

National Battlefield and Nez Perce National Historical Park. The battle at Big Hole occurred at a traditional Nez Perce camas harvesting campsite. Camas is therefore a central element of the cultural landscape at Big Hole.

Annual monitoring of camas is conducted to help park staff better understand the status and trends of plant populations and, in turn, make informed decisions about resource management and restoration. Competition from invasive weed species, particularly thatch-building grasses such as timothy (*Phleum pratense*), is a likely stressor on camas populations at Big Hole. Some other nonnative plants may also produce undesirable shifts in prairie plant vegetation, including a reduction in camas.

C. Cultural Resources

Cultural resources include archeological resources, historic structures, cultural landscapes and ethnographic resources and museum objects (which were considered but dismissed as impact topics).

1. Prehistoric and Historic Archeology

a. City of Rocks Archeology

Southern Idaho, including the City of Rocks area, was occupied by big-game hunters near the end of the Pleistocene. By about 7,500 years ago, inhabitants are known as the Desert Culture of the Archaic Period and depended on seed and root gathering, including grinding. Just east of City of Rocks, during this same period, a rock shelter documents a dependence on sheep and bison hunting.

By about 4,500-5,000 years before the present, there is evidence of village life in pit houses along the Snake River and partial reliance on salmon. The closest villages (near Twin Falls) were a three to four day walk from City of Rocks.

Between 1,000 and 2,000 years ago, lifestyles may have been more sedentary and could have included crop-growing as documented by pottery from Fremont cultures in Utah found mixed with Shoshoni pottery, including at three sites within the reserve.

By the time of British and American contact, there was a band of Northern Shoshone whose range included the City of Rocks area and who were known to harvest pine nuts from the area to supplement their diet of hunting, fishing and gathering.

More than 60 archeological sites have been documented in the reserve. Some of these sites have been damaged by vandalism, grazing, and development. As of the 1994 Comprehensive Management Plan, no systematic archeological survey had been conducted; therefore, the number of known sites is likely to increase.

b. Craters of the Moon Archeology

Both the Great Rift Zone and sagebrush steppe ecosystem contain a wealth of cultural resources dating back to the last volcanic eruptions, which were likely witnessed by the Shoshone people (NPS CRMO 2005:6). There are approximately 85 known, recorded cultural resource sites in the monument, representing a variety of types and chronological periods, with artifacts from at least 8,000 years ago to the present. Prehistoric use, dating to 9,600 years ago, has been documented at nearby sites on the Snake River Plain. Prehistoric sites in the monument include lithic scatters, rock shelters, rock features, and pictographs. Near the north end of the monument, it is likely that stone quarry tool sites may also be found. Little work, however, has been done to synthesize the results of existing finds or to provide a comprehensive framework for understanding the sites (NPS CRMO 2005:145).

It is likely that some recorded sites in the monument are eligible for the National Register; however, only Goodale's Cutoff is listed (see Historic Structures and Cultural Landscapes below). It is likely also that looting of archeological sites has occurred, especially in remote areas.

c. Fossil Butte Archeology

Cultural material from the Early or Paleo-Indian Period (12,000 – 6,500 B.C.) occurs on the surface throughout the region. The majority of regional archeological resources are surface finds and sites representing the Middle Archaic and Late Archaic Periods (2,700 B.C. – A.D. 500). Most of the sites are small, single-component remains of the Period (NPS FOBU 2005:14).

Some finds from the Late Prehistoric Period (A.D. 500 – 1800) have also been made near Fossil Butte. Within the monument, isolated surface archeological materials from the Late Prehistoric and Historic Periods appear to represent short-term use (NPS FOBU 2005:14).

A comprehensive survey of the park has not been completed. Instead, most existing surveys were done in support of proposed park projects. Twelve surveys covering approximately 280 acres have been completed. Twelve archeological sites were documented in those surveys. These sites have Archaic, Late Prehistoric, and/or Historic components. Four sites were determined to be not eligible for the National Register of Historic Places in consultation with the Wyoming State Historic Preservation Office; the others have not been evaluated for eligibility. None of the eligible archeological sites have been nominated to the National Register (NPS FOBU 2005:14).

d. Golden Spike Archeology

The following discussion regarding historic archeological sites and their significance to the cultural landscape comes from the Cultural Landscape Report for Golden Spike (NPS GOSP 2000).

Many of the historical land uses and activity areas originally associated with the construction and operation of the transcontinental railroad are currently manifested as archeological sites. These include the Last Spike Site; Promontory Station; the town of Dead Fall; workers campsites; Hall's camp; and a number of smaller, isolated features including what may be the remains of blacksmithing areas.

The locations of most of the archeological sites have been identified and over half have been intensively investigated and mapped. It is estimated that each of the campsites contains between 40 and 50 features, including the remains of pit houses, dugouts, lean-to shelters, rock chimneys, trash pits and middens. Additional research is needed to aid in the interpretation of variability within and among the sites. It is anticipated that the information derived from archeological investigations will contribute to our understanding of the cultural traditions of the railroad workers and of the gender of the sites' occupants. For example, the historical documentary record indicates that the primary ethnic and cultural groups working on the construction of the railroad were Mormons, as well as numerous Irish and Chinese laborers from the east and west coasts, respectively. The information obtained during archeological research will assist in the interpretation of the role of cultural traditions in the design of the campsites, as well as the interpretation of land use patterns and cluster arrangement as it related to the overall spatial organization of the historic railroad landscape. Research may also reveal information concerning the involvement of other ethnic groups, such as African Americans and American Indians, which is not well documented in the historical record.

In addition to the archeological remains of the human activity centers discussed above, the historic telegraph line also occurs as an archeological manifestation within the landscape. Construction of the telegraph line proceeded apace with the railroad grade and was important to the communications among the workforce. Today, the only remains of this mechanical engineering system are the rock piles that mark the former locations of poles and, in some instances, the remains of the base of the poles themselves.

Summary: The archeological sites associated with this cultural landscape are principally significant for their potential to yield information regarding the character and composition of the activity areas associated with the construction and upgrading of the transcontinental railroad grade and with the growth of the town of Promontory. In addition, the historical telegraph system is also represented archeologically.

No prehistoric archeological sites have been documented from Golden Spike.

e. Grant-Kohrs Archeology

The ranch has a good understanding of its archeological resources, which are summarized and detailed in the 2003 Cultural Resources Inventory. The site has 21 documented archeological sites. One of these is the park itself, four are pre-historic sites, and the rest are historic – primarily family dumps, structural foundations, and “hobo” campsites.

One archeological site has been determined to be National Register eligible – which is the overall, Grant-Kohrs Ranch site. Three sites have been determined ineligible, all of which are the pre-historic sites. Two are recommended eligible – a 1860s home site of Tom Stuart and pre-historic scatter of material. 13 are recommended ineligible and two are unevaluated. The Montana State Historic Preservation Office has advised the park that completing Determination of Eligibility of these sites should await the time when management actions may impact them.

There are also about 26 “incidental sites” which are typically individual objects or small scale features on the landscape such as concrete pads or structural foundations. All sites are well documented on GIS maps and in the NPS national database “ASMIS.”

There are several archeological investigation surveys, reports, and a few excavations. Excavations are mostly associated with preservation of historic structure foundations and ground disturbing activities such as utility line installation. Archives at the site have copies of the surveys, reports, and documentation associated with excavations. Material recovered from the surveys and excavations are in the museum collection – primarily historic materials recovered from dumps with some pre-historic lithic material and points.

f. Hagerman Fossil Beds Archeology

Prehistoric and historic sites have been found within and near the monument. The geological and biological diversity of the Hagerman area provided resources for early human subsistence. Human occupation may have occurred as early as 15,000 years ago, before the Bonneville Flood, with direct evidence showing occupation 10,000 years ago (NPS HAFO 1996:41). Archeological remains range from stone tools and projectile points and remnant or trace habitation structures and sites to past food remains and subsistence campsites. Paleo-Indian (15,000-8,000 years BP) projectile points have also been found in the region and in the monument. These artifacts are thought to be associated with a tradition of big-game hunting when the Snake River Plain teemed with large mammals, now extinct (NPS HAFO1995:76).

Artifacts from the subsequent Archaic period (8,000 – 1,500 years BP) have also been found in the region, with some projectile points found in the monument. This period is characterized by “small foraging groups exploiting the flora and fauna” (Force 1994b in NPS HAFO1995:76). Evidence exists of human occupation during the late Archaic Period and in the Historic Period. At the time of European contact, subsistence practices included mobile bands practicing a mixed hunting, fishing and gathering economy that was relatively stable over a long period (NPS HAFO 1995:76).

Along the Snake River are habitation sites and camping sites. There is a rich history of aboriginal use and significant cultural development in the immediate area. Sites above and below the monument were major fishing sites (upper and lower Salmon Falls). One site within the monument may have been a major fishing and trading site along the Oregon Trail. Another has features representative of a campsite. The

Hagerman Valley has a relatively high number of archeological sites, indicating prehistoric and historic human occupancy (NPS HAFO 1995:77).

g. Little Bighorn Archeology

The Little Bighorn collection contains approximately 6,800 artifacts recovered during various surveys including Bray and Rickey 1958, Scott and Fox 1984-1985, and Scott 1989. They amount to an estimated 30% of the total items deposited upon the two battlefield localities within the monument.

Known archeology sites include the Seventh Cavalry horse cemetery on Last Stand Hill; the defense perimeter, field hospital location, military equipment disposal area (dump), and rifle pits at the Reno-Benteen Battlefield; and prehistoric sites and isolated projectile points. Other disposal (dump) sites may exist in the area of Little Bighorn.

During the reburial in 1877-1879 and 1881, numerous remains were left on both battlefields. In addition to small bones and partially articulated remains, one nearly-complete skeleton was discovered in a very shallow burial on the Custer field (NPS LIBI 2007:11). Some human remains were found in 1989 on private land at the Reno Retreat crossing.

One of the enduring mysteries of the battlefield is the whereabouts of approximately 28 members of Company E. It is supposed their remains lie in or near Deep Ravine. The archeological projects of the 1980s did not reveal the location of the probable mass burial, though the work did produce useful negative evidence. It still seems probable that these remains lie near the head of Deep Ravine, but erosion has deposited at least eight feet of overburden on them. In the summer of 1996, MACTEC and Coleman Research Corporation conducted a ground-penetrating radar investigation of the Deep Ravine. Results of this investigation revealed anomalies which may warrant further study (NPS LIBI 2007: 12).

h. Minidoka Archeology

Three archeological surveys have taken place at the park. These include a survey done in support of the GMP of the Relocation Camp area then part of the park (Burton 2001), a later survey upon the acquisition of the Herrmann property by the Conservation Fund (Burton and Farrell 2006) and a survey to investigate the Japanese Garden and entrance area in preparation for installation of an entrance sign and proposed modifications to the entrance area (Burton *et al.* 2003).

The archeological resources that have been identified at the national monument are comprised primarily of features and artifacts associated with the period of camp operation from 1942 to 1945. While objects that postdate the camp's closure were noted during the archeology survey at the historic site, no artifacts predating the camp were identified (Burton 2001). This could be due to the ground disturbance that was caused during the construction of the camp although the probability of a major prehistoric site in the immediate area is low. The most likely prehistoric artifacts to be encountered at the national monument and surrounding area are isolated stone tools or stone flakes or debris from making stone tools (NPS MIIN 2006).

A nearby Idaho Historic Site sign marker on Highway 25 at the intersection with Hunt Road identifies the presence of a relatively large and extensive prehistoric camp site in the vicinity. It is likely that this sign refers to a site on nearby BLM land.

The methods that were employed during survey of the Relocation Camp and Herrmann property met the Idaho State Standards for an intensive survey level since the spacing was 15 or less meters and the terrain was open with good ground visibility but there has been limited sub-surface testing. Consequently, it is possible that some prehistoric archeological resources have yet to be identified at the national monument. Prior to its transfer to the NPS, the national monument had not been surveyed for archeological resources. A reconnaissance visit was completed by Jeff Burton in 1999 followed by the first systematic surface survey and documentation field work in May 2001. The systematic survey's stated goals were to conduct an intensive survey aimed at documenting the remaining features from the historic period as well

as any other archeological objects identified, photographing the site and features, and completing a site assessment. A less intensive survey was also slated for the area surrounding the national monument so that associated and contributing features to the camp could also be recorded to provide a more comprehensive assessment of the national monument. Archival materials, including maps and photographs, were used to guide the archeological work and assess the integrity of the historic features (NPS MIIN 2006).

Minidoka was known to have a unique layout that deviated from the strict plans of the nine other relocation camps because of the uneven terrain and serpentine alignment of the North Side Canal. Rather than a grid alignment, the housing areas were separated into two groups forming a crescent shape to the north and east of the North Side Canal (NPS MIIN 2006).

More than 200 features were recorded during the 2001 survey, and over half those features date to the historic period, while the other features and most of the artifacts postdate the camp's operation (Burton *et al.* 2001). The 2001 survey was divided into camp use zones and included the entrance, north administration area, central administration and staff housing area, south staff housing area, warehouse and motor pool, swimming hole, and perimeter security fence (NPS MIIN 2006). This survey was supplemented by testing at the entrance area in 2002 followed by a written report in 2003 (Burton *et al.* 2003).

Additional specific archeological information has been collected about the Entrance area, North Administration Area, Central Administration and Staff Housing Area, South Staff Housing Area, Warehouse and Motor Pool, Swimming Hole, Perimeter Fence and about features outside the boundary. After World War II, much of the camp area was altered (NPS MIIN 2006).

Based on review of previously documented archeological sites on file at the Western Repository for the Archeological Survey of Idaho in Boise, there are few prehistoric archeological sites near the national monument. The historic sites are primarily associated with the occupation of the camp in the 1940s. Site records for a six township area did not yield any major Paleo-Indian sites such as those summarized by Yohe and Woods (2002). There are a dozen or so relatively small lithic scatters about eight miles southwest of the park, near Interstate 84. It is possible that sites such as these and subsurface materials may be found in the future despite the amount of land disturbance that took place with the construction of the camp, its removal, and subsequent agricultural use (NPS MIIN 2006).

i. Nez Perce: Bear Paw Archeology

Archeological resources identified at the Bear Paw Battlefield site include teepee rings and buffalo drive lanes. The site was well known to Great Plains Native American Tribes and had been used for generations as a hunting and camping area. Even prior to the events of 1877, the Snake Creek campsite was well used. It was called *C'aynnim 'Alikinwaaspa* – Place of the Manure Fire by the Nez Perce (NPS n.d.). As a campsite, it offered abundant game and perennial fresh water from the spring-fed creek. Buffalo chips were available for fuel. Nearby, west of Chinook is a well-known prehistoric buffalo jump.

An archeological reconnaissance of the site in June 2000, although limited due to naturally heavy matting of grasses, identified a large number of stone circles, rock cairns, Nez Perce and U.S. Infantry rifle and shelter pits, a number of marked and unmarked burials, trash deposits, a homestead site, and battle artifacts, as well as evidence of previous Battlefield investigations (Scott 2000:2). It relocated approximately 36 of about 52 stone circles ranging from 2.5 to 6.0 meters in diameter, 31 of 32 rock cairns found by Anderson and English in 1992, two of which are likely of recent (field clearing) origin. Until this reconnaissance no formal archeological inventories had been conducted at the Battlefield or in the immediate area. There were, however, many informal surveys and collecting efforts undertaken by area residents and visitors. The most extensive of these was the L.V. McWhorter inventory taken in the early 1920s. Later surveys varied, but undertook to remark McWhorter Battlefield stakes, including a remark by C.R. Noyes in 1935-36 and by Anderson and English in 1992 following a range fire in 1991, likely one of the most extensive data sets due to the ability to see markers unhampered by dense vegetative mats.

As noted in Scott (2000), the most extensive collecting efforts were undertaken by the late Thain White of Dayton, Montana, Gordon Pouliot of West Glacier, Montana, and Norman Johnson of Havre, Montana. Their efforts are well documented and constitute a primary data set of the types and quantities of camp and battle debris left on the field after the battle (Scott 1997). Local researchers Leroy "Andy" Anderson of Chinook and Paul English of Havre have also identified a number of rock cairns and rock alignments both within and adjacent to the park boundary, some of which yielded metallic debris when they conducted some preliminary metal detecting in the area after the 1991 range fire.

These collecting efforts produced variable documentation, along with over 1,700 individual metallic artifacts consisting of bullets, cartridge cases, cannonball fragments and fuses (Scott 2000).

j. Nez Perce: Big Hole Archeology

Historic archeology investigations began with sporadic efforts in the 1950s and continued through the 1970s. Collections were made by employees Don Rickey, Aubrey Haines, and Kermit Edmonds, and by private collectors Thaine White and Gordon Pouliot (NEPE BIHO 1999a).

The first inventory by a professional archeologist was conducted in 1974 by Midwest Archeological Center Archeologist Robert Nickel on four small areas under consideration for sewage treatment facilities (Calabrese 1974). Additional inventories were conducted in 1978 by Midwest Archeological Center Archeologists Lincoln and Guthrie for preconstruction on Ruby Bench (Lincoln 1978), by Johnson for a proposed land exchange (Johnson 1986), and Scott in a proton magnetometer study of selected areas of the Village Site and Siege Area (Scott 1987). These systematic approaches allowed artifacts from these investigations to be re-analyzed in a major effort by NPS staff in 1991. Objectives of the 1991 probe included analysis of the armament used during the battle, trace battle deployments, and behavior of the participants. The equipment used by the infantrymen was another subject of study. Those results helped confirm aspects of the battle that had remained ambiguous, confirmed locations of battle events and Nez Perce tip is, and demonstrated the need for the NPS to acquire additional acreage to protect portions of the battlefield outside its boundaries.

A major inventory was completed by Midwest Archeological Center Archeologist Douglas Scott in 1994 (Scott 1994a). The objectives of this inventory were to analyze the nature of armament used during the Battle of the Big Hole, trace deployments during the battle and account for these in behavioral terms, evaluate the equipment of the infantry during the campaign with respect to what is perceived to have been a fully equipped soldier of that time, refine the location of various components of the battle, and to identify all archeological resources on the battlefield. This survey documented battle-related remains, evidence of homesteading, mining, road development, irrigation projects, and public interpretation at the site.

2. Historic Structures / Cultural Landscapes

1. City of Rocks Historic Structures / Cultural Landscapes

City of Rocks National Historic Landmark: Approximately 12,480 acres at the reserve have been designated a NHL for their significance in the westward expansion movement. The NHL includes the valleys and basins formed by spectacular granite monoliths passed on the California Trail. The NHL boundary generally follows the east and west sides of the City of Rocks National Reserve and extends to the north and east to encompass the formation known as Castle Rocks, the end of the stone monoliths that can be viewed from the California Trail corridor. Part of Castle Rocks State Park and some BLM land is included in the NHL boundary. The southern boundary includes the junction of the California Trail and the Salt Lake Alternate but not Emigrant Canyon.

The reserve includes approximately nine miles of the California Trail / Salt Lake Alternate corridors. Emigrant inscriptions are found on 13 rocks, trail ruts are found in six areas, and the Circle Creek Basin

was an emigrant encampment site. The viewshed seen from the two historic trails is also part of the NHL and the basis for the name of the reserve, named in August 1849 by a member of the Mormon Battalion returning from California, James F. Wilkins.

In addition to the overall views from the trails, three key viewsheds have been identified and defined: 1) the view south toward Twin Sisters from the California Trail corridor as the ground rises into the basin in front of the two spires; 2) the view northwest towards Twin Sisters along the Salt Lake Alternate Trail at the stage stop; and 3) the view southwest to Granite Pass, ¼ mile outside the southwest boundary of the reserve (NPS CIRO 1994:105).

Boise-Kelton Stage Station: The stage station site was used between 1869 and 1882. Although no structures from that time remain, the Moon Homestead log structure near the site was built between 1911 and 1916 with materials salvaged from the original stage station building. It is just east of the junction of the California Trail and the Salt Lake Alternate.

Tracy House (Circle Creek Ranch): This stone house survives from the dry-farming era (mid-1890s to mid-1920s). It is an opportunity to interpret an important chapter in the continuum of reserve history. This house has not been evaluated for the National Register.

There are also other historic resources, including scattered homestead sites, cattle trailing routes, water sources, windmills, corrals, and fencelines. These are part of the historic rural setting that the reserve legislation calls for preservation of – a continuum of 150 years of human use and development prior to designation of the reserve.

2. Craters of the Moon Historic Structures / Cultural Landscapes

There has been no systematic, formal cultural landscapes inventory of the monument and preserve. Potential historic mining or sheep herding areas may exist. Goodale's Cutoff of the Oregon Trail, listed as an historic site on the National Register may also be eligible as a cultural landscape. Known historic structures include the Mission 66 Visitor Center and historic buildings associated with the campground that date from the 1930s.

Goodale's Cutoff of the Oregon Trail is part of the Oregon Trail listing on the NRHP. This portion of the trail from Butte County to Blaine County is on the National Register.

The monument headquarters complex, including the visitor center, employee residences and maintenance buildings is eligible for listing on the National Register. The eligibility is based on the continued integrity of the modern architectural design with a grouping of public and administrative facilities in a headquarters area. This approach typified the NPS Mission 66 Program of the late 1950s and early 1960s (Allaback 2000 in NPS CRMO 2005:146).

3. Fossil Butte Historic Structures / Cultural Landscapes

Haddenham Cabin: Only one National Register eligible historic structure is found at the monument. The Haddenham Cabin, a small wooden A-frame structure constructed circa 1918, was a temporary shelter used by early fossil collectors David Haddenham and his grandson. The Haddenham Cabin was listed on the NRHP on December 23, 2003. The presence of several fossil fish quarrying materials may prompt some future consideration of nomination of a Historic District associated with the Haddenham Cabin (NPS FOBU 2005:14).

The historic quarry sites are also considered to be a historic resource and analysis of their eligibility for the National Register has not been made. While these sites at Fossil Butte have not been identified as cultural landscapes, analysis of their eligibility has not been undertaken. Therefore, these sites are being managed as if they were eligible.

No other cultural landscapes have been identified at Fossil Butte. If cultural landscapes that might be affected by activities associated with this plan are identified in the future, those landscapes would be appropriately protected, and provisions for their protection made (NPS FOBU 2005:14).

4. Golden Spike Historic Structures / Cultural Landscapes

Golden Spike was listed on the NRHP in 1957. The cultural landscape inventory evaluation / nomination found that the landscape associated with the construction and operation of the transcontinental railroad is nationally significant under three of four National Register criteria (A, C, and D). According to Utley and Ketterson (1969), the railroad furnished quicker and cheaper transportation for government supplies and the mail and permitted a vast and profitable commercial trade to develop between East and West. The transcontinental line brought in its wake immigration, settlement, and industrial and agricultural development, mass transportation, and forever altered American Indian life ways.

The extant landscape features within Golden Spike illustrate the process by which the transcontinental railroad was constructed, including the competitive nature of the venture, which was actively encouraged by the federal government. The competition or the "race" to finish the line is dramatically illustrated by the parallel grades within the railroad corridor. The engineering feats accomplished in the construction of the transcontinental railroad represent state-of-the-art skills developed during the Civil War.

With regard to the site's national significance, the contributing landscape features within Golden Spike reveal the story of the construction and operation of the transcontinental railroad. They assist the park visitor in understanding and appreciating the history of the railroad construction, including the contributions made by various ethnic and cultural groups. In addition, the current isolated nature of the site, surrounded by scattered ranch headquarters and agricultural land use, is evidence of the importance of the railroad to the local population, which continued through 1942.

Three periods of significance are proposed for this landscape. The first corresponds to the period between February of 1869 and the first months of 1870. This represents the period of intensive construction activity through the Promontories, initiated with the CP's beginning work on the Big Fill and ending with the formal changing of the transfer point from Promontory to Ogden. Within this period, May 10, 1869, the day that the last spike was driven in the transcontinental line, is considered a date of primary significance for the historical site. The Last Spike Site possesses its own unique significance, as the location of the formal joining of the UP and CP lines, and the symbolic completion of the transcontinental railroad.

The second period of significance extends from May 10, 1869 through September 18, 1904, when this segment of the railroad grade was part of the main transcontinental line. Although the construction crews were gone from the scene, the town of Promontory Station had developed in the vicinity of the Last Spike Site, and major improvements were completed on the grade. For nearly 35 years, all passenger and freight traffic on the transcontinental railroad funneled through Promontory Summit — the only natural gap in the rugged Promontory Mountains. The steep grades leading to the pass required special procedures, including the use of helper engines. However, with the completion of the Lucin Cutoff in 1904, the segment of the line through the Promontory Mountains, past the Last Spike Site, was downgraded to a local branch line. This downgrading of the rail line marks the end of national significance for the historic site.

The third period of significance encompasses the period between 1904 and 1942. During this time the line became known as the Promontory Branch or the Promontory Line, and was generally used for local traffic only. Although no longer a component of the transcontinental railroad, the branch line continued to be important to local residents, who depended upon it for both passenger and freight service.

The National Historic Site as a whole possesses integrity of location, setting, feeling and association. Although there has been some deterioration of materials in the grade and its associated structures, it possesses integrity of materials, workmanship and design. In addition, the archeological remains of the

former activity areas (e.g., workers' campsites and the town of Promontory Station) possess depositional integrity and have the potential to contribute significant information regarding site function, and the range of activities that occurred at the various sites. In addition, they may yield information regarding the age, gender and ethnic/cultural origin of site occupants.

Vegetation: The relative density of native shrubs versus native grasses and forbs has been altered. Today the landscape is no longer dominated by the tall wild grasses that some say characterized the native "sagebrush steppe" present at the time of railroad construction. Numerous nonnative plants that have been introduced to the landscape (both intentionally and unintentionally) include cheat grass, Russian thistle, alfalfa, tumble mustard, and crested wheatgrass. Although the distribution and density of vegetation has changed, the vegetation can still be characterized as a mix of native grasses, shrubs and forbs.

Contributing vegetation features include the native plants located within the boundary of the NHS. In addition, the box elder trees, the matrimony vine and the golden currant in the summit area appear to date to the later historic period and are important reminders of the settlement era. Noncontributing vegetation features include the modern foundation plantings adjacent to park service buildings. Outside the park boundary, although modern crops, including winter wheat and safflower, have replaced historic crops, the former pattern of alternating range and cropland continues to dominate.

At Golden Spike fire is used in combination with traditional hand tools and pesticides at Golden Spike to protect archeological and historic resources, including rock-walled campsites from encroaching vegetation and soil accumulation.

Erosion has caused substantial loss of and damage to the park's cultural resources. Several major sections of the historic Union Pacific and Central Pacific grades have been lost in the east and west areas of the park, including 2,000 feet of historic Union Pacific track laid on May 10, 1869.

5. Grant-Kohrs Historic Structures / Cultural Landscapes

Grant-Kohrs Ranch is managed as a 1,500 acre working, cultural landscape that has evolved through time with components and features that contribute to the site's NHL and NRHP listings. The landscape has a high level of integrity and significance: Grant and Kohrs (19th century) related resources contribute to the site's status as an NHL and Warren (20th century) resources contribute to the site's designation as a National Register site at the state level of significance.

The cultural landscape is divided into nine component landscapes: Grant-Kohrs Residential Area, Grant-Kohrs Ranch Complex, Warren Residential Area, Warren Ranch Complex, Uplands, Hayfields and Pastures, Railroad Corridor, Riparian Areas, and the Development Zone. Each of these component landscapes has a formal inventory of existing features, organized by cultural landscape characteristics (natural resources, vegetation, constructed waterways, special organization, views and vistas, circulation patterns, land use, historic structures such as houses and barns, and small scale features such as fences and gates). The individual features are determined to be contributing or not to the significance of the site. In general, only those features dating to NPS era are not considering contributing. Noxious weeds are never a contributing feature. Introduced species in the pastures and hayfields are contributing in those component landscapes but not the native uplands.

Cultural landscape characteristics have also been assessed for integrity – which is very high for all. The features on the landscape include over 88 historic buildings and structures, 183 acres of non-irrigated pasture, 132 acres of riparian areas, 242 acres range land, 535 acres irrigated land/hay field (200 acres hayed in 2009), four functioning flood irrigation systems dating from 1885 to 1887 totaling nine miles of main ditch with 21 miles of laterals, one handline irrigation system from 1950s which now distributes City of Deer Lodge secondary treated effluent, 15 miles of road, 30 miles of fence, and 625 gates.

The primary treatment of the landscape is preservation (retention of the greatest amount of historic fabric) with some components of rehabilitation (to allow for visitor enjoyment and understanding and site management/operations) and restoration (the Kohrs Residential Area to a 19th century appearance and the Riparian Area along the Clark Fork River to pre-contamination state).

Preservation appropriately includes continued agricultural land use (ranching, irrigation, and hayland) The ranch owns and manages a cow-calf operation of approximated 50 cows (Longhorns, English Shorthorns, Herefords and crosses), two breeding bulls, four breed-type Steers, 10 grass fed steers raised to market weight; a team of Purcherons, a team of Belgians, and three Quarter horses. Replacement heifers are retained and the remaining calves are sold at public auction. Additional grazing is at times leased and hay in excess to ranch livestock needs can be sold at public auction. The 2008 Foundation for Planning and Management defines a working ranch as one that balances agricultural practices, NPS laws, regulations, and policies, and preserves the resources of the ranch and provides the context for visitor understanding for generations to come.

Additionally, the park preserves a ca. 26,000-object site original museum collection and archives. Artifacts and archives represent all periods of the ranch's human occupation since its founding in the 1860's. About 10 percent of the most important artifacts are on exhibit in the family's home and ranch hand's bunkhouse with others in the blacksmith shop, tack room or the wagon and farm equipment exhibit. The other 90 percent are stored onsite in a dedicated storage facility and are available for research.

6. Hagerman Fossil Beds Historic Structures / Cultural Landscapes

Of major historical importance is the 1840s Oregon Trail, which traverses the monument and reflects the activities of pioneer emigrants and the local Native Americans who traded with them on their way west (NPS HAFO 1996: 41). Use of the trail occurred from about 1843 until the 1860s. A two and one-half mile section of The Oregon Trail crosses the monument on the south end and is intertwined with the Bell Rapids road up to the top of the plateau. Road construction has destroyed some segments of the trail but other segments are in excellent condition (NPS HAFO 2003:10).

The proposed research center / museum site contains historic structures and other evidence of Euro-American farming, mining and irrigation activities.

The monument also contains excavation sites from the 1920s and 1930s, which are of great relevance to the history of the science of paleontology. In 1928, the Smithsonian Institution, under the direction of Harold T. Stearns of the USGS and James W. Gidley of the Smithsonian excavated what became known as the Hagerman Horse Quarry. Additional excavations were conducted in 1930, 1931 and 1934. As noted in the GMP (McDonald 1993 in NPS HAFO 1996:41), "What the Smithsonian had discovered was the largest single sample ever found of an extinct species of horse. In addition to the horse, there were several other animals, including beaver, otter, mastodon, peccary, a primitive muskrat, frog, rabbit, turtle, birds and fish. The remains of many of these animals were found not only in [the Hagerman] Horse quarry, but also in sediments of the surrounding bluffs."

7. Little Bighorn Historic Structures / Cultural Landscapes

Historic Structures: According to the National Register Nomination, all of the land in both sections of the monument is considered significant for the historic scene, resources, and archeology. Archeological resources and the cultural landscape are not addressed in this nomination. The modern intrusions are listed as noncontributing.

There are no structures directly related to the 1876 Battle of the Little Bighorn except earthen rifle pits. Two monuments, the Custer Memorial (1881, HS-0031) and the Reno-Bentzen Memorial (1930, HS-0032), and approximately 259 white marble headstones (HS-0033), one representing each soldier, were placed on the battlefield by the U.S. Army in 1890.

There are several historic structures located in Historic District One associated with the National Cemetery. The Superintendent's House (HS-0001) is an army-pattern quarters constructed for the Cemetery superintendent in 1894. The two-story, stone building is in good condition and the exterior including locally quarried Parkman sandstone walls and foundation retains a high degree of integrity despite minor modifications. The interior has been modified for adaptive use.

A turn-of-the-century U.S. Army flagpole (HS-0036), originally a ship's mast, was erected in 1908, but few historical documents exist for this structure. The flagpole still stands within the approximate center of the cemetery.

A number of stone monuments from Abandoned Military Post Cemeteries, including the Fort C.F. Smith Memorial (HS-03 16B), the Bear Paw Monument (HS-1236B), and the Ft. Keogh Monument (HS-0002B), and other larger/smaller headstone markers exist in the national cemetery.

Cultural Landscapes: A Cultural Landscape Inventory (CLI) is in process. The CLI includes evaluation of landscape characteristics, archeological sites, buildings and structures, circulation, cluster arrangement, cultural traditions, land use, natural systems and features, spatial organization, topography, vegetation, and battlefield views and vistas both historic and contemporary. Additional structural features (such as observation points, fields, roads, and watercourses, etc.) are identified in the CLI. A Cultural Landscape Report which would include treatment recommendations for the cultural landscape is scheduled to begin in 2011.

The Custer Battlefield, Reno-Bentzen Battlefield and ridges between these areas, the Indian village site and primary viewshed surrounding the monument are all important elements associated with the Battlefield cultural landscape. Many of the surrounding lands also contain artifacts and sites related to the battle. These lands should be preserved and protected from activities that would adversely affect their historic and interpretive values.

The only structures presently identified on the Battlefield land are the Earthen Fortification/Rifle Pits (HS-0034). Most of these pits were examined, defined, and restored as part of the 1958 archeology project. However, terrain played a key role in determining the tactical movements during the battle... (NPS LIBI 2007: 15)

Topography and vegetation, like big sagebrush (*Artemisia tridentata*), played an important role in battle movements. Big sagebrush has not returned since burned in the 1983 and 1991 fires. In June 1876 the rolling-hills landscape was much greener with native grasses and could support much more livestock. Today nonnative grasses, like cheatgrass and bulbous bluegrass, give the battlefield a dryer appearance because these species die off or go dormant much quicker than the native grasses.

Off trail hiking is authorized only with special off-trail use permits and is not encouraged by the monument due to the easy disturbance of the soils. Repeated off trail hiking in concentrated areas cause social trails which disrupt the cultural landscape.

Elements contributing to the significance of the Custer National Cemetery landscape include the monuments, Indian Wars period headstones, the flag pole, grave markers, walks, drives, entrance gate and fence, trees and other plant materials, the Superintendent's House, and associated features.

8. Minidoka Historic Structures / Cultural Landscapes

The park encompasses only a small portion of the historic Minidoka War Relocation Center, including the historic entrance area, administration area, staff housing area, warehouse area, the swimming hole, root cellar, and beach area along the North Side Canal. Much of this land was fenced off after the camp was decommissioned, limiting the types and degree of physical modification to the camp. Since the historic period, the lands have remained open and unused, except for cattle grazing in areas adjacent to the North Side Canal.

The existing cultural landscape within the national monument has been severely compromised by the removal of historic buildings and structures as well as the construction of Hunt Road, which bisects the site. However, despite this overall loss, the national monument retains fragmentary portions of some landscape characteristics. The most common types of historic landscape resources are building foundations, road alignments, parking areas, walkways, vegetation, and remnants of buildings and structures. These resources provide clues to the spatial organization, land use, cultural traditions, circulation, and vegetation that existed during the historic period.

Of the more than 600 structures once located at the original nearly 34,000-acre Minidoka Relocation Center, only six remains. Of these six, four are in their original location, including the fire station, a warehouse, a former restroom, and the root cellar. There are, however, numerous other remnant structures.

Among the cultural landscape characteristics that contribute to the site's integrity include natural systems and features, spatial organization / cluster arrangement, buildings and structures, circulation, cultural traditions, vegetation and archeological sites. These landscape characteristics convey the five aspects of integrity, including location, design, setting, feeling and association.

Of these, four refer to key vegetation characteristics, including natural systems and features, spatial organization / cluster arrangement cultural traditions and vegetation. In addition, the cultural landscape inventory offers several recommendations regarding nonnative invasive vegetation.

- Natural Systems and Features (natural aspects that have influenced the development of a landscape, such as geomorphology, hydrology, ecology, climate, and vegetation).

"These landscape characteristics are still apparent in the rolling high desert steppe, basalt outcroppings, absence of natural surface water, low growing sagebrush vegetation, and the open and expansive views NPS PWRO 2007:57)."

- Spatial Organization / Cluster Arrangement

"Today many features . . . provide clues to the original extent and design of the camp. These features include the entrance sequence and parking area, numerous building foundations and walkways in the central core area, extant structures such as the root cellar and remains of the military police building and reception building, and landscape features such as the garden, historic vegetation, circulation systems, canals and the Hunt Bridge (NPS MIIN 2007:59)."

- Cultural Traditions (expressions of ethnicity in the physical landscape).

Cultural traditions at the relocation center include the ornamental gardens, including the entrance garden, civic landscape projects, and Japanese vegetable gardens and crops. The "... internees adapted structures and spaces to serve both personal and community-oriented biases, needs and traditional use. These adaptations occurred at several levels and influenced land use patterns, stylistic conventions, applied building forms, the use of materials, stylistic preferences in the design of gardens and selection of crops for dietary preferences" (NPS MIIN 2007:80). Besides the garden at the entrance, there were ornamental gardens in Blocks 2, 5, 26, and 34 and a wildlife preserve near Block 13, 15 and 17. Among the features of the ornamental gardens included "1) strategically placed and selected basalt rocks and boulders, 2) mounds, 3) a small architectural feature such as a bridge or a temple, 4) a path or stepping stones, 5) a screening device such as a fence, 6) transplanted and tended native plants, 7) a collection of flowering plants, and 8) a water feature such as a fish pond. The plants mentioned in documents included grasses, mint, cattail, reeds, willows, cactus, desert moss, bunchgrass and sagebrush" (Hosokawa 1943 or 1944: 1-4 in NPS MIIN 2007:81). According to the CLI, remains of the gardens include the entrance garden, the wildlife preserve, and Block 34 pond on adjacent private property, and the Block 5 garden moved to Seattle after World War II (NPS MIIN 2007:81). Among the cultural vegetables grown by internees include daikon radish, napa cabbage, burdock root, adzuki beans, and edible chrysanthemum.

- Vegetation (includes native and nonnative deciduous and evergreen trees, shrubs, forbs and plant communities used during the relocation camp period)

Beginning in spring 1943, hundreds of trees, shrubs, perennials, annuals and lawns were planted throughout the central camp area. Individual and communal victory gardens were also established in every block, at the schools and in the staff housing areas. Over 200 million pounds of produce were harvested in 1943 and seven million in 1944. In 1944 the camp was self-sustaining. Crops included potatoes, cabbage, turnips, napa cabbage, onions, tomatoes, beans and grains.

Today only remnant historic vegetation exists – eight black locust trees in the garden area and approximately 30 other trees scattered throughout the entrance, administration and staff housing areas. A lilac and rosebush are also found in the staff housing area (NPS MIIN 2007:86).

The CLI recommends that an arborist evaluate the remaining historic trees, assessing their health and providing stabilization recommendations. It also recommends removal of vegetation from the concrete slabs and a systematic inventory of vegetation to identify contributing historic vegetation and to generate recommendations for prevention and/or eradication of noxious weeds and invasive plants.

The following impacts associated with vegetation are identified in the condition assessment:

Vegetation / Invasive Plants

Both native and nonnative vegetation have intruded on all historic building slabs in the warehouse area and at Building 35-Warehouse Office, obscuring these camp features. The roots of the vegetation, particularly larger shrubs and trees, have created and expanded cracks in the concrete foundations, accelerating their deterioration (NPS MIIN 2007:90).

Over the past 60 years, native and nonnative plants and noxious weeds have taken over the site. Nonnative species were introduced during the WWII era and as a result of agricultural activities in and around the National Monument since WWII. Of the 12 documented nonnative species on the site, seven were determined to be noxious weeds by the NPS Exotic Plant Management Team. Many of these plants, including cheatgrass (*Bromus tectorum*), displace native vegetation that was present during the period of significance and obscure the vegetated open space areas at the site (NPS MIIN 2007:90).

... impacts from these activities [irrigated agriculture and former cattle grazing] include obscuring the historic open space areas of the camp, destroying native and historic vegetation, and creating the potential for introduction of nonnative and noxious plants (NPS MIIN 2007:91).

Another more specific recommendation calls for a restoration ecologist to develop a plan for invasive plant and noxious weed management (NPS MIIN 2007:92).

9. Nez Perce: Bear Paw Historic Structures / Cultural Landscapes

Because the Bear Paw Battlefield cultural landscape retains significant integrity associated with the events occurring there in 1877, Bear Paw Battlefield was included on the NRHP initially on October 6, 1970 as a National Historic Site and then in 1989 as a NHL (NPS NEPE 1986). The NHL boundary includes the locations of the Nez Perce encampment; offensive / defensive positions; and the assault and siege positions of the U.S. Army. The impacts of the Battle can still be understood from the area's spatial organization, land use (depressions and mounds), and natural systems and features as well as from its vegetation. In addition, documentation by L.V. McWhorter in the late 1800s with those who had been present at the Battle served to identify characteristics of the Battlefield, including small scale features and events that would otherwise have been lost.

Together, the nearly unchanged topography of the landscape, the views beyond the Battlefield southwest toward the Bear Paw Mountains and north toward Canada; the low lying vegetation surrounding the perennial Snake Creek; the rural atmosphere; the natural quiet and the natural darkness of the site combine to give the site a unique ambiance that allows park visitors to imagine the hope felt and lost and the continuing significance of the events that occurred at the site, with little interference from modern intrusions. As noted in the NHL nomination:

Intrusions upon the historic scene, where the Nez Perce War climaxed, are minimal, and most of these are beyond the site's core-area. To the west is [then] graveled State Secondary Highway 240 linking Chinook (16 miles to the north) with Cleveland (eight miles southeast and beyond). Barbed wire fences bound the road and define property lines; telephone poles and wire parallel Highway 240; the Snake Creek bottoms north and south of the battleground are seeded in hay and alfalfa; there is a corral to the west of Highway 240; several unobtrusive ranch buildings are visible in the Snake Creek bottom southwest of the site; and there are the sparse visitor amenities constructed west of Snake Creek by the State of Montana Fish and Game Commission, Recreation and Parks Division.

Spatial Organization / Land Use: Today, the character-defining features of the Battlefield, including the use of the natural terrain and how it was modified during the Battle, are evident as pointed out by interpretive waysides along the Battlefield Loop Trail which identify key features from and positions of both sides during the battle.

Natural systems and natural features: According to the NHL nomination: "The rolling grass-covered hills to the east and west of Snake Creek, which flowing north and then east bisects the site, and the steep sloped coulees converging on the stream have not changed in the [then] 110 years since the battle and siege that ended the Nez Perce's epic 1,700 mile march."

As described in Scott (2000):

The Bear's (sic) Paw Battlefield is situated within the open, moderately rolling prairie country of north central Montana along and adjacent to a portion of Snake Creek. The battlefield site is situated in the foothills of the north slope of the Bear's (sic) Paw Mountains and occupies portions of two distinct topographic features. The area where the Nez Perce were camped when attacked by the Fifth Infantry, and Second and Seventh Cavalries is on a level, primary terrace of Snake Creek. The prairie edge and surface to the east and west of Snake Creek is elevated from 20 to 40 feet above this primary terrace and on the east, is dissected by several ephemeral drainage systems which trend toward the Nez Perce camp locale from the east and southeast. The majority of the battlefield site, and the primary locations where the U.S. Army units took up positions against the Nez Perce are on this prairie surface above the creek bottom.

Vegetation: Snake Creek, though it apparently used to flow as a stream has grown in with willows and old beaver dams. Nearby buttes are primarily covered in grasses, however Timber Butte is forested. Outside the Battlefield, formerly grassy rolling hills retain that appearance, although they are now planted in hay and alfalfa and other grains.

Circulation: This site, used for six days in the fall of 1877 retains extraordinary integrity associated with its use, with the rifle pits and burial areas then created still in evidence today. In the valley bottom where many of the Nez Perce people stayed were dug a series of tunnels and holes to hide them, evidence of which still remains. Today a trail crosses Snake Creek in two places skirting the encampments of the Nez Perce and the Army Infantry / Calvary.

Small Scale Features: Features associated with the battlefield include the rifle and shelter pits of the Nez Perce and the Army and the burial locations of the Nez Perce and soldiers who died in the battle

(although the Soldiers were later reburied, first at Fort Assiniboine and then at Custer Battlefield National Cemetery).

Buildings and Structures: Although there are no buildings and structures associated with the events of 1877, there are two historic monuments (in addition to three non-historic monuments), one to the Nez Perce placed by L.V. McWhorter and Nez Perce War veterans shortly after the conflict in 1928 and one for the Battle placed by the Daughters of the American Revolution and Blaine County in 1929.

10. Nez Perce: Big Hole Historic Structures / Cultural Landscapes

Big Hole was designated as a national monument in 1910 and listed in NRHP as a national battlefield on October 15, 1966 (NPS 2004a *in* NPS BIHO 2005). In 1997, a cultural landscape inventory was conducted and a determination made that the Big Hole may also be eligible for the National Register as a cultural landscape under 36 CFR 1 § 60.4 (a), (b), and (d) (2004) by: its association with the Battle of the Big Hole and Nez Perce War (a); through its association with significant persons such as Looking Glass, Chief Joseph, and White Bird (b); and for its potential to yield information of importance to prehistory or history (d). Landscape features were then identified within the historic contexts of military, social history, and ethnic heritage and within two distinct periods of significance, August 9 and 10 of 1877, and 1883 (Nelson *et al.* 1997 *in* NPS BIHO 2005). The features were determined to be either contributing or noncontributing to the cultural landscape. The Ruby Creek Ditch and three smaller irrigation canals were considered to be noncontributing features to the Big Hole cultural landscape within the aforementioned three historic contexts and two periods of significance (Nelson *et al.* 1997 *in* NPS BIHO 2005).

Ruby Creek Ditch: The Ruby Creek Ditch, also called the Ruby Creek Canal or Canal 1, runs through the Big Hole in a southwest to northeast direction. In 1886, Mormon miners constructed the Ruby Creek Ditch from Ruby Creek to supply water to a placer mine located approximately 0.5 miles south of the Big Hole. The canal was used in this capacity for less than 15 years and was later used for irrigation. Although considered to be a noncontributing feature within the Big Hole cultural landscape, the Ruby Creek Ditch has been determined to be eligible for listing in the National Register through its association with mining (Andrews and Passman 1995, Jabs 1995, Warhank 1995 *in* NPS BIHO 2005).

Irrigation Canals 2, 3, and 4: Around the turn of the twentieth century, the Ruby Creek Ditch was subdivided into smaller canals to be used primarily for irrigation. Canals 2, 3, and 4 represent this division and historic use. No formal context statement has been developed for agriculture in Montana and the canals' eligibility to the National Register has not been formally determined. However, although further study is required in order to make such determination and to identify historic features to be preserved, other agricultural properties in the area and from this time period have been determined to be eligible. Canals 2, 3, and 4 are considered to be potentially eligible to the National Register through their association with agriculture, a historic and contemporary mainstay of Montana's economy, with the goal to retain their historic appearance and use (Andrews and Passmann 1995, Hampton 2005).

D. Recreational / Social Resources

1. Visitor Experience

a. City of Rocks Visitor Experience

Visitor Access: Access to the reserve is from Interstate 84. The Idaho Route 27 exit at Burley towards Oakley provides access to the west side of the reserve. The east side of the reserve is reached via the exit for Idaho Route 77 at Declo towards Albion and Almo. Roads approaching the reserve are paved but become unpaved county roads before they enter the reserve. The reserve is located approximately 180 miles from Salt Lake City, Utah and 85 miles from Twin Falls, Idaho.

Within the reserve are just over 10 miles of roads maintained by Cassia County. The gravel roads vary in width from 16-22 feet, have no constructed subbase, some ditches and no shoulders. Although some plowing occurs in winter up to Bath Rock, the roads into the park are generally closed in winter.

Visitation: Approximately 100,000 visitors experience City of Rocks each year.

Visitor Facilities: The reserve visitor center is located along Idaho Route 77 in Almo. It is open year round to provide information and orientation, including via a new video. The reserve contains approximately 23 miles of hiking trails, abundant climbing routes, some interpretive waysides and regular interpretive programs. Camping is available within the reserve, in nearby CRSP, on adjacent BLM and USFS lands, and on private land through permission of landowners.

Just outside the reserve boundary (part of CRSP) is the relatively new Smoky Mountain campground, which includes approximately 38 sites, including six equestrian sites with constructed paddocks. Campground amenities include RV hook-ups, picnic tables, fire pits, flush toilets and showers. Two yurt sites are also available.

There are approximately 64 individual campsites and three group sites within the reserve. Campground amenities include constructed tent pads, picnic tables, fire pits and vault toilets. Water is available near Bath Rock, Emery Pass, and at the Visitor Center parking lot.

Visitor Use Opportunities: The most popular recreational activities in the reserve are sightseeing, picnicking, rockclimbing, camping, hiking, mountain biking, photography and nature study. Cross-country skiing and snowshoeing also occur. Visitors come from Idaho (38 percent), Utah (34 percent), other states (25 percent), and foreign countries (three percent) (NPS CIRO 2008).

City of Rocks is nationally and internationally known for rockclimbing opportunities. A 2008 visitor use survey found that 53 percent of the visitors participated in climbing activities. There are more than 500 routes, many of which include permanent bolts. A county ordinance prevents the use of power drills. Among the most popular climbing routes are those on Bath Rock, Breadloaves, Elephant Rock, Parking Lot Rock, Morning Glory Spire and Window Rock. The formations along the California National Historic Trail including the Twin Sisters as well as the Research Natural Area are closed to climbing.

The reserve, except for the Research Natural Area, is open to hunting, which is managed by the State of Idaho. Hunting regulations are determined cooperatively by the Secretary of the Interior and the IDFG. Private grazing continues to occur in the reserve and CRSP leases pasture to two permittees each year. Private grazing continues to occur in the reserve, and in CRSP.

Interpretation, Education and Research: The interpretive programs at the reserve focus on providing an interpretive and educational experience to the widest possible variety of visitors. Target audiences include summer and winter visitors from the U.S. and elsewhere, school groups, visitors from local communities, teachers, children, etc. Actual or virtual visitors to the site can take advantage of websites, press releases, targeted emails, the park visitor center and films, wayside exhibits, self-guided trails, and publications. Visitors to the site can attend the climbing experience program, wildflower, bird, and archeology walks, trail rides, star gazing, as well as tours of the California National Historic Trail.

Soundscape: A soundscape analysis was completed for the park in 2009 as part of the GMP planning process. There have been no results from this analysis provided to the reserve yet.

b. Craters of the Moon Visitor Experience

Visitor Access: Combined U.S. Highway 20/26/93 which traverses the northern boundary of the monument is the primary access point for most visitors. The original monument boundary and access to the visitor center, campground and 7-mile Loop Drive is off this highway which passes through the towns

of Carey on the west and Arco on the east. Access to the southern part of the monument and preserve is off of Interstate 84.

Visitation: Approximately 200,000 people per year visit the monument. Between 1990 and 2001, monument visitation varied from a low of 186,993 people (2001) to a high of 241,160 people (1992) (NPS CRMO 2005:171). (Note: These statistics, however, relate only to the original monument and not the expanded monument and preserve.) BLM estimates an additional 20,000 people per year visit the expanded portions of the monument (NPS CRMO 2005:172).

Visitation occurs primarily in the spring through fall, with summertime peaks, but also occurs scattered throughout the year. In winter the 7-mile Loop Road, closed to motor vehicles, is groomed as a cross-country ski trail.

Based on analysis of visitors to the original monument (Machlis *et al.* 1989 in NPS CRMO 2005), visitors generally spend less than three hours at the monument, with approximately five percent remaining overnight to camp. Of these 80 percent are in family groups and the same percentage are on their first visit to the monument. While most visitors are from the United States, primarily the Rocky Mountain and western states (Idaho, Wyoming, California, Colorado, Oregon and Washington), approximately 19 percent come from outside the U.S.

Visitor Facilities: Most monument visitor and educational opportunities are located near the monument's visitor center south of US 20/26/93 between the "gateway" communities of Carey on the west and Arco in the east (both along the northern boundary of the monument). In addition to guided walks and programs offered by the NPS, the monument has several self-interpreting trails with waysides and a 7-mile Loop Drive. Facilities including the visitor center complex, which consists of a campground, museum, and bookstore (NPS CRMO 2005:6). The Loop Drive contains several short spur roads to points of interest, pullouts and parking areas, giving access to scenic vistas, hiking trails and vault toilets.

Through interpretive and educational programs, NPS and BLM desire to instill visitors with an understanding, appreciation, and enjoyment of the significance of the monument. Interpretive and educational programs encourage the development of a personal stewardship ethic and broaden public support for preserving our nation's natural and cultural resources (NPS CRMO 2005:169).

Visitor Use Opportunities: Visitor activities in the original monument include scenic driving, photography, caving, hiking, cross-country skiing, snowshoeing and camping, while visitor activities in the expanded monument and preserve include hunting, driving for pleasure, geologic exploration, including caving, hiking, sightseeing, primitive camping, photography, and mountain biking.

Interpretation, Education and Research: The interpretive programs at the monument focus on providing an interpretive and educational experience to the widest possible variety of visitors. Target audiences include summer and winter visitors from the U.S. and elsewhere, school groups, visitors from local communities, teachers, children, etc. Actual or virtual visitors to the site can take advantage of websites, press releases, targeted emails, the park visitor center and films, wayside exhibits, self-guided trails, and publications. Visitors to the site can attend general interest interpretive programs, campfire programs, talks, walks, teacher workshops, star gazing, etc.

Interpretive themes include volcanism, adaptations to the harsh environment, winter ecology and cultural history.

Soundscape: Most of the monument is quiet. There are few modern sources of unnatural sound intrusion, or noise. The major noise producers are highway traffic from outside the monument, the railroad near the southern edge of the monument, and aircraft overflights.

The area around the Visitor Center and the campground is adjacent to U.S. 93 and subject to highway noise. Occasional noise from OHVs, snowmobiles, and other vehicles occurs in the road portions of the expanded monument. These noise intrusions are most prevalent during high-use periods, such as hunting season, and least prevalent during low-use periods, such as during winter.

Aircraft overflights create some unnatural sound intrusion year-round. The Federal Aviation Administration (FAA) has established an advisory ceiling of 2,000 feet above ground level over the Craters of the Moon Wilderness Area. Nonetheless, many over flights occur above 2,000 feet, including commercial aircraft from the airports in Boise, Idaho Falls and Sun Valley (Hailey). There are also small airstrips in Arco, Picabo, Carey, and Burley that support smaller private aircraft that may operate over the monument. Perhaps the noisiest aircraft overflights are associated with the two military flight-training corridors that cross the monument.

Helicopter use associated with public land management activities such as wildlife population inventories, livestock monitoring, invasive plant monitoring, and firefighting also contribute a small amount of noise. The two emergency airstrips in the monument receive no regular use (NPS CRMO 2005:179).

c. Fossil Butte Visitor Experience

Visitor Access: Fossil Butte is open daily except on holidays. Signs along U.S. Highway 30, near Kemmerer, Wyoming, direct visitors to the monument. Primitive camping is currently available in the town of Kemmerer.

Visitation: Approximately 16,000 people visit Fossil Butte each year.

Visitor Facilities: A large monument visitor center also contains administrative offices and a curatorial facility.

A series of wayside exhibits are located around the visitor center and along the road to the quarry site / picnic area.

Visitor Use Opportunities: The following recommendations for visitors come from the Fossil Butte website:

- If you have an hour, spend your time in the visitor center. You can see over 80 fossils, two video programs and fossil preparation demonstrations. You'd also have time to become a Junior or Senior Ranger.
- If you have two hours, spend the first at the visitor center. Then consider hiking one of the interpretive trails, take the scenic drive, or participate in a ranger program.
- If you have three to four hours, you have plenty of time to check out the visitor center and scenic drive, hike one or both trails, and become a Junior or Senior Ranger.
- Hiking the 2.5 mile Historic Quarry Trail is a great way to experience the geology of Fossil Butte National Monument. The trail passes through parts of the Wasatch and Green River formations. A short side loop leads to the site of a historic fossil quarry on Fossil Butte. Wayside exhibits provide information about geology, area history, wildlife and plants of the high desert. The trail is moderately strenuous with a 200m (600') elevation gain. Allow 1.5-3 hours to hike the trail.

Interpretation, Education and Research: The following curriculum resources for middle school students have been developed by Fossil Butte and are available to download from the monument's website:

- A Carbon Cycle that Rocks,
- Geology, Relatives, and Time,
- Radiometric Dating Game,
- Seeing the Third Dimension, and
- Modeling Fossil Butte.

The following interpretation objectives were identified by the GMP (NPS FOBU 1980:19-20):

- Point out by direct visual reference that the top of Fossil Butte is a remnant of an ancient lakebed and presents a vivid image of Fossil Lake and the subsequent land erosion and formation processes.
- Demonstrate to visitors the techniques used in preparing fossils.
- Show the teeming variety of life that existed in the Fossil Lake environment by arraying fossils in visually exciting exhibits.
- Show by interpreting fossil specimens that fossils reveal not only the beauty of ancient life forms, but scientifically significant patterns.
- Help visitors understand the sweeping environmental changes that have occurred here during the past 70 million years by portraying changes in life forms that occurred before, during and after the existence of Fossil Lake.

Soundscape: No formal analysis of soundscape resources has been completed for the park.

d. Golden Spike Visitor Experience

Visitor Access: The park is located in Box Elder County, Utah, 25 miles west of Corinne, 35 miles west of Brigham City, and 85 miles northeast of Salt Lake City. State Highway 83 leads to the area from Interstate 15 and Interstate 80.

Visitation: Approximately 43,000 people visit Golden Spike each year.

Visitor Facilities: A moderate parking area (62 cars), comfort station, and visitor center are located at the summit area. Another small parking area (10 cars) is located near the trail to the Big Fill walking trail and six cars near the Big Fill wayside exhibit. There are also administrative offices, a maintenance complex and a garage for locomotive storage.

Visitor Use Opportunities: At the summit, visitors can obtain information at the visitor center and bookstore and participate in a living history reenactment of the coming together of the steam locomotives and in the driving of the Golden Spike. An auto-tour route of other features on the east and west slopes (averaging about 30 minutes) is also available, as are 1.5 miles of trails. Occasionally camp activities, such as sourdough biscuit making and blacksmithing are demonstrated.

At the site, visitors sightsee, take photographs, picnic and participate in living history activities.

Among the nearby visitor experiences are the Cache and Sawtooth National Forests, Willard Bay State Recreation Area, Locomotive Springs and Bear River Migratory Bird Refuge Waterfowl Management Areas, and the Powder Mountain and Nordic Valley ski resorts.

Pilot Peak, north of Wendover, was one of the sites where the Donner Party camped on their trek west. It was there that they stayed too long, and this delay caused them to be trapped in the Sierra Nevada Mountains.

During World War II, Wendover was the site where the United States prepared the two B-29 bombers to drop the atomic bombs on Japan. Much of the land west of the park was used as a testing range for these aircraft.

The Newfoundland Mountains are an isolated mountain range in the northern part of the Great Salt Desert, where a herd of bighorn sheep were reintroduced by the Utah Wildlife Resources Division.

Interpretation, Education and Research: The Golden Spike website contains a teacher's packet, oral histories, articles and research papers about the transcontinental railroad and the historic period of its development.

The primary interpretive theme is the joining of the Union Pacific and Central Pacific railroads and what it meant to the opening of the West and the eventual end of the frontier – the long and short-term changes that occurred as a result of completing the first transcontinental railway. Secondary interpretive themes include demonstrating the process of railroad grade construction and portraying the life of the construction worker and early railroad boom towns.

Some reconstruction in the summit area occurred to support interpretation and the park story. Reconstructed features include the Union Pacific and Central Pacific tracks, including the mainline, Union Pacific siding, Union Pacific wye, telegraph lines and poles and the locomotives and tents and wagons used in living history interpretation of the events of May 10, 1869.

Soundscape: No formal analysis of soundscape resources has been completed for the park.

e. Grant-Kohrs Visitor Experience

Visitor Access: Grant-Kohrs Ranch is located in south, western Montana off Interstate 90, near the town of Deer Lodge, approximately 35 miles from Butte and 55 miles from Helena.

Visitation: Grant-Kohrs Ranch has attracted approximately 492,630 visitors over the past twenty years, averaging 24,631 visitors a year. Since 1995, annual visitation trended downward, culminating in a 30 percent overall decrease from 1995 to 2003. 2004 demonstrated a reversal of this trend, as visitation increased 10 percent from 2003. This trend has continued through 2009. Staff believe this is due to the recent “stay-cation” phenomenon (people vacationing closer to home due to financial limitations) and the implementation of a concerted marketing effort that included adding new events and publicizing them better in the three major regional cities.

Almost 90 percent of park visitation occurs from May through October, with a significant portion being school groups visiting from late April through early June. Most of the remaining 10 percent of visitation that occurs from November through April is related to a special holiday open house event in December. The park averages only 30 to 50 visitors in the months of January and February. There appears to be an increasing number of families visiting the ranch.

Visitor Facilities: Most visitors arrive at the development zone with its formal parking lot, rest rooms, and “temporary” visitor contact station established in 1975. The visitor contact station (a shared facility with United States Forest Service) is an old granary where visitors learn about what they can see and do at the ranch. There is also a small gift shop area.

The park hopes to replace its temporary visitor contact station with a newly constructed, modest and well designed visitor center in approximately the same location.

Visitor Use Opportunities: Grant-Kohrs Ranch is managed as a day-use area interpreting the nation's frontier cattle era and its evolution into modern times. Once visitors are oriented to the site and its programs at the visitor contact station, they walk down a short asphalt trail to the main historic complex. They can take a guided tour of the family home furnished with Grant and Kohrs original belongings. With the assistance of the park brochure, visitors can guide themselves through several historic structures: a bunkhouse, tack room, and black smith shop with original contents and a extensive collection of family-owned horse drawn vehicles and farm equipment. And there are a growing number of structures hosting interpretive media (photo display, timeline, haying with horses video). During the summer, many visitor programs are offered include blacksmith demonstration, chuck wagon stories, cowboy talks, and wagon rides out to the more remote areas of the ranch. There are four special events during the year celebrating each of the seasons. There is also a short trail nature trail in the southeastern part of the park.

Pressure and opportunity for recreational use of the site is increasing. There are several proposed walking trails through the length of the ranch. Most support the development of a trail along the Clark Fork River riparian corridor as a project under remediation and reclamation of mine contaminants. It appears a growing number of individuals are recreating on the river with increased numbers of floaters and fishing.

Interpretation, Education and Research: Interpretation is focused on five interpretive themes, as established in the draft 2004 Comprehensive Interpretive Plan.

A. The historical integrity and intactness of Grant-Kohrs Ranch facilitates a deeper understanding of the myths and realities of cattle ranching and the American West.

B. The story of Conrad Kohrs' rise from hopeful emigrant to powerful cattle baron exemplifies the pursuit of the American Dream through flexibility, vision, determination, and good fortune.

C. The relationship of the cultural and natural landscape at Grant-Kohrs Ranch provokes appreciation for the interconnectedness of all life; the direct human dependence on natural resources for food and other products; and the necessity of wise and sustainable resource stewardship to ensure continued prosperity.

D. The history of Grant-Kohrs Ranch offers insights into how an enterprise often attributed to the effort of one person or family is inextricably tied to many people of diverse talents and backgrounds working together for individual and mutual advantage.

E. The deliberate preservation of Grant-Kohrs Ranch by Conrad and Nell Warren — including original buildings, records, artifacts, and landscapes — represents values of historical awareness and respect, and connects to the larger idea of cultural memory and its preservation.

In the last five years, the park has focused on development of curriculum based education programs. This has been largely accomplished through annual "Teacher Workshops" hosted at the ranch and results in development of lesson plans available on line. Dedicated staff has developed traveling trunks that go throughout the country and outreach programs to local schools.

Research at the ranch has centered on management plans and a better understanding of cultural and natural resources. Research has included inventory and analysis of cultural landscapes, beaver and Columbian ground squirrel management, herbicide control of cheatgrass, historic vs. NPS era fence alignments and their impact on resources, museum light level management, management of museum pests, status of retained cattle behavior training to graze noxious weeds, utilization assessment of past NPS-era agricultural practices, establishment of agricultural best management practices, cultural soundscape, noxious weed mapping, economic history of the ranch and its relationship to Park Canada's Bar U Ranch, and inventories related to the CESU I&M Program (avian, bat, small mammal, fish, amphibian, and vascular plants). In the past, there was a tremendous amount of research associated with damage assessment of upstream mining and smelting. There is an on-going study of osprey fledglings to measure the level of mercury they have acquired from local food sources.

Soundscape: Grant-Kohrs is now working with MSU and the NPS Natural Sounds Program Office (NSPO) to collect a long-term (12 month) assessment of the characteristic seasonal and diurnal soundscape. Automated acoustic instruments provided by the NSPO collected the bulk of the data including sound pressure level measurements every second used to calculate 1 second Leq 1/3rd octave sound levels. These sound level measurements were obtained by calibrated equipment with ANSI Type 1 certification (e.g., Larson Davis 831). At the same time, calibrated digital audio (MP3) recordings were collected continuously, and wind speed and temperature measurements were logged automatically every 10 seconds. This baseline information can be used in the future to measure impacts from increased

airport traffic, proposed rifle range studies, and freeway development. The audio recordings of both cultural and natural sounds are being used in various interpretive programs and media.

f. Hagerman Fossil Beds Visitor Experience

Visitor Access: Hagerman Fossil Beds has a small visitor center and offices in Hagerman, which is located off U.S. Highway 30 and Interstate 84, which passes through south central Idaho between Idaho Falls, Twin Falls and Boise.

Visitation: Approximately 36,746 people visit Hagerman each year.

Visitor Facilities: A visitor center in the town of Hagerman allows viewing of fossils, before driving to the sites where they were found. The small visitor center contains fossil displays in cases, a children's area, an auditorium with a film shown on request, a small book sales area, and a sales desk / visitor information desk. A short film is available at the visitor center to put the significance and time of the fossils (3-4 million years ago in the Pliocene Epoch) in perspective. The Pliocene was right before the Ice Age when one-toed horses, saber tooth cats, mastodons, ground sloths, camels and other wildlife were found in Idaho. These and other fossils are part of the park's collection.

In addition to fossil sites, vestiges of the 19th century Oregon Trail are also present. A parking area and short trail near the fossil quarry lead to wagon ruts. The visitor center also has a presentation on American pioneer experiences from the Oregon Trail.

The visitor center also currently serves Minidoka and has a small exhibit of photographs and artifacts from the relocation center.

Visitor Use Opportunities: Public recreational opportunities in the park include picnicking, fishing, hunting, sightseeing, photography, and wildlife observation. Area recreational opportunities also include camping, boating, windsurfing, water and snow skiing, ice skating, mountain climbing and wilderness use.

There are three overlooks available on a driving tour of the monument, including one of Fossil Gulch, the Snake River and the Oregon Trail. Each has short trails to wayside exhibits describing the featured attractions. There is also a noted stop at a wetland rest area managed by the Idaho Department of Fish and Wildlife. Periodic tours of the Hagerman Horse Quarry are also offered to schoolchildren and to summer visitors. In addition, interpretive staff presents off-site programs to area schools.

Hagerman hosts an annual Hagerman Fossil Days event (begun in 1989). The event showcases the fossil heritage of the monument and surrounding area and provides a theme for other town festivities.

Interpretation, Education and Research: Regular interpretive programs at the visitor center and within the park are offered, including viewing of the park film and quarry site visits.

Soundscape: No formal analysis of soundscape resources has been completed for the park

g. Little Bighorn Visitor Experience

Visitor Access: Little Bighorn Battlefield is located in south central Montana off Interstate 90 at Highway 212 junction.

Visitation: Little Bighorn visitation was 305,000 people in 2009. Peak visitation occurs during the months of June, July, and August and accounts for 72 percent of visitation, according to NPS traffic count data of vehicles entering the monument (RPA 1998 in NPS LIBI 2005a). Many monument visitors are traveling to and from other national parks farther west, although the monument is frequently the destination of "Custer buffs", Native Americans, and history enthusiasts. The average length of stay is about one hour. Fall visitation accounts for 15 percent, winter for one percent, and spring for 12 percent of total yearly visitation (NPS 1999b in NPS LIBI 2005a:38).

Visitor Facilities / Visitor Use Opportunities: Four walking trails have been established: Reno-Benteen Defense site, five miles south of the Custer battlefield; Keogh / Crazy Horse position and Cheyenne markers on battle ridge; and along Deep Ravine, west of battle ridge. Custer National Cemetery, contains burials that are historic to northern plains events as well as burial of veterans and dependents from 1879-present. White Swan Memorial Library contains the finest collection of research materials available on the battle of the Little Bighorn, as well as other related historical events (NPS LIBI 2005a:38).

The self-guiding Tour Road enables visitors to follow and observe the sites related to the battle. Approximately 45 percent of monument visitors drive the Tour Road through the monument and private land (NPS 2004d in NPS LIBI 2005a). The Tour Road is the only road open to the public in the monument, and begins at the monument entrance station, proceeds through the Custer Battlefield, enters private land and then re-enters the monument at the Reno-Benteen Battlefield, where it terminates at the turnaround in the Reno-Benteen parking area (NPS LIBI 2005a:38).

The monument's main parking lot is the visitor center parking lot, located at the visitor center immediately inside the entrance to the monument. For purposes of this discussion, they are referred to collectively as the visitor center parking lot. This parking area provides interpretive and educational opportunities; and access to the visitor center, museum, Custer National Cemetery, Deep Ravine and Keogh / Crazy Horse trails, and the monument headquarters (NPS LIBI 2005a:38).

There are several parking spaces at pullouts along the Tour Road, which provide access to interpretive and educational opportunities, and scenic views of the battlefields (NPS LIBI 2005a:38). A second smaller lot is located at the Reno-Benteen Battlefield at the terminus of the Tour Road. This lot functions both as a parking lot and as a turnaround loop at the end of the Tour Road. The parking area provides interpretive and educational opportunities, scenic views of the Reno-Benteen Battlefield, and access to the Reno-Benteen Defense site trail (NPS LIBI 2005a:38).

Interpretation, Education and Research: Little Bighorn Battlefield National Monument offers a wide range of interpretive and educational opportunities. The principal resources in the monument include the Custer Battlefield and Reno-Benteen Battlefield, the Custer National Cemetery, the monument's museum and archives, and the Indian Memorial. Talks on the battle and related themes are presented at the visitor center during the summer. Guided bus tours are offered through the concessionaire at Little Big Horn College, and self-guided walking tours are available for the battle-related sites and the national cemetery (NPS LIBI 2005a:38).

Soundscape: No formal analysis of soundscape resources has been completed for the park.

h. Minidoka Visitor Experience

Visitor Access: Access to Minidoka in south central Idaho is via Interstate 84, U.S. Highway 93, U.S. Highway 25 and Hunt Road. It is located approximately 22 miles from Twin Falls.

Visitation: Approximately 40,000 people per year currently visit Minidoka. The GMP projects that once the site is signed and visitor facilities established, approximately 80,000 people would likely visit the site, however because the site is close to Interstate 84, it seems likely that more people would visit the site.

Visitor Facilities: Most of the site's buildings and structures were removed. The barrack areas were plowed under so currently not much remains of the original camp. The remains of the entry guard station, waiting room, ornamental rock garden and commemorative plaques are almost all that remains. After the war, the camp's buildings were dismantled or relocated. Former Minidoka War Relocation Center buildings can be found throughout the Twin Falls area and beyond.

Visitor Use Opportunities: The park websites makes the following suggestions for the visitor experience:

- Walk through the remains of the entry station, waiting room, and rock garden. Read the names on the plaques. Try to imagine what it must have been like to be brought to this remote area.
- Look around and compare what you see to your own more comfortable surroundings.

Former internees return to Minidoka frequently. The Friends of Minidoka, a non-profit educational organization, sponsors a pilgrimage to Minidoka every year during June or July. Many former internees, and a growing number of interested people, participate in this event.

Away from the monument, the Jerome County Museum contains a relocation center display and there is a restored barracks building at the Idaho Farm and Ranch Museum (IFARM).

Interpretation, Education and Research: There are currently regular interpretive programs at the site in the summer and occasional interpretive programs at other times of the year. In addition, interpretive staff regularly roves the site in summer.

Soundscape: The soundscape or ambient sound environment of Minidoka is that of a rural agricultural landscape. Although it is a relatively quiet environment, it is not without some human-caused background noise. The primary sources of noise on the national monument are traffic on Hunt Road, farm machinery operating in adjacent fields, and overflights by aircraft. “Natural quiet” refers to the state of having only natural sources of sound, for example wind, rustling leaves, and water. Those portions of the park adjoining the North Side Canal are influenced by such natural sources of sound. Because Hunt Road lies in the center of the site and because of nearby agricultural activities, virtually all parts of the national monument are frequently subject to periodic noise from traffic and agricultural operations. Thus, the park only exhibits natural quiet for short periods of time.

i. Nez Perce: Bear Paw Visitor Experience

Visitor Access: Access to Bear Paw Battlefield in north central Montana is provided via U.S. 2 through Chinook, Montana and a Blaine County connector road (240).

Visitation: Over 300,000 people visit Nez Perce National Historical Park annually. Approximately 10,420 people visited the Bear Paw Battlefield site in 2009.

The most recent visitor profile information for the park comes from a visitor survey conducted in cooperation with the University of Idaho from July 17 to 23, 1994. Although this survey was prior to the acquisition of Bear Paw Battlefield, it provides some useful information about those who visit this widely dispersed park. Visitors were surveyed at the following locations:

- Idaho: Spalding Visitor Center and picnic area, White Bird Battlefield, USFS Lolo Pass Visitor Center, Heart of the Monster (East Kamiah), and Canoe Camp;
- Oregon: Old Chief Joseph’s Gravesite;
- Montana: Big Hole National Battlefield, and Bear Paw Battlefield (NPS BEPA 1994).

According to the Long Ranger Interpretive Plan (LRIP) (NPS BEPA 2000:9), the survey found that 32 percent of visitors were between 41 and 55 years old, and 21 percent were 20 or younger. Fifty percent of visitors came in groups of two, 32 percent in groups of 3-5, 10 percent in groups of six or more, and eight percent alone. Visitors were most often in family groups (69 percent). Most visitors (79 percent) were coming to the park for the first time and over half (54 percent) of visitors came from the western United States – Idaho (18 percent), Oregon (13 percent), California (13 percent), Washington (15 percent), or Montana (eight percent) (surveys were conducted in Idaho, Oregon and Montana). Only four percent of park visitors were from other countries, with more than half of those from either Canada (28 percent) or Germany (27 percent). Other international visitors came from Costa Rica, Switzerland, United Kingdom, Australia, Norway, Belgium, China, Japan, New Zealand and Spain (Littlejohn 1995:8).

Most visitors (69 percent) reported their length of stay at a particular park site as one hour or less. Many (36 percent) reported having received no information about the park before their visit. Almost two-thirds (64 percent) of visitors cited learning Nez Perce history as a reason for visiting the park. The most used services were the visitor center exhibits (if available) (75 percent); park brochure/map (63 percent); and (if available) information from park employees (51 percent). The most used facilities were the highway historical signs (71 percent), highway directional signs to the park sites (65 percent), and restrooms (63 percent). Visitors reported that they would most like to learn about the following subjects: history of the Nez Perce, the Lewis and Clark Expedition, the Nez Perce War of 1877, and pioneers/settlers. Half of those surveyed (50 percent) said they would like more contact with the Nez Perce Tribe/people in the future.

Visitor Facilities: Visitor facilities include a small picnic area, portable toilet and loop trail at the site and an offsite visitor information center in Chinook.

Visitor Use Opportunities: The LRIP notes that Nez Perce currently comprises 38 sites spread over five states with more than a thousand highway miles between them, “Few visitors will ever visit all 38 sites and most of the park’s visitation occurs at only a handful of sites. The majority of visitors discover Nez Perce sites as they travel to and from other destinations” (NPS NEPE 2000:9).

Interpretation, Education and Research: Interpretation available at the Battlefield includes organized walks and talks during the summer, roving casual interpretation with visitors along the trail, wayside exhibits along the trail, monument signs and the interpretive trail guide / site brochure. There is no official park visitor center, however the Blaine County Museum currently serves as an interim visitor center (see information below) and as noted earlier offers extended hours in summer because of NPS funding.

The physical setting and characteristics of the site, including the solitude often induce reverence in visitors, contributing to the opportunity to reflect on the events at the Battlefield and how they impacted this country and effectively its last Indian battle.

For Nez Perce, the following information was developed in support of the invasive plant management program:

The NPS is required to use the highest quality science information to manage park resources (NPS 1999). Each year Nez Perce natural resource staff (in conjunction with the UCBNI&M program) will collect, analyze, interpret, and report invasive plant monitoring and control data to assist managers, park staff, and visitors in gaining a better understanding of the status and trend of invasive plants within each park unit. These data and reports will be used to assess the condition of natural resources, including native vegetation, and to inform management decisions (Garrett *et al.* 2007).

Education and Outreach Strategy

One of the challenges faced by natural resource staff and scientists is translating discoveries into procedures and practices and then passing that information on to park staff, visitors, neighbors, and collaborators. To be relevant to other park divisions and the public, Nez Perce managers should always ask themselves: How can interpreters and the public use the information that is being discovered and implemented? Based on this, it is important to consider some key points when communicating program information:

- *Use plain language.* If someone outside a scientist’s or manager’s area of expertise is not likely to understand a word, he/she should explain it or choose a different word.
- *Use pictures.* Sometimes people just need to see the information. This does not mean charts and graphs. Real pictures, explanatory graphics, and maps that depict a situation are always helpful.

- *Be short. Synthesize.* Information should be explained in 4-5 bullets. It is harder to boil things down to a few bullets than it is to tell the “rest of the story,” however, by doing the work, the rewards, as far as communication goes, will be great (Lewis 2007).

The invasive species data that will be produced each year must be simplified into a concise, clear format for public consumption. The results must be applicable to Nez Perce staff and park collaborators and/or relevant or interesting to non-scientists (Jocius 2009).

Goals

The intent of this plan’s education and outreach effort is primarily to raise awareness and inform internal and external audiences of the impact invasive plants have on park resources *and* the steps managers have taken to control the plants (including why certain treatment techniques are necessary).

Soundscape: No formal analysis of soundscape resources has been completed for the park site.

j. Nez Perce Big Hole Visitor Experience

(See also the overview of Nez Perce National Historical Park provided above in the Bear Paw section.)

Visitor Access: Big Hole is located in southwest Montana between U.S. 93 and Interstate 15, off State Highway 43. It is approximately 62 miles from Salmon, Idaho and 80 miles from Butte, Montana.

Visitation: Approximately 30,662 people visited Big Hole in 2009. In 2001, 57,209 people visited, 60,244 in 2002, and 57,486 in 2003.

Visitor Facilities: Big Hole contains a visitor center, public restrooms, picnic areas, and walking trails as well as administrative and maintenance areas and employee housing. There is no public transportation to or from Big Hole. No lodging or camping facilities exist at the park and there are no food concessions at the park.

Visitor Use Opportunities: The primary recreational opportunity in Big Hole is educational. Big Hole is historically important because it memorializes one of the most famous battles of the Indian Wars, the 1877 Battle of the Big Hole. The visitor center includes a small museum with historic artifact displays and an introductory video. A bookstore is also located within the visitor center. Big Hole still retains much of the visual character that existed during the 1877 battle (NPS BIHO 2005).

In addition to the historic and cultural experience of a Big Hole visit, there are opportunities for hiking, wildlife viewing, photography, and fishing within the park. There is no hunting allowed within Big Hole. Fishing in the Big Hole River requires a Montana state fishing license. Game fish species include brook trout, burbot, mountain whitefish, westslope cutthroat trout, and rainbow trout (MDFWP 2004). Visitors may view and photograph wildlife such as moose, elk, and raptors. There are three self-guided hiking trails within Big Hole. During the winter months, these trails are limited to cross-country skiers and snowshoers. In summer, the walking trails are wheelchair accessible with assistance (NPS BIHO 2005).

Interpretation, Education and Research: Interpretation available at the battlefield includes NPS Ranger-led walks and talks during the summer, roving casual interpretation with visitors along the trail, wayside exhibits along the trail, monument signs and the interpretive trail guide / site brochure.

The physical setting and characteristics of the site, including the solitude often induce reverence in visitors, contributing to the opportunity to reflect on the events at the Battlefield and how they impacted this country.

There are two self-guiding trails. One trail ("Nez Perce Camp Trail") goes from the lower parking area out to the area where the Nez Perce were camped when they were attacked. The other trail ("Siege Area Trail") goes from the lower parking lot up onto the hill overlooking the Nez Perce camp where the Nez Perce besieged the soldiers for nearly 24 hours while their families escaped. Park staff gives formal guided walks on both trails. A short spur trail leads to an overlook of the camp and has a wayside exhibit. The location of the howitzer capture is also accessible by trail and has a replica howitzer and wayside in place.

See also the information above about the education and interpretation strategy developed for Nez Perce.

Soundscape: No formal analysis of soundscape resources has been completed for the park.

2. Grazing and Livestock Trailing

1. City of Rocks Grazing

City of Rocks currently manages six grazing allotments that range from 427 to 446 Animal Unit Months (AUMs), depending on which pastures are grazed. An AUM means one cow and calf pair grazing for one month. This number is down from the seven grazing allotments and permittees in 1996. The Circle Creek allotment was closed to allow for restoration of the California Trail landscape. The permitted grazing season starts in May and concludes in mid-September and includes adjacent BLM and USFS land. Nine ranchers trail cattle across the area in concentrated and staggered drives twice a year. Prime summer pastures include the Graham and Walters Creek allotments as well the privately held Circle Creek Basin (NPS CIRO 1994:106).

Livestock grazing presents a great challenge to weed eradication as livestock can act as a medium to seed dispersal (NPS CIRO 2006:70). Erosion associated with over grazing may be affecting water quality in streams and springs.

Livestock Trailing: As noted in the CMP, "domestic livestock could be trailed through any zone necessary to move them from one area of an allotment to another. Livestock trailing corridors are proposed to be designated. "Trailing corridors would remain for all other historic trailing routes" (NPS CIRO 1996:45). Trailing is prohibited in the Research Natural Area and where the California Trail wagon ruts are best preserved. Grazing is also excluded from wetlands and riparian areas in many areas (NPS CIRO 1996: 44). Where it is not excluded, wetland protection and restoration strategies have been implemented.

2. Craters of the Moon Grazing

NPS administers 462,880 acres or 61 percent of the monument, an area not available for livestock use. Most of the remaining area (285,700 acres) is administered by the BLM and are open to livestock use. Sheep and cattle allotments are designated throughout the grazed areas. Grazing permits (essentially leases) are awarded by allotment. Another 1,800 acres managed by the BLM is also unavailable for grazing.

There are approximately 23 grazing allotments in the BLM monument comprising the 285,700 acres. At the time of the GMP, these were allotted to 79 permittees and could accommodate 36,965 animal unit months (AUMs). In addition to grazing, livestock trailing between allotments occurs along designated roads and trails in the monument.

3. Fossil Butte Livestock Trailing

Fossil Butte is one of a few areas in southwestern Wyoming not grazed by cattle and sheep. Nonetheless, the enabling legislation provided for livestock trailing across monument lands. Sheep trailing occurs twice each summer. In June three bands of about 1,500 sheep trail through the park from south to north, about six miles. The bands are pushed through the park, with one band each on three consecutive days. Due to the lambs' need for water the rancher sets up a water trough along the park's road. The trough is filled using water trucked in by the rancher. In September the three bands move north to south through

the park, but without needing a water stop. In mid-summer 100-200 cows are trailed east-west through the north end of the park, a distance of about two miles.

4. Golden Spike Livestock Trailing

Currently and historically the area surrounding the park has been used for dryland farming and cattle grazing. Livestock trails were established in Box Elder County before Golden Spike was established. Domestic livestock are trailed through the park along the county road to move them from one area of an allotment to another. They are kept out of the park via fences along the county road. Near the developed zone, which includes the Visitor Center, Engine House, Maintenance area, and residence, fencing is not as consistent.

Box Elder County has typically been a “fence out county” but in 2009 the Box Elder County Commission changed county fencing ordinances. Currently half of Golden Spike is a “fence out” area and the other half is a “fence in” area.

5. Grant-Kohrs Ranch Grazing

The NPS currently owns and the staff manages a cow/calf operation of 50 pair, 14 mature steers, two breeding, bulls, four draft horses, and three saddle horses. Grant-Kohrs also provides lease pasture for five USFS horses. Special use permits for grazing privileges have been issued in the past by the ranch to private individuals on a competitive basis for a fee, based upon AUM allocations.

Pasture use is adaptive and based upon BMPs, the needs of the park, and the resources available. Pastures and meadows are grazed on a rotation basis to prevent overgrazing and to protect resources. Generally, cattle are moved into the meadows after the hay harvest is complete each year and pastured until it becomes necessary to feed them hay in the winter. Working closely with USU, park staff successfully trained cows to eat three noxious weeds – spotted knapweed, Canada thistle, and leafy spurge...with 250 acres treated through grazing.

Ranching processes are important because: the Congressional Record supporting the enabling legislation emphasizes that Grant-Kohrs should be a working ranch, and an active ranching program that follows NPS policies is the best way to preserve the cultural landscape...Grazing maintains the vegetation and landscape (including the historic scene) as an agricultural landscape. Grazing is a tool to manage and preserve the cultural landscape and provide for visitor enjoyment... (NPS GRKO 2008.)

6. Little Bighorn Grazing

Agriculture and ranching have been the primary uses of Little Bighorn lands. With the establishment of fencing, grazing has been virtually excluded from the Custer Battlefield since 1891 and the Reno-Benteen Battlefield since 1954. Horses and reenactments, however, were used for several decades after the battle (NPS LIBI 2007: 17). In 1937 the government leased for grazing purposes the ground between the Little Bighorn River and its fence at a rate of \$40 per year (Greene 2008: 60 in NPS LIBI 2007). In 1940 the site was transferred from the War Department to the NPS. Grazing continues within the park’s legal boundary along the Little Bighorn River outside the park fence and within the right-of-way between Custer and Reno-Benteen battlefields. Little Bighorn’s grasslands are in good condition overall, and certain areas represent outstanding examples of regional grassland communities (Bock and Bock 2006 in NPS LIBI 2007: 17), because of this protection from grazing. With a Special Use Permit, horses are used during Battle Anniversary events. Special Use Permit conditions restrict horses to a designated area in order to prevent the unintentional introduction of weed species through feces.

3. Wilderness

Of the 10 parks, only Craters of the Moon has designated and/or proposed wilderness. There is no designated or proposed wilderness at City of Rocks, Fossil Butte, Golden Spike, Grant-Kohrs, Hagerman Fossil Beds, Little Bighorn, Minidoka, Nez Perce: Bear Paw or Nez Perce: Big Hole.

Craters of the Moon Wilderness

Approximately 70 percent of the monument is in Wilderness Study Area (WSA) status or designated Wilderness. The Craters of the Moon Wilderness (43,243 acres), designated in 1970, is located south of U.S. Highway 20/26/93 (US 20/26/93) within the original monument boundary. Two designated trails traverse the wilderness area, the Wilderness Trail (5.1 miles) and the Tree Molds Trail (1.5 miles).

There are four WSAs within the monument. A substantial portion of each of the four WSAs includes lava flows administered by the NPS (NPS CRMO 2005:6). All but the north end of the existing wilderness boundary is adjacent to lands inventoried by BLM in 1980 as the Great Rift WSA. There is a 660 foot buffer between the Great Rift WSA and the Craters of the Moon National Wilderness Area.

Eighty-four percent of the WSAs lie within the national preserve; the rest is managed by BLM. The 381,800-acre Great Rift WSA was designated in 1980 (USDI BLM 1980 in NPS CRMO 2005). The Great Rift WSA encompasses most of the Craters of the Moon and Wapi lava fields, along with parts of the surrounding sagebrush grasslands. The Raven's Eye WSA covers 68,300 acres of the western part of the Craters of the Moon Lava Field, with 66 percent of the area within the monument. The Little Deer WSA is comprised of 35,200 acres in a narrow extension of the Craters of the Moon Lava Field and adjacent sagebrush grasslands. The 9,700-acre Bear's Den Butte WSA is a narrow finger of the Craters of the Moon Lava Field, which extends into Laidlaw Park. The Raven's Eye, Little Deer, and Bear's Den Butte WSAs were designated in 1986 (USDI BLM 1987 in NPS CRMO 2005).

Designation of the WSA as wilderness requires a recommendation by the President and an Act of Congress. The lands remain in WSA status until Congress acts either to designate the land as wilderness or to release it for other uses. In 1985, President Reagan recommended that Congress designate 322,450 acres of the Great Rift WSA as wilderness (Reagan 1985 in NPS CRMO 2005).

Presidential Proclamation 7373 transferred portions of the four WSA to NPS in 2000. The proclamation directed the following:

Wilderness Study Areas included in the monument will continue to be managed under Section 603(c) of the Federal Land Policy and Management Act of 1976 (43 USC 17011782).

Section 603(c) requires that WSAs be managed to maintain their suitability for wilderness designation and prevent unnecessary or undue degradation.

4. Human Health and Safety

The parks have official safety policies, the components of which often include: a documented health and safety plan, inspections, training, accident investigation, a designated health and safety officer, a health and safety committee, and a wellness program.

Among the standards, statutes and rules which are applicable to park safety programs include the following:

- Occupational Safety and Health Administration standards
- American National Standards Institute (ANSI)

- Manual on Uniform Traffic Control Devices (MUTCD)
- Federal Highway Administration Codes
- Uniform Building Code (UBC)
- Highway Safety Act
- National Fire Code
- National Electrical Code
- National Fire Prevention Assn Life Safety Code
- Public Health and Sanitation Code

Parks also maintain several other documented plans (as applicable) which promote health and safety including:

- Hazard Communications Plan
- Blood Borne Pathogens Prevention Plan
- Hearing Conservation Plan
- Lockout/Tagout Plan
- Confined Space Policy
- Heavy Equipment Operation Program
- Fall Protection Program
- Pesticide/Herbicide Safety Program
- Hazardous Waste Management Plan
- Hantavirus Protection Plan
- Hazard Tree Management Plans
- Fire Prevention
- OHV (ATV/UTV) Safety Policy
- Respiratory Plan

Well established safety protocols are generally in place for equipment used in nonnative invasive plant treatment, including for hand tools, chainsaws, portable sprayers, OHVs, and aircraft. Training on equipment and use is part of the implementation of the program for parks and for the NRM-EPMT. Safety protocols are in place for storing, mixing, transporting, and disposing of unused pesticides and containers, as well as for handling spills.

There are a variety of natural hazards associated with parks and invasive plant treatment associated with all parks. These include hazards associated with vehicle transport to activity areas, walking or hiking to activity areas, carrying and using equipment, and typical environmental condition hazards, such as from extreme heat and cold, poisonous plants and animals, etc. Job Hazard Analyses (JHAs) are used to analyze the hazards associated with new jobs or activities park employees undertake. These are required to be completed prior to initial activity and then updated as necessary to inform staff of additional hazards.

a. City of Rocks Human Health and Safety

Among the additional hazards at City of Rocks include hazards associated with rock scrambling and climbing.

b. Craters of the Moon Human Health and Safety

Among the additional hazards at Craters of the Moon include way finding difficulties (there are poorly mapped, marked and maintained roads, innumerable unmarked passages associated with caves, and compasses can be as much as 40 degrees off due to the iron content of the lava); extreme weather conditions; difficulty traversing sharp and often unstable lava, contributing to tripping, falling, and joint-twisting hazards; as well as typical hazards from wildfires, snakes and other natural environmental conditions associated with hiking and other visitor use activities and employee working conditions.

c. Fossil Butte Human Health and Safety

There are no additional hazards associated with conditions at Fossil Butte.

d. Golden Spike Human Health and Safety

Among the additional hazards at Golden Spike include hazards associated with encountering unknown conditions associated with deteriorating historic structures.

e. Grant-Kohrs Human Health and Safety

Among the additional hazards at Grant-Kohrs would include potentially unpredictable encounters with livestock, railroad crossings, and contaminated soils associated with upstream mining and smelting; scheduled for remediation and reclamation in approximately 2015.

f. Hagerman Fossil Beds Human Health and Safety

Among the additional hazards at Hagerman Fossil Beds would include the use of small boats for employee access to some nonnative invasive plant treatment areas.

g. Little Bighorn Human Health and Safety

Among the additional hazards at Little Bighorn include potentially unpredictable encounters with livestock or poisonous snakes and strange or aggressive human interaction.

h. Minidoka Human Health and Safety

Among the additional hazards at Minidoka include hazards associated with encountering unknown conditions associated with deteriorating historic structures. The site is strewn with debris from disassembly of the camp, including rock, wood, nails, barbed wire, remains of utility systems, etc. In addition, work in or near abandoned buildings includes encounters with mice, voles, pigeons and other animals.

i. Nez Perce: Bear Paw Human Health and Safety

There are no additional hazards associated with conditions at Bear Paw Battlefield.

j. Nez Perce: Big Hole Human Health and Safety

There are no additional hazards associated with conditions at Big Hole.

5. Park Operations

a. City of Rocks Park Operations

City of Rocks has approximately seven full time staff. The Chief of Natural Resources is the only full-time staff member that works in nonnative invasive plant management. One year round part-time staff member, an Administrative Assistant, also works on managing the GIS data and developing priorities for nonnative invasive plant management for the coming year. In addition, the Resource Department hires two seasonal technicians, one five-month position and one three-month position, to work with the Chiefs of Natural and Cultural Resources. A large percentage of these positions is spent on nonnative invasive plant management priorities as established by the Weed Management Plan and the staff, including the Administrative Assistant and the Chief of Natural Resources. These technicians and the Chief of Natural Resources also work with the NRM-EPMT when the team is at City of Rocks.

The NRM-EPMT visits City of Rocks two or three times a year depending on their schedule and priorities.

b. Craters of the Moon Park Operations

Craters of the Moon has approximately 14 full time staff, with an additional 25 seasonal employees working between April and October. Of these, the following positions assist with nonnative invasive plant management: Chief of Integrated Resources Management, Vegetation Ecologist, the General Biologist, and 6-8 seasonal biological technicians and interns.

The monument also administers a three-person NRM-EPMT crew that annually visits City of Rocks, Craters of the Moon, Fossil Butte, Golden Spike, Hagerman Fossil Beds and Minidoka at least once per year. This crew also assists the NRM-EPMT crews at Glacier and Yellowstone national parks on other weed projects throughout the summer season.

Most invasive plant management is accomplished by the park using seasonal staff and interns and management of the NRM-EPMT crew under the direction of a Vegetation Ecologist. The Department of Transportation and the Butte and Blaine County weed departments herbicide spray the immediate right-of-way of Highway 20/26/93 and several maintained county roads. The Bureau of Land Management, agency partner of Craters of the Moon, provides logistical and aviation support as necessary.

c. Fossil Butte Park Operations

Fossil Butte National Monument has eight permanent staff and 8-12 seasonal employees and volunteers. Of these the currently vacant Chief of Resources position has primary responsibility for invasive plant management. The Museum Specialist has been acting Chief of Resources since the retirement of a term Biologist in 2007. Invasive plant management is currently accomplished by a seasonal biotechnician with assistance from the NRM-EPMT who visit twice a year for total of 7-10 days. Most control work focuses on vectors for spreading of the plants, park road, county road, trails, picnic area, and streams. Known infestations in natural areas are also treated.

d. Golden Spike Park Operations

Golden Spike has approximately 11 full time staff. Of these, the following positions assist with nonnative invasive plant management: Chief Ranger, maintenance staff and other seasonal staff as available.

Invasive plant management is accomplished by the park and by the NRM-EPMT in cooperation with the park. The NRM-EPMT visits the site approximately two to three times annually.

Agreements: Golden Spike has an agreement with Box Elder County for cooperative road maintenance within the Promontory Summit area. The NPS is responsible for trash clean-up and the county maintains the road surface and shoulders. The agreement also allows for sign placement within the road corridor. The road is used for cattle and sheep trailing and for vehicular traffic.

The Southern Pacific Railroad has reserved the right to operate within the right-of-way consistent with the use of the site as a park.

There is also a cooperative agreement for fire management with Box Elder County and the State of Utah. In addition, there are a number of special use permits for utility crossings and grazing.

e. Grant-Kohrs Park Operations

Grant-Kohrs Ranch base funding, is \$1.5 million. Of this, about 85 percent is dedicated to fixed costs (salary, utilities, etc.). Seasonal hires and supplies and limited projects are funded with the remaining 15 percent. Additional funding is received each year by successfully competing for special projects. The ranch employs about 15 permanent employees, with an additional 50 or so seasonal staff hired from April through September. Seasonal staff is composed of traditional season hires, volunteers, interns or employees through CESU project agreements, Stay in School students, and Youth Conservation Core employees. Seasonal staff is roughly divided between the maintenance, visitor, and resource programs.

Most staff work is concentrated in and around the historic ranch complex, though ranch workers and preservation workers are found in the field every day. Non-park workers can be found within the park boundaries, as well. Ditch company personnel operate and maintain ditches every day during irrigation season. The Montana Western Rail Co. runs two trains through the park every day and conducts periodic track maintenance. The City of Deer Lodge has workers maintaining the sewage lagoons daily.

There are several easements and in-holdings through the ranch which are detailed in the 2008 Foundation for Planning and Management. The City of Deer Lodge has a 36" sewer line running the length of the park to its 70.6 acre treatment facility located within park boundaries. A private individual owns 178 acres within the park boundaries and protected by a scenic easement. There is an unresolved right-of-way claim on the site's west road that may or may not be county road. The Utah and Northern Railway Company and Northern Pacific Railway Company have a right of way with active railroad tracks and a 35

acre in-holding. Along the western border, Northwestern Energy operates a buried natural gas transmission line and electrical lines along the east side of the park. Fiber optic cables run along the railroad right-of-way. Buildings within the ranch complex are serviced by underground city water, electric service above and below ground, communications lines above and below ground, and below grade sewer (McWright 2002).

The park manages 25 water rights – from wells to stock water to irrigation use. The final decree on water rights for the basin where the ranch sits has not yet been released by the Montana water court. As water is a precious resource in this arid landscape, many issues surround these water rights. There is heavy pressure by some to regain instream flow for fisheries that need to be balanced with the agricultural needs of the same waters.

The Clark Fork River and its flood plain that travels the length of the park is designated as a Superfund site due to upstream mining and smelting and a 1908 flood that deposited heavy metals onto the landscape. A 2004 Record of Decision calls for prescribed remediation for Grant-Kohrs Ranch lands with additional opportunities and funding for reclamation. Heavily contaminated areas with no vegetation (perhaps as much as 26 acres on this site) would be removed and replaced with similar healthy soils, less impacted areas as indicated by limited vegetation would have in-situ treatment of lime to neutralize pH to vegetation growth, and bank stabilization make up the proposed treatment. A specific design would be completed for the ranch. It is estimated remediation and restoration would begin around 2015.

Several NPS and other partnerships exist to accomplish the park mission. Invasive plant management is primarily accomplished by the park, with assistance approximately three to four times a year from the NRM-EPMT. Monitoring of long range resource trends (vegetation, soils, water and stream) is conducted by the Inventory and Monitoring program. Support for the annual irrigation ditch burn and other fire program needs comes from Glacier National Park. Law enforcement is supported by the Powell County Sheriff. Structural fire protection is provided through an agreement with the Deer Lodge Volunteer Fire Department. Many projects a years are completed through the CESU agreements process.

f. Hagerman Fossil Beds Park Operations

The Superintendent leads the monument staff, which is organized into three operational areas: Resource Management, Interpretation/Education/Visitor Services and Administration/Maintenance. Staff expertise and specialties in the Resource Management Division include one Physical Scientist and one Museum Curator. The Interpretation/Education/Visitor Services Division is managed by one Chief of Operations and includes one Visitor Service staff and one Education Specialist. The Administration Division includes one Administrative Officer and one Administrative Assistant. The seasonal staff included in these areas of operation is usually supplemented and/or supported using special project funds, contracts and/or the assistance or expertise from various NPS and other organizations as available (NPS HAFO 2003:24).

Invasive plant management is accomplished by the park and by the NRM-EPMT in cooperation with the park. The NRM-EPMT visits the site approximately two to three times annually.

g. Little Bighorn Park Operations

Little Bighorn has approximately 16 full time staff. Of these, only one position assists with nonnative invasive plant management: Biological Sciences Technician (Temporary).

The following was summarized from the Resources Management Plan (NPS LIBI 2007:20).

Since 2004, Fee-Demonstration Projects have funded staffing and supplies for the control of exotics throughout the park's road and trail system, building network, and restoration sites. Methods of control include mechanical (tools and hand-pulling) and chemical (herbicide use). The NRM-EPMT Glacier crew visits Little Bighorn once per year to chemically treat weeds, usually along the roadsides where there has been an infestation of field bindweed since the Tour road was resurfaced and widened in 2001. In 2005 the NRM-EPMT Yellowstone crew also visited Little Bighorn to provide

assistance. Native seed collected inside the park is cultivated in the disturbed areas. Species collected include green needlegrass (*Nassella viridula*), bluebunch wheatgrass (*Pseudoroegneria spicata*), blue grama (*Bouteloua gracilis*), and sideoats grama (*Bouteloua curtipendula*). Education is provided to the seasonal staff and to the public. A standard operation procedure (SOP) addressing park responsibilities and procedures for weed management at Little Bighorn is in development.

No formal nonnatives control plan has been developed. A nonnatives plan should be consistent with a vegetation management plan. The ROMN will begin developing the Invasive Plants – Early Detection protocol in 2007 for the long-term Vital Signs Monitoring Program. An NRM-EPMT project was approved in 2007 to create Nonnative Vegetation Management Plans and associated EAs for Grant-Kohrs and Little Bighorn.

In 2006 Little Bighorn removed a loop road around a storage building and restoration included major soil movement to replicate the surrounding rolling-hills landscape and revegetation with native seed.

Seed has been purchased and collected within the park for restoring disturbed areas.

h. Minidoka Park Operations

Minidoka currently has no full-time permanent staff. It is run in cooperation with Hagerman Fossil Beds, several of whose staff work at both sites. There is also no consistent staff presence at the site, though at some times during the year such as before and during the annual pilgrimage and symposium in June and in summer, staff may be encountered regularly. The park is currently in the process of hiring two staff, a chief of maintenance and a chief of integrated resources whose time would also be split between the two parks.

Invasive plant management is accomplished via the maintenance crew from Hagerman Fossil Beds in cooperation with the NRM-EPMT. The NRM-EPMT visits the park approximately twice annually.

i. Nez Perce: Bear Paw Park Operations

Bear Paw is a unit of Nez Perce and is managed by an offsite ranger (site manager) and seasonal interpretive rangers. Staff also is periodically dispatched from Nez Perce headquarters to work at the site on special projects, such as planning and maintenance.

Invasive plant management has typically been accomplished by the Blaine County road crews in cooperation with the park and NRM-EPMT. Both the ranger at Bear Paw and staff from Big Hole have done some chemical treatment on Canada thistle at the site. NRM-EPMT staff anticipates making annual visits to the park beginning this year (2010).

j. Nez Perce: Big Hole Park Operations

Big Hole is a unit of Nez Perce and was also originally established as its own unit of the national park system. Big Hole has approximately seven full time staff. Of these, the following positions assist with nonnative invasive plant management: Park Ranger, maintenance worker, and Chief of Maintenance. Seasonal staff helps in the summer including YCC and SCA volunteers. Staff is also periodically dispatched from Nez Perce headquarters to work at the site on special projects, such as planning, resource management and maintenance.

Invasive plant management is primarily accomplished by the NRM-EPMT in cooperation with the park.