowners and tribal members, public records, photographs, and historic maps, plan views, and illustrations, and checked them against one another for accuracy and consistency. Methodological triangulation involved integrating archeological, ethnographic, cartographic, historic, climatic and geomorphic observations, both as checks against one another, and to enrich understanding and enhance interpretation.

Archeological Context. Cache Valley supported a succession of quite different land use patterns early in the nineteenth century. Shoshone tradition holds that canyons and ravines warmed by geothermal vents were sought out for their winter lodges and to shelter their pony herds. Obsidian debitage and pieces of fire-cracked rock observed at places within the battlefield boundaries hint that this pattern has considerable but unknown time depth. A hearth remnant exposed in the contemporary cutbank of Battle Creek indicates occupations occurred here as early as 900 years ago.

Unfortunately, we have no reliable archeological evidence for how and where the Shoshone were using Cache Valley in the decades immediately preceding the Bear River attack. The Archeological Survey of Idaho holds site inventory records for only six prehistoric sites within a two-mile radius of the Landmark (Figure 3.1, next page). Few historic or protohistoric Native American sites are recorded in northern Cache Valley. The six closest prehistoric sites are on private land and have been only minimally described. Large-scale looting and repeated episodes of collecting have impacted two of them, Franklin Cave (10FR5), and site 10FR9 above the confluence of Deep Creek and Bear River. The cave is located less than a mile west of Franklin and has been plundered for generations by local collectors and amateur archeologists. From the diagnostic artifacts that have been identified, it may have had a time depth comparable to two nearby rockshelters, Weston Canyon and Standing Rock Overhang, discussed below.

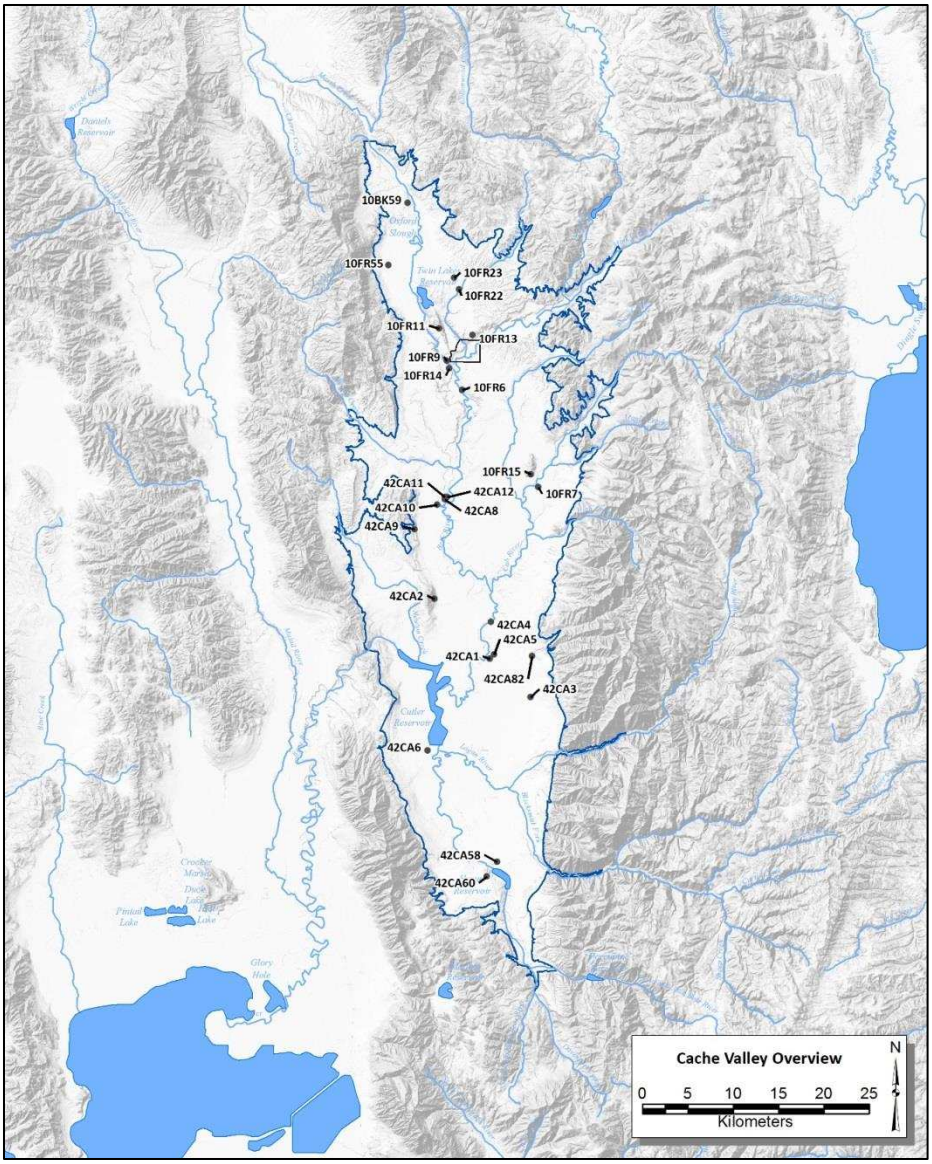

Figure 3.1: Precontact period archeological sites recorded in Cache Valley, Idaho and Utah. (Map courtesy of Utah State University Archeological Services.)

Few precontact period archeological sites are recorded in Cache Valley. The open site recorded as 10FR9 is a poorly documented lithic scatter with at least one pottery sherd and mano fragment, exposed along a 1.6 km-long sandy ridge on a south-facing bluff overlooking the Bear River and its floodplain. Many projectile points and other formed tools are reported to have been collected here by local citizens and high school students, but none have been documented. The sandy substrate and slightly elevated position may indicate a summer camp with good overview and protection from mosquitoes. However, there is not enough information to place 10FR9 in a historical relationship or common settlement pattern with the 1863 winter village at the Bear River Massacre NHL.

Two rockshelters in the Malad Valley, immediately west of Cache Valley, add time depth to the role of bighorn sheep hunting in the area. Weston Canyon Rockshelter and Standing Rock Overhang were seasonal camps focused on the hunting of bighorn herds in spring and fall. The animals were butchered at the shelters, and often heavily processed for bone marrow and bone grease. Standing Rock Overhang

dates to between 3,400 and 1,400 years ago (Miller 1972; Arkush 2008:2-5). Use of Weston Canyon Rockshelter began by 7,300 radiocarbon years ago, and may have continued intermittently until as recently as A.D. 1700 (Arkush 1999:41). Finally, one nearby open site includes an early faunal record. At Malad Hill on the drainage divide between the Bonneville and Snake River basins, a seasonal campsite where deer or wapiti were hunted has been dated to near the time of the climactic Mazama eruption, about 6,800 radiocarbon years ago (Swanson and Dayley 1968:60).

Less archeological information is available to help us understand the tumultuous protohistoric and early historic period, between A.D. 1700 and 1863. On the Fort Hall Bottoms 140 km to the north, late prehistoric house patterns have been sequenced, and a pot-break ceramic scatter associated with a yard hearth has been dated at A.D. 1800. However, the exposed house floors and material culture pre-dated the pot. Dwelling 1, with a floor area of more than 16 m^2 and sturdy posts centered around the central hearth, was dated to A.D. 750 and interpreted as a winter lodge (Holmer and Ringe 1985:65). Dwelling 2, dated to A.D. 1490, was less substantial in size and structure, and was not assigned to a season.

In summary, the regional archeological record establishes the time depth of native occupations, and the foods that supported them prior to the arrival of Euroamericans. Thus, reviewing the historic record of bighorn hunting in southeastern Idaho, Arkush (2008) found that sheep procurement in winter continued to be a dependable subsistence alternative as late as 1839. Rabbit drives occurred in Cache Valley, and bighorn sheep, bison, and pronghorn were still abundant in the late 1830s (Steward 1938:219; Arkush 1999:5-6; Irving 1986:347-359). Bonneville cutthroat trout were available in Bear River, and cisco trout spawned in Bear Lake between early January and late February. At the late prehistoric (but undated) Hemmert site on Bear Lake, more than a thousand cisco trout vertebrae were recovered from a single hearth (Plew 2008:206).

Perhaps the best data we have on a protohistoric Shoshone subsistence comes from the Eden-Farson communal pronghorn kill and processing site in the Green River basin to the east. A single radiocarbon age of A.D. 1708 $\pm$ 163 places the site in the century before contact, when game was still abundant. A Shoshone affiliation is suggested by flat-bottomed brownware ceramics and distinctive bifacial knives. Here in the lee of a dunefield trap, eleven family households clustered in the fall to process and distribute the meat from 174 pronghorn antelope (O'Brien 2013). Similar sites may once have been found throughout the northern Cache Valley.

Ethnographic Context. The *Great Basin* volume of the *Handbook of North American Indians* (D'Azevado 1986) includes maps of the nineteenth century territories of the Northern (p. 286) and Eastern (p. 309) Shoshone. Our study area falls between the two territories and was shared by both groups.

A composite band form of social organization emerged among the western Shoshone for a brief period in the 1850s and 1860s (Steward 1938). A band became "composite" when more than a hundred Indians of two or more bands camped together. Under the heading of "Diggers in Southern Idaho and Northern Utah," Hultkrantz (1956) distinguished the Hukandika (horseless "dusteaters") from the Pengwidika ("fish eaters"), and reports that both groups were camped together at Bear River when Connor's attack occurred. The Pengwidika were also sometimes known as the rabbit-eaters. Their chief was Wirasuap or Bear Spirit, usually known as Bear Hunter to the whites. Wirasuap reportedly was socially and politically closer to Washakie of the Eastern Shoshones than to Pocatello and the Bannocks centered around Fort Hall. Hultkranz (1956:208) also mentions a band led by Tavonasia occasionally visiting Bear River valley.

Composite bands varied internally. Walker (1999:68-72) sees emergent stratification among the western Shoshone in the mid-nineteenth century, with camps comprising shifting mixes of an equestrian, bison-hunting elite, a secure "middle class" supported by reliable salmon fisheries below Shoshone Falls, and a poor pedestrian proletariat subsisting on seeds and small game. How the four or five bands wintering at

Bia Ogoi might fit into this scheme is unknown, though presumably the dust-eating Hukandika would be counted among the proletarians.

From the fragmentary information available, in the mid-nineteenth century the Cache Valley Shoshone comprised a single composite band that wintered in two villages, one near the confluence of the Logan and Little Bear Rivers, the other on Battle Creek (Steward 1938). The San'-pits band numbered 124, the Sai'-gwits band, 158. If the 1863 village at Battle Creek included both groups, this implies at least 282 people. More than a decade after the massacre, two Cache Valley bands continue to be mentioned in the area (Steward 1938:218), when a twelve-family cluster of survivors of Connor's attack were known as "fish eaters," *Paŋgwidüka*. During the 1870s, Steward (1938:47) estimated a population density in Cache Valley of one Shoshone in thirteen square miles. He considered this a low estimate that reflected decades of war, disease, and famine.

A source that emerged since Steward's study suggests that the villagers on Battle Creek may have been more numerous than his numbers indicate. Thus, the two independent metrics available as population proxies for the village at Bia Ogoi are the Indian horse herd (discussed below), and the number of lodges. Eyewitness accounts agree that about 70 lodges comprised the village. The 1860 census of regional Shoshone bands compiled by General Frederick Lander used a figure of seven individuals per lodge to arrive at band sizes. His "lower or southern Snakes" or "Salt Lake Diggers" had few horses, fifty lodges, and subsisted "among the Mormons" by a combination of "hunting and plunder" (Morgan 2007:411). They were led by a man whose Shoshone name was unknown but translated as "Long Beard." Whether this band is one of the two identified by Steward's informants is unclear. However, applying Lander's proxy to the 70 lodges at Bia Ogoi gives a wintering population of 490 Indians at the time of Connor's attack.

In a letter of November 10, 1863, James Duane Doty, Commissioner of Indian Affairs for Utah Territory, said that most of the bands of Sanpitz and Sagowitz, and all but seven of Bear Hunter's band, were killed in the January 29th attack (Morgan 2007:315-319). The leader of a fourth band, Ash'ingodim'ah'sm, was also killed in the battle, and a headman of still another band, Nakok, lost an eye but survived (Hultkranz 1956:208). This implies that the village was a composite of at least five bands at the time of the attack.

A Tribal historian believes the site of Bia Ogoi was chosen for a winter village because of the nearby hot springs, the shelter provided by the ravine, and the nearby Mormon outpost of Franklin (Parry 1976:128). The hot springs are located at a considerable distance from the ravine, and could not have warmed the village directly. All sources agree that the ravine itself sheltered the village. But why this ravine instead of any other?

Settling near Franklin but on the north side of Bear River made economic sense for the Indians, given the Mormons' precautionary principle of provisioning hungry natives. The fortified village of Franklin had been established in the spring of 1860, but could not have become economically capable of producing a harvest surplus until late in 1862 (Danielson 1976; Heaton 1995). By then, as Parry notes, positioning a winter village near such a source of stored food was a rational move for the Shoshones. They could claim, coax, or coerce food from the nearby Mormons, and continue to hunt, fish, and gather plants in the upper Cache Valley above Bear River on lands that they still controlled.

Parry reports that a communal "warm dance" was held at Bear River early in January, 1863, about three weeks before the attack. We have found no written accounts that refer to the warm dance or the large gathering of Indians reported by Parry, but the story has become a significant element in Shoshone oral tradition. According to her testimony, the dance was attended by many more Shoshones than those present on the day of the attack. Jason Walker, the former chairman of the Northwestern Band of the Shoshone Nation, has shared similar stories with us, and expressed the hope that battlefield survey may

define the likely locations of the traditional dance grounds. This is not a terrain feature normally included in KOCOA matrices (Table 4.1). It merits some additional discussion and justification as a research objective.

Steward describes the "warm dance" (*yuwai nükai*) as a variant of the circle dance, the most widespread communal dance in the Great Basin (1943:287, 349). His informants told him that it was introduced to the Shoshone by visiting Nez Perce about 1880, nearly a generation *after* the Bear River massacre. The dance occurred in winter for the purpose of bringing a warm wind. His Lemhi and Fort Hall informants agreed that the warm dance took place within a brush corral with a fire in the center of the dance ground. The informants disagreed whether the dance occurred within or outside the camp circle. A man born in the summer led the dance, which followed a circular movement while everyone sang. Hand drums (tambourines) and deer-hoof rattles accompanied the singing. Courting was encouraged and clowns performed. The clowns sometimes dressed as old men with canes, painting their faces with mud that dried and cracked to mimic wrinkles. Prayers and feasting did not accompany the dancing. This trait-list description almost certainly does not do justice to the richness of the experience for the participants.

Other evidence suggests that the ceremonies were probably older than Steward recorded. Thus, while wintering on Bear River in 1834-35, Bonneville witnessed "devotional dances, and chants, and other ceremonials" among the Shoshone that had been introduced by their headman after a sojourn among the Nez Perce (Irving 1986:355-356). If these ceremonies included the warm dance, links to the Nez Perce may have been considerably earlier than those reported by Steward. Other devotional dances persisted along Bear River after the 1863 massacre. In 1870 and 1871, Shoshones and Bannocks converged on Bear River to co-sponsor Ghost Dances (Smoak 2006:118-119). Ghost dancing on Bear River continued until the late 1870s (Brackett 1880).

Historic Context. During the 1820s and 1830s, trappers with the Hudson's Bay and American Fur companies systematically harvested the pelt wealth of Cache Valley. Their journals indicate a much larger native population early in the nineteenth century. Peter Skene Ogden of the Hudson's Bay Company estimated two hundred lodges of Indians along Bear River in the winter of 1825. The following winter the American trapper Jedediah Smith also reported two hundred lodges in Cache Valley (Atkinson et al. 1962:264). Using Lander's calculation of seven Indians per lodge, this implies a population of 1,400 Shoshone.

The stream now known as Battle Creek was called Beaver Creek in 1863, and the valley takes its name from caches left there by trappers in the 1820s and 30s. The American trapper William Ashley "came into possession of an immense quantity of furs under peculiar circumstances" somewhere in Cache Valley in 1825. According to one account, his party found and plundered a hidden store left by Peter Skene Ogden's Snake River brigade (Terrell 1968:203).

The British campaign to create a "fur desert" in the Snake River headwaters expanded to occasionally include the Bear, Green, and Weber rivers. Commercial trapping parties, sometimes overwintering or rendezvousing along Bear River, soon thinned out the game in Cache Valley. Thus, on March 11, 1829, Ogden's brigade camped at the mouth of Deep Creek, a short distance downstream from Beaver Creek, long enough to harvest five beavers and two otters. His journal notes record how thoroughly trapped out the lower Bear River had become by his American competitors in the late 1820s (Williams 1971).

Scarcity of game in general became apparent a generation before the Bear River attack. Thus, on August 29, 1843, the German cartographer Charles Preuss, passing through the Bear River country toward the Great Salt Lake, noted in his journal, "The white people have ruined the country of the Snake Indians and should therefore treat them well. Almost all the natives are now obliged to live on roots; game can scarcely be seen anymore" (Preuss 1958: 86). This was penned a full twenty years before Connor's attack.

Mormon pioneers colonized Cache Valley from the south during the 1850s. Early in the spring of 1860, the church dispatched five companies from Provo, Payson, Slaterville, Kays Creek, and Bountiful, with instructions to colonize northern Cache Valley. After pausing briefly at Camp Cove on Cub River, they arrived at the site of Franklin on April 14th. By late summer, the settlers had arranged their cabins in a hollow rectangle with the doors facing inward, toward the corral, schoolhouse, and public well (Figure 3.2). Cattle were driven into the enclosure at night. A vertical log palisade was begun, but abandoned after Connor's attack resolved the threat of rustling Indians.

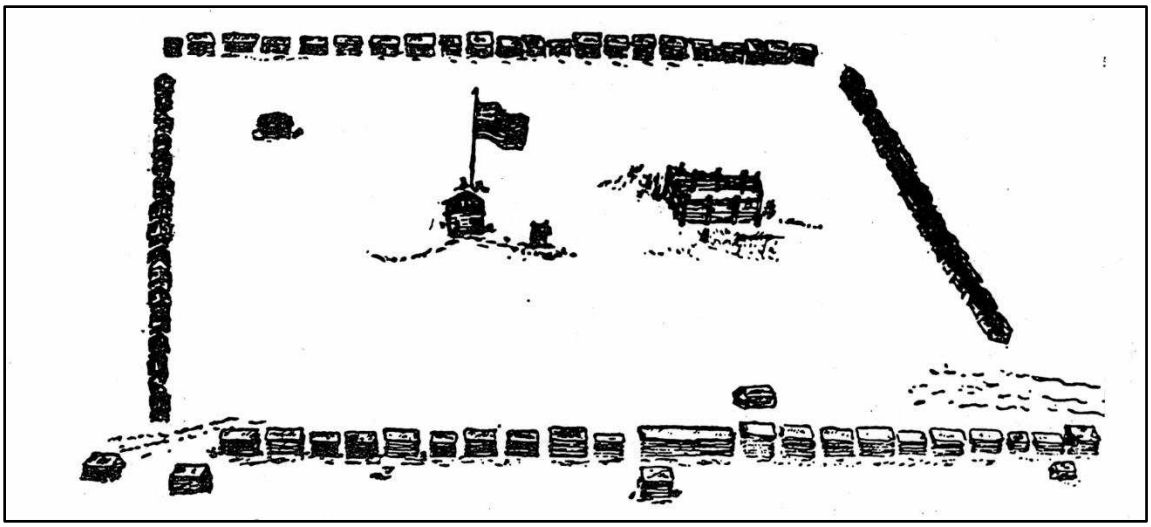

Figure 3.2: Plan of the "Old Fort" of Franklin, Idaho in 1863 (reproduced from Daniels (1930:16).

Euroamerican farmers accelerated all the impacts Euroamerican trappers began. By 1863, this fortified hamlet became the northern outpost of a settler society sprawling along the foot of the Wasatch Front. This thrust up the Bear River was a small wave in a global process of "mass migration, major ecological change, the introduction of new diseases, and a catastrophic impact on the viability of native populations" resulting from ongoing Anglophone colonization of four continents (Murray 2004:6).

The economic plight of the Shoshones continued to deteriorate through the 1840s and 1850s. Emigrant train pressure on native grasses and game was especially intense along the Hudspeth Cutoff and California Trail in eastern Idaho (Webb 2013). For the Shoshone, the Mormon colonization of prime hunting, gathering, and fishing grounds to the south placed Cache Valley as a tightening subsistence vise (Unruh 1979; Walker et al. 2015:125-127).

In 1860, when the Mormons established the Franklin outpost, the local natives were spoken for by a chief named Kittemere, who reportedly welcomed them (Danielson 1976). However, food was scarce for everyone that first year, with the Mormons reduced at times to harvesting sego lilies alongside the Shoshones. As plowed fields and cropped pastures expanded, the hunting pressure on what remained of the valley's game increased. To the new arrivals, the Indians soon became burdensome beggars in their quest for food. Hunger, fear, and anger prompted unpredictable transactions of charity and demand between the Mormon settlers and the increasingly desperate and defiant Shoshones. The narrowly averted "buttermilk war" of 1860 illustrates the emerging pattern (Danielson 1976:41). The Indians pretended to be friendly, and the Mormons pretended to take care of them, but neither pretense was very reassuring to the opposite party.

However, in contrast with the contemporaneous situation in California and Colorado, neither the Federal nor the Mormon authorities in Utah Territory ever called for the extermination of the native peoples. Instead, the correspondence of the Utah Superintendency throughout 1862 reveals two overriding

themes. The first was the desperate economic condition of the natives. Doty recognized the need to establish treaties and reservations and issue annuities to the starving and freezing Indians. The second theme was the growing military threat posed by the same Indians to Mormon settlers, emigrant trains, and the Overland Stage and telegraph lines. However, the widely scattered distribution of the Shoshone, Ute, and Goshute bands made it impractical to negotiate a single treaty with all of them. Commissioner James Doty was charged to use the funds available to treat first with the bands that most threatened traffic and communication (Morgan 2007).

With almost no resources at his disposal, Doty requested troops from California and sought authority to raise a local volunteer militia. At the same time he began searching for competent interpreters, and commissioned printed vocabularies and word lists to facilitate treaty negotiations. His correspondence to Washington, D.C. indicates that he viewed the Indians as a threat to settlement, traffic, and communication, but one caused by their deteriorating circumstances and the absence of treaty relationships with the federal government. The response from Washington was not helpful. Fully engaged by the rebellion in the east, federal authorities heard only part of his plea. The Commissioner of Indian Affairs added to the tensions when he issued an open letter to the public on September 19, 1862, warning of the "numerous, powerful, and warlike" Shoshones and Bannocks imperiling emigrant routes (Morgan 2007:287).

Connor's column of California Volunteers arrived in Salt Lake City late in October. Leaving a string of company-sized outposts along his route across the Nevada deserts, his battalion went into winter quarters at Camp Douglas on a height overlooking the city. The colonel's immediate concern, revealed in a series of dispatches to General George Wright, focused on the threat to the republic posed by disloyal Mormons under Brigham Young. However, military violence against the natives escalated quickly. In response to the slaughter of twenty-three emigrants at Gravelly Ford on the upper Humboldt River, a punitive cavalry raid executed twenty-four Indians before the battalion had even reached Salt Lake City (Madsen 1990:61-63). A few weeks later, a company of the 2nd Cavalry, California Volunteers skirmished with Bear Hunter's hostiles near Providence in southern Cache Valley on November 23, 1862. The Indians lost three dead and one wounded, and sought revenge elsewhere. On December 26, Shoshones ambushed the Savage-Bevins party while crossing Bear River near Richmond (Hart 1982:1-7-111). On January 14, 1863, Shoshones killed two mail riders from Bannock City in Marsh Valley. By then, Connor had settled on a solution to the problem.

This background and context provides a framework for a closer look at the sources relating to the Bear River engagement.

Written Sources. Primary documents begin with Connor's telegram of February 6th to General George Wright, his superior and the commander of the Department of the Pacific, and with the correspondence of Mormon church officials beginning immediately after the attack. These are followed by reports of pseudonymous or initialed "special" or "occasional" correspondents that appeared in newspapers in Salt Lake City and California. Recent research on California Volunteer units campaigning in Arizona during the Civil War found that these correspondents were often soldiers moonlighting as journalists. The pseudonyms were precautionary, since correspondence with the press was officially discouraged or forbidden (Masich 2006:145).

Connor's report to his division commander is a single 16,500-word paragraph. It describes the week-long march to contact, the strength of the Indian position, the initial repulse of McGarry's cavalry, the flanking move, and the Shoshone collapse. A preliminary count of his own casualties accompanies the tally of Shoshone dead and captured. Connor commented on the severity of the weather, the greed of some of the Mormons who provisioned the column as it moved north, and the likely role of Mormon informants in providing intelligence to Bear Hunter's village. The report is drily factual, and lacks the color and emotionally charged incidents found in the newspaper accounts and the oral traditions of survivors.

Nevertheless, all of the after-action accounts dating to the first few weeks in February, 1863 remain broadly consistent with one another.

"Our own correspondent" for the *San Francisco Bulletin* wrote an account of the battle from Camp Douglas on February 7th. It appeared in print on February 20th. He identified himself as a participating infantryman and was therefore a member of Company K, 3rd California Volunteer Infantry. He should not be confused with John A. Anderson, a Presbyterian minister who served as the chaplain for the 3rd Infantry, and who corresponded as "Liberal" in 1862 for the *San Francisco Bulletin* about Connor's march from California to Salt Lake City (Madsen 1990).

Company K of the 3rd Infantry escorted the baggage train and howitzers, and arrived on the East Plain after the attack began. It then formed part of the flanking movement that enfiladed the Upper Ravine. This unit may also have been assigned the task of counting the Shoshone dead, bayoneting wounded survivors, and collecting weapons. Corporal Hiram Tuttle of Company K kept a log (in code) of daily distances and destinations during the campaign. Some family correspondence collected by Hart (1982) indicates that Connor employed Corporal Tuttle to acquire intelligence on the Mormons in Salt Lake City. Perhaps he was also "our special correspondent" to the *San Francisco Bulletin.*

The correspondent for the *Sacramento Daily Union* was identified alternately as "special" or "occasional." His dispatches were written from Camp Douglas on January 28th and February 2nd, 4th, and 5th, and appeared in print on February 7th, 12th, 13th, and 17th, respectively. He used the pseudonym of "Liberal." If he was a soldier at Camp Douglas, it is clear from his dispatches that he did not accompany the column or participate in the attack. Maxwell believes that Liberal was the same chaplain Anderson who reported to the *San Francisco Bulletin*, and that he accompanied Connor's column and witnessed the attack and massacre (Maxwell 2016:188). However, from Liberal's own account, he first met the column when he rode out to meet the wounded at Farmington early in February, days after the massacre. While he did not directly witness the battle, he listened closely to several of the men who did. McPherson (2000) also believes Anderson was Liberal, but recognizes that he was not an eyewitness to the attack.

Liberal's longest piece, written on February 7th, includes these parts:

- Causes of the Indian War in Utah Territory
- Departure of the Expedition Against the Savages
- March of the Infantry
- The Cavalry – a Bitter Ride
- A Pause
- Approaching the Scene of Action
- Sketch of the Battlefield – Strength of the Indian Position
- Daring of the Soldiers to Make an Attempt Under the Circumstances
- The Cavalry, Under Major McGarry, Advance – The Engagement Begins
- The Indians Open Fire – the Cavalry Dismount – Losses
- Col. Connor's Coolness
- A Flank Movement – Our Gallant Heroes
- Progress of the Fight
- Some Personal Notes

Liberal also signed himself as "Verite" in a February 7th dispatch to the *Alta California*, subsequently published in *Tullidge's Quarterly Magazine.*

Another "occasional" correspondent, identified only as Enfield, wrote from Camp Douglas on February 2nd. His account appeared in the *Sacramento Daily Union* on February 12th. His name does not appear in the company rolls for the 2nd Cavalry or 3rd Infantry. The Enfield was a common Civil War rifle and the name may be another pseudonym. Enfield did not participate in the engagement.

A fourth military correspondent identified himself with the initials "W.L.U." in a dispatch to the *Stockton Daily Independent*, printed on February 17th. This is almost certainly Lieutenant William L. Usted, an adjutant on the staff of the 3rd Infantry. Usted apparently remained at Camp Douglas and did not participate in the engagement.

Mormon settlers and church leaders also left accounts of what happened immediately before and after the attack (Martineau 1882; Onderdonk 1885; Nelson 1953; Ricks and Cooley 1956; Hart 1982; Christiansen 1999; Fleisher 2004). As noted earlier, we have found no written sources from nearby Franklin commenting on the unusually large gathering of Indians described by Parry at Bia Ogoi in early January. However, Shoshone survivors and their descendants have had fragments of their stories recorded in print, either by themselves or in researchers' interview transcripts (Timboopoo and Sweeney 1970; Parry 1976; Turner n.d.; Woonsock 1967; Parry and Cuch 2008; Fleisher 2004; Crawford 2008; Hart 1982; Morgan 2007). Over time, more information is likely to come to light from unpublished correspondence, diaries, journals, and other primary documents.

These sources will need to be approached cautiously. For example, the testimony of Samuel Williams, which appears in *Appendix B: The Historian's Craft* of McPherson (2000:73-79) comes from an unpublished autobiography that apparently remains in private hands. Williams claims to have been a cavalry corporal at Bear River, and vividly describes the column crossing the river and being repulsed in the initial fusillade. When his horse was hit it reared and fell, pinning him in the snow with a broken leg and a bullet wound to the mouth that knocked out his front teeth.

Williams' description of the terrain and weather is consistent with other sources. However, his testimony presents other problems. For one thing, no one by that name appears in the muster rolls of any of the cavalry companies, or on the casualty lists. That may not invalidate his testimony, as it was not uncommon for men to enlist under other names. However, the absence of a casualty matching his reported injuries from Surgeon Reid's detailed entries is harder to explain. Other factual difficulties include Williams's recollection of the identity and number of Indians involved (700-800 Sioux and Arapaho), the duration of the battle (ending in mid-afternoon instead of mid-morning), the Californians' casualties (65 dead and 120 wounded instead of 23 dead and 49 wounded), and the four or five days the wounded spent on the South Terrace awaiting rescue while fearing a counterattack when "the squaws told us more Indians were coming." Perhaps Williams did fight at Bear River under another name, and gradually elaborated his recollections with the passage of time and decline of memory. Or maybe he just made it all up.

Graphic Sources. Others certainly did. During the 1930s, two images purporting to show what happened at Bear River appeared. The first is an anonymous sketch titled "artist's conception of battlefield" used to illustrate the narrative in a local historical society's account of the history of Franklin County (Danielson 1930). The viewer's perspective is from Connor's overlook on the Clay Bluff on the south side of Bear River (Figure 3.3, next page). It is of interest in showing the Shoshone village clustered in the same Middle Ravine position where Aitken's 1926 map places it. It includes a sharp eastern bend in the Lower Ravine, where the killing climaxed late in the battle, but without showing the thick willow thickets. However, it errs significantly in showing at least four, perhaps five, howitzers preparing to shell the village from both sides of the river. All primary sources agree that the artillery had no role in the attack.

Figure 3.3: 1930 sketch of the battlefield shows the village in the Middle Ravine, and the eastward curve of the Lower Ravine. This sketch was probably influenced by the 1926 Aitken map. (Reproduced from Daniels 1930:12)

The second image is a mural in the Preston post office (Figure 3.4). Painted in 1941 by Edmond J. Fitzgerald, it portrays warriors in a snowy ravine clothed only in war bonnets and what appear to be red jockey shorts battling mounted cavalrymen against a background of burning tipis. Probably more people have seen this painting than any other representation of what happened at Bear River. It expresses cultural assumptions of its time without conveying any useful information about the site.

Figure 3.4: Watercolor mural in the Preston post office. By 1941 the influence of Hollywood on popular understandings of western history is apparent. (Author photograph)

A sixty-six minute, one-disc VHS tape titled *The Bear River Massacre*, directed and acted by J. Spencer Kinard and Michael Mills, was released in 2000. This was called to our attention by Noel Carmack, but we have been unable to locate or view a copy.

Finally, several captioned photographs taken by Charles Kelly in the 1930s show parts of the battlefield. The photographs are archived at the Utah State University library in Logan. A panoramic overview, taken from Connor's overlook on the Clay Bluff, appeared facing page 68 in Rodgers' *Soldiers of the Overland* in 1938. We suspect this is also one of Kelly's photographs.

Oral History and Oral Tradition. These can be confusing categories for the unwary and it is helpful to distinguish them. Traditions are often accepted as history, and tend to evolve with the needs of their audiences over time. They meet important cultural expectations without necessarily depending on factual

accuracy (Barker 2007:12). For example, tribal veterans often attend the January 29th commemorations at the roadside pullout by the Daughters of the Utah Pioneers obelisk. Each of them might contribute useful oral history about the details of their own military service. However, if we were to interview them about what happened at Bear River in 1863, their replies would be part of a continually adjusted oral tradition with a time depth of seven or eight generations. If they chose to answer us at all, what they said might disclose an emotional faithfulness to their people more important to them than the historical facticity we are obliged to focus on in this report.

These distinctions have to be kept in mind when integrating Shoshone oral testimony with primary written sources. Students of oral history recognize that there is no fixed threshold of reliability in accepting oral testimony or cultural memory as historical evidence. Variables include whether or not the people in question value history, and if so, how historical narratives themselves are evaluated. Chronology is appreciated by some people, and ignored, compressed, or exaggerated by others. The effect of a story on the emotions of the audience may influence how its elements are arranged. The researcher's age, generation, gender, and race may also shape how the story emerges (Burch 1996:131). For example, when Toquitch Timbimbo told his nephew Moroni in 1918, "There ain't no 200 Indians killed. There were less than that," it helps to bear in mind that we are listening to one Shoshone man talking to another, perhaps in a context implicitly limited to other Shoshone men, rather than assuming his statement refers to men, women, and children collectively. Survivors of the attack inevitably recalled and retained different experiences, and the stories they told underwent different emphases and omissions over time.

Another challenge with oral history and oral tradition stems from the mixed membership of the winter village. Families of at least four separate bands were present, but we know almost nothing about how well they knew one another, how closely they were related, or even how long they had camped together. Major McGarry reports that two months before the attack, Bear Hunter's village numbered between thirty and forty warriors when it was camped near Providence in southern Cache Valley. Thus that band couldn't have been at Bear River for more than eight weeks before the attack. However, we know nothing about when the other bands arrived.

In summary, written sources are static, fixed in print, while oral traditions are dynamic and often performative. Anecdotes, episodes, and characters are continually rearranged to make a better or more useful narrative. This is just as true of white as Indian memory. Local landowners today who are convinced that cannonballs originally littered their property may have transferred the use of mountain howitzers at Spanish Fork Canyon in the spring of 1863 to the battle at Bear River, where the same howitzers were snowbound and silent.

A good story, well told to an appreciative audience, can find its way into print and make the transition from tradition to history undetected. To cite another example, the Shoshone oral tradition that Bear Hunter was tortured to death with heated bayonets on January 29th resembles the nearly identical death eleven days earlier of the Mescalero Apache chief Mangas Coloradas in Arizona Territory, also at the hands of California Volunteers (Masich 2006:90). The fact that the first written version of Bear Hunter's death appeared 113 years after the event raises the possibility of anecdotal conflation. On the other hand, the Tribal historian says that his death was witnessed by his wife, who survived by hiding in the brush. Perhaps interview transcripts held at the Tribe can confirm the story.

My approach here has been to privilege testimony recorded in print in the period immediately after the attack. When I could, I triangulated among sources. Thus if two different people independently said the same thing about a number or an incident, and if both of them were in a position to have seen what happened, the evidence gains more weight than a single source writing decades or generations after the event.

Information about events overheard rather than actually witnessed or experienced can also carry authority. Frank Timboopoo Warner's testimony is an example. In a letter to the *Franklin County Citizen* of July 11, 1918, Warner, a son of Sagwitch who survived the massacre as a small child, protested plans to erect a monument to commemorate the slain soldiers. He complained of California veterans who had settled in Gentile Valley, northwest of Battle Creek, describing them as still boasting of dashing out the brains of small children. Warner mentioned one local veteran in particular, Jim Dyer, who called Bear River a "royal battle" and Custer's defeat a "horrible massacre." A check of the company rolls shows that a Private James Dyer, Company M, 2nd Cavalry, was mustered out at Camp Douglas in October, 1864. Presumably, this is the same man referred to by Warner. The muster roll increases our confidence in the newspaper story.

Warner's letter is of additional interest for its effort to tally Shoshone casualties at Bear River. He interviewed an unnamed surviving eyewitness, who reported 73 men, 40 women, and 43 small children killed. The same source said that more than half of those present "got away" (Hart 1982:239). The total of 156 dead is a 39% reduction from the 255 dead reported by Shoshone survivors to James Doty, two weeks after the attack, and nearly a third fewer than Connor's count on the day of the attack. However, the number of reported survivors, assuming "got away" means survived, is close to Connor's count of 160. Warner's tally of eighty-three slain women and children is also close to Martineau's count of ninety "squaws and children" killed.

The oral traditions of the Shoshone descendent community only appeared in a locally published form in 1976, more than a century after the event (Parry 1976). This account represents a family rather than a community tradition, and parts of it are contested by members of other families within the community (Crawford 2008). The Parry narrative conveys an emotional authority combined with many statements contradicted by the primary written sources. Other interview transcripts from massacre descendants include those of Henry Woonsock (1967), Moroni Timbimpoo (Timboopoo and Sweeten 1979), Bruce Parry (2008), Lorena Neaman Washines (Hart 1982), and Turner (n.d.).

Henry Woonsock was a Shoshone born about 1902. His maternal grandmother survived the Bear River massacre. He was interviewed in March, 1967 by Lorin R. Gaardner (Woonsock 1967). They spoke in Shoshoni. His grandmother's story included these incidents:

> *A Mormon warned the village that the soldiers were coming and would kill them, but the Shoshone warriors were confident that they could handle them. The warriors prepared themselves by target practice with spears and rocks. The soldiers attacked and the actual killing began at very close quarters. When the fighting started the chiefs said to the women and children, "You must stay with us because if you leave the rest will leave." As the firing intensified the dense willows began to fall as if mowed by a scythe. The Indians were armed with only bows and arrows but the soldiers had guns. The soldiers left after they shot all the wounded Indians. One little boy feigned death and survived. Some survivors escaped across the ice on the frozen river. Henry's grandmother, herself suffering a shoulder wound, tended the wounds of others. The little boy who escaped was called Taaboci, Brush Rabbit. He was the son of Segwici, Little Muddy Boy. Henry's maternal grandfather, Cikuci, One-Eye Tom, and another man were among those who escaped. Cikuci was wrapped in a buffalo robe which he refused to share with Taaboci. Cikuci caused the attack by raiding a wagon train with two other men. "That was the cause of the Bear River Battle that I have been telling you about."*

Moroni Timbimbo, son of Yeager Timbimbo and Yantach Timbimbo, recalled the following incidents (Timbimpoo and Sweeten 1970). Yeager was a 12-year-old survivor of the battle.

> *"Also he told me the river, Bear River, was come a little north where it used to be now. He look at it and then he said, 'The river is straight down on the south end. It came over there the time the battle took place.'"*
>
> *"… the Indians made a fort, dug a hole. I don't know what kind of a fort they made, but anyway, they had to stay in the fort while they were fighting."*
>
> *Moroni's uncle Toquitch Timbibo "…recalled the Indians who were over there when the battle took place. Then he recalled every one of them [then]. 'There ain't no 200 Indians killed. There were less than that,' he said." After a dream that foretold disaster the night before the attack, one man took his family toward Promontory. They survived. When the fighting ended, soldiers probed the fallen Shoshones with bayonets to determine whether they were dead.* (Since only the infantry were equipped with bayonets, this must refer to members of Company K, 3rd California Volunteer Infantry. These may have been the men detailed to count the Shoshone dead. One of them saw young Yeager feigning death, but spared him). *After dark that night, "All that were saved and escaped had come back. All them that were out there, they had a good warm campfire outside."* (Presumably, this refers to the 160 released captives and the return of survivors who had fled the site during the day. "Good warm campfire" might refer to a large, extramural hearth with a thermal signature not associated with a lodge floor.)

Mae T. Parry's (1976) account includes these incidents:

> *On the night of January 27th, an old man named Tin Dup dreamt of the impending attack and warned the people to break camp. Some families heeded his warning, and survived. On the 28th, a white friend came to camp and warned that the settlers of Cache Valley had asked Connor to come and "settle the Indian affairs once and for all." The villagers were asleep before the attack. Shoshone weapons included bows and arrows, tomahawks, and a few rifles. Winnowing pans and baskets were used to conceal firing positions. Cover was provided by using children's "play fox holes" for firing positions. Soldiers began firing first, without making any effort to negotiate. The massacre began early in the morning and lasted all day. Bear Hunter was captured alive and tortured to death with heated bayonets. Sagwitch escaped on horseback across Bear River after having two horses shot out from under him. He was wounded in the hand, and another Shoshone escaped by holding his horse's tail. A man wearing a buffalo robe swam to safety – none of the bullets could hit him. Some Shoshones survived by feigning death. Soldiers killed all the wounded Shoshones. A twelve-year-old boy named Da boo zee (Cottontail Rabbit), later Yeager Timbimboo, had a close call when a soldier realized he was feigning death. Twice the soldier raised his rifle to shoot, twice refrained, and finally spared the boy and walked away. Soldiers burned the lodges and scattered stores of seeds, nuts, and berries across the snow-covered ground. Soldiers looted the village of valuables and souvenirs, including buffalo robes, smaller pelts, tomahawks, stone axes, willow baskets, headdresses, and bows and arrows. Survivors gathered at a single, still-standing lodge that night. They had no food. Sagwitch's infant daughter was left in a cradleboard suspended from a tree branch. Because of the impossibility of holding proper funeral services for the dead, the Shoshone survivors placed many of the bodies in the Bear River to float downstream. A water burial was better than leaving the dead to be devoured by animals. Survivors watched the soldiers' baggage train leave the camp (the overnight bivouac on the South Terrace). The wagon wheels made a*

> *mournful sound in the snow, and the casualties left a trail of blood. Three weeks before the massacre, thousands of Indians has gathered at Bear River to participate in the Warm Dance. Hundreds of Indians were killed during the massacre. The survivors included men, women, and children, all wounded. One of them built a large fire where the others gathered. News of the massacre spread quickly to other Indians at Brigham City and Promontory.*
>
> *Mourners cut their hair and slashed their arms and legs.*

Her account drew on testimony from thirteen named survivors of the battle and massacre: Sagwitch Timboopoo, Soquitch Timboopoo, Yeager (Da boo zee) Timboopoo, Ray Diamond, Peter Ottogary, Hyram Wo go saw, Frank Timboopoo Warner, Tin dup and family, Bear Hunter's widow, Twenge Timboopoo, Anzie or Anzie chee, Tecka me da key, and Mo jo guitch. At least eight of them were men or boys at the time of the massacre. At least five of her sources were Timboopoo family members.

Mae Parry's description of a sleeping and unsuspecting village is contradicted by the accounts of military participants and civilian observers. Local settler Harmon Zufelt remembered the first shot was fired by a Shoshone, who killed a cook who had gone down to the river for water while McGarry's cavalry awaited the rest of the column at the South Terrace. In this account, a firefight developed at the Soldiers' Ford, and the cavalry pursued retreating Shoshones across the East Plain toward the fortified Lower Ravine. However, all other primary sources say skirmishing began on the East Plain *after* the cavalry crossed the river.

An interview with former Tribal chairman Bruce Parry was made at the Landmark (Parry and Kuch 2008). He emphasized the following points:

> *The Shoshone knew of Connor's approach for two or three days prior to the attack, but instead of dispersing they remained at the site, intending to negotiate rather than fight. Remnants of two or three bands were present on January 29th. Earlier in the month, between two and three thousand Indians had gathered at the site for the winter "warm dance." The actual Shoshone death toll was between 492 and 500. Many of the younger men were hunting about fifty miles to the north toward Soda Springs when the attack occurred. Most of the dead were women, children, and the elderly. The fighting was over in about five minutes "after we shot our few arrows and the four or five bullets we had to hunt."*

Introducing the family recollections of Willie Ottogary, the son of massacre survivor O-ti-Cot-I, Kreitzer (2000:1-2) says the Shoshone shaman and warrior diverted attention to himself during the battle.

> *Family lore relates that his medicine was very powerful, and because of his protective buffalo-robe shroud, he was able to ride through a hail of bullets, and even be hit, without receiving any bodily harm. Well into the fighting he realized that little else could be done and made his escape, though he and others returned later to assist survivors.*

Finally, an oral history interview with survivor descendent Lorena Neaman Washines, excerpted in Hart (1982), said:

> *Many sacred ceremonies were held near hot springs where winters were mild, and that the northern Cache Valley held many places of worship with miraculous powers of healing. "This healing power was the reason why the sick band of Shoshones was*

> *coming to Cache Valley when they were attacked. The massacre victims were mostly the sick, aged, the young, and some wounded warriors."*

Mormon settlers who recorded the attack and its aftermath included Taylor Nelson, son of William G. Nelson, John Winn, James Packer, Jr., Alexander Stalker, and William Hull. Packer. Stalker and Hull were among the first Mormons sent over to inspect the carnage the day after the attack. Taylor Nelson recorded the following points:

> *The reason for the battle was that four Indian chiefs formed a pact that white men would not be allowed north of Bear River. They were Bear Hunter, Sagwitch, Lehi, and Pocatello. His uncles, Edmund and Joseph Nelson, were the guides who led Connor's column to Bear River. The column descended the hill (Clay Bluff) on land owned by Ernest Johnson in June, 1951.The "huge wagons" carrying the infantry and supplies reached the Clay Bluff "at daylight." The reason the Shoshone were not surprised by the attack was that an Indian confined in an improvised shack by the town marshal escaped as the soldiers entered Franklin on the evening of the 28th. His body was recognized among the dead the next day. The fourteen cavalrymen hit by the initial volley fell on a "slight elevation." This was located "almost due east of Mrs. Russel A. Winn's home and North of the present Battlecreek Monument, approximately one city block and east of the present hi-way 91—191." The cavalrymen fell back to slightly lower ground before they enfiladed the ravine. The Bear River had shifted course between 1863 and 1951. It "made a turn a short distance up stream from where the high-way bridge is now located and ran Northwest near the aforementioned home of Mrs. Russell A. Winn."* [The 1951 bridge is the same one shown on Aitken's 1926 map. Nelson did not mention this map in his public lecture, but his description of the 1863 channel conforms to it.] *"The Indians were entrenched on the river and creek and creek banks, each Indian soldier had his own pocket in which he stood and of course looked over the bank as the enemy approached."* [Again, Aiken's 1926 map, which incorporates information provided by James Packer, Jr. (see below) shows a "natural breastwork" ten feet in height, and the Shoshone "ambush" position in the Lower Ravine near the confluence with Bear River, about 120 m south of the village.] *"It was at the junction of the river and the creek where the heavy fighting took place."*

On July 22, 1980, Newell Hart conducted an on-site interview with Heber Winn, grandson of John Winn, who settled on Battle Creek fourteen years after the attack. Heber Winn was born on the battlefield in 1895, in the second remodeled house north of the Daughters of the Utah Pioneers obelisk. He lived there until about 1934. His grandfather was one of the settlers who helped load the wounded soldiers onto sleighs the morning after the battle.

According to his grandfather, the soldiers "made a stand" between his birth house and the monument, but were cut down by the first volley from Shoshones in the ravine. Behind their barricades, "squaws" passed loaded rifles to the "bucks," who "slaughtered" the soldiers. "The commander called a retreat and they fell back a little way." The commander at this point was probably Major McGarry, not Colonel Connor, who did not arrive on the East Plain until after the initial repulse. The engaged troops would have been Companies K and M of the 2nd Cavalry. John Winn told his grandson that the commander made a flanking movement up Cedar Point and told his men to kill everyone in the village. He repeatedly attributes the quote "nits make lice" to him, and says that he gave orders to kill everyone.

Winn's testimony about the opening of the battle is consistent with other accounts. However, his most helpful information concerned post-battle changes in Landmark topography. Thus, in the late 1890s,

Battle Creek exited the cleft between Cedar Point and West Bluff, then flowed around the foot of West Bluff before turning south toward the river. It joined Bear River about three-quarters of a mile south of the monument. The great flood of 1911 washed away the earthen aqueduct that conducted the West Cache Canal across Battle Creek. The sediment was redeposited in the Lower Ravine and filled a low swampy depression in the East Plain that became the Will Carter farm (Hart 1982:274).

Historic Maps. Historic maps have played a crucial role in understanding western Civil War battlefields. A recently discovered strip map of the Sand Creek battlefield and massacre site drafted in 1868 helped archaeologists and historians redefine its boundaries as a park property (Greene and Scott 2004:41-51). Another example of timely mapping of a western battlefield comes from the Steptoe debacle of 1858 on the Palouse. Shortly after that battle, General George Wright had Lieutenant John Mullan and Topographical Draftsman Theodore Kolecki draft a detailed one-inch-to-the-mile, fifty-foot contour map that showed the shifting positions of the Indians and the troops, the places where officers were killed or wounded, and the placements of the howitzers (Emerson 2007:6).

The Bear River literature now includes two military maps that have only recently seen publication. These simple sketches were drafted almost immediately after the attack by soldiers who participated in it. Both maps remained undiscovered and unpublished until 1999, a full 136 years after the event and nine years after the Landmark boundary was established by the National Park Service (Schindler 1999; Christensen 1999).

One was drawn from a hospital bed sixteen days after the attack by William L. Beach, a cavalry sergeant recovering from frostbite (Schindler 1999). Copies of the original and a redrafted version are shown in Figures 3.5 and 3.6 (following pages). The second has been attributed to James Henry Martineau, an accomplished topographical engineer in the Mormon militia, who by the time of the battle was well-acquainted with northern Cache Valley (Christensen 1999; Carmack 2008; Francaviglia 2015). However, because the map's annotations so closely follow the sequence of events given by a newspaper correspondent writing within days of the attack, who mentioned his own use of "Captain Price's diagram," we suspect the sketch was actually drafted by Captain George Price, commander of Company M, 2nd Cavalry, one of the unwounded officers present throughout the action (Figure 3.7, page 38).

Copies of the original and a redrafted version are shown in Figures 3.8 and 3.9. We cannot rule out a collaborative effort on this map, and Price may have worked with Martineau to annotate the sketch shortly after the attack. However, although the verso comments on the back side listing Shoshone casualties appear to be in Martineau's hand, the graphic conventions of the map itself in no way resemble his map of the same area drafted the previous summer (Carmack 2015). Relief is shown by clustered hill signs or single contours rather than continuous hachures and shading, and no scale or north arrow is provided. In fact, only enough of the battlefield topography is given to show the positions and movements of the soldiers. The map's author meant to convey how the battle was won and to record the valor of the officers, rather than detail the battlefield terrain.

The Beach and Price-Martineau maps differ in important details. The sergeant shows the Shoshone lodges scattered along the entire the length of the ravine, from the confluence with Bear River up to the West Bluff and Cedar Point heights that enclose the upper ravine (Figures 3.5, 3.6). The cavalry and infantry units are identified by company and commander, with a separate dot for each of the 198 soldiers who began the attack. However, only 30 Indian lodges are shown inside the ravine, and Sergeant Beach, unlike Captain Price, made no attempt to illustrate the phases and sharp reversals of the four-hour engagement. The depiction is essentially static, showing what happened after Connor's troops crossed the river but before the shooting started. In terms of its temporal code (Wood 1992:125-130), the Beach map displays a future tense and an instantaneous duration. It shows what was about to happen and where, rather than what did happen.

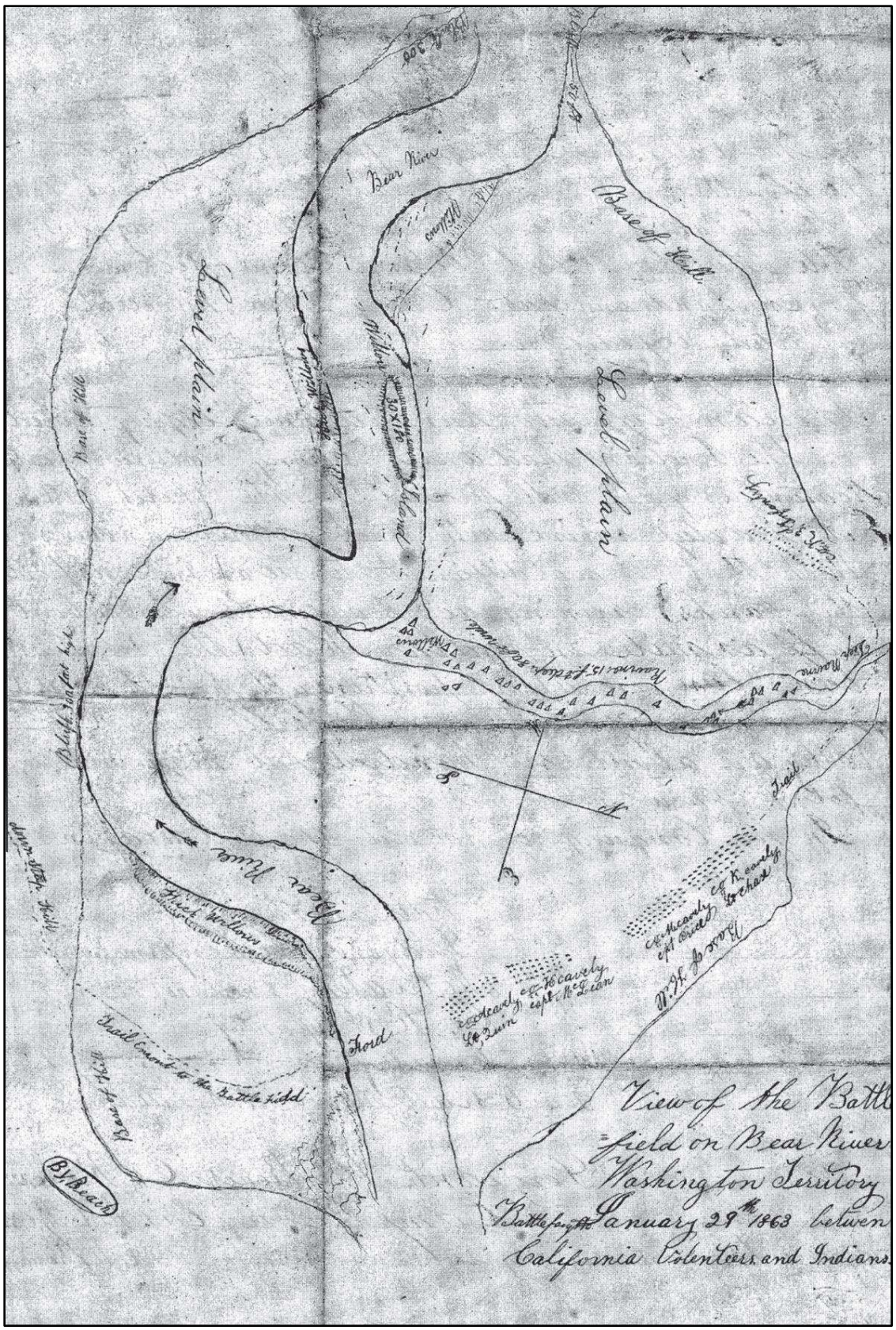

Figure 3.5: Sergeant William Beach's map drawn sixteen days after the massacre (from Schindler 2012).

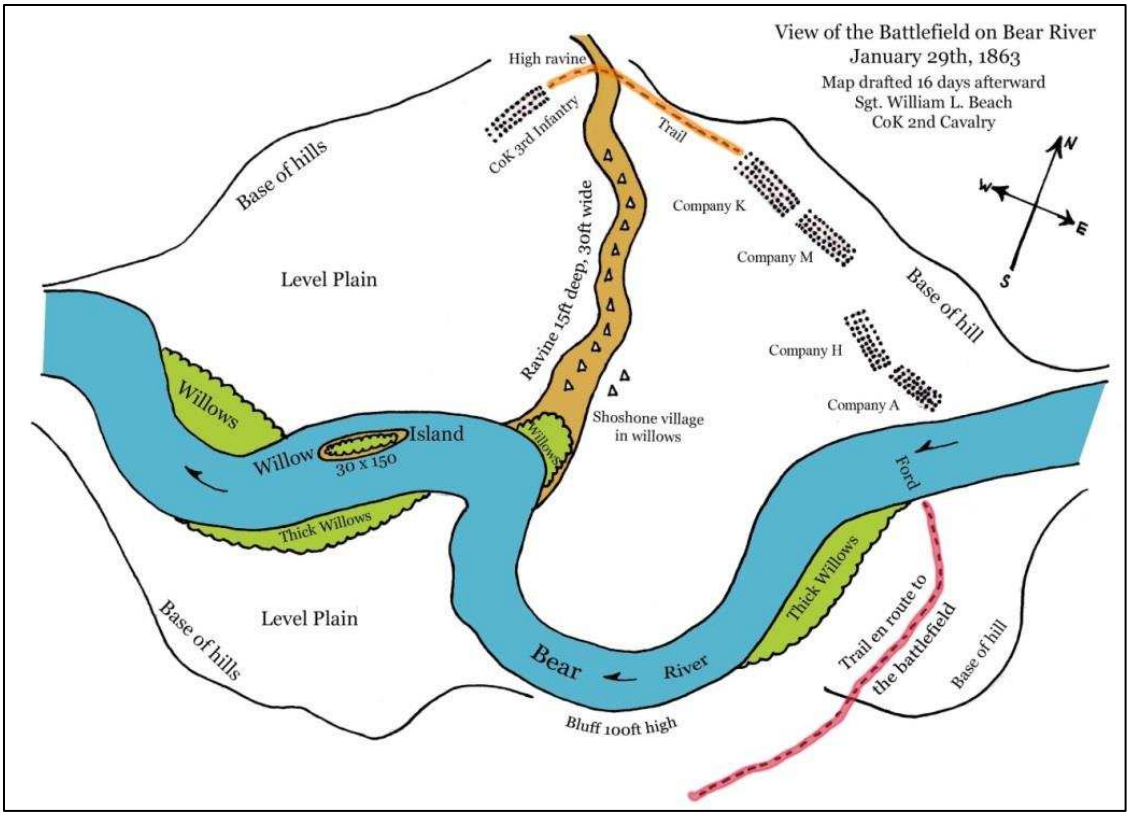

Figure 3.6: Redrafted version of Sergeant William Beach's map of the Bear River battlefield. The four companies of the 2nd California Volunteer Cavalry are shown in their initial positions on the East Plain. Company K, 3rd California Volunteer Infantry, is shown in

Figure 3.7: Captain George Price, commander of Company M, Second California Volunteer Cavalry, and the probable source of Liberal's "Price diagram" of the Bear River battle.

In contrast, the Price-Martineau map employs a dynamic temporal code, with a past tense and an eight-hour, dawn-to-dusk duration (Figures 3.8 and 3.9, next page). All events of note to a participating cavalry captain are included: the initial line of battle for the four cavalry companies, the location of the surgeon's aid station, the line where the horses were held by the "number fours" during the dismounted advance toward the ravine, the line where the heaviest fighting occurred on the east side of the ravine, the infantry detail's flanking movement around the head of the ravine, even the positions where each wounded officer was hit. The length and depth of the ravine are given, with the note that it held "200 horses, 306 braves and 60 lodges." The site of the heaviest fighting is marked along the east side of a slight eastern curve of the lower ravine. Finally, the map shows the position of the howitzers and baggage wagons on the south side of the river, and the soldiers' nearby night bivouac. From a military perspective, everything that happened to Connor's command between first and last light on that bloody day is recorded and sequenced. However, in contrast to Beach's sketch, the location and distribution of the Shoshone lodges is not shown. The map conveys only indirect information on the Shoshone defense in the form of the dashed ellipse lettered "Main force of cavalry engaged." In terms of its temporal code, the map has a past tense and 12-to-24-hour duration.

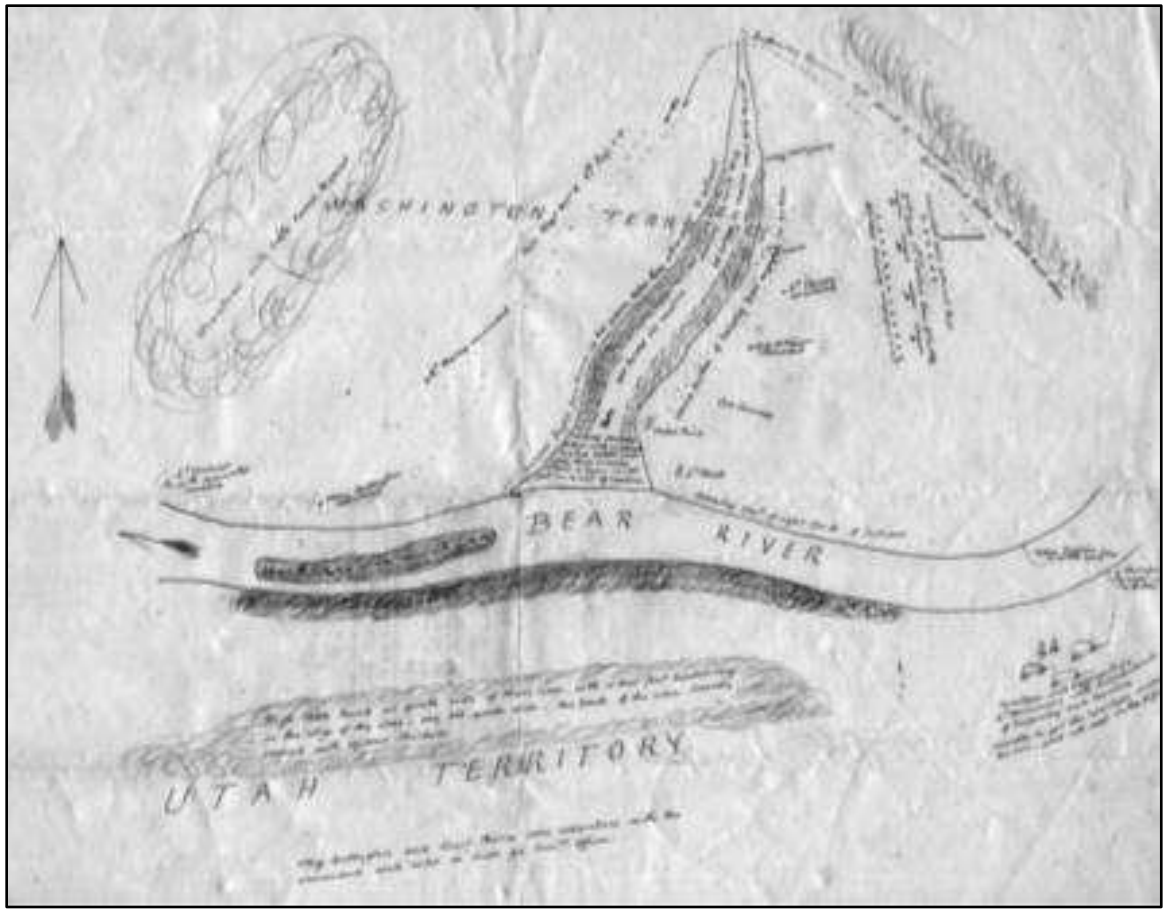

Figure 3.8: The Price-Martineau sketch, probably drafted within a day or two of the attack. (From Christensen 1999.)

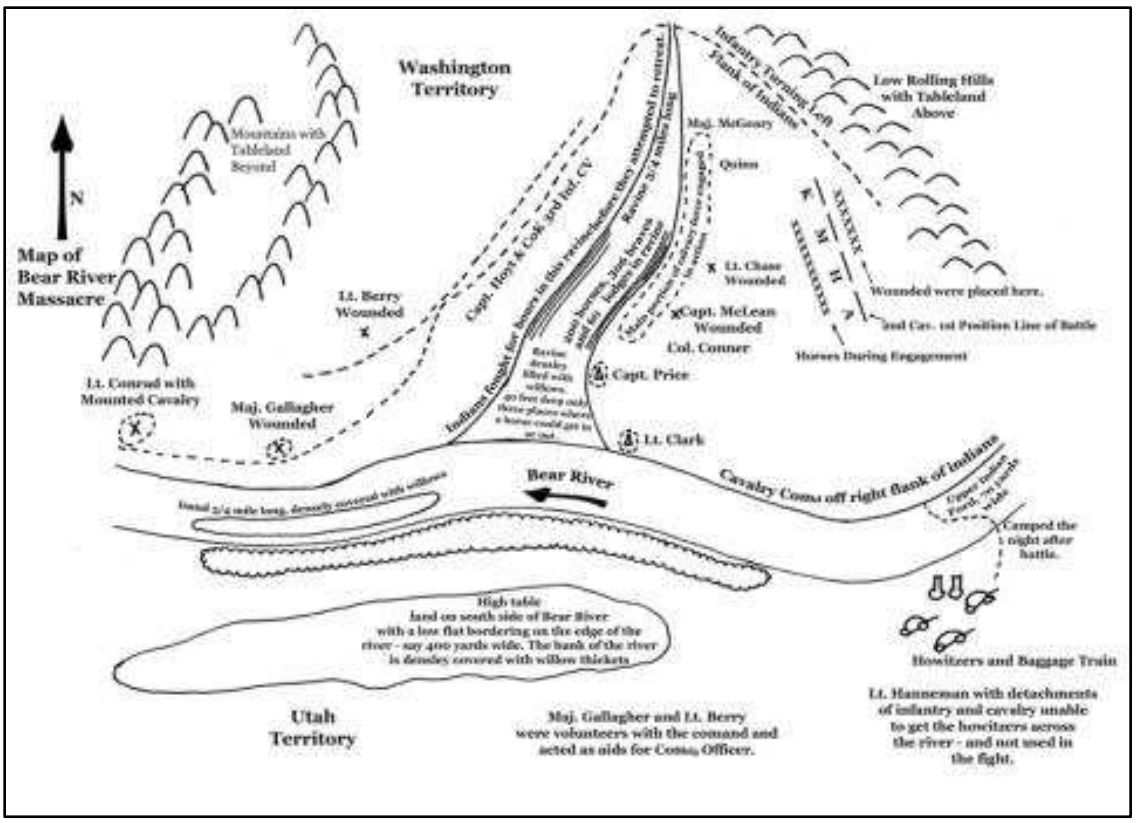

Figure 3.9: Re-drafted version of the Price-Martineau map.

The third map under discussion, titled "Map of Connor Battlefield," was drafted in 1926 by a professional land surveyor named W. K. Aitken (Figures 3.10, 3.11, and 3.12). The map appears to have been commissioned by the Daughters of the Utah Pioneers and does in fact show a proposed monument site, although not in its eventual 1932 location. Despite the florid phrasing of inset texts and invented quotes comparing the site to Thermopylae, the Custer battlefield, and the Alamo, the map stands as a gem of historical cartography. A copy of this map was found in the Franklin Relict Hall, one of the historic properties maintained by the Idaho State Historical Society in Franklin. The original was belatedly discovered in the Idaho State Archives, where it had been miscataloged. Lieutenant Colonel Edward J. Barta, professor of military science at Idaho State College, used the map to reconstruct troop movements and Indian positions in his master's thesis on the battle of Bear River (Figure 3.13).

Aitken anchored his map on the public land survey system with numbered section corners, townships, and ranges, so we can match it to the USGS quadrangles and Google Earth imagery. Relief is shown by 10 ft. contour intervals, a scale of one inch to 200 feet is provided, and the part of the floodplain that he selectively compressed to fit the entire battlefield on the same sheet of paper is shown clearly. Vegetation symbols contrast the willow and brush thickets in the Lower Ravine with the more dispersed junipers on the two cedar bluffs that flank the Upper Ravine.

Most helpfully, Aitken recognized that the channel of Bear River had shifted to the south after the massacre, and pinpointed the former 1863 position of the by-then cutoff confluence of Battle Creek ravine and Bear River. He showed the West Cache Canal (1898-1904), parts of the Utah-Northern Railway (1878-1886), the Old Montana Road (1855), the Bear River-Battle Creek confluence in 1863, the 1926 channel of Bear River, and the 1926 road to Preston that would soon be incorporated into the Old Yellowstone Highway, as well as a proposed monument site for the battlefield obelisk. The temporal code of Aitken's map has both a past tense and a duration covering the preceding 63 years. This duration

includes not only the events of the battle, but the transformations that had occurred to the battlefield in the decades afterward.

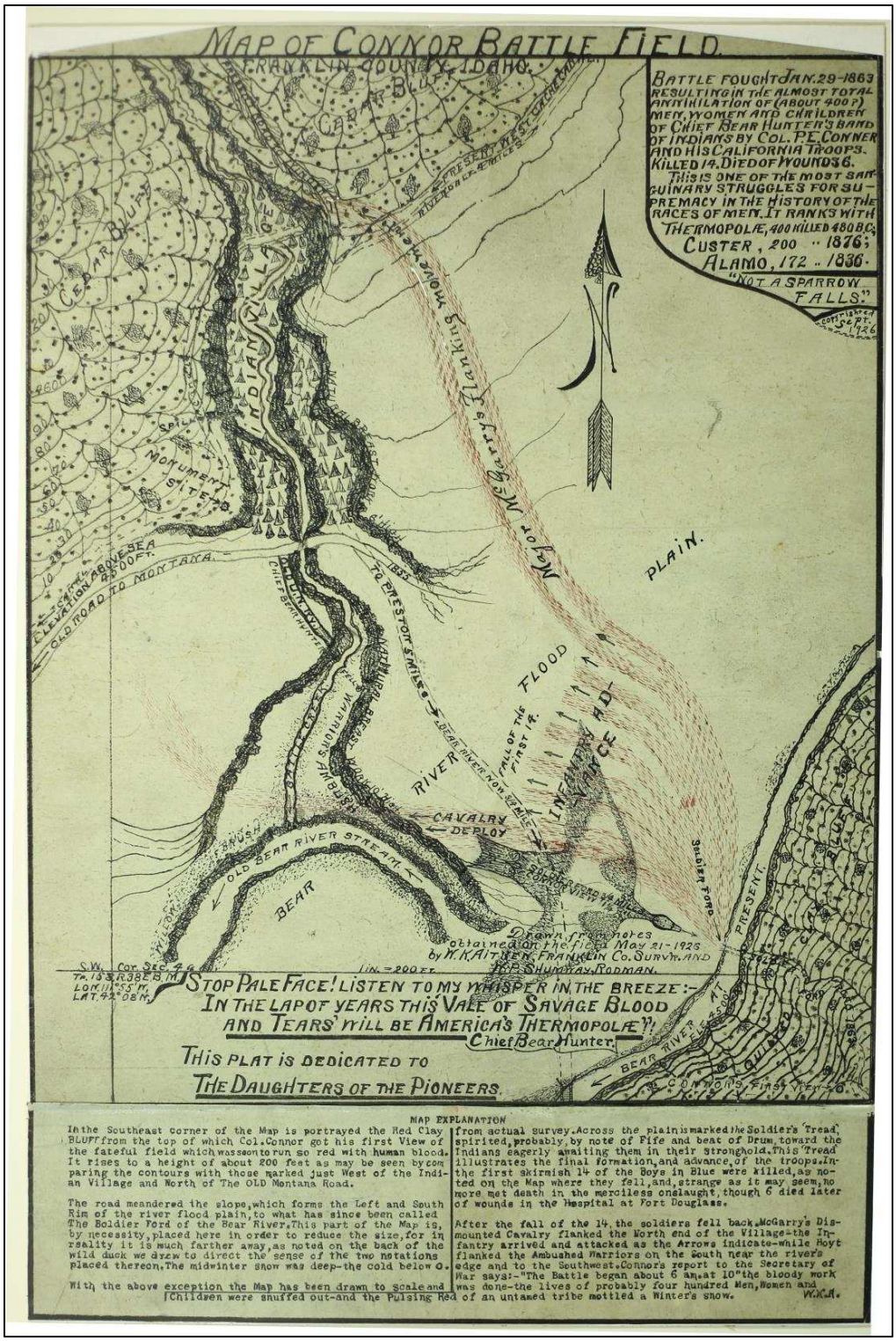

Figure 3.10: W. K. Aitken's 1926 map of the battlefield. (Courtesy of the Franklin Relict Hall, Idaho State Historical Society.)

Aitken's map conveys the major events of the battle in broad strokes: the river crossing, the initial cavalry attack and its repulse, and the flanking move that enfiladed the ravine. Not surprisingly, it lacks the order of battle detail of the Beach and Price maps. Aitken wasn't a soldier and he wasn't there that day. However, most helpfully to archaeologists, two additional pieces of information present on his map are either missing or ambiguous on the maps drawn by the two participating cavalrymen. Thus, Aitken clearly places the Shoshone village in the Middle Ravine between the two bluffs, in the area bounded by today's Hot Springs Road (formerly the "Old Montana Road") and the West Cache Canal, and shows the "natural breastwork" in the Lower Ravine, south of present Hot Springs Road, as the site of the "warriors' ambush." The source of this information seems to have been James Packer, Jr., the son of one of the Mormon teamsters who had conveyed the wounded soldiers back to Franklin the morning after the battle (Hart 1982:j). Presumably, the father had toured the site after the massacre, and in subsequent years gone over the ground with his son.

References cited earlier by Taylor Nelson, John Winn, and Moroni Timbimbo to the changed course of Bear River may also be consistent with the Aitken map. The Aitken and Price-Martineau maps both suggest that the village was located some distance up Battle Creek in the area we define as the Middle Ravine. This is consistent with Mormon eyewitnesses, who had to move "up the creek" some distance from the confluence with Bear River before they came upon the ruined village the day after the massacre.

A second version of the Aitken map with the same date differs in several details, and may have been drafted for a different audience (Figure 3.11, next page). In this version, Battle Creek is shown crossing the "Old Bear River Channel" meander and continuing south out of the frame, as it presumably did in 1926 when the map was drafted. At the south end of the Indian Village, immediately north of the road, a fenced rectangular "camp ground" is shown. This is enclosed in a larger rectangle labeled "Boundary of plat desired marked about 1 ½ acres." Immediately west of the camp ground is a "Wigwam monument." An arrow points up the ravine to a spring 2000 ft. distant. Both versions of the map say about 400 Shoshones were killed. However, this version lacks much of the interpretive commentary shown in Figure 3.10.

The inclusion of a fenced campground beside a (never built) "Wigwam monument" suggests that the second version was part of a local commemorative initiative, perhaps one that began in the 1920s and culminated in the 1932 obelisk on the Old Yellowstone Highway.

Most accounts of the battle indicate that it began with the Shoshone warriors entrenched on the east side of the Lower Ravine, under good cover with good concealment, opening fire on the approaching Californians. From firing steps cut into the ravine wall, they delivered a volley of grazing fire at the dismounted cavalrymen as they crested a low levee or berm and were briefly silhouetted against the early morning eastern sky. Nearly a third of McGarry's force was cut down in these first few minutes of gunfire. Several horses were killed, a few were captured, and others must have been wounded and disabled. Accounts also agree that the battle ended four hours later, in a close-range slaughter dominated by cavalry revolver fire in the Lower Ravine. Heaps of slain Indians eight-deep were met by curious Mormons who ventured into the Lower Ravine the next day. One of the correspondents reported similar sights from his interviews with soldiers on the march back to Camp Douglas.

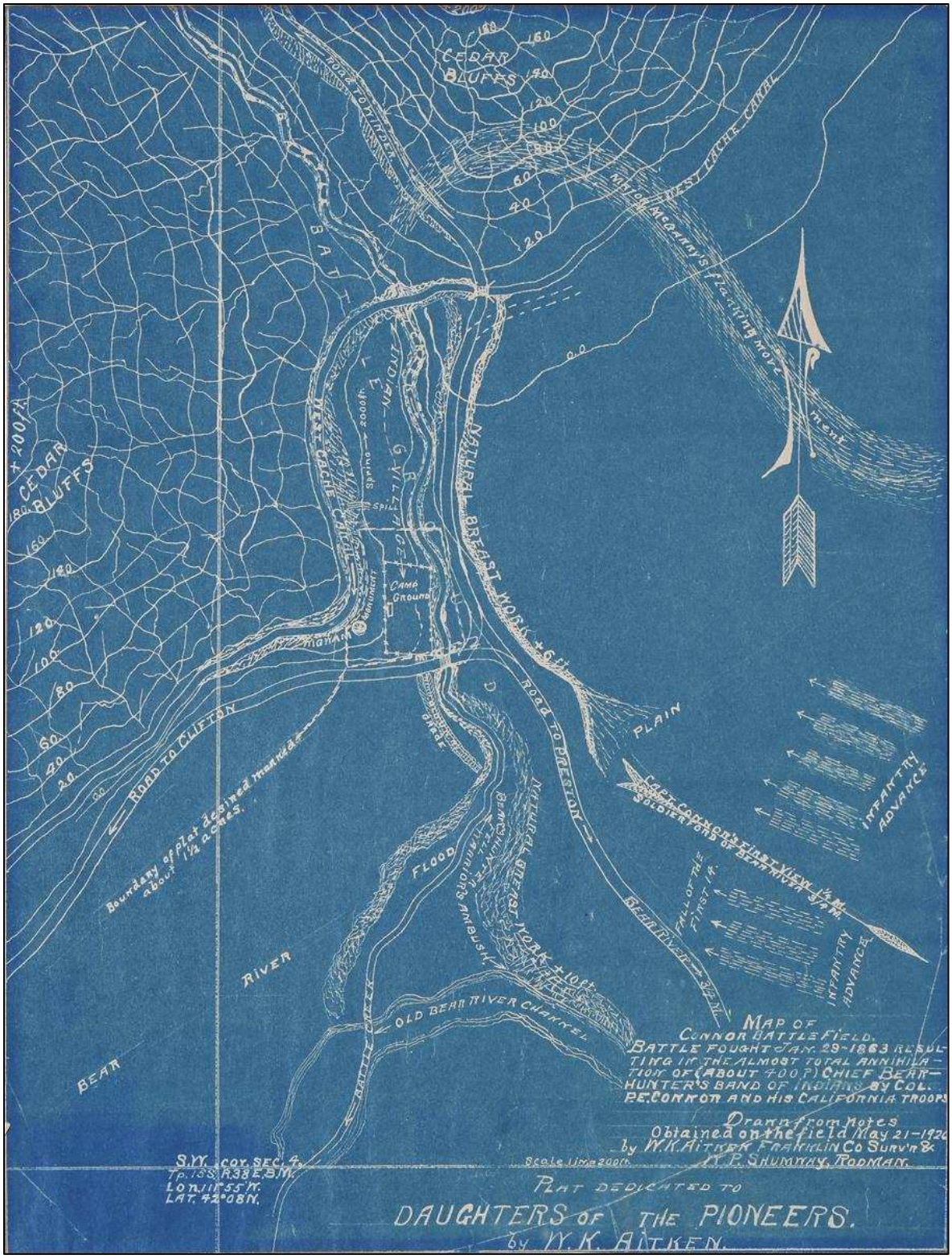

Figure 3.11: Second version of the Aitken map, possibly prepared as part of a local commemorative initiative. (Courtesy of the Idaho State Historical Society).

Aitken's map allows us to follow what happened during the four hours between the initial repulse of the cavalrymen on the East Plain, and the end of the fighting in the Lower Ravine. Assuming that noncombatants remained at their lodges when the battle began, and that these same lodges offered the first target met by the small flanking party crossing the head of the Upper Ravine to enfilade the Shoshone position, the panic and confusion among the Indians must have been great. With the fighting men in the Lower Ravine facing the cavalry, the natural impulse of the women, children, and elderly would have been to flee south away from the approaching soldiers and toward the warriors' position. The collapse of the Shoshone defense in the Lower Ravine could only have been hastened by the arrival of panicked and wounded survivors coming from the very village the warriors thought they were defending.

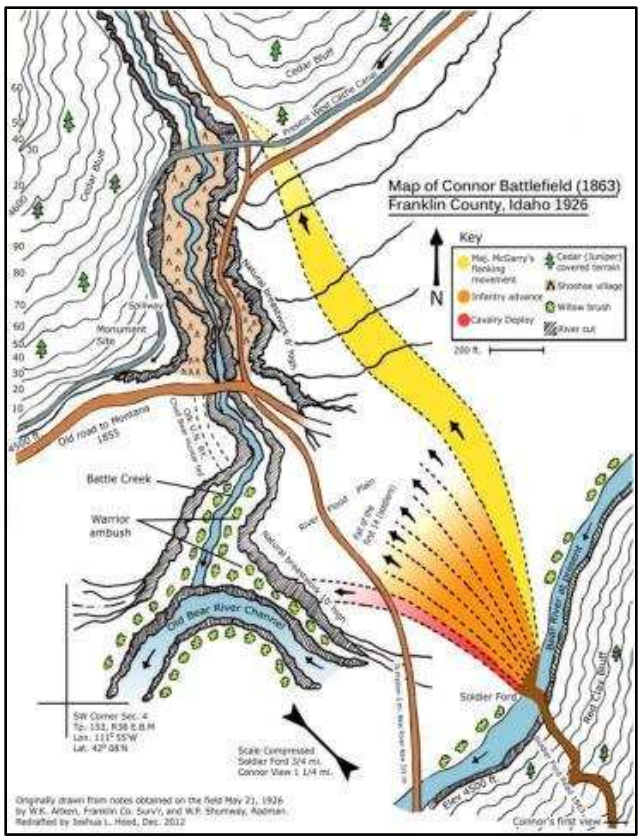

Figure 3.12: Re-drafted version of the Aitken map shown in Figure 3.10.

The final map we consulted is an adaptation of Aitken's map that was drafted by Barta (1962) for his master's thesis on the battle of Bear River. Edward J. Barta was a professor of military science at Idaho State College when he did his research. His map resembles the ROTC staff rides in its focus on the movement to contact of the five companies of Volunteers (Figure 3.13). We will present evidence below suggesting that Barta erred in positioning the ford to the southeast of the Shoshone village. It should instead be about a mile due east, in approximately the position shown by the battlefield map included in the National Register nomination (Figure 7.2). In addition, the four cavalry companies probably began the engagement with a two-company front, instead of four companies in line as shown by Barta:

K M
H A

rather than:

K M H A

These movements will be examined in more detail below.

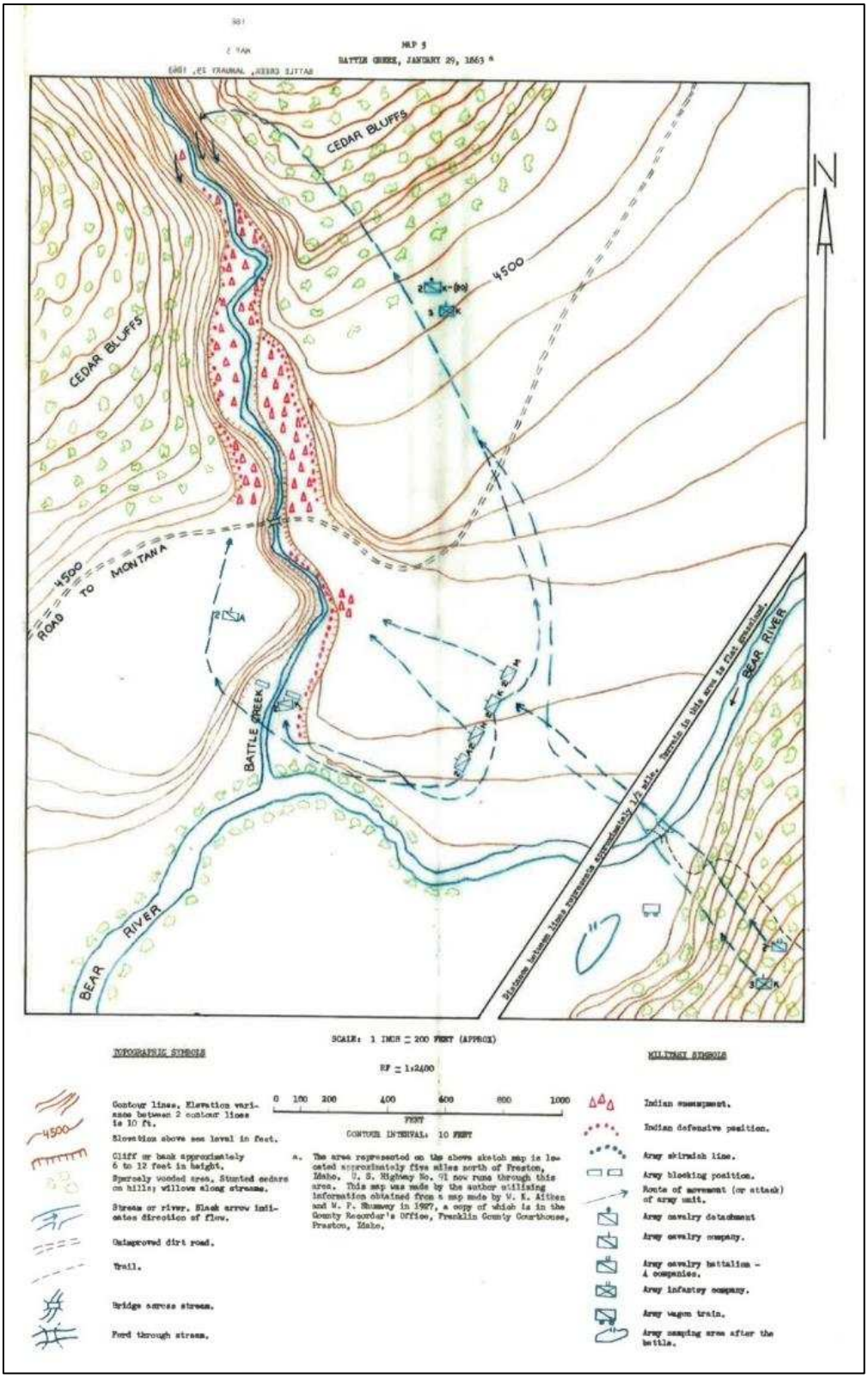

Figure 3.13: Map of the Bear River battlefield based on the Aitken 1926 map, from Barta (1962). This is the most accurate map of the battle in terms of unit positions and movements prior to the appearance of the Beach and Price/Martineau maps in 1999.

With this working hypothesis in hand, we were in a position to begin the geomorphic and archeological fieldwork. Using contemporary Google Earth imagery (Figure 3.14), we will compare and – where possible – superimpose the historic maps on today's Landmark to better understand the boundaries of the battlefield.

Figure 3.14: 2009 Google Earth image of the Bear River Massacre NHL and surrounding area. Note the numerous meanders scars of former channels of the Bear River.

THE BEAR RIVER ENGAGEMENT

Before the Civil War broke out in 1861, northern Cache Valley had experienced only a fleeting Federal presence. The Beaver Creek area and today' National Historic Landmark may have been reconnoitered in August-September 1859, when a regular army patrol of two companies from the 7th Infantry and 2nd Dragoons, later joined by two companies from the 5th and 10th Infantry, formed what became known as the Bear River Expedition under Major Isaac Lynde. Conflict between emigrants and Indians peaked in 1859-1860. Lynde's patrol extended a measure of security for emigrants entering the upper Snake River Plain from South Pass. Traffic along the Oregon Trail that year was heavy. Lynde estimated three hundred wagons per day with an average of four persons to a wagon, accompanied by at least seven thousand head of stock.

War between the Federal government and the Mormon colony had nearly erupted the year before, during the Utah Expedition of 1857-58. Diplomatic efforts on both sides confined the fighting to minor actions and near-skirmishes. In addition, the shadow of the Mountain Meadows massacre hung over military relations with the Mormons. Mormons masquerading as Indians had ambushed an emigrant train in southwestern Utah in 1857, and executed perhaps as many as 140 surrendered and disarmed Arkansans.

A few of the youngest children were kidnapped for adoption, while those older than seven were slain with their parents (Walker et al. 2008:187-209). News of this atrocity circulated widely within the frontier army and colored relationships between officers and Mormon church leaders during the Civil War years.

Relations between non-Mormon or gentile communities and natives elsewhere in the Great Basin grew increasingly violent, usually to the disadvantage of the Indians. However, on one occasion native defenders routed an attacking force of well-armed white men. At Pyramid Lake in Nevada three years before the Bear River attack, Paiute warriors killed at least two-thirds of a hundred-man force of volunteer miners in an ambush perhaps modeled on the traditional Numa pronghorn drive (Gualtieri 2006:219-222).

Many Mormons felt ambivalent about the military presence in eastern Utah. Some thought the soldiers added to the region's tensions without resolving them, stirring up just enough trouble to provoke Indian retaliation on isolated farms. George A. Smith wrote to Brigham Young on January 26th: "It is said that Col. Connor is determined to exterminate the Indians who have been killing the Emigrants on the route to the Gold Mines in Washington Territory. Small detachments have been leaving for the North for several days. If the present expedition copies the doings of the other that preceded it, it will result in catching some friendly Indians, murdering them, and letting the guilty scamps remain undisturbed in their mountain haunts" (Smith n.d.:110). Official Mormon policy emphasized nonviolent displacement of the Shoshone from their traditional lands while compensating them for their losses. It is better to feed them than fight them, cautioned Brigham Young.

By the early 1860s, regional tensions and frictions seethed between the Mormon settlers and the Federal government, between Mormon settlers and the Shoshones, between transient gentile emigrants and miners, colonizing Mormon farmers, and the various native bands, and, on behalf of the emigrants and miners, between the Federal government and the Shoshones, Goshutes, and Utes. No part of the Great Basin was calm. Finally, despite rumors of an emerging confederacy of hostile tribes, the Indians themselves remained divided by family, band, tribe, and dialect. Paiutes, Utes, Shoshones, Goshutes, and Bannocks never organized themselves as a unified force for either negotiation or war.

Following the outbreak of the Civil War in 1861, budget reductions to the Utah Superintendency were keenly felt by the Cache Valley Shoshones, who had become increasingly dependent on Federal assistance. Denied both traditional game resources and government rations, some Indians turned toward booty. By the early 1860s, depredations along the emigrant trails and mail routes had become frequent and severe enough to provoke military retaliation.

In the late summer and fall of 1862, both Little Soldier of the Utes and Washakie of the Wind River Shoshone warned Commissioner Doty of planned attacks by combined Shoshone and Bannock forces. Pash-e-go, a "man of blood," meant to clear the territory of settlers and halt the emigrant traffic (Morgan 2007:278-289). He was rumored to have mobilized two thousand warriors in Utah and eastern Washington territories. A version of this story may have circulated among settler descendentss long after the attack. Thus Hart (1982:256) quotes the Nathan William Packer family history as saying, "Years later, an Indian survivor who escaped the battle, told how five Indian tribes were joining together at Battle Creek, with plans to annihilate Franklin in the spring of 1863."

Connor's mission in Utah Territory was to secure emigration routes, transportation corridors, and telegraph lines that connected the eastern United States with California and the far western territories. After the barely averted war of 1857-58 between the United States and the Federally unrecognized state of Deseret, the Mormons felt little loyalty toward the Union. Secessionist sympathies simmering in several mining camps in Nevada provided another perceived threat to lines of communication. Tensions and frictions among natives, Mormons, miners, and emigrants worsened steadily during the first year of

the Civil War. In September, 1862, after a brief inspection, Connor described the inhabitants of Salt Lake City as "a community of traitors, murderers, fanatics, and whores."

The California Volunteers immediately contributed to the climate of violence. General George Wright, commander of the Department of the Pacific, had given orders to kill all defiant Indian males over the age of twelve, but to spare the women and children. In one week in October, 1862, Major McGarry's cavalry patrols captured and disarmed between 30 and 40 Indians. No fewer than 24 of them were executed as hostages or reported as shot while attempting to escape.

Following several skirmishes and isolated killings late in 1862, Connor planned an attack on the large winter village on Bear River in Washington Territory, where he thought those responsible for the regional violence were concentrated. At the same time, warrants were signed for the arrest of three chiefs thought to be implicated in recent killings of miners near the village. The Federal marshal, concerned for his own safety, asked Connor for a troop escort to serve the warrant. The colonel replied that the marshal could accompany his force, but that his objective was not to take prisoners.

With care and secrecy, Connor planned a winter campaign, night approach, and dawn attack. During the last week of January 1863, his columns departed Camp Douglas, the infantry marching by day, the cavalry by night. His plan involved sending a small infantry force north toward Bear River, with orders to march in daylight and bivouac at night. This was followed by a much larger force of cavalry that moved at night and bivouacked by day. Connor anticipated that the Mormon communities along the line-of-march would warn the Indians of the infantry's approach (Figure 3.15). By the time the ruse was discovered, he hoped it would be too late for the Indians to evacuate the village and escape. Connor was accompanied by the marshal, and Porter Rockwell, the formidable Mormon guide and frontiersman (Shannon 1993:172).

Captain Samuel Hoyt of the 3rd Infantry led the column out of Camp Douglas at 1 p.m. on Thursday, January 22nd. Hoyt and Lieutenant Edward Ingham's infantrymen escorted the baggage train and Lieutenant Francis Honeyman's two mountain howitzers. They were accompanied by twelve cavalrymen from the 2nd Cavalry, California Volunteers. The decoy column marched thirteen miles that afternoon and bivouacked for the night at the Mormon hamlet of Bountiful, also known as Sessions Settlement (Figure 3.15).

Connor's cavalry column left Camp Douglas in a snowstorm late on the afternoon of the 25th, then marched 68 miles to Brigham City through the pitch blackness of the last night of the new moon in a single grueling march. Perhaps coincidentally, on that same day Connor's arch-foe, the ever vigilant Brigham Young, had married his twenty-fifth and soon to become his favorite wife, the young Amelia Folsom (Wheeler n.d.). Connor's whereabouts may not have been the first thing on the mind of the 61-year-old not-so-young Young that Sunday afternoon. On the other hand, Young's trusted bodyguard, Orrin Porter Rockwell, served as Connor's guide through Box Elder valley and over the divide into Cache Valley. It is unlikely that Rockwell could have been hired without Young's knowledge. In any case, Connor's security precautions succeeded, and any warnings from Salt Lake City of the cavalry column's departure seem not to have reached Bear Hunter's village.

The next day the infantry covered the twenty-five miles to Weber River. On the 24th, they marched eighteen miles to Willard. On Sunday, the 25th, they pressed on fourteen miles to Empey's Ferry on Bear River. On Monday, they marched twenty-five miles to Mendon. Connor and the cavalry column rendezvoused with them that night. The entire force rested and reorganized for a day. The infantry left Mendon at midnight on the 28th and after a thirty-mile march the entire column rendezvoused again in Franklin the following night (Figure 3.15, next page).

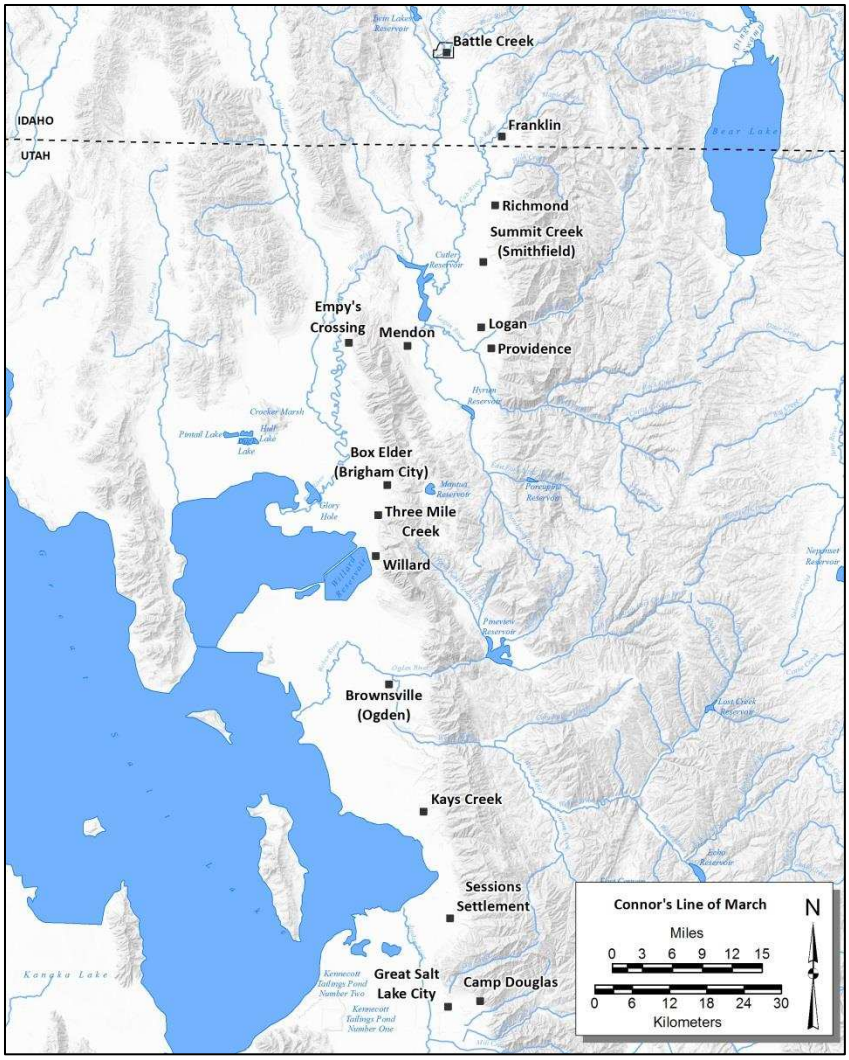

Figure 3.15: Line of march for Connor's column from Camp Douglas to Battle Creek. (Reproduced from Hart 1982:115).

The temperature reportedly hovered near 0°F with two to three feet of snow drifted in places (Hart 1982). By the time the Californians straggled into the Franklin quadrangle, a third of the command had fallen out along the route. Of the 220 cavalrymen who began the march, eight had been left behind in Brigham City, another twelve to sixteen at Mendon, and several more at Smithfield. Hart (1982:140) estimates that a fifth of the force had been disabled by cold and fatigue by the time it reached Franklin. If correct, Major McGarry's command went into action the next morning with perhaps 180 men. However, if Sergeant Beach's map is read literally, the five companies that made the attack the next morning had a complement of 198 men. Connor's report said that only 200 of his men had been engaged.

The exact number remains unknown, but a force of 180 cavalrymen and 20 infantrymen is plausible. Fatigue, hypothermia, frostbite, hunger, sleeplessness, and fear took a toll during the 140 mile march. Given the pace of their approach, lack of sleep alone must have affected the entire command. Field experiments show that soldiers who get four hours of sleep or less over a period of several days experience cognitive but not physical impairment – they can fight but they can't reason effectively (Haslam and Abraham 1987). The men who crossed Bear River the next morning were not thinking as clearly as the men who were waiting for them.

Before reconstructing the battle sequence, it is first necessary to examine the order of battle for both the California Volunteers and the Shoshone defenders. The two forces will be compared in terms of leadership, strength, weaponry, mobility, and tactics. As any visitor to the site soon learns, the Bear River engagement has been commemorated and interpreted as both a battle and a massacre, so it will help to explore how these terms have changed over time. For the California Volunteers, we will therefore examine their rules of engagement, and for the Shoshones, their defenses.

MASSACRE, BATTLE, OR BOTH?

For the purposes of this report, we follow McCarthy (1975:40), and distinguish between "engagements," "skirmishes," and "actions." These terms were in common use by both sides during the Civil War. Engagements include battles and massacres where heavy contact results in casualties despite the availability of cover and concealment. Skirmishes involve moderate contact, but the available cover and concealment continue to offer protection and minimize casualties. Actions are minor contacts between opposing forces that do not generate casualties.

"Massacre" is a charged term, and distinguishing a massacre from a battle sometimes becomes a distinction without a difference. For example, according to the *Guidelines for Bias-Free Writing* put out by the Association of American University Presses, the word massacre should not be used to "refer to a successful American Indian raid or battle victory against white colonizers or invaders" (Schwartz et al. 1995:16). However, this injunction only substitutes one racial stereotype for another. As used here, massacre describes disproportionate and indiscriminant violence intentionally directed against helpless or innocent victims.

"Battle," in contrast, is a form of organized violence considered legitimate by both contestants (Carman and Carman 2006). Battles involve *recognized military forces* who *mutually agree to fight* in a *definable geographic space*. Battles usually include *ritualized behavior*. A mounted warrior wearing a bison hide robe may convince himself and others that the robe protects him from bullets, and a cavalry officer may sit apparently unperturbed on his horse, offering an example to his men while bullets riddle his hat and cloak. These are both ritual rather than rational behaviors. Gestures, words, and objects are arranged in a performance that follows a sequence that conveys a message to observers. Finally, each side either places some *limitation on the violence* and seeks to achieve a *decisive outcome* (Carman and Carman 2006:13-16), or one side seizes an advantage, abandons restraint, and provokes a massacre.

Recognized Military Forces. Connor deployed a mixed force of U. S. Volunteer cavalry, infantry, and artillery. Only soldiers were involved in the attack. There were no civilian auxiliaries or Indian scouts. Isaac Gibbs, the federal marshal with warrants for three chiefs, crossed the river with Connor and attended the wounded with Surgeon Robert Reid. Orrin Porter Rockwell, the Mormon guide, no stranger to violence himself, oversaw this engagement from the Clay Bluff but did not participate in the fighting.

The Shoshone force probably included young men in their teens, twenties, and thirties from at least four and perhaps five related bands. No other tribes were represented (Parry 1976), and the white desperados or guerrillas sometimes mentioned in attacks on emigrant trains were not present at Bear River. Connor believed he was attacking a force of about three hundred warriors.

Mutual Agreement to Fight. The behavior of the Shoshones immediately prior to the cavalry attack indicates that many young men were eager to fight, although not perhaps the rest of the village. Shoshone taunts and insults, the "war-circle" of mounted warriors, the skirmish at the ford, the successful enticement of McGarry's cavalry into a premature rush on a prepared and well-manned position, and accurate gunfire from camouflaged fighting positions, all suggest the Shoshones had made advance preparations to defend themselves. At a more personal level, Bear Hunter and Edward McGarry probably welcomed a showdown, based on an earlier skirmish when the Shoshone chief had been briefly held hostage by McGarry's troopers.

Definable Geographic Space. See the accompanying KOCOA analysis (Chapter 4). It is likely that most of the fighting and killing occurred inside the Battle Creek ravine or within 100 meters on either side of it. The figure of 100 m is adapted from the 100 yard average for musketry firefights in the Civil War's western theater (Griffith 1987:150). Both the Beach and Price/Martineau map s show the ravine where the combat was centered as three-quarters of a mile in length. Beach describes is as fifteen feet deep and thirty feet wide. These measurements imply a floor area of 2.7 acres.

Limitations on Violence. Here the eyewitness testimony of participants and witnesses becomes hopelessly confused. As Vincent (1995:20) has observed, "The essential quality of a reliable eye-witness is that there should be no other eye-witnesses." The data on military casualties are detailed and credible. Thus the correspondents' tallies of the dead and wounded closely match the surgeon's official report to General Wright. However, the number, age, and sex composition of the Shoshone defenders, casualties, survivors, and escapees ranges widely (see Table 3.1 on page 77).

Connor gives the lowest number of Shoshone dead (224) and the highest number of survivors (160). "However more were killed than stated I am unable to say, as the condition of the wounded rendered their immediate removal a necessity. I was unable to examine the field," he acknowledged. Lieutenant W. L. Ustick, who was not present on the battlefield, wrote to the Stockton paper that 114 women and children survived. Two weeks later, Sergeant Beach, involved in the heaviest fighting in the floor of the ravine, placed the dead at 280 and said no quarter was asked or given. He did not mention surviving women and children. At least some women fought the attackers. Private John S. Lee thought a woman shot him in the arm early in the attack, but wasn't sure who shot him in the hip on his way back to the aid station. Private John T. Riley said noncombatants were deliberately ushered aside to avoid harm. Corporal W. T. Bennett acknowledged that noncombatants attempting to surrender were killed, but against Connor's express orders.

A common misperception concerns Connor's reply to the Federal marshal on their first meeting, that he did not intend to take any prisoners. This does not mean he meant to kill everyone in the village. From Connor's perspective, taking prisoners meant accepting responsibility for them. This required feeding, transporting, sheltering, and providing medical attention, which he was apparently not prepared to do. Nevertheless, several primary sources agree that well over one hundred women and children were temporarily held captive, and there is no reason to doubt Connor's statement that he left them with enough food for that first dreadful night after their village was sacked and burnt. Some of the survivors reportedly moved south toward Promontory, while others may have gone north toward the Marsh Creek headwaters and Red Rock Pass. The midwinter fish runs at Bear Lake may have drawn others to the east. That the few live women and children found by Mormon settlers in the days afterward were too badly wounded to travel probably explains their presence on the battlefield.

Decisive Outcome. All participants and witnesses agree that Connor achieved a decisive outcome. The Shoshone suffered a catastrophic battlefield defeat. The weight of the evidence arrayed in Table 3.1 shows that most of the dead were not women and children, but males of fighting age. How many of the military-aged males were actually committed warriors remains unknown. In any case, Shoshone combatant manpower and horse mobility were decisively diminished by the end of the day. Furthermore, the shelter and stores for provisioning four or five bands, numbering as many as five hundred people, through February, March, and perhaps April, were seized or destroyed. Placing the horror of January 29th in a wider perspective, the loss of at least ninety women and children may have had a greater demographic impact on the descendent community than the deaths of the men and boys.

ORDER OF BATTLE: U.S. VOLUNTEERS

"Order of battle" describes the manner in which military forces are organized, disposed, maneuvered, and supplied. Disposition refers to their location, deployment, and movement. The concept is meant to be flexible and may address personalities, records of past performance, weapons and equipment, even

uniforms and insignia. The comparisons made here are between a state-level military force on the one hand, and an armed ethnic group on the other. For the Californians, we will focus on leadership, strength, weapons, mobility, tactics (fire, maneuver and shock), and conclude with the rules of engagement.

Leadership. Patrick Edward Connor was colonel of the 3rd Infantry, California Volunteers, and commanded the force as a whole (Figure 3.16). An immigrant Irishman, his military experience began with a five year enlistment as a private soldier in the First Dragoons, between 1839-1844. Private Connor spent much of this period patrolling out of Fort Leavenworth in scouts and shows of force against the Osage, Cherokee, and other local and relocated tribes. Contrary to Bearss and Wells (1990), there is no evidence that he served in the Second Seminole War. He saw no action during this first enlistment, but in the spring of 1842 his company participated in one of Stephen Kearney's famous fast, forced marches, from Fort Leavenworth to Fort Gibson, followed by a one-day, 57-mile march to Fort Wayne (Varley 1989). Connor was versed in fast cavalry marches long before the Bear River campaign.

Figure 3.16: Patrick Edward Connor, colonel of the 3rd California Volunteer Infantry and commander of the Bear River expedition.

During the Mexican War Connor mustered as a lieutenant in a Texas Volunteer regiment and distinguished himself as a company commander at the battle of Buena Vista. Wounded, ill, and invalided out as a captain, he later became active in California militia activities. A citizen soldier rather than a professional officer, by the outbreak of the Civil War Connor had experience campaigning among Indians as a dragoon private, and fighting against an enemy regular army as an infantry officer (Varley 1989, Madsen 1990). His biographers present a picture of a typical Jacksonian man, always confident that what needed to be done would teach him how to do it. He would take the field again two and a half years after the Bear River engagement, this time leading the Powder River expedition to secure the eastern half of the Overland Road and telegraph lines (Rogers 1938, McDermott 2003, Wagner 2010). Despite these military accomplishments, he was not tempted by the post-war offer of a regular army commission, and pursued various mining and business interests for the rest of his life.

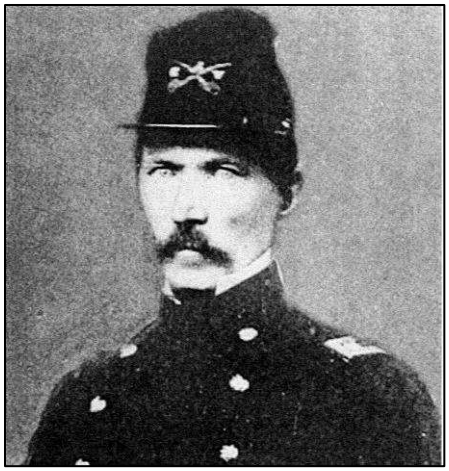

Figure 3.17: Major Edward McGarry, wearing the kepi insignia of the 2nd Cavalry, California Volunteers.

Major Edward McGarry commanded the 2nd Cavalry, California Volunteers, and functioned as Connor's executive officer during the campaign (Figure 3.17). A 41-year-old California politician with Mexican War service but no combat experience, McGarry was aggressive and impetuous, and sometimes drank heavily while in the field. His alcoholism continued to worsen over the four years following the Bear River engagement, and he died a suicide in 1867. In his biography of Connor, Madsen (1990:61) describes the difficult relationship McGarry had with at least some of his command.

In one instance, on the 1862 march across the Nevada desert toward Salt Lake City, the major was charged by his own men with being drunk much of the time. He once ordered all the men of Company K to dismount, lie down, and go to sleep on the road while he went off to fight Indians alone. On another occasion he threatened to shoot an enlisted man in Company K as an example to the others. On still another occasion he

suggested tying the company commander, Captain Samuel Smith, behind a wagon. This time he was so drunk that he lay down in the road himself and slept until dawn, but not before first ordering the company to dismount and hold their horses while he snored through the night.

Captain Smith did not accompany the column during the Bear River expedition, and Company K was commanded by its first lieutenant, Darwin Chase. A 46-year-old Freemason and apostate Mormon, Chase had fought in the 1838 Crooked River skirmish between the Missouri militia and Latter Day Saints. He spent six months in jail on a murder charge before being released by a grand jury (http://freepages.genealogy.rootsweb.ancestry.com/~ckph/chased.html). As far as we have been able to determine, Chase and Connor's other company officers were all facing their first real fight at Bear River.

As we have already seen, the Bear River battle was not the first confrontation between McGarry and Bear Hunter. Nine weeks earlier, McGarry's cavalry had skirmished with the Shoshone chief and a score or more of his warriors. The fight began with "a warlike display, such as shouting, riding in a circle, and all sorts of antics known only to their race," and ended sometime later under a flag of truce. McGarry held Bear Hunter and four other men hostage for a day until a captive ten-year-old boy was surrendered. The boy was thought to be Reuben Van Ornum, the kidnapped survivor of an emigrant train ambush three years earlier, although the Shoshones later said he was actually the son of a French mountain man and a sister of the Eastern Shoshone Chief Washakie (Miller 2008:56). The boy's purported uncle, Zacharia Van Ornum, accompanied Connor's force on the day of the attack.

McGarry's reports indicate that he grouped hostile Indians with Confederate "guerrillas" and was merciless toward both. Early in December, he was again on the lower Bear River, attempting to retrieve stolen emigrant stock rumored to be held in a nearby Shoshone village. Again, he seized four hostages, promising to shoot them if the animals were not returned. On this occasion, the Indians simply relocated their village to the north, and the bound hostages were then riddled with more than fifty bullets. In neither of these encounters did McGarry's cavalrymen suffer any casualties. Their experiences amounted to bloodless bullying rather than battle, and may have contributed to the fatal overconfidence evident in the major's approach to the Shoshone positions on January 29th.

Strength. During the Civil War, a Union army cavalry regiment might have up to ten companies, each with a nominal strength of one hundred men. Connor's force included approximately 300 soldiers, two thirds of whom participated in the attack (Connor 1863). The total force that left Camp Douglas included 220 men from Companies A, H, K, and M of the 2nd Cavalry, California Volunteers, with ten officers and accompanying staff. Company commanders were Lieutenant Darwin Chase, Company K with 65 men; Captain George F. Price, Company M with 55 men; Captain Daniel McLean, Company H, with 55 men; and Company A under Lieutenant John Quinn with 45 men.

A second unit under Captain Samuel Hoyt included 40 men of Company K, 3rd Infantry, California Volunteers, a mountain howitzer section of two gun crews commanded by Lieutenant Francis Honeyman, a mounted escort of twelve men detailed from the 2nd Cavalry, and fifteen wagons carrying 20 days' rations for the men and horses. Each howitzer was served by a three-man team drawn from the infantry company.

Companies comprised two platoons, with two sections to a platoon and two squads to a section. Officers included a captain, a first lieutenant, and a second lieutenant. All of Connor's companies were understrength when the attack began, closer in size to reinforced platoons than companies. However, records indicate the men were fit, healthy, of mature age, with good morale and low rates of desertion and guardhouse punishment.

A typical Union army baggage train employed standard jerk-line freighters drawn by six mules, capable of carrying 1,800 pounds on marginal roads, with forage for the mules making up about fifteen percent of

the cargo (McElfresh 1999:14). The balance of the wagon freight included tents, food, ammunition (including the howitzer shells), stoves, blankets, and other necessary impedimenta for nearly 300 men, more than 200 horses, and 90 mules. The same wagons served as ambulances on the return march to Camp Douglas.

A word about the U. S. Volunteers is appropriate here. These units were raised in the western territories during the Civil War to supplement and soon replace the small number of regular army regiments available for frontier duty. Unlike state militias, the term of enlistment was not limited to one hundred days, and they could participate in operations outside the states or territories where they were raised. Connor's force consisted of volunteers enlisted for a three-year term. Most of them were about half-way through their enlistment during the Bear River campaign. By the beginning of 1863, they had trained and campaigned together in the same companies for fifteen or sixteen months.

The casualty breakdown for the 66 cavalrymen killed or wounded at Bear River shows an age range between 15 and 43, with most of the men in their late twenties and early thirties. None were California natives, and about a quarter of the force was foreign born. Portugal, Australia, Germany, France and Canada are represented, but, like their commander, nearly half the foreign-born casualties were immigrants from Ireland (Work Projects Administration 1940: 10-15).

The Volunteers had not expected to campaign against Indians in Utah. As the birthplaces of many of the American-born casualties would suggest (Massachusetts, New York, Pennsylvania, Ohio, Illinois, Indiana, Kentucky), the Californians had enlisted to fight for the Union and expected to be deployed against rebel forces in the eastern United States. More than five hundred Californians did serve in a separate battalion of the 2nd Massachusetts Volunteer Cavalry, and fought throughout the war in Maryland and Virginia. Other regiments of California Volunteers campaigned against Confederate forces and native Apaches and Navahos in Arizona and New Mexico territories (Masich 2006).

By comparison, the men of the 3rd Colorado Volunteer Cavalry, the unit that bore most of the responsibility for the 1864 Sand Creek massacre in Colorado Territory, had served together only a little more than three months, and conducted that attack on almost the last day of their 100-day enlistments (Greene and Scott 2004; Michno 2004).

Still, at war's end the Californians mustered out with much blood on their hands. In contrast to the constabulary role the regular army played before and after the Civil War in most of its western campaigns, the Californians campaigned as if at war, fighting to destroy their nation's enemies, whether secessionist or native. It has been estimated that the nine regiments of California Volunteers recruited during the Civil War killed more Indians in five years than the ten regular army cavalry regiments did in forty years (Michno 2007:358). Several companies of the 2nd California Volunteer Cavalry participated in the largest number of engagements (28) and caused the highest number of casualties (786).

For example, after the Bear River campaign, Company D killed 35 Indians on Kern River in California, while experiencing no casualties of their own. Company K, operating out of Fort Ruby in Nevada, slew 52 Indians on May 1 and 4, with one soldier slightly wounded, and another ten Indians at Government Springs on June 15, with no casualties of their own. Captain Price's Company M captured 49 Shoshones on the headwaters of the Snake River on June 9, 1863, apparently without resistance.

Mass killings continued after the Civil War ended, when national security and defeating the rebellion were no longer issues. The dispatches and after-action reports compiled in Orton (1890) show that Company I killed 21 Indians in Paradise Valley on July 26, 1865, at the cost of one soldier killed and two wounded. In the vicinity of Unionville near Dun Glen, Nevada, Company B killed ten Indians in September, 1865, with no casualties of their own. On 12 January 1866 three soldiers were wounded in an attack at Fish Creek that left 35 Indians dead. On November 13, 1865, at an attack at Dun Glen in Nevada's Black

Rock Mountains, Company B killed in the neighborhood of 120 Indians, 80 of them men, with the loss of one soldier killed and two wounded. Finally, on February 15, 1866, a combined force of Companies F and D attacked a camp in Guano Valley's Rock Canyon, killing 81 men and 15 women and children, leaving 19 women and children alive with an issue of 30 days' rations. One soldier was killed and seven wounded in this engagement. The lopsided casualty figures reported for these encounters suggest that the Indians were usually either caught by surprise, unable to defend themselves, or both. Connor's attack at Bear River is the exception, and the deadliest single engagement the California Volunteers experienced. On this occasion, the Shoshones were not surprised, and effectively defended themselves.

Weapons. Barta (1962:84) says that two of Connor's companies were armed with muzzle-loading cap-and-ball Whitney rifles that fired a 41 caliber spherical lead ball, with the rest "probably" armed with converted rifle-muskets and "Springfield '58" rifles that fired the conical 58 caliber Minié ball (Figure 3.18). By "Whitney" rifle he meant the U.S. Model 1841 Harpers Ferry rifle, many of which were supplied by Eli Whitney's factory. It fired a half-ounce spherical lead ball using 75 grains of powder, achieving a muzzle velocity of 1,850 ft./sec (Rosebush 1962). A month after the attack at Bear River, Connor wrote that the Whitney rifles issued to two of his cavalry companies were difficult to load and carry on horseback. In addition, many cartridges were "too short for those pieces, and some entirely useless" (Orton 1890:174).

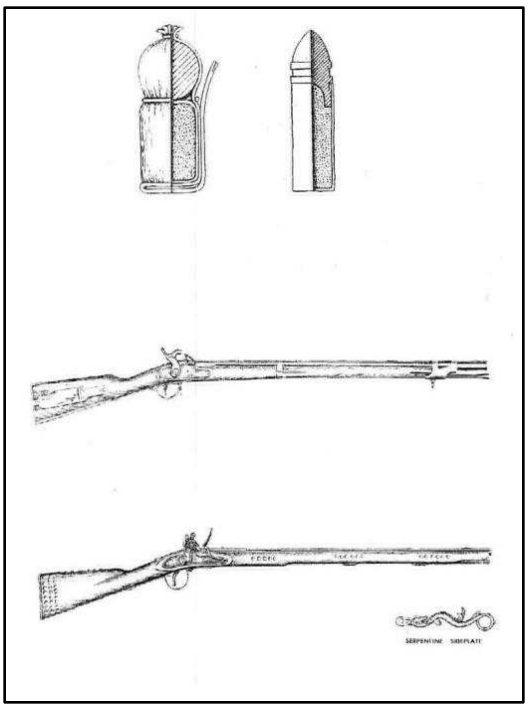

Figure 3.18: Springfield rifle-musket variants and Minié bullet.

The rifle-muskets had a standard rate of fire of two rounds per minute. Comparative ballistics data show that "the effective range of a smoothbore musket was perhaps 100 yards and the rifled musket was effective beyond 400 yards" (Kerr 1990:19). Despite the greater range and accuracy of the rifled muskets, Civil War firefights continued to be waged within traditional smoothbore ranges (Griffith 1987:150).

The two cavalry units issued with the Whitney or "Mississippi" rifles were Lieutenant Chase's Company K and Captain Price's Company M. However, Barta erred in assuming that two of the cavalry companies were armed with Springfield rifle-muskets (Mahoney n.d.). The Sharps carbine was issued to Lieutenant Quinn's Company A and Captain McLean's Company H. The Model 1859 Sharps was the standard cavalry shoulder arm during the Civil War, but in short supply at the California arsenal. The Sharps was a breach-loading, single-shot, .52 caliber, short-barreled rifle with an effective range of 500 yards (Figure 3.19, next page). Unlike the longer Whitney rifle, it was easily handled by a mounted man.

Records from the Benecia Arsenal show that the 3rd Infantry, California Volunteers, received their arms at Stockton, California in late September, 1861. An inventory of arms at that arsenal early in 1860 indicates that 7,252 Model 1855 rifle-muskets and 4,754 Model 1841 rifles were on hand (Mahoney n.d.). The numbers were expressed as "stands," which included the weapon, ramrod, and bayonet. However, an order of July 23, 1861 to the Department of the Pacific directed that "3,000 stand (sic) of arms, now in store on the Pacific, be shipped to New York, as they are very much needed there." Thus nearly half the Springfield .58s at Benecia had been shipped east before the Californians were armed.

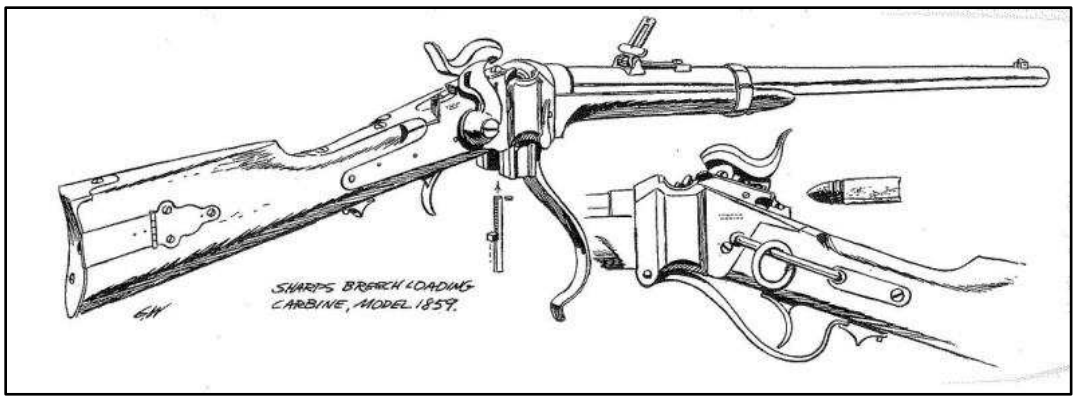

Figure 3.19: Sharps carbine, the standard Union cavalry shoulder arm during the Civil War. (Reproduced from Todd 1978:157).

The "Springfield '58" rifles were either of that caliber and made at that armory, or Model 1841 rifles adapted to accept that caliber. Both the Harpers Ferry and Springfield armories also manufactured the Model 1855 .58 caliber rifle-musket. This was first used during Steptoe's campaign on the Palouse, and saw wide employment by the Union army during the first years of the Civil War. All of the Volunteers' shoulder arms fired a conical, 500-grain, lead Minié bullet and used paper cartridges. The Springfield had an effective range of 500 yards and a rate of fire of two rounds per minute. The standard ammunition issue was one cartridge box of 40 rounds per man.

Correspondence from ordnance officers at the Benicia Arsenal between 1861-1863 includes references to "Colt naval" pistols, and complaints concerning the generally obsolescent weapons on hand. The "cap-and-ball" .36 caliber Colt Navy pistols were the standard cavalry sidearm for the Union army during the Civil War. Connor's officers and cavalrymen were armed with them and issued 30 rounds of ammunition. The Navy Colts were well-balanced, accurate, and light enough for a belt- rather than a saddle-holster. They could fire up to six rounds as fast as the hammer was cocked after each discharge. However, because each cylinder required the insertion of a percussion cap as well as a paper cartridge and lead ball, reloading was virtually impossible while mounted. McGarry's cavalrymen were essentially mounted infantry and had to fight on foot once engaged.

We have found no information on what kind of training his cavalry companies underwent at Camp Douglas or at Benecia Barracks. Extant regulations do specify how they should have trained. Under "target practice," the pistol section of the 1862 cavalry manual stipulates a target six feet high and two feet wide with a black vertical stripe painted in the center. Thirty inches from the top a white three inch square provided the aiming point. Soldiers practiced at intervals of 10 yards, starting at a minimum of twenty and continuing out to 100 yards. "In a possible case requiring it, the revolver may be used in rank dismounted with great effect, in firing to the front, or right or left oblique, by volley or file firing" (Cooke 1962:67).

As we will see below, volley revolver fire at distances of less than 20 yards from the east rim down into the ravine caused havoc at Battle Creek. The same revolvers were badly in need of maintenance a month after the battle. Nevertheless, even in their worn condition, they proved decisive in a day-long fight with the Utes in Spanish Forks Canyon on April 15, 1863, seventy-six days after the Bear River battle. The plunging fire of Honeyman's howitzers was effective in the broken terrain held by the Utes, but even more decisive were the cavalry's six-shooters. Perhaps aware of what happened at Battle Creek, the Utes finally broke and fled when the soldiers advanced to within revolver range (McCarthy 1975:81).

As sturdy as these Navy Colts proved to be, they were not suited for mounted combat. Two years after the Bear River attack, Connor led a mounted cavalry charge against an Arapaho village on Tongue River.

Before the attack, he ordered that should the cavalrymen "get in close quarters, the men should group in fours; under no circumstances were we to use revolvers unless there was no other chance" (Wagner 2010:157). In a note Wagner observes that the cap-and-ball revolvers were "virtually impossible to reload on horseback once the initial six shots were fired." By the time of the Powder River expedition, cavalry had been armed with the repeating Spencer carbines that fired seven .52 caliber shots before reloading. The new breach-loaded metallic cartridges made it feasible to reload while mounted. Spencer carbines were not available at Bear River, and McGarry's cavalrymen fought dismounted, switching from infantry rifles and cavalry carbines to cavalry revolvers as distances closed.

Connor's column included two brass howitzers, probably Model 1841 12-pounders. These pieces could loft an explosive shell on a parabolic trajectory over a distance of a thousand yards when fired at a 5° angle. Weighing only five hundred pounds, they could be drawn by a two-horse prairie carriage or disassembled for pack mule transport. The brass tube was borne by one animal, the carriage and wheels by another, the ammunition by a third. These howitzers could be assembled and fire the first round within one minute (Coggins 2004:75). We do not know how Lieutenant Honeyman's howitzers were transported or how they arrived at the South Terrace. One possibility, from a Confederate field manual, is shown below (Figure 3.20).

Several landowners on the Bear River Massacre NHL are convinced that cannonballs have been recovered from the property in the past. Connor's artillery has long stirred local imaginations. "When the cannon boomed, the Indians thought the white men were firing cart wheels at them, and they fled in disorder" (*Salt Lake Telegram* 1928). A spherical specimen of unknown origin is on exhibit today in the Relic Hall in Franklin. However, "cannonballs" (solid metal round shot) were not used in mountain howitzers. This type of ammunition could reduce fortifications or blast holes through the hulls of wooden ships, but was less effective as an antipersonnel weapon. Mountain howitzers fired explosive, spherical case shot (shrapnel), or canister, rather than solid shot. The explosive shells or case shot could plunge down on defenders from above, while canister could be fired directly at exposed opponents on a flat trajectory. Spherical body fragments of mountain howitzer case shot have been identified at the site of the Sand Creek massacre in Colorado (Greene and Scott 2004:132-135). Mountain howitzers proved effective in several defensive actions fought by Volunteer units along the Platte River in 1865 (McDermott 2003), and by regular army units along the Bozeman Trail in 1866 (Monnet 2010).

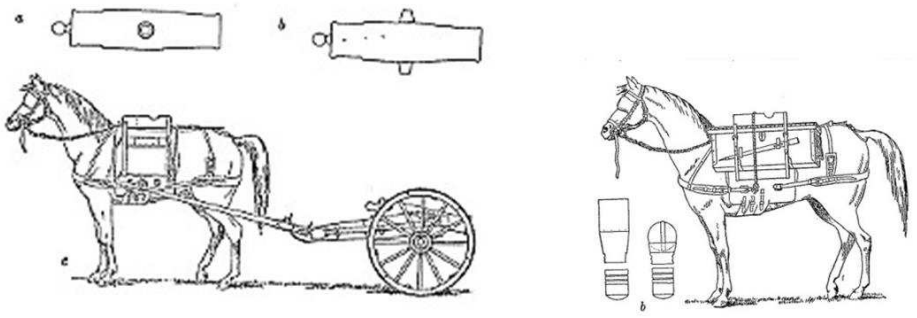

Figure 3.20: Mountain howitzer on a prairie carriage, and horse carrying ammunition. Reproduced from Russell (1962:275).

Finally, to spike this subject completely, twenty years before the Bear River engagement, on his exploring expedition to the northern Great Basin, Fremont traveled with a 12-pounder brass howitzer drawn from the St. Louis arsenal. It was mounted on a wheeled carriage and crewed by three men under a former noncommissioned officer in the Prussian artillery (Preuss 1958:83). In his journal entry for August 10, 1843, Preuss noted that "Shooting buffalo with a howitzer is cruel but amusing sport." The howitzer was

fired again on August 30 (Preuss 1958:84), when Fremont was in the general vicinity of Battle Creek. We don't know what it was fired at, or what the munition was, but this was probably the only artillery shot ever fired in northern Cache Valley.

Mobility. Connor's column endured a brutal approach march, given the pace, the weather, and the depth of snow through which trail had to be broken. Strong cavalry mounts fed on regulation rations instead of grass or bark were crucial to getting so large a force over such a distance in so short a time. The horses also allowed him to move most of his men across Bear River onto the East Plain in fighting condition. However, almost all of the subsequent combat was conducted on foot. When Shoshone resistance collapsed, some of the Indians were chased down and killed by mounted cavalrymen on the West Plain. On the difficult return to Camp Douglas, Hoyt's infantrymen were mounted on captured Indian ponies. As noted earlier, the baggage wagons were probably drawn by six-mule teams. Uncertainties about how the howitzers were transported have already been noted. After the battle, casualties were evacuated from the South Terrace to Franklin on civilian sleighs drawn by army mules.

Tactics. Connor's experience as a dragoon regular, Texas Volunteer, and California militia officer left him better prepared than many officers for Civil War service. His tactical acumen seems to reflect instinct and character as much as experience. Unlike John M. Chivington before, during, and after the Sand Creek massacre, Connor retained the respect and loyalty of his own officers and men before, during, and after his far more difficult Bear River campaign. His use of a night approach and dawn attack, his willingness to divide his force in the middle of an engagement, his immediate decision to flank the Shoshone and enfilade the ravine from the north, and his determination to cut off retreat in order to achieve a decisive result, might be taken as chapter and verse from Callwell's manual on small war tactics for imperial soldiers, even though the first edition of this book appeared thirty-six years after Connor's attack. Perhaps most crucially, Connor's central deception, dividing his force at the beginning of the march and having the cavalry move as quickly as possible and only at night when their approach could not be observed, lulled the Shoshone into believing only a small, vulnerable infantry column was approaching the village.

Rules of Engagement. A staff ride handbook for the battle of Bear River includes a teaching point that mentions "law of land warfare/Geneva convention" and "control of soldiers" (McPherson 2000:53). Unfortunately, we have no written record of Connor's intention at Bear River beyond the goal of "chastising" the Shoshone, which included not taking any prisoners. Instructions to kill everyone, and the phrase "nits make lice" are sometimes attributed to him by sources not in a position to have heard him say it. For example, stories to this effect that John Winn, the first man to farm the Landmark, passed on to his grandson, presumably originated with McGarry's cavalrymen and seem more consistent with that officer's character than with Connor's.

However, some written evidence for Connor's approach to Indian fighting is available from his subsequent Powder River campaign against the Arapaho. Here he gave explicit orders to kill all Indian males over the age of twelve, but to spare women and the younger children. This order echoes the policy of his divisional commander, General George Wright, concerning California Indians (Madley 2016:300-324). However, it was immediately countermanded by Wright's counterpart on the Plains -- and Connor's superior for the Powder River campaign -- General John Pope, who described it as "atrocious" (Wagner 2010:96-97). Given the contradictory testimony of participants, survivors, and witnesses, perhaps Connor communicated the same distinction to his troops in Mendon or Franklin on the nights before the attack, and perhaps McGarry simply ignored it the next morning after the shock of his initial setback on the East Plain. This is obviously speculation. In any case, in her focus on "genocidal rape" these distinctions were ignored by Fleisher in her analysis of the Bear River tragedy (2004:314). In today's vocabulary of mass violence, Connor's order was *androcidal* rather than *genocidal*. He meant to kill adolescent and adult male Shoshones, not an entire community.

We can say with more confidence that at the time of Connor's campaign no formal rules of engagement were available for either soldiers or Indians in the frontier wars. Nevertheless, certain constraints and norms were beginning to be expected of combatants on both sides. For example, a few weeks before Connor's attack, thirty-eight Dakota men had been hanged at Mankato, Minnesota, in what remains the largest mass execution in American history. Following suppression of the 1862 Dakota uprising, more than three hundred prisoners had been sentenced to death, their trials sometimes lasting less than five minutes.

After reviewing the evidence, President Lincoln commuted most of the sentences. Two criteria guided his clemency. The first was "violation of females." In his message to the senate explaining his reasoning, Lincoln acknowledged that "Contrary to my expectations, only two of this class were found. I then directed a further examination, and a classification of all who were proven to have participated in *massacres*, as distinguished from *battles*." Victims of massacre are generally held to be innocent, helpless, or both. The distinguishing features of battle were identified earlier. Battle casualties result from people making a conscious choice to wage war. In Minnesota, the Dakota battle participants were spared, while the massacre perpetrators were hanged. The president did not define what he meant by massacre, and presumably assumed a common understanding with the senate, if not with the Dakotas.

Lincoln's concern with rules of engagement found full expression in his General Orders No. 100, issued on April 24, 1863. These orders marked the first formal attempt to codify the moral expectations of soldiers involved in "public" war, and became the basis for subsequent codes of military conduct, including the Hague and Geneva conventions. The general orders were developed in partial response to Confederate reprisals against captured black Union soldiers and their white officers. However, nothing in them refers specifically to Indian warfare, the conduct of which seems to have been considered an entirely separate undertaking with rules and expectations determined by participants.

In any case, General Orders No. 100 was issued almost three months *after* the Bear River attack (Witt 2012:245). Had the orders been available to Connor, he might have defined the Shoshone as the "armed prowlers" discussed in Section IV, toward whom no mercy was to be granted. However, Section II: 44 provided protection for women and explicitly and unambiguously forbade rape. After April 24th, the orders were distributed down to company grade officers in the Union army, and even to their Confederate counterparts (Witt 2012:248-249). Some officers decided that they applied at least in part to Indians. Others did not. These disagreements within the military received wide notice after the Sand Creek massacre in Colorado Territory, twenty-one months after the Bear River attack (Michno 2004).

Connor's injunctions to spare the Arapaho women and children may have been prompted by Mormon criticisms of his men's conduct at Bear River. Independent witnesses report that some Shoshone women were "outraged" on that January afternoon. It is not clear from the accounts whether this refers to the older girls and women who were killed, those who were briefly captured (and spared), or to both groups. Fleisher (2004:199-213) expressed frustration at her inability to coax a Shoshone woman (and tribal historian) descended from massacre survivors to acknowledge these assaults. Perhaps a more ethnographically attuned interviewer would have sensed why a massacre descendent might not want to claim descent from a California rapist. In any case, we have found no historic evidence to support the claim that mass rape was sanctioned or practiced as part of a pacification doctrine or ethnic cleansing strategy at Bear River or in the Cache Valley.

According to correspondent "W.L.U." in the *Stockton Daily Independent* of February 17, 1863, "Col. Connor gave strict orders against killing women and children, of whom, contrary to precedent, there were quite a large number in the camp. A few were slightly wounded, and I believe one killed by a member of the cavalry, who was immediately notified by Col. Connor that if the offense was repeated he would have his BRAINS BLOWN OUT. At the conclusion of the engagement, 114 women and children were allowed to go whither they listed" (Hart 1982:172).

Another report of Connor attempting to protect the Shoshone women was found by Hart (1982:251) in an anecdote from the *American Falls Press* of March 4, 1915. Soldier W. A. Bennett told of the shooting of a squaw and papoose during the battle. "The squaw was advancing toward the soldiers with both hands up. A soldier had his gun pointed at her. 'Don't shoot that woman, let her come on up here,' shouted the general. But too late to stop the speeding bullet. The soldier justified himself by saying, 'We had orders to kill everything'."

Although the anecdote appeared 52 years after the event, it gains eyewitness credibility from evidence that a corporal in Company K of the 3rd Infantry named W.A. Bennett was hospitalized with frostbitten feet after the command returned to Camp Douglas (http://www.militarymuseum.org/2ndCavVC.html, accessed 12/3/13.) We cannot be sure Bennett remembered events correctly, but at least he seems to have been present at the event he describes.

Other evidence of efforts to avoid harming noncombatants comes from an excerpt from Abraham C. Anderson's "History of Soda Springs," printed in the Blackfoot *Daily Bulletin*, January 19, 1929:

> …Regarding Gen. Connor, I want to say I have heard and read many unauthentic accounts of his Battle Creek fight in Cache Valley. I have no doubt that these accounts were fixed up to make an impression opposite to the facts to suit certain white men and Indians. I have had long talks, time and again, with some of the soldiers who were in the fight. They say there is no truth to the statement that General Connor willfully killed squaws and papooses there. They say, there were, of course, some killed; but the Indians opened the fight by firing the first shot…General Connor ordered his interpreters to hello-to and inform the Indian squaws and papooses to get out in the open away from the willows and the battle so they would not get hit. Many of them did that and "sat on the snow like a lot of sage hens would have done," as Mr. John Kelly expressed it to me, wrapped up in their buffalo robes until the battle was over. Of course some of the squaws in the beginning were as determined to fight as the warriors, and unavoidably got killed. After the battle…the squaws and papooses, says Kelly, were told they could go back into the willows to the camp…" (Hart 1982:262-263).

Turning again to the rolls of the 2nd Cavalry, California Volunteers, we find two privates named John Kelly. The one in Company H was mustered in San Francisco on October 11, 1861, but deserted from Fort Churchill on March 17, 1862, ten months before the Bear River battle. A second Private John T. Kelly in Company M is probably Anderson's source. John T. Kelly enlisted at Fort Jones, California on September 11, 1861, and deserted while on furlough from Fort Bridger, Wyoming Territory, on May 17, 1863, nearly four months after the battle. Kelly's recollection of Shoshone women wrapped in their buffalo robes sitting in the snow "like a lot of sage hens" resembles the correspondent's description of "squaws and papooses, as soon as they discovered that the troops did not intend to molest them, seated themselves on the bank of the ravine and feasted on their pine nuts as if nothing had occurred" (*Sacramento Daily Union*, February 7, 1863).

We'll return to the question of Indian casualties after examining the Shoshone position.

ORDER OF BATTLE: SHOSHONE

The six features of Shoshone warfare (honors, suicides in combat, berdaches, pedestrian horse-stealing raids, shamanic forecasts, and chiefs in charge of large actions) identified by Shimkin (1986:325) for the eastern Shoshone probably referred to intertribal warfare, and offer little help for understanding the Bear River engagement. We are not even certain that a single chief *was* in charge of this large action. Given the near absence of relevant written sources, "order of battle" among the Shoshones cannot address the

same variables just reviewed for the soldiers. Here we will focus on (1) leadership; (2) warrior numbers or strength; (3) weapons and ammunition; (4) defensive positions; and (5) fire, maneuver, and shock tactics.

Leadership. Shoshone leadership was charismatic, competitive, and contingent. Military sodalities formed of career warriors like the Cheyenne Dog Soldiers or Elk Scrapers were unknown among the Shoshone. There was no chain of command or coordinated activity or disciplinary authority among mutually acknowledged superiors and subordinates. Shoshone adults, mostly military-aged men but including some women, fought to protect nuclear and extended families rather than a nation, tribe, or cause.

Shoshone chieftains or band leaders included, at a minimum, Bear Hunter, Sagwitch (Figure 3.21), Lehi, and Ash'ingodim'ah . If Sanpitch was present, he survived the attack while most of his band did not (Doty, cited in Morgan 2007:316). The headman named for the Mormon prophet Lehi almost certainly had another Shoshone name, potentially adding to the confusion. These four were not the only headmen present. Long after the attack the Swedish ethnographer Ake Hultkranz elicited the name of a fifth leader, who appears in various sources as Nakok, Norkok, and Nukok. "Another band leader, whom the whites hardly dared trust, was the halfbreed Nakok, son of a French trapper and a Shoshone squaw. In the battle at Bear River, where he lost one eye, he appeared on the rebellious Indian side" (Hultkranz 1956:208).

Figure 3.21: Sagwitch and Beawoachee, his last wife, about 1875. By this date, the couple had been sealed in marriage by the Mormon endowment, and Sagwitch had become a committed farmer and agent of acculturation. There are no known photographs of the other band chiefs.

Further research identifies a "Norkok" as one of the leaders who later signed the treaty of July 2, 1863. He was born in the late 1820s to a French trapper named Battiste and a Ute mother who had been captured and raised by the Shoshones. Norkok and another signatory among the Wind River Shoshone named Tahvonshea had both survived the Bear River attack (Stamm 1999:39). Norkok moved east to join Washakie's band of eastern Shoshones on the Wind River. However, Hultkranz's characterization of him as untrustworthy may not reflect the complexity of Nakok's character.

Sometimes competing with Washakie for leadership among the Wind River Shoshones, Nakok also served as an interpreter and scout for the army during the 1870s. Eleven years after the Bear River battle, he scouted for a company of the regular army's Second Cavalry in a campaign against the Arapaho (Trenholm and Carley 1964:240). Identified as a subchief, subordinate, and occasional rival to Washakie in the late 1860s, Nakok went on to fight in the Bates battle in 1874, and served with Crook's forces at the Rosebud battle in 1876 (Hebard 1995). In the former engagement he apparently had difficulty acting as interpreter because of the speed with which Captain Bates issued his orders. This veteran of Battle Creek remained active to the close of the century. A "Norkok" at Fort Washakie appears among the acknowledgments in James Mooney's monograph on the 1890 ghost dance outbreak (Mooney 1896:xiii), and both Norkok and Washakie signed the Hot Springs land transfer agreement of 1896 (Hebard

1995:217). Family histories among the Wind River Shoshone might disclose additional biographical data on survivors or fugitives from the Bear River attack.

Another strong personality present that day receives brief mention in Shoshone lore. A mounted warrior named O-Ti-Cot-i, protected by his buffalo-robe shroud, escaped the battle through a hail of gunfire but returned later to aid the survivors (Kreitzer 2000:1). Finally, an oral tradition reports that following a foreboding dream, the prophet Tin Dup left camp with several families two days before the attack (Parry 1976:129-130).

Apart from these anecdotes, we know nothing about the decisions made by band leaders, or any disagreements or confusion among them as the battle developed. The village had been aware of the approaching troops since at least as early as late on the previous afternoon. Oral tradition says that Sagwitch, rising early, spotted a cloud of steam or snow on the Clay Bluff and watched it descend toward the ford. He guessed that snow plumes or breath clouds meant cavalry horses, and alerted his warriors. In this account, he cautioned them against opening fire as he still hoped for negotiations (Parry 1976).

Strength. In his after-action report, Connor states that "…the enemy had about 300 warriors, mostly well-armed with rifles and having plenty of ammunition." Support for this figure comes from an annotation on the contemporaneous Price-Martineau map citing "308 braves." However, soldiers attacking a fixed position commonly inflate the number of defenders. Assuming one fighting man and one adolescent boy per lodge would give a force of about 140 warriors to defend the ravine, less than half the number given by Connor and Price-Martineau. If the troops killed 224 Indians, as Connor reported, and if ninety of them were women and children, as Martineau reported, that leaves 134 dead adult and adolescent males. If there were 300 or 308 warriors to begin with, as estimated by Connor and Price/Martineau, this would imply that more than half of them escaped the slaughter. Recall that Frank Timboopoo Warner's unidentified informant also said that half the villagers escaped the massacre.

Franklin eyewitness Alexander Stalker, cited by Onderdonk (1885:14-15) estimated 175 Indians in camp, with "a fighting number of about one hundred." Harmon Zufelt, one of the settlers who hauled wounded soldiers back to Franklin, recalled two hundred men in the Shoshone village, and said the army captured about the same numbers of horses and "guns and pistols." Private John Lee didn't specify what "them Indians had set up for us," but the wording gives the impression of a prepared position or ambush rather than a sleeping village or a surprised or unprepared foe. Lee retained the impression that an unusually large number of Indians participated in the fight. His recollection also indicates that armed Shoshone women participated in the battle. John Winn's statement that Indian women were passing reloaded weapons to the entrenched warriors explains how some of them died.

Weapons. Shoshone firepower at Bear River is sometimes understated or misrepresented. Oral lore from tribal members describes their ancestors fighting with bows and arrows and knives and tomahawks, or even spears and rocks. Surgeon Robert Reid's description of the casualties he treated offers little support for these claims, with all but one of the wounds caused by bullets. The single reference to an arrow-punctured soldier says he was shot in each lung.

The near-absence of arrow wounds is a genuine puzzle, considering how deadly the bow was in other battles such as the Fetterman (1866) and Washita (1868) engagements. Referring more generally to Civil War army casualties in the west, Hunt (1951:363) said "The fatalities from arrow wounds were far greater than bullets – fully sixty percent of the arrow wounds proved fatal." At short distances, bows and revolvers were equivalent weapons in terms of accuracy and rate of discharge. So why were there so few arrow wounds?

Could the cold weather have been a factor? Thus, Paiute bows were sometimes warmed before a cold-weather hunt to prevent them from cracking (Sapir 1992:805). Still, the defenders had the time and

resources to ready their bows if they meant to use them. Some comparative data may be helpful here. Veterans of other engagements with the Lakota, Cheyenne, and Arapaho along the Platte River and Bozeman Road during the period 1864-1866 commented on their inferior firearms and their tendency to fire them high and harmlessly (McDermott 2003). In these campaigns, the arrow was far deadlier than the bullet. For example, casualties at the Fetterman engagement on the Powder River resulted from an ambush of 81 soldiers by at least 1,500 Indians in the early afternoon of December 21st, 1866, the winter solstice. The weather was bitterly cold, probably well below freezing. The soldiers included infantrymen armed with 1855 Springfield rifle-muskets and cavalrymen with Spencer repeating carbines. The engagement lasted about forty minutes and ended with the deaths of all the soldiers. The bodies were so disfigured by postmortem mutilation that the causes of death were not always clear. However, the post surgeon concluded that not more than six of them died from gunshot wounds, one of them probably self-inflicted. Most of the bodies were found bristling with arrows, in one case virtually porcupined by more than one hundred of them. Even the Indians acknowledged the air was so thick with arrows that they couldn't avoid shooting each other with them. Clearly, the bow could be an effective cold-weather weapon.

Nevertheless, from the soldiers' wounds detailed by the surgeon, the number of horses killed and wounded by bullets, the descriptions of coats, capes and hats being riddled with bullets, and several anecdotes marveling at fatal wounds avoided when bullets struck cartridge pouches, belt plates, metal buttons, and pocket contents such as tintype miniatures, the conclusion that the Shoshones at Bear River were well equipped with firearms seems unavoidable.

Connor commented on the "fine" firearms of at least some of his opponents, and the Indians may have acquired a few U.S. Model 1861 rifle-muskets or carbines by 1863. Where did they get them? Connor, ever suspicious of the Mormons, repeated the rumor that Shoshone munitions "were received from inhabitants of this Territory in exchange for the property of massacred emigrants." Writing the day before the attack, the correspondent Liberal agreed that Mormon commerce was part of the problem. However, the main sources of arms were the emigrant trains themselves, he asserted. He suspected each train included at least one "enterprising peddler" anxious to sell arms and ammunition to the Shoshones.

At Bear River, the Indians were probably outfitted with an array of smoothbore weapons that fired spherical ball ammunition rather than cylindrical Minié bullets. The most common shoulder-arms were probably flintlock trade guns, the Northwest gun, cut-down military muskets, and both half-stock and full-stock flint and percussion rifles, with calibers ranging from about .45 to .70. With a flintlock, only powder and lead were necessary. However, the percussion weapons required small brass caps, probably acquired in limited quantity through trade or warfare. Some reports say that Shoshone ammunition began to give out after the first hour of fighting, while others comment on the large amount of captured ammunition in the lodges. Both statements could be true, depending on whether "ammunition" meant lead bars, cast bullets, or powder.

None of the captured arms were described in any detail in the primary sources. Harmon Zufelt recalled that "We got about 200 guns and pistols" (Hart 1982:205). Some of the arms were sold at public auction after the troops returned to Camp Douglas, along with "mules, horses, ponies, and other property" (*Deseret News*, February 11, 1863). No record of the auction itself seems to have survived. However, a few conclusions seem warranted. Thus, taken as a whole, the range, accuracy, and rate of fire of the soldiers' weapons were certainly superior, and their ammunition more abundant and standardized. The Shoshones may not have cast enough bullets before the battle began to sustain massed gunfire for more than an hour or two. Bear Hunter himself is reported to have been killed while pouring lead into a bullet mold. Even with plenty of firearms and lead for bullets, the Shoshone could have suffered a shortage of powder. For example, on Tongue River in 1865, some Arapaho firearms were so undercharged that bullets struck Connor's soldiers without breaking the skin (Varley 1989).

Defenses. The Shoshone had two lines of defense. The first was the Bear River itself, which at that season could only be forded in one place by mounted men. The villagers must have been reassured by reports that Connor's approaching force consisted mostly of infantry, with only twelve cavalrymen. This confidence may have contributed to their failure to defend the Soldiers' Ford from the north side.

The second line of defense was the ravine of Battle Creek, especially the reach we define as the Lower Ravine. "The position of the Indians was one of strong natural defenses, and almost inaccessible to the troops, being a deep, dry ravine from six to twelve feet deep and from thirty to forty feet across level table-land, along which they had constructed steps from which they could deliver their fire without being themselves exposed. Under the embankments they had constructed artificial covers of willows thickly woven together, from behind which they could fire without being observed," wrote Connor. A correspondent's report describes the ravine as sinuous with numerous abrupt bends. Sight-lines among the combatants were short when the fighting inside the ravine began. Sergeant Beach's map shows a more sinuous ravine than Captain Price's sketch. Beach ended the battle fighting inside the ravine, while Price was engaged on the east rim where the ravine splayed out into the willows.

Figure 3.22: Coyote or sandbar willow (Salix exigua), showing the nearly impenetrable density of these thickets along stream margins. The Shoshone village was scattered behind a similar screen. The shrubby trees rarely exceed fifteen feet in height, and density doe does not thin appreciably in winter (photo courtesy of J. Chris Hoag).

Another correspondent said four lodges were placed along the eastern rim of the Lower Ravine as a "blind," presumably either to draw fire or to conceal firing positions. Both the Beach and the Price-Martineau maps show two (not four) lodges in this area. A second report described "principal" lodges banked with earth and rock and containing fighting holes for four or five warriors. The rock might have been pieces of the cement-like travertine or mineralized sediment that form part of the west rim of the Lower Ravine (Figure 3.23, next page). It is not clear from the reports whether the four lodges located on the East Plain beside the east rim of the Lower Ravine are the "principal" lodges. If they were, perhaps they served as fighting bunkers to prevent the ravine from being flanked at the southern opening.

Mormon and military recollections agree about the Shoshone defenses. "The Indians had fortified themselves by building rifle pits along the east bank of the creek and for a short distance along the bank of the river…These pits completely protected the Indians on this front, and it was while attempting to come up on this front that the soldiers were killed" (William Nelson letter to *Franklin County Citizen*, Feb. 1, 1917). The Shoshone defenders may or may not have had the advantage of numbers, but they benefited from being rested, prepared, and in position with good cover and concealment. From their camouflaged firing steps along the east rim of the ravine, they could direct grazing fire across the floodplain at the approaching soldiers without exposing themselves.

Figure 3.23: Example of the cement-like slabs of mineralized sediment or travertine present in the lower reach of the contemporary Battle Creek channel. Similar slabs may have been part of the Shoshone defensive positions. There is very little other rock exposed at the surface within the Landmark.

Mobility. The village horse herd numbered between 175-200. If the horses were equally distributed among the lodges, this breaks down to about three horses per lodge. Assuming a range of five to seven persons per lodge, and a village population of between 340 and 490, the person: horse ratio was between .36 and .58. By comparison, the fully equestrian Northern Shoshone enjoyed ratios of 1.8-2.0 (Ewers 1955: Table 2). Thus, it seems likely that even with at least twelve hours forewarning of the soldiers' approach, it would have been difficult to move much of the village out of the ravine toward safer campsites. For those mounted Shoshones who were able to flee the slaughter, the Marsh Creek trail shown on Martineau's 1862 map was the likeliest escape route. The southern end of this trail is shown crossing the ravine and meeting Bear River in Figure 4.4 (page 86).

Tactics. Firepower, maneuver, shock, and deception fall under this heading. We have already examined Shoshone firepower, and we can say little about their maneuvers beyond the apparent use of mounted warriors in the initial skirmishing. Shoshone tactics boiled down to luring the soldiers into a rash charge against a well-camouflaged and fortified entrenchment. After this deception-and-shock measure failed to rout the soldiers, their response seems to have been to fight as individuals or perhaps small teams (including husbands-and-wives, brothers-and-sisters, mothers-and-sons, fathers-and-daughters?) against targets of opportunity. Preferred targets included buglers and leaders, especially mounted officers. The early death of Lieutenant Chase was attributed to the attention drawn by his richly-ornamented horse. "Command and control" casualties among the soldiers included one major, one captain, two lieutenants, five sergeants, three corporals, and one bugler, or about eighteen percent of the total.

Sources suggest that Shoshone tactical intelligence relied on their own scouts, Mormon informants, released prisoners, and a Shoshone escapee from the Franklin jail. Correspondent Verite, in his February 7th dispatch to the *Alta California*, says that two Indian boys, "one in the service of a mountaineer," reached the village with the news of the approaching infantry column (Hart 1982:162). These boys may have been among the five Indians noted by Corporal Tuttle as captured by Hoyt's column on January 25th at the Empey's Landing ferry north of Brigham City. If so, the boys would have been ignorant of the approach of McGarry's night-marching cavalry column.

It is not clear whether the information provided was incomplete, inaccurate, or simply not credited by the villagers or their chiefs. Whatever the case, had they known how large, well-armed, and determined the approaching column was, their best move would have been to break down into smaller groups and evacuate the ravine not later than January 28th. However, for whatever reason and with whatever degree of unanimity, they chose to stay and fight. If any attempt to parley or negotiate was made by any of the Shoshone leaders, it has not been recorded in the written sources.

With the benefit of hindsight, we can see that the Shoshones made three major tactical mistakes. First, as noted, they failed to heed Mormon informant warnings, Shoshone scout reports, escaped prisoners, and village dreamers, and disperse by January 28th rather than fight on January 29th. That is what Connor feared they would do, and most of them probably would have survived if they had. Second, they failed to defend the Soldiers' Ford from the north bank and engage the cavalry at their most vulnerable moment, when crossing the river. Presumably, this is because they didn't expect to be attacked by a large mounted force in the first place. Finally, they failed to secure the key piece of high ground, Cedar Point. This had two consequences for the Indians: they lost the opportunity to place a crossfire from higher ground on the troops as they formed up on the East Plain, and they failed to prevent or at least slow the flanking movement that enfiladed the Upper Ravine. This was a common occurrence in nineteenth century colonial engagements. "It does not seem to occur to irregular warriors that they may not necessarily be attacked at the point where they have made their most elaborate preparations…such antagonists are always in terror of having their retreat cut, and if they find the regular troops getting around their flanks they generally abandon their positions in hot haste" (Callwell 1906:161).

The second and third mistakes made a bad situation worse. Connor probably would have used his howitzers to force a passage across the river, and the Shoshones would have had to retire from that position if pressed with determination. The same is likely true for Cedar Point. But a more carefully thought-out defense would have allowed much of the village time enough to disperse to the north and west, reducing the consequent carnage.

Sergeant Beach's map, drafted two weeks after the attack, shows the village distributed continuously upstream from the confluence of Beaver Creek ravine and Bear River. However, the Price-Martineau map, drafted a day afterward, shows a dense willow thicket at the mouth of the ravine, with the pony herd located immediately to the north of the willows, and the lodges positioned still further to the north. This map is consistent with correspondent Liberal's February 5th statement that the ravine "emptied into a flat about three hundred yards wide, bordering on the river" (Hart 1982:156). Finally, the Aitken map, which seems to incorporate much local lore but was drafted 63 years later and without access to either the Beach or Price-Martineau sketches, shows the village concentrated north of the Old Montana Road in the upper ravine of Battle Creek. In the reach where the Beach and Price/Martineau maps place most of the lodges, Aitken shows a "warrior's ambush" behind a "natural breastwork 10' high" along the eastern rim of the lower ravine.

TRIBAL INTERPRETATIONS.

Before turning to the battle itself, we should acknowledge that almost everything stated so far has been contested by tribal voices raised since the 1970s. Contemporary Shoshone oral and written tradition argues that (1) the villagers were surprised and unprepared for the attack; (2) that most of them were innocent of any attacks on white emigrants or settlers; (3) that their first response to Connor's approach was an attempt to negotiate; (4) that the defensive positions that so impressed the soldiers were part of a children's playground; (5) that the defense was conducted with bows and arrows and edged weapons rather than firearms; (6) that many of the able-bodied men were fifty miles to the north on a hunting trip when the attack began; (7) that Connor's stated goal of "chastisement" meant genocidal extermination; (8) that the fighting lasted only a few minutes but the killing went on all day; (9) that as many as five hundred Shoshones were killed; and (10) most of the Shoshone dead were women, children, the elderly, and the ill or previously wounded.

THE ATTACK.

Due to delays in finding a local guide to the ford, Captain Hoyt's column of infantry and the mountain howitzers left Franklin at 3 a.m., two hours behind schedule. Hoyt was overtaken by Connor and the cavalry about four miles south of Bear River, shortly before dawn. Connor sent McGarry and the cavalry forward, with instructions to surround the village before attacking it. The Nelson brothers of Franklin are believed to have served as the guides who led McGarry to the ford that is sometimes referred to by their name. Connor was still shepherding Hoyt's floundering force forward toward the Clay Bluff when McGarry's cavalry forded the river, just before dawn.

The attack occurred twenty years before time zones became established, and Connor's statement that combat began at 6 a.m. corresponds to today's Pacific Time Zone. At Bear River on January 29, the sun rises at 7:44 a.m. and sets at 5:36 p.m. Daylight lasts 9 hours and 52 minutes. The twilight period when the general outlines of ground objects can be distinguished and movement of troops becomes feasible begins at 6:41 a.m. and ends at 6:40 p.m. In other words, Connor had 12 hours to get his force across the river and then back again and into camp before full dark.

No explicit orders are recorded for cutting off the Indians' pony herd, which may not have been visible inside the ravine. Madsen's (1985) map showing the Shoshone horse herd on the open terrace southwest of the village (our West Plain) is not supported by primary sources. Thus, the Price-Martineau map shows 200 horses in the Middle Ravine, where they probably fed on the willows.

McGarry's four companies of cavalry forded the ice-clogged river and began their approach to the ravine between 6:40 and 7:40 a.m. The major's instruction to surround the village before "chastising" it was forgotten in the shock of initial contact. As the Volunteers neared the rising smoke of the Shoshone campfires, warriors sallied out on foot and horseback to engage them.

Liberal's dispatch dated February 7, 9 says the hidden Shoshone delivered a volley when the cavalry had approached to within 50 paces of Cedar Point, where "it was closely hugged by the ravine." William Nelson recalled that five horses were killed in the "first deadly volley" (*Franklin County Citizen*, February 8th, 1917, cited in Hart 1982:196-197).

McGarry ordered his men to dismount and detailed every fourth man to the rear to hold the horses. Company officers remained mounted to set examples to the men, and to direct their fire. The soldiers, now reduced in strength by a quarter, continued through the snow toward the ravine. It is uncertain whether they moved on line or followed the Hardee tactical manual and broke down into separate skirmishing parties of four. In any case, they clearly had not surrounded the village as Connor had ordered. Instead, they had allowed themselves to be drawn into heavy and premature contact on its eastern and most defensible flank. The Shoshone were fully prepared for them and probably began firing at ranges of less than one hundred yards.

Several cavalrymen fell in this initial fusillade. The heaviest casualties occurred in Companies K and M of the 2nd Cavalry. The first volley hit Lieutenant Chase in the arm, then the lung. He remained mounted and retained command until Connor arrived, then reported himself mortally wounded and requested permission to retire. Companies A and H arrived almost immediately after the first contact. Captain McLean of Company A was hit in the wrist, then the thigh, and when his horse was hit they went down together. The Indians may have seized a few of the cavalry horses in the melee. Witnesses later agreed that as many as twenty warriors escaped as the battle intensified, some of them on captured mounts.

After twenty or thirty minutes of confusion, the stunned cavalrymen fell back toward the foot of Cedar Point where most of the horses were still held, and where the surgeon set up an aid station for the wounded. Marshall Gibbs, his arrest warrant for the three chiefs now stuffed in his pocket, helped care for the casualties. According to Liberal's February 5th dispatch to the *Sacramento Daily Union*, "No

attention was paid to a man as he fell. No one was seen carrying the wounded off the field; but each man as he fell lay until the fight was over" (Hart 1982:143).

By this time, less than an hour into the battle, Connor had abandoned the howitzers, crossed the river, and taken command on the East Plain. He sent the "number fours" with the horses back across Bear River to ferry Captain Hoyt's infantry company across the Soldiers' Ford, then ordered McGarry to take twenty men and move northwest across Cedar Point to the Upper Ravine to enfilade the Shoshone position. The howitzers remained snowbound somewhere between Franklin and the Clay Bluff, and made no contribution to the battle.

The phases of the engagement are reconstructed as follows. It began when McGarry's four cavalry companies arrived on the East Plain between 6:40 and 7:40 a.m. The battalion confronted a party of mounted and dismounted Shoshones, who lured the Volunteers forward toward a prepared ambush. Companies K and M pursued the decoys toward the east rim of the Lower Ravine, where they were met by a "murderous" fire from camouflaged firing positions. Companies A and H of the 2nd Cavalry arrived to reinforce Companies K and M. The meleé continued for about thirty minutes, probably until about 8:30 a.m. By then, Connor had arrived on the East Plain and assumed command. He retained it throughout the engagement.

Connor ordered McGarry to begin his flanking sortie with 20 cavalrymen. This probably occurred between 8:30-9:00 a.m. He then sent the "number fours" with enough horses back across the river to ferry Hoyt's Company K, 3rd Infantry, across to reinforce McGarry's flanking movement. Once across the river, Hoyt's infantrymen immediately reinforced McGarry's enfilading sortie. They probably followed the route of the Old Montana Road and crossed to the western side of the ravine on a log bridge. Finally, as Shoshone resistance gradually collapsed, cavalry companies closed in on both sides of the Lower Ravine to cut off escape to the river. The flanking party, by now numbering not fewer than fifty men, crossed Cedar Point, seized the Upper Ravine, prevented a Shoshone retreat to the wooded slopes of West Bluff, and enfiladed the village, probably not later than 9:30 a.m.

Some uncertainty surrounds McGarry's position throughout the morning. The Price/Martineau map shows him located immediately north of the dotted ellipse labeled "main portion of cavalry force engaged" near the east rim of the ravine. This may imply that he did not actually accompany the 20 cavalrymen from Company K and Hoyt's company of infantry in the climb over Cedar Point to enfilade the Upper Ravine, or perhaps that he returned to the East Plain after that maneuver was underway. In special correspondent "Liberal"'s dispatch of February 5th, the major is described pointing out targets to the dismounted cavalrymen:

> Major McGarry, seated on a stone gray horse, was actively engaged in warming his fingers by slapping them violently against his chest, at the same time exclaiming, "Give it to them boys!" Still later in the day, he directed the attention of one of his men to an Indian, telling him to shoot Mr. Indian, which being done, the Major said "Thank you, sir; there's another one – shoot him." The Major also remained on his horse throughout the engagement.

A second attack into the Lower Ravine began before 9 a.m. Company K, 2nd Cavalry, under Lieutenants Quinn and Conrad, pressed forward against the east rim of the Lower Ravine. A third of this force paused to hold the rim, while the remainder surged down into the wooded floor of the ravine. At this point in the fighting, the basic fire, maneuver, and shock elements were probably sections and squads rather than platoons or companies. The correspondent for the *San Francisco Evening Bulletin* described how a sergeant with a squad "firing by threes" covered a gap in the vegetation while the flanking party drove the Shoshone south down the ravine (Hart 1982:143).

Within the willow "jungle" that floored the ravine, the fighting degenerated into lodge-to-lodge slaughter with revolvers, swords, knives, and bayonets. Visibility was hampered by the heavy vegetation, and the cow-sized clouds of white smoke produced by each shot contributed to the close-quarters confusion. Lieutenant Conrad led half of the Volunteers in the ravine jungle up the slope of the west rim so the Shoshone position was now both doubly enveloped on the east and west, and enfiladed from the north. Sergeant William L. Beach participated in Company K's action.

During the final hour of the fighting, Captain Price reinforced Company K with Company M at the slight salient where the Lower Ravine curved to the east. According to the correspondent for the *Sacramento Daily Union* (February 17, 1863), "Captain Price took about thirty men from K and M Companies to a wick-i-up close to the bank, and opposite the big bend of the ravine, where the Indians had concentrated for their last fight. At this time, within a space of five minutes, Captain Price had eight men killed or mortally wounded; but as they fell, men from other companies took their places, and for nearly an hour the battle raged fiercely and vindictively. The execution done by this detachment of men is sufficiently shown, when, after the fight, forty-eight bodies of the Indian warriors were found in one pile in the bend of the ravine." The map or "diagram" drafted afterward and attributed here to Captain Price shows the wickiup in question, the bend in the ravine, and Price's position (Christensen 1999:50). The pile of 48 Shoshone bodies is probably the same one tallied the next day by William Nelson when he inspected the lower ravine, although he counted 76 before he gave up and turned back. It may also be the spot recalled by William T. Hull where bodies were stacked eight deep. As a private in Price's Company M, John T. Kelly, cited earlier regarding captive women and children, probably participated in this climactic action.

The ravine was squeezed like a tube of toothpaste, with the Shoshone remnant being forced out toward the open flat adjoining Bear River. The killing climaxed here in a crescendo of massed revolver fire, and ended by 10:00 (Connor) or 10:30 (Tuttle) a.m. Surviving Shoshones attempted to break out of the Lower Ravine and flee west along the riverbank. They were pursued by a mounted detachment of cavalry led by Lieutenants Berry, Quinn, and Conrad.

Liberal says the ravine battle involved more than 300 warriors and no more than 170 soldiers, with the rest of the command either holding the horses or securing the baggage train and howitzers on the South Terrace. He said that except for Lieutenant Quinn's detachment fighting on the ravine floor, the soldiers did not gain access to the Shoshone lodges until the fighting ended. Some lodges were covered with canvas wagon covers, "many of them bearing the names of their owners." Within were found blankets, iron pots and kettles, combs and mirrors, rifles and ammunition, and substantial stores of food. More than a thousand bushels of captured wheat were used to feed the cavalry horses (many of them had crossed the icy river four times by the end of the day). Flour, potatoes, beef, "any amount of live chickens," as well as native seeds and nuts were destroyed in bulk. The Shoshone firearms and 175 captured ponies were auctioned off at Camp Douglas in February. It is likely that the sexual assaults reported by the survivor Magwitch to a Mormon bishop, and perhaps the scalping reported by a Franklin woman, all occurred inside the lodges immediately after the fighting ended and before the surviving unwounded officers were able to reassert control of the men, probably between 10:30 and about noon. The afternoon was spent looting the lodges for trophies and souvenirs, torching the village, killing wounded Shoshone left on the battlefield, counting the Shoshone dead, shooting the wounded horses, stripping the fallen cavalry horses of saddles, bridles, and other furniture, outfitting some of the captured horses as replacements and mounts for the infantry, and assembling and transporting the army casualties across the river to the South Terrace for a night bivouac. Connor had about six hours to get this done before dark.

The sequence of events is shown in Figure 3.24, which imposes a revised version of Barta's (1960) version of Aitken's (1926) map on current Google Earth imagery. This reconstruction moves the Soldiers' (Nelson) Ford further upstream from where Barta placed it, but otherwise follows his placement of the combatants.

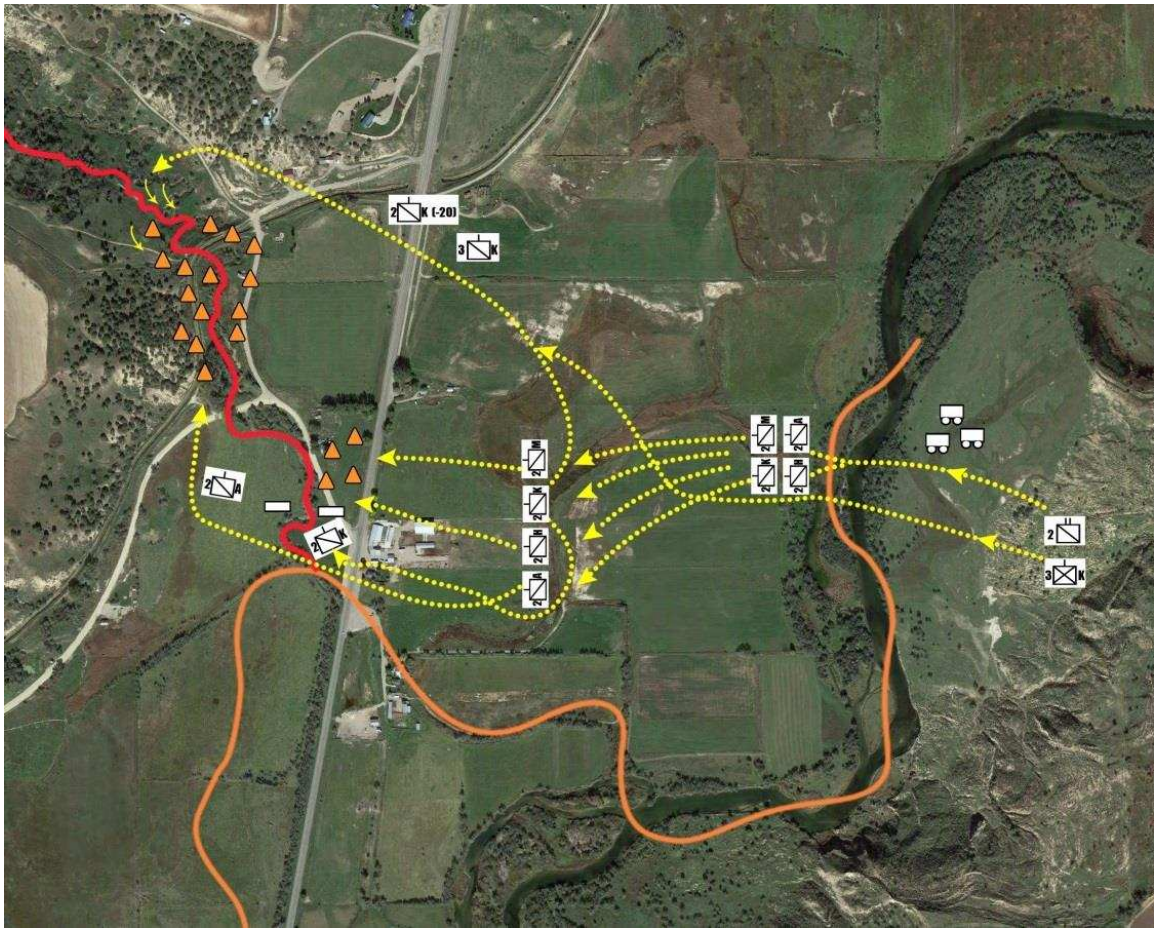

Figure 3.24: Reconstructed position of Shoshone village and troop movements in relation to hypothetical course of Bear River and Beaver Creek in 1863.

AFTERMATH.

The consequences of the attack on Bia Ogoi can be measured in loss of life, destruction of property, captured booty, and the changed balance of power in Cache Valley. These will now be considered in turn.

Casualty data for the California Volunteers are detailed and specific. Only one soldier was felled by arrows, and he recovered. The rest of the wounds were caused by gunshots. The listed casualties are from a correspondent's report and the surgeon's report, checked against the enlistment and muster records of the five companies (Orton 1890; Works Project Administration 1940; Hart 1982). A total of 66 battle casualties breaks down to include 14 soldiers killed in action and nine who later died of wounds, for a total of 23 dead. Another 43 men were wounded one or more times. Nine of them were subsequently discharged because of their wounds. In other words, one third (33.3%) of the 200 combatants was killed or wounded in the attack. To put this figure in context, a breakdown of Union and Confederate casualties for the first twelve major battles of the Civil War shows a mean of 14% dead and wounded for the North and 27% for the South (Kerr 1990:30).

In **Company A of the 2nd Cavalry**, Private James A. Baldwin was killed in action by a gunshot wound to the chest. Private George German died of a wound above the heart. A gunshot wound to the right arm led to the death of Private William Wall on February 8, ten days after the attack. Private William H. Lake died of a gunshot wound to the mouth on March 24th. That he lingered for 55 days after the battle may indicate the mouth wound caused his death from starvation and dehydration. According to Hart's (1982)

sources, Lieutenant David J. Berry recovered from a gunshot wound to the right shoulder. Although the official record of volunteer forces reports that he succumbed to wounds received at Bear River on May 5th (Adjutant General's Office 1867: 331), Berry died of natural causes in 1865. Private John Welch survived arrow wounds in each lung, and Private William Jay recovered from having an index finger shot off. Private James Montgomery survived a gunshot wound to the right lung but was discharged due to disability on June 29th.

In **Company H of the 2nd Cavalry**, Privates Charles L. Hallowell and John R. Briggs were both killed in action by gunshot wounds to the chest. Sergeant James Cantillon died of a gunshot to the left lung on February 4th. Private Michael O'Brien also died of a gunshot wound to the left lung on February 7th. Corporal James Frawley died of gunshot wounds to the right shoulder and spine on February 9th. Captain Daniel McLean recovered from gunshot wounds to his right arm and left thigh. Private Bartel C. Hutchinson recovered from a gunshot wound to the right arm, Private Frank A. Farley from a gunshot wound to his right side, Private James Logue from a gunshot wound to his right elbow, Private P. Shaub from a gunshot wound to his left lung, Private J. Cloves from a gunshot wound to his right shoulder, and Private Thompson Ridgeway from a gunshot wound to his right arm. Private John Franklin recovered from gunshot wounds to his right hip and neck, but was discharged for disability on May 27th. Private Hugh Connor survived a gunshot wound to his left eye, but was discharged for disability on May 28th.

In **Company K of the 2nd Cavalry**, Lieutenant Darwin Chase was hit in the arm, then the left lung, and died of the latter wound on February 4th. His bugler, Private Christian Smith, was killed in action by a gunshot wound to the chest. Private Shelbourne C. Reed was killed in action by a gunshot wound to the head. Private Adolphus Rowe and Private Henry W. Trempf were both killed in action by gunshot wounds to both lungs. Private Lewis Anderson was killed in action by a gunshot wound to the heart. Private William Slocum died on February 6th from a gunshot wound to the right lung. Private Morris Illeg recovered from a gunshot wound to his right shoulder, and Private Alonzo A. P. V. McCoy from a wound to his navel. Private Robert Hargrove recovered from a gunshot wound to his right elbow and Private Silas C. Bush from a gunshot wound to his left ankle. Private Eugene C. Brady survived gunshot wounds to his nose and face. Private Nathanial Kinsley recovered from gunshot wounds to his right side and arm. Private J. S. Langley recovered from a gunshot wound to the neck, and Sergeant John Daily from gunshot wounds to the left breast and shoulder. A Volunteer identified only as Kelly survived a gunshot wound to the abdomen. Corporal Benjamin Landis mended from a gunshot wound to the right shoulder but was discharged for disability on May 28th. Also discharged for disability on that date were Privates Walter B. Welton, who survived a gunshot wound to the right thigh, Albert M. Parker, recovered from a gunshot wound to the left arm, and John S. Lee, recovered from gunshot wounds to the right arm and hip.

In **Company M of the 2nd Cavalry**, Private George C. Cox died from one or more bullets to both lungs, and fifteen-year-old George W. Horton or Hoton was killed by a bullet to the head. Wagoner Asa F. Howard was killed by a bullet in the heart. Private William M. Davis died of a gunshot wound to his right lung on February 2nd. Sergeant Anthony Stevens died of gunshot wounds to his chest and shoulder on February 6th. Privates Philip Humbert and John Stevens survived superficial gunshot wounds to the scalp. Private Heffner recovered from a gunshot wound to his right arm. Privates Thaddeus Barrafer, Reuben Miller, and E. C. Chase all survived gunshot wounds to the right shoulder, and Private Joshua Legget recovered from a gunshot wound to his left shoulder. Private M. Forbes recovered from gunshot wounds in the hand and arm. Private Levi D. Hughes recovered from a gunshot wound to his right leg. Sergeant Leander W. Hughes survived gunshot wounds to the nose and right side. Sergeant Lorin Robbins also survived a gunshot wound to the right side. Private William H. Hood recovered from gunshot wounds to the left hand and groin, but was discharged for disability on June 2nd.

Finally, in **Company K of the 3rd Infantry**, Private John A. Baker was killed in action by gunshot wounds to the heart and stomach, and Private Samuel L. Thomas by a gunshot wound to the chest.

Major Patrick A. Gallagher recovered from a gunshot wound to the left arm. Sergeant Adoniram J. Austin recovered from a gunshot wound to the right eye. Privates Ebenezer C. Hoyt and John Hensley both recovered from gunshot wounds to the left lung and right leg, respectively. Private Thomas B. Walker recovered from a gunshot wound to the left side but was discharged for disability on May 1st.

Of the 80 wounds recorded, 57 (71%) occurred to the upper body, between the hips and the head, with 11 head wounds, 11 shoulder wounds, and 35 to the torso (chest, heart, lungs, spine, "side," abdomen, and hips). Clearly, the Shoshones shot carefully and competently, and it is probably true that they were well armed with good weapons. Cold injuries were also common. Surgeon Reid's report to General Wright, written from Camp Douglas, says 76 soldiers suffered from "frozen feet" (Work Projects Administration 1940:15). In his annual report for Camp Douglas, he noted that none of the wounds to the limbs required amputation, but that several men lost fingers, toes, and parts of their feet to frostbite. William T. Hull, among other errors discussed below, incorrectly reports several wounded soldiers froze to death on the battlefield before they could be treated. The effect of the cold weather on wounds to the limbs probably slowed blood loss and infection. The infantrymen of Company K, 3rd Infantry, suffered the highest incidence of frostbitten feet, perhaps because they wore brogan-style shoes instead of the knee-boots of the cavalrymen.

Not surprisingly, the Shoshone casualties have received far less attention. After four hours of fighting, the bodies of at least 250 Shoshones were strewn across an area about the size of two football fields. The names of 38 of the dead have been compiled from LDS archives in Salt Lake City. They were shared with us by tribal historian Patty Timbimboo-Madsen:

Anno-tz-do-bey	Tidz-a-pah	Goo-se-quan-sup
Tabby-Woot-te-gwa	Py-booa-gun	Wah-mots-zee
Co-ro-boits-e	Nek-u-wut	Paga-bowey
No-ro-nug-in-jo	Pa-se-wun-to-pe-ka	Wah-o-nuts
Tin-nam-bey	Samuel	Ah-boo
Pooa-took-unt	Yee-gum	Pun-ga-ze-o
Koo-be-no	Pag-e-yah	Coods-a-re-up
Nin-nam-goit-zah-ny	Han-ey	Ta-gwush-e
Tzuk-qua-nun-gah	We-i-yah	Toso-so-ap
No-yo-zach-wa	Poni-bouey	Ah-geet-too
Po-wip	Ah-go-sup	To-e-yei
Wah-wut-te-gah	Tiva-tit-so-a	Ke-ni-ditch
Me-tuk-ut-se	Cook-ap	

We are uncertain whether this list includes alternate names for the slain headmen known as Lehi, Wirasuap (Bear Spirit, aka Bear Hunter), and Ash'ingodim'ah'sm. Nor do we know the age or gender of the named Shoshone dead. If the survivor who told Frank Timboopoo Warner that 73 men, 40 women, and 43 children were killed worked from a list of names compiled in 1918, that list has not surfaced in subsequent research. It seems likely that the names of at least two hundred slain Shoshones have not been recorded.

Whether an "orgy of rape" (Anderson 2014:244; Fleisher 2004:220) occurred inside the lodges after the Shoshone defense collapsed cannot be addressed with the available historical sources. None of the participating soldiers admitted it, at least one denied it, and a Tribal historian has disputed it (Parry 1976; Fleisher 2004). Two historians who have examined Fleisher's claims of mass rape are frankly skeptical (Miller 2006; Maxwell 2016:192). Considering what they had just been through, an orgy might not have been the first thing on the soldiers' minds that afternoon. A third of the attackers had been killed or wounded. It is likely that at least two unwounded men were required to transport each of the casualties, and certain that Connor would have prioritized their retrieval and care over a mass rape. In addition,

nearly half the Californians now suffered from "frozen feet" and other cold injuries, and the entire command experienced significant sleep deprivation, physical exhaustion, hunger, thirst, and the confusion of reforming their depleted companies and reestablishing chains of command and authority.

Nevertheless, at a much-reduced scale than the one asserted by Fleisher and accepted by Anderson and other secondary sources, the reported rape and atrocity incidents at Bia Ogoi are credible. A Shoshone cripple named Madigan came to Smithfield on February 8th and told Samuel Roskelley: "[W]e went to the 'battle Ground' with the 'soldiers,' and was on the battleground immediately after the fight. Said the way the Soldiers used the squaws after the battle was shameful, and reports about 60 warriors killed, 30 wounded, some of which will die. Sagwitch got away with 20 warriors. Says there were from 20 to 30 squaws killed and many children" (Hart 1982:50).

The sexual assaults probably occurred immediately after the revolver-slaughter in the Lower Ravine as Shoshone defenses crumbled and survivors fled. However, instead of carrying out a preplanned ethnic cleansing policy, as Fleisher charges, it is more likely that the Californians weren't fully aware of what they were doing until they were in the midst of doing it. Thus, under subheads such as *The Battle* and *Incidents of the Fight*, correspondent Liberal describes behaviors that closely match what sociologists term "forward panic" in police and military violence (Collins 2008:92-94). Battlefield symptoms of forward panic include uncontrollable anger, explosive arousal (the "adrenalin rush"), hysterical laughter and elation, repetitive acts of aggression, sometimes on an already helpless or dead victim, all of it accompanied by an abrupt release from tension and fear.

Sergeant William Beach of Company K, the man who drafted the second known sketch of the battlefield, described the second assault into the ravine as "rushing on to death to approach them" with a "deafening yell." He characterized the battle as a "frolic" with "the wounded cracking jokes with the frozen" (Schindler 1999:307). Another combatant, a veteran of the first battle at Bull Run, remarked that the Shoshone defense "was infinitely more interesting and warm than the famous affair of the Rebellion" (Special correspondent to the *Sacramento Daily Union*, Feb. 4, 1863, quoted in Hart 1982).

In terms of this forward panic scenario, the sheer terror of moving straight toward the Indians, without any cover or concealment, coupled with the realization that a retreat could be even more dangerous than pressing on with the attack, entrained intense, uncontrollable emotion that self-incinerated in a spasm of extreme violence. As Sergeant Beach recalled, "Midst the roar of guns and sharp report of Pistols could be heard the cry for quarters but their (sic) was no quarter that day" (Schindler 1999:307). These "moral holidays" and gratuitous killings often occur at the moment the defense collapses (Collins 2008). They are not inevitable responses to combat. After an initial reversal, troops attacking fixed positions or forces of unanticipated size sometimes experience panicked withdrawals in the opposite direction, as Reno's battalion did in the valley fight at the Little Big Horn (Fox 1993). This presumably is what the Shoshones expected to happen to McGarry's command when the shooting began.

Active fighting ended before noon, although isolated killings, scalpings, and rapes may have occurred into the early part of the afternoon. Connor used the last hours of daylight to collect lodgepoles from the village for that night's fuel, complete the destruction of the wickiups, round up the Indian pony herd, complete a partial count of the Shoshone dead, attempt to identify the dead chiefs, tally and provision the 160 Shoshone survivors, and move his casualties back across the river to the bivouac at the foot of the Clay Bluff. None of the military casualties were left behind.

Of the roughly 200 ponies tethered within the shelter of the ravine, 175 were captured. The soldiers also seized buffalo robes, beadwork, pipes, tomahawks, knives, arrows and other native goods as trophies and souvenirs. The *Sacramento Daily Union* reporter ("Liberal") does not describe a massacre of women and children, but says that "The squaws and papooses, as soon as they discovered that the soldiers did not

intend to molest them, seated themselves on the bank of the ravine and feasted on their pine nuts as if nothing had occurred."

Of course, quite a bit had occurred by then. A village and community had been destroyed. The immediate problems facing the Shoshone survivors as they gathered around a single campfire that night included wounds, pain and blood loss, shock, hypothermia, frostbite, hunger, and psychic trauma. Some were soaking wet from desperate swims, while others must have simply stared and mumbled in disbelief. Temperatures had dropped to well below freezing throughout the afternoon, and the night was bitterly cold. Connor's after-action report tallies 224 Shoshones killed and 160 women and children captured. This combined total represents more than three-quarters of the village's estimated population. He knew he hadn't counted all of the dead. Some may have been counted again by Mormon settlers in the days and weeks afterward as bodies snagged in shoreline undergrowth or floated into eddies. Bear Hunter's mutilated body was identified, but the fates of the other band headmen could not be confirmed. Although Conner erred in counting him as one of the dead chiefs, Sagwitch escaped by swimming downstream. He survived an infected hand wound and lived on to become a Mormon bishop and widely respected tribal elder.

In 1904, William Nelson recalled that his brothers Edmund and Joseph had led the soldiers across the river and "up the creek to the Indian camp." When he visited the site on the afternoon of the massacre, he again said that after crossing the river he went "up the creek where the battle was fought. The wicky-ups were made with poles, willows and wheat-grass stood up on end. All of these that had not already been burned were then burning…I counted the dead Indians, 76 in all, in the bottom of the creek hollow and it is quite likely that a good many were killed in the bushes on the creek bank. The soldiers said that they had killed a great many while they were wading the river to get out of their way" (Hart 1982:195).

William Hull inspected the battlefield two days later in the company of Alexander Stalker and William Head. Stalker quit counting the dead and turned back when he got to 76. However, more than sixty years later, Hull claimed that the three of them estimated 400 dead Indians, two-thirds of them women and children. No information was offered explaining how the estimate and percentages were arrived at (Hull, cited in Daniel 1930). The 1926 Aitken map also says 400 Shoshones died. If Hull's estimate is correct, it breaks down to about 264 women and children and 136 men. Hull had viewed some of the battle from the South Terrace, where he remained with the baggage train. However, because his story was recorded in 1930, when he was probably in his late eighties, because it lacks any corroboration from his fellow enumerators, and because it errs concerning the many wounded soldiers who froze to death on the field, it seems the least authoritative estimate.

A possible source for the figure of 400 Shoshone dead is the memoir of the notorious Mormon assassin, Bill Hickman. His "life, confession, and startling disclosures" were transcribed in 1870 and later published locally in Salt Lake City (Hickman 1904). During the summer of 1863, Hickman had hired on as a guide for Connor during his expedition to Soda Springs, and the two seem to have developed a grudging respect for one another. In his memoir, Hickman recalls that:

> *The Indians, who had been killing the emigrants for the last two years, had gathered near the north settlements, about one hundred and twenty-five miles north of Salt Lake City. The General sent scouts to seek out their situation, and the Indians sent him word to come on – they were ready, and could whip all his soldiers. The General went with a portion of his men in the winter weather, very cold. His men – most of them – waded Bear River, and found the savages in a deep ravine running across Bear River Valley, where it was smooth and clear of knolls or brush, and he has to attack them while in this entrenchment. He had a two hour's fight, and killed over four hundred. But few escaped that could be found, except the women and children, who were not hurt, only through mistake. He had sixteen men killed on the*

> *battlefield, and about as many wounded; and some of them died after he got back to camp. This, together with what he did the next spring and summer, broke up this murderous band (Hickman 1904:158-159).*

Given the seven years that had passed since the attack, Connor's original figures for the dead and captive Shoshone may have simply been summed and rounded up to 400 by Hickman. By the 1920s, the Hickman figure would have been widely circulated, and may be the source of the same number claimed by Hull in 1930. In any case, it was the number provided by the Idaho State Historical Society to the Idaho Department of Transportation when they erected an interpretive sign in the 1960s, and is now widely and misleadingly cited in the secondary literature.

The only casualty figures available from a Shoshone source are secondhand, but virtually contemporaneous with Connor, Martineau, and Hull. Thus, in Salt Lake City eighteen days after the attack, Indians told James Doty, superintendent of Indian affairs for Utah Territory, that 255 men, women, and children had died at Bear River, most of them from Bear Hunter's and Sagwitch's bands (Morgan 2007:295). Accounts vary, but firsthand casualty breakdowns by age and sex agree that more men than women and children were killed. For example, the verso figures signed off on by J. H. Martineau on the back of the Price/Martineau map list 90 women and children killed out of 250 dead, with forty to fifty Indians escaping and 14 women wounded. Nearly two-thirds of the dead were men. No male prisoners are mentioned in any of the sources. As bad as the slaughter was, some glimmers of humanity remained. First-hand reports agree that Connor's men did not massacre every Shoshone they saw, as Chivington's men did at Sand Creek (Greene 2004), nor did they use captive women and children as hostage-shields against a counterattack, as Custer's men did on the Washita (Greene and Scott 2004). And unlike Baker's treatment of the Piegans after the Marias massacre, prisoners were not axed to death in small groups each night on the march back to the fort (Wylie 2016).

Connor was scrupulous in the recovery of his own casualties, bringing the dead back to Camp Douglas with the wounded and dying. Re-crossing the river and going into a night bivouac somewhere near the south side of the Soldiers' Ford with so many casualties required coordinated effort and discipline. The dead soldiers were probably secured over the saddles of horses, and led across the river by mounted soldiers. Two-horse litters may have been improvised using lodgepoles and canvas lodge covers to transport men too badly wounded to ride. Alternatively, if the Samuel Williams testimony can be credited, a shallower ford was found and they were carried across on foot in four-man litters to the South Terrace. Once the wounded went into bivouac on the South Terrace, enough shelter and warmth had to be improvised to survive the night before being relayed into Franklin on mule-drawn sleds in the morning. The frozen dead were stacked in a separate baggage wagon. The column began its return to Camp Douglas on January 30th and arrived there on February 4th. The campaign had lasted fourteen days.

The Shoshone dead received little attention. The sheer scale of the killing precluded the traditional mortuary treatment normally provided by survivors or kinsmen (Dean and Marler 1986). The soldiers left them where they lay and the Mormons organized no interments. "Some of the dead which were left on the creek bottom were afterward thrown into the river by the Indians, the others were left untouched…I know that many of these Indian bodies were never buried" (William Nelson letter to *Franklin County Citizen*, Feb. 1, 1917). A Tribal historian confirms the river disposals. "The Indians realized they could not hold proper funeral services for their dead, so many were thrown into the still flowing Bear River" (Parry 1976). However, as William Hull recalled, many others received no treatment. The Newell Hart papers include a letter or journal entry dated Nov. 12, 1920 by Earl Daines of Hyde Park. It concludes with a description of two settlers hunting strayed cattle along Battle Creek sometime after the massacre. They "ran into many skulls, teeth, hair like horses manes lying all around & were frightened." The battlefield and massacre ground lay undisturbed for fourteen years. Not until 1877 was the first settler's cabin built along the stream now known as Battle Creek.

Table 3.1: Eyewitness Counts of the Shoshone Dead at Battle Creek (Bia Ogoi).

Source	Date of Information	Total Shoshone Dead	Shoshone Casualty Breakdown		
			Males	Women and Children	
				Killed	Spared/Fled
Wm. G. Nelson	January 30th	76	-	-	-
Alexander Stalker	January 30th	175	-	-	-
Wm. Hull	January 30th (?)	~400[1]	136	264	-
Enfield: *Sacramento Daily Union*[2]	February 2nd	224 - 300	-	-	-
Patrick E. Connor	February 7th	224	-	-	160
John H. Martineau	February 7th	250	160	~90	-
Samuel Roskelly	February 8th	80 - 90(+)	60	20 - 30(+)	-
William Beach	February 14th	280	-	-	-
James D. Doty[3]	February 16th	255	-	-	-
Wm. L. Usted	February 17th	-	-	1	114
Liberal: *Sacramento Daily Union*[4]	February 13th	250 - 300	-	-	-
John H. Martineau	1882	368	278[5]	90	-
James L. Onderdonk	1885	165	-	-	-
Salt Lake City Tribune[6]	1902	115	-	-	-
Frank Timboopoo Warner	1918	156[7]	73	83	-
W. K. Aitken	1926	400[8]	-	-	-

[1] Hull describes visiting the battlefield with Wm. Nelson and Wm. Head, and implies that the three of them counted 400 dead, two thirds of them women and children. Not all of the Mormons who toured the battlefield afterward were keeping count. Thus, in 1973 Hart was told by Estus Packer, "My father (Nathan Taylor Packer) went out to visit the battlefield and saw a little puppy dog that had crawled inside the dead Indian's entrails to keep warm. That's all he remembered about it." (Hart 1982:263).

[2] Enfield may be a pseudonym, perhaps a staff officer with the 2nd Cavalry.

[3] Shoshone survivors reported this figure to Doty in Salt Lake City.

[4] Liberal or Verite was probably a source at Camp Douglas who questioned participants immediately after their return to the camp.

[5] The abrupt increase in adult male dead reported by Martineau in 1882 is accompanied by no supporting evidence.

[6] The informant was a western Shoshone survivr named Shoshonitch, who reported 65 warriors killed in action, the reaminder dying of wounds (Bridges 1902).

[7] Oral communication from survivor Toquitch Timbopo to Frank Warner states that more than half the village escaped. His breakdown of the women and children killed included 40 women and 43 children.

[8] The Aitken map reports 400 Shoshone dead. Hart (1982) identifies James Packer, Jr. as the source of Aitken's information. A written source may have been Hickman (1904).

CONCLUSION

Tactically and operationally, Connor decisively defeated the Shoshones. It had been an expensive victory and probably could have been achieved more cheaply. Perhaps given more time and less brutal weather, he could have besieged the village and waited for a surrender of the warranted chiefs, as Miles did with the Nez Perce in 1877 (Greene 2000:293-324). Another alternative might have been to secure the high ground of Cedar Point and the West Bluff and pour volleyed fire into the ravine, as Baker did in the slaughter of Heavy Runner's Piegans seven years later on the Marias (Wylie 2016:181-201).

Nevertheless, if his casualties caused grumbling among his own men, the attack impressed the Indians. Various bands of the Shoshone and Goshute participated in separate treaty negotiations throughout the summer and fall of 1863. These agreements contributed to a rough measure of peace for eastern Idaho Territory. From a broader strategic and political perspective, Connor may have achieved a more

important goal: reducing the Mormon threat to Federal forces and authority during a low point in the Civil War. Thus, during a brief tour of the battlefield sponsored by the Utah-Northern Railway in 1880, Connor answered a reporter's question about whether the situation and the weather hadn't made the battle "a little tough?"

> "*We had to win,"* Connor replied. *"If we had not, none of us would ever have returned, for Utah just then was an enemies' country for us"* (Goodwin 1912, cited in Hart 1982).

Connor may have hoped that defeating the Shoshones would stalemate the more numerous, disciplined, and better-armed Mormons, poised as they seemed to be for rebellion against the United States (Maxwell 2016). Ironically, the Saints he so feared and detested ultimately benefitted most from the attack, although it took them some time to realize this. Writing from Cache Valley on May 9th, more than three months after the attack, church leader Ezra T. Benson reported "The Indians are very hostile," stealing horses, murdering men, and threatening to steal Mormon women. "…[T]he hostile Indians are the remains of the Bands that were in the fight at Bear River last winter and they say they intend having their pay out of the Mormons as they are afraid to tackle the soldiers…" (Madsen 1967:29).

Despite the dangers, Mormon settlers continued to press north from Franklin to erect small fortlets at Clifton, ten miles northwest of Battle Creek, and Oxford, eighteen miles to the northwest. Minor Indian raids and standoffs between 1864-1866 made these settlements precarious. Despite their log forts, both outposts were abandoned during a general withdrawal to Franklin as the Civil War drew to a close in the spring of 1865. Northern Cache Valley did not become safe enough for permanent homesteading until the spring of 1867 (Hart 1982:337-338). By then, the Mormon militia or Nauvoo Legion could handle Indian challenges as a constabulary rather than an army.

During the remainder of his Civil War tenure at Camp Douglas, Connor turned his attention south toward the Utes and west to secure the Overland Trail in Nevada from Goshute raiders, while never relaxing his vigilance toward Salt Lake City's Mormons (McCarthy 1975; Madsen 1990). After his promotion to brigadier general, Connor faced east in preparation for his Powder River campaign (Wagner 2010). By then, the Civil War had ended and Cache Valley had changed hands permanently.

And the surviving Shoshones? Many, perhaps most, of those who fled or were released from captivity remained in Cache Valley but turned from hunting and gathering or "hunting and plunder" lifeways to farming and ranching. Sagwitch recovered from his wound, overcame his rage, became an elder in the Mormon church, and ushered the remnant of his people into that faith. Speaking as the descendent community of massacre survivors, the Northwestern Band of the Shoshone Nation, seeks an expanding role in the management and interpretation of the Bear River Massacre National Historic Landmark.

Many questions about exactly what happened that day on Bear River remain unanswered and are perhaps unanswerable. How large was the Shoshone village in the days and weeks before the attack? How many families or bands foresaw the coming attack and left beforehand? Under the highly uncertain circumstances of January 28th, the night before the attack, how many Shoshones should we assign to the seventy lodges that were still present? Did some men stay for the fight while sending the noncombatants away beforehand? Or did some warriors order the noncombatants to remain in the ravine? Why were there fewer than two hundred ponies and horses for perhaps as many as five hundred people? Were the Shoshones who stayed in the village mainly poor Indians who lacked mounts to begin with? Did between twenty and fifty warriors escape the battlefield on horseback? Or were many of the young men absent that morning, conducting a hunt on horseback fifty miles to the north, as descendent Bruce Parry asserts? Were these missing hunters the same avenging Shoshones the Mormons feared for months after the attack? Perhaps currently unshared and unpublished Shoshone oral traditions will eventually cast light on these questions.

Another archive deserving more review includes family histories and genealogies from the hamlets and outposts along Connor's line of march. For example, while I was writing a draft of this chapter, a descendent of John Peter Davies forwarded a reminiscence of an event Davies witnessed as a boy of thirteen in Brigham City (Durfee 2016).

> *I was attending William Watkins school in the Courthouse. When school dismissed for noon, at least 50 sleighs were on Main Street with wounded soldiers. Perhaps 40 or 50 were in these bob sleighs. They had come from Cache Valley taking the wounded to Camp Douglas. All the moaning and agony was a terrible sight of distress. Some of these men were shot with arrows, others with frozen feet. People of Brigham City were trying to help by furnishing coffee and sandwiches. On First West there was a large band of Indian ponies, about 200 in number. In the same locality there were several sleighs of dead soldiers. About 14 of them were just frozen corpses in these sleighs, and quite a number of Indian prisoners in a large corral of H. P. Jensen.*

Using the "Can the source count anything accurately?" test, the Peters memoir seems reliable. However, his testimony is the only record we have found of Connor returning to Camp Douglas with "quite a number" of Indian captives. None of the most widely cited sources for thje Bear River engagement mention prisoners being transported back to Salt Lake City (Rogers 1938; Barta 1962; Hart 1982; Madsen 1984, 1985, 1990; Varley 1989; Miller 2008). Perhaps these captives were the same Shoshones who reported their losses to Commissioner Doty on February 16th. Clearly, more research into unpublished sources has potential to deepen our understanding or at least thicken out description of what happened at Bear River.

Field investigations. Archeological and geomorphic fieldwork can address questions of site boundaries, site integrity, and whether significant deposits unrelated to the massacre survive within the Landmark. The key observation made by Aitken was his recognition that the Bear River had meandered several hundred meters to the south of its 1863 course by the time of his survey in 1926 (Reid 2014:19). He mapped an "old Bear River stream" cutoff channel visible today. This can serve as the anchor point for battlefield survey transects to the north, in the direction that all sources agree the lodges were located, and to the east and west, where much of the incoming gunfire originated. The present course of the Lower Ravine of Battle Creek, south of today's Hot Springs Road, is probably an artifact produced by excavation of the West Cache Canal between 1898-1904, and the great flood of 1911.

Traces of material culture that might have survived in places in or near the Middle and Lower Ravine include:

- Footprints of up to 68-70 lodges: posthole patterns, recessed floors & berms, carbonized thatch/ matting, burned lodge poles, interior hearths, exterior middens. Finding and measuring floor areas of buried winter lodges might clarify the size of the village at Bia Ogoi. The available estimates often assume the lodges were all about the same size and held the same number of occupants. Thus village population is calculated by measuring 68 or 70 x *n*, despite the fact that the only value we have for *n* is Lander's 1860 estimate of 7. If we actually had a sample of house floors to measure, we could then use available floor-area algorithms devised by archaeologists to estimate population size.

- Compacted and debris-free but perhaps debris-rimmed circular floor where the large, multiband gathering performed the early January warm dance.

- Large extramural hearth or bonfire where Shoshone survivors gathered on the night of January 29th.

- Connor's night bivouac: hearths, miscellaneous military debris, equipage.

- Minié balls, percussion caps from Springfield and Whitney rifle-muskets, and Sharps carbines.

- 36 cal. lead bullets and percussion caps from Navy Colt revolvers.

- Shoshone smoothbore ball ammunition and lead slag from bullet molds.

- Miscellaneous emigrant loot and settler society material culture associated with Shoshone lodges. (The annuity lists of goods issued to tribes as a result of treaty negotiations that have helped define expectations at other western battlefields were not available for Bear River. As we saw in the **Historic Background**, commissioner Doty was unsuccessful in his efforts to provide relief to the tribes before the winter of 1862-63, and we have only anecdotal information on the material culture inventory of the Shoshone village. Most of the captured horses and some of the captured firearms were sold at auction at Camp Douglas in February, 1863. However, no auction list has been found.)

- Carbonized plant food remains: pine nuts, grain, corms, geophytes associated with lodges.

- Calcined animal bone fragments: game and domestic species of mammals and birds, fish, associated with lodges.

- Bones, teeth, horseshoes, and furniture from at least five cavalry horses killed on the East Plain and some of the Shoshone mounts killed among the willows of the Lower Ravine.

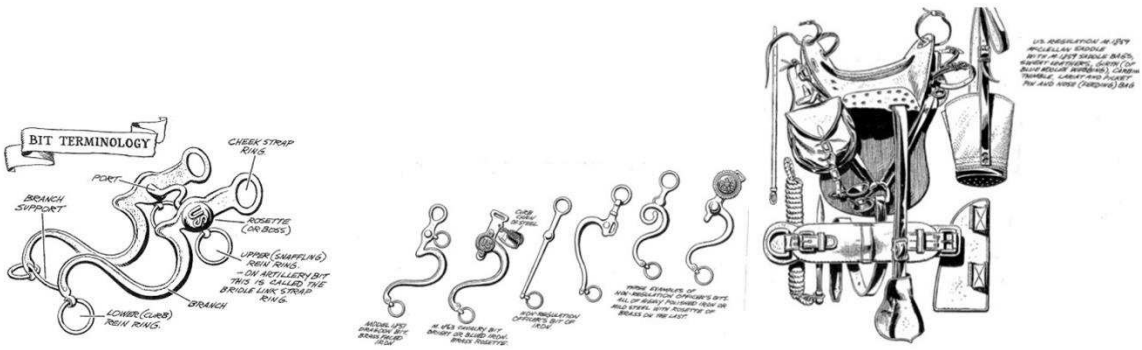

Figure 3.25: Examples of Civil War cavalry metal horse tack that might survive at Bear River. Reproduced from Todd (1974).

CHAPTER 4
KOCOA ANALYSIS

Kenneth C. Reid

KOCOA is an acronym used by the American Battlefield Protection Program to provide a classification matrix for **K**ey and decisive terrain, **O**bservation and fields of fire, **C**over and concealment, **O**bstacles, and **A**venues of approach/withdrawal. Given the study area's fluid geomorphology, before analyzing Landmark elements for a KOCOA matrix, it may help to place the property in its larger environmental context.

INTRODUCTION

Northern Cache Valley is drained by the Bear River (Figure 4.1). This stream, the longest river in North America that never reaches a sea, twists in and out of Wyoming, Idaho, and Utah before emptying into the Great Salt Lake. The battlefield lies at the north end of Cache Valley in extreme southeastern Idaho, within *Level IV ecoregion 13i, Malad and Cache Valleys* as mapped by McGrath et al. (2001). These are unglaciated valleys with wide terraces, narrow floodplains, and mountain-fed perennial streams with alluvial fans. Elevations range between 4500-5400 feet, with local relief between ten and two hundred feet, in places achieving eight hundred feet. Bluffs and tablelands exhibit summit concordance. The valleys are formed in Quaternary loess and alluvium and lacustrine silt and sand from Pleistocene Lake Bonneville (Figure 4.2). Tertiary siltstone forms the underlying bedrock.

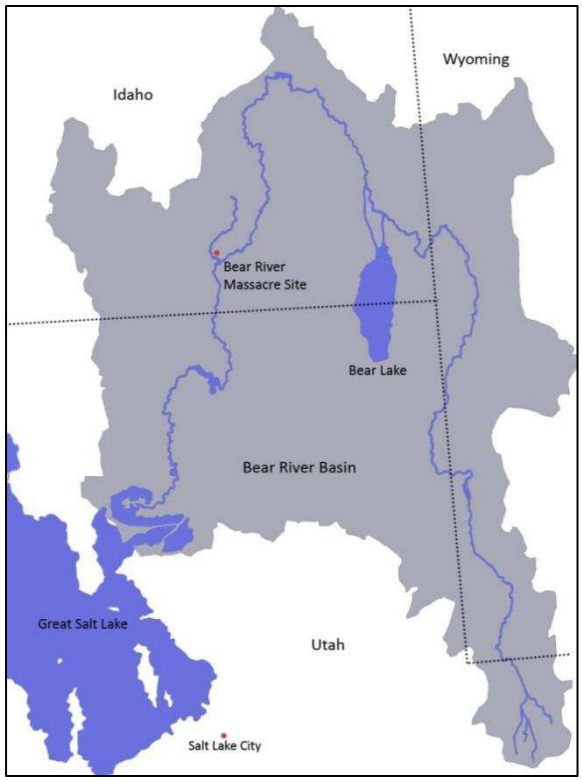

Figure 4.1: Location of the Landmark within the Bear River basin (after Denton 2007).

Mean annual precipitation ranges between eight and twenty inches, while January temperatures range between a mean low of eight and a mean high of thirty-two degrees Fahrenheit. January temperatures may have been considerably lower than this during the Late Little Ice Age in 1863. Average annual snowfall in nearby Preston is 43 inches. The potential natural vegetation is sagebrush steppe, including basin big sagebrush, mountain big sagebrush, bluebunch wheatgrass, prairie junegrass, slender wheatgrass, basin wildrye, and bluegrass. Bunchgrass and sagebrush flourished on the terraces, stands of western juniper ("cedar") on the bluffs, and dense thickets of willow and cottonwood within Battle Creek ravine, and along the banks and islands of Bear River.

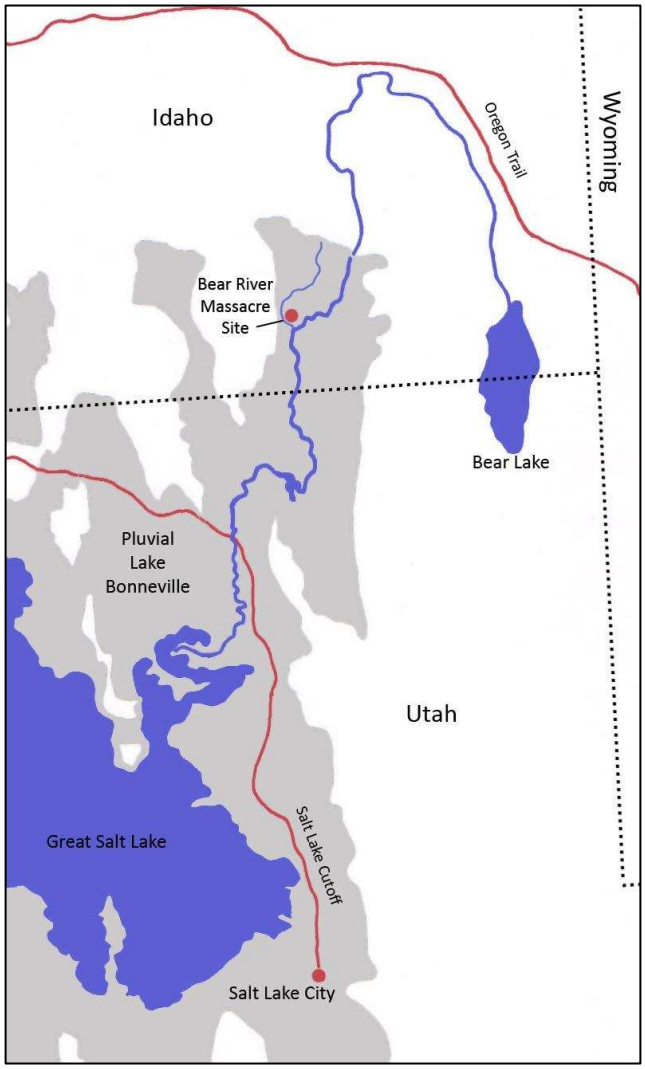

Figure 4.2: Shaded gray area shows extent of Bonneville delta sediments (adapted from Denton 2007). The Bear River Massacre NHL is entirely contained by these unstable sands, clays, and silts.

A dendroclimatic study of the Bear River basin using growth rings of the Utah juniper (*Juniperus osteosperma*) has identified a sequence of droughts and wet periods or pluvials extending from the present back to the A.D. 900s (DeRose et al. 2015), with implications for the historical record discussed earlier. Thus, the height of the fur trapping and trading era coincided with a pluvial period dated to 1806-1835. A prolonged drought from 1835-1862 preceded the Bear River massacre, and in its later years coincided with growing Mormon pressure on the already stressed resources of Cache Valley. Another pluvial began the same year as the Bear River massacre and continued until 1877. It coincides with the heavy snowfall in January and February of 1863. Agricultural homesteading within the boundaries of the present Landmark did not begin until this pluvial ended, perhaps because bottomland clays were too wet to plow.

The **study area** reflects dynamic geological processes involving geothermal and landslide activity, the latter triggered by historic irrigation initiatives. Battle Creek ravine lies within the Bear River Landslide Complex in northern Cache Valley (Mahoney et al. 1987). This complex has formed in unstable clays, sands, and silts. These deltaic sediments respond quickly to saturation, whether from precipitation or irrigation. Wet-weather periods such as 1981-84 triggered numerous landslides and slope failures.

Historic developments have accelerated the pace of this impact to the Landmark. Thus, completion of the West Cache Canal in 1904 caused much of the landslide activity in the 20th century. The impact of the canal was exacerbated by construction of several reservoirs in the 1920s and 1930s. Lateral infiltration from reservoirs and distributory canals has produced artificial springs and seeps along the toe-slopes of the clay ridges. Seasonal saturation of these seams has destabilized the slopes, causing landslides (Figure 4.3, next page). "Active" landslides (post-1960) are mapped within the upper ravine of Battle Creek between the eastern and western bluffs (Mahoney et al. 1987:Fig. 8).

In the late 1940s, state fish and game and forestry maps show deer and elk herds concentrated in the forested uplands to the east of the study area. These include the Cub River and Station Creek highlands and the Oneida Narrows of Bear River itself. There is no game concentration shown on or near Battle Creek. Fishing may have rivaled hunting along parts of the stream, and runs of Bonneville cuthroat trout were native to Bear River. The species spawns in tributary headwaters and moves downstream in colder weather, when the deeper stream is less likely to freeze and the clearer water permits effective predation

on smaller fish (Denton 2007:61-65). Whether these seasonal movements would provide a significant food resource to a Shoshone village in January is unknown.

This environmental framework leads us to consider how terrain structured the battlefield on January 29, 1863.

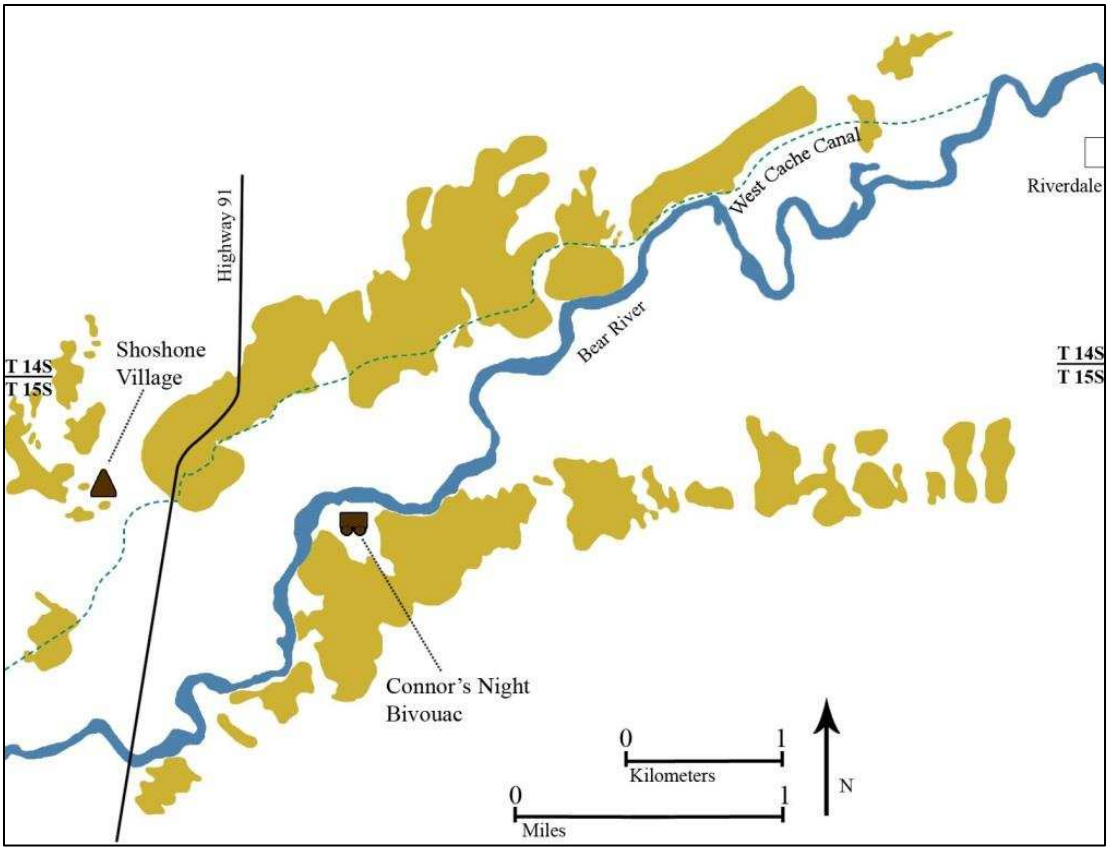

Figure 4.3: The Bear River Landslide Complex in northern Cache Valley (adapted from Mahoney et al. 1987).

Key terrain includes local features that dominate the immediate surroundings such as hills or river fords. Terrain is considered decisive when the mission depends on seizing or holding it. The key features here were the Soldiers' Ford, Cedar Point, and the whole of Battle Creek Ravine. As we saw earlier, had the Shoshone defended the ford and ambushed the cavalry in midstream, the day might have ended differently. Similarly, failure to hold crucial high ground at Cedar Point allowed McGarry's flanking party to seize the Upper Ravine and enfilade the Middle Ravine. The turned flank collapsed the Shoshone defense and led to the massacre in the willows.

Observation refers to the ability to see friendly and enemy positions and terrain features well enough to judge strength, prevent surprise, and respond to threats. Connor's overlook on the rim of the Clay Bluff gave him a panoramic early-morning view of the entire battlefield. He probably knew exactly what to do before he forded the river and took over command from McGarry. Similarly, McGarry must have had a good overview of the interior of the ravine as he crossed Cedar Point toward its north end. The Shoshone defenders had no such advantage. Although they undoubtedly knew the ground, they fought from a fixed entrenchment that made it difficult to see the battlefield as a whole.

Fields of fire are the areas covered effectively by given weapons from given positions. *Dead space* is the ground that cannot be seen or covered from a given position. Two broad classes of gunfire may be distinguished. *Grazing fire* is especially effective on level terrain where the center of the cone of fire is about one meter off the ground and does not exceed two meters. Grazing fire takes its name from the effect it produces on groundcover, leaving it bullet-cropped as if grazed by livestock. *Plunging fire* has a parabolic trajectory. It can be achieved by shoulder arms fired at maximum range while aiming above the distant target. However, it is more commonly applied to artillery such as howitzers or mortars. (The mountain howitzers Connor was unable to deploy at Bear River delivered effective plunging fire against Little Soldier's Utes in the battle at Spanish Fork Canyon a few months later). Finally, the area within which bullets or arrows will hit a man anywhere between the head and the foot is termed the *beaten zone*.

Cover is protection from enemy fire, while **concealment** is protection from enemy observation and surveillance. Mineralized travertine deposits at thermal vents along the rim of the lower ravine may have enhanced cover for the Shoshones, while the dense willow thicket inside the ravine gave concealment to the defenders. The Shoshone warriors had excellent cover and concealment, while the Californians attacking in the open from the east had almost none. After receiving the first Shoshone volley, survivors probably found some dead space behind the low levees of abandoned river channels.

Obstacles may be existing or reinforcing. The willow "jungle" inside the lower ravine was a natural obstacle. A report of dubious reliability says that reinforcing obstacles of stacked logs were also present along the east rim of the lower ravine (Hart 1982). Presence of obstacles determines whether terrain is restricted or unrestricted. For example, reports indicate that only three sally points existed along the Lower Ravine where horses could enter or exit the Shoshone defenses, making this feature restricted on its east side.

Avenues of approach and withdrawal are the relatively unobstructed ground routes leading to or from objectives or key terrain features. The level tableland-and-floodplain facets of the battlefield offered few barriers to the movement of animals, people, or machines. Thus U.S. Highway 91 follows or parallels the Old Yellowstone Highway, which in part followed or paralleled the 1863 road running north to Franklin and then on to the Soldiers' Ford. Constraints on movement were offered by steep slopes such as the one descending the Clay Bluff to the Soldiers' Ford. Military baggage wagons could not move through drifts of snow two to three feet deep quickly enough to keep up with the cavalry. However, the same snow eased the evacuation of casualties by mule-drawn sleighs the morning after the attack.

The boundary justification for the Landmark as it is presently defined includes (1) the escarpment south of Bear River where the Californians reconnoitered the village; (2) the Soldiers' Ford; (3) the ravine of Battle Creek; (4) the site of the Shoshone village; (5) the site of the massacre; and (6) the Pioneer Women's Historical Monument (Bearss and Wells 1990).

INTEGRITY AND EVALUATION OF KOKOA ELEMENTS

Table 4.1 provides a matrix summarizing the KOCOA elements. Their locations in relation to the Landmark boundaries are shown in Figure 4.25. Whenever possible, we have used the names employed on the historic maps to identify each element. They are listed following the sequence of events on January 29th, beginning with the Franklin road (1) leading north to the Clay Bluff (2) which overlooked the valley to the north. The Soldiers' Road (3) descended the Clay Bluff to a South Terrace (4) immediately south of the Soldiers' Ford (5) of the Bear River (6). The East Plain (7) was the floodplain-terrace sequence between the Soldiers' Ford and the Cedar Point (8) overlooking both the East Plain and the ravine where the Shoshone village, pony herd, and defensive positions were located. The Battle Creek ravine itself has three segments. The Upper Ravine (9) is the section north of the point where the West

Cache Canal crosses Battle Creek. The West Bluff (10) rises above the Upper Ravine on the west and overlooks the Middle Ravine (11) between the West Cache Canal on the north and present Hot Springs Road on the south. We believe Hot Springs Road follows the trace of the Old Montana Road of 1855 shown on Aitken's map. The Lower Ravine (12) is the segment south of this road to Bear River. The West Plain (13) includes the floodplain and terrace sequence on the west side of the ravine. The Willow Island (14) where some of the Shoshone survivors fled was originally located immediately downstream of the confluence of the stream and river, but is now cut off and embedded somewhere in the modern floodplain. Finally, oral tradition says the Wayland Hot Springs (15) provided some refuge and comfort to Shoshone survivors who fled downstream. We were unable to pinpoint any surviving remnant of the second inset terrace of Battle Creek large enough to have served as a dance ground for the communal warm dance.

1. FRANKLIN ROAD

A road leading north from the fortified settlement of Franklin is shown on the map drafted by Martineau during his exploring trip of northern Cache Valley in the summer of 1862 (Figure 4.4, next page). This road probably partly parallels and partly coincides with the bed of current U.S. Highway 91. More research in local archives may allow its 1863 route to be traced on the Franklin, Weston, and Banida USGS 7.5 minute quadrangles. The Franklin Road was the first stage of Connor's approach to the Shoshone village in the early morning hours of January 29th. Snow drifts delayed the progress of the infantry company, the baggage wagons, and the mountain howitzers.

The return march to Franklin the following day was also strenuous: *"I rode in a wagon back to Camp. When I would wake up I didn't know if I would freeze to death or bleed to death. The doctor took the bullet out of my hip in the hospital. Another friend come to the hospital and told me that my best friend [Private Adolphus] Rowe had been shot and killed in the battle,"* recalled Private John Lee.

Maps drafted by topographical engineers played an important role in determining where, when, and how opposing forces positioned and maneuvered during the Civil War. These maps integrated terrain, vegetation, roads and fords, and relevant local knowledge for the benefit of commanders and their staffs (McElfresh 1999). One such map, with detailed hachuring, shading, and labeling, was drafted by James H. Martineau, a trained officer of the Mormon militia's Topographic Corps. Dated August 1, 1862, this is the first detailed map made of the study area that we have been able to locate. Martineau's map represents knowledge gained during an exploring trip in July, 1862. At a scale of 1 inch to 10 miles, it shows the relationship between the northernmost Mormon village of Franklin, Cache Valley, Beaver Creek (unnamed) emerging from the ravine to meet Bear River, and an unnamed trail with an arrow pointing south crossing Beaver Creek, but ending on the north side of Bear River just above the confluence. However, if Connor had access to Martineau's map while planning his attack, it would not have told him where to ford Bear River to approach the Shoshone village in the Beaver Creek ravine.

Although he was guided to Franklin by the Danite desperado Orrin Porter Rockwell, when the cavalry and infantry finally rendezvoused on the night of the 28th Connor was obliged to seek out local knowledge from the same Mormon settlers he so mistrusted. Everything depended on knowing where to ford the Bear River. It took several hours longer than anticipated to find guides who would lead the four cavalry companies to the Soldiers' Ford. The trail their horses broke through the snow paralleling the route of present U.S. Highway 91 did not allow passage of the baggage wagons or the two mountain howitzers. The train bogged down somewhere between present Franklin and Preston, and the howitzers did not participate in the battle.

The Franklin road gains additional significance from another fact. Hart (1982:179) quotes the official program to the Idaho Day celebration of June 14-15, 1910: "During the battle a line of men were stationed along the road from the top of the hill on the east bank of Bear River (see below, the **Clay Bluff**) to Franklin, and the progress of the fight was rapidly transferred from one to the other until the

anxious ones in the fort got the news. Those were strenuous moments for the women and children in the Fort, as it meant that if the Indians were successful, as it would look during the fore-part of the battle, they must make a run to the settlements in the southern part of the valley for their lives…" According to the Franklin, Idaho website, these men were soldiers, presumably Hoyt's infantrymen. This anecdote implies a continuous line of communication between Rockwell's telescope and the Franklin civilians during the morning of January 29th.

The Franklin road was outside our survey area.

Figure 4.4: Detail from Martineau's 1862 map of northern Cache Valley. The arrow shows the position of the 1863 winter village of Bia Ogoi. Note the absence of any defined road or trail between Franklin and the village. Reproduced from Francaviglia (2015: 139).

2. CLAY BLUFF

The name is taken from Aitken's 1926 map and refers to the south rim of the tableland overlooking the battlefield. Connor and his staff had their first view of the Shoshone village from this point. Orrin Porter Rockwell positioned himself here with a telescope to watch events unfold, and to pass information on to the relay extending back to Franklin. The Clay Bluff is part of the unstable zone mapped as the Bear River Landslide Complex in the NW ¼, NW ¼ of Section 10, Township 15S, Range 39E. It was outside our survey area.

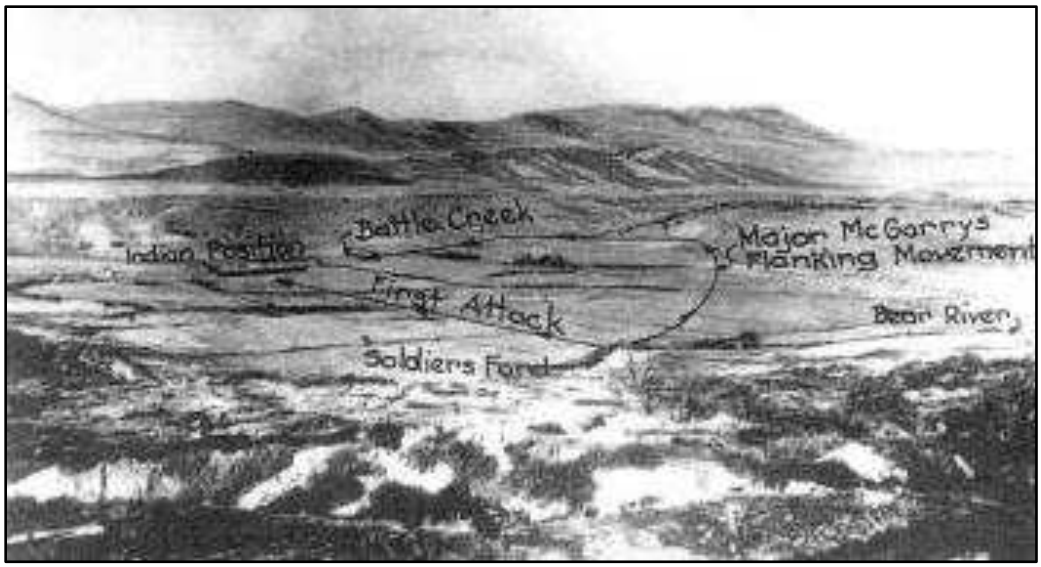

Figure 4.5: Probably one of Charles Kelly's photographs of the battlefield taken in the 1930s. Reproduced from Rogers (1938).

Figure 4.6: Overview of the battlefield from approximately the same vantage, October 2015. This view affords more of a "first person" perspective on the site than the "third person" or omniscient narrator perspective provided at the scenic highway pullout on the north side of the valley. The reader should envision the landscape shown here covered in snow.

3. SOLDIERS' ROAD

Again, this name is taken from Aitken's 1926 map and shows the course of the steep descent from the Clay Bluff to the South Terrace and Soldiers' Ford. According to one source, the property owner in 1951 of the land where this road originally ran was Ernest Johnson (Nelson 1951). Public records should eventually reveal at least the numbered section where the descent was made. We did not attempt to survey the slope because of the landslides that had almost certainly abolished this segment of Connor's route in the century after 1863 (Link and Mahoney 1987). The Soldiers' Road was the second stage of

Conner's approach to the Shoshone village. The infantry, baggage wagons, and mountain howitzers also eventually descended this stretch to the South Terrace. The Soldiers' Road is part of the unstable zone mapped as the Bear River Landslide Complex in the NW ¼, NW ¼ of Section 10, Township 15S, Range 39E. The original tread may no longer exist, and was outside our survey area.

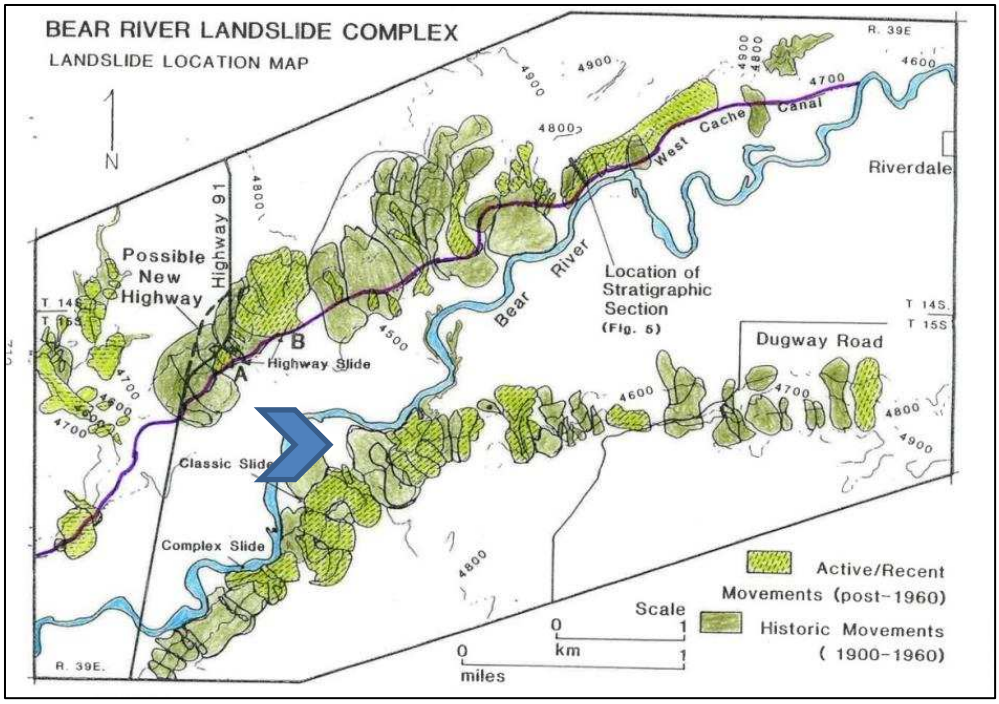

Figure 4.7: Aitken's position for the Soldiers' Road lies within the mix of "active/recent" and "historic" movements located west of U.S. Highway 91 and south of Bear River. (Reproduced from Link and Phoenix 1987 -- with coloring added by author). The blue arrow indicates the South Terrace

4. SOUTH TERRACE

The South Terrace marks the third stage in Connor's approach to the Shoshone village. Here Major McGarry and four companies of cavalry may have paused briefly, while evaluating the Soldiers' Ford and waiting for Connor to catch up. In one account, a cook sent down to the river for water was killed by a Shoshone sniper, and some light skirmishing might have begun here. This is also the landform where Connor's command bivouacked during the night of January 29th, and from which he evacuated his dead and wounded to Franklin the next day.

Corporal Hiram Tuttle of the 3rd Infantry reminisced that "*the night of January 29th, 1863 I never shal far get (how can I) there we camped on the Bank of Bear River with our dead dieing wounded and frozen 2 feet of snow on the ground nothing for fire but green Willows which would burn about as well as the snow oh! The groans of the frozen it seems to ring in my ears yet the poor fellows some lost their toes some a portion of their feet I worked near all night bringing water from the river to wett clothes to draw frost from their frozen limbs I had not slept any for two nights before it was a dreadful night to me but managed to get through the night while some never saw the morning*" (Hart 1982:129). Presumably, the water was heated before it was poured over the frozen clothing.

We did not survey the South Terrace. The historic maps and the stability of the Bear River channel since 1927 place it in the SE ¼ of the SE ¼ of Section 4, Township 15 South, Range 39 East. This terrace appears to be relatively undisturbed by channel migration, irrigation canals, and landslides. The flat

between the 4500 ft. contour and Bear River has sufficient space to contain the entire command. At its maximum this included fifteen wagons, 90 mules, 200 horses, 175 captured ponies, and perhaps as many as 250 men. Connor described the Indian encampment as "about one mile distant" from this location. Special correspondent "Liberal" recorded the distance as three quarters of a mile. The Middle Ravine where we place the village is one mile due west of the South Terrace.

The South Terrace was outside our survey area.

5. SOLDIERS' FORD

According to special correspondent "Liberal" (February 5, 1863), the ford was about seventy yards wide and deep enough to wet the riders' feet. He described "great blocks" of ice carried by the current, as well as an iced bottom, which probably refers to a slippery graveled streambed. The cavalry crossed the ford unopposed. Connor described the river as too deep and rapid for the infantry to ford on foot, though a few men tried. The Soldiers' Ford is the fourth stage of Connor's approach to the Shoshone village. It was crossed repeatedly throughout the day, first by McGarry's four companies of horsemen, and soon afterward by Connor with his staff. Connor then sent McGarry's "number fours" back across the river with enough horses to ferry Captain Hoyt's infantrymen across. Finally, toward dark, the entire command, including the dead and wounded soldiers and the captured horse herd, re-crossed the river and went into a bitterly cold night bivouac on the South Terrace.

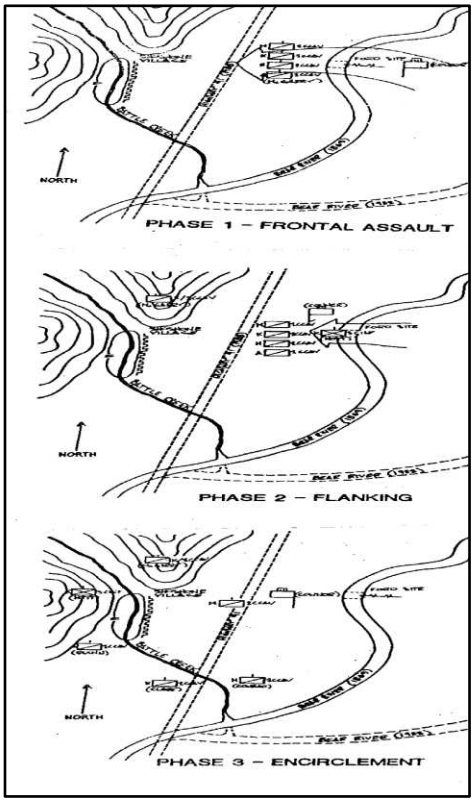

Figure 4.8: ROTC staff ride placement of the Soldiers' Ford in relation to U.S. Highway 91. The cadets placed the ford about a mile downstream of its probable location

A 1988 staff ride by ROTC cadets from the University of Utah used a pamphlet containing the maps reproduced here as Figure 4.8. They follow earlier work of Rogers (1938), Barta (1962), Madsen (1985), and ultimately the 1926 Aitken map. The latter has long been available for the inspection of researchers at the Relic Hall in Franklin, but was not published until 1982, and then only locally (Hart 1982). The cadet sketches shown here are of interest mainly for the placement of the Soldiers' Ford in relationship to U.S. Highway 91. Our analysis suggests the actual crossing was about a mile upstream.

A Franklin resident named Harmon Zufelt reminisced in the *Utah Monthly Magazine* of December, 1892, that the battle began when the troops paused on the south side of the ford: "…*as one of the cooks went down for a bucket of water, the Indians shot him in the right temple and the bullet came out of his right eye. Then the soldiers opened fire upon them, but the willows were so thick that they could not do much good. Then they mounted their horses and crossed the river and followed them*" (Hart 1982:204).

Private John S. Lee of Company K, 2nd Cavalry, dictated this account to his mother, apparently years after the battle: "*Boy, that was a bad looking river, half frozen over and swift. The horses did not want to go in it. Two old boys got throwed by their horses. After we got across and saw what them Indians had set up for us we all knew it wouldn't be easy. I never saw so many Indians in my life, looked like every Indian in the Territory had come in for the fight. They was screaming, dancing, yelling. Reminded me of a hornet's nest.*"

Finally, if any part of Samuel Williams's testimony can be relied upon, there may have been two fords used on that day. After the battle, "A better and more shallow place to cross the river was found. There

was no way of getting the wounded across except by four men taking each one on their shoulders and wading across" (McPherson 2000:78). This is the only mention of a second crossing shallow enough to cross on foot. If it did exist, it must have been fairly close to the Nelson Ford, since the entire command bivouacked on the South Terrace on the night of the 29th.

The Soldiers' Ford was outside out survey area.

6. BEAR RIVER

Bear River rises in the Uinta Mountains of northeastern Utah, flows north through western Wyoming, then northwest toward Soda Springs in Idaho, before making an abrupt hairpin turn to the south toward Cache Valley and ultimate discharge into the Great Salt Lake. In Cache Valley the main stream is fed by four principal tributaries: Cub River, Logan River, Blacksmith Fork, and Little Bear River. Old meander scars and oxbow cutoffs mark productive marshlands on the floodplain (Denton 2007:29). Two hot springs bubble at the river's edge a short distance downstream from the Battle Creek confluence. The river served as a territorial marker for both the Californians and the Indians. Several sources describe the Bear River as the boundary that the Shoshone intended to defend against further Mormon encroachment in Cache Valley, and one of the soldiers' maps incorrectly shows it as marking the border between Utah and Washington territories.

Figure 4.9: The Bear River today, looking downstream from below the present confluence with Battle Creek. In 1863 the channel was flanked by dense thickets of willow and black cottonwood rather than Russian olive.

The most important thing we've learned about the Bear River within the Landmark is that is has shifted its position several hundred meters to the south at least once since 1863. The first of what may prove to

have been several channel changes seems to have occurred between 1863 and the Government Land Office survey map of 1873, when the river is shown in approximately its present position. First-generation homesteaders who arrived no earlier than 1877 recall a swampy area to the south of the Daughters of the Utah Pioneers obelisk. This was probably the old channel shown on Aitken's 1926 map.

The Bear River was outside our survey area.

7. EAST PLAIN

Bear Hunter's warriors would not have seen soldiers descending the Clay Bluff toward the ford much before 8 a.m. It is unlikely that actual combat began before sunrise. The numerous fatal wounds to the head, heart, lungs, and chest recorded by Surgeon Robert Reid for the opening moments of the battle indicate that the Shoshones could clearly see their targets.

The East Plain's apparently level surface is interrupted by subtle levees and old channel and meander scars that offered some protection to crouching or prone combatants. However, it gave virtually no cover to horses or to mounted men. In terms of observation and fields of fire, the East Plain's advantages were all with the Shoshone defenders. The East Plain offers more dead ground and beaten zone than cover or concealment, and grazing fire from the Lower Ravine successfully checked the initial cavalry attack. The newspaper correspondent for the *Alta California* (February 7th) mentioned that in the approach to the ravine, the troops crossed two benches or "declivities" where they were temporarily silhouetted against the eastern sky. These benches were probably abandoned levees of Bear River. After their initial deadly exposure to Shoshone fire while skylined on the levees, the dismounted cavalrymen almost certainly used these same slight elevations as cover while they returned fire.

Several eyewitnesses agree the Indians were aware of the impending attack, and that before the firing began at least a few warriors rode back and forth on the east side of the Lower Ravine waving fresh scalps and shouting taunts toward the "California sons of bitches." Similar mounted "war circles" had been noted during an earlier engagement with the Shoshones. Hart (1982:132) quotes the *Sacramento Daily Union* correspondent, writing after the attack, that a "spear and scalped beautiful head of hair are now trophies in Camp Douglas."

The East Plain was also the site of both the holding area, where the "number fours" detailed to picket the cavalry mounts were positioned, and the surgeon's station where the casualties accumulated. "*When we advanced part of our company was ordered to march to the north end of the ravine to keep them from running out. The rest of the boys advanced straight ahead. The fighting was fast. Men and women (Indians) was shooting guns and every other thing they could get their hands on. I got shot in this arm. I always thought it was a squaw that shot me. When I started back to the holding area that's when I was shot in the hip. Never did know how I got back. That's where I woke up. There was wounded everywhere*," recalled Private Lee.

Figure 4.10: View of the East Plain looking south from Scenic Highway Interpretive Turnout off U.S. 91.

Finally, recent Tribal chair Jason Walker thinks the Battle Creek dance ground would probably have been located on the terrace immediately east of the Lower Ravine. An eastern position was suggested for religious/solar reasons, and the terrace here was large enough to host large groups of dancers. If this is correct, the 1863 dance ground may have witnessed some of the fiercest combat between McGarry's dismounted cavalrymen and the Shoshone defenders along the eastern rim of the lower ravine.

Parts of the western East Plain adjoining the Middle and Lower Ravine were included within our survey area.

8. CEDAR POINT

The eastern bluff known as Cedar Point provided good observation and fields of fire down into the ravine for the first phase of McGarry's flanking sortie. The junipers (not cedars) provided both cover and concealment.

Figure 4.11: Above: Cedar Point viewed looking to the east from the West Plain. Below: The western slope of Cedar Point and the Upper Ravine. Photograph is from the east slope of the West Bluff, the most intact element left on the Landmark.

The northwestern slope of Cedar Point has been severely impacted as a borrow source for the sediments used to build the earthen aqueduct across the Upper Ravine. This is the same slope that McGarry's flankers probably descended as they enfiladed the ravine.

The western slope of Cedar Point was within our survey area.

9. UPPER RAVINE

The Upper Ravine marked the pivot of McGarry's flanking sortie. After descending the east slope of Cedar Point, the soldiers coped with the obstacles of heavy vegetation and poor visibility. If lodges crowded with noncombatants were clustered in the Upper Ravine, this may have been where most of the 160 captured women and children were taken.

Figure 4.12: The Upper Ravine photographed in March 1961, looking north (Barta 1862). Note the landslide slump in the right center.

Figure 4.13: The Upper Ravine, looking southwest from the summit of Cedar Butte, October 2013. The bed of the Utah-Northern Railroad is clearly visible along the lower slope. The East Plain is visible in the center left.

The Upper Ravine has been severely impacted by the construction of the Utah-Northern Railroad bed along the lower slope of the west side, and by an unpaved road leading north toward Winder on the east side. In addition, a series of landslides have capped portions of the 1863 surface. Finally, the construction of an earthen aqueduct between 1898-1904 allowing the West Cache Canal to flow across the ravine probably had a significant impact on the archeological footprint of the winter village.

10. WEST BLUFF

Special correspondent "Liberal" (February 5, 1863) describes a "large cedar thicket" on this bluff as the fallback position of the Indians should they attempt to abandon the ravine. Tragically, they never got the chance. McGarry's flanking party seized the lower slope of the West Ravine and continued their loop

around the Shoshone village, then moved down onto the West Plain where McGarry finally accomplished his initial order to surround the village.

Figure 4.14: Overview of the battlefield from the southern slope of the West Bluff.

The eastern face of this bluff above the Utah Northern Railroad bed appears relatively intact and matches the 1863 description. This was the landform where the 1926 Aitken map shows a "monument," perhaps a proposed location for the obelisk later erected at the Highway 91 pullout in 1932.

11. MIDDLE RAVINE

Figure 4.15: Contemporary earthen aqueduct that conveys the West Cache Canal across Battle Creek. A small culvert in the base allows the creek remnant to trickle downstream. The original aqueduct was built between 1898-1904, then blew out in the flood of 1911. It was rebuilt after that. These construction episodes probably directly impacted the Shoshone village remnants.

An earthen aqueduct built across Battle Creek allows what's left of the stream to flow through a culvert in the bottom while the West Cache Canal flows across a ditch on top. This feature was originally built between 1898 and 1904, and probably went straight through the upper end of the Shoshone village. The only known human remains associated with the battle and massacre were held at the Smithsonian Institution from 1898 to 2012. They include crania of a teenage boy and a young woman (Moya-Smith 2012). The remains have since been repatriated to the Northwest Band of the Shoshone Nation. If the

crania were recovered the same year they were donated to the Smithsonian, they may be those rumored to have been exposed during excavation of the West Cache Canal.

The Aitken map places the winter lodge concentration between the canal and what he mapped as the Old Montana Road, the course of which seems to follow present Hot Springs Road. Today, the Middle Ravine is bounded by the earthen aqueduct and Hot Springs Road.

Figure 4.16: The West Cache Canal flows across the earthen aqueduct that separates the Upper Ravine from the Middle Ravine. The wooded southeastern-facing slope of the West Bluff appears in the background.

Figure 4.17: The Middle Ravine, where geophysical signals suggest remnant structures and features of the Shoshone winter village may survive.

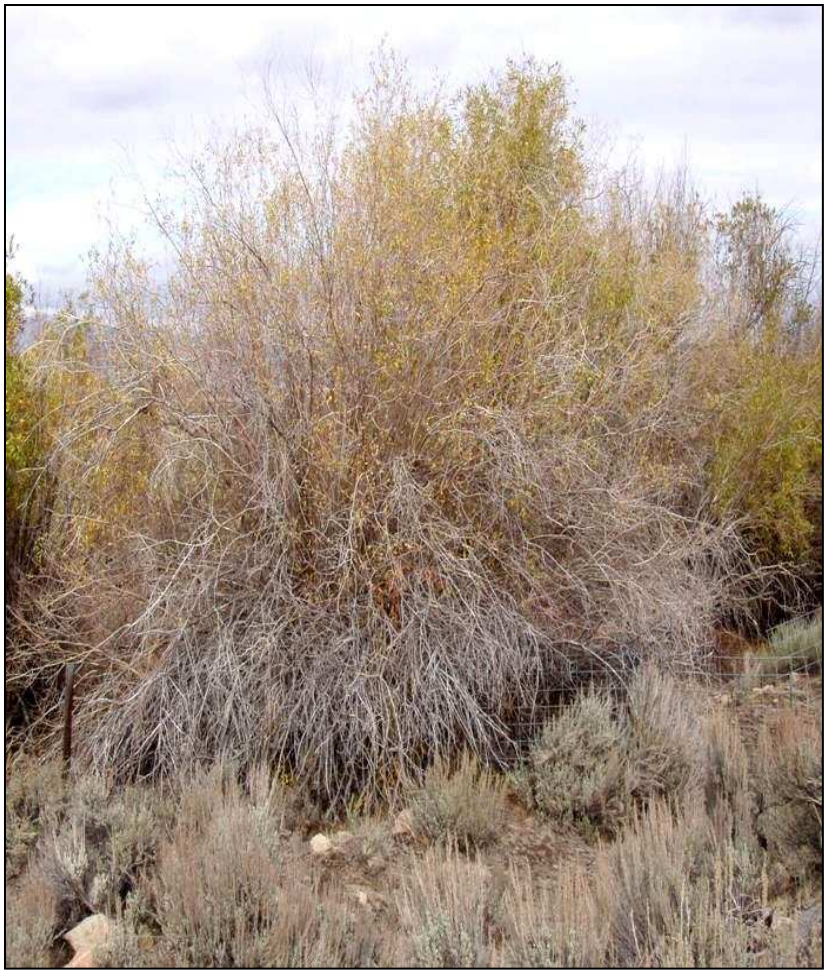

Figure 4.18: Yellow willow (Salix lutea) thicket, showing vegetation density and visibility challenges that may have been typical along the Middle Ravine (photo courtesy of J. Chris Hoag).

12. LOWER RAVINE

Special correspondent "Liberal" (February 5, 1863) said the ravine itself was completely invisible from a distance of 250 yards when viewed from the plain on either side of it. This indicates that it was deeper than the willow "jungle" it contained. Connor described the ravine as from six to twelve feet deep and thirty to forty feet wide. These dimensions are so unlike the present ravine remnant that Hart (1982) cites them as evidence of Connor's unreliability as a source for much else that he reported. However, as noted in the geomorphic analysis by Pederson (below), if Bear River flowed several hundred meters further north from its present position in 1863, the lower base level of Battle Creek could easily have deepened the arroyo by comparison with today's dimensions.

We suspect that the Lower Ravine, where the heaviest fighting and highest death toll among the Shoshones occurred, has been buried by a century of aggradation from Battle Creek ravine triggered by the southern shift of Bear River, coupled with seasonal floodwater accretion from the river itself. These fluvial processes have probably entombed whatever traces survived of the Shoshone defenders between 1863 and the early decades of the last century. Perhaps the single biggest event contributing to the capping of the lower ravine was the 1911 flood.

Figure 4.19: The Lower Ravine in March, 1961, looking south (from Barta 1962).

Figure 4.20: Hearth remnant in lower Battle Creek profile. Most of the feature had eroded into the channel by October 2015, but a sample of hearth fill gave a radiocarbon age of 1130 ± 25, for a corrected calendar age of A.D. 922 ± 32.

Figure 4.21: Ruin of a 1937 cement irrigation headgate placed in the 20th century Battle Creek ditch in the Lower Ravine.

13. WEST PLAIN

The floodplain and terrace sequence west of the Middle Ravine and Lower Ravine is approximately defined by the 4700 ft. contour line between Battle Creek and the Little Mountain ridgeline to the west. This area may include the dance ground for the Warm Dance reported by Parry (1976). The West Plain is also the probable site of the short-lived railroad community of Battle Creek. Both the East and West Plains first came under cultivation in 1877 when the first homesteaders arrived. The West Plain might have offered the Shoshones the same beaten zone advantages as the East Plain, had their defenses not begun to crumble by the time they were flanked from this direction.

Figure 4.22: The West Plain, looking east toward the Lower Ravine with Cedar Point in the background.

14. WILLOW ISLAND

See the Beach (Figures 3.5, 3.6) and Price/Martineau (Figures 3.8, 3.9) maps for the shape, size, and location of this island. Sergeant Beach gives the dimensions as 30 x 150 feet, while the Price/Martineau map says it was three quarters of a mile long. Both maps place it below the confluence of the creek and river, and agree that it was densely wooded in willows. An unknown number of Shoshones sought refuge on the Willow Island, and several were shot by soldiers on the West Plain as they swam for it. The Willow Island can be viewed as an avenue of withdrawal for fleeing Shoshones.

There is no island within the Landmark that corresponds to the one shown on the two 1863 maps. Nor is the island shown in Aitken's 1926 map. It is likely that changes in the position of the channel between 1863 and 1873 resulted in this island becoming landlocked somewhere on the floodplain.

Figure 4.23: The landlocked Willow Island may now be incorporated into the terrace of the West Plain. Cedar Point with the white A-frame is to the right, West Bluff to the left. The treeline of Russian olives below Cedar Point marks the course of Battle Creek through the Middle and Lower Ravines.

15. WAYLAND HOT SPRINGS

One other geomorphic feature requires comment. Wayland Hot Springs lies along the north bank of Bear River near the western boundary of the Landmark. The Wayland Hot Springs Geothermal Area has an estimated reservoir volume of 1.8 km^3 with a mean reservoir temperature of 130°C. The area includes Wayland and Squaw hot springs, the latter one kilometer downstream at the mouth of Deep Creek. Forty years ago, the Wayland Hot Spring consisted of a large pool about 6 m in diameter, a smaller pool that probably marks a collapsed travertine structure, and many vents and seeps. Cold water seeps flow into it at a rate of 5 to 10 liters per minute. Riverbed vents are marked by gas bubbles that lead the unwary to think the water is boiling. The springs have been used historically for recreation, for heating hog houses, and for scalding hog carcasses (Mitchell 1976:19). Travertine spring deposits resembling collapsed

concrete occur locally along both sides of Bear River, and were observed by the author during field visits along the western bank of lower Battle Creek.

Links between the nearby thermal springs and vents and the Shoshone warm dance are not well documented in the written sources, but appear self-evident to contemporary Shoshone. The positive values Shoshones attributed to hot springs and other thermal features are well established (Nabokov and Loendorf 2002:220-227) especially their healing and medicinal properties. Accounts of Shoshone and Bannock interments of the dead in hot springs further underscore the spiritual power associated with these places. For example, Pocatello, the Bannock chief who may have left the village shortly before the attack, lived to become an old man before his body was finally lowered into a thermal pool at Soda Springs, followed by no fewer than 28 of his horses (Madsen 1986).

An oral history interview with survivor descendent Lorena Neaman Washines, excerpted in Hart (1982), says that many sacred ceremonies were held near hot springs where winters were mild, and that the northern Cache Valley held many places of worship with miraculous powers of healing. "This healing power was the reason why the sick band of Shoshones was coming to Cache Valley when they were attacked." The massacre victims were mostly the "sick, aged, the young, and some wounded warriors."

Figure 4.24: Wayland Hot Springs, where Shoshone survivors may have gathered on the night of January 29th.

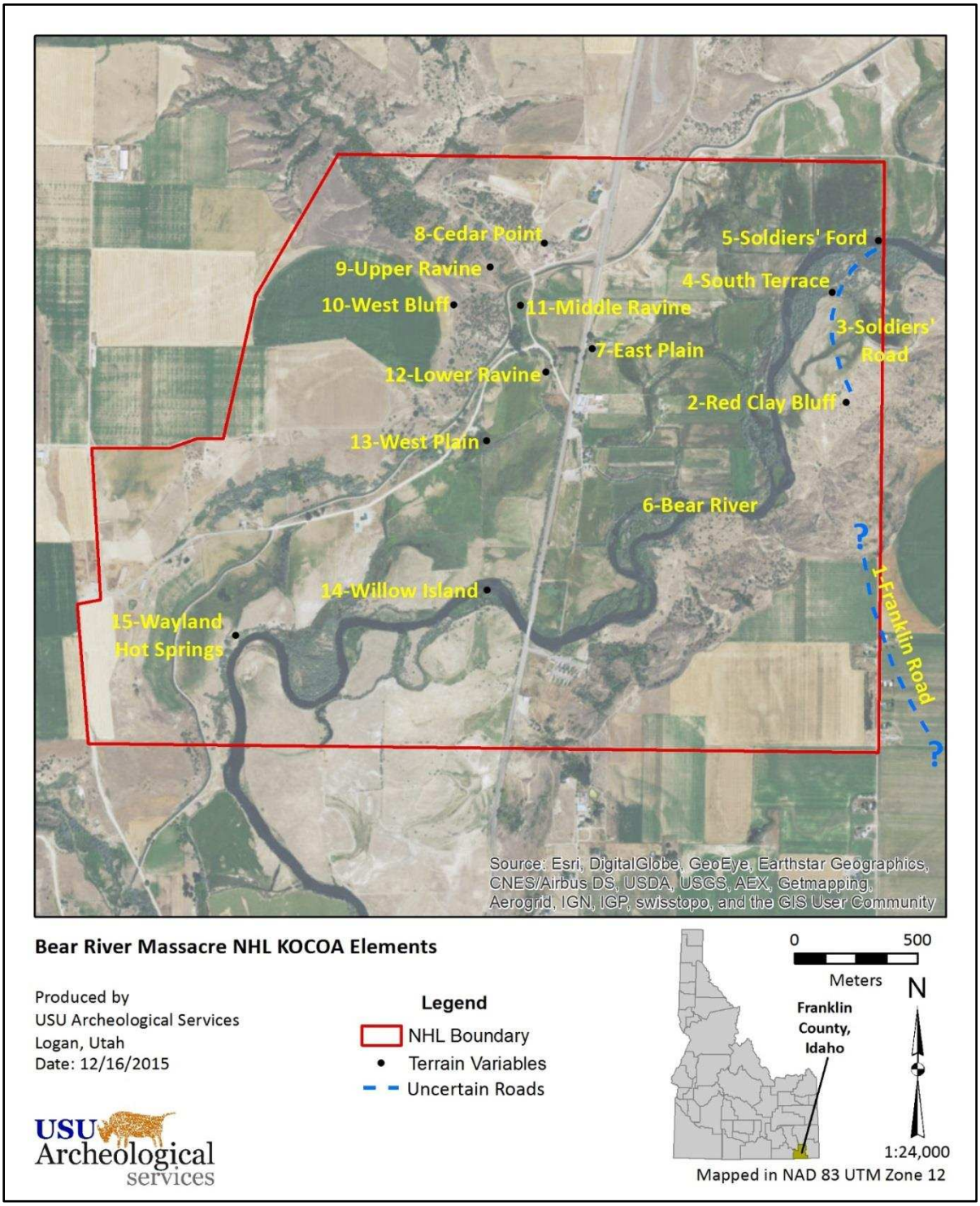

Figure 4.25: Bear River Massacre National Landmark illustrating key terrain features defined in Table 4.1.

Table 4.1. Terrain Variables for the Bear River Battle and Massacre (data from USGS 7.5' Banida and Weston (Idaho) quadrangles; Aitken 1926; Rogers 1938; Barda 1962; Madsen 1985; Mahoney et al. 1987; Bearrs and Wells 1990; Schindler 1999; Christensen 1999).

Number	Name	Location	Relevance	Field Comment	KOCOA Analysis	Integrity Assessment	References
1.	Franklin Road	SE1/4 Section 9 or E1/2 Section 19, T15S, R39E	Links Clay Bluff to fortified Mormon village of Franklin Porter Rockwell conveys progress reports on the engagement to a relay of Mormon civilians as Franklin prepares to evacuate to the south.	State Highway 91 follows same route at least as far north as Preston.	Most direct route between Franklin and the Shoshone village. Drifting snow prevented the baggage train and howitzers from reaching the battlefield. However, the snow allowed mule-drawn sleighs to transport wounded soldiers back to Franklin.	Location, setting, feeling, association.	Connor 1863, Francaviglia 2015:138, Hart 1982
2.	Clay Bluff	NW1/4,NW1/4 Section 10, T15S, R39E	Overlooks entire valley. The two opposing forces first inspected one another from this vantage point.	Appears undisturbed.	Observation point for Connor and staff; Soldiers' Road descends bluff to Soldiers' Ford.	Location, setting, feeling, association.	
3.	Soldiers' Road	To be determined: SE1/4, SE1/4, SE1/4, Section 4, T15S, R39E?	Links Clay Bluff overlook to South Terrace Route down into the valley for mounted column, baggage train, howitzers, and infantry	Destroyed by 20th century landslides? (This property was owned by Ernest Johnson in the early 1950s.)	Route from tableland and Clay Bluff valley overlook to Soldiers' Ford	Integrity may be lost completely.	Nelson 1953 Hart 1982
4.	South Terrace	E1/2, SE1/4, Section 4, T15S, R39E	South or east of the ford near the foot of the trail leading to Clay Bluff? Howitzers and baggage train left here during attack.	Capped in part by 20th century landslides?	Cavalry horses used to ferry Hoyt's company across river to reinforce McGarry. Night bivouac where soldiers	Higher potential for intact traces of the night bivouac. Appears not to have been impacted by irrigation, landslides, or channel changes in	Connor 1863 Hart 1982

Number	Name	Location	Relevance	Field Comment	KOCOA Analysis	Integrity Assessment	References
			Location of post-battle army bivouac.		tended wounded, coped with exposure, frostbite, prepared for next morning's evacuation to Franklin.	the Bear River	
5.	Soldiers' Ford	SE1/4, T15S,R39E The ford was probably in the north-south reach in this quarter section.	Near foot of Clay Bluff	Ford 70 yds wide, 1(+) yd deep, firm bottom, much floating ice in river	Actual location will depend on results of meander analysis.	Four companies of the 2nd Cavalry forded at dawn. Failure of the Shoshones to defend the north bank was a serious tactical error. "Number Fours" ferried 3rd Infantry company across ford one or two hours later Entire force re-forded w/Indian ponies in late afternoon	Connor 1863 Hart 1982
6.	Bear River	Defines the southern edge of the battlefield	Soldiers forded upstream of Battle Creek; massacre survivors fled downstream from Battle Creek.	At least one meander shift between 1863-1926.	Slowed and impaired troop movements due to depth, current, cold temperatures. Current and possible geothermal input allowed some fleeing Shoshone to float downstream.	Setting, feeling, association. Actual location may be ~550 m north of present mouth of Battle Creek.	Connor 1863 Hart 1982
7.	East Plain	Terrace east of the ravine between East Bluff and Bear River NW1/4,SE1/4, Section 4, NE1/4,SW1/4 Section 4, E1/2,SW1/4 Section 4, T15S, R39E	Location of the first attack by 2nd Cav (Cos. K, M,H, A) and area where most of the soldiers were killed or wounded. Wounded gathered behind horse lines.	Area has been continuously tilled, grazed, irrigated, drained and possibly leveled during past 150 years. Part of core	Clear fields of fire for flat-trajectory shoulder arms and revolvers. No cover or concealment for soldiers or cavalry mounts.	Location, setting, feeling, association	Connor 1863 Hart 1982

Number	Name	Location	Relevance	Field Comment	KOCOA Analysis	Integrity Assessment	References
			The East Plain may have been the site of a Warm Dance in early January.	combat area	Four wickiups placed along east rim of ravine as a "blind."		
8.	Cedar Point	S1/2NW1/4 Section 4, T15S, R39E	Plateau rim overlooks ravine Aitken map shows Maj. McGarry leading flanking movement partway up Cedar Bluff before turning west across Upper Ravine to West Bluff and West Plain.	Post-1960 landslides	McGarry's flanking movement may have followed Old Montana Road of 1855 and log bridge over upper ravine.	Location, setting, feeling, association	Connor 1863 Hart 1982
9.	Upper Ravine	North of West Cache Canal SE1/4,NE1/4, T15S,R39E	Possible location of log bridge that probably facilitated the movement of McGarry's flanking party. Includes remnant section of the Utah-Northern Railway bed on the west side, and the dugway road leading to Winder on the east side. Includes a major borrow area where fill for the canal berm was mechanically excavated between 1898-1904.	Upper ravine capped by 20th century landslides		Parts of the ravine filled by landslides	Connor 1863 Hart 1982
10.	West Bluff	Plateau rim overlooks Upper Ravine SW1/4,NW1/4,SW1/4, Sec. 4, T15S, R39E	Aitken map indicates "Monument Site" at toe slope of West Bluff. Possible site of Liberal's upland cedar thicket and Shoshone rally point	Post-1960 landslides	Possible avenue of retreat and rally point for Shoshones.	Location, setting, feeling, association	Connor 1863 Hart 1982

Number	Name	Location	Relevance	Field Comment	KOCOA Analysis	Integrity Assessment	References
11.	Middle Ravine	Between Hot Springs Road and West Cache Canal W1/2,SW1/4,NW1/4,T15S,R39E	Location of the village as shown by Aitken (1926). Barda and Madsen probably follow Aitken on this placement.	Part of core combat area	Enfilading fire directed down the ravine into the willow jungle by McGarry's flanking party, reinforced by Hoyt's arrival.	Sealed archeological deposits here may have good integrity.	Connor 1863 Hart 1982
12.	Lower Ravine	Location of winter village, pony herd, and massacre SW1/4,SW1/4, T15S, R39E	Village location and pony herd shown here by Beach, Price/ Martineau: 68 lodges, 200 ponies. Close combat climaxed here late in the battle.	Lower ravine now overgrown in willow, cottonwood, Russian olive, cattails, grasses and sedges. Lower ravine has been separated from Upper Ravine since excavation of the West Cache Canal. Part of core combat area (?)	Provided observation, cover and concealment for the Shoshones and an almost impenetrable obstacle for the soldiers, cavalry movement impossible, infantry could not move on line in skirmish order. "Principle" lodges fortified by rifle pits w/4-5 warriors.	Present lower ravine location may be an artifact of the West Cache Canal	Connor 1863 Hart 1982
13.	West Plain	Terrace west of the ravine between West Bluff, Little Mountain, and Bear River W1/2,SW1/4,SW1/4 and SE1/4,Sw1/4,SW1/4,Sec. 4, T15S,R39E	Pony herd shown here by Madsen. Maj. Gallagher & Lt. Berry wounded, Capt Hoyt & Co. K, 3rd Inf turn the west flank of the Shoshone position. The West Plain may have hosted a Warm Dance in early January.	Area has been continuously tilled, grazed, irrigated, drained and possibly leveled during past 150 years.	Clear field of fire for flat trajectory shoulder arms and revolvers. No cover or concealment for soldiers from gunfire, arrows.	Location, setting, feeling, association	Connor 1863 Hart 1982
14.	Willow Island	Below mouth of Battle Creek, above Wayland Hot Springs. NW1/4,NW1/4 Sec. 9, T15S,R39E (?)	Temporary refuge for Shoshone survivors ¾ mile long	Deceptive relationship of present island(s) to 1863 island. Actual location not yet determined.	Provided concealment and escape route for Shoshones; obstacle to observation by pursuing soldiers	This island is now landlocked within or below the cut off meander scar ~ 550 m north of the present Bear River	Hart 1982

Number	Name	Location	Relevance	Field Comment	KOCOA Analysis	Integrity Assessment	References
15.	Wayland Hot Springs	SE1/4, SE1/4, NW1/4, Section 8, T15S, R39E	Temporary refuge for Shoshone survivors		Offered warmth to Shoshone survivors	Considerable post-1863 development and use, but still retains setting, feeling, association	Washines, cited in Hart (1982)

Figure 4.26: Offerings left by Tribal members in the Russian olive behind the Daughters of the Utah Pioneers monument.

CHAPTER 5
RESULTS OF GEOMORPHIC INVESTIGATIONS

Joel L. Pederson

INTRODUCTION

Understanding changes to the geomorphic history of Bear River Massacre Landmark was an important aspect of this study. Historic maps, although largely stylized, suggest changes in the course of both the Bear River and Battle Creek. Other significant influences also occurred related to construction of the West Cache Canal, local irrigation systems, road construction, and landscape modifications due to agriculture. Therefore, identifying the 1863 course of Battle Creek and preserved landforms from this time period were key undertakings of the geomorphic study. Identifying these landforms helped guide the archeological investigations.

The following description of the local Quaternary geology was reconstructed from a number of sources, including aerial photographs, historic accounts, as well as on the ground surveys that included the collection of charcoal samples for radiocarbon assay that help constrain terraces of Battle Creek . A Quaternary geologic map was produced from this work (Figure 5.1, next page).

DEPOSITS OF BATTLE CREEK

Qalc/Qas1 – Alluvium, pebbly to silty sand of Battle Creek, active (modern) / terrace 1 (Protohistoric). Organic-rich, sandy silt, with a floodplain or terrace tread that is thickly covered by wetland-riparian vegetation. This is mapped as a combined unit that includes the channel of Battle Creek, until where the two are distinguishable map units below the midpoint of the Battle Creek alluvial fan where they become unconfined. Along the west flank of the lower alluvial fan a slightly higher, potentially related terrace is preserved, labeled Qas1o ("o" for "older"). The base of this unit is not observed, and Qas1 may mark the flood stages of Battle Creek active in Protohistoric time.

Qas2 – Alluvium, pebbly to silty sand of Battle Creek terrace 2 (late Holocene). 20-50 cm-thick, wavy-tabular beds, normal-graded from fine-pebbly sand to very fine-sandy silt, trace ripple lamination but largely massive due to plant and insect bioturbation. Soil development reaches ~75 cm, with a ~4 cm thick A horizon, a Bw with rubification and weak structure, and the lower half of the profile is a Bk horizon. The terrace tread in Battle Creek draw is vegetated predominantly by grasses. Unit is a distinct 3 meter high fill terrace along Battle Creek draw, and locally has an inset and younger, degradational terrace (Qas2y) preserved just 30 cm below the main terrace tread. The base of this unit has not been observed, and it is therefore a minimum of 3 meters thick. These deposits have three radiocarbon-dating results discussed below. At the midpoint of the Battle Creek fan, the deposit emerges from being inset and confined to forming the surface of the fan between the Jorgensen and Cardis farmsteads. It then converges with and becomes overlain by the younger Qas1 another ~100 meters downstream.

Qas3 – Alluvium, pebbly to silty sand of Battle Creek terrace 3 (middle Holocene). Thin to medium, wavy-tabular beds, normal-graded from pebbly sand to sandy silt, bioturbated. Sediment and soil not yet described in detail. The terrace tread in Battle Creek draw is vegetated by a sagebrush-scrub community. Unit is a distinct 4.5 meter high fill terrace along Battle Creek draw, and then spreads out at the mouth of the draw to form the Battle Creek fan surface from its apex to midpoint ~300 meters downstream. At

that point, the unit drops in height above the modern drainage and becomes overlain by the younger Qas2. The base of this unit is not observed, and it is therefore more than 5 meters thick. Qas3 features a relatively well developed soil profile as well as a buried soil horizon within its exposed stratigraphy.

Qas4 – Alluvium, silty sand of Battle Creek terrace 4 (Holocene). This small terrace remnant is preserved only along the north edge of unit Qas3 east of Hwy 91. Deposits not exposed.

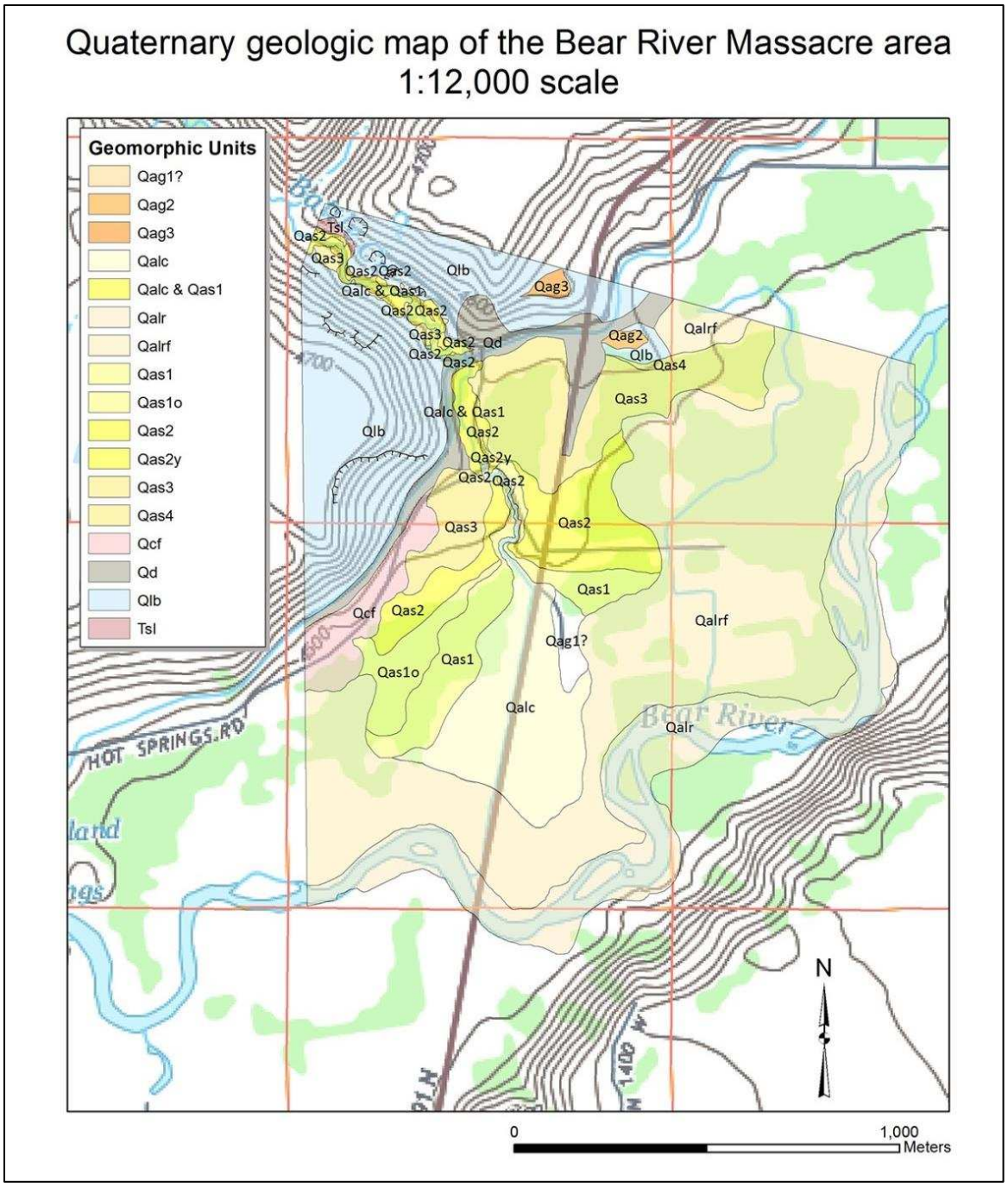

Figure 5.1: Quaternary geology map of the Bear River Massacre National Historic Landmark.

DEPOSITS OF THE BEAR RIVER

Qalr – Alluvium of the Bear River, active channel (historic). Bear River channel deposits are well-sorted and well-rounded, clast-supported and imbricated, pebble-cobble gravel and sand bars underlying the present-day channel and channel margins. Riparian and Russian olive trees mark the band of this map unit, over which the river channel has shifted in historic time. <1 m exposed, total thickness unknown.

Qalrf – Alluvium of the Bear River's floodplain, active (historic). The Bear River's historic floodplain is clearly delimited in the eastern map area with a subtle levee developed along the active channel deposits (Qalr) sloping gently to a western-outer edge marked by meander cutbanks, potentially from "yazoo" floodplain channels. In the southern map area, Qalrf floodplain deposits have a more subtle and gradual transition with the plume of fine alluvium of the Battle Creek fan (Qalc). This map unit is not exposed for sedimentary description, and is covered in grasses, irrigated, and farmed. Capping, fine-grained overbank material presumably overlies gravelly channel deposits, as evident from meander scrolls and bar-and-swale topography.

Qag1 – Bear River gravelly alluvium (Holocene). Rounded, pebbly gravel of a terrace 1-2 meters above the active floodplain. Far traveled lithologies such as sandstone and quartzite distinguish these as Bear River deposits. Poorly exposed. Unit may underly the Cardis farm/home and the Riverside RV camp on the south bank of the Bear River. Unit is overlain by and older than the Qas1 deposit of Battle Creek.

Qag2 – Bear River gravelly alluvium (latest Pleistocene). Thin (~20 cm) pebble gravel, subangular to subrounded, mostly far-traveled lithologies. Poorly exposed. This single remnant strath-terrace gravel lies west of Hwy 91 and just south of the irrigation canal.

Qag3 – Bear River gravelly alluvium (latest Pleistocene). Pebble gravel, subangular to subrounded, mostly far-traveled lithologies. Poorly exposed. This single remnant strath-terrace gravel lies west just east of Hwy 91 at the north edge of map area, underlying a residence.

OTHER DEPOSITS

Qd – Quaternary human-disturbed (Historic). Areas along canal and roadways where natural landforms and stratigraphy are obscured completely by excavation and building.

Qcf – Quaternary colluvial/alluvial fan deposits (Holocene). Locally derived, mostly fine-grained deposits issuing from gullies draining the flank of bluffs and forming small fans at the toe of the bluff, along the west flank of the greater Battle Creek fan. No exposure of sediment.

Qlb – Quaternary sediment of Lake Bonneville (late Pleistocene). Thin to medium, tabular beds of planar laminated and ripple cross stratified, silty sand and sandy silt. Tan. Interpreted as deltaic deposits of the paleo-Bear River during the Bonneville highstand of Lake Bonneville. Around the map area, these fine deposits are beveled and locally capped by thin pebbly gravel of three terraces less than 10 meters apart in elevation associated with the Provo levels of Lake Bonneville (Godsey et al., 2005; Janecke and Oaks, 2011). These form the land surface that Barrier Creek draw and the Bear River valley are cut into. Qlb underlies the full 60 meters (200 ft) of relief along valley hillslopes, and it is prone to landslide failure.

Mass-movements (landslides) are symbolized on the map by hachured lines delineating headscarps. Every occurrence in the map area is on valley slopes underlain by Qlb, and therefore these deposits do not have a separate map unit. Mass-movements in the map area are specifically slumps and earthflows with arcuate headcuts and hummocky bodies, developed in places where saturated conditions occur seasonally and where springs and seeps exist. Indeed, the majority of valley slopes in the map area have evidence for

mass-movements of varying antiquity, and especially those larger landslides on the south side of the Bear River and on the southwest side of Battle Creek draw have been active in historic time, with the toes having variously displaced and been cut by the respective drainages. Landslides on the southwest slope of Battle Creek draw cross-cut and offset early historic rail or road pathways, and one example has a toe that extends onto the top of the Qas2 terrace.

Tsl – Tertiary Salt Lake Formation (Miocene-Pliocene). White to tan tuffaceous and fine-grained sedimentary bedrock, tilted. A single outcrop occurs within the map area, along the base of the northeast slope of Battle Creek draw, about 400 meters upstream of the mouth/canal.

NARRATIVE OF QUATERNARY GEOLOGIC HISTORY

The landscape of the Bear River Massacre site is set on a template of late Pleistocene Lake Bonneville deposits, which were then sculpted into the valley-and-ravine topography observed today by subsequent stream incision and landsliding. Sandy delta deposits of the Bear River entering Lake Bonneville at its highstand underlie the rolling hills of northeastern Cache Valley. At about 17,400 years ago, the Bonneville flood issued through Red Rock pass, just 17 miles (27 km) north of the battlefield, lowering Lake Bonneville to the Provo shorelines. This drop in lake level caused the paleo-Bear River to incise the higher, fine-grained deltaic deposits from the mouth of Oneida Narrows downstream to a point between present day Riverside, and the Bear River Massacre NHL. Redeposition of this reworked delta sediment contributed to formation of the gently sloping surface graded to the lower Provo shorelines of Lake Bonneville just downstream of the study area. This surface forms the relatively flat tops of the bluffs surrounding the battlefield. The episode of time for the Provo stand of Lake Bonneville has been constrained to 17.4 to 15.0 ka (thousands of calendar years ago) across the Bonneville Basin (Godsey et al., 2005). Janecke and Oaks (2011) have elaborated on the history of the flooding and silt levels controlling the lake history north of the study area during that time.

Subsequent incision of the Bear River, driven by further lowering and drying of Lake Bonneville, formed the present-day valley of the Bear River. The tributary Battle Creek likewise incised its ravine as it maintained its connection to lowering baselevel at its confluence with the Bear River. Steps in valley incision are marked by two terrace remnants of the Bear River in the map area. Qag3 does not appear on the map, but it lies at 4600 ft elevation and is bisected by Highway 91 as it ascends the bluff to the north. The lower, Qag2 gravel lies at 4540 feet of elevation. Qag3 and Qag2 deposits upstream, between the mouth of Oneida Narrows and Riverside, have been dated by optically stimulated luminescence from 13.5 to 12.0 ka (Pederson, unpublished).

Mapping efforts for this project have been focused on Holocene deposits, which for context can be interpreted as a spatial competition over time between the channel and floodplain of the Bear River and alluvial fan sediment of Battle Creek deposited on the same valley bottom after overall incision was complete. Where Bear River now flows through the study area, it clings to the southeast side of the valley, in part due to recent displacement by deposition and progradation of the Battle Creek fan. However, before it was dammed, the river in early historic and prehistoric time meandered and shifted its channel across the valley bottom, cutting the toe of the Battle Creek tributary fan.

HOLOCENE TERRACES OF BATTLE CREEK

The first-order pattern of Battle Creek deposits is their transition from a set of inset terraces along the confined valley bottom of Battle Creek draw, to a set of emergent, distributary alluvial-fan lobes that become younger downstream, representing a progradation of the Battle Creek tributary fan onto the Bear River valley bottom over late Holocene time.

The Qas3 fill terrace represents at least two episodes of aggradation during middle (?) Holocene time, evidenced by a distinct buried soil observed in cutbank exposures of Battle Creek draw. No direct radiocarbon ages have been obtained on Qas3, but its aggradation occurred before 200 BC, when the younger, inset Qas2 was aggrading. The Qas3 deposit underlies the proximal half of the Battle Creek fan. It was subsequently cut by the Bear River, with meander scars still preserved at its edge in the eastern map area, and Qas2 emerges from the entrenched fan head underlain by Qas3 in the central map area. Entrenchment of Battle Creek in the draw and through the apex of the alluvial fan separates deposition of the Qas3 and Qas2 deposits. This middle-late Holocene incision was likely caused or enhanced by lateral migration and cutting of the alluvial fan toe by the Bear River, or perhaps in response to climate-driven changes in the sediment supply and hydrology of Battle Creek.

Subsequent aggradation of Qas2 is constrained by three AMS radiocarbon ages (Table 5.1). Sample BRM-03 was taken from a south-facing cutbank exposure ~300 meters upstream from the mouth of Battle Creek draw and the irrigation canal. Charcoal was taken from a 2-4 cm thick, ~8 meter long lens stained with organic material and having coloration consistent with reducing conditions, lying 1.25 meters below the terrace surface and 1.75 meters up from the channel surface (Figure 5.2, next page). The result of ~200-50 BC marks deposition at the middle of this alluvial deposit and indicates aggradation of the creek around this late Holocene time. BRM-04 was sampled from a charcoal-rich lens near the top of a cutbank exposure downstream at the center of the Battle Creek fan. This result indicates Qas2 deposition and fan progradation onto the floodplain continued until after AD ~900.

Table 5.1: AMS radiocarbon dating results for Bear River Massacre site

Sample	*Lab number*	*Unit*	*Location-position*	*Material*	*^{14}C age*	***Cal. calendar age*** [a]
BRM-01	Beta #387194	inset Qas2y	lower Battle Creek ravine	sediment with charcoal	330 ± 30	**AD 1478 - 1642**
BRM-03	Beta #390825	mid Qas2	Battle Creek ravine	sediment with charcoal	2130 ± 30	**BC 209 - 53**
BRM-04	UG #23530	upper Qas2	Battle Creek fan	sediment with charcoal	1130 ± 25	**AD 864 - 987**

[a] calibrated using Calib 7.1 program and the IntCal13 curve, 2s error

Sample BRM-01 is from an inset, fill-cut terrace designated as the Qas2y (for younger) deposit, and marking the onset of incision of the Qas2. This sample originates from a cutbank exposure just 50 meters upstream from the mouth of Battle Creek draw and the West Cache canal. The charcoal piece was associated with one of three thin, discontinuous, ashy lenses, and taken 74 cm below the tread of the terrace, set 30 cm below the main tread of the Qas2. Results indicate a high proportion of modern carbon, and it was noted in the field that the charcoal might be from an in-situ burn of a root ball. It is therefore interpreted as a minimum age on the abandonment (incision) of the Qas2 terrace. This result suggests that Battle Creek was incising but had not reached its lower, current grade until after AD ~1500. Incision again may have been driven either by lateral migration of the Bear River cutting the toe of the Battle Creek fan or by climate or land use changes.

After this late prehistoric entrenchment, the creek formed the Qas1 deposit near the present channel level and prograded onto the valley bottom, forming the toe of the alluvial fan. Although this is mapped in the upstream area as an (abandoned) terrace level, it is possible that it represents the active channel and flood level of Battle Creek in historic time, including the decade of the 1860s.

LONGITUDINAL-PROFILE PATTERNS

The terraces remain at consistent heights along the path of the relatively short, lower reach of Battle Creek draw as mapped here. They therefore appear parallel in profile in this reach (Figure 5.3). Battle Creek is most deeply entrenched, and the terraces are elevated the highest, at the apex of the fan, just below the mouth of the draw at the southern edge of the irrigation canal. At that point, the Qas3 terraces lies 6 meters above the creek, Qas2 is 4.5 meters, and even Qas1 is 2 meters above the entrenched creek. This may be partly a local effect of the channelization of the creek coming out of a conduit under the

irrigation canal. This degree of entrenchment decreases rapidly downstream as the terraces incrementally converge with the present-day channel.

Figure 5.2: Collecting a charcoal sample from the cut bank of the Upper Ravine of Battle Creek.

In the modern landscape, the fan apex is the only place where the creek is entrenched to the degree reported in historic accounts of the battle, and that entrenchment decreases to zero within a quarter mile below the irrigation canal. Historic accounts reviewed above imply the creek at the time of the massacre was entrenched more deeply and over a longer reach downstream. Geomorphically, this may be explained in two ways: First, the meandering Bear River channel may have been farther north than its present location before and/or at the time of the battle, cutting the toe of the Battle Creek fan and providing a closer and effectively lower base level driving entrenchment of Battle Creek and the original abandonment of the Qas2 terrace. Subsequent migration of the Bear River channel southward would drive aggradation of the lower reaches of Battle Creek, including the Qas1 deposit, in historic time. Secondly, deeper fan-entrenchment during the time of the battle may be explained by subsequent sediment accretion along the floodplain of the Bear River. This would have raised base level and buried the toe and lower, entrenched reaches of the Battle Creek fan, specifically in historic time before upstream dams curtailed floods of the Bear River.

BATTLE CREEK PALEOCHANNEL

At the start of this research, three hypothetical pathways of the early historic Battle Creek channel below the apex of fan were investigated: (1) a western path through a swampy area between the edge of the alluvial fan and the toe of the valley bluffs, to a junction with the Bear River ~0.5 km west of the Highway 91 bridge; (2) a route following the present channel to near Highway 91 and continuing south alongside both the highway and a modern irrigation canal, following a meandering pathway across the floodplain to a confluence immediately west of the highway bridge; and (3) a path following the present channel, then crossing to the east side of Highway 91 and then south past the Cardis farmstead to a confluence near the old road and railroad crossing.

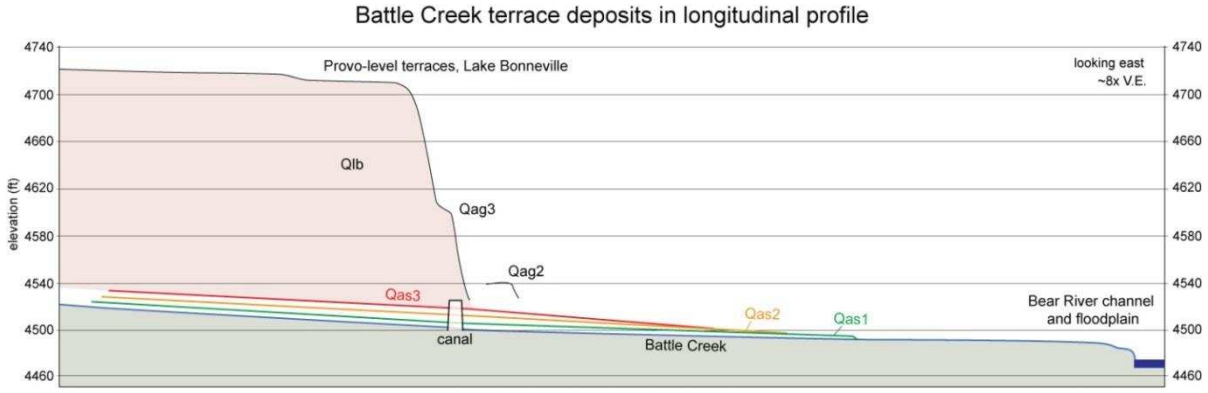

Figure 5.3: Schematic profile, from north (left) to south (right) illustrating terrace patterns along the path of Battle Creek as it exists the confined draw and distributes sediment in an alluvial fan in the valley of the Bear River. Starting at the apex of the fan, the Qas3 and Qas2 terraces converge with the more concave profile of the modern/historic drainage. The lower reach of Battle Creek is poorly developed or has been obscured and infilled in historic time by agricultural activity and floodplain deposits of the Bear River.

Based upon early historic accounts, sketch maps, and field tracing, pathway 2 is clearly the most likely of these hypotheses. Pathway 1 is ruled out because of the topographic barrier to westward flow by Qas3 deposits at the fan apex, and because the wetland areas beyond are locally formed by landslide toes and do not represent channelized routes. Pathway 3 is, in fact, not testable due to intense human modification, and indeed the air photo observations that inspired the hypothesis are probably erroneous due to the same landscape modifications. In support of hypothetical route 1, historic sketches

consistently show Barrier Creek with a relatively straight southward path, meeting the Bear River at a northward meander bend.

Importantly, the historic, battle-related maps imply that the Bear River channel and the Battle Creek confluence were 300 to 700 meters farther north than their current position. This suggests that, although hypothesized "pathway 1" is correct in trajectory, it is too long, and the ill-defined lower reach of Battle Creek across the floodplain did not exist at the time of the battle. If this proves to be the case, the Qalc and Qas1 map units of Battle Creek should be post-battle deposits, which fan out across the younger floodplain of the Bear River (unit Qalrf). These younger Battle Creek fan deposits may bury the area encompassing the river channel and confluence at the time of the battle.

CHAPTER 6
RESULTS OF ARCHEOLOGICAL FIELD AND LABORATORY INVESTIGATIONS

Kenneth P. Cannon, Molly Boeka Cannon,
Jonathan M. Peart, Houston Martin, and John Blong

INTRODUCTION

Archeological field investigations on the Bear River Massacre project involved a multi-phased approach using several methods, techniques, and equipment. These methods included the use of close-interval metal detection, hand excavation of metal hits, geophysical surveys with ground penetrating radar (GPR) and magnetic gradiometer survey, and intensive pedestrian inventory. Fieldwork was conducted over the course of the spring of 2014 through the fall of 2015 (Table 6.1). Fieldwork was scheduled around landowner use of the various fields for cattle grazing and alfalfa production.

The focus of the fieldwork has been along the terraces of Battle Creek, as defined by Pederson, where historic documents indicate was the area of most intense fighting focused on the Shoshone winter village.

Table 6.1: Bear River fieldwork history (2014-2015).

Date	Crew Members	Work Description
	2014	
8 May	K Reid (ISHS), J Gallimore (ISHS), KP Cannon (USUAS), MB Cannon (USU)	Landowners meeting to discuss project
10 July	K Reid (ISHS),KP Cannon (USUAS), MB Cannon (USU), P Schoen (USUAS)	Set up initial geophysics blocks in ravine; videotape D Lewis (USU)
11 July	K Reid (ISHS), KP Cannon (USUAS), MB Cannon (USU), P Schoen (USUAS)	Meeting with Claire Bosen (Preston) and Vernon Keller (Mink Creek); interviews videotaped
5-9 August	KP Cannon (USUAS), J Peart (USUAS), S Shultz (USUAS), A Larsen (USUAS), B Allred (USUAS), P Schoen (USUAS), K Larsen (USUAS volunteer), MB Cannon (USU)	Metal detection in north pasture; geophysical survey in ravine; collection of C14 samples from Battle Creek; videotaping field work
22 August	KP Cannon (USUAS), J Peart (USUAS), S. Shultz (USUAS), P Santarone (USUAS), B Allred (USUAS), R Gerstner (USUAS), MB Cannon (USU)	Metal detection; mapping
25 August	KP Cannon (USUAS), MB Cannon (USU)	Interview with UPR
25-29 August	KP Cannon (USUAS), J Peart (USUAS), S. Shultz (USUAS), R Gerstner (USUAS), MB Cannon (USU)	Metal detection; mapping

Date	Crew Members	Work Description
16 September	KP Cannon (USUAS), J Pederson (USU)	Geomorphic mapping
6-10 October	KP Cannon (USUAS), J Peart (USUAS), S. Shultz (USUAS), R Gerstner (USUAS), MB Cannon (USU), T Casort (USU student)	Metal detection in southern pasture; geophysics on Battle Creek T1
13-17 October	J Peart (USUAS), S. Shultz (USUAS),	Metal detection; geophysical survey; mapping5
	2015	
9 February	J Peart (USUAS), J Blong (USUAS), R Gerstner (USUAS)	Pedestrian survey of recently plowed north pasture
16 March	KP Cannon, MB Cannon	Private land access; reconcile Charles Kelly photos
12-16 October	K Reid (ISHS), K. P. Cannon (USUAS), J Peart (USUAS), H. Martin (USUAS), B Allred (USUAS), L Trout (USUAS volunteer)	Geophysical and metal detection

*Affiliations: ISHS=Idaho State Historical Society; USUAS=USU Archeological Services; USU=Utah State University

All instrument investigations were conducted in 20-m² block, except where landform configuration or the presence of cultural features limited block size (Figure 6.1). A total of 25 blocks, 21 of which were 20 m², were metal detector surveyed for a total of 9,930 m². A total of 2,285 metal detector hits were mapped with 1,469 excavated. Thirteen geophysical blocks were surveyed, 10 of which were 20 m², for a total of 4,928 m². The results of these investigations are presented in the respective sections below.

MAPPING

All mapping of landforms, cultural features, and artifacts was conducted using a Topcon HiPER Pro RKT (Real Time Kinematic) unit (Figures 6.2, 6.3). The value of using the RTK is that it allows for quick mapping of site boundaries, features, and individual artifacts at a resolution of 10 mm horizontally and 15 mm vertically. Mapping stations were placed at convenient locations that would allow for maximum site coverage and minimize working distance between various site areas.

Table 6.2: Location of Bear River Massacre mapping stations.

Station	Easting (m)	Northing (m)	Elevation (ft AMSL)
1	424552.66	4666446.53	4468
2	424500.68	4666120.34	4448
3	424398.89	4666403.37	4468

PEDESTRIAN SURVEY

Close interval pedestrian surveys are an important tool for identifying surface manifestations of archeological deposits. Methods involve crew members being spaced at equal intervals and walk predefined transects oriented on cardinal directions. Most federal agencies define an intensive pedestrian survey interval as less than 15 m, but for this project we have closer (e.g., 5 m) intervals for better and more thorough coverage (cf., Burger et al., 2008).

A close-interval pedestrian survey of the north pasture (~6 acres), owned by the Northwest Band of Shoshone and leased by Ivan Jorgenson, was conducted on 9 February 2015 after the field had been plowed (it is typically planted in alfalfa with cattle grazing). Survey transects were oriented east-west across the pasture.

Although the survey did not produce any evidence of period artifacts, we did record a prehistoric lithic scatter, 10FR71 (Figure 6.4). The prehistoric assemblage consists of one fire-cracked rock fragment, seven lithic debitage and three lithic tools. The lithic assemblage consists of four quartzite decortification and tertiary debitage, three obsidian tertiary debitage, a CCS unifacial endscraper, a CCS unidirectional radial core that has also been utilized as a unifacial plane-like endscraper, and a quartzite bifacial knife fragment. Six potentially associated faunal fragments were recovered at the site, including five unidentified bone fragments and one unidentified tooth fragment.

Excavation of metal detection hits in this field indicates a plow zone of approximately 25 cm. However, no prehistoric artifacts were recovered during these excavations and for this reason, and the general sparseness of the lithic scatter the site has been recommended not eligible for inclusion on the National Register. The site form is included in Appendix A.

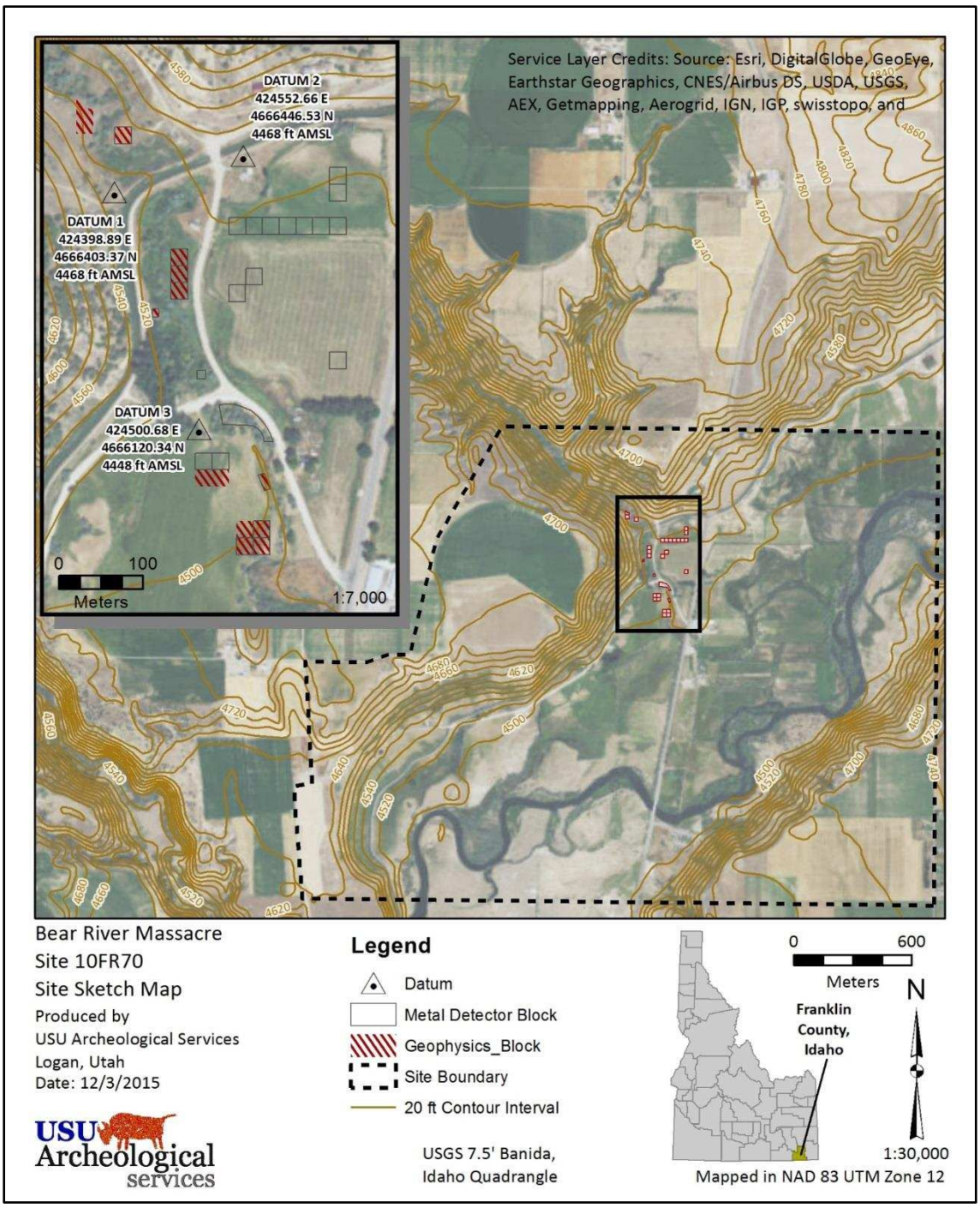

Figure 6.1: Map showing the locations of the archeological survey grids.

Figure 6.2: Ken and Molly Cannon setting up RTK base station.

Figure 6.3: Molly Cannon mapping metal detection hits with RTK rover.

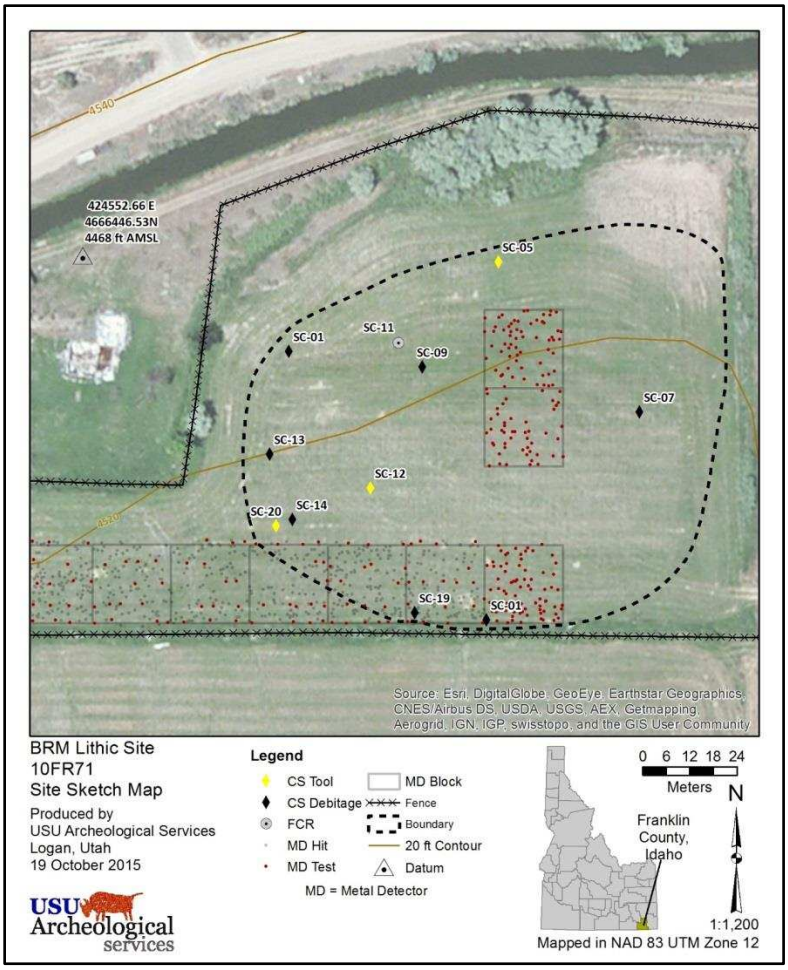

Figure 6.4: Map of 10FR71, lithic scatter in north pasture.

GEOPHYSICAL SURVEY

Molly Boeka Cannon of Utah State University and Jon Peart of USU Archeological Services collected geophysical data over several field sessions in 2014 and 2015. Cannon designed the survey strategy working in concert with PI Ken Reid and Co-I Kenneth Cannon. The survey design called for the use of magnetic gradiometry and ground penetrating radar in addition to the metal detecting survey.

Each block was surveyed using a fine data collection strategy. Magnetic gradiometer surveys included 0.25 m transects with a sample rate of 0.125 m. We utilized a GeoScan Research FM256 Fluxgate Gradiometer capable of differentiating 0.1 nT. Our GPR surveys utilized 0.5 m transect spacing and collected data using a 400 MHz antenna with 512 samples per second. We employed a GSSI SIR3000 system setup on a three-wheeled survey cart.

We positioned block locations on landforms thought to preserve period-deposits with minimal post massacre disturbance. Our locations included five blocks located on the T2 terrace sequence of Battle Creek and three blocks on the T1. Block locations are illustrated in Figure 6.6. Blocks 1-3 are located on the north side of the West Cache Canal on portions of the T2 (Figures 6.5, 6.6). Blocks 4-6 are located on the T1 just south of the West Cache Canal and west of the Hot Springs Road. Blocks 7, 8, and 11-15 are located in the field south of the fork of the Hot Springs Road. Blocks 9 and 10 are located on T2 terraces

south of the West Cache Canal. Block 9 is located on the west side of Battle Creek and Block 10 is located on the north side of the Hot Springs Road.

Figure 6.5: Upper Ravine where Blocks 1, 2, and 3 were located.

REDACTED

Figure 6.6: Location of geophysical survey blocks.

MAGNETIC GRADIOMETER SURVEY

There are 136 features identified in the magnetic gradiometer data across the 15 survey blocks (Table 6.3).

Block 1

Block 1 is a 20-m-x-20-m block located on the east side of Battle Creek north of the West Cache Canal (Figure 6.6). The block is positioned on the T2 above the creek. Results of the magnetic gradiometer survey are displayed in Figure 6.7. Several prominent features are visible in the image. MAG F1 is a feature located in the eastern portion of the grid and marked by a series of strong positive and strong negative signatures. This feature is a shallowly buried metal pipe. MAG F2 and F3 are located in the very northern portion of the grid and are identified by their strong negative weak positive signals. These are two features that may be of interest for further investigation. MAG F4 is a feature with a moderate positive and negative signature. The metal detecting survey also identified an object at this location. MAG F5 and F6 are subtle features with strong positive and very weak negative signatures. MAG F7 and F8 are similarly subtle features with metal hits identified during the metal detection survey as well. MAG F9 is a weak positive and barely visible negative signal. This feature is marked by an absence in metal detection hits and may represent some sort of burned soil or rock feature like a hearth. MAG F10 is a more typical metal signature with a stronger positive and weaker negative signature and is located in a cluster of metal detection hits.

Block 2

There are two features that are of interest in Block 2 (Figure 6.7). MAG F11 and F12 are both marked by stronger positive and weaker negative signatures. Additionally, there appears to be an increase in the noise in the data as you move to the eastern portions of the block. This noise may indicate a change in the subsurface matrix.

Block 3

MAG F13 is a subtle feature located in the southwestern portion of the block. MAG F14 is a strong positive, strong negative feature with its long axis running east to west (Figure 6.7). This feature likely represents a substantial metal object or a metal object at or near the surface. MAG F15 is a subtle feature with a long axis running north to south. MAG F16 is a strong negative with a weaker positive feature located near the edge of the block. The magnetic gradiometer data also illustrates the visible two-track road bisecting the block.

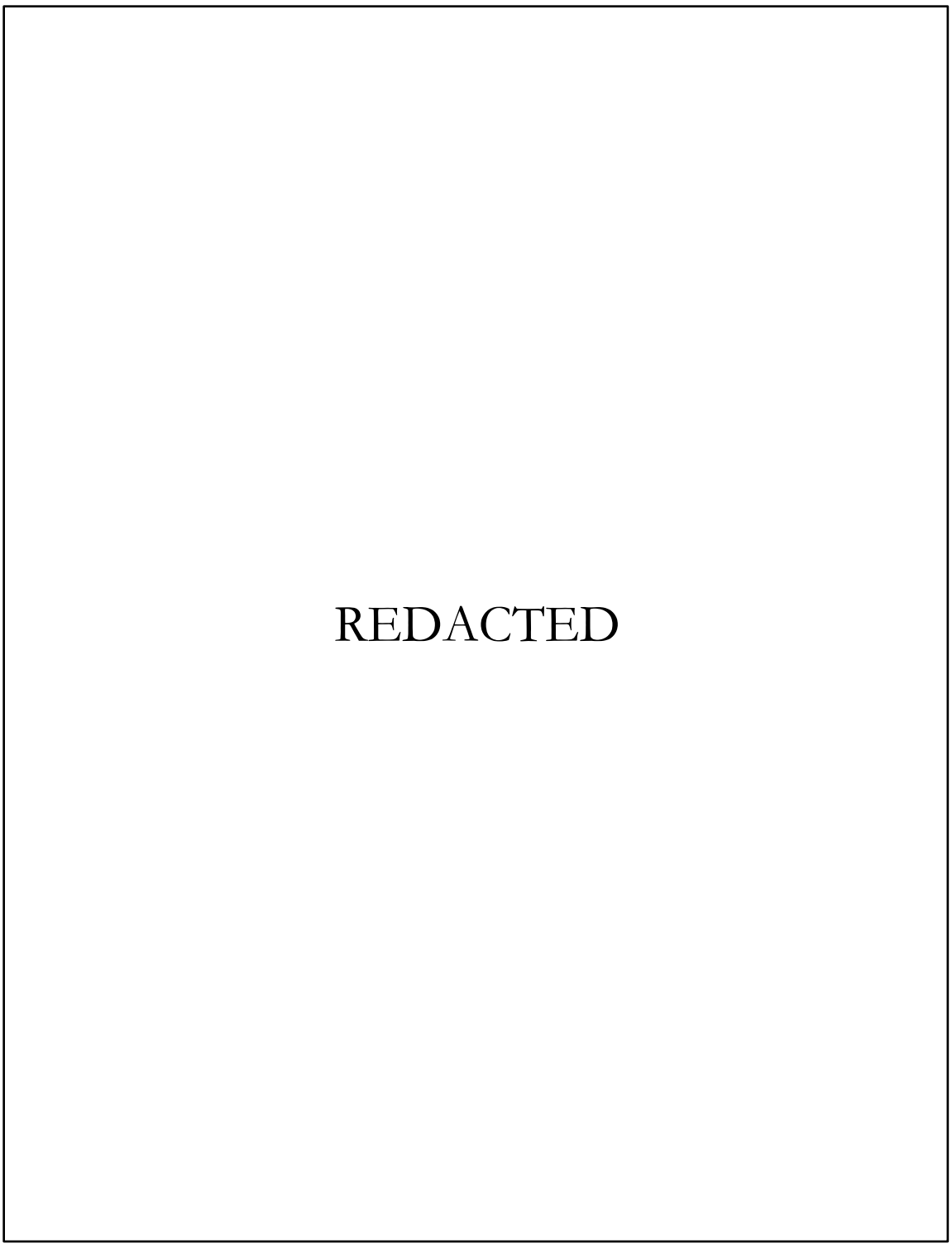

Figure 6.7: Features identified from the results of the magnetic gradiometer survey for Blocks 1 – 3.

Block 4

Several features cluster in the central portion of Block 4 and make for an interesting subsurface area of interest (Figure 6.8). MAG F17 is a central feature in this cluster and is characterized by a strong positive with a halo of negative values. The surrounding features are a series of more subtle features with stronger positive than negative signatures with the expectation of MAG F24, which is characterized by a strong negative and strong positive signature indicative of metal objects found at this location. MAG F26 is located on the eastern edge of the block and likely represents construction debris associated with the county road.

Block 5

MAG F27 and MAG F28 are located in the southwestern portion of the block (Figure 6.8). Strong positive and equally strong negative signatures characterize these two magnetic features. Both features were identified in the metal detection survey and excavation revealed that MAG F27 was an iron pipe and MAG F28 a medium-sized mammal trap. MAG F29, F30 and F31 are likely surface metal. A series of features form an arc in the eastern portion of the grid. These features MAG F32- F39 likely are characterized, similarly to those in Grid 4 surrounding MAG F17, with stronger positive than negative signatures with the exception of F35, F33, and F38. These three features have equally strong negative and positive signatures and likely represent buried metal objects. Two features located on the northern boundary with Grid 6 have strong negative and strong positive signatures.

Block 6

Block 6 contains several features that have very strong positive and negative signatures and likely represent buried surface metal objects (Figure 6.8). MAG F40 and F41 are two features with very strong signatures are located in the southeastern portion of the grid. A suite of more subtle features is located in the central portion of the block. Features F44, F45, and F48 are the strongest of these features with equal positive/negative values. MAG F46 likely represents something other than metal given its strong positive and weaker negative value. Features MAG F47, F49 and F50 have stronger positive values than negative. The northeastern portion of the block contains four features MAG F51-F54 with strong negative strong positive signatures. The final four features MAG F55- F58 are located in the northwestern corner of the block. These four features also are characterized by strong negative and strong positive values.

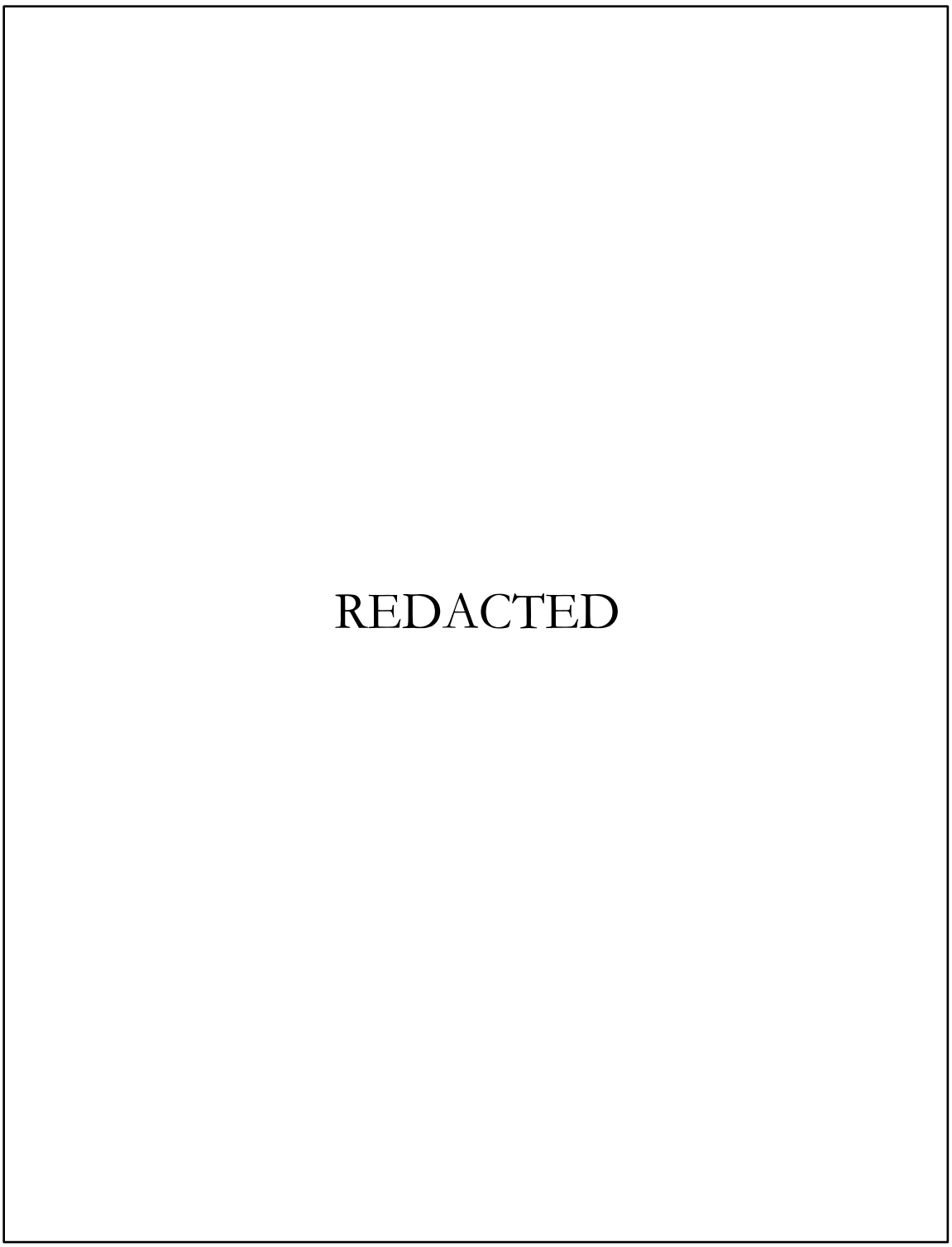

Figure 6.8: Features identified from magnetic gradiometer survey for Blocks 4 – 6.

Block 7

The features observed in Block 7 are marked by stronger positive values with weak or very weak negative signatures (Figure 6.9). These features MAG F59 – F69 are very subtle features that likely represent objects other than metal, with the exception of MAG F60. These features are within the range of hearth features. However, given the setting it is likely that they represent rodent burrows.

Block 8

Block 8 is characterized by more noise than the adjacent block (Figure 6.9). In this portion of the field there is remnant irrigation features and may be one source of the noise seen in the data. There are several prominent features within the block. MAG F70 is a strong positive/negative signature and likely represents a buried metal object. MAG F71 and F72 as well as those of F76- F80 cluster together and have similar signatures to those features observed in Block 7 characterized by their strong positive and weak to very weak negative signatures. MAG F73 and F74 are two prominent features in the southern portion of the block and are marked by their strong positive and strong negative signatures. The suite of features located in the northeastern corner of the grid likely represents buried metal objects. MAG F82 is likely a metal pipe running north to south.

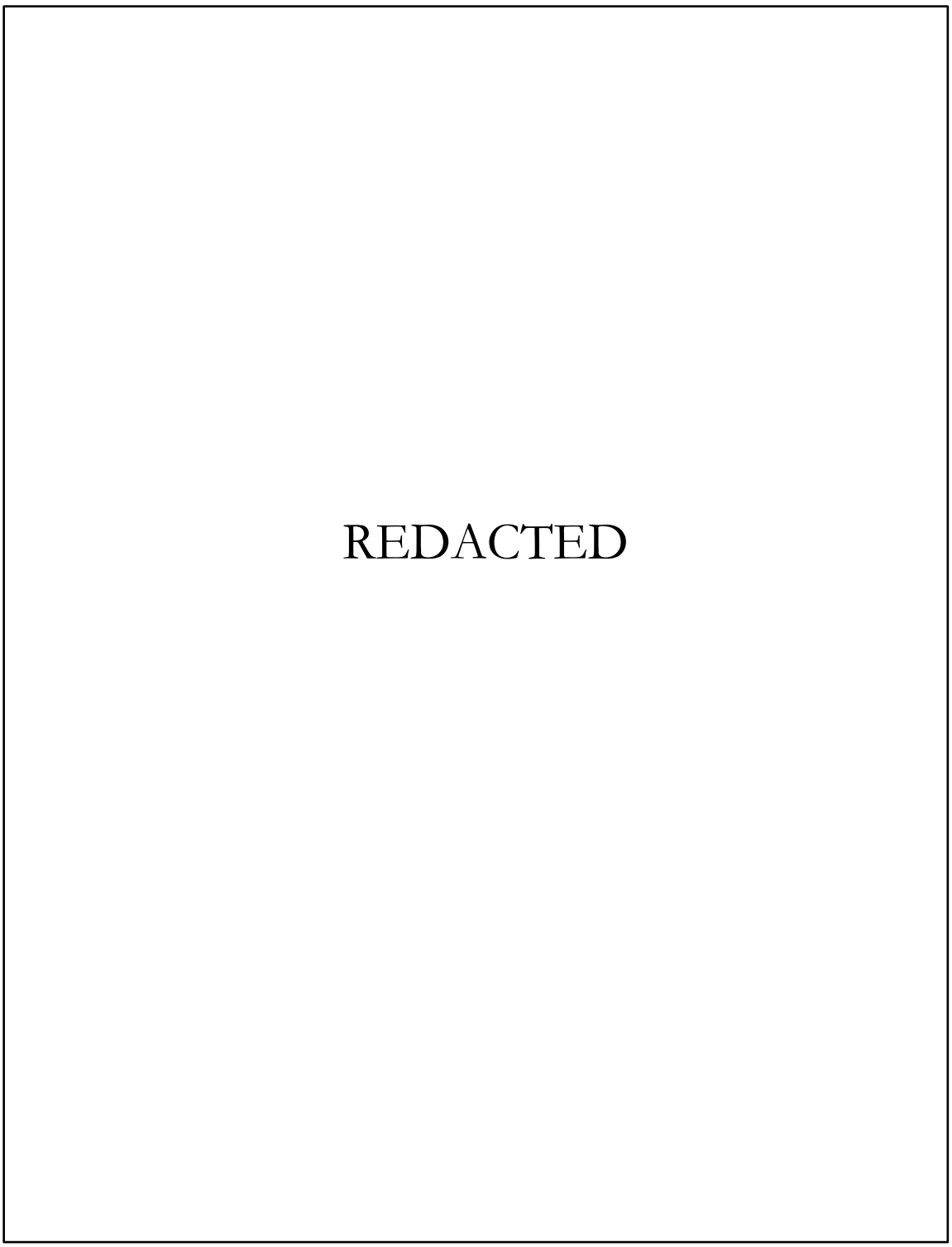

Figure 6.9: Features identified from magnetic gradiometer survey for Blocks 7 and 8.

Block 9

This block located upslope from Battle Creek on the west edge of the ravine, is a "clean" block, meaning there is very little noise in the magnetic gradiometer data suggesting that there is little discarded historic or modern metal objects and the soil matrix has likely not been plowed (Figure 6.10). Two very prominent features are visible in the southwestern portion of the block, MAG F88 and F92. MAG F88 is a strong positive with a halo of negative values while F92 likely represents a buried metal object of substantial size. The other four features are very subtle features with stronger positive than negative signatures. These four features F89, F90, F91, and F93 likely represent buried non-metallic features like burned surfaces or artifacts or rodent burrows.

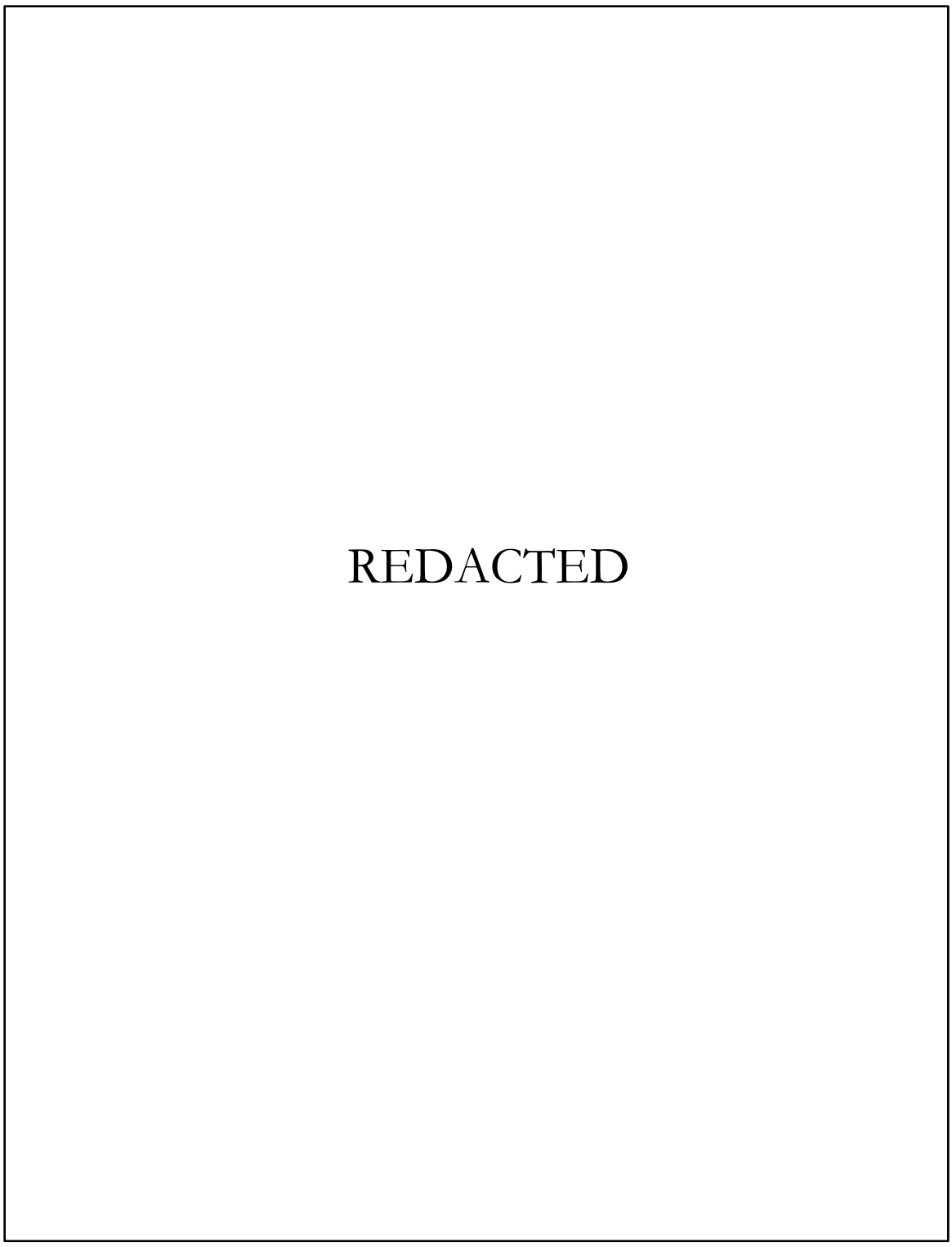

Figure 6.10: Features identified from the magnetic gradiometer survey for Block 9.

Block 10

Block 10 contains a lot of noise in the magnetic data (Figure 6.11). This noise may be related to the heavily disturbed setting. There is evidence of several episodes of historic and modern construction including road and house construction, and irrigation. It is likely that the sediments are not intact sediments at this location. There are three potential features, although they are difficult to determine their nature. Strong positive signatures with a weak to very weak negative signature characterize features F94 and F96. Feature F95 has equal positive and negative signature strength. The final feature, F97 is a dispersed signature in the southeast portion of the block.

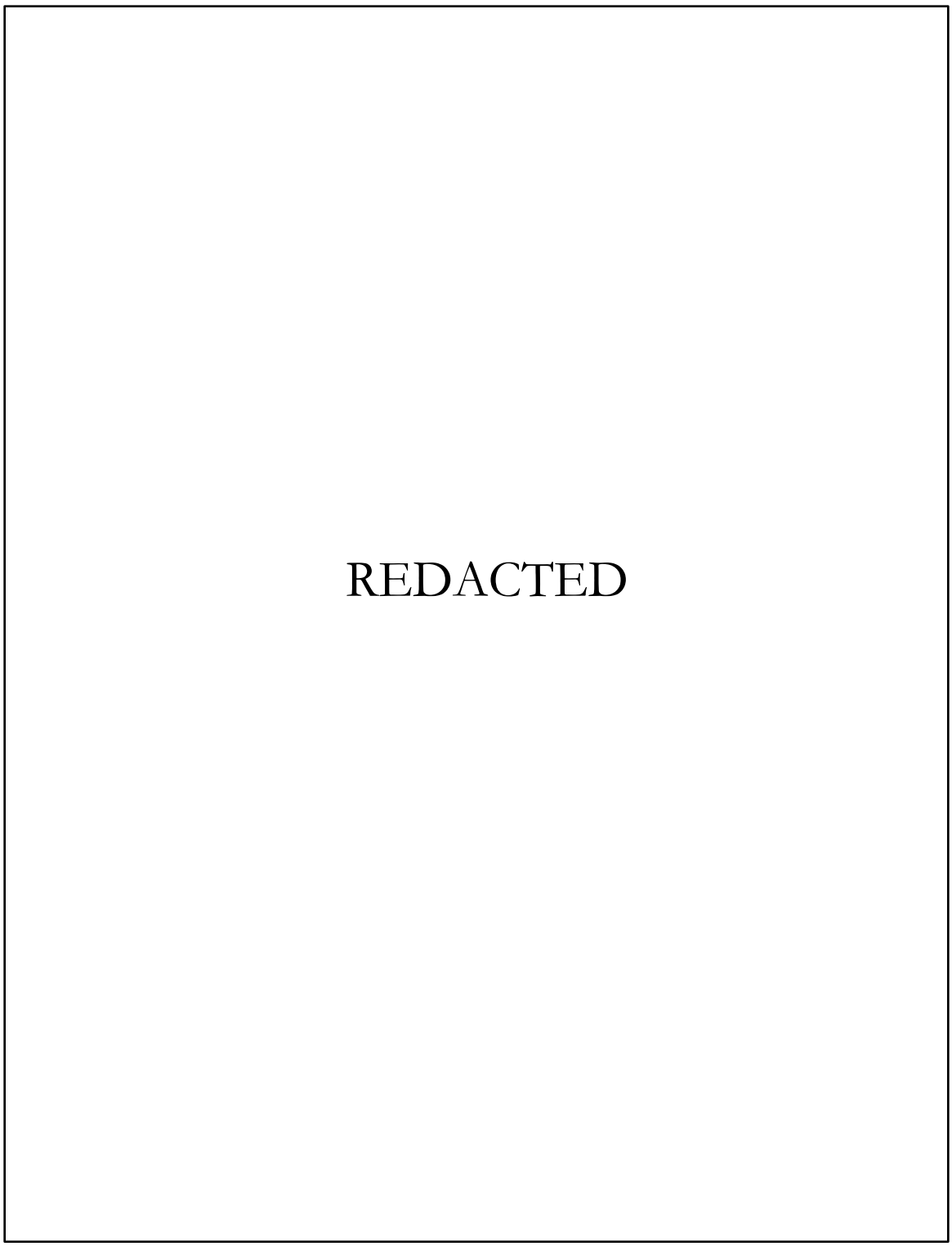

Figure 6.11: Features identified from magnetic gradiometer survey for Block 10.

Block 11

Block 11 is marked by little noise in the magnetic gradiometer data (Figure 6.12). This suggests a very uniform soil matrix that has not been plowed. There are several prominent features located in the southern portion of the block. Strong positive and strong negative signatures with the exception of MAG F102 characterize each of these. F102 appears to be a dispersed feature or possible a piece of metal and some additional object. The eastern portion of the feature is characteristic of metal while the eastern part is a more subtle and may represent a magnetic soil. Three additional features are located in the northern portion of the block. MAG F105 is a feature with a strong positive/strong negative signature and likely represents buried metal object. F106 and F107 are subtle features with stronger positive signatures and weak to very weak negative values.

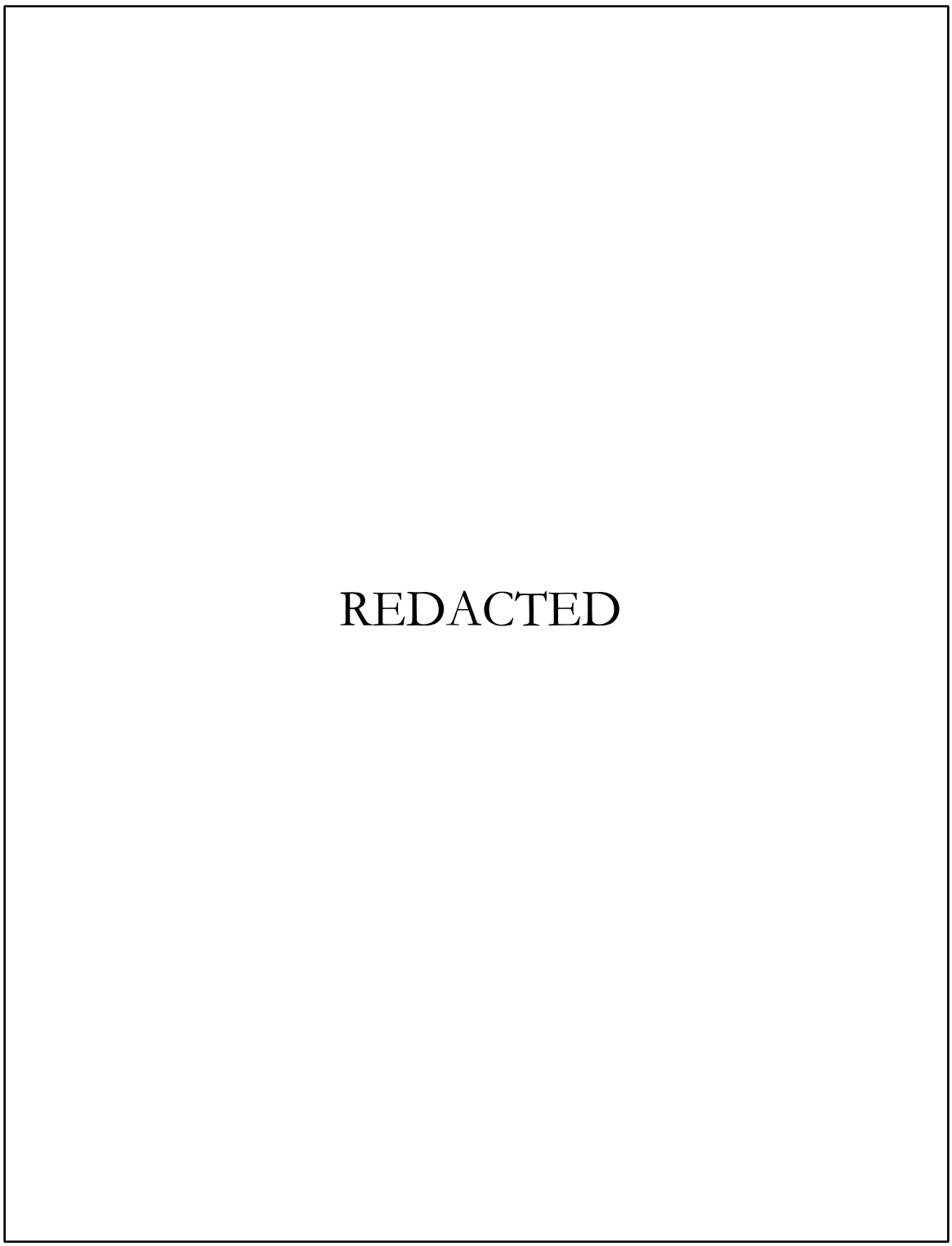

Figure 6.12: Features identified from magnetic gradiometer survey in Block 11.

Block 12

The features of Block 12 are characterized by strong positive signatures with weak to very weak negative values (Figure 6.14). Exceptions include F140, F141, F109 and F114. These four features are likely buried metal objects.

Block 13

Features MAG F116- F119 are subtle features likely representing buried burned soil or rock features or possibly rodent burrows (Figure 6.14). MAG F120 is a feature with very strong positive and negative signatures and is likely buried metal.

Block 14

Several prominent features represent buried metal in Block 14 (Figure 6.14). These include MAG F126, F128, F129, F130, and F135. The remaining features are characterized as strong positive with weak or very weak negative signatures and may represent burned soil or rock features, rodent burrows, or other non-metallic objects.

Block 15

MAG F136 is a feature with a strong positive and strong negative signature and likely represents a buried piece of metal of substantial size (Figure 6.14). The remaining three features in this block are located on the western portion and appear to represent a linear feature running through the block and continuing into the southern portion of the adjacent block, Block 12. These three features F137-F139 are likely metal objects given their strong positive and strong negative values.

Figure 6.13: Geophysical survey underway on the West Plain.

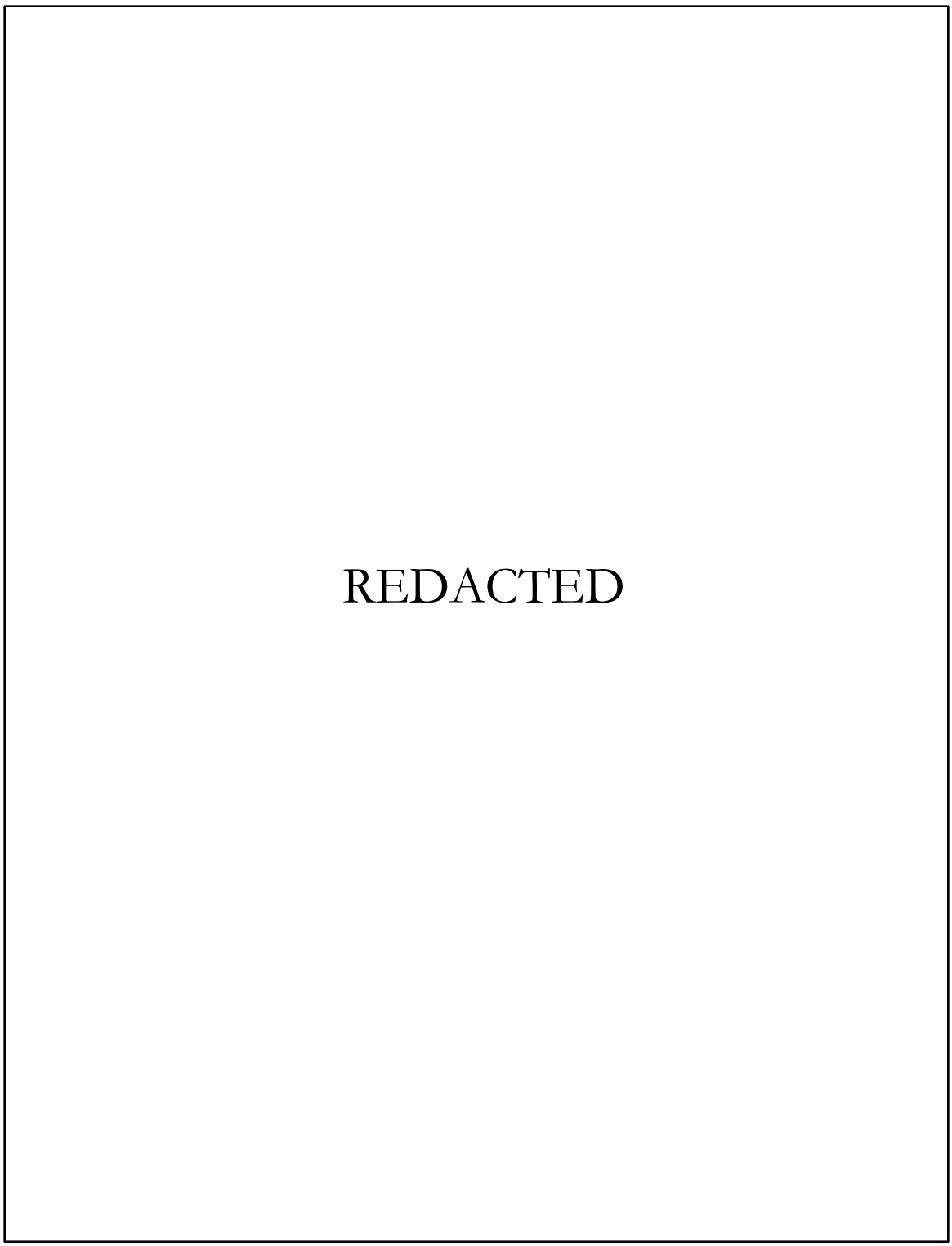

Figure 6.14: Features identified from magnetic gradiometer survey for Blocks 12 – 15.

RESULTS OF THE GPR SURVEY

The unevenness and heavy vegetation of the site proved to be quite difficult for a number of blocks to conduct a GPR survey. This included the five blocks located in the southern field collected in October of 2015.

Block 4

There are two features that are of interest in Block 4 identified by the GPR (Figure 6.15). The first feature, GPR F1, is located approximately 35 cm below the ground surface and likely represents a metal object. The second feature, GPR F2, is located just north of GPR F1 but at a depth of approximately 48 cm below the ground surface. This feature is less easily identified and my represents several buried metal objects, although their signatures are not strong like metal, and suggests the possibility of buried rock features. Both GPR features correspond to the approximate location for the features surround MAG F17.

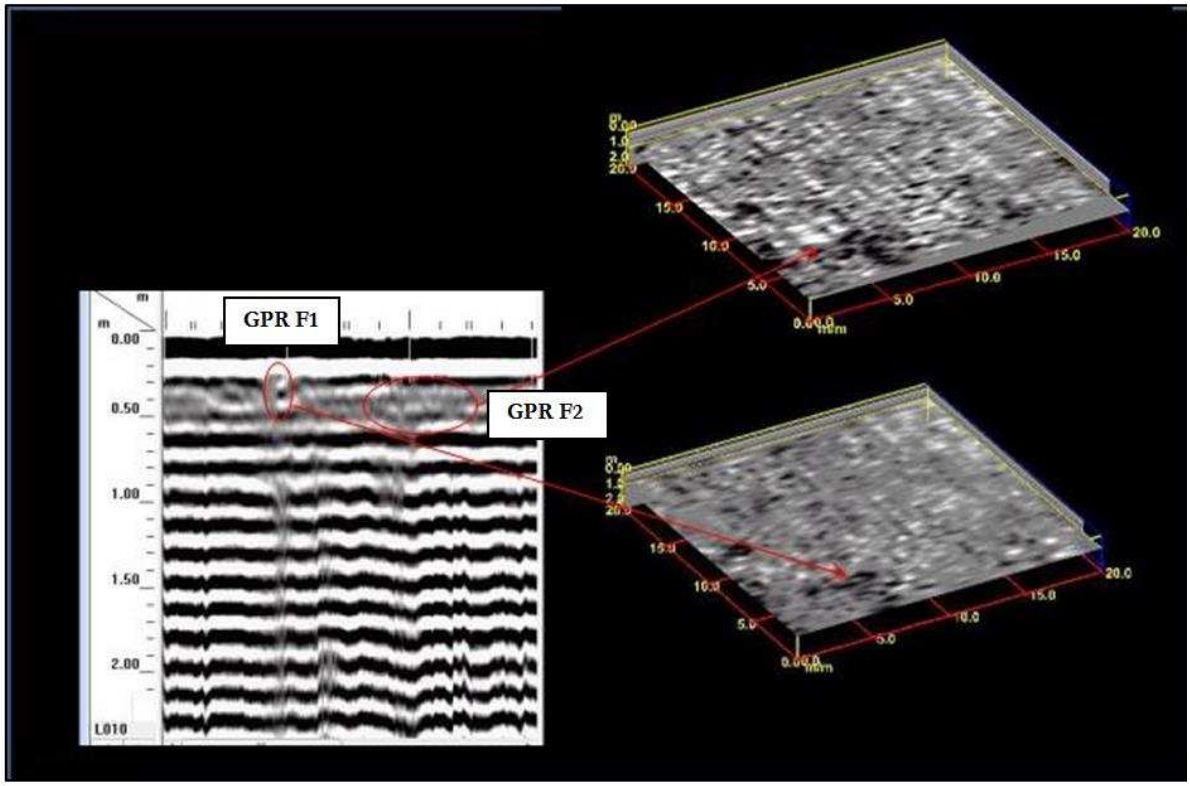

Figure 6.15: Features identified from the GPR survey for Block 4.

Block 5

Five metal objects sit at the surface in the southwest portion of the block and account for the dark signatures seen in Figure 6.16. These objects likely correspond to the strong magnetic signatures observed for and around MAG F27 and F28.

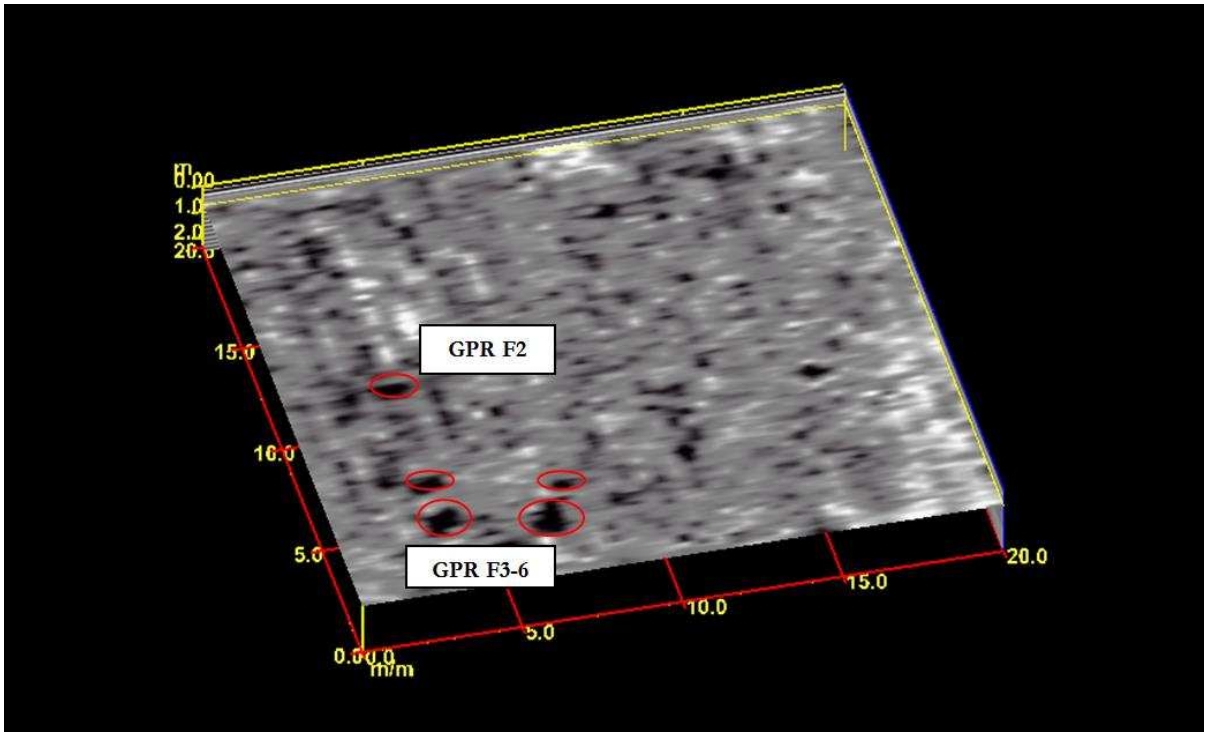

Figure 6.16: Surface metal identified in the results of the GPR survey for Block 5.

The northeast corner of the block has several features that were identified by the magnetic gradiometer survey and also are illustrated in the GPR image (Figure 6.16). There is attenuation noted by the dashed oval in the profile illustration. This suggests that something disrupted the GPR signal at the surface. Mostly likely the vegetation was the cause as a metal object would have a strong black/white/black signature. In the following line there is a similar black signature and the disturbance down the profile is visible in Figure 6.17. These data collection errors result in the dark features illustrated by the dashed oval in the planview map.

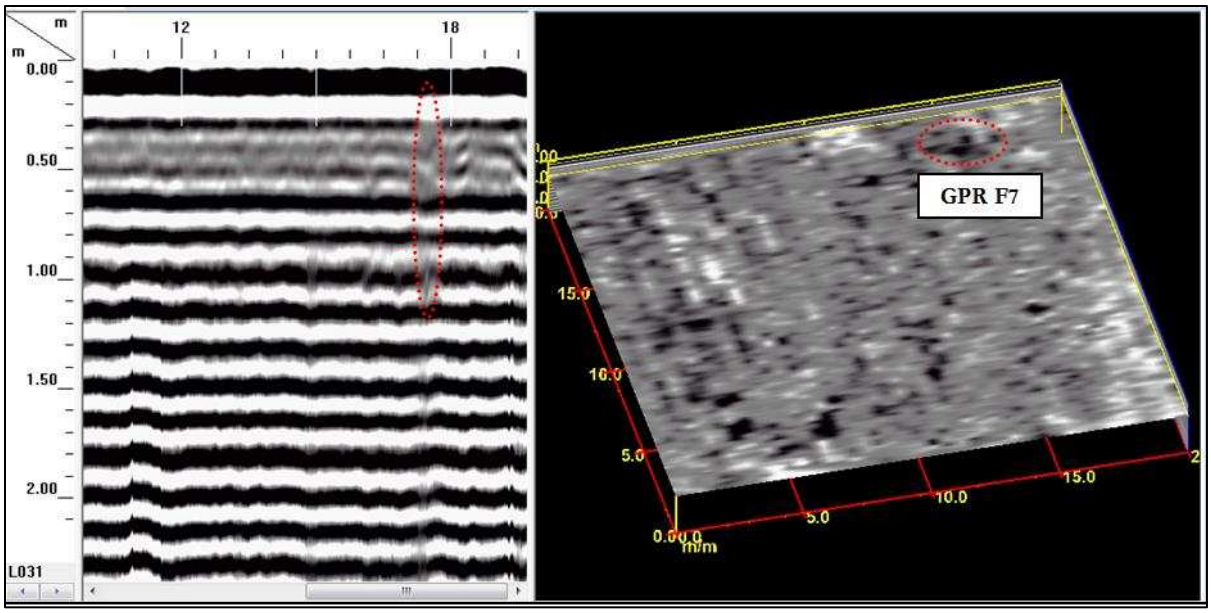

Figure 6.17: Illustration of attenuation due to vegetation at the surface.

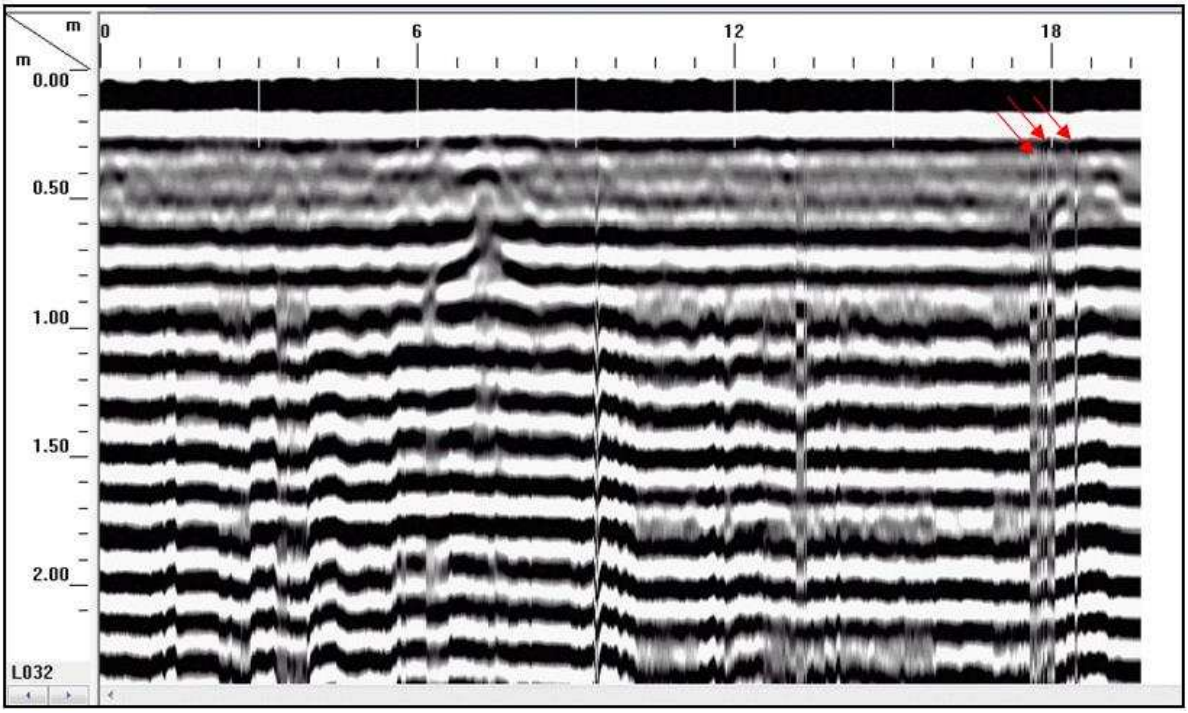

Figure 6.18: Illustration of data disruption in the profile for line 32 from vegetation.

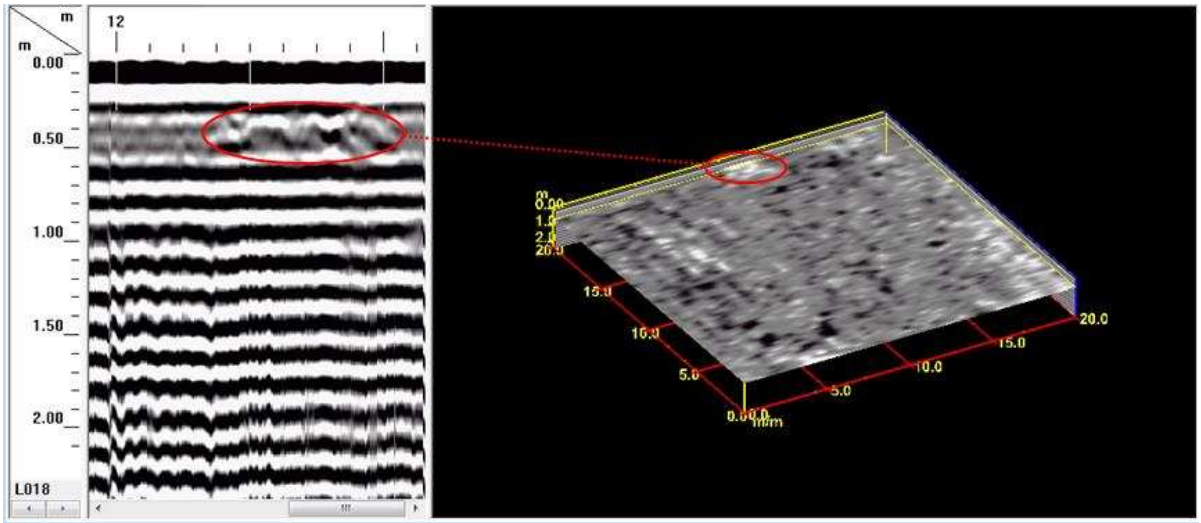

Figure 6.19: GPR F9, feature approximately 50 cm below ground surface in Block 5.

Block 6

There is a large feature in the north western portion of the block that is metal at or near the surface. This object is blocking the GPR signal from penetrating below. The result is a reflection of the signature down the profile shown in line 4 (Figure 6.20). A similar feature is found in line 2 and seen to the southwest of the feature marked by the red arrow in Figure 6.21. This location corresponds to the features identified by the magnetic gradiometer as F55 – F58.

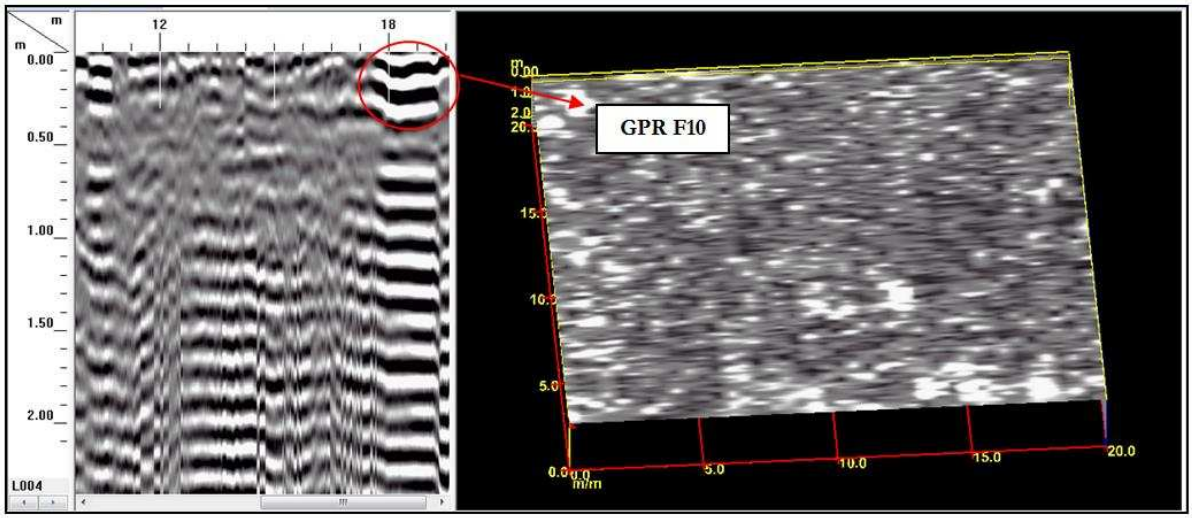

Figure 6.20: GPR feature 10 surface metal identified in Block 6.

Beginning lines 28 and 29 and continuing through lines 36 and 37 several prominent metal objects are note at or just below the ground surface. These objects are like the cause of the strong magnetic signatures for MAG F40 and F41.

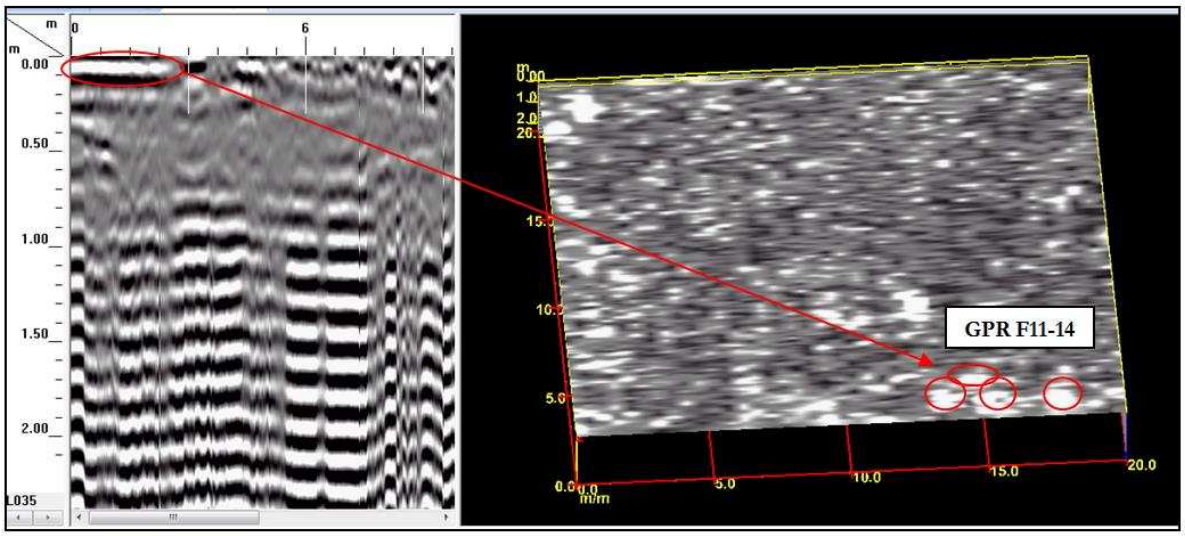

Figure 6.21: Features identified from the GPR survey in the southeastern corner of Block 6.

Block 9

A white/black/white signature indicates that the feature is filled with air (Figure 6.22). This feature is also seen in the magnetic gradiometer data as MAG F93. The dashed lines appear to be more linear in the GPR data than the discrete features illustrated in the magnetic gradiometer images. The dashed lines have several prominent features that correspond to features MAG F88, F89, F90, F91 and F92. The dashed oval as seen in the profile for line 7 has the appearance of reinforced concrete buried approximately 48 cm below the ground surface.

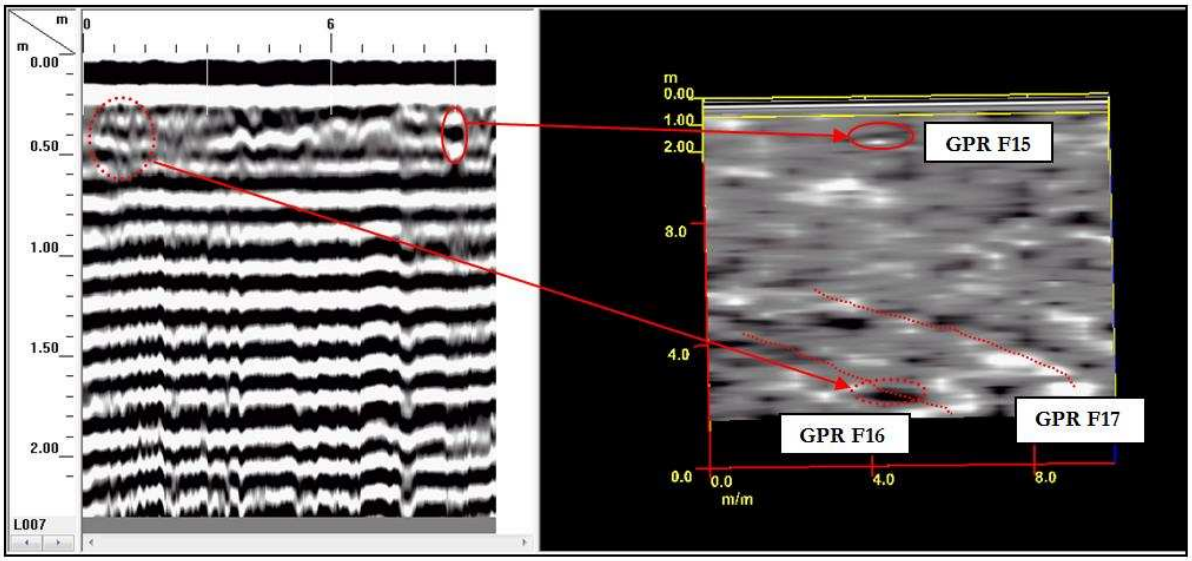

Figure 6.22: Features identified from the GPR survey for Block 9.

Another feature with the white/black/white signature is located in transect 13 (Figure 6.23). This feature sits approximately 38 cm below the ground surface. Nothing appears in the magnetic gradiometer data at this location.

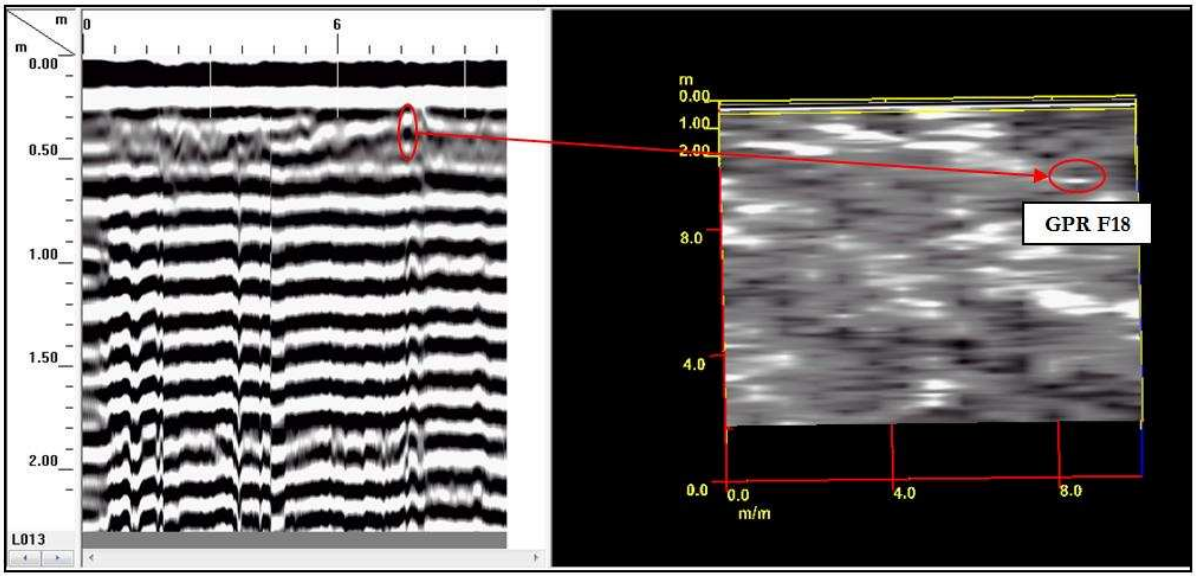

Figure 6.23: Feature GPR F18 identified in Block 9.

Block 10

Another feature with the white/black/white signature (Figure 6.24). This feature is in the approximate location of MAG F96.

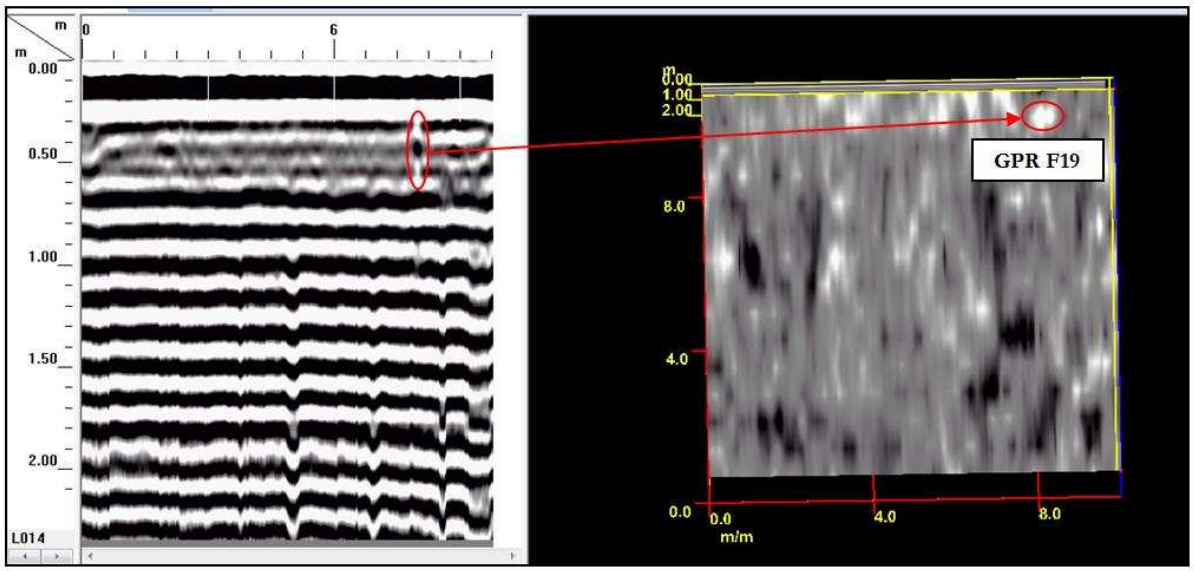

Figure 6.24: Feature GPR F19 identified in Block 10.

Table 6.3: Locations of features identified by magnetic gradiometer survey.

Feature	Easting	Northing
MAG F1	424416.8	4666466.5
MAG F2	424405.5	4666479.3
MAG F3	424408.8	4666479.4
MAG F4	424411.2	4666472.6
MAG F5	424410.3	4666476.2
MAG F6	424410.8	4666474.9
MAG F7	424402.7	4666473.0
MAG F8	424404.4	4666472.5
MAG F9	424409.7	4666464.5
MAG F10	424404.5	4666464.0
MAG F11	424364.1	4666473.6

Feature	Easting	Northing
MAG F12	424361.2	4666475.8
MAG F13	424355.1	4666497.2
MAG F14	424362.6	4666494.2
MAG F15	424364.8	4666494.8
MAG F16	424362.5	4666505.0
MAG F18	424472.4	4666281.6
MAG F19	424472.0	4666283.3
MAG F20	424472.5	4666285.9
MAG F21	424472.9	4666289.6
MAG F22	424475.2	4666289.6
MAG F23	424475.7	4666287.9

Feature	Easting	Northing
MAG F17	424476.5	4666282.8
MAG F24	424478.4	4666283.5
MAG F25	424481.0	4666284.2
MAG F26	424485.8	4666282.7
MAG F27	424470.5	4666299.0
MAG F28	424474.0	4666299.2
MAG F29	424472.0	4666305.4
MAG F30	424472.7	4666305.7
MAG F31	424479.3	4666311.6
MAG F32	424486.2	4666296.5
MAG F33	424485.9	4666298.8
MAG F34	424483.1	4666299.1
MAG F35	424481.5	4666300.5
MAG F36	424481.0	4666303.1
MAG F37	424479.4	4666306.7
MAG F38	424482.0	4666307.0
MAG F39	424486.1	4666307.7
MAG F40	424481.3	4666316.9
MAG F41	424483.9	4666318.2
MAG F42	424471.5	4666314.4
MAG F43	424473.5	4666315.8
MAG F44	424479.6	4666321.3
MAG F45	424476.6	4666322.7
MAG F46	424478.2	4666326.5
MAG F47	424474.5	4666324.0

Feature	Easting	Northing
MAG F48	424475.5	4666325.6
MAG F49	424474.5	4666326.7
MAG F50	424472.2	4666325.6
MAG F51	424484.3	4666330.7
MAG F52	424486.2	4666332.4
MAG F53	424482.5	4666333.8
MAG F54	424478.4	4666332.6
MAG F55	424471.9	4666330.5
MAG F56	424470.9	4666332.2
MAG F57	424472.0	4666333.8
MAG F58	424467.4	4666331.9
MAG F88	424445.4	4666256.4
MAG F90	424448.6	4666256.7
MAG F89	424447.1	4666258.4
MAG F91	424451.1	4666254.6
MAG F92	424447.6	4666254.6
MAG F93	424447.1	4666263.2
MAG F96	424505.3	4666188.6
MAG F95	424501.2	4666189.3
MAG F94	424500.7	4666184.0
MAG F97	424505.8	4666180.3
MAG F105	424571.3	4666063.6
MAG F106	424575.0	4666065.2
MAG F107	424576.8	4666068.0
MAG F103	424576.1	4666057.6

Feature	Easting	Northing
MAG F104	424575.4	4666055.1
MAG F102	424577.7	4666054.0
MAG F98	424576.3	4666052.0
MAG F99	424577.4	4666049.9
MAG F101	424582.6	4666050.8
MAG F100	424580.0	4666049.7
MAG F59	424507.0	4666070.8
MAG F60	424511.9	4666069.1
MAG F61	424518.1	4666070.4
MAG F66	424510.4	4666066.5
MAG F67	424511.9	4666063.6
MAG F68	424511.6	4666061.4
MAG F69	424512.3	4666059.4
MAG F65	424508.9	4666057.8
MAG F64	424504.6	4666058.5
MAG F63	424501.7	4666058.9
MAG F62	424506.5	4666061.9
MAG F70	424516.6	4666065.1
MAG F71	424518.0	4666062.5
MAG F72	424521.3	4666063.4
MAG F73	424523.4	4666060.3
MAG F74	424525.6	4666056.8
MAG F75	424530.7	4666055.6
MAG F76	424521.8	4666068.4
MAG F77	424520.6	4666066.5

Feature	Easting	Northing
MAG F78	424525.5	4666066.1
MAG F79	424524.7	4666063.4
MAG F80	424526.4	4666063.8
MAG F81	424530.7	4666069.7
MAG F82	424532.2	4666070.1
MAG F83	424535.2	4666070.9
MAG F84	424535.4	4666067.6
MAG F85	424534.8	4666064.4
MAG F86	424535.2	4666060.2
MAG F87	424533.0	4666058.5
MAG F139	424547.6	4665976.7
MAG F138	424550.1	4665985.8
MAG F136	424558.0	4665971.9
MAG F137	424550.8	4665991.3
MAG F135	424569.1	4665972.3
MAG F134	424571.1	4665980.6
MAG F133	424566.6	4665981.7
MAG F132	424565.7	4665985.8
MAG F131	424565.6	4665988.7
MAG F129	424570.3	4665986.9
MAG F130	424568.4	4665984.4
MAG F128	424575.5	4665984.2
MAG F124	424578.5	4665987.5
MAG F121	424574.1	4665991.3
MAG F123	424582.7	4665989.0

Feature	Easting	Northing
MAG F126	424584.2	4665980.0
MAG F127	424577.7	4665982.6
MAG F125	424579.4	4665985.0
MAG F120	424583.3	4666006.8
MAG F119	424576.6	4665999.8
MAG F116	424567.0	4665999.4
MAG F117	424568.3	4666003.3
MAG F118	424571.5	4666011.0
MAG F115	424562.3	4666009.1

Feature	Easting	Northing
MAG F114	424559.1	4665993.6
MAG F113	424556.3	4666010.3
MAG F112	424553.3	4666004.9
MAG F111	424552.5	4666002.7
MAG F110	424549.2	4665996.2
MAG F109	424544.9	4665992.9
MAG F140	424546.3	4666002.4
MAG F141	424545.2	4666005.7
MAG F108	424549.6	4666006.4

SUMMARY OF FINDINGS FOR GEOPHYSICAL SURVEY

The magnetic gradiometer and ground penetrating radar surveys proved useful in imaging subsurface cultural deposits. The majority of geophysical features identified are likely to be metal objects. However, it is not possible to determine from the geophysical survey the nature of those objects or whether they date to the 1860s. Many of the objects may well relate to post-massacre historic events, including the construction and use of the narrow gauge railroad in Blocks 7, 8, 12, and 15, or perhaps to the settlement of Battle Creek itself. All 15 blocks probably preserve metal objects related to historic and contemporary agricultural practices, including irrigation, crop preparation and harvesting, and animal grazing and management. There appears to be a relationship between blocks that have surface evidence of plowing and the level of background "noise." For example, surface plowing is not evident in Blocks 9 and 11. Resulting images have a smoother appearance indicating less noise in the magnetic gradiometer data.

We recommend the continued use of geophysical survey for subsurface imaging of cultural deposits at the Bear River Massacre NHL. Expansion of blocks would provide a larger picture and may prove more useful in identifying patterning between geophysical signals and past behavior and landscape use. The geophysical surveys are a noninvasive method for imaging subsurface deposits. However, to determine the identity of the geophysical features, some form of subsurface testing is needed. Auger testing in conjunction with geophysical survey methods can assess subsurface deposits (Cannon et al. 2015).

METAL DETECTION RESULTS

Metal detection methods for this project are modeled after methods developed for various historical conflict sites in the western United States (see works by Connor and Scott 1998; Haecker 1994; Scott et al. 1989; and Scott and Hunt 1998). Metal detection blocks were set out with the RTK and each transect was spaced 5 meters apart and was marked with plastic stakes. Each transect was surveyed using Tesoro SuperTRAQ metal detectors in two 2.5 meter wide sweeps. This is a very low frequency-type machine capable of identifying metallic artifacts the size of a match head at a depth of 15 cm below surface. This

methodology provided near 100% survey coverage of the area metal detected. As mentioned previously, a total of 25 blocks, 21 of which were 20 m², were metal detector surveyed for a total of 9,930 m². A total of 2,285 metal detector hits were mapped with 1,469 excavated (Figure 6.25).

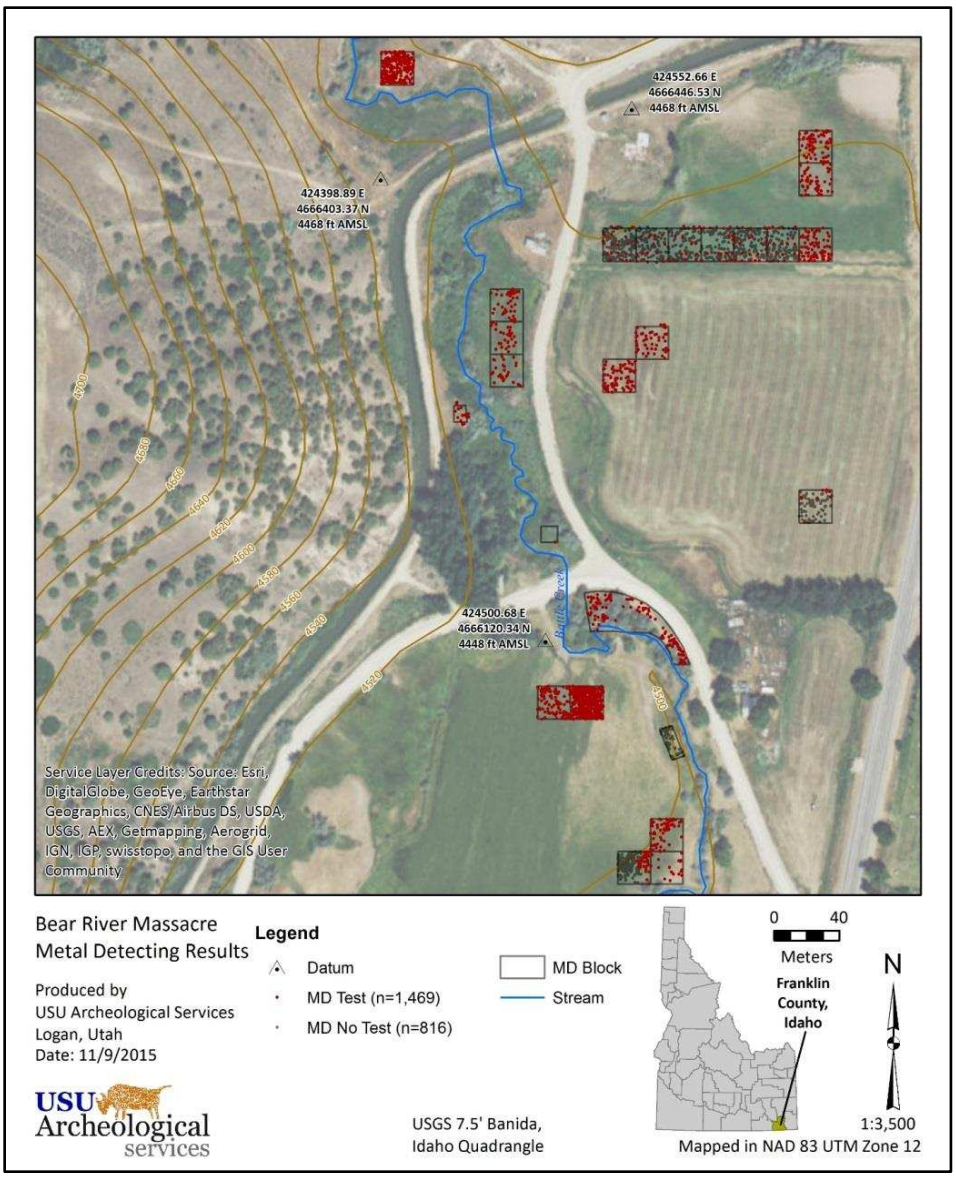

Figure 6.25: Map of metal detection investigations at Bear River Massacre.

Subsurface signals were flagged, mapped and ground-truthed with a 50-cm² test unit (Figure 6.26, next page). The test unit were oriented on magnetic north. Excavations were conducted by hand with trowels in 5-cm arbitrary levels, however the sod layer was removed with a shovel and many of the metal hits were found to be within this sod layer or the plow zone. All sediments were dry-screened and field sorted through 1/8-in mesh screen. All finds were fully recorded and collected for study, interpretation, and final curation. Artifacts that were obviously modern or not of period were discarded at the USUAS lab.

Photographs were taken of all recovered artifacts, both in situ and upon removal. A photo log was maintained documenting each photograph. The log includes the date, photographer name, catalog number, provenience and artifact description.

Figure 6.26: Excavating metal detection hit in north pasture.
Notice large number of metal detection hits marked by red pin flags.

Due to the over 100 years of agriculture within the landmark boundary, metal detection hits largely uncovered items associated with farming and ranching (Figure 6.27). These included barbed wire, fence staples, various tractor parts, and other ferrous metal items, some identifiable and some only as ferrous metal fragments. During the first session of metal detection it became apparent that an overwhelming number of hits were of modern items, this was particularly true along fence lines and near gates. Based upon this knowledge, the series of east-west oriented blocks along the southern fence line of the north pasture were sampled. Our sampling strategy focused upon excavation of every fifth metal detection hit. For these seven blocks we tested a total of 181 of the 586 hits (30.8%). A discussion of the results of the metal detection are presented in the following section on recovered artifacts.

Figure 6.27: Large metal bolt recovered just below sod.

While many of the metal detection hits proved to be from modern farming, a number of artifacts are associated with the Utah and Northern Railroad (Figure 6.28) and possibly the community of Battle Creek (10FR72), a railroad terminal site that lasted from 1878 to 1886 (Hart 1974). A full discussion of the site is presented following the artifact discussion section and the site form is provided in Appendix B.

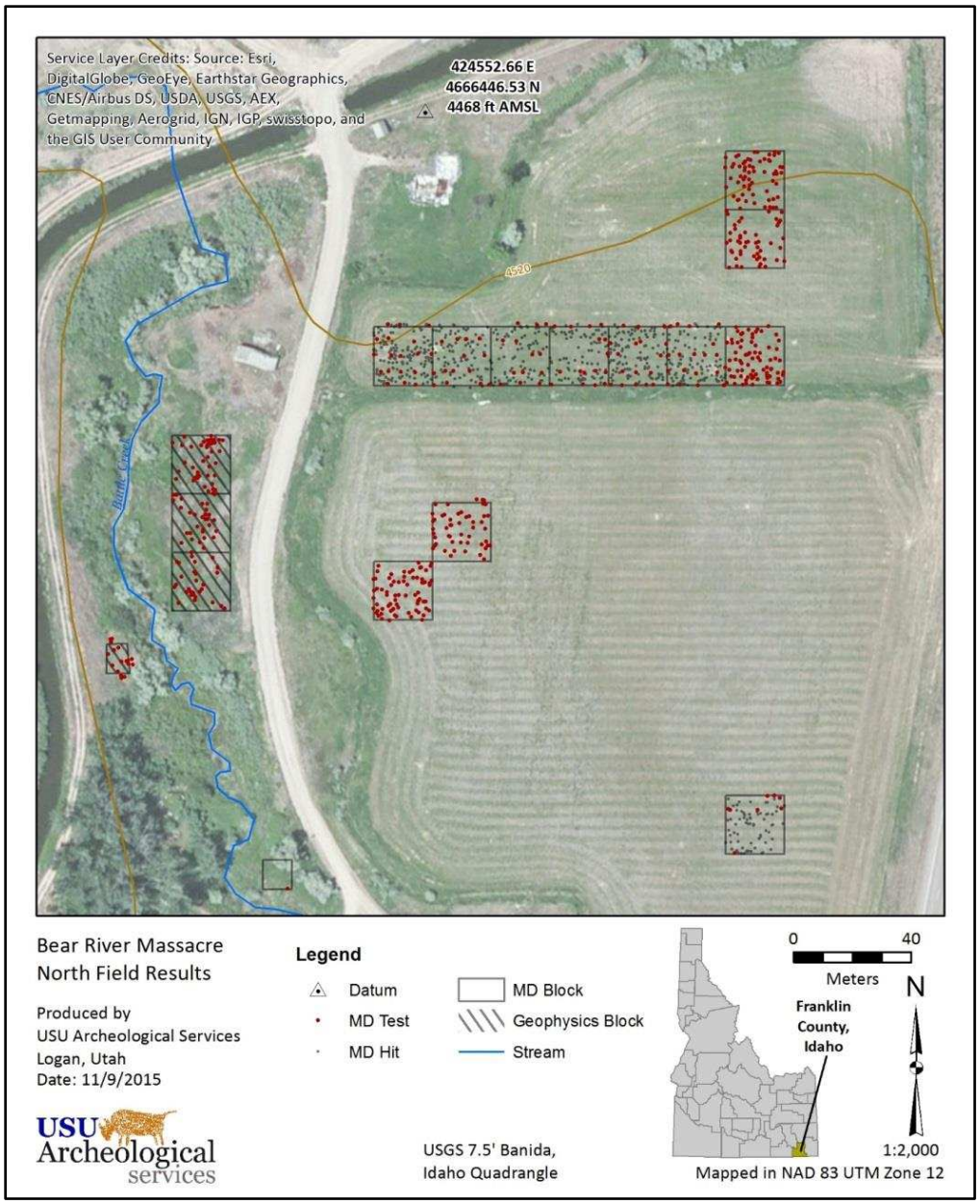

Figure 6.28: Northern metal detection results. Notice sampling in blocks along southern fence line of north pasture.

RECOVERED ARTIFACTS

Metal detection and surface collections for the Bear River Massacre project recovered hundreds of artifacts of various types. The vast majority of these artifacts consist of wire fragments, fence staples, wire-cut nails or clearly modern (post-1950) artifacts associated with agriculture (e.g., plow tines, bolts, tractor parts) or simply modern trash (e.g., aluminum cans, tin foil/wrappers, plastic children toys). None of the artifacts recovered through metal detection or through surface collections can unequivocally be

associated with the 1863 Bear River Massacre. Owing to the long temporal use range of certain artifact classes, such as nail types and horse tack, some of the recovered artifacts could reasonably date to the 1863 massacre. This section of the report provides descriptions for selected artifacts of interest within the categories of ammunition, horse shoes/tack, railroad spikes, square nails and buttons/buckles (Figure 6.29).

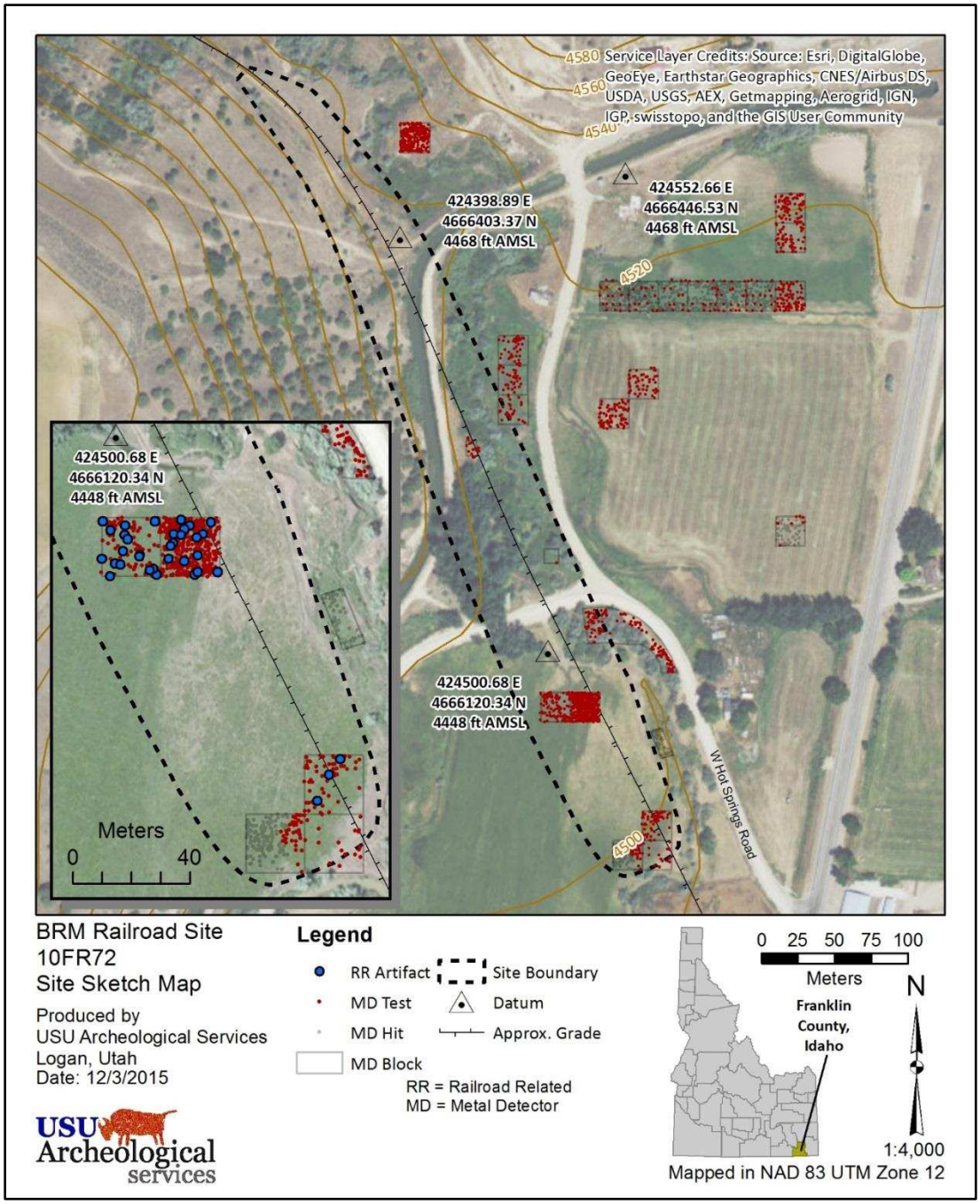

Figure 6.29: Boundary for Utah and Northern Railroad and distribution of railroad related artifacts recovered during metal detection of south pasture.

Ammunition

Since the primary research goal of this project is to identify the location of the Bear River Massacre, all recovered ammunition-related artifacts were visually inspected and those artifacts with distinctive characteristics or based on an initial assessment could date to the 1800s were described in detail. No percussion caps, cannon balls, Minié balls, gun flints, metal arrowheads, or firearm parts were recovered through fieldwork. Of the dozens of recovered ammunition related artifacts, most consisted of artifacts that clearly post-date 1863 including 12 gauge shot shells, .22 Long Rifle (LR) cartridges, 30-30 Winchester cartridges, boat-tail full metal jacketed bullets or similar artifact types. Furthermore, the majority of ammunition related artifacts came from the ravine (BLKA) in an area with evidence of recent target shooting (e.g., shot aluminum cans/other metal debris, clay pigeons, paper ammunition boxes, paper targets).

Table 6.4 provides a basic description for 17 of the bullets recovered during fieldwork. Following the table, six of the bullets are described in detail. Of these 17 bullets, eight represent .22 caliber, three are about .45 caliber, one .38 caliber, one .36 caliber, one .44 caliber ball, two indeterminate bullet fragments and one glob of lead. Only the .44 caliber round ball (FST444.005) and the glob of lead (FST160.003) could probably date to the 1860s.

Table 6.4: Selected ammunition related artifacts. Grayed rows indicate artifacts described in text.

FS No.	mE	mN	Depth	Bullet Diameter	Grain (gr) Grams (g)	Description
BC1.FS043	424468.02	4666283.21	0 cmbs	.22 caliber	33.2 gr 2.15 g	Deformed bullet fragment with metal jacket; likely represents a modern .22 LR bullet based on shape and grain size
BC1.FS086	424478.42	4666317.45	0-5 cmbs	.22 caliber	34.7 gr 2.25 g	Deformed bullet fragment; appears to represent a modern .22 LR bullet based on shape and grain size
BC1.FS092	424474.99	4666307.90	9 cmbs	.22 caliber	36.6 gr 2.37 g	Lead .22 caliber bullet with impact damage; likely represents .22 LR bullet based on grain size
BC1FS055	424469.55	4666291.00	5-9 cmbs	Indeterminate	23.8 gr 1.54 g	Indeterminate heavily deformed bullet fragment; based on grain-size and general shape likely represents a .22 bullet
BLKA.FST001.010	424406.28	4666479.12	~4 cmbs	.22 caliber	38.7 gr 2.51 g	Deformed bullet fragment with metal jacket; likely represents a modern .22 LR bullet based on shape and grain size
BLKA.FST002.010	424402.89	4666478.98	-	0.430-0.441 in 10.9-11.2 mm	415.0 gr 26.9 g	Deformed lead bullet; approximately .44-.45 caliber; flat base; mushroom deformed; rifling obscured by deformation; one

FS No.	mE	mN	Depth	Bullet Diameter	Grain (gr) Grams (g)	Description
						cannelure
BLKA.FST005.019	424402.91	4666475.77	<10 cmbs	.22 caliber	28.7 gr 1.86 g	Could represent a 22 Short bullet based on grain size; partially deformed; clear six-rifling grooves with right-handed twist
BLKA.FST009.005	424404.04	4666471.11	5-10 cmbs	0.446-0.451 in	394.8 gr 25.58 g	Two-part mold cast lead bullet; three large grease grooves (0.098 in wide by 0.042 in deep); semi-wad cutter with rounded nose; base indentation; impact damage and excavation damage; likely represents a modern muzzle-loading .45 caliber round
BLKA.FST011.009	424411.65	4666469.96	-	0.378-0.388 in 9.6-9.8 mm	218.7 gr 14.17 g	Deformed solid lead bullet approximately .38 caliber; flat base; one possibly two cannelures; possible rifling scars
BLKA.FST020.002	424417.78	4666461.45	5-10 cmbs	0.340-0.356 in 8.8-9.0 mm	139.8 gr 9.06 g	Lead approximately .36 caliber bullet with impact damage; flat base; round nose; 0.584 in long (14.8 mm); "reeded" cannelure
FST010.002	424662.35	4666422.28	5-10 cmbs	Indeterminate	37.0 gr 2.40 g	Deformed bullet fragment; appears to represent a .22 LR bullet based on shape and grain size
FST060.018	424653.77	4666372.87	7 cmbs	.22 caliber	39.4 gr 2.55 g	.22 caliber jacketed bullet; likely modern 22 LR; impact damage
FST076.026	424674.03	4666356.24	5 cmbs	.22 caliber	36.6 gr 2.37 g	Likely a .22 caliber heavily deformed bullet
FST155.002	424541.80	4666277.34	5 cmbs	.45 caliber (11.3 mm)	230.9 gr 14.96 g	Modern .45 caliber pistol bullet (likely 45 ACP) with full copper jacket; slightly deformed from impact; left hand twist rifling
FST160.003	424548.80	4666273.05	~10 cmbs	-	111.3 gr 7.21 g	Lead globule; irregularly shaped; unlikely to represent a bullet fragment

FS No.	mE	mN	Depth	Bullet Diameter	Grain (gr) Grams (g)	Description
FST444.005	424561.03	4665988.28	7-9 cmbs	0.440-0.449 in 11.1-11.9 mm	136.7 gr 8.86 g	Solid lead .44 caliber ball with patina; slightly deformed suggestive of impact damage; two-piece mold with cut sprue mark on mold line
FST454.001	424583.70	4665978.83	5-7 cmbs	.22 caliber	36.1 gr 2.34 g	.22 caliber jacketed bullet; likely modern 22 LR; impact damage

BLKA.FST002.010. BLKA.FST02.10 is a solid lead fired bullet measuring between 0.430-0.441 in (about .44 caliber) diameter and weighs 415.0 grains (Figure 30a). The bullet is mushroom deformed and retains rifling scars and a single shallow cannelure. Table 6.5 lists comparative Civil War era bullet data taken from Thomas and Thomas (2007) for .40 to .50 caliber bullets. Figure 6.31(page 153) compares Civil War era bullet measurements with BLKA.T02.10. This bullet represents an outlier that is heavier than Civil War era .44 caliber Army Colt class bullets and is a lighter bullet and a smaller caliber than English Whitworth rifles (Thomas and Thomas 2007; Thomas 1997, 2002).

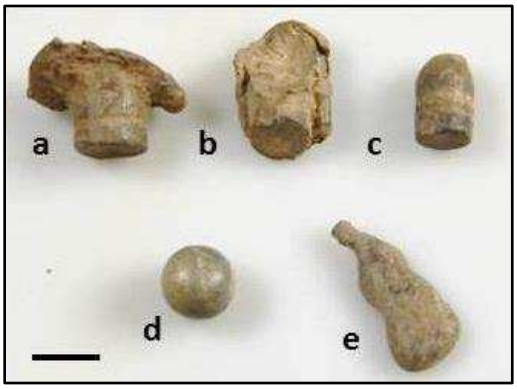

Figure 6.30: Bullets recovered from Bear River Massacre Historic Landmark: a. FS BLKA.FST02.10; b. FS BLKA.T11.09; c. FS BLKA.T20.02; d. FST444.005; e. BLKA.FST02.003.

Bullet (BLK.FST02.10) closely matches both the diameter and grain size of .45-70 Government class bullets. The .45-70 Government cartridge, introduced in 1873 by the U.S. Military for the Springfield "Trapdoor" Rifle, is commonly loaded with bullets weighing 415 grains and solid lead cast bullets can still be purchased from a variety of manufactures (Barnes and Simpson 2009). Based on bullet morphology, caliber and grain size; bullet BLKA.FST02.10 is highly unlikely to be associated with the Bear River Massacre of 1863.

Table 6.5: Comparative Table of Civil War Era .40 to .50 Caliber Bullets.

Bullet Type	Associated Firearm(s)	Bullet Diameter (in)	Grains (gr)	Reference
.44 Cal, Elam O. Potter	"Army" and holster revolvers	0.452	229	Thomas and Thomas 2007:11

Bullet Type	Associated Firearm(s)	Bullet Diameter (in)	Grains (gr)	Reference
.44 Cal, Watervliet Arsenal	Pistols	0.455	253	Thomas and Thomas 2007:11
.44 Cal, Watervliet Arsenal	Pistols	0.456	264	Thomas and Thomas 2007:11
.44 Cal, Deane & Adams	Pistols	0.434	159	Thomas and Thomas 2007:14
.44 Cal, Tranter	Pistols	0.450	176	Thomas and Thomas 2007:14
.44 Cal	Pistols	0.455	166	Thomas and Thomas 2007:15
.44 Cal, Colt Army "New Bullet"	Colt Army Revolver and other pistols	0.455	196	Thomas and Thomas 2007:16
.44 Cal, Richmont Colt	Colt Revolver and other pistols	0.455	201	Thomas and Thomas 2007:17
.44 Cal	Pistols	0.448	204	Thomas and Thomas 2007:17
.44 Sage	Pistols	0.458	215	Thomas and Thomas 2007:18
.44 Starr	Pistols	0.469	221	Thomas and Thomas 2007:19
.44 Starr	Pistols	0.461	223	Thomas and Thomas 2007:19
.44 Cal	Pistols	0.455	212	Thomas and Thomas 2007:19
.44 Kerr	Pistols	0.465	224	Thomas and Thomas 2007:19
.44 Kerr	Pistols	0.455	205	Thomas and Thomas 2007:19
.44 Cal, Leet & Hall	Pistols	0.460	216	Thomas and Thomas 2007:20
.44 Cal, Johnson and Dow	Pistols	0.464	207	Thomas and Thomas 2007:20
.44 Bartholow	Pistols	0.458	253	Thomas and Thomas 2007:20

Bullet Type	Associated Firearm(s)	Bullet Diameter (in)	Grains (gr)	Reference
.44 Colt	Colt "Old Model" Revolver	0.460	256	Thomas and Thomas 2007:20
.44 Cal, Sharps	Sharps Sporting Rifle	0.443	214	Thomas and Thomas 2007:37
.38 Cal, Sharps	Sharps Sporting Rifle	0.425	187	Thomas and Thomas 2007:37
.44 Cal, Sharps	Sharps Sporting Rifle	0.453	234	Thomas and Thomas 2007:37
.44 Cal, Sharps "Multi-groove Bullet"	Sharps Sporting Rifle	0.470	242	Thomas and Thomas 2007:37
.44 Cal, Sharps "Multi-groove Bullet"	Sharps Sporting Rifle	0.492	289	Thomas and Thomas 2007:37
.44 Cal, Sharps	Sharps Sporting Rifle	0.425	163	Thomas and Thomas 2007:37
.44 Cal, Colt Revolving Rifle	Colt Revolving Rifle	0.462	258	Thomas and Thomas 2007:23
.44 Cal	Carbines and Rifles	0.459	258	Thomas and Thomas 2007:23
.44 Cal	Henry Rifle	0.445	209	Thomas and Thomas 2007:23
.44 Cal, Ballard	Ballard "new model" carbine or rifle	0.434	205	Thomas and Thomas 2007:24
.42 Cal, Wesson	Carbines and Rifles	0.432	185	Thomas and Thomas 2007:24
.44 Cal, Tennessee Rifle	Kentucky or Country Rifles	0.425	222	Thomas and Thomas 2007:24
.44 Cal, Tennessee Rifle	Kentucky or Country Rifles	0.450	271	Thomas and Thomas 2007:24
.405 Dia, Tennessee Rifle	Kentucky or Country Rifles	0.405	140	Thomas and Thomas 2007:24
.445 Dia, Tennessee Rifle	Kentucky or Country Rifles	0.445	195	Thomas and Thomas 2007:24
.45 Cal, Whitworth	English Whitworth Rifle	0.445	515	Thomas and Thomas 2007:25

Bullet Type	Associated Firearm(s)	Bullet Diameter (in)	Grains (gr)	Reference
.45 Cal, Whitworth	English Whitworth Rifle	0.442	516	Thomas and Thomas 2007:25
.45 Cal, Whitworth	English Whitworth Rifle	0.450	516	Thomas and Thomas 2007:25
.45 Cal, "Double-end" Slug	Possibly Vanderberg Volley Gun	0.442	503	Thomas and Thomas 2007:25
Dimick Rifle Bullet	Dimick American Deer and Target Rifles	0.473	301	Thomas and Thomas 2007:72
Dimick Rifle Bullet	Dimick American Deer and Target Rifles	0.404	187	Thomas and Thomas 2007:72
Picket	Kentucky, Pennsylvania and various other rifles	0.423	215	Thomas and Thomas 2007:72
Picket	Kentucky, Pennsylvania and various other rifles	0.460	230	Thomas and Thomas 2007:73
Picket	Kentucky, Pennsylvania and various other rifles	0.470	287	Thomas and Thomas 2007:73

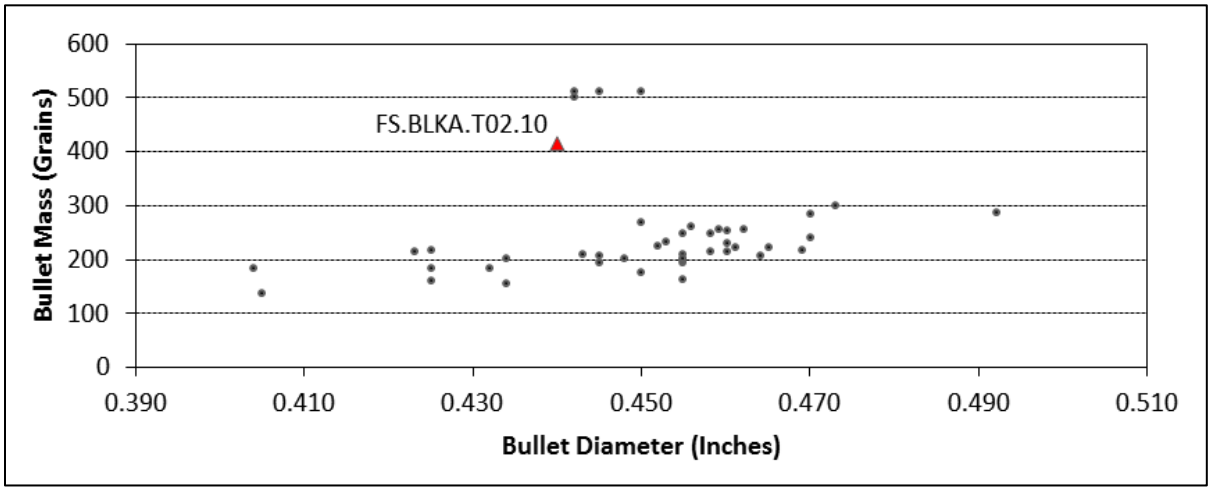

Figure 6.31: Graph comparing Civil War era .40 to .50 caliber bullet diameter and grain size compared with FS.BLKA.T02.10.

BLKA.FST005.019. BLKA.FST005.019 is a fired lead .22 caliber bullet weighing 28.7 grains that was found at about 40 cmbs. The bullet has a round nose and has a semi-wad cutter shape with an indentation on the base of the bullet. Manufactures since about 1857 have produced .22 caliber cartridges including the .22 Short, .22 Long, .22 LR, .22 WMR and others with wide ranging and overlapping bullet grain sizes (Barnes and Simpson 2009). Based on historical loading data from the 1860s and modern manufacturers, .22 Short cartridges typically are loaded with 29 grains consistent with BLKA.FST005.019 (Barnes and Simpson 2009; Rosebush and Kuhler 1962; Supica and Nahas 2006).

Horace Smith and Daniel B. Wesson improved upon early metallic cartridge designs, particularly the Flobert Bullet Breech (B-B) Cap, in developing the first fully contained and commercially successful .22 caliber cartridge (Rosebush and Kuhler 1962). In 1857, Smith and Wesson commercially introduced this cartridge, later named .22 Short, for use in the new Smith & Wesson No. 1 First Issue revolver (Barnes and Simpson 2009). Between 1857 and 1860, Smith & Wesson manufactured about 11,671 No. 1 First Issue revolvers and from 1860 through 1868 manufactured about 117,000 No. 1 Second Issue revolvers also chambered in .22 Short (Flayderman 2007; Supica and Nahas 2006). Despite poor ballistics and particularly low stopping power, Smith & Wesson No. 1 First and Second Issue revolvers were popular self-defense weapons carried by many western travelers during the 1860s (Barnes and Simpson 2009; Rosebush and Kuhler 1962). Though U.S. Army troops and officers likely did not carry .22 Short chambered firearms, Native Americans camped at the Bear River in 1863 could have acquired these firearms through trade.

BLKA. FST005.019 exhibits rifling marks consistent with a six-groove right twist barrel. According to the NRA National Firearms Museum (2015), the Smith & Wesson No. 1 model revolvers transitioned from three-groove left hand twist to five groove right hand twist barrels. Based on this information, BLK.FST005.019 is unlikely to have been fired from the .22 Short caliber firearms available in 1863 and likely is not related to the massacre at Bear River.

BLKA.FST011.09 and BLKA.FST020.02. BLKA.FST011.09 is a fired lead bullet measuring between 0.378-0.388 in diameter (about .38 caliber) and weighs 218.7 grains (Figure 6.30b). The bullet is heavily impact deformed and retains linear scars that probably represent rifling marks. BLKA.FST020.02 is a solid lead bullet measuring between 0.340-0.356 in (about .36 caliber) and weighs 139.8 grains. The bullet retains rifling scars, a reeded cannelure (often called a knurled cannelure), has a rounded nose, and is partially impact deformed. Bullet manufactures beginning in the late 1800s began adding reeded cannelures to indicate the location of and provide an attachment point for metallic cartridge crimping and are unlikely to date to the Civil War (Ordnance Department of the U.S. Army 1920; Thomas and Thomas 2007).

Table 6.6 lists comparative Civil War era bullet data taken from Thomas and Thomas (2007) for .30 to .40 caliber bullets. Figure 6.32 (page 157) compares Civil War era bullet measurements with BLKA.FST011.09 and BLKA.FST020.02. Both bullets represent heavy outliers when compared with Civil War era bullets such as .36 caliber Colt Navy Revolver class bullets. Based on the reeded cannelure found on bullet BLKA.FST020.02 (Figure 6.30c), it most likely was manufactured after the 1860s (NPS 2000:84; see also Thomas and Thomas 2007). This bullet likely represents a 9 mm (.38 caliber) class pistol bullet commonly manufactured around 140 grains (Barnes and Simpson 2009). Since BLKA.FST11.09 is heavily deformed it is much more difficult to identify, however based on grain size (217 grains) and estimated bullet diameter (.38 inch) it conforms well with bullets of the .41 Long Colt class (e.g., .41 Special, .41 Magnum [Barnes and Simpson 2009]). Based on comparisons with Civil War Era bullets and modern examples, both of these bullets are unlikely to be associated with the Bear River Massacre of 1863 (see also Thomas 2002, 2003).

Table 6.6: Comparative Table of Civil War Era .30 to .40 Caliber Bullets.

Bullet Type	Associated Firearm(s)	Bullet Dia. (in)	Grains	Reference
.31 Cal	"Pocket" Revolver	0.320	76	Thomas and Thomas 2007:10

Bullet Type	Associated Firearm(s)	Bullet Dia. (in)	Grains	Reference
.31 Cal	"Pocket" Revolver	0.325	68	Thomas and Thomas 2007:10
.36 Cal	"Navy", "Police" and "Belt" Revolvers	0.378	141	Thomas and Thomas 2007:11
.36 Cal	"Navy", "Police" and "Belt" Revolvers	0.374	109	Thomas and Thomas 2007:11
.31 Cal, Eley	Pistols	0.323	78	Thomas and Thomas 2007:12
.36 Cal, Eley	Pistols	0.386	130	Thomas and Thomas 2007:12
.32 Cal, Smith & Wesson	Pistols	0.320	73	Thomas and Thomas 2007:12
.40 Cal, Derringer	Derringer Pistols	0.400	121	Thomas and Thomas 2007:12
.31 Cal, Volcanic	Pistols	0.355	54	Thomas and Thomas 2007:13
.31 Cal, Walch	Walch 12-Shot Revolver	0.326	64	Thomas and Thomas 2007:13
.36 Cal, Walch	Pistols	0.385	123	Thomas and Thomas 2007:13
.36 Cal, Eley	Pistols	0.378	137	Thomas and Thomas 2007:13
.36 Cal, Richmond Laboratory	Pistols	0.368	117	Thomas and Thomas 2007:13
.31 Cal, Deanne & Adams	Pistols	0.337	85	Thomas and Thomas 2007:14
.36 Cal, Tranter	Pistols	0.395	120	Thomas and Thomas 2007:14
.36 Cal, Colt	Colt Navy Pistols	0.395	130	Thomas and Thomas 2007:15
.36 Cal, Savage	Pistols	0.388	177	Thomas and Thomas 2007:15
.36 Cal, Savage	Pistols	0.380	179	Thomas and Thomas 2007:15

Bullet Type	Associated Firearm(s)	Bullet Dia. (in)	Grains	Reference
.36 Cal, Colt	Colt Navy Pistols	0.382	121	Thomas and Thomas 2007:15
.36 Cal, Colt	Colt Navy Pistols	0.380	130	Thomas and Thomas 2007:15
.36 Cal, Bartholow	Pistols	0.385	140	Thomas and Thomas 2007:16
.36 Cal, Hazard	Pistols	0.387	145	Thomas and Thomas 2007:16
.36 Cal, Hayes	Pistols	0.386	135	Thomas and Thomas 2007:17
.36 Cal, St. Louis Arsenal	Pistols	0.385	135	Thomas and Thomas 2007:18
.36 Cal	Pistols	0.380	128	Thomas and Thomas 2007:18
.36 Cal, Savage	Pistols	0.380	117	Thomas and Thomas 2007:18
.36 Cal, Starr	Pistols	0.387	140	Thomas and Thomas 2007:19
.39 Cal, Cupfire	Pistols	0.390	111	Thomas and Thomas 2007:21
.36 Cal, "Double-end Shot"	Pistols	0.335	91	Thomas and Thomas 2007:22
.36 Cal, Colt Revolving Rifle	Colt Revolving Rifle	0.383	161	Thomas and Thomas 2007:23
.355 Dia, Tennessee Rifle	Tennessee and other similar rifles	0.355	108	Thomas and Thomas 2007:24
.36 Cal, Sharps	Sharps Pistols (1857-1858)	0.373	157	Thomas and Thomas 2007:36
.38 Cal, "Multigrooved"	Pistols	0.393	150	Thomas and Thomas 2007:37
Picket	Rifles	0.338	95	Thomas and Thomas 2007:72

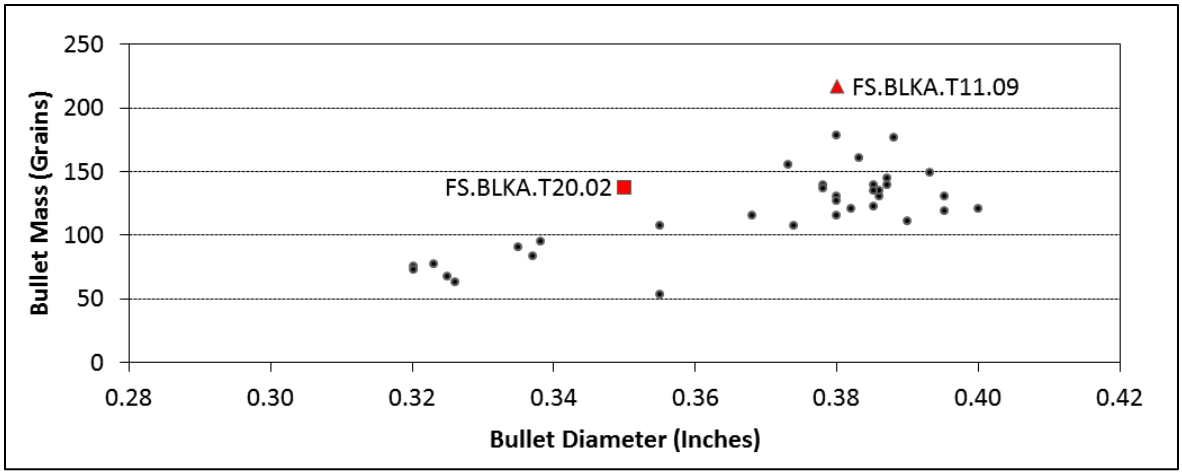

Figure 6.32: Graph showing Civil War era .30 to .40 caliber bullet diameter and grain size compared with FS.BLKA.T11.09 and FS.BLK.T20.02.

FST160.003. FST160.003 is a lead glob that represents the only recovered ammunition related artifact that is neither a bullet nor a modern metallic cartridge (Figure 6.30e). The artifact is an amorphous glob of relatively hard lead that weighs 111.3 grains, measures a maximum of 26.5 mm by 11.8 mm by 4.7 mm, and was found above about 10 cmbs. Native Americans camped at the Bear River in 1863 would have manufactured their own ammunition and according to some accounts warriors were desperately casting bullets during the battle (Madsen 1985). Since lead globs are a common artifact class on many protohistoric and historic sites, FST160.003 cannot be definitively associated with the 1863 massacre. However, future research and particularly chemical sourcing of the lead may be able to provide additional information important for determining the origin of the artifact.

FST444.005. The most compelling ammunition related artifact recovered as a result of metal detection is a fired round lead ball (FST444.005). The bullet has minor impact deformation and measures between 0.440-0.449 in diameter (.44 caliber) and weighs 136.7 grains. The bullet was molded in a two-piece mold and excess sprue was cut along the mold line. The ball retains no definitive evidence for rifling scars or any other identifying marks (Figures 6.30d, 6.33).

Figure 6.33: 44 caliber bullet recovered from a metal detector shovel probe in the West Plain.

According to Madsen (1985) California Volunteers carried the Sharps carbine (.52 caliber) and carried one of three common revolvers (.44 caliber 1858 Remington, .44 caliber Colt Army or .36 caliber Colt Navy Model 1851 [see also Masick 2006:19-23]). Though both the 1858 Remington and Colt Army could be loaded with .44 caliber round ball ammunition, Soldiers likely carried cone-shaped Minié ball ammunition due to superior ballistics (Madsen 1985). During the early 1860s many available firearms fired .44 caliber bullets including single shot pistols, a few long muzzleloaders, and especially revolvers (Flayderman 2007). In particular, a number of .44 caliber revolvers were available by 1863 including models by Allen & Wheelock, Beaumont and Adams, Butterfield, Colt, Deane & Adams, Remington, Webley to name a few (Coggins 1990; Rosebush and Kuhler 1962). Native Americans camped at the Bear River might have had .44 caliber firearms and fired round ball.

Horseshoes and Horse Tack

A total of seven horse shoes were identified through field work (Table 6.7). Of these artifacts, one appears to be a draft horse hind shoe (FST442.02) whereas the remaining are likely riding pony shoes (Figure 34a). None of the shoes have identifying marks and represent standard horse shoes manufactured over a long time period. Horse tack related artifacts include five O rings, one oval ring and a possible half O ring (Table 6.8). The O rings range from 2.5 in to 1.3 in diameter and the oval ring measures 4.9 in by 2.2 in. Again, none of the horse tack artifacts retain any identifying marks and similar artifacts were manufactured throughout the historic period in the region.

Table 6.7: Horseshoes recovered from the Bear River Massacre NHL test units.

FS No.	mE	mN	Depth	Length	Width	Hind/ Front	Description
BC1.FS065	424474.29	4666323.90	11 cmbs	5.1 in	5.0 in	Front	Minor regular wear; two square nails attached
BC1.FS072	424477.95	4666302.81	12 cmbs	4.8 in	4.9 in	Front	Minor regular wear
BC1.FS084	424479.37	4666321.22	7 cmbs	5.2 in	4.75 in	Front	Minor regular wear
BC1.FS090	424479.23	4666311.55	10 cmbs	4.7 in	4.5 in	Hind	Minor regular wear; four square nails attached
BC1.FS109	424481.43	4666300.14	5-10 cmbs	5.1 in	4.8 in	Front	Minor regular wear
FST343. Table 10026	424530.71	4666089.19	<10 cmbs	~5.2 in	-	-	Broken half horseshoe; broken at toe

Table 6.8: Horse tack O/D rings recovered from test units at the Bear River Massacre NHL.

FS No.	mE	mN	Depth	Diameter	Thickness	Description
FST080.27	424663.22	4666352.77	5 cmbs	2.5 in	0.3 in	O ring with metal clip
FST132.03	424568.70	4666300.50	~10 cmbs	1.25 in	0.2 in	O ring
FST152.03	424544.60	4666280.51	7 cmbs	2.0 in	0.2 in	Possible horse tack; half circle fragment
FST343.01	424497.83	4666089.69	~10 cmbs	1.3 in	0.2 in	O ring with about 2 inch of chain
FST343.14	424521.05	4666089.79	-	2.5 in	0.3 in	O ring with metal clip
FST345.04	424515.59	4666087.11	-	4.9 in by 2.2 in	0.3 in	Oval or D ring
FST347.13	424521.23	4666085.23	<5 cmbs	1.3 in	0.2 in	O ring

Railroad Spikes and Square Nails

USUAS archeologists recovered 22 railroad spikes as a result of fieldwork (Table 12; Figure 6.34d). According to Camp (1903) standard railroad spikes measured 5 to 5½ in long (below the head), head measured 1 3/16 in by 1 ½ in, and the shaft of the spike measured 9/16 in square. All but one (FST423.01) of the recovered railroad spikes measured smaller than the standard railroad spike size consistent with use on a narrow gauge railroad such as the Utah Northern Railroad (Mason 1903). Of the recovered spikes, most of the artifacts (n=16; 73%) are complete and straight whereas only six (27%) are either fragments or are bent suggestive of removal.

Figure 6.34: Selected artifacts recovered during Bear River Massacre investigations: a. large horseshoe (FS442.02; b. small tack (FST459.01); c. large square nail (BC2.FS048); d. narrow gauge railroad spike (FS423.01)

Table 6.9: Railroad spikes from the Utah-Northern narrow-gauge railway.

FS No.	mE	mN	Depth	Length	Head Size	Description
FST341.15	424522.93	4666091.28	-	4.4 in	1.3 in by 1.1 in	Complete railroad spike
FST342.01	424496.02	4666090.94	<10 cmbs	4.7 in	1.3 in by 1.0 in	Complete railroad spike
FST342.09	424513.83	4666090.84	-	>4.6 in	>0.9 in by 0.9 in	Nearly complete ~90% railroad spike missing a part of the head; shaft bent suggestive of removal
FST343.06	424503.66	4666089.27	-	4.7 in	1.1 in by 0.9 in	Complete railroad spike
FST345.01	424498.81	4666087.78	-	>4.2 in	>0.6 in by 1.0 in	Nearly complete ~90% railroad spike missing part of the head; shaft bent suggestive of removal

FS No.	mE	mN	Depth	Length	Head Size	Description
FST346.09	424522.82	4666086.12	-	4.9 in	1.1 in by 0.9 in	Complete railroad spike
FST347.03	424503.63	4666086.05	<10 cmbs	5.1 in	1.4 in by 1.1 in	Complete railroad spike
FST347.18	424520.08	4666085.45	5 cmbs	4.5 in	1.3 in by 1.0 in	Complete railroad spike
FST348.03	424504.56	4666084.75	10 cmbs	5.0 in	1.2 in by 1.0 in	Complete railroad spike
FST349.05	424520.15	4666083.38	-	4.7 in	1.2 in by 0.9 in	Complete railroad spike
FST350.07	424519.28	4666082.41	-	5.0 in	1.3 in by 1.1 in	Complete railroad spike
FST350.10	424523.045	4666082.59	<5 cmbs	>4.4 in	-	Spike missing most of the head
FST351.02	424503.014	4666080.72	5 cmbs	>4.7 in	1.1 in by 0.9 in	Complete railroad spike; bent suggestive of removal
FST354.03	424508.69	4666078.78	-	4.7 in	1.3 in by 0.9 in	Complete railroad spike
FST355.01	424495.75	4666078.01	5 cmbs	4.7 in	1.3 in by 1.1 in	Complete railroad spike
FST355.07	424518.68	4666077.99	5 cmbs	>1.4 in	1.1 in by 0.9 in	Railroad spike head fragment
FST356.01	424500.39	4666076.37	-	>2.2 in	1.0 in by 0.8 in	Railroad spike head and partial proximal shaft fragment; bent suggesting removal
FST359.13	424528.52	4666073.55	<10 cmbs	4.5 in	1.2 in by 1.0 in	Complete railroad spike
FST360.01	424498.57	4666072.08	<15 cmbs	4.6 in	1.2 in by 0.9 in	Complete railroad spike
FST423.01	424577.06	4666009.69	10-12 cmbs	5.9 in	1.5 in by 1.3 in	Complete railroad spike; standard size spike (Camp 1903)
FST437.02	424569.31	4665995.57	20 cmbs	5.0 in	1.4 in by 1.1 in	Complete railroad spike
FST438.04	424573.30	4666004.56	5-7 cmbs	5.1 in	1.4 in by 1.1 in	Complete railroad spike

The vast majority of nails recovered through metal detection consisted of modern wire-cut nails. No clearly handmade nails and only 11 machine-cut square nails (Figure 6.34c) were recovered during fieldwork (Table 13). These nails include probable horse-shoe nails, a small tack (FST459.01) and a large square nail (BC2.FS048). These nails were all heavily corroded, lacked any identifying marks or unique characteristics and are of a type commonly manufactured throughout the historic period in the region (Berge 1980).

Table 6.10: Selected square nails from the Bear River Massacre NHL test units.

FS No.	mE	mN	Depth	Length	Head Size	Description
BC2.FS048	424530.27	4666146.10	-	5.1 in	~0.50 in by 0.45 in	Large heavily corroded machine cut square nail with rectangular head
FST020.01	424661.18	4666412.38	-	1.45 in	0.31 in by 0.21 in	Machine cut square nail with rectangular head
FST026.02	424673.78	4666406.59	5 cmbs	2.5 in	0.29 in by 0.22 in	Machine cut square nail with rectangular head
FST127.02	424570.10	4666305.27	~5 cmbs	>1.4 in	0.45 in by 0.23 in	Square nail; deteriorated beyond further identification
FST221.02	424672.90	4666212.046	<5 cmbs	1.9 in	0.29 in by 0.23 in	Machine cut square nail with rectangular head
FST342.22	424528.38	4666090.24	-	>1.29 in	0.29 by 0.22 in	Machine cut square nail with rectangular head, proximal ~¾ length fragment
FST349.12	424527.95	4666083.18	-	1.8 in	0.29 in by 0.24 in	Machine cut square nail with rectangular head
FST350.08	424521.77	4666082.12	-	>3.0 in	0.61 in by 0.53 in	Large machine cut square nail with rectangular head; proximal ~¾ length fragment
FST350.11	424523.72	4666082.58	-	>1.25 in	0.40 in by 0.21 in	Machine cut square nail with rectangular head, proximal ~¼ length fragment
FST352.03	424521.24	4666080.76	-	1.65 in	0.30 in by 0.17 in	Machine cut square nail with rectangular head
FST459.01	424577.023	4665973.26	5-7 cmbs	0.4 in	0.14 in by 0.11 in	Small square tack

Buckles and Buttons

A total of four buckles and three buttons were recovered as a result of fieldwork (Table 6.11). The four buckles include one with a tongue and pin (FST341.09), one large possible belt buckle (FST351.11) and two buckles that may represent horse tack (Figure 6.35). The buttons include one depicting a steam engine (FST342.26), one plain dome shaped button with leather attached (FST356.14) and one heavily pitted and corroded button that may be decorative or be a simple overall button (FST060.21). The railroad button (FST342.26) likely is associated with the Utah Northern Railroad (Figure 6.36).

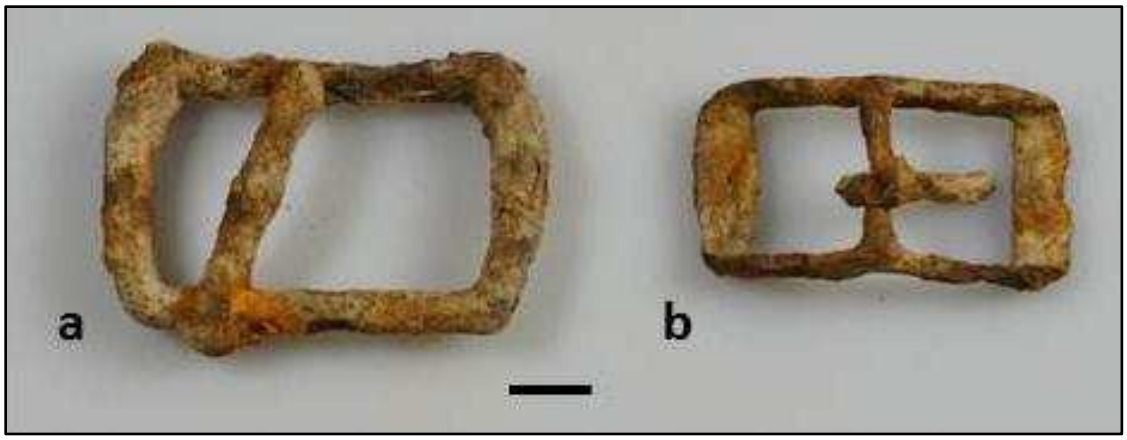

Figure 6.35: Selected buckles: a. large possible belt buckle (FS T351.11); b. buckle with tongue and pin (FS T341.09).

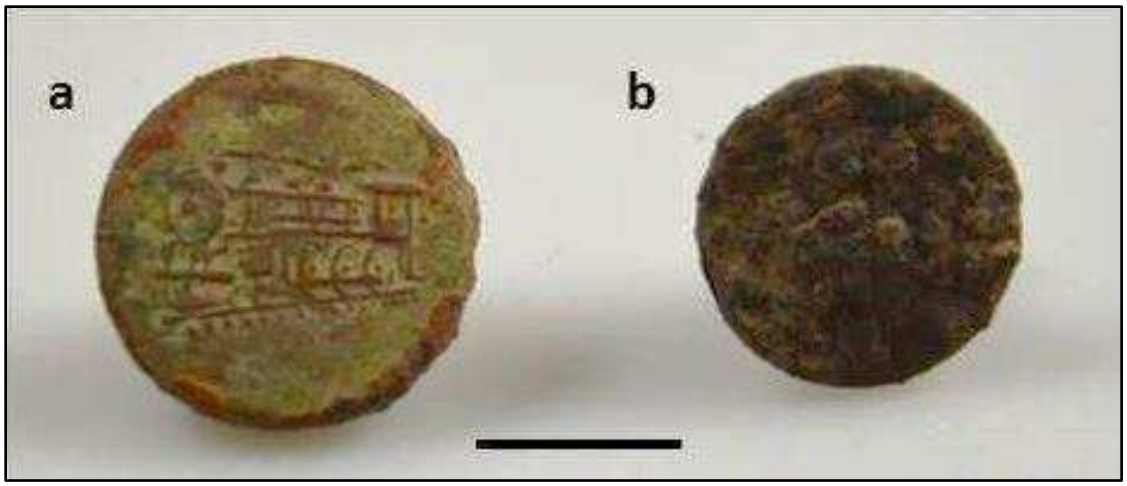

Figure 6.36: Selected buttons: a. button with locomotive (FST342.26); b. overall button (FST60.21). Bar is 1 cm.

Table 6.11: Table of selected buckles and buttons.

FS No.	mE	mN	Depth	Size	Description
FST060.21	424670.76	4666372.19	0-5 cmbs	0.67 in diameter	Round metal button with heavy pitting and corrosion on surface; possible decorative button or overall button
FST341.09	424517.74	4666091.88	-	1.75 in by 1.0 in (frame)	Rectangular buckle with tongue and pin; could be horse tack

FS No.	mE	mN	Depth	Size	Description
FST342.26	424532.94	4666090.56	-	0.80 in diameter	Metal button with steam engine train motif; broken protruding shank; likely related to the Utah Northern Railroad
FST351.11	424523.73	4666081.54	10 cmbs	2.2 in by 1.6 in (frame)	Rectangular buckle with tongue and lacking a pin; probable belt buckle
FST356.14	424522.78	4666076.33	-	0.62 in diameter	Metal stamped dome shape plain button with leather attached; likely modern
FST422.06	424570.43	4666010.83	5-10 cmbs	2.0 in by 1.35 in (frame)	Rectangular buckle missing tongue and pin; unknown function
FST438.03	424566.60	4665994.82	~10 cmbs	1.3 in by 1.2 in (frame)	Rectangular buckle with tongue and lacking a pin; could represent horse tack

Metal trap

BC1FS26 is a steel animal foot trap with smooth double jaws, a single long spring and partial attached chain (Figure 6.37). Thick rust and corrosion have obscured any identifying marks on the artifact and it measures about 9 1/4 inches long. Due to corrosion the jaws are rusted shut but would approximately open to about 5 inches consistent with trap size No. 1½ (Harding 1907; Sears Roebuck and Company 1897). Size No. 1½ (or equivalent) single spring animal foot traps were manufactured during the nineteenth century by several companies including New House, Hawley & Norton and Victor and are still produced today (Harding 1907). This trap size was designed to trap small mammals including mink, muskrat and fox (Harding 1907; Sears Roebuck and Company 1897). This trap is not associated with the fur trade era of the 1820s and 1830s.

Figure 6.37: Metal trap recovered from the Middle Ravine.

UTAH AND NORTHERN RAILROAD AND THE BATTLE CREEK TERMINAL SITE (10FR72)

The Utah and Northern Railroad Battle Creek Terminal site consists of artifacts and features associated with the Utah and Northern Railroad terminal at Battle Creek and the rail line in the vicinity of the Battle Creek terminal. The town of Battle Creek was a terminal on the Utah and Northern Railroad line from 1878 to 1890. The Utah and Northern Railroad Company was created in August of 1871 to build a three-foot narrow-gauge railroad from a terminal with Central Pacific, Union Pacific, and Utah Central railroads in Ogden, Utah to Soda Springs in the Idaho Territory (Hart 1974). Construction of this rail line began in 1871. The Utah and Northern Railroad came into Franklin, Idaho in 1874, but railroad construction was halted due to financial problems with the Utah Northern Railroad Company, stemming from the "Panic of 1873", management problems, and realization that the Soda Springs route to Montana was impractical (Judy 1961). The town of Franklin was the northern frontier terminal for the railroad until 1878. In 1878 property north of Franklin owned by the Utah Northern Railroad Company was sold to the J. Gould-controlled Union Pacific Railroad Company, and the Utah and Northern Railroad Company was organized by J. Gould on October 4, 1877 to build from Franklin, Idaho to Fort Hall, Idaho (Judy 1961). The Utah and Northern rail line was completed from Franklin to Battle Creek in 1878. Railroad bridges were built over Bear River and Battle Creek during this construction. North of the town of Battle Creek, the Utah and Northern Railroad was built on the course of Battle Creek, and continued north towards the terminal at Dunnville (Judy 1961; Simmons 1936).

Following establishment in 1878, the town of Battle Creek grew rapidly. The railroad company built repair shops with an eight-stall round house, a depot, two water tanks, company houses and buildings for the foreman and employees and their families, and large coal bins constructed east of the town (Figures 6.38, 6.39). The town had a store owned by Charles Paull, a hotel, an amusement hall, two saloons, and approximately 15 dwellings. The town was a supply station for railroad construction work extending the railroad line north, and after 1880, a supply station for machine and repair equipment moved north to Battle Creek from Logan, Utah. Extra locomotives were on hand to pull trains out of Battle Creek both to the north and south. The Battle Creek terminal became a division point in 1881, a location for the railroad division headquarters and the base for railroad operational and maintenance activities. The population of Battle Creek was over 100 people and grew steadily until 1886; American Indian, Chinese, and Euroamerican transient labor were employed in the town. In 1886 the Utah and Northern Railroad Company began to move its facilities farther north to Pocatello and Eagle Rock (now Idaho Falls), and Battle Creek quickly became a ghost town. The railroad tracks were removed in 1890. The town of Battle Creek was a railroad boomtown and only existed for approximately eight years (Danielson 1930; Judy 1961).

Traces of the town of Battle Creek disappeared rapidly as farmers moved in and began shaping the landscape through plowing and irrigation (Simmons 1936). Portions of the grade were visible in the 20th century, but the town site of Battle Creek has been heavily impacted by agricultural activities. A large loop of tracks called the "Horse Shoe" was destroyed by a gravel pit excavated at the site (Danielson 1930; Hart 1974).

A result of metal detection survey and excavation, artifacts likely associated with the Utah Northern railroad and Battle Creek terminal were discovered concentrated within the southern area of the site boundary presented here. Metal artifacts associated with the railroad include 22 railroad spikes (Figure 6.34d, page 159 above). Standard railroad spikes typically measured 5 to 5 1/2 in long (below the head), the head measured 1 3/16 in by 1 1/2 in, and the shaft of the spike measured 9/16 in square. All but one (FST423.01) of the recovered railroad spikes measured smaller than the standard railroad spike size consistent with use on a narrow gauge railroad such as the Utah Northern Railroad. Of the recovered spikes, most of the artifacts (n=16; 73%) are complete and straight whereas only six (27%) are either fragments or are bent suggestive of removal.

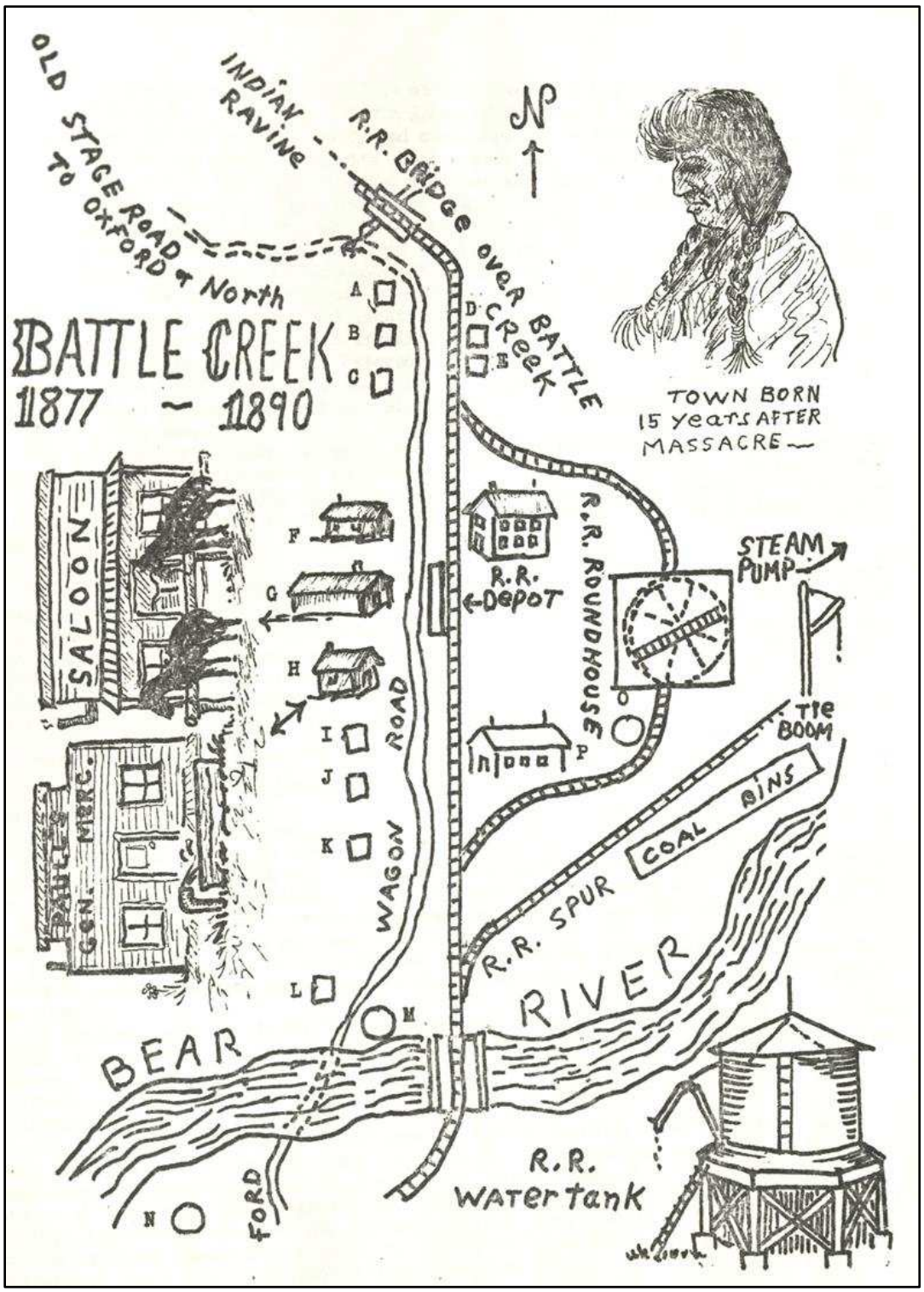

Figure 6.38: Map of Battle Creek town 1878-1886 from Hart (1974).

The southern edge of the site boundary was established by the southernmost extent of railroad-related material recovered through metal detection, including railroad spikes and related hardware. The northern edge of the site boundary was extended northward to include a section of railroad grade that is still visible in the ravine north of the metal detection survey area. Based on historic maps, the Battle Creek station

was likely located south of the current site boundary, along the east side of Highway 91. Presumed features associated with the town site are visible in this area in aerial photographs. The site boundaries are therefore constrained by the area covered by metal detection survey, and may not reflect the actual site boundary if investigations are expanded outside of the site boundary (Reid et al. 2015).

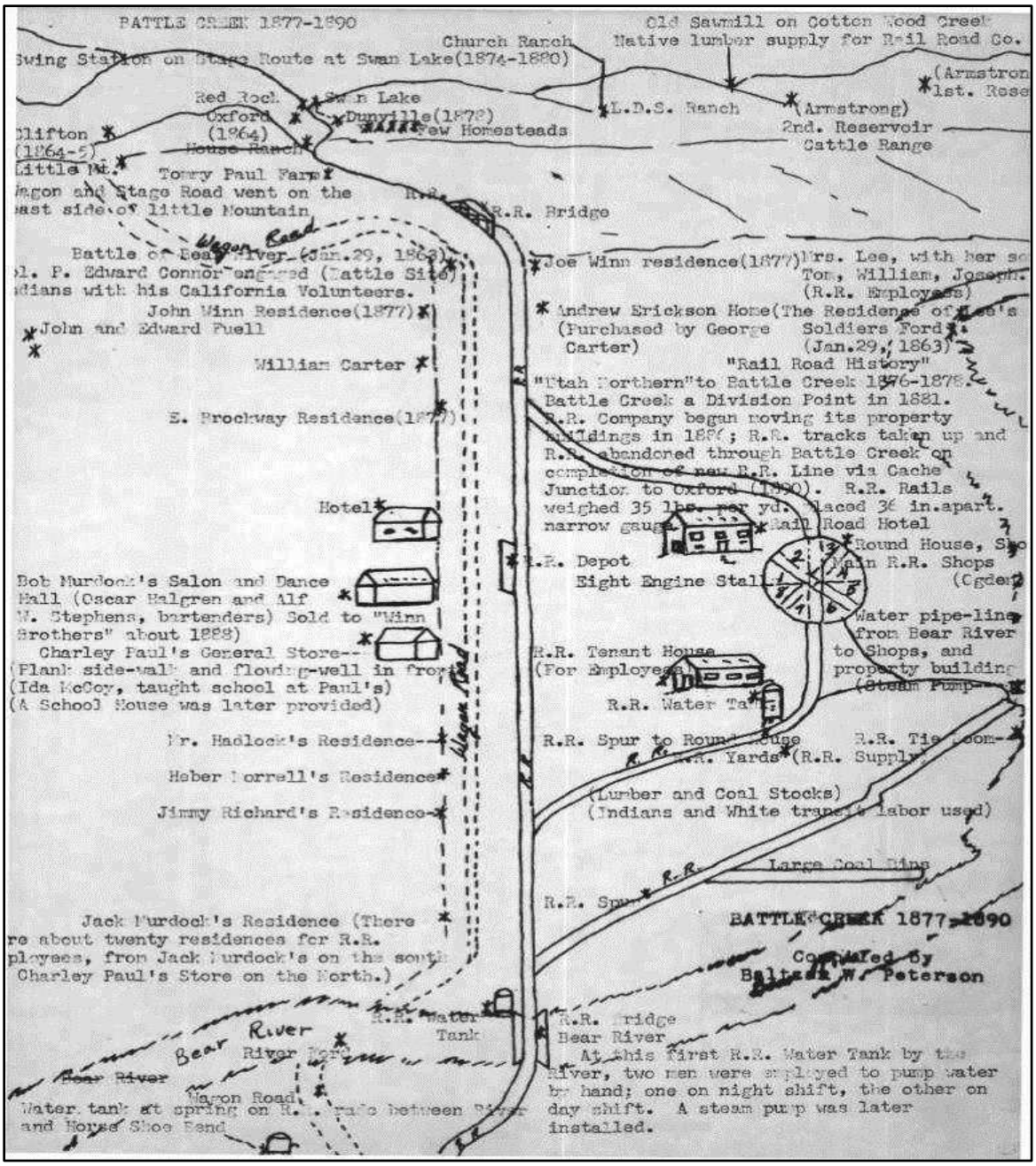

Figure 6.39: Battle Creek 1878-1886 from Judy (1961).

CHAPTER 7
SUMMARY AND ASSESSMENT

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We conclude with a summary of the results of the historic background research, the KOCOA analysis, the geomorphic survey and mapping, and the archeological and geophysical survey. We then summarize the outreach and consultation efforts involved since 2013. Finally, we discuss how well these efforts met the four original research goals, and offer archeological and management recommendations for the Landmark.

HISTORIC BACKGROUND: RESULTS

A considerable body of historical information was consulted concerning the Bear River battle and massacre (Chapter 3). These included published books, monographs, and journal articles, graduate theses and dissertations, unpublished manuscripts and transcripts, and historic maps. This report is the first to evaluate the battlefield using all of the available historic maps. The original research design identified the 1926 Aitken map as the probable key to understanding the battlefield. Geomorphic field observations and mapping of Quaternary landforms provided supporting data, as did the oral testimony of Shoshone and settler informants such as Moroni Timbimboo, Taylor Nelson, Carl Frew, and Heber Winn.

When the project began, the Northwestern Band, partly at the urging of former Fort Douglas employee and battlefield buff Patrick Mahoney, interpreted the battlefield in terms of two maps drafted by participants shortly after the 1863 attack, but not published until 1999, almost a decade after the Landmark was established . However, we found the two maps in question to be too close to the event to register the significant changes in the Bear River channel that occurred between 1863 and the upstream installment of three dams by 1927. The soldiers' maps provided important new perspectives on the sequence of events and the positions of participants. However, they could not be uncritically keyed to the contemporary topography of the Landmark.

The balance of Chapter 3 summarizes what is known about the context of Connor's campaign, the engagement itself, the casualties, and the consequences for Cache Valley. The order of battle analyses followed ABPP standards and addressed variables of leadership, strength, weapons, tactics, and rules of engagement. We used all the testimony we could find from participants, eyewitnesses, and survivors, and ended with the potential contributions of forensic archeological data, with particular attention given to documenting variability in winter lodge sizes.

These historic data were framed in a context that addressed the late prehistoric and ethnographic record of the Landmark, and cultural impacts to the battlefield and Shoshone village that have occurred since 1863. A pattern of hunting focused on larger game such as bighorn sheep, cervids, bison, and pronghorn antelope dates back to about 7,000 years ago. Historic sources indicate that a wider range of smaller game and a greater focus on fishing and gathered plant foods characterized the early 19th century. We found no evidence for Fremont horticultural economies or maize agriculture in northern Cache Valley.

The pelt wealth of Bear River and its tributaries was intensively trapped by Euroamerican businessmen between about 1810 and the 1830s, with impacts to the study area. By the end of this era, game resources were significantly depleted. Nevertheless, using Lander's estimate of seven Shoshones per lodge, as many as 1,400 Shoshones continued to winter in the area as recently as the 1820s.

Emigrant traffic across the region began in the late 1840s and peaked a decade later. Game-hungry travelers and their grass-hungry livestock degraded the traditional food base of the Shoshones. Mormon colonists arrived in northern Cache Valley in 1860, further stressing the Indians. Tensions peaked between the federal government and the Latter Day Saints in the 1850s, and war was narrowly averted in 1857-58. Finally, the outbreak of the Civil War in 1861 interrupted annuities and treaty negotiations with the local tribes, and violence escalated. The arrival of Connor and the California Volunteers in Salt Lake City in late 1862 was followed quickly by the Bear River campaign and destruction of the winter village at Bia Ogoi.

The site lay abandoned for fourteen years before homesteading began. Almost immediately, the Utah-Northern Railroad extended north to within the Landmark boundaries. The support community of Battle Creek flourished for eight years, virtually on top of the ruins of the Shoshone village. Tillage, grazing, canal irrigation, roads, culverts, and bridges altered the land surface. Larger impacts were caused by channel changes in Bear River and Battle Creek, reservoir blowouts on Battle Creek, and 20th century landslides and slope failures. The cumulative effect dispersed or deeply buried most physical traces of the original battlefield and the site of the Shoshone village. The National Park Service ranks land use threats as "slow and cumulative" and the condition key as "little change to the landscape" at the Bear River Massacre NHL (Chapter 2). However, we conclude that many of these changes have been abrupt and catastrophic, with impacts to the landscape so transformative that Landmark boundaries have been misplaced.

KOCOA ANALYSIS: RESULTS

The results of the evaluation of key terrain, observation and fields of fire, cover and concealment, obstacles, and avenues of approach and withdrawal provide a dynamic perspective on what happened on January 29th, 1863, and were grouped into fifteen landforms (Chapter 4): the **Franklin Road** that Connor's column followed toward Bear River; the **Clay Bluff** or Connor's Overlook, where the California Volunteers and Shoshones began inspecting one another; the **Soldiers' Road** down the Clay Bluff to the **South Terrace**, where the cavalry paused before crossing the **Soldiers' Ford** of the 1863 channel of **Bear River** and forming a column with a two-company front to cross the **East Plain** and become sequentially engaged at **Cedar Point**, the **West Bluff**, the **Upper**, **Middle** and **Lower Ravine**, and the **West Plain**, with surviving Shoshones fleeing toward the **Willow Island** and **Wayland Hot Spring**. The day ended with the Californians returning to an overnight bivouac on the **South Terrace**. The locations of the KOCOA elements are shown in Figure 7.1 (next page).

The only KOCOA landforms that we had permission and the resources to survey were parts of the western rim of the East Plain, the eastern edge of the West Plain, and Upper and Middle Battle Creek ravine. Given the complexity of the private landholding pattern, the challenge of contacting often absentee landowners, and conflicts among them over irrigation-related issues, the process of gaining permissions to survey the entire property will likely have to be staged in increments over a long period of time.

Our maps differ from the one included in the National Register of Historic Places nomination form for the Landmark, reproduced below (Figure 7.2). The National Park Service base map appears to have been the 1915 USGS 15' quadrangle rather than the Aitken map. It also predates and does not incorporate information from the two soldiers' maps that were first published in 1999. The source of the map is not stated in the nomination form, and the text box accompanying it includes several inaccuracies.

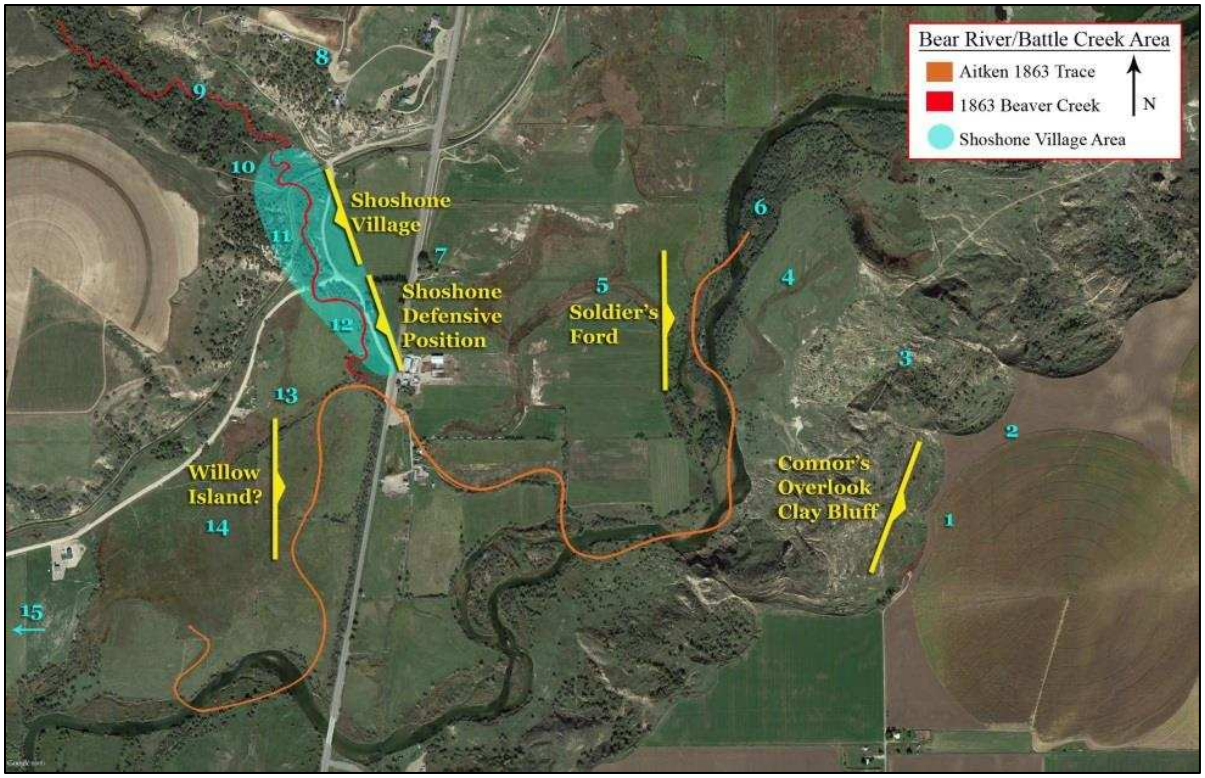

Figure 7.1: Core area of combat shown in blue. KOCOA landforms are numbered: (1) Franklin Road; (2) Clay Bluff or Connor's Overlook; (3) Soldiers' Road (4) South Terrace (Connor's bivouac); (5) Soldiers' (Nelson) Ford (approximate location); (6) 1863 course of Bear River; (7) East Plain; (8) Cedar Bluff; (9) Upper Ravine; (10) West Bluff; (11) Middle Ravine; (12) Lower Ravine; (13) West Plain; (14) Willow Island (approximate location); (15) Wayland Hot Springs.

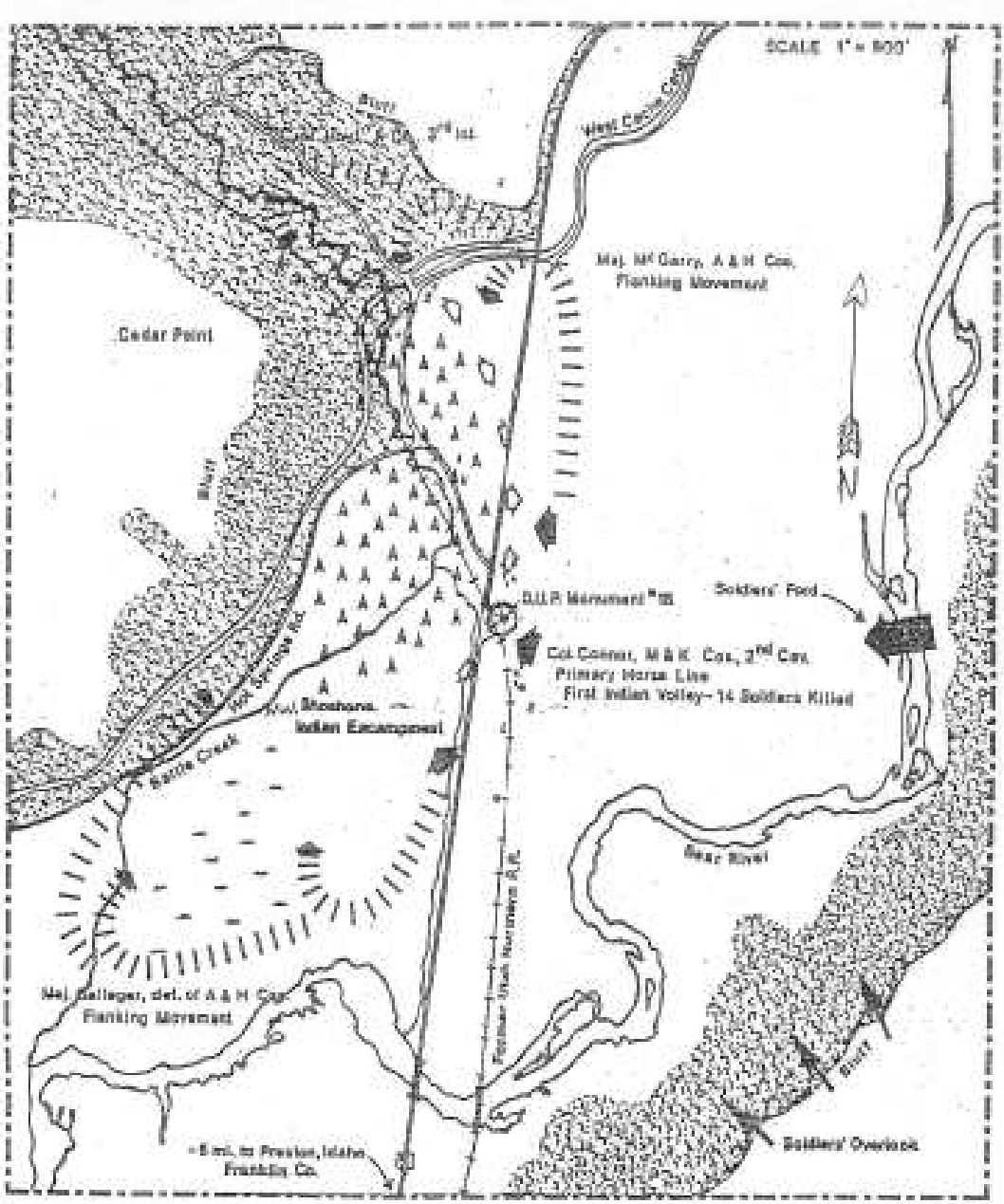

Figure 7.2. Map of the Bear River battlefield included in the nomination form for the National Register of Historic Places. (The source of the map is not stated.) It appears to be based on the 1915 USGS 15' quadrangle, and misrepresents the 1863 confluence of Battle Creek and Bear River.

GEOMORPHIC CONTEXT: RESULTS

The geomorphic reconnaissance of the batlefield and mapping of Quaternary units identified and dated a sequence of three inset terraces in the present Battle Creek ravine (Chapter 5). Results support the hypothesis that parts of the 1863 surface survive as remnants of the lower (first) terrace. The mapping of the Qas1 and Qas2 units at the present mouth of Battle Creek ravine was compatible with the arc of the cutoff meander scar of Bear River mapped by W.K. Aitken in 1926 (Figure 7.3). This work is consistent with his mapping of part of the abandoned 1863 channel (Figure 7.4).

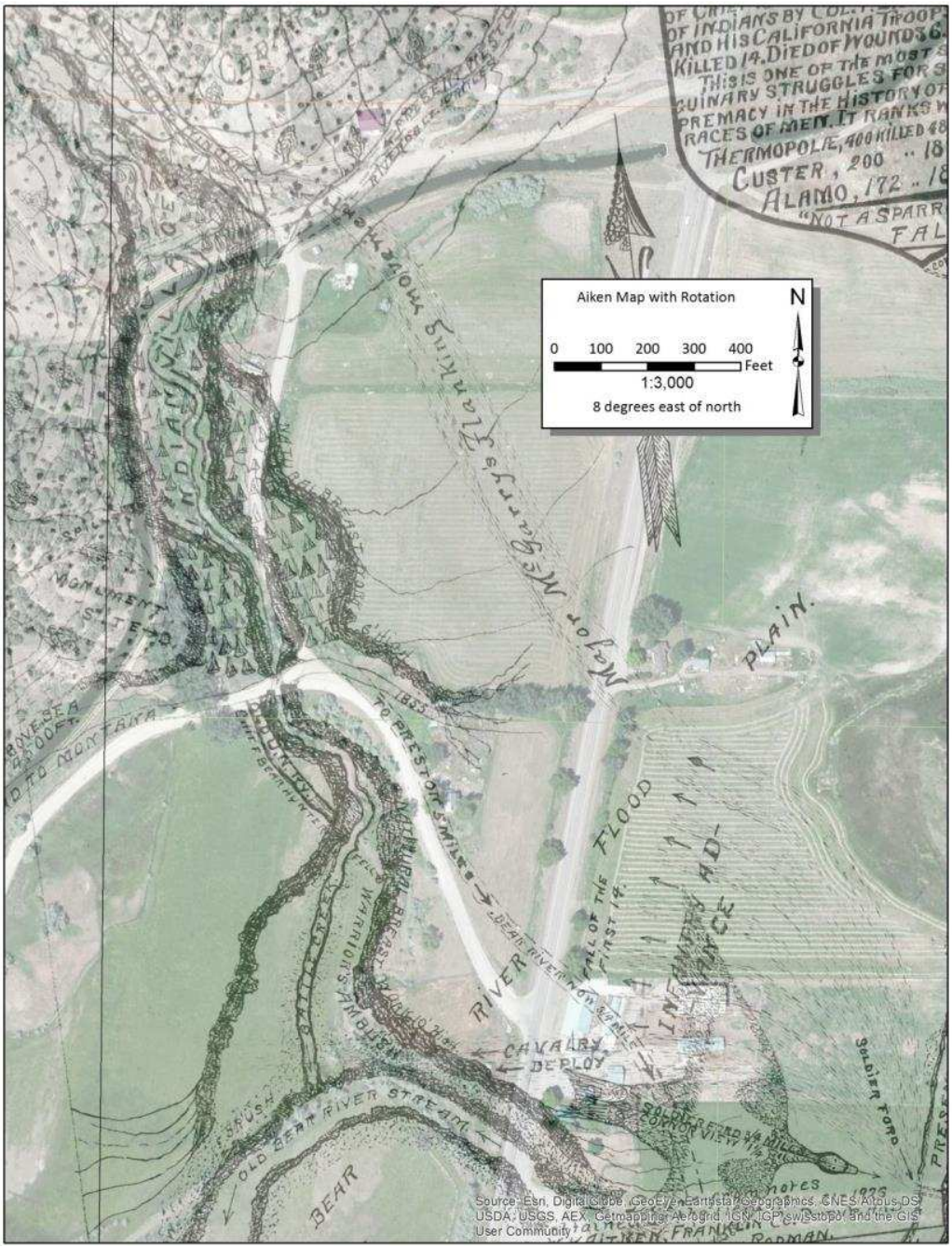

Figure 7.3. Relationship between Aitken's 1926 interpretation of the battle and current Google Earth imagery. The original Aitken map has two errors we noted when superimposing it. His range 38 East should be 39 East, and his longitude of 111°54'24" should read 111°54'56".

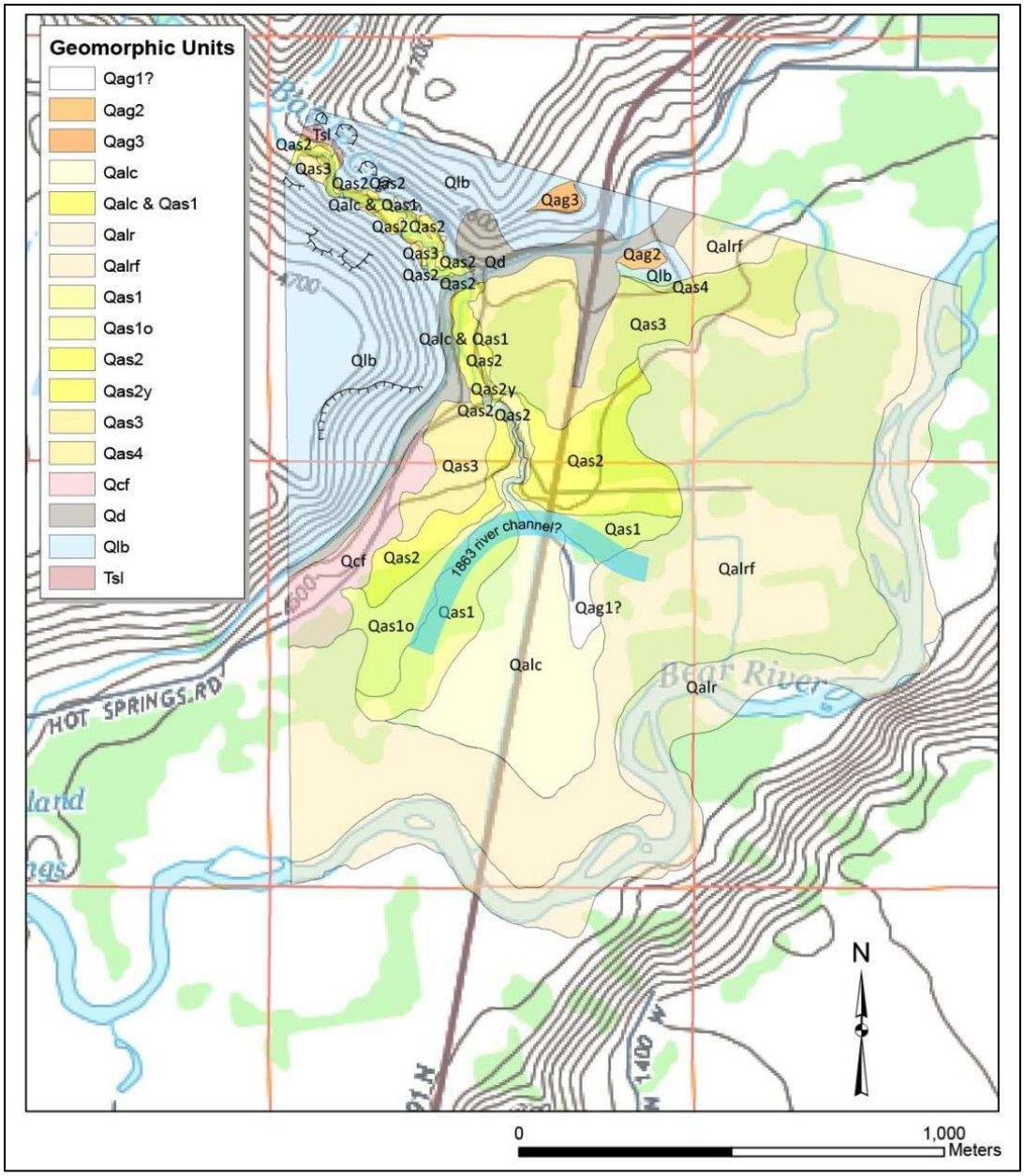

Figure 7.4. The core area of combat is hypothesized to lie within the Lower Ravine immediately north of the superimposed hypothetical 1863 channel scar.

Bear River was not constrained to its present channel until the completion of the upstream three-dam Bear River Project in 1927. The Soda, Grace, and Oneida developments were built to provide flood control, irrigation, and hydroelectric power. The absence of any known earlier obstructions suggests that for the 64 years between the Bear River massacre and completion of the Bear River Project, the river may have changed channels several times. Figure 7.5 shows the apparent courses of Bear River and Battle Creek in 1863, in 1872, and in 1915, based on the 1926 Aitken map, the first General Land Office survey map of 1873, and the USGS 15' quadrangle of 1915. The maps give three different potential confluences for Bear River and Battle Creek. They may all be accurate for their respective years, but we suspect that

only the northernmost confluence is relevant to the 1863 battle. The 1915 trace (shown in white) is consistent with the second version of the Aitken map shown in Figure 3.11.

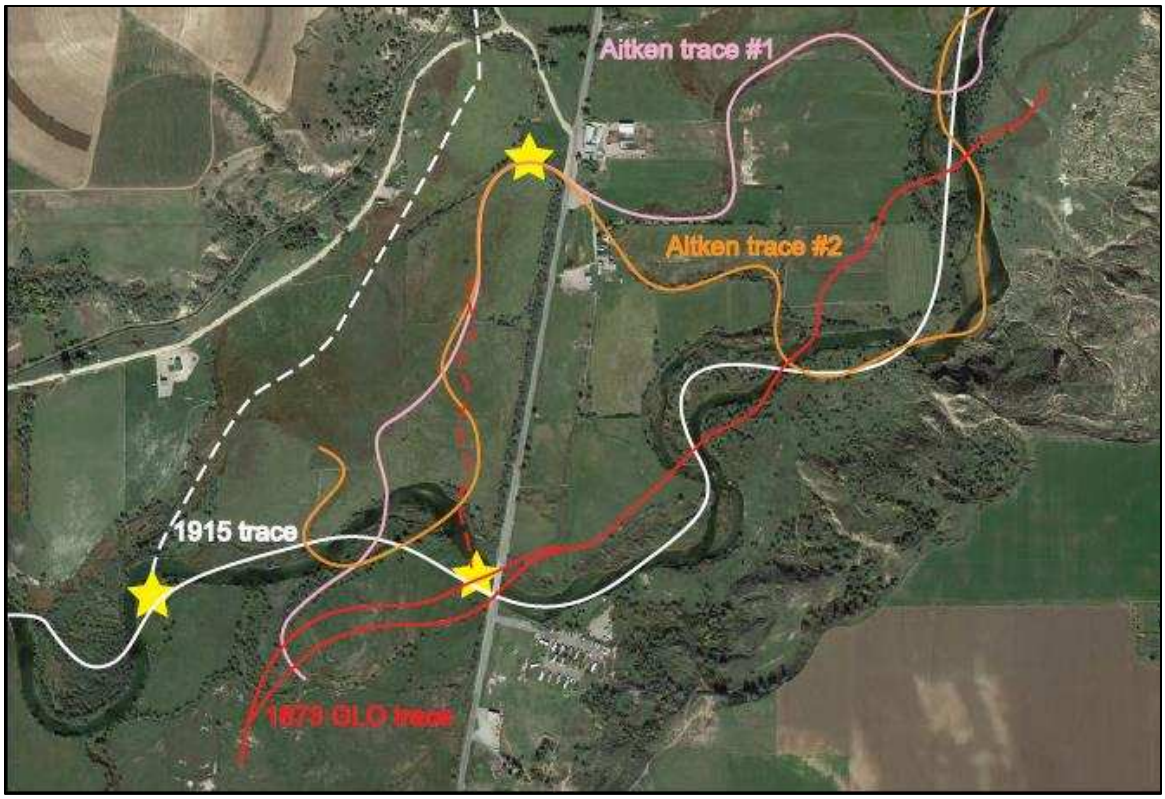

Figure 7.5. Possible courses of Bear River between 1863 and 1915. The orange and pink courses are plausible interpretations based on the 1926 Aitken map. The white course follows the 1915 USGS 15' course, which predates the completion of the three upstream dams in 1927. The red course is based on an 1873 General Land Office Map. The yellow stars indicate the different locations for the confluence of Battle Creek and Bear River implied by the three different maps. Our interpretation favors the northernmost confluence for 1863

The geomorphic reconnaissance suggests several future goals for better understanding the Landmark. These include (1) mapping and dating the several channels of both Bear River and Battle Creek that formed between 1863 and 1927; (2) reconstructing the history of the West Cache Canal and its repairs since 1898; (3) better understanding the landslide and slope failure history within the Battle Creek ravine; and (4) identifying with more confidence the general locations of the Willow Island, the Soldiers' Ford, and the South Terrace.

ARCHEOLOGICAL AND GEOPHYSICAL SURVEY: RESULTS

Archeological fieldwork provided more context than content for understanding the battlefield and Shoshone village (Chapter 6). One prehistoric lithic scatter and one hearth remnant exposed in a cutbank were recorded. The lithics included no diagnostic artifacts, while a radiocarbon age on hearth charcoal gave a date of A.D. 922 ± 32. Cutbank exposures revealed little evidence of earlier occupations within the Landmark. However, the hearth remnant suggests buried deposits of that age or earlier may survive on the West Plain.

Placement of the 25 metal detection survey blocks focused on three areas: the 100 m beaten zone of the East Plain where it meets the Middle Ravine, remnants of the first inset terrace within the ravine, and smaller fractions of the West Plain immediately east of the Lower Ravine. These placements were

dictated partly by landowner access, and partly because we expected bullets and percussion caps might be present here in numbers sufficient to reveal battlefield dynamics, especially along the East Plain. The area surveyed by metal detectors amounted to just under one hectare. A total of 2,285 signals were mapped, and 1,469 were excavated. The 25 metal detection survey blocks produced more noise than signal. Recent agricultural ferrous debris such as fence staples, nails, wire segments, tractor parts, cans, lids, and miscellaneous scrap fragments dominated the assemblage.

Historic finds included 22 railroad spikes associated with the narrow-gauge Utah-Northern Railway, a metal button with an embossed locomotive that is presumably associated with the railway, and a metal tack and square-cut nail that may date to the Battle Creek hamlet or one of the early homesteads of the late 1870s. Four metal buckles and two additional buttons may also date to the mid- to late-19th century. A small metal animal trap postdates the fur-trade era. Horse tack included six horseshoes and seven O-rings, all of them temporally nondiagnostic. The railroad spikes were the only artifacts that could be unambiguously attributed to one of the historic events known to have occurred on the Landmark.

Sixteen complete, fragmented, or deformed bullets and cartridges were recovered, along with one globule of lead. Only one of the bullets was consistent with an 1863 date, a .44 caliber lead ball found on the West Plain. However, this caliber remained in use long after the Civil War and cannot confidently be attributed to the 1863 engagement.

The 15 geophysical survey blocks were placed within the Upper and Middle Ravine on remnant facets of the youngest inset terrace, the locations most likely to date to the mid-19th century. The blocks were 20 m square and surveyed by magnetic gradiometry and ground penetrating radar. Our target in the geophysical survey were to locate features and structures rather than artifacts. Thermal signals such as burnt lodge floors and yard hearths might reveal surviving remnants of the 68 or 70 structures reportedly destroyed after the battle.

Results of the geophysical survey were ambiguous. The two blocks with the least background noise were the only two that appear never to have been plowed. Blocks 4 and 9 in the Middle Ravine and Block 11 in the Lower Ravine disclosed signals that may be consistent with features or structures. Unfortunately, written permission from the tribe to ground-truth these signals came too late in the season to complete their evaluation.

Results were least ambiguous with respect to the Utah and Northern Railway. Thus, when the rails themselves were removed in 1890, many of the spikes that secured them to the ties were missed, lost, or perhaps not collected in the first place. More traces of the Utah and Northern Railway are probably present in Blocks 7, 8, 12, and 15.

Although we did not find any of them, we think it is likely that features and structural traces of the railroad support hamlet of Battle Creek probably survive within the Landmark. These might include middens, food remains, can and bottle dumps, privies, building foundations, and miscellaneous artifacts whose use dates-- though not necessarily manufacture dates -- fall between 1878-1890.

OUTREACH AND CONSULTATION.

Over the past two years we have given talks and presentations to public and professional audiences in Logan, Franklin, Pocatello, Boise, Albion, and Portland. We have seen a growing public interest in Idaho's nineteenth century military history, and a major exhibit on the Bear River massacre is planned for the expanded Idaho State Museum to open in Boise in 2017. The archeological consultants and Idaho State Historical Society staff have met informally with many tribal members and interested citizens at the annual commemorations held – often despite the weather and the roads -- at the site on January 29th.

The history of Tribal consultation regarding management and interpretation of the Bear River Massacre National Historic Landmark is perplexing. Descendant families and relatives of descendants of the massacre are concentrated among the Northwestern Band of the Shoshone Nation, but distributed more widely, including, at a minimum, the Shoshone-Bannock Tribes of Fort Hall, the Wind River Shoshone in Wyoming, and the Shoshone-Paiute Tribes of Duck Valley. The National Park Service document titled *Draft Special Study and Environmental Assessment, Bear River Massacre Site•Idaho* of October, 1995, includes a summary of Shoshone-Bannock tribal concerns as expressed by their council in August, 1994. However, there is no indication of consultation with the Northwestern Band of the Shoshone Nation, the tribe that identifies as the descendent community of massacre survivors.

Shoshone-Bannock Tribes of Fort Hall. The State Archaeologist (Reid) corresponded and communicated by telephone with the Shoshone-Bannock prior to submission of the grant proposal to the American Battlefield Protection Program. No written response to his request for a letter of support was provided, although telephone conversations were encouraging and he was led to expect a letter of support.

He did meet informally with Heritage Tribal Office staff of the Shoshone-Bannocks in 2014, during a public presentation on the site in Franklin. At that time, he was told that the Shoshone-Bannocks opposed any archeological excavations within the Landmark under any circumstances.

Northwestern Band of the Shoshone Nation. We have consulted continuously with the Northwestern Band of the Shoshone Nation, the federally recognized tribe which claims lineal descent from the survivors of the massacre. Consultation includes personal meetings and presentations, correspondence, and email messages to the Tribal chairs, vice chair, executive committee, and tribal historian by Reid and Cannon. Molly Boeka Cannon and Kenneth Cannon gave a PowerPoint presentation of their preliminary fieldwork results to the Tribal Council on 20 February 2015. A public presentation, in which members of the Shoshone-Bannock were in attendance, was presented at the Franklin Municipal Building on 29 January 2014. The Tribal vice chair, Darren Parry, attended a field visit to the site in 2016 that included community representatives, scholars, and board members of the Idaho State Historical Society and the Idaho Heritage Trust.

Landowners. When the Landmark was established in 1995, it included properties of 28 landowners. The National Park Service does not keep a current listing of the names and contact information of landowners and tenants (Fred York, personal communication). A considerable effort went into locating the ones we did find, and then getting written permission to work on their land. These included Rodney and Karen Peterson, Jack and Amy Lyman, Ivan and Ramona Jorgenson, the Price Family Trust, as well as the Northwestern Band of the Shoshone Nation. After fieldwork began, we received written permission to survey on the John Cardis and Terrel Deem properties. A meeting at Fort Douglas with Ralph Johnson, of the Ben Johnson Family Farms, resulted in permission to conduct a brief geomorphic reconnaissance of the lower course of present Battle Creek. Clare Bosen of the Twin Falls Canal Company has been consistently helpful in making introductions, gaining access, and showing us the view of the valley from Connor's overlook on the Clay Bluff.

RESEARCH GOALS.

Our original research goals focused on locating the site of the Shoshone village, determining the boundaries of the core area of combat and the larger battlefield study area, and identifying and evaluating impacts to the site that have occurred since 1863. After the project began, we evaluated potential impacts to the Landmark related to the proposed Bear River Narrows Hydroelectric Project. We'll address each of these in turn.

Where was the Shoshone village? By reviewing the historic maps and then superimposing the 1926 Aitken map on current Google Earth imagery, we are confident that the **core area** of the battlefield was the Shoshone winter village in the Middle Ravine between West Cache Canal and Hot Springs Road (Figure 7.1). Obviously, the match between the two images is not perfect.

Where was the core area of combat? There has never been much doubt about this. The core area of combat was the original Battle Creek ravine, including its Upper, Middle, and Lower sections (Figure 7.1). Some skirmishing occurred from the Soldiers' Ford across the East Plain to the foot of Cedar Point, but close-quarters, flat-trajectory gunfire was concentrated along the eastern rim and within the ravine. The combat climaxed in the Lower Ravine, which is now no longer visible in the landscape of the battlefield. The most intact elements of the core area include the Middle Ravine, the southeastern-facing slope of the West Bluff, and possibly parts of the East and West Plain where they border the course of the Middle and Lower Ravine. The single bullet found during the metal detecting survey that could fit an 1863 provenience was found on the West Plain near the western rim of the ravine.

What are the battlefield boundaries, and what impacts have affected it since 1863? The original boundaries of the Landmark stand, but we have expanded the battlefield boundary to include the Franklin Road (Figures 4.4, 7.1). The remaining fourteen KOCOA elements lie within the original 1990 boundaries. If future work supports our hypothesis that the 1863 channel of Bear River was several hundred meters north of its present channel, the Landmark's southern boundary might be redefined as the present Bear River.

The Bear River battlefield and the site of the Shoshone winter village of Bia Ogoi have experienced considerable disturbance since 1863. After a fourteen-year period of avoidance, when the site may have been viewed as either too bone-strewn and haunted to settle or too wet to farm, cultural change occurred quickly and continuously.

These transformations began with the close of a pluvial interval and the arrival of the first homesteaders in 1877, followed almost immediately by a local railroad boom that lasted only eight years, between 1878-1886. The railway hamlet of Battle Creek flourished during this interval. The iron rails of the narrow-gauge railway bed were removed by 1890. Many of these rails were recycled to build the Sumpter Valley narrow gauge railway out of Baker City in northeastern Oregon (Beal 1980:58).

The West Cache Canal bisected the site with an earthen aqueduct and unlined ditch between 1898 and 1904. Local oral history anecdotes compiled by Hart (1982) agree that the great flood of 1911 blew out the original aqueduct and redeposited the sediment in the Lower Ravine. Construction of the present earthen aqueduct probably caused additional damage to the Shoshone village. The culvert at the bottom of the aqueduct allows what remains of Battle Creek to flow through it. After passing through to the south side, it almost certainly cut a new channel that does not resemble the original. A dirt road to Winder Flats was cut into the east side of Battle Creek ravine at an unknown date. Another reservoir on Winder Flats reportedly overflowed down Battle Creek early in the 20th century, but this impact paled compared to the 1911 flood.

The most undisturbed part of the battlefield today is the wooded southeastern slope of the West Bluff. According to one account, the Shoshones had planned to use this as an escape route if necessary. However, the enfilade of Cedar Point and the Upper Ravine curled around the west to include the southeastern slope of the West Bluff. Soldiers firing down into the ravine from this slope prevented many Indians from escaping. The interpretive potential of the West Bluff has long been recognized. The "second" version of the 1926 Aitken map shows a small fenced park surrounding a proposed monument site at the foot of this slope (Figure 3.11).

Breaking these events down in more detail, natural and cultural impacts to the battlefield between 1863-2013 include but may not be limited to the following:

- According to the 1926 Aitken map, an "Old Montana Road" dates to 1855 and thus predates the 1863 attack (Figure 3.10). The current Hot Spring Road appears to follow the same course as this 1855 road, with improvements such as culverts, pullouts, and borrow areas installed throughout the 20th century.

- Assuming that the 1873 General Land Office map is correct, sometime after 1863 but before 1873, the Bear River meandered south between 300 and 700 meters. By 1873, the confluence of Battle Creek and Bear River had returned to near its present location (Figure 7.6). Such abrupt meander shifts may have occurred several times before the channel was stabilized by 1927.

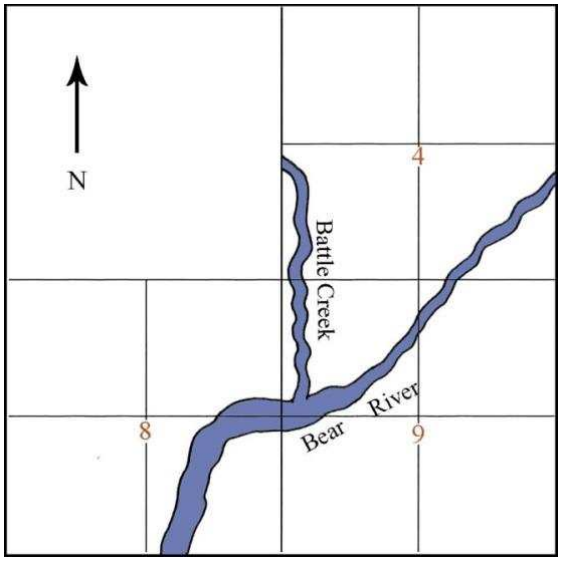

Figure 7.6. Redrafted detail from GLO map showing the location of the confluence of Battle Creek and Bear River in the northwest quarter of Section 9 in 1873.

- Homesteading, tillage, irrigation, and grazing began in 1877, and have continued to the present. When the Landmark was established in 1990, 28 families held title to or leased parts of it.

- Between 1878 and 1886 a narrow-gauge railroad crossed the Landmark from south to north, exiting along a bed cut in to the east-facing slope of the West Bluff and continuing north up the Upper Ravine. The railroad included a bridge that crossed Battle Creek in the Middle Ravine.

- The railroad support hamlet of Battle Creek flourished during this eight-year interval. By 1890, the tracks had been taken up and the only trace of the railway was the bed stepped into the Upper Ravine.

- At an unknown date a dirt road shown as the "present road to Winder" on the Aitken map went up the Upper Ravine along the western slope of Cedar Point.

- Between 1898 and 1904, the West Cache Canal was excavated, bisecting the Landmark along an east to west axis. This major irrigation feature required an earthen aqueduct to convey the ditch across Battle Creek ravine. Impacts included a large borrow area for sediment taken from the southwestern toe of Cedar Point, probably capping part of the Shoshone village by the aqueduct. The volume of this disturbance has not been calculated, but is estimated at several thousand cubic meters.

- In 1911 a major rain-on-snow event on Winder Flat above the Upper Ravine caused a reservoir blowout and flood that breached the aqueduct across the ravine (Figure 7.7). This deposited a tongue of sediment in the Middle and Lower Ravine. The sediment filled a low marshy area in the vicinity of the Lower Ravine. We suspect this wet spot marked the abandoned 1863 channel of Bear River.

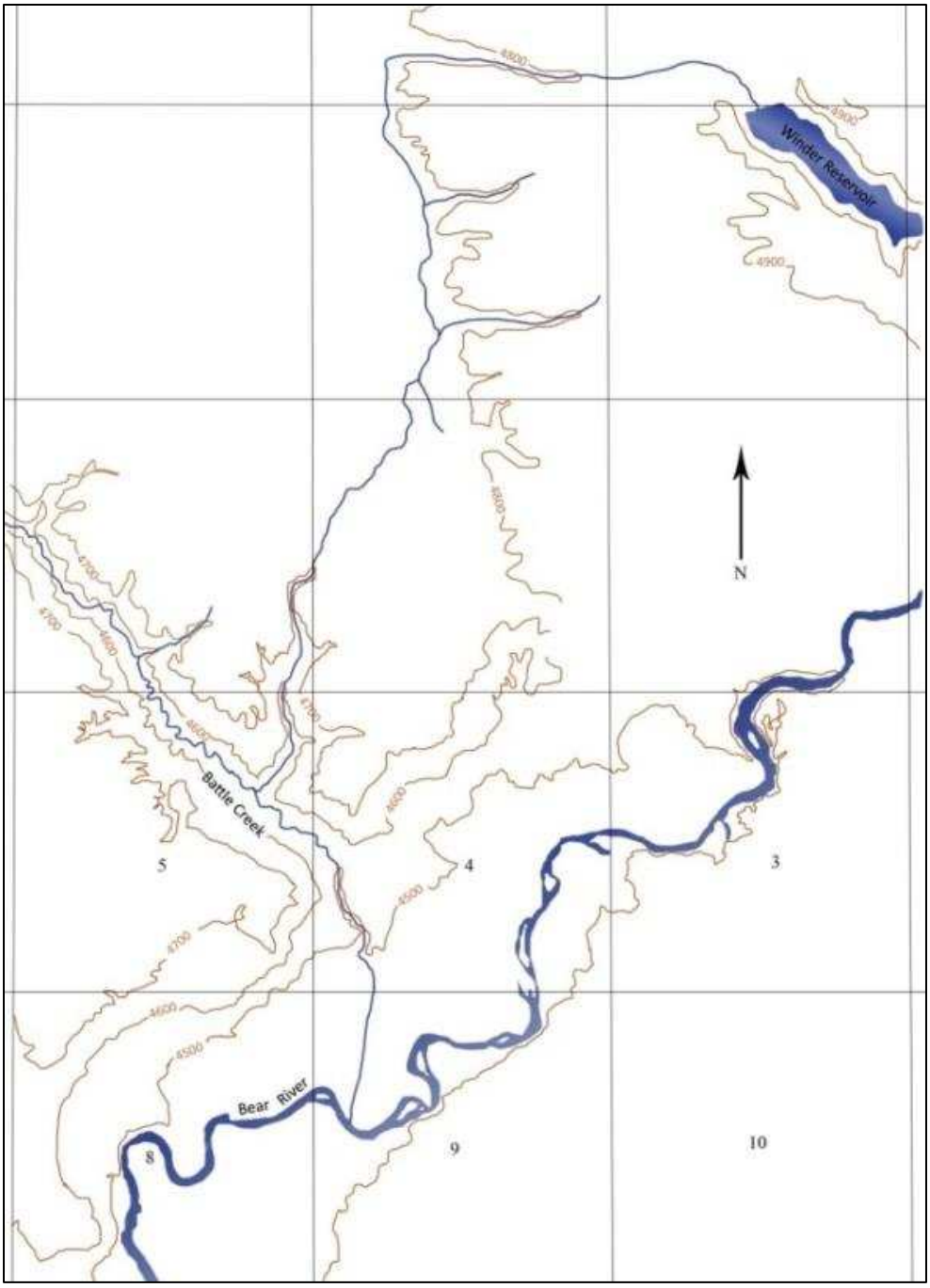

Figure 7.7: The collapse of Winder Reservoir in the 1911 rain-on-snow event contributed to the massive flood and blowout on Battle Creek. This map is based on the USGS 7.5' Banida quadrangle.

The recollections of Yeager Timboopoo, James Packer, Jr., Heber Winn, Deanna Jensen, and Taylor Nelson agree that Bear River formerly flowed some distance north of its 20th century channel. The first shift in the channel after the 1863 massacre seems to have occurred within a decade. Thus, the 1873 map of the study area produced by General Land Office surveyors places the confluence of Battle Creek and Bear River approximately in their 1969 position. Whether the river meandered north and south again after 1873 remains to be determined. Google Earth imagery shows several meander scars not evident on the USGS map north of the present Bear River, but their ages and sequence are unknown.

Hart (1982:174-175) compiled anecdotes from local residents about the 1911 flood. Era Carter said "All that sand and silt and clay came pouring down on the old battlefield. Every bit of it is covered so that now it's hard to find a thing in the way of relics." Carl Frew of Bridgeport told Hart that there had been a major thaw and rain-on-snow event on Winder Flats in the spring of 1911: "I never saw such a mess – there was about two feet of snow to begin with. When it was all over the flumes for the West Cache Canal along the bench were knocked out, dirt was washed down into the flats, and there was water all over the river bottoms. The reservoir up by the old Church Farm broke and it rushed down Battle Creek too. Lordy, I never saw so much water." In 1980 Heber Winn recalled that "When that flood came it covered a big swamp that was south of the Winn home. There was a lot of snow and slush and it made an awful lot of water that came roaring down. The flood washed away the West Cache Canal that extended across the creek and carried the dirt down below. Anyway, that big swamp got covered up – and it made a pretty good farm for Will Carter" (Hart 1982:274).

The swampy area referred to by Winn was probably the cutoff oxbow of the 1863 channel of Bear River shown on the Aitken map. The reservoir near the Church Farm is mapped as Winder Reservoir on the 1969 USGS 7.5' Banida quadrangle (Figure 7.7), and the William Carter farm appears on the plat of Battle Creek hamlet (Figure 6.39). Hart also cites the testimony of Deana Wells Jensen, whose family formerly farmed at Battle Creek. Where Bear River ran close to the ravine, the outlines of the old channel were clearly visible. "Our house was on the old river bank, and the barn was down in the ancient channel bed" (Hart 1982:254).

These flooding and irrigation impacts can be summarized as follows:

- Late in the spring of 1911,the escarpment south of Bear River between Battle Creek and Riverdale collapsed, briefly damming the river and creating a temporary lake, perhaps again shifting the Bear River channel in undetermined directions.

- Sometime after 1911, the West Cache Canal was rebuilt across the ravine. This required a second aqueduct for the ditch, with probable further disturbance to parts of the Shoshone village in the Upper and Middle Ravines.

- Between 1900 and 1987, scores of landslides occurred along the north and south rims of Cache Valley. Several are mapped within the Landmark.

- Sometime after the 1911 flood, another reservoir in upper Battle Creek failed and caused another but less catastrophic flood.

- A concrete headgate dated 1937 in the Lower Ravine indicates that part of Battle Creek had been captured for irrigation by that date (Figure 4.21).

Other recent recent impacts to the Landmark have been transportation-related. A segment of the Old Yellowstone Highway crossing the Landmark and the **core area** from north to south was completed from the Franklin County line to the State line in 1937. The road followed an earlier, unnamed route. Thus, in 1932 the Daughters of the Utah Pioneers installed a commemorative obelisk in a pullout near the point where McGarry's cavalry made contact with the ravine defenders. The roadbed evolved into US Highway 91 and the segment crossing the Landmark was upgraded in 1963. Thirty years later, a realignment was completed on the hillslope north of the Bear River after a landslide. Engineering of the highway bed and the 1932 interpretive pullout may have disturbed surviving artifact patterning on the East Plain. Finally, the present bridge over Bear River was replaced in 2005. That same year, following consultation with the Northwestern Band of the Shoshone Nation, interpretive signage at the scenic

pullout on the north side of the valley was installed. This pullout is poorly marked on Highway 91, and the overlook suffers from neglect and vandalism.

What evidence is there for earlier occupations within the Landmark? Although a low density lithic scatter was recorded at 10FR71, no diagnostic artifacts were found informing on its age, cultural affiliation, or function within a settlement pattern. A remnant of what was probably a single-use, basin-shaped hearth was recorded in the ravine profile. One quartzite flake was recovered from the lip of the basin, but no diagnostic artifacts or food remains were found with it. Most of the feature had eroded out of the bank before it was recognized. A radiocarbon age on a sample of hearth fill of 1130 ± 25 (UGAMS 23530) has a calibrated age of A.D. 922 ± 32 and shows that native peoples paused along Battle Creek long before the 1863 attack. Other intact features and living surfaces may survive in places at least 60 cm below the present ground surface.

However, field observations and background research found no evidence for a history of earlier winter villages in the Battle Creek ravine. None of the exposed vertical faces revealed the midden debris, features, or fire-cracked rock that repeated winter village settlements would probably generate. This does not mean the Landmark does not have a deep prehistory. Given the antiquity of deposits at nearby Standing Rock Overhang, Weston Canyon Rockshelter, and Malad Hill, occupations dating back at least as far as the early or mid-Holocene might still be encountered, but more by chance than design.

RECOMMENDATIONS

Archeological recommendations. The geomorphic setting of the Bear River engagement differs from many better known western battlefields (Fox 1993; Fox and Scott 1991; Greene 2000, 2004, 2014; Greene and Scott 2004; McDermott 2003; Michno 2004; Monnett 2010; Scott 2003, 2014; Scott et al. 1989; Wylie 2016). For example, the battles and skirmishes of the 1877 Nez Perce campaign occurred in stable sedimentary or bedrock settings where feature and artifact patterning can be recognized at or immediately below the present ground surface. By comparison, sites formed in the fluid landscapes of ancient deltas are more challenging to locate, map, and evaluate. Meander migration in sediments comprised mainly of sand, silt, and clay, coupled with flashy floods from the adjoining uplands, greatly complicates archeological survey. Some sites or parts of sites may be destroyed or seriously impacted by erosion, while colluvial deposits and overbank flooding may preserve and protect sites or parts of sites, at the same time concealing them from surface discovery. The hearth recorded at 10FR73 reveals both processes. Overbank deposition capped and protected the feature for a millennium before a recent channel shift intercepted and destroyed it.

The geophysical prospecting reported here remains difficult to interpret without ground-truthing at a scale larger than the small shovel probes used to evaluate the metal detecting signals. Such testing promises to be politically and culturally problematic, given the contradictory feelings expressed by Tribal members. In 2015 we found the Tribal Council firmly in favor of testing and evaluating these signals, while the Tribal Historian and several tribal members were just as firmly opposed to it. Similar disagreements surfaced among the authors. Reid did not want to bring the Idaho State Historical Society into the fray, while Cannon was comfortable with the council's approval and seeks funding for additional ground-truthing of geophysical signals.

A compromise approach that employs larger survey units might bring out subsurface geophysical signals more distinctly. A grid of 50 x 50 or 100 x 100 meter units instead of the 20 x 20 m units used here would be appropriate for the T1 surface in the Middle Ravine, and parts of the level, easily surveyed West Plain adjacent to the present course of Battle Creek. This approach might produce clearer patterning but would still leave the pattern unevaluated.

We recommend continued geophysical survey at the site location within and adjacent to the ravine. The magnetic gradiometer survey has identified a substantial number of subsurface features that are may be related to the massacre event and certainly could inform on the post-massacre historic record. The GPR survey has been useful where conditions favor the instruments. The GPR provides the capacity to image subsurface features in three dimensions. An alternative methodology to consider in future work may be to conduct a three-dimensional soil resistance survey. This approach would result in similar but shallower imaged data, without being hampered by the dense vegetation.

Future field studies should focus on the detection and identification of features and structures rather than artifacts. Given the levels of disturbance the core area has experienced, small objects such as bullets and percussion caps are unlikely to retain the interpretable patterning of sites strewn with metallic cartridges (Fox and Scott 1991). Small artifacts are easily displaced by fluvial and colluvial processes, and even when found they would be difficult to distinguish from the same classes of material culture that continued to be used by the railroad community and homesteaders for hunting and security in the years after the battle. When the Civil War ended, surplus weapons and ammunition were sold off to reduce government debt, and army firearms could be had for prices ranging from five to fifteen dollars (Hunt 1951: 357). Not surprisingly, military munitions became widely dispersed throughout the west in the late 1860s. At this site, we can't tell an 1863 Sharps or Colt bullet from one fired years afterward.

However, discernable signatures of burnt winter lodges might be capped by post-massacre sediments within the ravine. For example, a lodge-sized anomaly in Block 4 may indicate part of the Shoshone village. Blocks 4 and 9 in the Middle Ravine, and Block 11 in the Lower Ravine show the greatest promise. Finally, Blocks 9 and 11 exhibit none of the plowing disturbance seen in the other blocks. Augering rather than test excavations might be the least invasive option for identifying the signals.

The metal detection and magnetometry transects revealed the widespread presence of metal objects and a scarcity of features at shallow depths throughout the site. However, when triangulated with the ground-penetrating radar survey, we did locate one potential feature (or structure) of native origin. Thus in Block 4 GPR Features 1 and 2 overlap with MAG Feature 17 to suggest buried rock features. Block 4 is located on the first terrace in the Middle Ravine, where Shoshone lodges were probably clustered. We eventually received written authority from the tribal executive committee to put a 1 x 2 m excavation unit here to ground-truth the inference. However, funding and field-time ended before this could be done.

The historic maps and other historic records, geomorphic field survey, and radiocarbon dating of late Quaternary alluvial units strongly suggest that the Shoshone village clustered in the Middle Ravine but may have straggled south into the Lower Ravine. Any battlefield or massacre-related material traces associated with the Lower Ravine have been displaced or deeply buried by post-1863 alluvium and colluvium. However, the less-impacted reach defined as the Middle Ravine may retain traces of the original village in the form of intact features such as hearths, or structures such as lodge floors.

Future metal detecting survey faces two challenges. First, much post-1863 metal debris has accumulated in the colluvial cap that spilled out of Battle Creek in 1911. Battle-related ammunition and other artifacts may be present but buried beneath this cap, or commingled in a disrupted pattern with more recent debris by tillage, irrigation, and other farming practices. The second problem is the superimposition of the hamlet of Battle Creek on top of the core area of the battlefield between 1878 and 1886. Thus, much of the material culture of the Shoshone village might be difficult to distinguish from the artefactual residues of the railroad hamlet. Right-angled floor plans and cut nails might be set aside as post- winter village, but percussion caps, bullets, buckles, rivets, buttons, metal kitchenware, etc. might not.

Future archeological fieldwork at the Landmark should focus on the South Terrace where Connor's night bivouac occurred. The approximately 10 acres of the NE ¼, SW ¼, NW ¼ of Section 9 may contain significant traces of this briefly-occupied site. It lies outside the core area of combat and the Shoshone

village, and excavations there are unlikely to encounter remains sensitive to the Northwestern Band. The potential for public interpretation is apparent.

Finally, we believe that the post-1863 agricultural and transportation infrastructure listed above does not contribute to the site's significance. Much of it has compromised the physical integrity of the Shoshone village and battlefield. For example, the railroad and its support community directly impacted the western **core area**. The canal impacted the integrity of Cedar Point, West Bluff, and the Upper and Middle Ravine, and when the aqueduct blew out it helped cap the Lower Ravine. The construction of the Old Yellowstone Highway and its upgrade to Highway 91, and the upgrade of the Old Montana Road to Hot Springs Road have further impacted the **core area**.

Management recommendations. First, **s**hould future archeological and geoarcheological investigations confirm the hypothesis that the Bear River channel flowed as far north as shown by the blue meander scar in Figure 7.4, the National Park Service might consider re-drafting the boundary to produce a smaller Landmark, perhaps using the present channel of Bear River as the southern boundary. The research reported here suggests that the Landmark area could be reduced 640 acres (38%) by removing the western half of Section 5 and southern half of Section 8. The Section 8 acreage would include all of the Landmark west of Highway 91 and south of the present course of Bear River.

Second, should the Northwestern band of the Shoshone Nation acquire additional pieces of the Landmark, and construct an interpretive center of their own, plans should take into account the findings of this report so as not to disturb surviving parts of the village of Bia Ogoi.

Third, the reach between the meander scar and the West Cache Canal might be restored to its original plant cover and managed as a spiritually sensitive property. In light of the large number of Shoshones who died at Bia Ogoi, the site of the village itself might be considered more of an ossuary than a settlement, a place to commemorate the remains of unidentified war dead.

Fourth, the "monument" or "wigwam monument" location shown on the two versions of the Aitken map might be reconsidered for its interpretive potential. Aitken positioned this proposed site appropriately in the sense that it lies near the center of events on January 29th, 1863, as well as at the foot of the West Bluff, the most intact remnant of the original battleground that has survived into the 21st century. As such, it offers interpretive or contemplative opportunities not found elsewhere within the Landmark.

The Landmark's location on private properties offers it some protection from looting and vandalism. However, other kinds of disturbance may accompany growing public recognition and interest. For example, the Landmark has recently been identified on the internet as a potential site for geocaching, with the potential ground disturbance that implies (https://.geocaching.com/.../GCD535_bear-river-massacre).

A final recommendation would be to enhance the property's interpretation and public recognition as a National Historic Landmark. Despite channel shifts, landslides, and transportation and irrigation development, this part of Cache Valley retains affect still consonant with the 1860s, when nearby Franklin became the first permanent European settlement in Idaho and conflict with native Idahoans came to a climax.

The scenic highways interpretive panels located on escarpment east of Highway 91 on the north side of the valley present the landscape from the perspective of a fleeing survivor looking over her shoulder. A more appropriate location would be on the rim of the Clay Bluff on the south side of the valley. Here the village position can be seen from the approximate point where Connor first saw it, and the Shoshones first saw the Californians.

Federal Energy Regulatory Commission. Late in the course of this project, we met with a hydroelectric project proponent and consulted with the Federal Energy Regulatory Commission regarding potential impacts to the Landmark under a proposed offsite mitigation plan. Parts of the Landmark were included in a historic properties management plan for wetland restoration. This plan was part of the off-site mitigation to adverse effects associated with the proposed Bear River Narrows Hydroelectric Project. The Twin Lakes Canal Company proposed to place a dam and reservoir on Bear River twelve miles upstream. To mitigate resulting impacts, the company planned to restore natural vegetation and wetlands within the southern part of the Landmark (Figure 7.8).

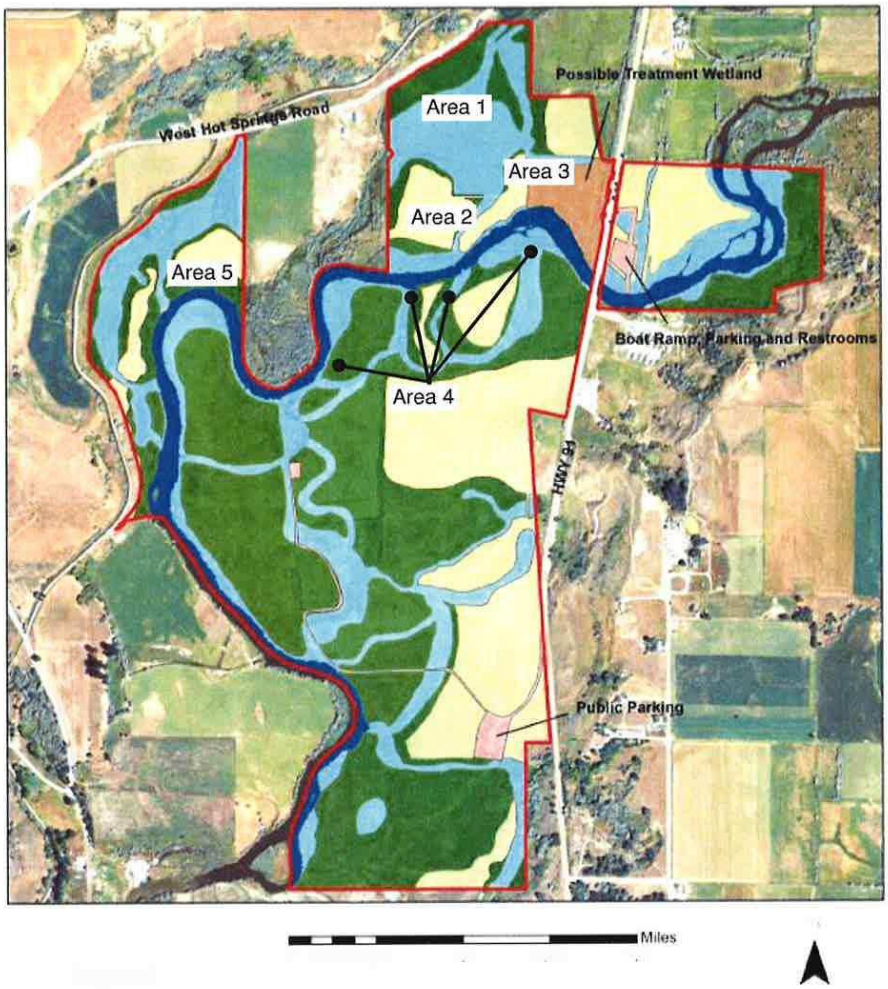

Figure 7.8: Map of proposed wetland restoration areas for parts of the Bear River Massacre NHL.

The parts of greatest concern in terms of battlefield impacts are Areas A, B, and C on the north side of Bear River, and the unlabeled area west of Highway 91 on the north side of the river (Figure 7.8). Area 1 lies immediately southwest and is continuous with the West Plain and Willow Island. This area could include both battlefield debris and human remains reflecting the flight of Shoshone survivors toward the river. It might also include the now-landlocked 1863 island downstream of the Battle Creek-Bear River confluence where human remains may also have concentrated. This is not the only area of concern. Areas 2 and 3, while north of the present Bear River, have not yet been determined to be north of the 1863 channel. Future fieldwork should address this uncertainty. We suspect that intact prehistoric deposits survive throughout the three areas. Areas 1, 2, and 3 all lie close to the West Plain where our October, 2015 field season confirmed the presence of intact subsurface deposits.

On June 16, 2016, the Federal Energy Regulatory Commission denied the application for license to the Twin Lakes Canal Company (Project No. 12486-008). Under "B. Balancing of Development and Non-Development Purposes, Section 1.25," the commissioners wrote that "Staff concluded that mitigation at the Johnson Farm site would be infeasible as the site may overlap with the southern portion of the Bear River Massacre National Historic Landmark…While acquiring the Johnson Farm might conserve the site's culturally important resources, if portions of the Landmark site could not be disturbed, large areas of the Johnson Farm would be off limits for the proposed mitigation" (Bay et al. 2016:9).

Landmark Boundaries and Future Tribal Acquisitions. Perhaps the most important management recommendation we can make concerns the long-term protection and interpretation of the Landmark. If continuing geomorphic studies confirm our hypothesis about the changed course of both Bear River and Battle Creek since 1863, one consequence is that all of the Landmark located south of present Bear River and west of Highway 91 could be set aside as outside the battlefield and the Shoshone village. This has interpretive and financial implications for both the National Park Service and the Northwestern Band of the Shoshone Nation. For example, if wetland habitat is eventually restored along parts of the Landmark, the least impact to the site itself would be in the area south of the river and west of the highway. The tribe plans eventually to acquire as much of the Landmark as possible and install their own interpretive center on their own land.

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APPENDIX A:
Utah State University Catalog Inventory Forms

USU Archeological Services **Catalog Inventory Form** **10FR72**

Smithsonian Site Number: 10FR72
Catalog Numbers Used: 1-23
Name of Cataloger: Brandi Jensen Allred

Site/Field Name: Utah and Northern Railroad Battle Creek Terminal Site
Date Collected: 11/26/2015

Catalog Number	FS# / Map#	Block / Unit	North	East	Point Plot / Other Prov.	Level	Elevation (cmbs)	Object Name	Material Type	Condition	Count	DESCRIPTION
1	341.15	341	X	X	X	X	X	Railroad Spike	Metal	Good	1	Railroad spike
2	T342.01	342	X	X	X	X	X	Railroad Spike	Metal	Good	1	Railroad spike
3	T342.09	342	X	X	X	X	X	Railroad Spike	Metal	Good	1	Railroad spike
4	T342.26	342	X	X	X	X	X	Button	Metal	Good	1	Metal button with steam engine train motif
5	T343.06	343	X	X	X	X	X	Railroad Spike	Metal	Good	1	Railroad spike
6	T345.01	345	X	X	X	X	X	Railroad Spike	Metal	Good	1	Railroad spike
7	T346.09	346	X	X	X	X	X	Railroad Spike	Metal	Good	1	Railroad spike
8	T347.03	347	X	X	X	X	X	Railroad Spike	Metal	Good	1	Railroad spike
9	T347.18	347	X	X	X	X	X	Railroad Spike	Metal	Good	1	Railroad spike
10	T348.03	348	X	X	X	X	X	Railroad Spike	Metal	Good	1	Railroad spike
11	T349.05	349	X	X	X	X	X	Railroad Spike	Metal	Good	1	Railroad spike
12	T350.07	350	X	X	X	X	~ 5	Railroad Spike	Metal	Good	1	Railroad spike
13	T350.10	350	X	X	X	X	< 5	Railroad Spike	Metal	Good	1	Railroad spike
14	351.02	351	X	X	X	X	5	Railroad Spike	Metal	Good	1	Railroad spike
15	T354.03	354	X	X	X	X	X	Railroad Spike	Metal	Good	1	Railroad spike
16	T355.01	355	X	X	X	X	~ 5	Railroad Spike	Metal	Good	1	Railroad spike

Catalog Number	FS# / Map#	Block / Unit	North	East	Point Plot / Other Prov.	Level	Elevation (cmbs)	Object Name	Material Type	Condition	Count	DESCRIPTION
17	T355.07	355	X	X	X	X	~ 5	Railroad Spike Fragment	Metal	Fair	1	Railroad spike, head fragment
18	T356.01	356	X	X	X	X	X	Railroad Spike Fragment	Metal	Fair	1	Railroad spike, head fragment
19	T359.13	359	X	X	X	X	< 10	Railroad Spike	Metal	Good	1	Railroad spike
20	360.01	360	X	X	X	X	< 10	Railroad Spike	Metal	Good	1	Railroad spike
21	423.01	423	X	X	X	X	X	Railroad Spike	Metal	Good	1	Railroad spike
22	428.01	428	X	X	X	X	X	Railroad Spike	Metal	Good	1	Railroad spike
23	437.02	437	X	X	X	X	X	Railroad Spike	Metal	Good	1	Railroad spike

Notes:

Artifacts from this site comprise a single material type, metal. All railroad spikes were cleaned with a coarse wire brush followed by a softer bristle brush to remove oxidization and dirt. The button (T342.26) was cleaned with a toothbrush and commercially available silver jewelry cleaner. Artifact catalog numbers can be found in the upper right-hand corner of the artifact tags.

Total: 23 artifacts, 1 site bag

Site bag contains: 1 bag containing railroad spikes, 1 bag containing only the button

USU Archeological Services **Catalog Inventory Form** **10FR71**

Smithsonian Site Number: 10FR71
Catalog Numbers Used: 1-21
Name of Cataloger: Brandi Jensen Allred

Site/Field Name: Bear River North Pasture Lithic Site
Date Collected: 2/9/2015

Catalog Number	FS# / Map#	Block / Unit	North	East	Point Plot / Other Prov.	Level	Elevation (cmbs)	Object Name	Material Type	Condition	Count	DESCRIPTION
1	SC-01	X	X	X	North Pasture	Surface	Surface	Flake	Stone	Good	1	Small tan/pink quartzite flake
2	SC-02	X	X	X	North Pasture	Surface	Surface	Long Bone Fragment	Bone	Fair	1	Small long bone fragment, likely from a large ungulate
3	SC-03	X	X	X	North Pasture	Surface	Surface	Long Bone Fragment	Bone	Good	1	Small long bone fragment, likely from a large ungulate
4	SC-04	X	X	X	North Pasture	Surface	Surface	Long Bone Fragment	Bone	Good	1	Small long bone fragment, likely from a large ungulate
5	SC-05	X	X	X	North Pasture	Surface	Surface	Uniface	Stone	Good	1	White quartz uniface, possibly a scraper
6	SC-06	X	X	X	North Pasture	Surface	Surface	Cranial Bone Fragment	Bone	Good	1	Temporal bone fragment, likely from a large ungulate
7	SC-07	X	X	X	North Pasture	Surface	Surface	Flake	Stone	Good	1	Small obsidian flake
8	SC-08	X	X	X	North Pasture	Surface	Surface	Metal Rod	Metal	Good	1	Long metal rod of unknown function
9	SC-09	X	X	X	North Pasture	Surface	Surface	Flake	Stone	Good	1	Small obsidian flake
10	SC-10	X	X	X	North Pasture	Surface	Surface	Fire Cracked Rock	Stone	Good	1	Possible FCR fragment
11	SC-11	X	X	X	North Pasture	Surface	Surface	Flat Bone Fragment	Bone	Fair	1	Scapula fragment, likely from a large ungulate
12	SC-12	X	X	X	North Pasture	Surface	Surface	Uniface	Stone	Good	1	Large, dark gray, chert uniface
13	SC-13	X	X	X	North Pasture	Surface	Surface	Flake	Stone	Good	1	Light brown quartzite flake
14	SC-14	X	X	X	North Pasture	Surface	Surface	Flake	Stone	Good	1	Light brown/pink quartzite flake
15	SC-15	X	X	X	North Pasture	Surface	Surface	Metal Bolt	Metal	Good	1	Metal bolt of unknown function
16	SC-16	X	X	X	North Pasture	Surface	Surface	Tooth	Bone	Good	1	Tooth fragment, likely from a large ungulate

Catalog Number	FS# / Map#	Block / Unit	North	East	Point Plot / Other Prov.	Level	Elevation (cmbs)	Object Name	Material Type	Condition	Count	DESCRIPTION
18	SC-18	X	X	X	North Pasture	Surface	Surface	Misc. Metal Fragment	Metal	Fair	1	Flattened metal fragment of unknown function
19	SC-19	X	X	X	North Pasture	Surface	Surface	Flake	Stone	Good	1	Small white/gray quartzite flake
20	SC-20	X	X	X	North Pasture	Surface	Surface	Lithic Tool	Stone	Good	1	White/gray quartzite bifacial tool
21	SC-21	X	X	X	North Pasture	Surface	Surface	Misc. Metal Fragment	Metal	Fair	1	Triangular, flattened and perforated metal piece of unknown function
17	SC-17	X	X	X	North Pasture	Surface	Surface	Misc. Metal Fragment	Metal	Fair	1	Flattened and perforated metal fragment of unknown function

Notes:

Material types for this site include metal, bone, and stone. All metal artifacts were cleaned with a coarse wire brush followed by a softer bristle brush to remove oxidization and dirt. The bone and stone artifacts were cleaned with a toothbrush and water. Artifact catalog numbers are not listed on the artifact tags because the FS numbers correspond exactly to the catalog numbers.

Total: 21 artifacts, 1 site bag

Site bag contains: 1 bag with metal artifacts, 1 bag with bone artifacts, 1 bag with stone artifacts

Smithsonian Site Number: 10FR70
Catalog Numbers Used: 1-169
Name of Cataloger: Brandi Jensen Allred

Site/Field Name: Bear River Massacre National Historic Landmark
Date Collected: 11/20/15

Catalog Number	FS# / Map#	Block / Unit	North	East	Point Plot / Other Prov.	Level	Elevation (cmbs)	Object Name	Material Type	Condition	Count	DESCRIPTION
1	T01.010	BLK A	466647 9.12	424406.28	X	X	~ 4	Bullet	Metal	Fair	1	Deformed bullet fragment, likely a .22 LR
2	T02.10	BLK A	466647 8.98	424402.89	X	X	X	Bullet	Metal	Fair	1	Deformed lead bullet, ~ .44-.45 caliber
3	T05.019	BLK A	466647 5.77	424402.91	X	X	<10	Bullet	Metal	Good	1	Partially deformed bullet, possibly a .22 short
4	T09.05	BLK A	466647 1.11	424404.04	X	X	5-10	Bullet	Metal	Good	1	Two-part mold cast lead bullet, likely a .45 caliber
5	T10.02	X	466642 2.28	424662.35	X	X	5-10	Bullet	Metal	Fair	1	Deformed bullet fragment, likely a .22 LR
6	T11.09	BLK A	466646 9.96	424411.65	X	X	X	Bullet	Metal	Fair	1	Deformed solid lead bullet, ~ .38 caliber
7	T20.02	BLK A	466646 1.45	424417.78	X	X	5-10	Bullet	Metal	Fair	1	Impact damaged lead bullet, ~ .36 caliber
8	43	BC1	466628 3.21	424468.02	X	X	Surface	Bullet	Metal	Fair	1	Deformed bullet fragment, likely a .22 LR
9	55	BC1	466630 7.90	424469.55	X	X	5-9	Bullet	Metal	Fair	1	Heavily deformed bullet, likely a .22 caliber
10	T60.018	X	466637 2.87	424653.77	X	X	7	Bullet	Metal	Fair	1	Impact damaged bullet, likely a .22 LR
11	T76.026	X	466635 6.24	424674.03	X	X	5	Bullet	Metal	Fair	1	Heavily deformed bullet, likely a .22 caliber
12	86	BC1	466631 7.45	424478.42	X	X	0-5	Bullet	Metal	Fair	1	Deformed bullet fragment, likely a .22 LR
13	92	BC1	466630 7.90	424474.99	X	X	9	Bullet	Metal	Fair	1	Impact damaged lead .22 caliber bullet
14	T155.02	X	466627 7.34	424541.80	X	X	5	Bullet	Metal	Good	1	Modern .45 caliber pistol bullet, slight impact damage
15	T160.03	X	466627 3.05	424548.80	X	X	~ 10	Bullet	Metal	Good	1	Lead globule, irregularly shaped, unlikely to be a bullet fragment
16	444.05	X	466598 8.28	424561.03	X	X	7-9	Bullet	Metal	Good	1	Solid lead .44 caliber ball, slightly deformed

Catalog Number	FS# / Map#	Block / Unit	North	East	Point Plot / Other Prov.	Level	Elevation (cmbs)	Object Name	Material Type	Condition	Count	DESCRIPTION
17	454.01	X	4665978.83	424583.70	X	X	5-7	Bullet	Metal	Fair	1	Impact damaged .22 caliber bullet
18	15BR04	X	X	X	X	X	60	Flake	Stone	Fair	1	Flake associated with 15BR04 sample, brown/gray color
19	T01.01	BLK A	X	X	X	X	~ 5	Cartridge	Metal	Fair	1	.22 LR cartridge with a "c" headstamp
20	T05.17	BLK A	X	X	X	X	X	Can Fragment	Metal	Fair	1	Likely can rim fragment
21	T06.06	X	X	X	X	X	10-15	Misc. Metal Fragment	Metal	Fair	1	Flattened and hooked implement of unknown function
22	10	BC1	X	X	X	X	X	Misc. Metal Fragment	Metal	Fair	1	Rectangular metal fragment of unknown function
23	15	BC1	X	X	X	X	23	Chain	Metal	Fair	2	Two sections of heavy chain
24	T15.01	X	X	X	X	X	X	Misc. Metal Fragment	Metal	Fair	1	Spiral metal fragment, possibly a nail, unknown function
25	T15.012	BLK A	X	X	X	X	5-10	Insulator Fragment	Glass	Fair	1	Opaque glass insulator fragment with "U.S.A" embossing
26	T15.013	BLK A	X	X	X	X	5-10	Glass Fragment	Glass	Good	1	Small flaked fragment of clear glass
27	T17.02	X	X	X	X	X	~5	Misc. Metal Fragment	Metal	Fair	1	Metal fragment, possibly a nail or screw, unknown function
28	T17.03	X	X	X	X	X	4	Hook with Ring	Metal	Good	1	Hook with a ring, unknown function
29	T20.01	X	X	X	X	X	X	Square Nail	Metal	Good	1	Square nail
30	22	BC1	X	X	X	X	X	Misc. Metal Bar	Metal	Fair	1	Heavy metal bar fragment, unknown function
31	22.1	BC1	X	X	X	X	~ 26	Fire Cracked Rock	Stone	Good	1	Brown/purple fragment of possible FCR
32	25	BC2	X	X	X	X	X	Misc. Metal Fragment	Metal	Fair	1	U shaped metal fragment of unknown function
33	26	BC1	X	X	X	X	25-33	Animal Trap	Metal	Good	1	Metal animal trap
34	26.1	BC2	X	X	X	X	25	Porcelain/metal Fragments	Metal/porcelain	Poor	16	Historic "Boyd's Genuine" porcelain and metal fragments
35	T26.02	X	X	X	X	X	5	Square Nail	Metal	Good	1	Long square nail

Catalog Number	FS# / Map#	Block / Unit	North	East	Point Plot / Other Prov.	Level	Elevation (cmbs)	Object Name	Material Type	Condition	Count	DESCRIPTION
36	T31.03	X	X	X	X	X	12	Bolt head	Metal	Fair	1	Bolt head fragment, possibly hand forged
37	T35.02	X	X	X	X	X	X	Misc. Metal Fragment	Metal	Good	1	Flat metal piece with a keyhole, unknown function
38	T35.03	X	X	X	X	X	8	Misc. Metal Fragment	Metal	Fair	1	Possible nail fragment, unknown function
39	T36.02	X	X	X	X	X	~5	Tractor Chain Fragment	Metal	Fair	1	Tractor chain fragment
40	37	X	X	X	X	X	0-15	Metal Spike	Metal	Good	1	Metal spike, unknown function
41	T40.05	X	X	X	X	X	X	Misc. Metal Fragment	Metal	Fair	1	Flattened metal fragment with embossed "X", unknown function
42	46	BC1	X	X	X	X	14-16	Metal Peg	Metal	Good	1	Long metal spike, possibly a nail
43	47	BC1	X	X	X	X	7-9	Bracket	Metal	Good	1	Heavy metal bracket, unknown function
44	48	BC2	X	X	X	X	X	Square Nail	Metal	Good	1	Long square nail
45	49	BC1	X	X	X	X	10	Misc. Metal Fragment	Metal	Fai	1	U shaped metal fragment, possible horse tack, unknown function
46	50	BC2	X	X	X	X	X	Cast Iron Fragments	Metal	Fair	6	Flattened cast iron band fragments, unknown function
47	51	BC1	X	X	X	X	18	Tractor Chains	Metal	Good	1	Tractor chains with anchor
48	58	BC1	X	X	X	X	5-8	Tooth, Wire, Glass, Coal	Misc.	Fair	4	1 thin wire fragment, 1 large ungulate tooth, 1 piece of coal, 1 glass fragment
49	T60.010	X	X	X	X	X	5	Bolt	Metal	Good	1	Heavy metal bolt, likely modern
50	T60.012	X	X	X	X	X	10	Misc. Metal Fragment	Metal	Fair	1	Flattened, rectangular metal fragment, unknown function
51	T60.21	X	X	X	X	X	0-5	Overall Button	Metal	Good	1	Overall style button, likely modern
52	61	BC1	X	X	X	X	16	Tractor Chains, FCR	Metal, Stone	Good	2	1 tractor chain, 1 piece of possible fire cracked rock
53	T64.03	X	X	X	X	X	2	Hot Wheels Car	Metal, Plastic	Good	1	Hot wheels car, modern
54	65	BC1	X	X	X	X	11	Horseshoe	Metal	Good	1	Horseshoe with two intact nails

Catalog Number	FS# / Map#	Block / Unit	North	East	Point Plot / Other Prov.	Level	Elevation (cmbs)	Object Name	Material Type	Condition	Count	DESCRIPTION
55	T65.02	X	X	X	X	X	13	Washer	Metal	Good	1	Metal washer
56	T65.04	X	X	X	X	X	3-4	Bolt with Square Head	Metal	Good	1	Bolt with square head and square nut
57	T65.014	X	X	X	X	X	0-5	Misc. Metal Fragment	Metal	Fair	1	Metal strap fragment, unknown function
58	T65.020	X	X	X	X	X	5	Misc. Metal Fragment	Metal	Good	1	Flattened and perforated triangular metal fragment, function unknown
59	68	BC1	X	X	X	X	5-10	Iron Ball	Metal	Fair	1	BB sized iron pellet, unknown function
60	T70.09	X	X	X	X	X	10	Bolt with Square Nut	Metal	Fair	1	Bolt fragment with square head
61	T70.011	X	X	X	X	X	7	Misc. Metal Fragment	Metal	Fair	1	Small flattened metal fragment of unknown function
62	T70.013	X	X	X	X	X	Surface	Misc. Metal Fragment	Metal	Fair	1	Metal band fragment of unknown function
63	T70.014	X	X	X	X	X	10	Bolt with Square Head	Metal	Good	1	Bolt with square head and square nut
64	T71.02	X	X	X	X	X	5	Metal Latch	Metal	Good	1	Latch of unknown function
65	72	BC1	X	X	X	X	12	Horseshoe	Metal	Good	1	Horseshoe with one intact nail
66	T76.01	X	4666356.65	424583.50	X	X	1358.576 ASL	Metal Tube	Metal	Fair	1	Hollow metal tube of unknown function
67	T76.05	X	4666356.19	424556.63	X	X	1358.391 ASL	Nail Fragment	Metal	Poor	1	Possible nail fragment
68	T76.06	X	X	X	X	X	X	Nail Fragment	Metal	Fair	1	Possible nail fragment
69	T76.019	X	X	X	X	X	~2	Plow Tine	Metal	Good	1	Plow tine
70	T78.02	X	X	X	X	X	9	Misc. Metal Bar	Metal	Good	1	Metal bar with a perforation in one end, unknown function
71	T80.01	X	X	X	X	X	8	Nail Fragment	Metal	Fair	1	Likely nail fragment
72	T80.04	X	X	X	X	X	X	Bolt	Metal	Fair	1	Bolt head fragment
73	T80.06	X	X	X	X	X	X	Wire, Washer, Nut	Metal	Fair	3	1 washer, 1 square bolt, 1 thin wire fragment

Catalog Number	TFS# / Map#	Block / Unit	North	East	Point Plot / Other Prov.	Level	Elevation (cmbs)	Object Name	Material Type	Condition	Count	DESCRIPTION
74	T80.08	X	X	X	X	X	8	Metal Spike	Metal	Good	1	Long square metal spike of unknown function
75	T80.010	X	X	X	X	X	X	Horseshoe Nail	Metal	Good	1	Horseshoe nail
76	T80.016	X	X	X	X	X	X	Cylinder Fragment	Metal	Fair	1	Possibly aluminum, cylinder fragment of unknown function
77	T80.017	X	X	X	X	X	X	Tube Fragment	Metal	Fair	1	Thin metal tube fragment of unknown function
78	80.25	X	X	X	X	X	X	Flake	Stone	Good	1	Small obsidian flake
79	T80.27	X	X	X	X	X	5	Metal Ring	Metal	Good	1	Ring with attachment, unknown function
80	84	BC1	X	X	X	X	7	Horseshoe	Metal	Good	1	Horseshoe with one intact nail
81	90	BC1	X	X	X	X	10	Horseshoe	Metal	Good	1	Horseshoe with four intact nails
82	109	BC1	X	X	X	X	5-10	Horseshoe	Metal	Good	1	Horseshoe with one intact nail
83	T120.01	X	X	X	X	X	>5	Cylinder	Metal	Good	1	Cylinder of unknown function
84	T126.01	X	X	X	X	X	10	Aluminum Fragment	Metal	Fair	1	Aluminum fragment, likely from a can
85	T127.02	X	X	X	X	X	5	Square Nail	Metal	Good	1	Square nail
86	T127.03	X	X	X	X	X	14	Misc. Metal Spike	Metal	Fair	1	Square metal spike of unknown function
87	T130.01	X	X	X	X	X	13	Misc. Metal Spike	Metal	Good	1	Square metal spike of unknown function
88	T132.03	X	X	X	X	X	~10	Metal Ring	Metal	Good	1	Metal ring of unknown function
89	T133.01	X	X	X	X	X	12	Ground Stone	Stone	Good	1	Possible ground stone fragment
90	T134.04	X	X	X	X	X	10	Socket	Metal	Good	1	Metal socket
91	T147.05	X	X	X	X	X	X	S Hook	Metal	Good	1	S shaped hook, likely from a tie down
92	T152.03	X	X	X	X	X	~7	Ring Fragment	Metal	Good	1	Ring fragment, possibly horse tack

Catalog Number	FS# / Map#	Block / Unit	North	East	Point Plot / Other Prov.	Level	Elevation (cmbs)	Object Name	Material Type	Condition	Count	DESCRIPTION
93	T156.01	X	X	X	X	X	<5	Flake	Stone	Good	1	Gray, cryptocrystalline silicate shatter flake
94	T221.02	X	X	X	X	X	<5	Square Nail	Metal	Good	1	Square nail
95	T225.02	X	X	X	X	X	<5	Rivet	Metal	Good	1	Rivet, or washer and screw
96	T341.09	X	X	X	X	X	X	Buckle	Metal	Good	2	Buckle with metal piece, unknown function
97	T342.15	X	X	X	X	X	X	Bracket	Metal	Good	1	Bracket with square perforations, unknown function
98	T342.22	X	X	X	X	X	X	Square Nail	Metal	Good	1	Square nail, likely hand forged
99	T343.01	X	X	X	X	X	~10	Ring	Metal	Good	1	Ring with chinks, unknown function
100	T343.07	X	X	X	X	X	X	Tractor Chain	Metal	Good	1	Old tractor chain
101	T343.11	X	X	X	X	X	X	Ceramic Fragment	Ceramic	Good	1	White ceramic fragment of unknown function
102	T343.14	X	X	X	X	X	X	Bridle Ring	Metal	Good	1	Bridle ring
103	T343.21	X	X	X	X	X	~20	Pulley and Bracket	Metal	Good	2	Wheel or pulley with perforated bracket, unknown functions
104	T343.26	X	X	X	X	X	<10	Ox Shoe	Metal	Good	1	Ox shoe
105	T344.02	X	X	X	X	X	X	Misc. Metal Tool	Metal	Good	1	Misc. metal tool with square tip of unknown function
106	T344.05	X	X	X	X	X	X	Cast Iron Fragment	Metal	Fair	1	Decorative cast iron fragment, likely from a stove
107	T344.07	X	X	X	X	X	<5	Tractor Chain	Metal	Good	1	Old tractor chain
108	T344.21	X	X	X	X	X	<20	Wrench Fragment	Metal	Good	1	Likely a wrench head fragment
109	T344.22	X	X	X	X	X	30	Cast Iron Sign	Metal	Fair	1	Cast iron sign with numbers, unknown function
110	T344.22.1	X	X	X	X	X	45	Barb Wire	Metal	Fair	1	Barb wire cluster
111	T344.25	X	X	X	X	X	<5	Brace and Nail	Metal	Fair	2	One Brace and one nail, unknown functions

Catalog Number	FS# / Map#	Block / Unit	North	East	Point Plot / Other Prov.	Level	Elevation (cmbs)	Object Name	Material Type	Condition	Count	DESCRIPTION
112	T344.29	X	X	X	X	X	~ 15	Axe Head	Metal	Good	1	Heavy axe head
113	T344.33	X	X	X	X	X	X	Misc. Metal Fragment	Metal	Good	1	Half-moon shaped misc. metal fragment, unknown function
114	T345.04	X	X	X	X	X	X	Oval Ring	Metal	Good	1	Oval ring of unknown function
115	T346.01	X	X	X	X	X	~ 10	Cast Iron Fragment	Metal	Good	1	Curved cast iron fragment, unknown function
116	T346.04	X	X	X	X	X	40	Cast Iron Fragment	Metal	Good	2	One decorative cast iron fragment, likely from a stove, and one misc. metal fragment
117	T346.05	X	X	X	X	X	~ 10	Cart Wheel	Metal	Good	1	Cart wheel, unknown function
118	T346.10	X	X	X	X	X	X	Stone Guard	Metal	Good	1	Massey-Ferguson tractor stone guard
119	T346.16	X	X	X	X	X	X	Misc. Metal Spike	Metal	Good	1	Misc. metal spike of unknown function
120	T347.13	X	X	X	X	X	< 5	Ring	Metal	Good	1	Small ring of unknown function
121	T347.16	X	X	X	X	X	10	Wheel	Metal	Good	1	Wheel, possibly for a rail cart
122	T348.04	X	X	X	X	X	10	Cast Iron Fragment	Metal	Good	2	Possible cast iron fragments of unknown function
123	T348.05	X	X	X	X	X	X	Tractor Chain	Metal	Good	1	Old tractor chain
124	T348.07	X	X	X	X	X	X	Misc. Metal Fragment	Metal	Fair	1	Triangular, linear fragment, "8-18H" embossed, unknown function
125	T349.04	X	X	X	X	X	X	Misc. Metal Fragment	Metal	Good	1	Heavy metal piece, unknown function
126	T349.06	X	X	X	X	X	X	Metal and Cast Iron Fragments	Metal	Good	4	2-3 cast iron fragments and one metal fragment, unknown functions
127	T349.07	X	X	X	X	X	~ 5	Tractor Chain	Metal	Good	1	Old tractor chain
128	T349.09	X	X	X	X	X	~ 10	Cast Iron Fragment	Metal	Good	1	Decorative cast iron fragment with a rivet, unknown function
129	T349.10	X	X	X	X	X	X	Misc. Metal Fragment	Metal	Good	1	Metal hook or lock, unknown function
130	T349.12	X	X	X	X	X	X	Nail	Metal	Good	1	Horseshoe nail

Catalog Number	FS# / Map#	Block / Unit	North	East	Point Plot / Other Prov.	Level	Elevation (cmbs)	Object Name	Material Type	Condition	Count	DESCRIPTION
131	T350.04	X	X	X	X	X	X	Bracket	Metal	Good	1	Large, heavy, flat rectangular metal bracket with 4 perforations
132	T350.06	X	X	X	X	X	X	Cast Iron Fragment	Metal	Good	1	Oddly shaped cast iron fragment with embossing, unknown function
133	T350.08	X	X	X	X	X	X	Square Nail	Metal	Good	1	Large square nail, possibly hand forged
134	T350.11	X	X	X	X	X	X	Square Nail Fragments	Metal	Poor	3	One horseshoe nail and two square nail fragments
135	T350.11.1	X	X	X	X	X	X	Misc. Metal Fragment	Metal	Good	1	Flat metal fragment of unknown function
136	T350.14	X	X	X	X	X	20	Pulley	Metal	Good	1	Heavy pulley bearing or cart wheel, unknown function
137	T350.16	X	X	X	X	X	X	Misc. Metal Piece	Metal	Good	1	Possible buckle piece, unknown function
138	T351.01	X	X	X	X	X	5-10	Misc. Metal Rod	Metal	Good	1	Possible hand forged rod, unknown function
139	T351.07	X	X	X	X	X	X	Tractor Chains	Metal	Good	1	Three old tractor chains intact
140	T351.11	X	X	X	X	X	10	Buckle	Metal	Good	1	Buckle
141	T352.03	X	X	X	X	X	X	Square Nail	Metal	Fair	1	Square nail
142	T352.10	X	X	X	X	X	X	Ground Stone	Stone	Good	1	Probable ground stone fragment
143	T355.10	X	X	X	X	X	5-10	Misc. Metal Piece	Metal	Good	1	Hammer shaped rod, unknown function
144	T355.15	X	X	X	X	X	5-10	Cart Wheel	Metal	Good	1	Pulley bearing or cart wheel, unknown function
145	T356.02	X	X	X	X	X	20	Bracket	Metal	Good	1	Hollow metal bracket with a loop, unknown function
146	T356.03	X	X	X	X	X	X	Misc. Metal Fragment	Metal	Fair	1	Spike head fragment, unknown function
147	T356.06	X	X	X	X	X	10	Cast Iron Fragments	Metal	Fair	2	Decorative cast iron fragments with embossing, unknown function
148	T356.14	X	X	X	X	X	X	Button	Metal	Fair	1	Button with leather fragments
149	T357.19	X	X	X	X	X	X	Stirrup Fragment	Metal	Fair	1	Possible stirrup fragment

Catalog Number	FS# / Map#	Block / Unit	North	East	Point Plot / Other Prov.	Level	Elevation (cmbs)	Object Name	Material Type	Condition	Count	DESCRIPTION
150	T359.24	X	X	X	X	X	< 5	Possible Coal	Mineral	Fair	1	Likely coal
151	T360.24	X	X	X	X	X	< 10	Nail	Metal	Fair	1	Nail, possibly hand forged
152	T360.29	X	X	X	X	X	< 10	Cast Iron Fragment	Metal	Good	1	Decorative cast iron fragment, likely from a stove
153	422.01	X	X	X	X	X	25-30	Cast Iron Fragment	Metal	Good	1	Cast iron fragment, unknown function
154	422.02	X	X	X	X	X	10-12	Possible Buckle	Metal	Good	1	Possible buckle, unknown function
155	422.06	X	X	X	X	X	5-10	Buckle	Metal	Fair	1	Buckle, unknown function
156	423.02	X	X	X	X	X	20-25	Misc. Metal Fragment	Metal	Fair	1	Crescent shaped metal fragment, unknown function
157	424.01	X	X	X	X	X	20-25	Metal Spike	Metal	Good	1	Long metal spike of unknown function
158	424.02	X	X	X	X	X	~ 10	Misc. Metal Rod	Metal	Fair	1	Misc. bolt or spike, unknown function
159	425.05	X	X	X	X	X	5-7	Cast Iron Fragment	Metal	Good	1	Cast iron fragment, unknown function
160	438.03	X	X	X	X	X	~ 10	Buckle	Metal	Good	1	Buckle
161	439.02	X	X	X	X	X	15-20	Bone, Flake, and Metal	Misc.	Good	3	One misc. metal fragment, one obsidian flake, one bone fragment
162	442.02	X	X	X	X	X	10-12	Draft Horseshoe	Metal	Good	1	Draft horseshoe with 4 partial nails
163	444.01	X	X	X	X	X	~ 20	Misc. Metal Piece	Metal	Good	1	Possible plough fragment, unknown function
164	T444.03	X	X	X	X	X	7-9	Hook and Bracket	Metal	Good	1	Hook with a bracket, unknown function
165	447.05	X	X	X	X	X	5	Tractor Chain	Metal	Good	1	Old tractor chain
166	448.03	X	X	X	X	X	5-7	Misc. Metal Fragment	Metal	Fair	1	Flat misc. metal fragment, unknown function
167	450.01	X	X	X	X	X	~ 10	Metal Spike	Metal	Good	1	Metal peg or bolt, unknown function
168	454.02	X	X	X	X	X	15	Misc. Metal Piece	Metal	Good	1	Hollow, bell shaped metal piece, unknown function
169	459.01	X	X	X	X	X	5-7	Nail	Metal	Fair	1	Very small nail

Notes:

Material types for this site include metal, stone, and miscellaneous. All metal artifacts were cleaned with a coarse wire brush followed by a softer bristle brush to remove oxidization and dirt. The bone and stone artifacts were cleaned with a toothbrush and water. Artifact catalog numbers can be found in the upper right-hand corner of the artifact tags.

Total: 169 artifacts, 5 site bags

Site bag contains: 1 bag with miscellaneous artifacts, stone artifacts, and analyzed bullets, 4 bags of metal artifacts

APPENDIX B:
Battlefield Questionnaire

Battlefield Questionnaire

State Idaho
Battlefield Massacre at Boa Ogoi, Battle of Bear River

Person Completing Form Kenneth P. Cannon, PhD, RPA
Date of Completion 18 February 2016

I. Protected Lands of the Battlefield ("Protected lands" are these "owned" for historic preservation or conservation purposes. Please provide information on land protected since 1991.)

The NHL is currently under private ownership from a number of families and individuals. Below is a list of those entities and the acreage within the NHL boundary (see attached map).

Name	Plat Number	Parcel_Number	Acreage within BRM NHL
Price Family Trust	97	193549, 233087-91	122.1
Indian Knoll Elk Ranch LLC	97	169433, 229223, 234998	58.0
Dale East Talbot Family Trust	97	191374	0.4
Kevin Hepworth	97	192253	0.8
Heber C. Swainston	97	192596	
Vera D. Talbot Family Trust	97	191374, 248654	
Kevin Hepworth	97	192253, 197721	
Heber C. Swainston	97	139497--192597, 192596	
Price Family Farm	97	233087-91	
Bosen Land & Livestock LLC	97	240314	
Bosen Land & Livestock LLC	97	240314	
David S. Scott	97	196056, 218859	
David S. Scott	97	192255, 218859	
Davis S. Scott	97	192255, 218859	
Vera D. Talbot Family Trust	97	191374, 248654	0.8
Lavern C. Talbot		168020	7.8
Gene Austin	97	236880, 237090	11.3
Lavern Talbot Family Trust		230142	
Bosen Land & Livestock LLC		21575, 240314	
Price Family Trust		193549, 233087-91	12.2
Ivan Jorgensen		162463	14.5
Ben B. Johnson Family Farm LLC		193549	40.3
Ben B. Johnson Family Farm LLC		193549	109.8
Ben B. Johnson Family Farm LLC		193549	2.8
Ben B. Johnson Family Farm LLC		193549	
Indian Knoll Elk Ranch LLC		237109	7.9
Lavern Talbot Family Trust		166208	2.4
Price Family Trust		233087-91	56.8
Price Family Trust		237031	18.8
Leona Byington		187781	19.8

Name	Plat Number	Parcel_Number	Acreage within BRM NHL
Derrick Bryson Price		262388	3.1
Price Family Trust		233087-91	2.7
Price Family Trust		237031	0.4
Gene Austin Family Trust		178160, 187377, 236883, 236947	0.2
Owen M. Casperson Family Trust		191574	5.2
Owen M. Casperson Family Trust		191574	33.7
Miller Investments		230873, 230874, 213387, 197450	15.3
Miller Investments		230873, 230874, 213387, 197450	69.2
Gene Austin Family Trust		187377	25.6
Don Carter, LTD		190459	37.3
Ivan Jorgensen		187598	77.5
Stacy Larsen Etux		167927, 195206	46.4
Ivan Jorgensen		162463	110.7
Stacy Larsen Etux		167927, 195206	65.9
Ivan Jorgensen		127016	0.8
Ivan Jorgensen		127016	16.0
Ivan Jorgenson		127016	14.2
Ivan Jorgensen		162423	
Miller Investments		213387, 198020, 230873, 230874	43.7
Vance B. King	98	225761	
Vance B. King			
			3.8
Vance B. King		225922	
Gene Austin Family Trust		178160, 187377, 236883, 236947	24.9
Charles Chesney			
Larry Stensaas		157573	70.6
Melvin Foster		189876	0.7
Bosen Land & Livestock LLC		233216	
Bosen Land & Livestock LLC		233216	1.0
			1.1
			1.0
Devon Warrick		165211	5.7
Devon Warrick	97	181080, 205856	2.6
			0.7
John Cardis		207610	83.1
Terrel J. Porter	97	257059	
Barrett T. and Robert H. Steadman		183084, 193026	

Name	Plat Number	Parcel_Number	Acreage within BRM NHL
Lavern C. Talbot		168020	1.3
Price Family Trust	93	262430	72.0
Ivan Jorgensen	97	211866	27.1
Ivan Jorgensen		162463	8.2
Teril M Deem Etux		181206	5.7
			1.4
			0.5
			0.2
			0.2
Ivan Jorgenson		145809	6.8
Northwest Band of the Shoshone Nation		220925-32	17.2
Northwest Band of the Shoshone Nation		220925-32	4.5
Ben B. Johnson Family Farm LLC		193549	113.7
Gerald Smith	98	185568, 237933	
Spring Hollow Ranch LLC	98	195762, 227162	
Bosen Land & Livestock LLC		233216	9.9
Kelly Griffin		237083	12.8
			0.9
			0.6
Bosen Land and Livestock LLC		237030	37.3
Ben B. Johnson Family Farm LLC		193549	7.1
Lavern Talbot Family Trust	97	230142	
Lavern Talbot Family Trust		166208	11.3
			3.2
Ivan Jorgenson		227701	1.0
Lavern C. Talbot		168020	
Tylor G. Talbot		213108	13.9
Ben B. Johnson Family Farm LLC		193542	55.1
John Cardis		213116	7.4
Bobby Jorgensen		237568	2.5
Ralph S. Mortensen Family Trust		179116	14.4
R. Peterson		237109	4.6
Heber C. Swainston		192596	

2) Other public or non-profit lands within the battlefield? (Y/N), No

3) Is the information in a GIS? (Y/N)

If yes, may NPS obtain a copy of the data? (Y/N)

Yes, an ownership map has been digitized from Franklin County assessor records. It is attached to document.

II. Preservation Groups

1) Is there a formal interested entity (friends group, etc) associated with the battlefield? (Y/N)
Northwest Band of the Shoshone Nation

III. Public Access and Interpretation

1) Does the site have designated Public Access? (Y/N) (Count public roads if there are designated interpretive signs or pull-offs)

A series of interpretive displays are accessible by the public in a pull off on Hwy 91 (SW ¼ Sec 4, T15S R39E). The Northwest Band of the Shoshone Nation and the Idaho Department of Transportation have also erected a series of interpretive displays to the north of the Bear River Massacre site and overlooks the Bear River valley. The interpretive panels are also on the east side of Hwy 91 on a Idaho DOT picnic area (NW ¼ Sec 4, T15S R39E). Access to both areas is free.

If yes, what entity provides the public access (Access may occur on lands owned *in fee* or *under easement* to the above entities)

☐ Federal Government
X State Government
X Local Government
☐ Private Nonprofit organization
☐ Private owner
☐ Other

Name of entity (if applicable)

Idaho Department of Transportation

Number of Acres Accessible to the Public (size of the area in which the public may physically visit without trespassing. Do not include viewsheds.)

Visitors can drive along Hwy 91 and county roads (Hot Springs Road) that traverse the massacre site. Private lands are not accessible without permission and are fenced for cattle control.

2) Does the site have interpretation? (Y/N)

Interpretive panels are only interpretation as discussed above.

If yes, what type of interpretation is available?

☐ Visitor Center
☐ Brochure(s)
X Wayside exhibits
☐ Driving Tour
☐ Walking Tour
☐ Audio tour tapes
☐ Maintained historic features/areas
☐ Living History
☐ Website
☐ Other

IV. Registration

Applies only to the battlefield landscape, not to individual contributing features of a battlefield (i.e., the individually listed Dunker Church property of .2 acres does not represent the Antietam *battlefield* for the purposes of this exercise)

1) Is the site a designated National Historic Landmark? (Y/N)
Yes, NRHP #73000685

2) Is the site listed in the National Register? (Y/N)
Yes, NRHP #73000685

3) Is the site listed in the State Register? (Y/N)
Yes, 10FR70

4) Is the site in the State Inventory? (Y/N)
Yes

5) Is the site designated as a local landmark or historic site? (Y/N)
Yes, local landmark/historic site

V. Program Activities

What types of preservation program activities have occurred at the battlefield? Provide final product name and date if applicable.

1) Research and Documentation

Reid, K.C., K.P. Cannon, M.B. Cannon, J.L. Pederson, J.M. Peart, H. Martin, J. Blong. 2016. Archaeological Investigations of the Massacre at Boa Ogoi, Franklin County, Idaho. Report submitted to the National Park Service, American Battlefield Protection Program by the Idaho Historical Society. Review draft submitted March 2016.

2) Cultural Resource surveys and inventories (building/structure and landscape inventories, archaeological surveys, landscape surveys, etc.)

Reid, K.C., K.P. Cannon, M.B. Cannon, J.L. Pederson, J.M. Peart, H. Martin, J. Blong. 2016. Archaeological Investigations of the Massacre at Boa Ogoi, Franklin County, Idaho. Report submitted to the National Park Service, American Battlefield Protection Program by the Idaho Historical Society. Review draft submitted March 2016.

3) Planning Projects (preservation plans, site management plans, cultural landscape reports, etc.)

National Park Service, 1996, Bear River Massacre Site: Final Special Resource Study, Environmental Assessment. US Department of Interior, National Park Service, Washington, DC.

4) Interpretation Projects (also includes education)

5) Advocacy (any project meant to engage the public in a way that would benefit the preservation of the site, e.g. PR, lobbying, public outreach, petitioning for action, etc.)

Public Outreach

Professional and Public Presentations

Preliminary Results of Archaeological Investigations at the Bear River Massacre Site, Franklin County, Idaho. Presented at the 34th *Great Basin Anthropological Conference*, 17 October 2015, Boise, Idaho.

Preliminary Results of Archaeological Investigations at the Bear River Massacre Site, Franklin County, Idaho. Public presentation at the Franklin City Building, 29 January 2015, Franklin, Idaho.

Preliminary Results of Archaeological Investigations at the Bear River Massacre Site, Franklin County, Idaho. Presented at the *Utah Professional Archaeological Council* Winter Meeting, 14 March 2015, Provo, Utah.

Preliminary Results of Archaeological Investigations at the Bear River Massacre Site, Franklin County, Idaho. Presented at the November Meeting of the *Utah Statewide Archaeological Society*, 12 November 2015, Ogden, Utah.

Newspaper Articles

Bear River Massacre Site Surveyed: Shoshone Somewhat Leery of Project, 30 August 2015, by Melanie Fenstermaker, *The Herald Journal*.

Online Articles

Site of Deadliest Native American Massacre Identified in Idaho, 27 April 2015, *Western Digs: Dispatches from the Ancient American West*, by Blake de Pastino (http://westerndigs.org/site-of-deadliest-native-american-massacre-identified-in-idaho/).

The Search for the Site of the Bear River Massacre, 30 April 2015, *Archaeology: A Publication of the Archaeological Institute of America* (http://archaeology.org/news/3250-150430-bear-river-massacre).

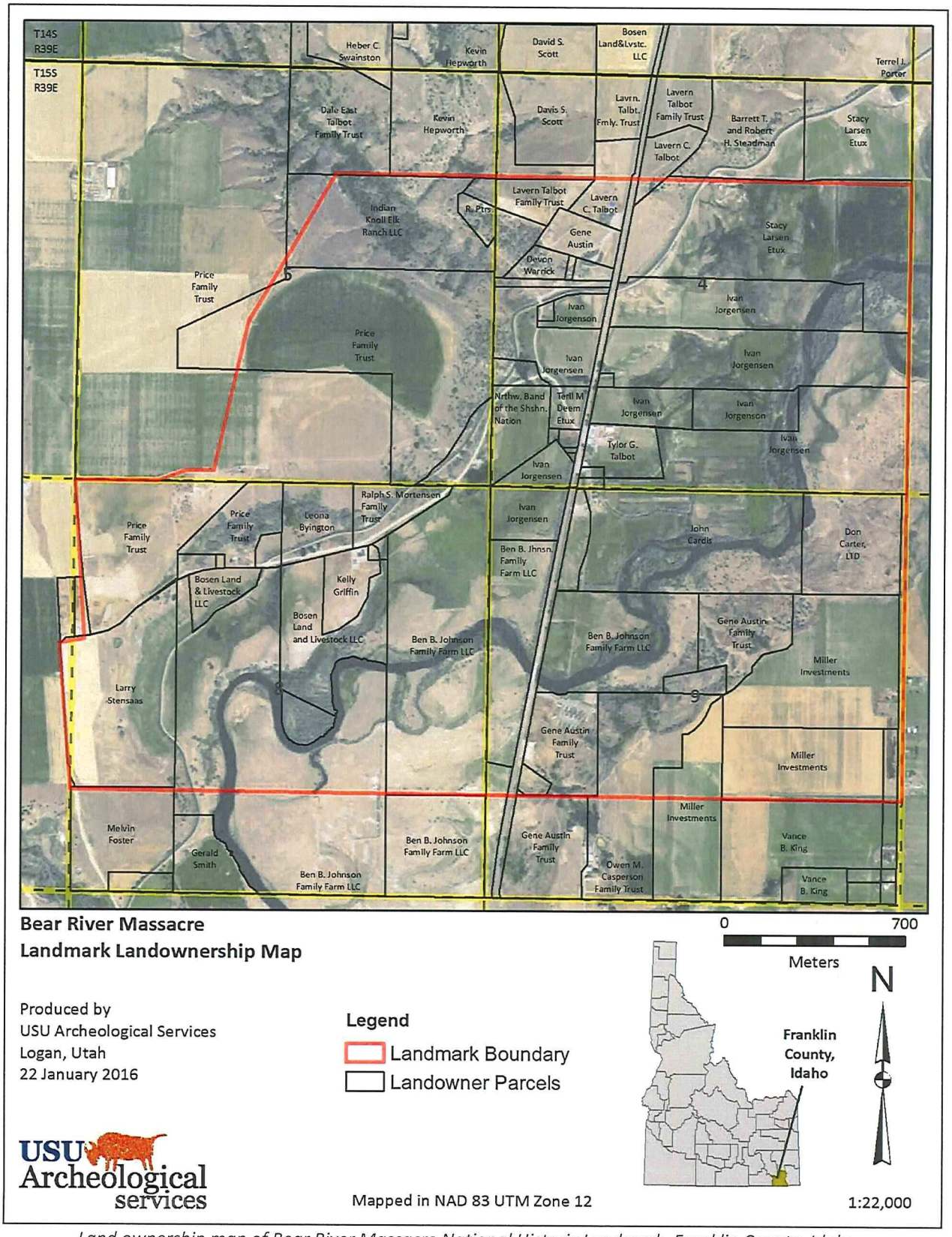
Die vergessenen Toten des Bear-River-Massakers (The forgotten victims of the Bear River Massacre), 22 June 2015, *Spiegel Online*, by Angelika Franz (http://www.spiegel.de/wissenschaft/mensch/bear-river-archaeologen-untersuchen-massaker-von-1863-a-1039486.html).

6) Legislation (any local, state, or federal legislation designed to encourage preservation of the battlefield individually or together with other similar sites)

7) Fundraising

Support for the archaeological and geomorphic investigations were provided by the *Idaho Heritage Trust* to USU Archeological Services and Dr. Joel Pederson.

8) Other



Land ownership map of Bear River Massacre National Historic Landmark, Franklin County, Idaho.

APPENDIX C:
Research Design

Research Design for Archaeological Investigations at the Bear River Massacre National Historic Landmark, Idaho, by Kenneth C. Reid, Idaho State Historical Society.

Introduction

The goals of this identification and documentation project are to (1) find and record the boundaries of the battlefield Study Area and Core Area for the Bear River Massacre National Historic Landmark; (2) complete GIS and GPS mapping of the battlefield; (3) conduct archaeological and geophysical field surveys of selected samples in the Core Area; (4) revise and update the National Register form for the property; and (5) complete Archaeological Survey of Idaho site inventory forms for sites found during field investigations.

This is intended as a collaborative undertaking involving the Idaho State Historical Society, the Northwestern Band of the Shoshone Nation, the Shoshone-Bannock Tribes, and a qualified consulting firm as subcontractor (Reid 2012). The project coincides with the sesquicentennial commemoration of the Bear River Massacre by the Northwestern Band of the Shoshone Nation, as well as the sesquicentennial celebration of the Idaho Territory by the Idaho State Historical Society. Results of the proposed project will be helpful to the National Park Service in developing a long term preservation plan for the Landmark. They will also help the Northwestern Band in their efforts to purchase title to important portions of the Landmark.

The property includes 1,691 acres. All of it is privately owned except the right-of-way for State Highway 91, and a 19-acre parcel with a seven-acre buffer purchased by the Trust for Public Land in 2003 and then transferred to the Northwestern Band of the Shoshone Nation. At least 28 landowners hold title to parts of the Landmark. For the planned field investigations in the Core Area, we have secured letters of support from the Northwestern Band of the Shoshone Nation, the Price Family Trust, Ivan Jorgensen, and Rodney Peterson.

A Bear River Massacre Site National Historic Landmark nomination form was prepared by Edwin C. Bearss and Merle Wells in 1990. A draft special resource study and environmental assessment for the Bear River Massacre NHL was prepared by an NPS team in 1995. Observations summarized in these documents were later incorporated by the Idaho Department of Transportation into an array of seven interpretive panels explaining the "Massacre at Bear River" at an overlook and turnout off State Highway 9, north of the DUP obelisk. According to the American Battlefield Protection Program's September, 2012 *Update to the Civil War Sites Advisory Commission Report on the Nation's Civil War Battlefields* (draft v.6 for public review), the Bear River Massacre National Historic Landmark is classed as having had an observable influence on the outcome of a campaign, with a land use/threat key ranked as "slow and cumulative." The condition key is graded as "little change to the landscape." The site's priority rank has been raised from 3 to 2 since 1993; in other words, from possessing short- rather than long-range landscape scale protection opportunities. The property is one of four western Civil War battlefields. However, the site has never been recorded for the Archaeological Survey of Idaho inventory and does not have a Smithsonian trinomial. It is not yet an archaeological property with defined boundaries.

Background

Early on the morning of January 29, 1863, a Shoshone village near Bear River was attacked by a force of California Volunteers under the command of Colonel Patrick Connor. Severe weather, with temperatures dipping to -20º F, two feet of new snow on parts of the ground, and ice floes clogging the river's ford hampered the attack. Passions were high on both sides, however, and day's end saw several hundred Shoshones and a score of soldiers dead or dying, the village sacked and burned, the pony herd captured, and the surviving women and children picking through the few rations left to them. The soldiers re-crossed the river and went into bivouac that night to care for their casualties. Connor began composing the after-action report that he forwarded to Brig. Gen. George Wright a week later.

His account describes a battle between roughly matched enemies, two hundred soldiers versus three hundred well-armed Shoshone warriors. He counted 224 dead Indians, and left 160 women and children with enough provisions to survive, at least in the short run.

Two days after the attack, Bishop Preston Thomas in nearby Franklin sent three Mormon settlers to the battlefield to search for survivors. One of them estimated four hundred Shoshone dead, two-thirds of them women and children, the bodies stacked eight deep in one place, three to five deep in others. He and his companions found two wounded women and three small children and brought them back to Franklin. At least two of the children grew to adulthood as adopted members of the Mormon community.

These two eyewitness accounts mark out two lanes of the trail along which most subsequent research, commentary, and commemoration about what happened on Bear River that day has traveled. The "battle" version emphasizes the movements of the troops, the ferocity of the opening hour of combat, the suffering of the soldiers in the intense cold, and the individuality of the military casualties. For example, each wounded or slain soldier is named, and his injuries detailed. The "massacre" version emphasizes the scale of the killing, the anonymity of the Indian victims, the racial hatred and sexual violence of the soldiers, and the high numbers of women and children among the dead.

The steadily expanding Bear River literature now includes several accounts of the attack, battle, and massacre (Rogers 1938, Barta 1962, Hart 1982, Madsen 1985, Miller 2008). Complete biographies are available for Connor (Rogers 1938, Madsen 1990), for Sagwitch -- one of the Shoshone chiefs who escaped -- and for Pocatello, another chief who left the village the day before the attack (Christensen 1999, Madsen 1986). The voices of Shoshone survivors and their descendents have received less attention (Woonsock 1967; Parry 1976; Turner n.d.; Crawford 2008). Other studies explore the Shoshone and Mormon historical context of the attack (Madsen 1985, Morgan 2007), or the Civil War imperatives that motivated Connor and his superiors (Josephy 1992, Grout 2008). A recent historiographic trend examines how the event has been remembered and commemorated in the 20th and into the 21st centuries (Madsen 1984, Fleisher 2004, Barnes 2008).

However, despite the attention the events of that day have received from historians, little has been done to actually locate the site of the Shoshone village or the positions of the attacking soldiers in terms of today's topography. Although general agreement exists concerning the deployment of the troops, the research described here has identified three separate locations and arrangements for the 68 Shoshone wickiups that formed the target village, all of them based on eyewitness or reliable oral testimony. Sources agree that the village itself was the core area where combat was concentrated. However, one map shows the lodges clustered along the length of Battle Creek between the bluffs and the river, a second shows them clustered north of the pony herd, several hundred meters further up the ravine, while the third shows the lodges clustered in the upper ravine above the Old Montana Road. These disparities encompass a potential linear corridor more than two km in length. They also present a situation ideally addressed with the tools of contemporary archaeology and geophysical prospecting.

Natural Setting

The study area lies at the north end of Cache Valley in extreme southeastern Idaho. The valley is formed in sediments of the late Pleistocene Bonneville delta, and drained by the Bear River. This stream, the longest river in North America that never reaches the sea, twists in and out of Wyoming, Idaho, and Utah before emptying into the Great Salt Lake. Potential natural vegetation of Cache Valley included bunchgrasses and sagebrush on the terraces, stands of western juniper ("cedar") on the bluffs, and dense thickets of willow and cottonwood within Battle Creek ravine, and along the banks and islands of Bear River. The bluffs exhibit summit concordance, with local relief of about 200 ft. Elevation of the battlefield itself is about 4,500 ft. above sea level. The study area is undergoing dynamic geological processes involving geothermal and landslide activity, the latter triggered by historic irrigation initiatives.

Battle Creek ravine lies within the Bear River Landslide Complex in northern Cache Valley (Mahoney et al. 1987). This complex has formed in unstable clays, sands, and silts. These deltaic sediments respond quickly to saturation, whether from precipitation or irrigation. Wet-weather periods such as 1981-84 have triggered numerous landslides and slope failures. Historic developments are perhaps even more significant in accelerating the pace of this impact to the Landmark. Thus, completion of the West Cache Canal in 1904 caused much of the landslide activity in the 20th century. The impact of the canal was exacerbated by construction of several reservoirs in the 1920s and 1930s. Lateral infiltration from reservoirs and distributory canals has produced artificial springs and seeps along the toe-slopes of the clay ridges. Seasonal saturation of these seams has destabilized the slopes, causing landslides. "Active" landslides (post-1960) are mapped within the upper ravine of Battle Creek between the eastern and western bluffs (Mahoney et al. 1987:Figure 8).

One other geomorphic feature requires comment. The Wayland Hot Springs Geothermal Area has an estimated reservoir volume of 1.8 km^3 with a mean reservoir temperature of 130°C. The area includes Wayland (Battle Creek) and Squaw hot springs, the latter one kilometer downstream at the mouth of Deep Creek. Both of these springs are on Bear River. Forty years ago, the Wayland Hot Spring consisted of a large pool about 6 m in diameter, a smaller pool that probably marks a collapsed travertine structure, and many vents and seeps. Cold water seeps

flow into it at a rate of 5/10 liters per minute. Riverbed vents are marked by gas bubbles that lead the unwary to think the water is boiling. The springs have been used historically for recreation, for heating hog houses, and for scalding hog carcasses (Mitchell 1976:19). Travertine spring deposits resembling collapsed concrete occur locally along both sides of Bear River, and were observed by the author during field visits along the western bank of lower Battle Creek. However, the hot springs that were of significance to the 1863 Shoshone village were reportedly located some distance up Battle Creek, northwest of Corner E mapped by the NPS on the Landmark pentagon.

Historic Context

Cache Valley supported a succession of quite different land use patterns early in the 19th century. Canyons and ravines warmed by geothermal vents were sought out by Shoshones for their winter lodges and to shelter their pony herds. Obsidian debitage and pieces of fire-cracked rock observed by the author at places within the **Study Area** hint that this pattern has considerable but unknown time depth. A review of the prehistoric archaeology of the Bear River basin reveals occupations focused on big game hunting and obsidian procurement dating to between 7300 and 1300 years ago. Ceramic evidence of more recent Northern Fremont, Promontory, and Protohistoric phases suggests that the Numic ancestors of the Northwestern Shoshone had a long acquaintance with southeastern Idaho. During the 1820s and 1830s, trappers with the Hudson's Bay and American Fur companies exploited the pelt wealth of Cache Valley. The stream now known as Battle Creek was called Beaver Creek in 1863, and the valley takes its name from equipment caches left there by trappers in the 1830s.

Mormon pioneers colonized the valley from the south during the 1850s. As plowed fields and cropped pastures expanded, the hunting pressure on the valley's game increased. Economic pressures led to unstable interactions of charitable handouts and threatening demands between the Mormon settlers and the increasingly desperate and defiant Shoshones. The Indians pretended to be friendly, and the Mormons pretended to take care of them, but neither pretense was very reassuring to the opposite party.

Before the Civil War broke out, Cache Valley experienced only a fleeting federal presence. The Beaver Creek area may have been visited in August-September 1859, when a regular army patrol of two companies from the 7th Infantry and 2nd Dragoons, later joined by two companies from the 5th Infantry and 10th Infantry, formed what became known as the Bear River Expedition under Major Isaac Lynde. Traffic along the Oregon Trail that year was heavy. Lynde estimated 300 wagons per day with an average of four persons to a wagon, accompanied by at least 7,000 head of stock. His patrol extended a measure of security for emigrants entering the upper Snake River Plain from South Pass.

The reaction of Mormon settlers to the military presence was mixed. Some felt the soldiers added to the region's tensions without resolving them, stirring up just enough trouble to provoke Indian retaliation on isolated farms. Mormon policy emphasized nonviolent displacement of the Shoshone from their traditional lands while compensating them with food for their losses. It is better to feed them than fight them, cautioned Brigham Young.

The army patrols followed close on the heels of the Utah Expedition of 1857-1858, which almost resulted in war between the Utah Mormons and the Federal government. By the early 1860s, regional tensions and frictions existed along four separate axes: between the Mormon settlers and the Federal government, between the Mormon settlers and the Shoshones, between transient emigrants and miners and the Shoshones, and, on behalf of the emigrants and miners, between the Federal government and the Shoshones.

Following the outbreak of the Civil War in 1861, budget reductions to the Utah Superintendency were keenly felt by the Shoshones, who had become increasingly dependent on Federal assistance. Denied both traditional game resources and government rations, the Indians turned toward booty. By the early 1860s, depredations along the emigrant trails and mail routes had become frequent and severe enough to provoke military retaliation. In one week in October, 1862, Major McGarry's cavalry patrols captured and disarmed between 30 and 40 Indians. No fewer than 24 of them were executed as hostages or shot while attempting to escape.

Tensions and frictions worsened steadily in 1862. In December, the murder by Shoshones of a few miners on the Old Montana Road near Bear River provided Connor with an excuse to act. Determined to permanently secure the several lines of communication and travel that converged near Cache Valley, Connor planned a winter campaign, night approach, and dawn attack on the large Shoshone village reported near Bear River. Plans were developed with care, secrecy, and chilling finality. During the last week of January, 1863, his columns left Fort Douglas, the infantry marching by day, the cavalry by night. He was accompanied by Utah's territorial marshal, Isaac L. Gibbs, with warrants for the arrest of three Shoshone chiefs. Also accompanying Connor were Porter Rockwell, the noted Mormon guide and frontiersman, and Zachias Van Ornum, uncle to the former captive (Shannon 1993:172).

Battle and Massacre

Before examining the attack and its consequences, we should address two questions that have structured much of what has been written about Bear River. The first is tactical, spatial, and empirical, and concerns the order of battle of the combatants. Who was where, and when? The second is cultural, historical, and moral, and concerns the rules of engagement that guided behavior during and after battle. Our focus here will be on spatial questions and Landmark boundaries, but any long-term perspective on interpretation and commemoration will have to address the moral dimension.

The identity, command structure, strength, equipment, and disposition of the personnel and units participating in field operations constitute the order of battle at Bear River. Generally, this information is more complete for the victors than the scattered and demoralized losers. This certainly seems to be the case with the Bear River data. We have detailed written records from participating soldiers, Mormon eyewitnesses, and a newspaper reporter, but only fragments of testimony, often second- or third-hand, from thoroughly traumatized Shoshone survivors and descendents. These fragments have been woven over time into an oral tradition that is

emotionally faithful to the tragedy at Bear River without necessarily being factually accurate (Barker 2007).

This imbalance in testimony is even more pronounced for the rules of engagement followed by the combatants. Before focusing on the battle itself, the question of massacre needs to be addressed. A monument commemorating the "battle" at Bear River was dedicated at the site in 1932 by the Daughters of the Utah Pioneers. For half a century, the marker drew little attention or controversy. Then, during a public meeting in 1989, the National Park Service called for a vote in which it was unanimously agreed to rename the site the Bear River Massacre National Historic Landmark. Still more recently, a feminist scholar has urged that the Landmark be renamed again, this time as a site of massacre and rape. Citing 20th century examples of ethnic cleansing, she asserts that a mass rape following the massacre "was a necessary guarantor that this most valuable Cache Valley real estate had been thoroughly cleared of those who disputed European American claims to the property" (Fleisher 2004: 247). Clearly, changes in the country's racial and cultural tone have made it expedient to no longer refer to what happened at Bear River as simply a battle.

However, at the time of Connor's campaign, no formal rules of engagement were available for either soldiers or Indians in the frontier wars. Nevertheless, certain constraints and norms were beginning to be expected of combatants on both sides. For example, a few weeks before Connor's attack, thirty-eight Dakota men had been hanged at Mankato, Minnesota, in what remains the largest mass execution in American history. Following suppression of the 1862 Dakota uprising, more than three hundred prisoners had been sentenced to death, with trials sometimes lasting less than five minutes. After reviewing the evidence, President Abraham Lincoln commuted most of them.

Two criteria guided his clemency. The first was "violation of females." In his message to the senate explaining his reasoning, Lincoln acknowledged that "Contrary to my expectations, only two of this class were found. I then directed a further examination, and a classification of all who were proven to have participated in *massacres*, as distinguished from *battles*." Victims of massacre are generally held to be innocent, helpless, or both. Battle casualties result from people making a conscious choice to wage war. The Dakota battle participants were spared, while the massacre perpetrators were hanged. The president did not define what he meant by massacre, and presumably assumed a common understanding with the senate, if not with the Dakotas.

Lincoln's concern with rules of engagement found full expression in his General Orders No. 100, issued on April 24, 1863. These orders marked the first formal attempt to codify the moral expectations of soldiers involved in "public" war, and became the basis for subsequent codes of military conduct, including the Hague and Geneva conventions. The general orders were developed in partial response to Confederate reprisals against captured black Union soldiers. However, nothing in them refers specifically to Indian warfare, the conduct of which seems to have been considered an entirely separate undertaking with rules and expectations determined by participants.

In any case, General Orders No.100 was issued almost three months after the Bear River attack (Witt 2012:245). Had the orders been available to Connor, he might have defined the Shoshone as the "armed prowlers" discussed in Section IV, toward whom no mercy was to be granted. However, Section II: 44 provided protection for women and explicitly and unambiguously forbade rape. After April 24th, the orders were distributed down to company grade officers in the Union army, and even to their Confederate counterparts. Some officers decided that they applied at least in part to Indians. Others did not. These disagreements within the military received wide notice after the Sand Creek massacre in Colorado Territory, twenty months after the Bear River attack (Michno 2004).

Similar disagreements within the military dogged Connor in his next campaign. Setting out on the Powder River expedition two years later, he issued written orders to his subordinate commanders to "kill every male Indian over twelve years of age" (Van de Logt 2010:64). The order was viewed as "atrocious" by his division commander and quickly countermanded. However, Connor also stipulated that "No outrages will be perpetrated upon their women and children, neither will they be killed" (Rogers 1938:156). Before he led the attack on the Arapaho village on Tongue River in the summer of 1865, Connor again emphasized that women and children were to be spared, an order obeyed by the soldiers but ignored by his Pawnee Scout company.

Connor's injunctions may have been prompted by awareness of Mormon criticisms of his men's conduct at Bear River. Independent witnesses report that some Shoshone women were "outraged" on that January afternoon. It is not clear from the accounts whether this refers to the older girls and women who were killed, those who were briefly captured (and spared), or to both groups. Fleisher (2004:199-213) expressed frustration at her inability to coax a Shoshone woman (and tribal historian) descended from massacre survivors to acknowledge these assaults. Perhaps a more ethnographically attuned interviewer would have sensed why a massacre descendent might not want to claim descent from a California rapist. In any case, and contrary to Fleisher's assertion, I have found no historic evidence to support the claim that mass rape was sanctioned as part of a pacification doctrine or ethnic cleansing strategy at Bear River or in the Cache Valley.

Shoshone rules of engagement are as ambiguous as their order of battle. Historians often cite primary sources regarding Indian torture, atrocity, and dismemberment, but these topics are typically passed over in ethnographies. A reluctance by anthropologists to address violent conduct within their study populations has been acknowledged within the profession (Ortner 2006). Certainly, the distinction between criminal and military violence that Lincoln's general orders groped toward was not always meaningful to Indians (Witt 2012:88-93). Rape, scalping and other dismemberments, ceremonial display of trophy body parts, and the highly unpredictable fates of captives, ranging from torture or enslavement to adoption and enculturation, are documented in emigrant accounts and army reports, though perhaps exaggerated in contemporary newspaper accounts.

Encounters between the military and the Shoshone were not invariably violent. The Indians sometimes demonstrated a willingness to parley, especially when outnumbered or outgunned. Parleys were sometimes initiated as tactical stratagems. The Indians were familiar

with and used flags of truce. When hostages were surrendered or captured, the Shoshones sometimes complied with the soldiers' demands and sometimes ignored them and sacrificed the hostages.

The evidence at Bear River suggests the villagers had several hours warning of the approaching troops. It is not clear whether Pocatello with his contingent left before or after this alarm. Sagwitch may have hoped to negotiate with Connor, but Bear Hunter's people apparently decided that defending the village was preferable to abandoning it in harsh weather. The small size of the pony herd and the condition of the animals in late January should also be remembered. Even under ideal conditions, only about half the village could have left on horseback before the attack began.

Order of Battle: U. S. Volunteers. Connor's force included approximately 300 soldiers, two thirds of whom participated in the battle and subsequent massacre. The total force included 220 men from Companies A, H, K, and M of the 2nd Cavalry, California Volunteers, with ten officers and accompanying staff, Isaac L. Gibbs, a civilian marshal with arrest warrants for three Shoshone chiefs, and Porter Rockwell, a Mormon guide. A second unit under Captain Hoyt included 40 men of Company K, 3rd Infantry, California Volunteers, two mountain howitzers commanded by a lieutenant, a mounted escort of 12 men detailed from the 2nd Cavalry, and 15 wagons carrying 20 days' rations for the men and horses.

Colonel Patrick Edward Connor was the commanding officer of the 3rd Infantry, California Volunteers, and commanded the force as a whole. He was a citizen soldier rather than a professional officer, but had performed well in heavy combat sixteen years earlier at Buena Vista. Major Edward McGarry commanded the 2nd Cavalry, California Volunteers, and functioned as Connor's executive officer. McGarry was aggressive, impetuous, and sometimes drank heavily while in the field. His reports indicate that he grouped hostile Indians with "guerrillas" and was merciless toward both.

A word about the U. S. Volunteers is appropriate here. These units were raised in the western territories during the Civil War to supplement the small number of regular army regiments available for frontier duty. Unlike state militias, the term of enlistment was not limited to one hundred days, and they could participate in operations outside the territories where they were raised. It has been estimated that the nine regiments of California Volunteers recruited during the Civil War killed more Indians in five years than the ten regular army cavalry regiments did between 1850-1890 (Michno 2007:358). Of these California regiments, the 2nd Cavalry participated in the largest number of engagements (28) and caused the highest number of casualties (786). The term casualty here will be used to include killed, wounded, captured, and missing as a result of hostile action.

Connor's officers and cavalrymen were armed with revolvers and issued 30 rounds of ammunition. Barta (1962:84) says that two of Connor's companies were armed with muzzle-loading cap-and-ball Whitney rifles that fired a 41 caliber spherical lead ball, with the rest "probably" armed with converted rifle-muskets and "Springfield '58" rifles that fired the conical 58 caliber Minié ball. By "Whitney" rifle he meant the U.S. Model 1841 Harpers Ferry rifle,

many of which were supplied by Eli Whitney's factory. It fired a half-ounce spherical lead ball using 75 grains of powder, achieving a muzzle velocity of 1,850 ft./sec (Rosebush 1962).

The "Springfield '58" rifles were either of that caliber and made at that armory, or Model 1841 rifles adapted to accept that caliber. Both the Harpers Ferry and Springfield armories also manufactured the Model 1855 58 caliber rifle-musket. This was first used during Steptoe's campaign on the Palouse, and saw wide employment by the Union army during the first years of the Civil War. All of the Volunteers' shoulder arms fired a conical, 500-grain, lead Minié bullet and used paper cartridges and brass percussion caps. The Springfield had an effective range of 500 yards and a rate of fire of two rounds per minute. The ammunition issue was one cartridge box of 40 rounds per man.

Records from the Benecia Arsenal show that the 3rd Infantry, California Volunteers, received their arms at Stockton, California in late September, 1861. An inventory of arms at that arsenal early in 1860 indicates that 7,252 Model 1855 rifle-muskets and 4,754 Model 1841 rifles were on hand (Patrick Mahoney, personal communication). The numbers were expressed as "stands," which included the weapon, ramrod, and bayonet. However, nearly half the Springfield 58s at Benecia had been shipped east before the Californians were armed. Thus, an order of July 23, 1861 to the Department of the Pacific directed that "3,000 stand (sic) of arms, now in store on the Pacific, be shipped to New York, as they are very much needed there."

Other correspondence from ordnance officers at the Benicia Arsenal between 1861-1863 includes references to "Colt naval" pistols, and complaints concerning the generally obsolescent weapons on hand. A month after the attack at Bear River, Connor wrote that the Whitney rifles issued to two of his cavalry companies were difficult to load and carry on horseback, and that the revolvers were badly in need of maintenance. In addition, many of the Conbien cartridges were "too short for those pieces, and some entirely useless" (Orton 1890:174).

Order of Battle: Shoshone defenders. A composite band form of social organization emerged among the western Shoshone for a brief period in the 1850s and 1860s (Steward 1938), and elements of at least three separate bands made up the Shoshone village on Beaver (Battle) Creek. A band became "composite" when more than a hundred Indians of two or more unilineal bands became co-resident. Walker (1999) sees emergent stratification among the western Shoshone at this time, with camps comprising shifting mixtures of an equestrian, bison-hunting elite, a secure "middle class" supported by the reliable salmon fisheries below Shoshone Falls, and a poor pedestrian proletariat subsisting on seeds, insects, and small game.

In the mid-nineteenth century the Cache Valley Shoshone comprised a single composite band that wintered in two villages, one near the confluence of the Logan and Little Bear Rivers, the other on Battle Creek. When the latter group had been reduced to no more than twelve families after the massacre, they were known as "fish eaters," *Paŋgwidüka*. Steward (1938:218) cites an 1874 source that lists two Cache Valley bands. The San'-pits band numbered 124, the Sai'-gwits band, 158. Steward surmised that the pre-massacre Cache Valley population wintered in more than these two places.

The 1863 village at Battle Creek represented a composite band that included both of these groupings, or at least 282 people. Six months after the massacre, Superintendent Doty listed 11 Shoshone bands representing between 3,000-4,000 people as participating in the Treaty of Fort Bridger. According to Doty, the chief of the Ash'ingodim'ah's band had been killed at Bear River, along with most of the Sanpitz and Sagowitz bands.

The village horse herd numbered between 175-200. If the horses were equally distributed among the lodges, it breaks down to about three horses per lodge. Assuming an average of six persons per lodge and a village population of about 400, the horse: person ratio was about .5. By comparison, the fully equestrian Northern Shoshone enjoyed ratios of 1.8-2.0 (Ewers 1955:Table 2). Thus, it seems likely that even with at least twelve hours forewarning of the approaching soldiers, it would have been difficult to move much of the village out of the ravine toward safer campsites.

We know little about Shoshone weaponry. None of the captured arms were described in any detail in the primary sources. The Indians were probably outfitted with a wide range of firearms of varying caliber and range, derived from many sources. Although breechloaders using metallic cartridges were coming into general use on eastern battlefields by 1863, the cost and availability of cartridges weighed against their use by native populations in the west. The most common shoulderarms included flintlock trade guns, the Northwest gun, cut-down military muskets, and both half-stock and full-stock flint and percussion rifles, with calibers ranging from about .45 to .70. With a flintlock, only powder and lead were necessary. However, the percussion weapons required small brass caps, probably acquired in limited quantity through trade or warfare. Shoshone ammunition seems to have begun to give out after the first hour of fighting.

In his after-action report, Connor states that "…the enemy had about 300 warriors, mostly well armed with rifles and having plenty of ammunition." Support for this figure comes from an annotation on the contemporaneous Martineau map citing "308 braves." The Indians occupied winter lodges clustered on the floor of the Beaver Creek ravine. At this season, the Shoshone winter houses were probably the willow-framed, grass-fringed domes described by Wheat (1967:103-111). Lodge counts vary between 68 and 70(+).

One newspaper reporter said four lodges were placed along the eastern rim of the ravine as a "blind," presumably either to draw fire or to conceal firing positions within the ravine. A second report described "principal" lodges banked with earth and rock and containing fighting holes for four or five warriors. The "rock" might have been pieces of the cement-like travertine or mineralized sediment that form part of the west rim of the lower ravine. If each of the 68 lodges held four or five warriors, the total fighting force would have included between 272 and 340 men.

However, ethnographic evidence argues for a more conservative number. Assuming one fighting man and one adolescent boy per lodge gives a force of about 140 warriors defending the ravine, less than half the number given by Connor and Martineau. All sources agree that the ravine was deep and that the sides were stepped or benched to provide firing platforms offering good cover and concealment.

In earlier encounters with Connor's forces, the Indians had used terrain and barrier fortifications such as stacked rock walls to good advantage. Connor described the Indian position on Beaver Creek as "a deep dry ravine from six to twelve feet deep and from thirty to forty feet wide, with very abrupt banks running across level table-land, along which they had constructed steps from which they could deliver their fire without being themselves exposed. Under the embankments they had constructed artificial covers of willows thickly woven together, from behind which they could fire without being observed." The Shoshone shooters had the advantage of both cover and concealment. Probable disadvantages included a lack of standardized weapons firing the same caliber ball, lack of weapons with the range to cope with the army's new Springfields, and insufficient ammunition for a prolonged engagement.

Shoshone chieftains included, at a minimum, Bear Hunter, Sagwitch, Sanpitch, and Lehi. Oral tradition reports that following a foreboding dream, the prophet Tin Dup left camp with several families two days before the attack. We know nothing about the decisions made by band leaders, or any disagreements or confusion among them as the battle developed. Whether Pocatello conferred or argued with any of them before his band's departure the day before is unknown. The village had been aware of the approaching troops since late the previous afternoon. Oral tradition says that Sagwitch, rising early, spotted a cloud of steam or snow on the Red Clay Bluff and watched it descend toward the ford. He guessed that snow plumes or breath clouds meant cavalry horses, and alerted his warriors. In this account, he cautioned them against opening fire and still hoped for negotiations.

Sergeant Beach's map, drafted two weeks after the attack, shows the village distributed continuously upstream from the confluence of Beaver Creek ravine and Bear River. However, the James Martineau map, drafted a day afterward, shows a dense willow thicket at the mouth of the ravine, with the pony herd located immediately to the north of the willows, and the lodges positioned still further north of the herd. Finally, the Aitken map, which seems to incorporate much local lore but was drafted 63 years later and without access to either the Beach or Martineau sketches, shows the village concentrated north of the Old Montana Road in the upper ravine of Battle (formerly Beaver) Creek. In the reach where Beach and Martineau place most of the lodges, Aitken shows a "warrior's ambush" behind a "natural breastwork 10' high" along the eastern rim of the lower ravine.

Archaeological fieldwork can best address these uncertainties. The key observation that Aitken made was his recognition that the Bear River had meandered several hundred meters to the south of its 1863 course by the time of his survey in 1926. He mapped an "old Bear River stream" cutoff channel visible today on Google Earth. This can serve as the anchor point for battlefield survey transects to the north, in the direction that all sources agree the lodges were located, and to the east and west, where much of the incoming gunfire originated. The present course of the lower ravine of Battle Creek, south of today's Hot Springs Road, is probably an artifact produced by excavation of the West Cache Canal between 1898-1904.

The Battle. Due to delays in finding a local guide to the ford, Captain Hoyt's column of infantry and the mountain howitzers left Franklin at 3 a.m., two hours behind schedule. Hoyt

was overtaken by Connor and the cavalry about four miles south of Bear River, just before dawn. Connor sent McGarry and the cavalry forward, with instructions to surround the village before attacking it. No explicit orders are recorded for cutting off the Indians' pony herd, which may not have been visible inside the ravine. Thus, Madsen's (1985) map showing the Shoshone horse herd on the open terrace southwest of the village is not supported by primary sources. The two mountain howitzers in Hoyt's column became hopelessly bogged down in the snow. Connor was still shepherding Hoyt's floundering force forward toward the Red Clay Bluff when McGarry's cavalry forded the river, just before dawn.

Several eyewitnesses agree the Indians were aware of the impending attack, and that before the firing began at least a few warriors rode back and forth on the east side of the ravine waving fresh scalps and shouting taunts toward the "California sons of bitches." This may have been another of the mounted "war circles" commented on during earlier engagements with the Shoshones. Bear Hunter's warriors would not have seen soldiers descending the Red Clay Bluff toward the ford much before 8 a.m. It is unlikely that actual combat began before sunrise. The numerous fatal wounds to the head, heart, lungs, and chest recorded by Surgeon Robert Reid for the opening moments of the battle indicate that the Shoshones could clearly see their targets.

The attack occurred twenty years before time zones became established, and Connor's statement that combat began at 6 a.m. corresponds to today's Pacific time zone. At Bear River on January 29, the sun rises at 7:44 a.m. and sets at 5:36 p.m. Daylight lasts 9 hours and 52 minutes. The twilight period when the general outlines of ground objects can be distinguished and movement of troops becomes feasible begins at 6:41 a.m. and ends at 6:40 p.m. In other words, Connor had 12 hours to get his force across the river and then back again and into camp before full dark.

McGarry's four companies of cavalry probably forded the ice-clogged river and began their approach to the ravine between 6:40 and 7:40 a.m. The major's instruction was to surround the village before "chastising" it. However, as the Volunteers neared the rising smoke of the Shoshone campfires, warriors sallied out on foot and horseback to engage them.

This was not the first time McGarry and Bear Hunter had faced off against each other in Cache Valley. Nine weeks earlier, McGarry's cavalry had skirmished with Bear Hunter and "twenty or more" of his warriors. The fight began with "a warlike display, such as shouting, riding in a circle, and all sorts of antics known only to their race," and ended some time later under a flag of truce. McGarry held Bear Hunter and four other men hostage for a day until a captive ten-year-old boy was surrendered. The boy was thought to be Reuben Van Ornum, the kidnapped survivor of an emigrant train ambush three years earlier, although the Shoshones later said he was actually the son of a French mountain man and a sister of the Eastern Shoshone Chief Washakie. The boy's purported uncle, Zachia Van Ornum, accompanied Connor's force on the day of the attack.

Early in December, McGarry was again on the lower Bear River, attempting to retrieve stolen emigrant stock rumored to be held in the Shoshone village. Again he seized four hostages, promising to shoot them if the animals were not returned. On this occasion, the Indians simply relocated their village to the north, and the hostages were shot. In neither of these engagements

did McGarry's cavalrymen suffer any casualties. Their experiences amounted to bloodless bullying rather than battle for the soldiers, and may have contributed to the fatal overconfidence evident in the major's approach to Bear Hunter's positions on January 29th.

McGarry ordered his men to dismount and detailed the "number fours" to the rear to hold the horses. Company officers remained mounted to set examples to the men, and direct their fire. The soldiers, now reduced in strength by a quarter, continued through the snow toward the village. It is uncertain whether they moved on line or followed the Hardee tactical manual and broke down into separate skirmishing parties of four. In any case, they clearly had not surrounded the village as Connor had ordered. Instead, they had allowed themselves to be drawn into heavy and premature contact on its eastern and most defensible flank. The Shoshone were fully prepared for them and probably began firing at ranges of less than 200 yards.

Most of the fallen cavalrymen seem to have been hit in this initial fusillade. The heaviest casualties occurred in Companies K and M of the 2nd Cavalry. The Indians also may have seized a few of the cavalry horses in the melee. (Witnesses later agreed that as many as twenty warriors escaped as the battle intensified, some of them on captured mounts.) The stunned cavalrymen fell back toward the foot of the East Bluff where most of the horses were still held, and where the surgeon set up an aid station for the wounded. Marshall Gibbs, his arrest warrant for the three chiefs now stuffed in his pocket, helped the surgeon care for the casualties. Given the range advantage of their Springfields, the cavalrymen may have kept up their fire on the Indian positions as they retreated.

By this time, less than an hour into the battle, Connor had abandoned the howitzers, crossed the river, and taken command. He sent the "number fours" with the horses back across the river to ferry Captain Hoyt's infantry company across the ford, then ordered McGarry to take twenty men and move northwest across the Upper Ravine to enfilade the Shoshone position. The howitzers remained stuck in heavy snow somewhere between Franklin and the Red Clay Bluff, and made no contribution to the battle. Connor sent Hoyt's infantry across to reinforce McGarry's enfilading sortie. They probably followed the route of the Old Montana Road and crossed to the western side of the ravine on a log bridge. Finally, as Shoshone resistance gradually collapsed, cavalry companies closed in on both sides of the Lower Ravine to cut off escape to the river.

The Massacre. Within the willow "jungle" that floored the ravine, the fighting degenerated into lodge-to-lodge slaughter with revolvers and bayonets. Participants agree that visibility was hampered by the heavy vegetation. The cow-sized clouds of white smoke produced by each gunshot must have contributed to the close-quarters confusion. The fact that 160 noncombatants were spared and at least minimally provided for afterward might be interpreted to mean that many of the slain women and children were simply trapped in the wrong place at the wrong time. Nevertheless, whether he intended it or not, given the volume of gunfire pouring into the ravine from three directions, Connor must have foreseen that many helpless Indians would be killed.

Active fighting ended by about noon, although isolated killings, pillage, and rapine continued throughout the early part of the afternoon. Connor used the last hours of daylight to

collect lodgepoles from the village for that night's fuel, complete the destruction of the wickiups, round up the Indian pony herd, complete a partial count of the Shoshone dead, attempt to identify the dead chiefs, tally and provision the Shoshone survivors, and move his casualties back across the river to the bivouac at the foot of the Red Clay Bluff. None of the military dead were left on the battlefield. Connor's casualties included 23 dead or mortally wounded and 49 men with wounds the surgeon thought would heal. "Command and control" casualties included one major, one captain, two lieutenants, five sergeants, three corporals, and one bugler, or about 18% of the total. The 73 soldiers with gunshot or arrow wounds represented more than a third of the attacking force, a testament to Shoshone marksmanship. In addition, at least 75 cases of frostbite were treated by the surgeon. The infantrymen of Company K, 3rd Infantry, suffered the highest incidence of frostbitten feet, perhaps because they wore brogan-style shoes instead of the knee-boots of the cavalrymen.

Connor's after-action report tallies 224 Shoshones killed and 160 women and children captured. Bear Hunter's tortured and mutilated body was identified among the dead, but the fates of the other band headmen could not be confirmed. The count of Indian dead was left unfinished because of the need to care for the wounded soldiers. Sagwitch was wounded but escaped by swimming downstream. He lived on to become a Mormon bishop and widely respected tribal elder.

In 1904, William Nelson recalled that his brothers Edmund and Joseph had led the soldiers across the river and "up the creek to the Indian camp." When he visited the site on the afternoon of the massacre, he again said that after crossing the river he went "up the creek where the battle was fought. The wicky-ups were made with poles, willows and wheat-grass stood up on end. All of these that had not already been burned were then burning…I counted the dead Indians, 76 in all, in the bottom of the creek hollow and it is quite likely that a good many were killed in the bushes on the creek bank. The soldiers said that they had killed a great many while they were wading the river to get out of their way" (Hart 1982:).

William Hull inspected the battlefield two days later and estimated 400 dead Indians, two-thirds of them women and children. This breaks down to about 234 women and children and 136 men. Barta (1962) accepts Connor's estimate of 300 warriors in his account of the battle. However, it seems indisputable that many of the dead counted by Connor's officers were women and children. If we assume that the remaining third tallied by Hull were combatant warriors, that number should be about 136, close to our earlier two-fighters-per-lodge estimate. Finally, witnesses agree that about 20 mounted warriors escaped to the north, suggesting an initial Shoshone fighting force of about 156 men.

The only casualty figures available from a Shoshone source are secondhand, but virtually contemporaneous with Connor, Martineau, and Hull. Thus, in Salt Lake City eighteen days after the attack, Indians told James Doty, superintendent of Indian affairs for Utah Territory, that 255 men, women, and children had died at Bear River, most of them from Bear Hunter's and Sagwitch's bands (Morgan 2007:295).

Rifles, muskets, and revolvers accounted for most of the casualties. The surgeon's report says only one soldier was wounded by arrows. Connor mentions the "fine" firearms of at least

some of the Shoshone, and they may have acquired a few U.S. Model 1861 rifle-muskets or carbines by 1863. However, taken as a whole, the range, accuracy, and rate of fire of the soldiers' weapons were certainly superior, and their ammunition much more abundant. Bear Hunter himself is reported to have been killed as he poured lead into a mold to make another bullet.

A newspaper reporter interviewed several of the participants shortly after the attack and described Shoshone lodges "…covered with canvas wagon covers – many of them bearing the names of the owners – while blankets, combs, looking glasses, and cooking utensils pertaining to civilization were found there in abundance." Captured provisions from the ravine included more than 1,000 bushels of wheat and an unspecified but large amount of flour, potatoes, beef, and even live chickens, all recently provided to the village by nearby Mormon settlers. Most of this booty was gathered in heaps and burnt, along with stores of native seeds and "nuts," presumably of pinyon or limber pine.

Of the roughly 200 ponies tethered within the shelter of the ravine, 175 were captured. The soldiers also seized buffalo robes, beadwork, pipes, tomahawks, knives, arrows and other native goods as trophies and souvenirs. The *Sacramento Daily Union* reporter ("Liberal") states that Shoshones were well armed with fine rifles and abundant ammunition. He does not describe a massacre of women and children, but says that "The squaws and papooses, as soon as they discovered that the soldiers did not intend to molest them, seated themselves on the bank of the ravine and feasted on their pine nuts as if nothing had occurred."

Nelson's testimony is consistent with the Aitken and Martineau maps in that he and his brothers had to move "up the creek" some distance from the confluence with Bear River before they came upon the village. However, Sergeant Beach's map is inconsistent with all of these sources in showing the village located at the mouth of the ravine.

The soldiers returned to Camp Douglas. The Shoshone survivors dispersed in different directions. After the massacre, Mormon settlers expanded north from Franklin to small communities at Clifton, ten miles northwest of Beaver Creek, and Oxford, 18 miles to the northwest. However, Indian raids between 1864-1866 made these settlements perilous. Log forts were built and abandoned, followed by a general withdrawal to Franklin. Northern Cache Valley did not become safe enough for homesteading until the spring of 1867 (Hart 1982:337-338).

Afterward

Significant post-massacre developments at Battle Creek include the brief appearance of a town of the same name, followed a few years later by a major irrigation development. The affect of the town's construction on the battlefield remains unknown, but the new canal radically destabilized slopes and accelerated landslide impacts.

By 1878, fifteen years after the battle, a narrow-gauge track known as the Utah Northern Railroad reached as far north as Battle Creek from a point of origin at Ogden. Within three years

the Battle Creek terminus became a diversion point. Between 1881-1886 this hub included an eight-stall roundhouse for the engines, repair shops, company houses and quarters, a store, a hotel, an amusement hall, two saloons, and about fifteen dwellings. The railroad began moving its buildings to Eagle Rock (Idaho Falls) in 1886, and took up the tracks in 1890. The entire community packed up and followed the company northward. Presumably, some archaeological traces of this brief boom still remain to be found within the boundaries of the National Historic Landmark.

Local farmers formed the West Cache Irrigation Company in 1898 and began the excavation of the West Cache Canal that year. It was completed in 1904. The course of the canal runs across the National Historic Landmark from northeast to southwest at about the 4500' contour line. The canal company remains in business and a review of their excavation records should be included in the historic background research.

The 1926 Aitken map shows a "monument site" at the toeslope of "Cedar Bluff," west of the ravine and overlooking the "Indian Village." However, it is not clear what Aitken meant by the term. Perhaps this was an earlier proposed location for the obelisk erected off State Highway 91 by the Daughters of the Utah Pioneers six years later. The obelisk is a typical example of the free-standing stone or concrete monuments typical of European battlefields (Carman and Carman 2006:188).

Finally, floods and "gully washers" erupting out of upper Battle Creek from rain-on-snow events and irrigation-triggered slope failures during the 20th century have probably capped parts of the battlefield in alluvium and colluvium. One particularly severe flood in about 1911 is said to have completely mantled the site, "making relic collecting difficult" (Hart 1983:117-118).

Tribal Perspectives

With this as background, but before turning to the research design proper, it is appropriate to acknowledge tribal perspectives on the Landmark and its significance. The Northwestern Band of the Shoshone Nation has purchased a small foothold within the Landmark, and hopes to eventually acquire the entire site. The property is viewed not only as the scene of an historic tragedy, but as a place of spiritual renewal and the appropriate location for periodic ceremonies of commemoration and healing.

Particular reverence refers to the area's long use as a dance ground. Mae Parry, descendent of a massacre survivor, reports that a communal warm dance was held at Bear River early in January, 1863, three weeks before the attack. According to her testimony, this dance was attended by many more Shoshones than those present on the day of the attack. Jason Walker, the current chairman of the Northwestern Band of the Shoshone Nation, has shared similar stories, and expressed the hope that battlefield survey may define the likely locations of the traditional dance grounds. This is not a terrain feature normally included in KOCOA matrices (Table 1), and merits some additional discussion and justification as a research objective.

Steward (1943:287, 349) describes the "warm dance" (*yuwai nükai*) as a variant of the circle dance, the most widespread communal dance in the Great Basin. His informants told him that it was introduced to the Shoshone by visiting Nez Perce about 1880, nearly a generation *after* the Bear River massacre. The dance occurred in winter for the purpose of bringing a warm wind. His Lemhi and Fort Hall informants agreed that the warm dance took place within a brush corral with a fire in the center of the dance ground, with the dance led by a man who had been born in the summer. The dancing involved either a clockwise or counterclockwise circular movement where everyone sang. Hand drums (tambourines) and deer-hoof rattles accompanied the singing. The two informants disagreed whether the warm dance occurred within or outside the camp circle. While prayers and feasting did not accompany the dancing, courting was encouraged and clowns performed. The clowns sometimes dressed as old men with canes, painting their faces with mud that dried and cracked to mimic wrinkles.

These ceremonies were probably older than Steward recorded. Thus, while wintering on Bear River in 1834-35, Bonneville witnessed "devotional dances, and chants, and other ceremonials" among the Newe (Shoshone-Bannock) that had been introduced by their headman after a sojourn among the Nez Perce. If these included the warm dance, this suggests that any link to the Nez Perce was considerably earlier than reported by Steward. Other devotional dances continued along Bear River after the massacre. In 1870 and 1871, Shoshones and Bannocks converged on Bear River to co-sponsor Ghost Dances (Smoak 2006:118-119). Ghost dancing on Bear River continued until the late 1870s (Brackett 1880).

Links between the warm dance and nearby thermal springs and vents are not well documented but appear self-evident to contemporary Shoshone. The positive values Shoshones attributed to hot springs and other thermal features are well established (Nabokov and Loendorf 2002:220-227). Healing and medicinal properties are emphasized, but accounts of Shoshone and Bannock interments in hot springs further underscore the spiritual power associated with these places. Thus Pocatello, the chief who left Bear Hunter's village the day before the attack, lived on to a ripe old age before his body was finally lowered into a thermal pool at Soda Springs, followed by no fewer than 28 of his horses.

An oral history interview with survivor descendent Lorena Neaman Washines, excerpted in Hart (1982), says that many sacred ceremonies were held near hot springs where winters were mild, and that the northern Cache Valley held many places of worship with miraculous powers of healing. "This healing power was the reason why the sick band of Shoshones was coming to Cache Valley when they were attacked. The massacre victims were mostly the "sick, aged, the young, and some wounded warriors." The ancestral and sacred landscape dimensions of Numic spirituality are finding wider audiences in the work of Vander (1997), Dean and Marler (2001), Carroll and Zedeño (2004), and Smoak (2006), among others.

Finally, Jason Walker thinks the Battle Creek dance ground would probably have been located on the terrace immediately east of the lower ravine. An eastern position was suggested for religious/solar reasons, and the terrace here was large enough to host large groups of dancers. If this is correct, the 1863 dance ground may have witnessed some of the fiercest combat between McGarry's dismounted cavalrymen and the Shoshone defenders along the eastern rim of the lower ravine.

Research Questions

1. Where was the Shoshone village?

   Pre-1999 scholarship. Beginning with the Aitkin map of 1926, scholars of the battle and massacre have placed the Shoshone village north of the 1855 Montana Road, in the narrow ravine between the eastern and western bluffs. The Aitkin map shows the village flanked on the east and west by a "natural breastwork," and a "warriors ambush" on the east side of the lower ravine behind another "natural breastwork 10' high."

   The Aitken map places the confluence of Battle Creek and Bear River in an old meander loop about 400 ft. north of the southern edge of Section 4, at about the 4500' contour line. This same meander scar appears on Google Earth (2009) imagery.

   The Aitken map shows a segment of the "OLD U.N. Ry." running from the old Montana Road to the Battle Creek ravine. This marks part of either the Utah Northern Railroad or the Utah and Northern Railway.

   Post-1999 scholarship. Recently discovered maps (Christensen 1999, Schindler 1999) drawn at the time of the battle place the village in the broader lower ravine of Battle (Beaver) Creek, between the old Montana Road and Bear River.

2. Where was the **core area** of combat?

   Earlier scholarship implies a much larger core area where the combat and massacre were concentrated. The 1926 Aitken map gives a composite frontage for the village and the warrior redoubt of about 550 m. The village is shown between the West Cache Canal and the 4500' contour, while the "warrior ambush" is located in the lower ravine between the 4500' contour and Bear River.

   The 1999 maps imply that combat was concentrated along both sides of the lower ravine, that the village and the pony herd were in the lower ravine, and that the **core area** for both the battle and massacre is the lower ravine.

3. What are the boundaries of the **study area**, and what impacts have affected it since 1863? The upper ravine between East Bluff and West Bluff has experienced severe landslides in the 20th century.

4. Have the surface vents of the Wayland Thermal Reservoir shifted away from the Battle Creek ravine since 1863?

Data Needs

Our preliminary review and synthesis of the evidence suggests that the pentagonal boundary of the Landmark encloses quite a bit of redundant space to the south in Sections 8 and 9, and does not extend far enough to the northwest in Section 5. Thus old hot springs and thermal vents reported by local landowners to have been northwest of Corner E are not included within the Landmark boundary, while the contemporary Wayland Hot Springs are located hundreds of meters to the southwest of the probable village location. We suspect that the northern edge of the **Study Area** should be at least as far north as the southern edge of Section 32, and that the southern edge of the **Study Area** is closer to the southern boundary of Sections 4 and 5.

The **Core Area**, where the fighting was concentrated, was probably located in the southern half of Section 4, and the eastern half of Section 5. It is these 640 acres where metal detecting transects and geophysical survey blocks will be concentrated. This will involve a sample of selected terrain facets for metal detector survey at 5 m intervals, with up to ten 400 m^2 geophysical survey blocks placed on the "hot spots."

1. Research the battle/massacre event. Evaluate the source, time, intent, descriptive bias, and usefulness of each source. These include Connor's after-action report, post-massacre correspondence and oral history, the secondary literature of campaign and battle books and journal articles, and historic and 20th century maps. This will result in a research bibliography and sources list. The available sources are either primary (occurring immediately after the event) or secondary (defined here as post-1863).

Primary:

- Connor's after-action report of February 6, 1863
- Hull's letter report of January 30, 1863
- *Sacramento Daily Union* – February 17, 1863
- *San Francisco Evening Bulletin* – February 20, 1863
- Sergeant Beach map of February 14, 1863 (Schindler 1999)
- Martineau map of January 30, 1863 (Christensen 1999)

Secondary:

- Aitken map (1926) – probably incorporates local oral history
- Rogers (1938) – oblique panoramic photograph of study area
- Barta (1962) – based on Aitken and Rogers
- Hart (1982) – based on Aitken and Rogers, but not Barta
- Madsen (1985) – based on Hart, Barta, Rogers, and Aitken
- Crawford (2008) – Shoshone oral traditions collected between 2005-2007

Battlefield maps:

- Price (1863) – lost?- *Sacramento Daily Union* correspondent "Liberal"
- Martineau (1863) – Christensen (1999)
- Beach (1863) – Schindler (1999)

- Aitken (1926) – Hart (1982)
- Rogers (1938)
- Barda (1962)
- Madsen (1985)
- Bearss and Wells (1990)

Author backgrounds, competencies, and biases vary considerably. The first two detailed studies of the Bear River engagement were written by men identified as infantry officers on their title pages. **Fred B. Rogers** included a chapter devoted to the battle in his account of Connor's 1863 Bear River and 1865 Powder River campaigns. His book included a useful early 20th century panoramic photograph of the battlefield. **Edward J. Barta** served as a professor of military science in the Army ROTC program at Idaho State College when he wrote his master's thesis on the Bear River battle (Barta 1962). He was an experienced soldier who had served as historian for the 24th Infantry Division in Korea during the chaotic summer and fall of 1950 when that unit had lost its commander and cohesion and been scattered into isolated units. Although his degree was awarded in the Department of Education, not History, he certainly had relevant experience in imposing order on fragmentary, contradictory, and incomplete battlefield evidence. **Harold Schindler** was a professional journalist and Utah historian. **Rod Miller** writes fiction and poetry as well as regional history, and is a member of the Western Writers of America. **Scott Christensen** is an archivist. **Kass Fleischer** describes herself as a novelist and feminist. Her focus is on historiography, or how history is written rather than on past events and actions – she is more interested in how people today think about the past than in what actually happened. **Newell Hart** was a self-trained local historian. **Brigham D. Madsen** was an academic historian who had been an infantry lieutenant in World War 2. This background may have influenced the reliance he placed on Barta's thesis.

The four most informative graphics for the study area are the 1926 map prepared **W. H. Aitkin**, Franklin County surveyor; the pre-1938 panoramic photograph in the **Fred Rogers** study; and the recently discovered Beach and Martineau maps, both drafted in 1863 shortly after the battle but not published until 1999 (Schindler 1999, Christensen 1999). Sergeant **William Beach** participated in the engagement and drafted his sketch map on February 14th. **James Martineau** visited the site immediately after the engagement. Martineau's map may be based on a "diagram" prepared by Captain George Price that is cited – but not reproduced – in an article submitted to the *Sacramento Daily Union* on February 5th, 1863. Price participated in the battle, while Martineau was a civilian noncombatant, not a direct eyewitness. The Beach and Martineau maps yield detailed information on the troop maneuvers, positions of the officers where they were wounded, and the horse line where the cavalry mounts were tethered with the "number-fours." Topographic details in both includes the curve of Bear River at the Battle Creek confluence, the willow island located below the confluence where some of the Indians fled, the ford where the troops crossed, the ravine where the village clustered, and the relation of the plain on either side of the ravine to the bluffs to the north.

However, neither of these sketch maps matches the accuracy or contains the topographic and cultural detail recorded by Aitken in 1926, more than 63 years after the battle. This map is included as an enclosure in Hart (1983). It incorporates testimony from James Packer, Jr.,

whose father was one of the sleigh-drivers who bore the wounded soldiers back to Franklin on the morning after the attack (Hart 1982:j). The Aitken map postdates the General Land Office surveys, and is anchored on the Public Land Survey System, backed up by latitude and longitude. Aitken shows the confluence of Battle Creek with an old meander loop of Bear River, not with the river channel of 1926. He records segments of the Old Montana Road of 1855, the Utah Northern Railway of 1877-1890, and the West Cache Canal of 1898-1904. His map locates the Shoshone village, shows the position of "natural breastworks" and the "warriors' ambush," even the point where "Chief Bear Hunter fell." The map is based partly on field survey completed in May, 1926, obviously supplemented with much information from local residents. It is dedicated to the Daughters of the Utah Pioneers and may have been sponsored by that group. His survey notes may still be filed with Franklin County.

2. List of defining features. A preliminary KOCOA analysis (Table 1) recognizes 11 defining terrain features for the **study area**: Bear River, Bear River Ford, Upper Battle Creek Ravine, Lower Battle Creek Ravine, Willow Island, East Plain, West Plain, South Plain, East Bluff, West Bluff, and Red Clay Bluff.

3. Location of historic channel meanders in the SW ¼ of Section 4 and the NW ¼ of Section 9, T15S, R39E. Google Earth, Landsat imagery and Arc-GIS layers for aerial photos and maps to at least as far back as 1926.

4. Location and recognition of pre- and post-massacre historic features. These include the West Cache Canal, the Battle Creek community and railway hub, and the 1855 Montana Road and bridge across Battle Creek ravine. Historical artifacts, architectural evidence, latrines, etc. dating from the first residence in 1877 to the taking up of the tracks in 1890. Given the considerable acculturation evident in descriptions of the 1863 Shoshone village, some overlap in material culture with the town of Battle Creek is probably inevitable. A Shoshone coffeepot may be indistinguishable from a railway breakman's coffeepot, etc. Pattern recognition using multiple data points will be the likely solution.

5. Location of Shoshone village. Surface artifacts, osteological remains, and features, and instrument anomalies indicative of buried artifacts or features that relate to a mid-19th century winter village. There is some indication that this was a traditional wintering area for the Shoshone, and historical sources mention that dance grounds were located along Bear River between the 1830s and the 1870s. Thus, probably not all aboriginal occupation can be automatically attributed to the 1863 winter village.

6. Location of core combat area(s). Defensive features, munitions and weapons, military equipage, human and horse remains.

Sampling Design and Field Methods

Field investigations will begin with a reconnaissance of the entire study area to appraise terrain features and develop expectations based in Inherent Military Probability. A photographic log will be started, and coordination of available historic maps will begin. The core area of

combat and massacre will be distinguished from the larger study area of maneuver, approach, and departure. A Potential National Register Boundary will be established, an ABPP Battlefield Survey Form will be completed, and appropriate Archaeological Survey of Idaho site inventory records will be completed.

1. The Landsat/Arc-GIS study area will include the two quarter sections cited above, or about 320 acres. High resolution imagery using narrowly spaced (~10 m) intervals may be required to track shifts in the channel of Bear River over time.

2. The surface inspection will follow 5 m interval transects on the terrace on either side of the ravine using metal detectors. Surface artifacts will be flagged, mapped, and collected and subsurface signals will be flagged, mapped, and excavated with 50 cm^2 test units. All units will be profiled and immediately backfilled.

3. The ravine banks and floor will be inspected at close intervals, the spacing varying with vegetation cover.

Terrain Features and KOCOA Analysis

KOCOA is an acronym used by the American Battlefield Protection Program to provide a classification matrix for **K**ey and decisive terrain, **O**bservation and fields of fire, **C**over and concealment, **O**bstacles, and **A**venues of approach/withdrawal.

- Key terrain includes local features that dominate the immediate surroundings such as hills or river fords. Terrain is considered decisive when the mission depends on seizing or holding it.

- Observation refers to the ability to see friendly and enemy positions and terrain features to judge strength, prevent surprise, and respond to threats. Fields of fire are the areas covered effectively by given weapons from given positions. Dead space is the ground that cannot be seen or covered from a given position.

- Cover is protection from enemy fire, while concealment is protection from enemy observation and surveillance. Mineralized travertine deposits at thermal vents along the rim of the lower ravine may have enhanced cover, while the dense willow thicket inside the ravine gave concealment to defenders.

- Obstacles may be existing or reinforcing. The willow "jungle" inside the lower ravine was a natural obstacle. A report of dubious reliability indicates that reinforcing obstacles of stacked logs were also present along the east rim of the lower ravine. Presence of obstacles determines whether terrain is restricted or unrestricted. For example, reports indicate that only three sally points existed along the Lower Ravine where horses could enter or exit.

- Avenues of approach and withdrawal are the relatively unobstructed ground routes leading to or from objectives or key terrain features.

Results and Expectations

1. We expect to be able to pinpoint the confluence of Battle Creek and the meander loop accepted by Aitken in 1926 as the 1863 Bear River channel. This point will mark the southern edge of the **core area** of the engagement. We expect the southern or lower reach of the 1863 Battle Creek ravine to be more deeply buried and obscured by tillage than the upper ravine north of Hot Springs Road where the village was probably concentrated. The upper ravine may be partly mantled in 20th century landslide debris.

2. We expect to be able to locate traces within the ravine of a Shoshone winter village that numbered at least 68 lodges and contained several hundred people who had camped there for several weeks before the attack. If the 1926 Aitkin map is correct, evidence for the village should lie between the 4500' contour and the West Cache Canal, and evidence for a separate combat area should be concentrated on the east side of the ravine between the 4500' contour and Bear River. If the 1863 Beach and Martineau maps are correct, the core area of the battle and village massacre should occur in the lower ravine. A third hypothesis is that most of the village was north of the West Cache Canal, further up Battle Creek. Intact terrain facets here should receive close attention.

3. We expect to find aboriginal artifacts and features that predate the 1863 massacre. Obsidian debitage and fire-cracked rocks noted on the surface during recent (2011 and 2012) field inspections probably indicate prehistoric use of the area between the ravine and Wayland Hot Spring.

4. Given that ~ 14,000 rounds of rifle and pistol ammunition had been issued to the Volunteers, we expect to find lead Minié bullets and Colt revolver balls concentrated near and within the ravine. It is possible that patterning in the distribution of bullets and brass percussion caps may clarify uncertainties in how the battle and massacre developed. However, the anticipated absence of copper and brass cartridges will probably preclude forensic analyses of individual firearms typical of "post-Civil war battlefield pattern" studies (c.f. Fox and Scott 1991). The paper cartridges used in the revolvers, rifles, and rifle-muskets will not mark firing lines or positions, and the speed with which the Californians maneuvered probably left few traces where they paused.

5. We anticipate finding architectural and debris traces of the 1877-1890 community of Battle Creek, and should be able to distinguish these remains from those of the 1863 Shoshone village and battle/massacre.

6. Although eyewitness sources agree that hundreds of Shoshone died that day, archaeological research is unlikely to resolve uncertainties about the scale of the massacre. All of the military casualties were removed from the field, but scavenger-

strewn bones of the Indian dead could still be seen on the surface for years afterward. Local lore reports that remains were exposed during plowing of the fields on either side of the ravine after the community of Battle Creek packed up and moved north in 1890, and again during trenching of the West Cache Canal between 1898 and 1904. Holding everything else constant and assuming 240 bones and teeth per individual, if 250 Indians died, this amounts to 60,000 bones and teeth; if the number was closer to 400, it adds up to 96,000. Nevertheless, we expect to find very few, if any, human remains that relate to the battle or massacre.

The only known Shoshone remains associated with the battle and massacre were held at the Smithsonian Institution from 1898 to 2012. They include crania of a teenage boy and a young woman (Moya-Smith 2012). These remains have since been repatriated to the Northwest Band of the Shoshone. If the crania were recovered the same year they were donated to the Smithsonian, they may have been those rumored to have been exposed during excavation of the West Cache Canal.

Any human remains that are encountered during the proposed fieldwork will be treated in accordance with Idaho Code (Ch. 5 Protection of Graves) and in consultation with the concerned tribes. In addition, the provisions of the Native American Graves Protection Act (NAGPRA) will apply to this project.

7. Finally, we expect to be able to relate key terrain features of the **study area** to the Bear River Landslide Complex that has been so active throughout the 20th century, and that will probably continue to obscure parts of the study area in this century.

Methodology

Before beginning fieldwork, all historic records, photographs, and maps will be examined to produce a comprehensive framework of background information. The thirteen key terrain features of the **study area** identified in the KOCOA matrix will be mapped and surveyed. The pedestrian survey team will complete close interval (5 m) survey transects of the **core area** of the battlefield. Surface artifacts and features will be flagged, mapped recorded, and collected where relevant. This team will comprise up to six tribal members under the supervision of two or three professional archaeologists.

The metal detector survey team will complete close interval (5 m) survey transects of a sample of 25 acres of the **core area** of the battlefield. Subsurface signals will be flagged, mapped, and ground-truthed with 50 cm^2 test units with sediments dry-screened and field-sorted through 1/8" mesh. Relevant finds will be fully recorded and collected for study, interpretation, and permanent curation.

The geophysical team will conduct magnetometer, resistivity, and ground-penetrating radar transects to located buried terrain features such as the Battle Creek ravine margins and former channel margins of the Bear River, as well as cultural features such as wickiup lodge floors, compacted extramural dance floors, graves, hearths, pits, and midden concentrations.

Again, theses transects will focus on delineating the edges and interior contents of the **core area** of the battlefield. This will involve up to ten 20 x 20 m survey blocks centered on metal detector "hot spots."

Ground-mounted light detection and ranging (LiDAR) units may be used to create digital elevation models where relevant microtopography is obscured by vegetation. This may be especially helpful in evaluating the Upper Ravine. Mapping will employ GPS RTK (real time kinematics) photogrammetry.

Laboratory Activities

Battlefield related military artifacts and munitions will be analyzed, described, and stabilized for permanent curation in the archaeology laboratory under the supervision of staff familiar with Indian Wars material culture. Material culture associated with the Shoshone village will be analyzed and described in consultation with members of the Northwestern Band of the Shoshone Nation and the Shoshone-Bannock Tribes. Comparative military and ethnographic collections at the Idaho State Historical Museum and the Idaho Museum of Natural History will be utilized where appropriate.

The geospatial laboratory will complete multiscalar mapping services and collect, compile, analyze, and visualize spatial data using appropriate combinations of Geographical Information Systems, surface modeling, predictive modeling, geostatistics, 3D laser scanning and presentation, geophysical survey, cartographic presentation, and digital databases. Historic graphics including maps and panoramic battlefield photographs will be integrated into GIS layers with contemporary remote sensing and Google Earth imagery.

Curation

Specimens will be prepared for permanent curation in accordance with federal standards (34CFR79) at the federally accredited Eastern Repository of the Archaeological Survey of Idaho at the Museum of Natural History in Pocatello.

Report

The final report will include the following parts.

- Title page
- Table of contents
- Front matter – acknowledgements, lists of tables, figures
- Introduction
- Site description
- Historic background

- KOCOA matrix
- Materials and Methods – description of the pedestrian, metal detector, geophysical and LiDar methods used in data collection.
- Analysis – description of the techniques used in the archaeological and geospatial laboratories.
- Assessment – combine the field and laboratory data to address research questions and goals, and consider future research. Suggestions for land to be nominated to the National Register will be formulated from this assessment.
- Conclusions.
- References.

Deliverables

Upon completion of the project, three copies of the draft report will be sent to the NPS American Battlefield Protection Program for corrections and suggestions. Following any necessary corrections, three copies of the final report will be submitted, along with a copy on a compact disc. GIS maps will be submitted as ArcView shapefiles with appropriate metadata. All digital color and panchromatic photographs and color slides will be submitted in an appropriate format. Site inventory forms for all archaeological sites recorded during fieldwork will be submitted to the Archaeological Survey of Idaho.

Documentation included in the final submission will include (1) a completed ABPP survey form; (2) a sources sheet; (3) a list of defining features; (4) order of battle data; (5) movement maps for the Volunteers and Shoshones; (6) maps of the core area, study area, and Potential National Register boundaries; (7) labeled photographs and slides; (8) a photo log sheet; and (9) GPS data files and exported shapefiles.

Treatment of Human Remains

The Bear River Massacre National Historic Landmark study area is located on private land. At present, any unmarked graves located within the boundaries of the Landmark receive protection under terms of Idaho Code Chapter 5, Sections 27-501-504 (Protection of Graves). However, since the project is funded by the American Battlefield Protection Program, any human remains, funerary objects, sacred objects, or objects of cultural patrimony encountered during the course of field investigations will be handled under the terms of the Native American Graves Protection Act and its implementing regulations.

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Table 1. Terrain Variables for the Bear River Battle and Massacre (data from USGS 7.5' Banida and Weston (Idaho) quadrangles; Aitken 1926; Rogers 1938; Barda 1962; Madsen 1985; Mahoney et al. 1987; Bearrs and Wells 1990; Schindler 1999; Christensen 1999).

Name	Location	Relevance	Field Comment	KOCOA Analysis	Integrity Assessment
Bear River	Defines the southern edge of the battlefield	Soldiers forded upstream of Battle Creek; massacre survivors fled downstream from Battle Creek.	At least one meander shift between 1863-1926.	Slowed and impaired troop movements due to depth, current, cold temperatures. Current and possible geothermal input allowed some fleeing Shoshone to float downstream.	Setting, feeling, association. Actual location may be ~550 m north of present mouth of battle Creek.
Soldiers Ford	Near foot of Red Clay Bluff	Ford 70 yds wide, 1(+) yd deep, firm bottom, much floating ice in river	Actual location will depend on results of meander analysis	2nd Cavalry forded before dawn "Number Fours" ferried 3rd Infantry company across ford one or two hours later Entire force re-forded w/Indian ponies in late afternoon	
Upper Battle Creek Ravine	Between East and West Bluffs, above West Cache Canal	Village location shown here by Aitken, Barda, Madsen	Upper ravine capped by 20th century landslides Part of core combat area	Enfilading fire directed down the ravine into the willow jungle by McGarry's flanking party, reinforced by Hoyt's arrival	Parts of the ravine filled by landslides
Lower Battle Cr. Ravine	Location of winter village, pony herd, and massacre	Village location and pony herd shown here by Beach, Martineau, and Price (?): 68 lodges, 200 ponies. Site of the massacre of women and children.	Lower ravine now overgrown in willow, cottonwood, Russian olive, cattails, grasses and sedges. Lower ravine has been separated from Upper Ravine since excavation of the West Cache Canal. Part of core combat area (?)	Provided observation, cover and concealment for the Shoshones and an almost impenetrable obstacle for the soldiers, cavalry movement impossible, infantry could not move on line in skirmish order. "Principle" lodges fortified by rifle pits w/4-5 warriors.	Present lower ravine location may be an artifact of the West Cache Canal
Willow Island	Below mouth of Battle Creek, above Wayland Hot Springs.	Temporary refuge for massacre survivors ¾ mile long	Deceptive relationship of present island(s) to 1863 island. Actual location will depend on results of meander analysis	Provided concealment and escape route for Shoshones; obstacle to observation by pursuing soldiers	This island is now landlocked within or below the cut off meander scar ~ 550 m north of the present Bear River
East Plain	Terrace east of the ravine between East Bluff and Bear River	Location of the first attack by 2nd Cav (Cos. K,M,H,A) and area where most of the soldiers were killed or wounded. Wounded gathered behind horse lines. The East Plain may have hosted the large, pantribal Warm Dance in early January.	Area has been continuously tilled, grazed, irrigated, drained and possibly leveled during past 150 years. Part of core combat area	Clear fields of fire for flat-trajectory shoulderarms and revolvers. No cover or concealment for soldiers or cavalry mounts from gunfire, arrows. Four wickiups placed along east rim of ravine as a "blind."	Location, setting, feeling, association

West Plain	Terrace west of the ravine between West Bluff and Bear River	Pony herd shown here by Madsen. Maj. Gallagher & Lt. Berry wounded, Capt Hoyt & Co. K, 3rd Inf turn left (west) flank of Shoshone position. The West Plain may have hosted the large, pan-tribal Warm Dance in early January.	Area has been continuously tilled, grazed, irrigated, drained and possibly leveled during past 150 years.	Clear field of fire for flat trajectory shoulderaamrs and revolvers. No cover or concealment for soldiers from gunfire, arrows.	Location, setting, feeling, association
South Plain	South of the ford near the foot of the trail leading to Red Clay Bluff	Location of post-battle army bivouac.	Capped by 20th century landslides	Hoyt's train of 15 wagons stops here (also the two mountain howitzers). Cavalry horses used to ferry Hoyt's command across river to reinforce McGarry. Night bivouac where soldiers tended wounded, coped with exposure, frostbite, prepared for next morning's evacuation to Franklin	Capped by 20th century landslides
East Bluff	Plateau rim overlooks ravine	Aitken map shows Maj. McGarry leading flanking movement partway up East Bluff before turning west across Upper Ravine to West Bluff and West Plain.	Post-1960 landslides	McGarry's flanking movement may have followed Old Montana Road of 1855 and log bridge over upper ravine.	Location, setting, feeling, association
West Bluff	Plateau rim overlooks ravine	Aitken map indicates "Monument Site" at toeslope of West Bluff. Possible site of "Liberal"' upland cedar thicket and Shoshone rally point	Post-1960 landslides	Possible avenue of retreat and rally point for Shoshones.	Location, setting, feeling, association
Red Clay Bluff	Overlooks entire valley	Howitzers and baggage train left here		Observation point for Connor and staff	Location, setting, feeling, association.