

Chapter 3. Existing Conditions/Affected Environment/ Landscape Analysis

a. Existing Conditions Introduction

The historic landscape related to the Oregon Trail ruts at Scotts Bluff National Monument contains historic resources related to the Oregon Trail, California Trail, and Pony Express. These are also referred to as emigrant trail resources in this section.

A site survey and field work was undertaken in November 2009, to better understand the emigrant trail resources within the monument. The resources include emigrant trail ruts, natural vegetation, and other landscape and small scale features related to the trail. Visible trail rut resources were located and documented based on historic mapping, review of historic photographs, conversations with SCBL staff and field observations. Trail ruts within the monument range from buried non-visible trail ruts to defined, two-track trail ruts, to wider corridors or ‘troughs’. These findings are organized and presented in this study by landscape character areas. Photographs are presented sequentially and are identified by figure numbers. Detailed plans of existing conditions and associated character area descriptions are located at the end of the chapter.

b. Environmental Context and Natural Systems/Affected Environment

This section provides an overview of the environmental context within which the monument is located and the natural systems in the monument. This section also describes resources potentially affected by the alternatives. It is organized by impact topics that were derived from internal monument and external public scoping. More information on the scope and detail of all resources in SCBL may be found in the GMP (1998).

Environmental Context and Natural Systems

The monument consists of about 3,003 acres of prairie and bluff habitat within the western Great Plains in an area that was once almost continuous mixed and short grass prairie and that is now primarily farm and ranch land. The monument includes two large, cliff-rimmed bluffs, Scotts Bluff and South Bluff. Most of the land within the monument boundary is native mixed-grass prairie with non-native species present in some previously disturbed areas. There is also an area of mostly barren badlands between the base of Scotts

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Bluff and the North Platte River. The monument, particularly in the badlands, also contains significant fossil deposits within its geological strata. The climate at the monument is characterized by cold winters and hot summers with large variations in weather conditions from day to day.

The region's landscape and that of the monument are very different than they were 150 years ago. A large portion of the prairie vegetation has been disturbed, now resembling a "patch work" pattern of multiple disturbance events of various levels of intensity, size, and recovery. Many of the natural processes that helped shape the landscape, such as grazing by bison and other native fauna, and naturally ignited fires, are now gone or strictly controlled. Climatic influences and erosion still take place, but in some places the natural erosion rate may be accelerated by human-caused impacts.

Soils

The general soil associations in the monument are Tassel-Anselmo-Rock outcrop (sandy soils and outcrops of rock on uplands), Mitchell-Keith-Epping association (loamy and sandy soils on uplands), and Mitchell-Otero-Buffington association (deep, silty, sandy, and clayey soils on valley floors).¹ Along the Oregon Trail in the project area, soil map units include Valent and Dwyer loamy fine sands, rolling; Mitchell silt loam, 6 to 9 percent slopes; Jayem fine sandy loam, 6 to 9 percent slopes; and rock outcrop-Epping complex.² These soils have rapid permeability, low water capacity, and are highly erodible.

The greatest potential threat to soils is erosion. Erosion occurs as wind, rain, and snow slowly wash away grains and particles of sand, silt and ash. The erosion potential is highest during and after precipitation events. Annual precipitation is approximately 14.5 inches, most of which falls during the spring and summer, usually with thunderstorms. June receives the highest average precipitation during the year. Ongoing erosion has affected the Oregon Trail, particularly Character Area A where the steep sections of the Oregon Trail coincide with the visitor trail, foot traffic and steep slopes exacerbate soil erosion.

¹ NRCS 1968

² NRCS 2010

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Vegetation

Information on vegetation resources is based on the Scotts Bluff National Monument General Management Plan (1998) and the Scotts Bluff National Monument Fire Management Plan Environmental Assessment (2000). Four hundred fifty-two species, subspecies, and varieties of vascular plants have been identified at the monument. The vegetation is divided into three major plant associations: mixed-grass prairie, coniferous forest, and riparian woodland.

Mixed-grass prairie covers about 87 percent of the monument and is the predominant plant community in the relatively flat prairie and grassy slopes surrounding the bluffs. The mixed-grass prairie is dominated by blackroot sedge (*Carex filifolia* var. Nutt.) and needle-and-thread grass (*Stipa comata*). Other native grasses common in this community include western wheatgrass (*Agropyron smithii*), blue grama (*Bouteloua gracilis*), prairie sandreed (*Calamovilfa longifolia*), and sideoats grama (*Bouteloua curtipendula*).

Coniferous forests dominated by ponderosa pine (*Pinus ponderosa*), Rocky Mountain juniper (*Juniperus scopulorum*), and eastern red cedar (*Juniperus virginiana*) cover about 10 percent of the monument and can be found on the summits of bluffs, on slopes, and in sheltered ravines. The forest communities have been altered in the monument because ponderosa pine, rocky mountain juniper, and eastern red cedar were variously planted in the monument to stabilize soils from the 1930s to 1951. Limited planting of ponderosa pine is known to have occurred as late as 1971. Eastern red cedars were planted in the ravines to reduce soil erosion and have become self-propagating. Ponderosa pine, with a mixture of rocky mountain juniper, is the most abundant tree species on the summits. Eastern red cedar is more commonly found in the ravines and draws of the prairie. The most abundant grass species in the understory are little bluestem (*Schizachyrium scoparium*), needle-and-thread, blue grama, and side oats grama. Western snowberry (*Symphoricarpos occidentalis*), skunkbush sumac (*Rhus trilobata*), and various sedges occur in the ravines and draws.

Riparian woodland covers about three percent of the total acreage of the monument and is found along the North Platte River floodplain on the monument's northern boundary. This plant community contains cottonwood (*Populus deltoides*), box elder (*Acer negundo*), green ash (*Fraxinus velutina*), and Siberian elm (*Ulmus pumila*). Poison ivy (*Toxicodendron rydbergii*) and shrubs are common in the understory.

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Non-native vegetation, including state-designated noxious weeds, has invaded an estimated 1,500 acres within the monument. Non-native vegetation occurs primarily in the damp ravines and in the floodplain.³ Canada thistle (*Cirsium arvense*) and musk thistle (*Carduus nutans*) are state of Nebraska designated noxious weeds that occur at the monument and are considered the highest priority for control. Canada thistle occurs along the irrigation canals and both species occur along the bottoms of ravines and in riparian zones near the North Platte River. More than 100 species of exotic plants, though not state-designated as noxious weeds, infest large areas of native prairie in varying concentrations. These include smooth brome (*Bromus inermis*), cheatgrass (*Bromus tectorum*), Japanese brome (*Bromus japonicus*), kochia (*Kochia scoparia*), white sweet clover (*Melilotus alba*), yellow sweet clover (*Melilotus officinalis*), and Russian thistle (*Salsola iberica*).⁴ In general, these exotic plants have degraded native plant communities in the monument.

Visitor Experience and Recreation Resources

Visitors to the monument are able to experience a significant representation of the westward expansion era as it relates to the historic trails, Pony Express, and first transcontinental telegraph. Visitors can walk in the Oregon Trail through Mitchell Pass just as emigrants did over 150 years ago. Additional trails are open to hikers and bicyclists to enjoy and experience the monument's mixed-grass prairie and summits. For those visitors who hike or drive to the summit of the 800-foot high Scotts Bluff, a significant part of their experience is the panoramic view from the summit.⁵

Scotts Bluff National Monument is often a brief stop on the vacation route of visitors who are often on their way to other destination areas such as Yellowstone National Park or the Black Hills of South Dakota. For other visitors, the monument is their destination. Most visitors spend time in the monument's museum and visitor center and travel to the summit of the bluff. Visitor use is highest from June through August, with the greatest number of visitors staying for a few hours. On average, the monument has 120,000 visitors per year.⁶

³ NPS 2005

⁴ Ibid.

⁵ NPS 1998

⁶ NPS 2000

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Visitor experiences associated with each character area in the study area are described in the section on Landscape Character Areas- Existing Conditions and Assessment (Section 3.e).

Public Health, Safety, and Monument Operations

The NPS seeks to provide a safe and healthful environment for visitors and employees.⁷ To that end, the NPS works to prevent “visitor injuries while preserving natural and cultural resources and providing an enjoyable experience consistent with the conservation of those resources” (DO-50C). Although there is a focus on visitor safety, the NPS recognizes that “(s)ome forms of visitor safeguards typically found in other public venues—such as fences, railings, and paved walking surfaces—may not be appropriate or practicable in a national park setting.”⁸ This analysis includes the visitor trail from the visitor center to the W. H. Jackson site, including a reach that coincides with the emigrant trail remnants.

Currently, an asphalt trail with wood edging (Figure 3 -14) extends from the Visitor Center to an interpretive wayside. From the wayside, the visitor trail coincides with the compacted earthen surface of the emigrant trail ruts as the trail climbs up Mitchell Pass. Toward the top of the pass, the visitor trail diverges from the emigrant trail rut and continues as a chip-sealed path to the W. H. Jackson site. When wet, the earthen surface of the trail becomes slick and muddy, creating an unsafe surface for visitors. The earthen surface is also uneven because of erosion and foot traffic. The steep portions of the trail are difficult for some visitors to negotiate safely. Despite the varying conditions of the trail, serious visitor injuries are uncommon.

For the purposes of this EA, monument operations refers to the quality and effectiveness of the infrastructure, and the ability of monument staff to maintain the infrastructure used in the operation of the monument to protect and preserve vital resources and provide for a high quality visitor experience. The resource addressed in the analysis is the reach of visitor trail in Character Area A, including the segment of emigrant trail that coincides with the visitor trail. Currently, maintenance of the visitor trail is limited to occasionally filling patches of eroded areas and removing sediment from the asphalt portions of the visitor trail.

⁷ NPS 2006

⁸ Ibid., Section 8.2.5.1

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Cultural Resources

Section 106 of the NHPA of 1966, as amended (16 U.S.C. 470, et seq.) and its implementing regulations under 36 CFR 800 require all federal agencies to consider effects of federal actions on cultural properties eligible for or listed in the NRHP. In order for a site to be listed in the NRHP, it must be associated with an important historic event, person(s), or that embodies distinctive characteristics or qualities of workmanship. Several resource studies and inventories have identified historic or prehistoric archeological, structural, and landscape resources in SCBL.

The SCBL cultural landscape is a mix of archeological remains; natural landmarks and ecological systems modified by Native American and Euro-American people of the past; and historic buildings and infrastructure associated with the area's management and use as a national monument, including the monument headquarters, the Summit Road and trails, the irrigation systems and railroad grade; and the Civilian Conservation Corps (CCC) infrastructure remains. All these integrate into a set of resources and views of those resources that have integrity and spatial organization, and by law are to be conserved without impairment.

The lands now included within SCBL have probably been used by people for at least 9,000 years, since there is evidence of human use to that date at sites such as the Scottsbluff Bison Quarry and Signal Butte site 15 miles west of Scotts Bluff, and at the Ash Hollow State Historical Park and Clary Ranch sites, which are about 90 miles southeast of the monument. The known archeological record at SCBL is based on monument-wide archeological survey of the monument that identified 56 archeological sites, 49 of which were classified as prehistoric.⁹ At least one artifact described in the survey is probably about 10,000 years old. Most of the investigated archeological sites in the monument date between AD 600 and AD 1450. Although sites are present throughout the monument, many are close to springs. It is likely other sites are present, possibly under deep deposits of wind-blown soils.

Several known archeological sites are located in the project area, including two prehistoric sites, and undetected artifacts may be present on or below the ground surface. Throughout the monument, archeological sites are adversely affected by soil erosion, which

⁹ NPS 1994

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exposes the artifacts to damage from the elements. In addition to exposing artifacts to damage, erosion can compromise the historic integrity of archeological resources by changing the context in which they are found. Archeological resources in the emigrant trail corridor are subject to exposure in eroded ruts.

Scotts Bluff National Monument was listed on the National Register of Historic Places in 1966. In addition to the monument itself, eighteen structures in the monument are eligible for listing on the National Register of Historic Places. Eligible structures include the emigrant trail and roads, trails, and buildings associated with 1930s Civilian Works Administration (CWA) and Civilian Conservation Corps (CCC) construction projects. The emigrant trail remnants, already listed as a historic structure, have also been determined to be a component landscape that is individually eligible. The emigrant trail remnants are described in a subsequent section of this chapter (Section 3.e).

c. Landscape Analysis Methodology

The landscape analysis of the Oregon Trail emigrant trail resources first identified the known area or corridor of the emigrant trail resources and then examined that study area as a component landscape that is part of the larger cultural landscape of the monument. The analysis identifies and evaluates the all of the landscape characteristics that retain integrity and contribute to the Oregon Trail ruts historic landscape. The analysis compares the site history of the resources with their existing condition.

The primary landscape characteristics associated with the Oregon Trail are:

- Topography – includes bluffs, cliffs, slopes and drainages and how they relate to other site features.
- Views – includes views of the bluffs and views of the emigrant trail are important components of the historic landscape.
- Vegetation – includes indigenous vegetation, primarily shrubs and grasses that affect erosion potential and trail rut resources.
- Small-Scale Features (trail ruts, visitor trails, site furnishings) - elements that provide detail and diversity combined with function and aesthetics. Most important to the monument landscape are the emigrant trail resources, visitor trails and amenities.

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Each landscape characteristic is evaluated to determine the features (as noted above) that contribute to the significance of the historic landscape and those that do not. Contributing features are physical attributes that contribute to the significance of the historic landscape. A feature is considered contributing if all of the following are true: it was present during the period of significance; it relates to the documented significance of the property; it possesses historic integrity; and is capable of revealing information about the period. Non-contributing features are those that were not present during the period of significance, do not relate to the significance of the landscape, or no longer possess historic integrity.

Compatible features are those that do not detract from the historic character of the landscape, and are of similar materials and scale to contributing features from the period of significance. Non-compatible features are visually incongruous with the historic landscape, and conflict with the mass, scale, form, materials, texture or color of contributing historic features.¹⁰

The condition of the Monument's historic landscape features have been evaluated using the standard CLR evaluation criteria with the exception of the trail ruts which were evaluated using the criteria described under, d. Trail Resources Classification.

The following criteria were used to evaluate the condition of landscape features:

GOOD – These features of the landscape that do not require intervention; only minor or routine maintenance is needed at this time.

FAIR – Some deterioration, decline, or damage is noticeable; the feature may require immediate intervention; if intervention is deferred, the feature will require extensive attention in a few years.

POOR – Deterioration, decline, or damage is serious; the feature is seriously deteriorated or damaged, or presents a hazardous condition; due to the level of deterioration, damage, or danger the feature requires extensive and immediate attention.

Much of the research for this study drew upon source materials available at the archives of Scotts Bluff National Monument and from the Technical Information Center (TIC) of the National Park Service's Denver Service Center. Primary resources included on site investigations, and review and study of historic drawings and photographs. Additional

¹⁰ US Dept of the Interior, NPS 1997: 84

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studies and published works were also consulted. A complete listing is located in the bibliography.

d. Trail Resources Classification

Trail Resources

The emigrant trail resources within the monument were evaluated using the 1993 classification system and manual developed by the Oregon-California Trails Association titled Mapping Emigrant Trails (MET). The system is used to describe and classify trail rut resources based on historic use, existing condition and documentation; and is widely accepted as the means for evaluating and documenting the Oregon-California Trail. For the LS this system was adapted and used to describe, differentiate and classify the various sections of the trail within the monument into categories that describe the appearance and general condition of the trail. The trail rut resources were then evaluated as a feature under a traditional historic landscape methodology. A secondary objective of using the MET system for analysis was to use a methodology for documenting emigrant trails within the monument that can be integrated with the documentation of other sections of the Oregon-California Trail outside the monument. The following is a table that was utilized to classify the emigrant trail.

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253 **Emigrant Trail Classification Category Table – Derived from the MET Manual**

Classification	Definition	Description
Class 1 Unaltered Original Trail	The original trail and its immediate natural environment remain unaltered and used.	The trail route remains representative of its original condition, not having been significantly altered by contemporary improvements or actions. There is clear physical evidence of the original trail in the form of depressions, ruts, swales, cuts or tracks. Some of the resource may be eroded, vegetated and/or visible only intermittently.
Class 2 Used Original Trail	The original trail is or has been used or altered by contemporary actions but retains its original character and immediate natural environment.	The trail route retains its original location and character although altered. The trail has not been bladed, graded, crowned, or otherwise improved and typically remains as a two-track road in the original location. Some of the resource may be eroded, vegetated and/or visible only intermittently.
Class 3 Verified Original Trail	The original trail is no longer extant but its location has been verified and its immediate natural environment remains intact.	The trail route is accurately located and documented from written, cartographic, artifact, wagon rust, and/or topographic evidence, but due to subsequent natural forces the remains of the trail are non-extant. What does remain is a trail corridor with no visible development scars.
Class 4 Impacted Original Trail	The original trail and its immediate natural environment are impacted permanently but the location of the trail is accurately known.	The trail route is located and verified accurately but the trail itself is non-extant. The resource has been degraded and has lost original physical and environmental integrity due to the impact of development or contemporary actions.
Class 5 Approximate Original Trail	The original trail is not visible or is non-extant. The location of the trail is not accurately known.	The trail route is not apparent. The route has either been obliterated, or is potentially intact but not visible (e.g. under a contemporary road). Only an approximate route is known.

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**e. Landscape Character Areas - Existing Condition Assessment and
Landscape Analysis**

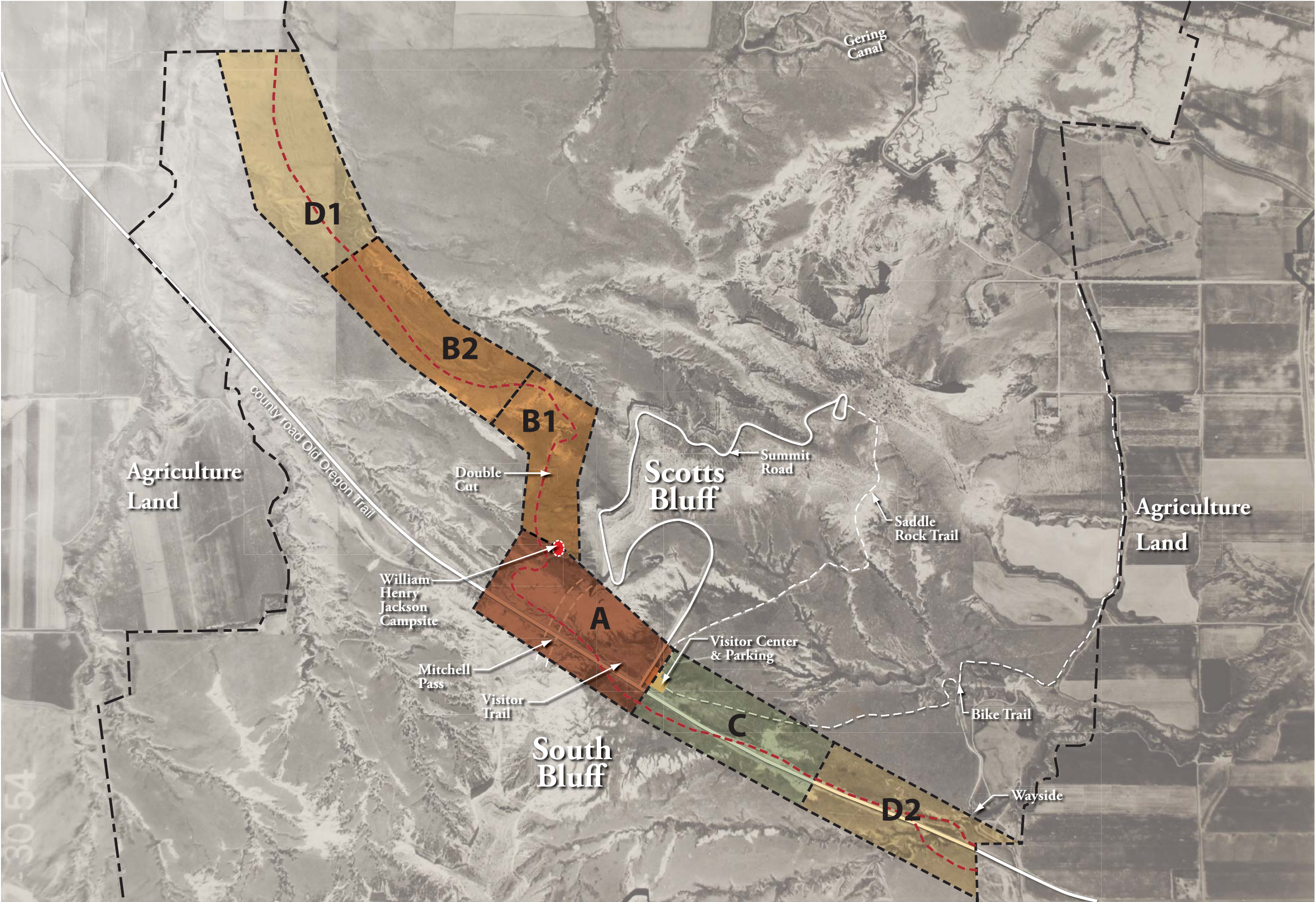
The existing condition assessment and landscape analysis are presented in this section. This section describes the characteristics of the emigrant trail resources including topography, views and vistas, small-scale features and vegetation that contribute to the significance of the Oregon Trail.

The first portion of the description for each landscape characteristic pertains to existing conditions and the latter to landscape analysis. This landscape analysis compares the landscape history with its existing condition to identify and evaluate those characteristics that retain integrity and contribute to the significance of the emigrant trail resource. Small scale features are organized into tables that describe their existing condition and evaluate if they are a contributing landscape feature.

The trail resources within SCBL are primarily confined to an hourglass shaped corridor. The trail resources are most narrowly confined and concentrated at Mitchell Pass in the center of the corridor, constricting from the east and then branching out into multiple trails on the western side of the pass. As the trail moves away from the Pass and steep topography, the ruts branch out creating a series of braided relatively undefined trails on the western side of the pass.

The emigrant trail resources at Scotts Bluff National Monument are organized into six landscape character areas. The following character areas (Figure 3-1) have been identified for the Oregon Trail ruts landscape at Scotts Bluff National Monument.

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Legend

A

Character Area A

B

Character Area B1/B2

C

Character Area C

D

Character Area D1/D2

Monument Boundary

- . -

National Park Service Boundary

Oregon/ California Trail and Pony Express Resources

FIGURE 3 - 1

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
SCOTTS BLUFF NATIONAL MONUMENT

TITLE OF PROJECT
OREGON TRAIL RUTS LANDSCAPE STUDY
ENVIRONMENTAL ASSESSMENT
DRAWING TITLE
CHARACTER AREA MAP
NAME OF PARK
SCOTTS BLUFF NATIONAL MONUMENT
REGION
MIDWEST
COUNTY
SCOTTS BLUFF
STATE
NEBRASKA

