

Wildlife Viewing Pullouts Environmental Assessment

National Park Service
U.S. Department of the Interior
Bryce Canyon National Park



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Wildlife Viewing Pullouts

Environmental Assessment

Summary

Bryce Canyon National Park proposes to construct 5 wildlife viewing pullouts along the main park road to enhance visitors' park experience as well as protect roadside natural and cultural resources impacted from unauthorized vehicle parking. Wildlife pullouts and associated interpretive panels would increase opportunities for park visitors to learn about the wildlife and their habitat including both large and small mammals such as elk, pronghorn, and the Utah prairie dog, a federal listed threatened species in the park. Currently, there are no pullouts in areas with high densities of wildlife and visitors frequently pull off the road (based on park staff/Law Enforcement observations) which has resulted in ruts along the road shoulder and increasing disturbed areas, especially in the park's meadow habitat. Visitors also stop in the middle of the road which is a recognized safety issue and law enforcement challenge. Wildlife viewing pullouts would be located adjacent to meadow habitat along the main park road with the majority of pullouts within East Creek Meadow between mileposts 3 and 5. These pullouts would accommodate approximately 3 vehicles with one pullout designed as a vehicle turn-around.

This environmental assessment evaluates three alternatives: a no-action alternative, a modified action alternative that avoids all meadow habitat within close proximity to active Utah prairie dog colonies and an action alternative. The no-action alternative is used as a baseline assessment, while the action alternatives address the environmental impacts associated with construction of wildlife viewing pullouts.

This environmental assessment has been prepared in compliance with the National Environmental Policy Act (NEPA) to provide the decision-making framework that 1) analyzes a reasonable range of alternatives to meet project objectives, 2) evaluates potential issues and impacts to Bryce Canyon National Park's resources and values, and 3) identifies mitigation measures to lessen the degree or extent of these impacts. Resource topics that have been addressed in this document because the resultant impacts may be greater-than-minor include soils, wildlife, special status species, vegetation and visitor use and experience. All other resource topics have been dismissed because the project would result in negligible or minor effects to those resources. No major effects are anticipated as a result of this project. Public scoping was conducted to assist with the development of this document.

Public Comment

If you wish to comment on the environmental assessment, you may post comments online at <http://parkplanning.nps.gov/> or mail comments to: Superintendent, Bryce Canyon National Park, P.O. Box 640201, Bryce Canyon, Utah, 84764.

This environmental assessment will be on public review for 30 days. It is the practice of the NPS to make all comments, including names and addresses of respondents who provide that information, available for public review following the conclusion of the environmental assessment process. Individuals may request that the NPS withhold their name and/or address from public disclosure. If you wish to do this, you must state this prominently at the beginning of your comment. Commentators using the website can make such a request by checking the box "keep my contact information private." NPS will honor such requests to the extent allowable by law, but you should be aware that NPS may still be required to disclose your name and address pursuant to the Freedom of Information Act. We will make all submissions from organizations, businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses available for public inspection in their entirety.

PURPOSE AND NEED

Introduction

The area known as Bryce Canyon National Park (BRCA) was set aside as a national monument in 1923. Interest in the area continued to grow after the declaration of the new national monument. In 1924, Bryce Canyon National Monument was declared Utah National Park. An act of congress in 1928 increased the amount of protected land to double what was already protected by the national park (now 35,835 acres). This addition of land was accompanied by another name change as Bryce Canyon National Park was officially designated on February 25, 1928. The national monument, and later park, was established to protect the fascinating geologic structures known as hoodoos and other natural and cultural resources.

Bryce Canyon National Park is located on the western edge of the Colorado Plateau (Figure 1). Elevations range from 6,580 feet to 9,115 feet above sea level. The park lies in portions of Garfield and Kane Counties, Utah. The entrance of the park is approximately 210 miles south of Salt Lake City, Utah.

Most of the land surrounding Bryce Canyon National Park is federally owned and managed by the U.S. Forest Service (USFS) as part of the Powell Ranger District of Dixie National Forest. The Bureau of Land Management (BLM) manages land along the northern and northeastern park boundaries. Remaining land in the area is owned by the State of Utah and private landowners.

The purpose of this environmental assessment is to examine the environmental impacts associated with the proposal to construct 5 wildlife viewing pullouts along the main park road. The goal of this project is to enhance visitors' park experience as well as protect roadside natural and cultural resources impacted from unauthorized vehicle parking. This environmental assessment was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, regulations of the Council on Environmental Quality (CEQ) (40 CFR §1508.9), and the National Park Service (NPS) Director's Order (DO)-12 (Conservation Planning, Environmental Impact Analysis, and Decision-Making).

Background

The main park road (also known as the "Rim Road") bisects the park and terminates at Rainbow Point (elevation ~9,100 ft) approximately 15 miles south of the Visitor Center. The road was originally constructed in the 1930s and has been resurfaced several times through the years with major repair work and some rerouting in the late 1990s and early 2000s. Past the turnoff to Bryce Point, the road continues through meadow habitat for several miles, climbing to ponderosa pine and mixed conifer communities. All 5 proposed wildlife viewing pullouts would be constructed north of Swamp Canyon viewpoint with four pullouts within East Creek Meadow (a high wildlife sighting area) and one outside of East Creek Meadow adjacent to a small isolated meadow at the Mixing Circle junction. Each pullout would accommodate approximately three vehicles (with one slightly larger to allow for vehicle turn around).

Areas along the main park road adjacent to meadow habitat are being negatively affected by traffic congestion and unauthorized stopping off the road corridor (based on observations by law enforcement/other park staff). An abundance of wildlife utilize the meadow habitat within the park and several charismatic species (including pronghorn, elk, deer, wild turkey and Utah prairie dogs) can be seen foraging, moving through and resting in these areas. The condition of the roadside in East Creek Meadow continues to deteriorate (based on park staff observations of roadside habitat) and impacts from driving off road are evident on unpaved, vegetated portions of the meadow adjacent to the road (Figure 2). Vehicles that pull out of the road corridor and park in undesignated areas increase the risk to visitor safety (from vehicles passing without sufficient clearance) and increase damage to resources adjacent to the road including impacts on habitat quality, promoting the spread of noxious weeds and disturbance to wildlife.

Figure 1: Location map of Bryce Canyon National Park, Utah

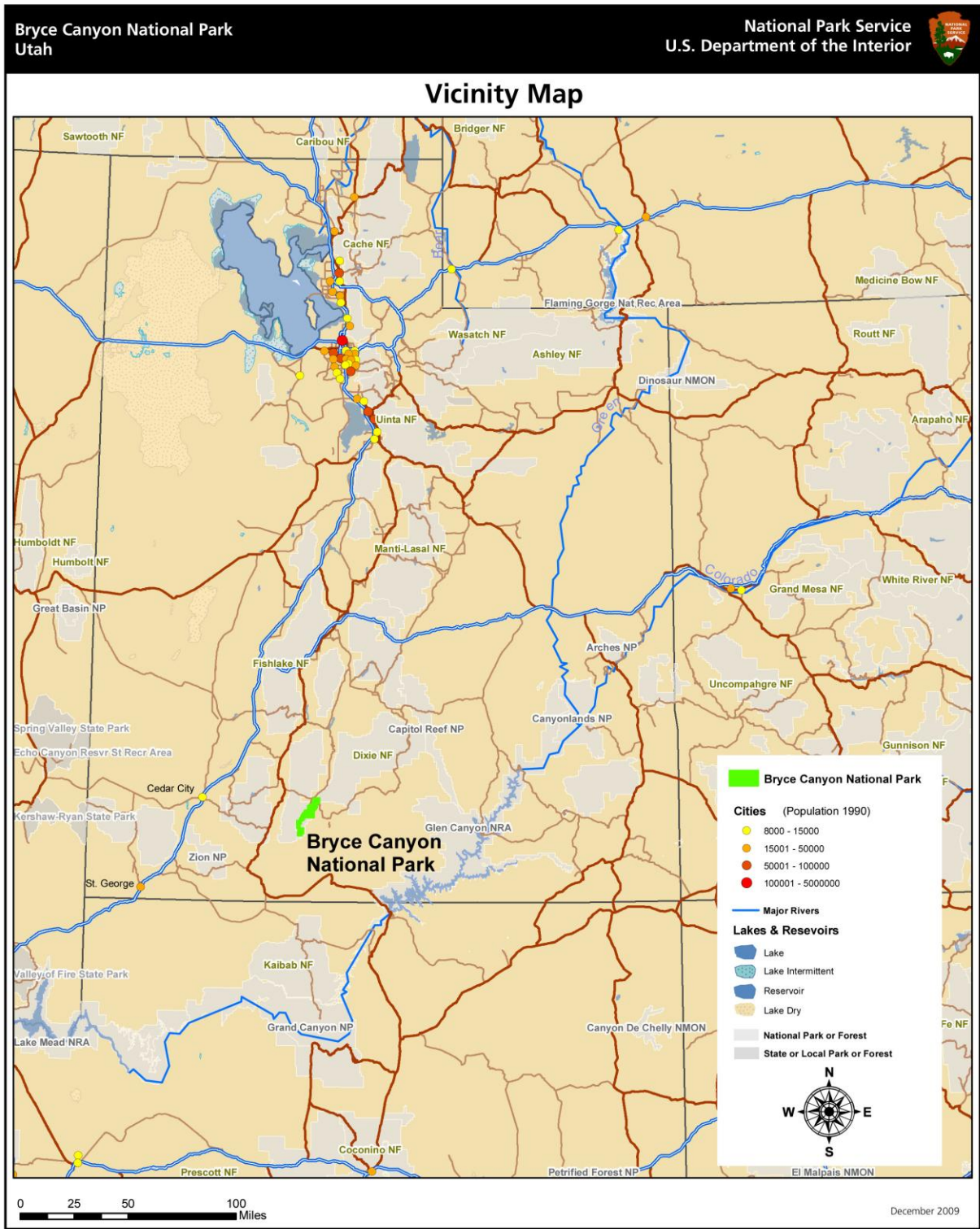


Figure 2: Soil displacement and deterioration of meadow habitat along the main park road, East Creek Meadow, Bryce Canyon National Park, Utah



Purpose and Need

The purpose of this project is to provide visitors with the opportunity to have a safe and rewarding experience during their visit to BRCA, to become more aware of wildlife living within the park and to protect the park's natural and cultural resources by controlling traffic adjacent to sensitive habitat. The project proposes to install 5 wildlife viewing pullouts to facilitate appropriate visitor use and enhance visitor enjoyment of park resources and protect the limited and important meadow resources of the park.

The project is needed to accomplish the following objectives:

1. Improve visitor safety while viewing wildlife along the main park road; and
2. Enhance visitor knowledge and awareness of park resources and increase visitor satisfaction during their visit to Bryce Canyon National Park; and
3. Protect sensitive meadow habitat along the main park road.

Relationship to Other Plans and Policies

This project has been developed in a manner consistent with NPS legal mandates and management policies. The Bryce Canyon National Park General Management Plan (BRCA 1987) provides broad direction for management of the park and identifies actions to improve the quality of visitor experience, as well as improve management and protection of resources. The proposed action is also consistent with previously completed plans including the Bryce Canyon Fire Management Plan (2005), which recognizes the importance of restoring vegetation "to achieve vegetation management objectives that support land and resource management plans." Enhancing safe visitor use of the park while protecting natural and cultural resources has also been discussed in many of the environmental assessments for Bryce Canyon National Park including Road System Evaluation (1990), Mossy Cave Trail Rehabilitation and Resource Protection (2006), Tropic Canyon Highway Stabilization (2006), and Paria View Rehabilitation (2007). The proposal is also consistent with the goals and objectives of the 2006 National Park Service Management Policies (NPS 2006) that emphasize the need for park units to manage visitor carrying capacity with resource conservation.

Appropriate Use

Sections 1.4 and 1.5 of NPS Management Policies (NPS 2006) direct that the NPS must ensure that park uses that are allowed would not cause impairment of, or unacceptable impacts on, park resources and values. A new form of park use may be allowed within a park only after a determination has been made in the professional judgment of the park manager that it would not result in unacceptable impacts.

Section 8.1.2 of Management Policies (NPS 2006), Process for Determining Appropriate Uses, provides evaluation factors for determining appropriate uses. All proposals for park uses are evaluated for:

- consistency with applicable laws, executive orders, regulations, and policies;
- consistency with existing plans or public use and resource management;
- actual and potential effects on park resources and values;
- total costs to the service; and
- whether the public interest will be served.

Park managers must continually monitor all park uses to prevent unanticipated and unacceptable impacts. If unanticipated and unacceptable impacts emerge, the park manager must engage in a thoughtful, deliberate process to further manage or constrain the use, or discontinue it. More information on the definition of unacceptable impacts as cited in §1.4.7.1 of Management Policies (NPS 2006) can be found in the Environmental Consequences chapter.

The development of wildlife viewing pullouts is a common feature to most national parks. Proper location, sizing, construction timing/materials, and methods would ensure that unacceptable impacts to park resources and values would not occur. The proposed wildlife pullout development is consistent with the park's general management plan. With this in mind, the NPS finds that development of 5 wildlife viewing pullouts is an acceptable use at Bryce Canyon National Park.

Public Scoping

Scoping is an early and open process to determine the breadth of environmental issues and alternatives to be addressed in an environmental assessment. Bryce Canyon National Park conducted both internal scoping with appropriate NPS staff and external scoping with the public and interested and affected groups and agencies.

Internal scoping was conducted by the Compliance Interdisciplinary and Leadership Teams at BRCA. This interdisciplinary process defined the purpose and need, identified potential actions to address the need, determined what the likely issues and impact topics would be, and identified the relationship, if any, of the proposed action to other planning efforts within the park. Over the course of the project, team members also conducted site visits to view and evaluate the proposed locations for the wildlife viewing pullouts and discuss impacts associated with those areas.

A scoping letter describing the proposed action was prepared and mailed to the various public groups, federal and state agencies, and other potentially interested parties on January 7, 2009. American Indian tribes traditionally associated with the lands of Bryce Canyon National Park were also apprised of the proposed action on January 7, 2009. Scoping information was also posted on the National Park Service Planning, Environment, and Public Comment website (<http://parkplanning.nps.gov/>).

Comments were solicited during external scoping until February 15, 2009. One comment was received from the public expressing interest in being informed about the project. No concerns or issues were raised, and no other alternatives were proposed.

Impact Topics Retained for Further Analysis

Impact topics for this project have been identified on the basis of federal laws, regulations, and orders; 2006 NPS Management Policies; and NPS knowledge of resources at Bryce Canyon National Park. Impact topics are the resources of concern that could be affected by the range of alternatives. Impact topics that are carried forward for further analysis in this environmental assessment are listed below along with the reasons why the impact topic is further analyzed. For each of these topics, the following text also describes the existing setting or baseline conditions (i.e. affected environment) within the project area. This information will be used to analyze impacts against the current conditions of the project area in the Environmental Consequences chapter.

Soils

According to the NPS Management Policies (NPS 2006), the NPS will strive to understand and preserve the soil resources of park units and to prevent, to the extent possible, the unnatural erosion, physical removal, or contamination of the soil, or its contamination of other resources.

In general, the top of the Paunsaugunt Plateau is covered with gravelly loam-type soils derived from the weathering of limestone parent material. These shallow, well-drained soils are typically low in nutrients and moisture availability. A substantial portion of the park is classified as badlands, rock outcrops, or talus fields rather than as developed soils. Soils along drainages (both above and below the rim) which are formed in limestone alluvium can be deeper and well developed. Soils in the project area are within meadow habitat of the park and are comprised of sandy-gravelly loam textures.

Based on past and present activities, deterioration of soil resources is anticipated to continue along the main park road, especially within the East Creek Meadow. Degradation of soil resources is due to several factors, mostly related to vehicles (predominantly visitors) pulling off the road onto the road shoulder to view wildlife, turn around, orient themselves on the park map, or for other reasons. Park personnel also use the road shoulder to park vehicles during various park operations such as law enforcement activities, vegetation monitoring and exotic species treatments and to conduct wildlife surveys. Driving vehicles on unpaved road shoulders contributes to rutting and erosion, causing destruction to native plant resources as well as enhancing the potential spread of noxious weeds to those areas. Other impacts on soil resources are less severe and are generally connected to people walking along the roadside, contributing to localized soil displacement. Visitors are often seen walking along the road shoulder, especially in the meadow, and park staff occasionally park on the road shoulder to conduct a variety of park operations, such as those mentioned above. Bicycle use is also common in BRCA during the summer months and rutting from bike tires off of the paved road corridor also contributes to degradation of soil resources.

Under the No Action Alternative, soil resources are anticipated to be impacted at the current or elevated levels, as park visitation increases and roadside use for parking vehicles, hiking and taking pictures continues. Soil resources would also be impacted under either of the action alternatives due to the nature of developing a viewing pullout including the placement of asphalt/natural aggregate surfaces and an increase in impermeable surfaces along the roadside. Broad-scale vehicle damage to soil resources along the roadside is anticipated to lessen under either of the action alternatives because visitors will have a greater opportunity to pull off of the road into established, paved parking areas. Pedestrian disturbance of soils along the roadside and within meadow habitat is not anticipated to change under any of the alternatives as visitors are likely to continue walking along the roadside to view and photograph wildlife and park personnel must walk/hike outside of the paved road corridor to complete many operations in meadow areas. Because soils would be affected by any of the alternatives, this topic was retained for further analysis in this document.

Wildlife

According to NPS Management Policies (NPS 2006), the NPS shall strive to maintain all the components and processes of naturally evolving park ecosystems, including the natural abundance, diversity, and genetic and ecological integrity of the plant and animal species. Diverse vegetative communities within BRCA support a variety of wildlife species. Observation records exist for 4 species of amphibians, 11 species of reptiles, 59 mammal species and over 175 bird species. Bryce Canyon does not support a large number of fish or amphibians due to the limited aquatic resources in the park. However, no rigorous studies of fish populations or aquatic habitats have been conducted. Surveys for amphibians have shown that their abundance may be correlated with summer rainfall and drought conditions (Kershaw et al. 1998). Also, many species of birds and some mammal species, such as bats, are migratory. Consequently, the number of species and the size of populations vary considerably from season to season.

Common mammals of BRCA include mule deer, striped skunk, badger, gray fox, mountain cottontail, red squirrel, golden-mantled ground squirrel and various small rodents. Elk, pronghorn, mountain lion, and black bear use the park, as well as neighboring lands. Common birds include wild turkey, Stellar's jay, pinyon jay, common raven, mountain chickadee, pygmy nuthatch, northern flicker, mountain bluebird, western bluebird, white-throated swift, violet-green swallow and dusky grouse. Raptors known to occur in the park include golden eagle, red-tailed hawk, kestrel, prairie falcon, Northern goshawk, Cooper's hawk, peregrine falcon and great-horned owl (Bryce Canyon wildlife database). Little is known about the insects of Bryce Canyon. Butterflies and moths have been collected and are in the park's museum collections. Pinyon nuts, juniper berries, manzanita fruits, grasses, and forbs form the base of the food chain for BRCA wildlife. These are eaten by ground squirrels, deer mice, chipmunks, wood rats, and other small herbivores and a variety of birds, which are in turn prey for the park's raptors, coyotes, foxes, bobcats and other predators. Insects that inhabit park meadows and forests support a wide variety of birds, as well as reptiles and some amphibians.

Impacts on wildlife from human activities can have a variety of influences based on various factors including the type, duration, frequency, magnitude, location and timing of the disturbance as well as the species being affected (Steidl and Powell 2006). Wildlife that utilize habitat in the park's meadows (i.e., pronghorn, mule deer, turkey, elk, Utah prairie dogs, fox, badger, etc.) have been exposed to impacts from visitor use for multiple generations. Although the park maintains records of wildlife sightings, no comprehensive studies have been undertaken to assess tourist impacts on the abundance, distribution, survival, or reproductive rates of wildlife in the park's meadows. Because meadow habitat in BRCA comprises a small percentage (~6%) of the vegetative communities within park, visitor activities in the meadows likely has an overall minor impact on wildlife populations in the park. The proposed project does not introduce any human activity that has not historically occurred in the area.

The permanent placement of wildlife viewing pullouts adjacent to park meadows has the potential to alter wildlife movement and behavior (due to human disturbances, habituation, and harassment). However, directing vehicles toward specific sites to safely exit the road would concentrate human disturbance to localized areas instead of throughout the meadows, which may reduce the overall level of human-caused stress on wildlife species in the project area. Under the No Action Alternative, current levels of impacts to wildlife are anticipated to continue from visitors stopping to view and photograph wildlife throughout the meadow along the roadside. During construction of wildlife pullouts under either of the action alternatives, noise from heavy vehicle use would increase, which may disturb wildlife in the vicinity. Construction-related noise would be temporary and localized, and existing sound conditions would resume following construction activities. Loss of roadside habitat, which can be attractive to wildlife due to increased moisture in vegetation from road runoff, may also affect wildlife in the project area by displacing species from previously favorable foraging sites. Because several factors may affect wildlife related to this project, regardless of which alternative is selected, this topic was retained for further analysis in this document.

Special Status Species

The Endangered Species Act of 1973 requires examination of impacts on all federally-listed threatened, endangered, and candidate species. Section 7 of the Endangered Species Act requires all federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats. In addition, the 2006 Management Policies and Director's Order-77 Natural Resources Management Guidelines requires the National Park Service to examine the impacts on federal candidate species, as well as state-listed threatened, endangered, candidate, rare, declining and sensitive species (NPS 2006).

Protection under the Migratory Bird Treaty Act makes it unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any migratory bird, including the feathers or other parts, nests, eggs, or migratory bird products. In addition, this act serves to protect environmental conditions for migratory birds from pollution or other ecosystem degradations. Some migratory birds may be potential transients in the project area, and raptor species have been observed using the meadow habitat as foraging grounds and possibly nest in trees along the edge of the meadow. Construction-related noise could potentially disturb bird species in the vicinity temporarily. Compared to the general traffic noise and disturbance during the busy season in the park, this disturbance is anticipated to be minor and temporary.

For the purposes of this analysis, the USFWS and the Utah Division of Natural Resources were consulted with regards to federally- and state-listed species to determine those species that could potentially occur on or near the project area. Consultation with the USFWS initiated on November 18, 2009, verified that there are four federally listed species known to occur within Bryce Canyon National Park. However, only the federally listed threatened Utah prairie dog is known to occur within the project area and could be affected by project implementation. A Biological Assessment has been prepared and submitted to the USFWS (February 24, 2010) analyzing the effects of the proposed project on colonies of Utah prairie dogs within the project area. Consultation with the USFWS will be concluded prior to finalization of this environmental assessment and project initiation.

The Utah prairie dog (*Cynomys parvidens*), a federally threatened species and state-listed sensitive species, occurs in several colonies in the central and northern portions of the park that contain open, grassy meadows. Utah prairie dogs, a burrowing rodent in the squirrel family (Sciuridae), occur only in southwestern Utah. It is a member of the white-tailed prairie dog group that once inhabited vast areas of the western Great Plains. The Utah prairie dog is the most restricted of the three members of this group. Its total numbers declined drastically from the 1920s to 1960s largely as a result of human related habitat alteration and by intentional poisoning (due to the belief that prairie dogs compete with domestic livestock for forage). Prairie dogs are also frequently affected by sylvatic plague (an introduced disease to the U. S. in the late 1800s) outbreaks that can essentially destroy entire colonies. At present, the Utah prairie dog is still threatened over much of its range by loss of habitat. Despite the problems listed above, the Utah prairie dog increased in overall population numbers between 1976 and 1991 (USFWS 1991). However, the population numbers have fluctuated over time and have not continued on an upward trend (USFWS 1997).

At BRCA, Utah prairie dog reintroductions occurred between 1976 and 1988, after being absent from the park since the 1960s. Since the reintroduction program, prairie dog population numbers at BRCA have fluctuated from under 50 animals to over 150 (BRCA Utah prairie dog database). Several active colonies are found in the meadows of the park, including a relatively large colony west of the park road (outside of public viewing) near maintenance facilities and the park concessioner's horse/mule corrals. The proposed project has the potential to affect two small colonies within the park. Annual surveys of these colonies over the last 6 years (2004 - 2009 census results) ranged from 1 to 11 prairie dogs counted. Proposed Pullout #5 is located next to an active prairie dog colony that is bordered on two sides by paved roads. Activity near this colony from park operations and visitor use is currently high and behavior in that colony indicates habituation to human disturbance. A small colony near proposed Pullout #2 has consisted of one prairie dog counted during the last two survey periods. The colony adjacent to Pullout #2 is at the eastern edge of a sparsely populated colony complex through East Creek Meadow that incorporates some USFS land. The high count for the entire East Creek colony (including USFS land between the park and BRCA's well houses) over the past 6 years was 69 prairie dogs, which is comprised of interspersed colonies throughout the meadow outside of .5 mile from the project area.

Affects on individual Utah prairie dogs, as related to the proposed project, are estimated at 20 animals in total and are not expected to result in direct mortality. The construction of wildlife viewing pullouts adjacent to prairie dog colonies is not anticipated to destroy any burrows, although several burrows are located within the 10m buffer zone at proposed Pullout #5 and could be disturbed.

Any human activity within close proximity to prairie dogs, or other wildlife species, has the potential to negatively affect behavior and could decrease life-expectancy. Additionally, human interaction with Utah prairie dogs has the potential to harm visitors due to the presence of plague in colonies that could be transmitted to people via fleas. The human safety component of Utah prairie dog/human interactions and the need to address safe and controlled Utah prairie dog viewing opportunities within the park was an important consideration during the development of the proposed project. The proposed project attempts to mitigate possible negative affects to visitors and Utah prairie dogs by controlling access and presenting information on the ecology, conservation challenges and disease transmission issues associated with this species.

As the only park service unit where Utah prairie dogs exist, BRCA has unique opportunities, and challenging, in supporting recovery efforts of the species in southern Utah. The park is actively involved in conservation efforts (e.g., colony protection within the park via conservation measures such as dusting for plague, removal of forage items within the road, education of school groups visiting the park, etc.) to improve the long-term recovery of the species. There is a high demand from visitors to see Utah prairie dogs during their visit to the park. Enhancing visitor opportunity to safely view this species in addition to providing visitors with up-to-date information on Utah prairie dog recovery is consistent with the park's goal to assist with conservation efforts as well as specific recovery goals in the USFWS Recovery Plan (1991). Because of the proximity of active Utah prairie dog colonies under one of the action alternatives, complexities associated with enhancing human access to Utah prairie dog colonies, and potential project impacts on the species and its habitat, this topic was retained for further analysis in this document.

Vegetation

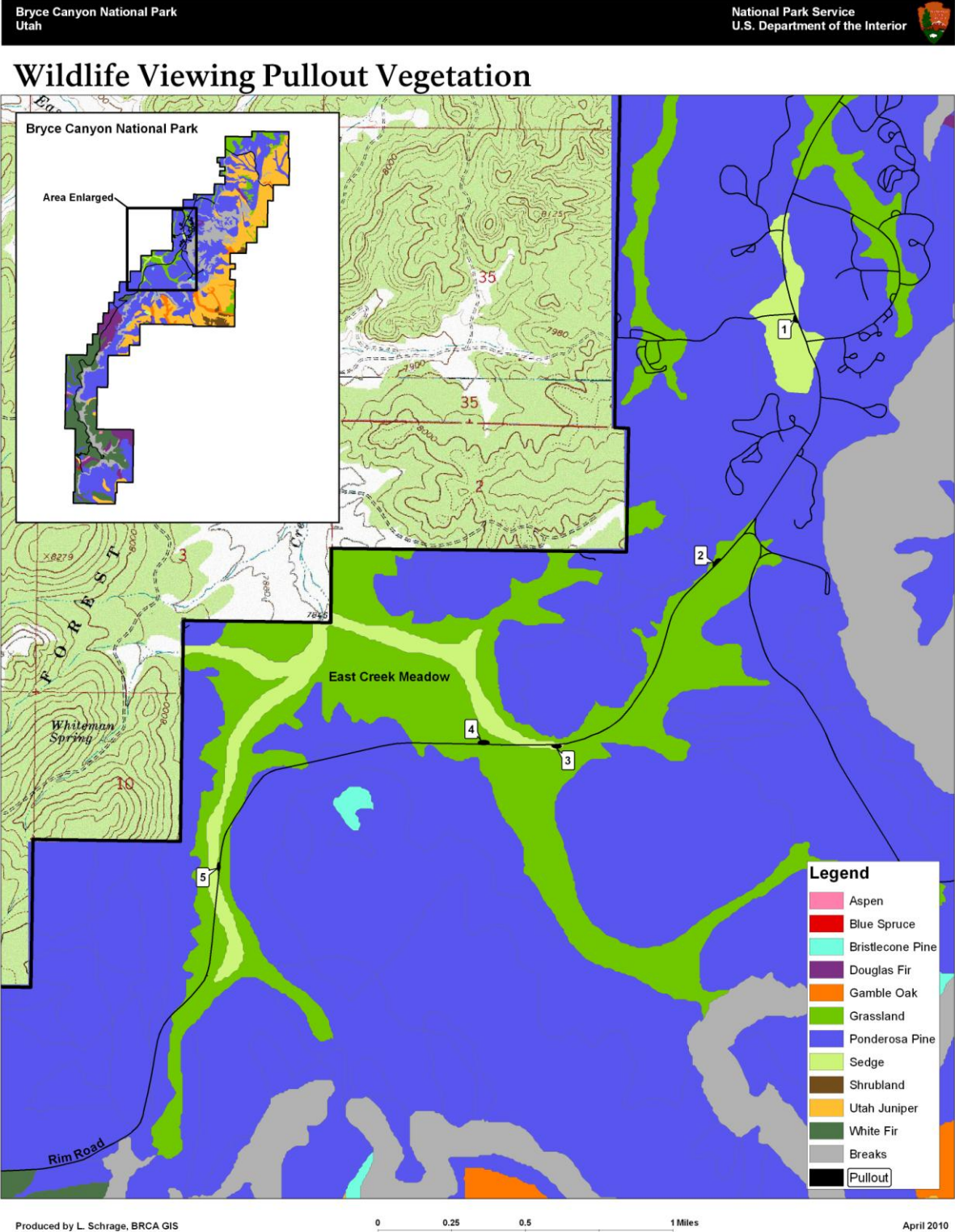
According to the NPS 2006 Management Policies, the NPS strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of plants. Bryce Canyon has an elevation range of 6,850 feet above sea level on the eastern side of the park, climbing to 9,115 feet at its southern end. The vegetation of Bryce Canyon reflects the change in elevation and topography, as well as the geology, soils and water availability within the park. Five major vegetation communities exist within the park: Pinyon-Juniper Woodlands, Breaks Communities, Ponderosa Pine Forests, Mountain Grasslands and Fir-Spruce-Aspen Forests.

The proposed project is located within Bryce Canyon's mountain grassland (meadow) community (Figure 3). This vegetation community is represented in approximately 2,300 acres (~6%) within the park. The mountain grasslands exist in open valleys between the forested slopes mainly in the north end of the park extending into the central portion of the park along drainages. Existing native vegetation in the project area primarily consists of grasses (including slender wheat grass, rice grass, rye grass), black sagebrush, rabbitbrush, horse rush and ponderosa pine bordering the meadow habitat. Exotic species in the area vary in level of infestation, but are most abundant along the main park road, and include white top, salsify, yellow sweet clover, and smooth brome.

Vegetative cover in each of the proposed wildlife pullout locations ranges from 10% cover (Pullout #2) to 75% cover (Pullout #1) with varying degrees of previous disturbance and non-native vegetation composition. However, all areas have been impacted by past projects (most notably, the reconstruction of the main park road) with some of the proposed wildlife viewing pullout locations heavily impacted from vehicle use (especially evident in Pullout #2). All of the proposed pullouts are directly edged by meadow habitat with the exception of proposed Pullout #4, which is bordered by ponderosa pine. Both of the action alternatives would require the removal of approximately 5 ponderosa pine trees (<24" DBH) at proposed Pullout #4 to establish the pullout area. The downed trees would be used as a natural border for this pullout.

Some of the proposed pullout locations have already been heavily impacted by unauthorized vehicle use of the area as an ad hoc parking location. Vegetation would be displaced, disturbed, and/or compacted in the areas of pullout construction. Approximately 0.2 acres (total for all 5 pullouts) would be permanently asphalted and several small trees surrounding Pullout #4 would be removed and used as a natural edge to the pullout. Vegetation outside of the direct impact area (within a 10m buffer zone from the edge of the proposed pullout) would be temporarily affected during construction due to displacement of soil and re-grading. All disturbed areas surrounding the construction zone would be revegetated with native plants. However, native vegetation would be lost in the transition from a dirt-based road edge to an asphalt substrate. Because of the possible effects on vegetation resulting from any of the alternatives, this topic was retained for further analysis in this document.

Figure 3: Dominant vegetation communities within proposed Wildlife Viewing Pullouts Project, Alternatives B and C, Bryce Canyon National Park, Utah



Visitor Use and Experience

According to NPS Management Policies (NPS 2006), the enjoyment of park resources and values by people is part of the fundamental purpose of all park units. The NPS is committed to providing appropriate, high quality opportunities for visitors to enjoy the parks, and will maintain within the parks an atmosphere that is open, inviting and accessible to every segment of society. Further, the NPS will provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the superlative natural and cultural resources found in the parks. Management Policies also state that scenic views and visual resources are considered highly valued associated characteristics that the NPS should strive to protect.

Bryce Canyon National Park was created to preserve geological features unique to the area and is open year-round, averaging over 1.5 million visitors per year over the last five years. Although the majority of visitation occurs in the northern portion of the park at the overviews to the main Bryce Amphitheater, thousands of visitors also drive to the southern part of the park to Rainbow Point, passing through the park's high meadow habitat. These meadows are excellent viewing areas for some of the park's wildlife, as the habitat affords unobstructed views along with attractive forage for many different species. Currently, there is one official pullout located along the road in East Creek Meadow. This pullout was constructed during the main park road reconstruction and was intended for use as a snow plow turn-around. There are no interpretive panels or specifically designated wildlife pullout areas along the meadow. However, "car jams" and vehicles pulling off the road into the meadow are frequent occurrences along East Creek Meadow as visitors stop to view and photograph wildlife seen from the road. Visitors have also been observed walking into the meadows to obtain close-up photographs of wildlife. As the meadow boundary is not fenced along the road, this activity is very difficult to control, and is damaging to the resource.

The proposed project is fundamentally related to visitor use and enjoyment of the park while optimizing visitor safety and protection of park resources. The consideration to develop wildlife viewing pullouts has been influenced almost exclusively by visitor behavior in the park and its associated impact on park resources. Project objectives are tied to enhancement of visitor experience and appropriate use of park infrastructure. The construction of viewing pullouts would temporarily affect visitor use and experience of the park in a negative way, as the main park road would require one-lane closures and construction noise and debris would detract from the natural environment of the park. However, the long-term benefit to the visitor would include increased opportunities to view and enjoy the park in a safe manner that protects sensitive park resources. Because of the temporary impacts to visitor use along the main park road and the long-term impacts to visitor use and experience of the park, this topic was retained for further analysis in this document.

Impact Topics Dismissed From Further Consideration

Some impact topics have been dismissed from further consideration, as listed below. During internal scoping, the park's Compliance Specialist, with input from the Compliance Interdisciplinary Team, conducted a preliminary analysis of resources to determine the context, duration, and intensity of effects that the proposal may have on those resources. If the magnitude of effects was determined to be at the negligible or minor level, there is no potential for significant impact and further impact analysis is unnecessary, the resource is dismissed as an impact topic. If however, during internal scoping and further investigation, resource effects still remain unknown, or are at the minor to moderate level of intensity, and the potential for significant impacts is likely, then the analysis of that resource as an impact topic is carried forward.

For purposes of this section, an impact of negligible intensity is one that is "at the lowest levels of detection, barely perceptible, and not measurable." An impact of minor intensity is one that is "measurable or perceptible, but is slight, localized, and would result in a limited alteration or a limited area." The rationale for dismissing these specific topics is stated for each resource.

Topography and Geology

According to the NPS Management Policies (NPS 2006), the NPS will preserve and protect geologic resources and features from adverse effects of human activity, while allowing natural processes to continue. These policies also state that the NPS will strive to understand and preserve the soil resources of park units and to prevent, to the extent possible, the unnatural erosion, physical removal, or contamination of the soil, or its contamination of other resources.

There are no significant topographic or geologic features in the project area, pullouts would be constructed along an existing roadway that is basically of a level grade and the majority of proposed pullout locations are frequently disturbed by vehicles. Given these factors, the proposed project would result in negligible effects to topography and geology. Further, effects on topography and geology would not result in any unacceptable impacts, therefore the proposed actions are consistent with §1.4.7.1 of NPS Management Policies 2006. Because these impacts are less than minor and would not result in any unacceptable impacts, this topic was dismissed from further analysis in this document.

Water Resources

National Park Service policies require protection of water quality consistent with the Clean Water Act. The purpose of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." To enact this goal, the U.S. Army Corps of Engineers has been charged with evaluating federal actions that result in potential degradation of waters of the United States and issuing permits for actions consistent with the Clean Water Act. The U.S. Environmental Protection Agency also has responsibility for oversight and review of permits and actions which affect waters of the United States.

The proposed project area does not contain surface waters, and is mostly dry, except for periodic runoff during storm events. Water quality, water quantity, and drinking water are not expected to be affected by the project. The size of the wildlife viewing pullouts footprint (approximately 0.40 ac [16,000ft²] spread out over 5 pullout locations) would increase the amount of impervious surface in the area, which can increase local storm water runoff and may affect water quality. To mitigate any effects of soil erosion and protect water quality in the project area, disturbed soils surrounding the constructed wildlife pullouts would be revegetated and recontoured following construction. Based on the size of the impact area and implementation of appropriate best management practices during construction (such as the use of straw wattles to decrease sedimentation flow) the proposed action would result in negligible to minor effects to water resources. Further, such effects would not result in any unacceptable impacts; the proposed actions are consistent with §1.4.7.1 of NPS Management Policies 2006. Because project effects on water quality are minor or less in degree and would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

Cultural Resources

The 1966 National Historic Preservation Act as amended (NHPA, 16 USC 470 et seq.), the 1916 NPS Organic Act and NPS planning and cultural resource guidelines call for the consideration and protection of historic properties (the term "historic properties" refers to all cultural resources, including archeological resources, cultural landscapes, ethnographic resources, and historic resources eligible for or listed on the National Register of Historic Places). The evaluation of potential impacts of proposed actions on historic properties is required by the NEPA and NHPA, and must follow the provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) for sites where human remains or burials may be present.

The project area was reviewed by the park's Cultural Resources Specialist for potential impacts to any cultural resources and resulted in a negative finding. If previously unknown cultural resources are discovered during project activities, work would be stopped in the area of the discovery, and the park would consult with the Utah State Historic Preservation Officer (SHPO) and, as appropriate, the Advisory Council on Historic Preservation. If appropriate, provisions of the NAGPRA Act of 1990 would be implemented.

No ethnographic research has been conducted to determine ethnographic resources; however, culturally affiliated groups received scoping letters and notification of the environmental assessment. The park did not receive any information from tribes indicating that there are any ethnographic resources in the project area. There are no historic structures within the project area and the scope of work would be outside the park's identified cultural landscape. The main park road was evaluated for eligibility for listing in the National Register of Historic Places in 2000 in relation to road reconstruction work and was deemed ineligible (SHPO letter April 13, 2000) based on data gathered during the Bryce Canyon National Park Rim Road Cultural Landscape Inventory (NPS 1998).

After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects), the National Park Service concludes that implementation of any alternative described in this document would result in a "no historic properties affected" determination. This is due to the fact that no archeological resources, historic resources, ethnographic resources, or cultural landscapes are known to exist within the footprint of the proposed viewing pullouts. A letter requesting concurrence with this determination was mailed to the Utah SHPO on April 12, 2010.

Air Quality

The Clean Air Act of 1963 (42 U.S.C. 7401 et seq.) was established to promote the public health and welfare by protecting and enhancing the nation's air quality. The act establishes specific programs that provide special protection for air resources and air quality related values associated with NPS units. Section 118 of the Clean Air Act requires a park unit to meet all federal, state, and local air pollution standards. Bryce Canyon National Park is designated a Class 1 area under the Clean Air Act. The park's air quality is among the best in the nation with occasional periods of regional haze, forest fire smoke or widely dispersed industrial pollution.

Construction activities such as hauling materials and operating heavy equipment could result in temporary increases of vehicle exhaust, emissions and fugitive dust in the project area. Any exhaust, emissions and fugitive dust generated from construction activities would be temporary and localized and would likely dissipate rapidly. Overall, the project could result in a negligible to minor degradation of local air quality, and such effects would be temporary, lasting as long as construction. The Class 1 air quality designation for BRCA would not be affected by the proposal. Further, because the Class 1 air quality would not be affected and impacts on air quality would be minor, localized and temporary, there would be no unacceptable impacts; the proposed actions are consistent with §1.4.7.1 of NPS Management Policies 2006. Because there would be no major effects on air quality, and the proposed actions would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

Night Sky or Lightscapes

In accordance with NPS Management Policies, the National Park Service strives to preserve natural ambient lightscapes, which are natural resources and values that exist in the absence of human caused light (NPS 2006). The NPS recognizes that a clear view of the night sky is an important value to park visitors. Artificial light pollution can affect opportunities for night sky viewing and enjoyment. If either of the Action Alternatives are selected, there would be no adverse effects on night sky viewing, because all project activities would occur during daylight hours. Under the No Action Alternative, there would be no construction activities and no potential for adverse effects on the night sky. Therefore, there are not expected to be any impacts to night skies or the lightscape of Bryce Canyon National Park. Further, actions associated with project implementation would

not result in any unacceptable impacts; the proposed actions are consistent with §1.4.7.1 of NPS Management Policies 2006. Because effects on the night sky or lightscapes are minor or less in degree and would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

Natural Soundscapes/Noise

In accordance with NPS Management Policies (NPS 2006) and Director's Order-47 (Sound Preservation and Noise Management), an important component of the National Park Service's mission is the preservation of natural soundscapes associated with national park units. Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all the natural sounds that occur in park units, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and can be transmitted through air, water, or solid materials. The frequencies, magnitudes, and durations of human-caused sound considered acceptable varies among NPS units as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas.

The proposed project activities would occur in an area with a high volume of vehicle traffic as the main park road is the primary roadway within the park and the only paved road south of the Bryce Viewpoint turnoff. During construction, human-caused sounds would likely increase due to construction activities, equipment, vehicular traffic (including visitor vehicles stopped at road blocks) and construction crews. Any sounds generated from construction would be temporary, lasting as long as the construction activity is generating the sounds, and would have a negligible to minor effect on visitors and employees. Further, such negligible or minor impacts would not result in any unacceptable impacts; the proposed actions are consistent with §1.4.7.1 of NPS Management Policies 2006. Because these effects are minor or less in degree and would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

Prime and Unique Farmlands

The Farmland Protection Policy Act of 1981, as amended, requires federal agencies to consider adverse effects to prime and unique farmlands that would result in the conversion of these lands to non-agricultural uses. Prime or unique farmland is classified by the U.S. Department of Agriculture's Natural Resources Conservation Service, and is defined as soil that particularly produces general crops such as common foods, forage, fiber and oil seed; unique farmland produces specialty crops such as fruits, vegetables and nuts. There are no prime and unique farmlands within the park and this topic was therefore dismissed from further analysis in this document.

Wetlands

For regulatory purposes under the Clean Water Act, the term wetlands means "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas." Executive Order 11990 Protection of Wetlands requires federal agencies to avoid, where possible, adversely impacting wetlands. Further, §404 of the Clean Water Act authorizes the U.S. Army Corps of Engineers to prohibit or regulate, through a permitting process, discharge of dredged or fill material or excavation within waters of the United States. National Park Service policies for wetlands as stated in the 2006 Management Policies and Director's Order 77-1 (Wetlands Protection) strive to prevent the loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. In accordance with DO 77-1, proposed actions that have the potential to adversely impact wetlands must be addressed in a statement of findings for wetlands.

Recently restored wetland (wet meadow) habitat exists in the South Fork of East Creek Meadow in proximity to, but outside of, the project footprint of Pullout #1. During wetland delineation work conducted in conjunction with the main park road rehabilitation project in 2002, the South Fork area did not qualify under the Corps of

Engineers or NPS delineation guidelines for jurisdictional wetland status (NPS 2003). However, 1.35 acres of the South Fork of East Creek Meadow was restored during that project to offset impacts to jurisdictional wetlands in Dave's Hollow Meadow near the Visitor Center. Although the restored area is in the vicinity (~500 m) of Pullout #1, wetland habitat would not be impacted by project activities. Some wet meadow vegetation (*Juncus* sp.) has been identified at the Mixing Circle junction meadow (adjacent to proposed Pullout #5), although this area has never been officially delineated and probably would not be considered an official wet meadow based on the presence of a Utah prairie dog colony in the area (prairie dogs avoid areas that are subject to standing water or inundation, which is periodically necessary to sustain wet meadow habitat). Using the Bryce Canyon Vegetation Database and field verification, all areas where wet meadow habitat exists would not be disturbed (perimeters of wet meadow vegetation would be flagged prior to project implementation). The conservative estimate of wet meadow habitat using vegetation as an indicator would ensure that this sensitive habitat is not impacted.

The proposed project would not directly impact wet meadow habitat or plant species that may indicate the presence of a wet meadow. Although the construction of wildlife pullouts in proximity to wet meadow habitat has the potential to slightly increase runoff rates into adjacent non-paved areas, the effect would be negligible to minor. Additionally, erosion control measures during construction (including bale slope barriers and silt fencing) would be used to prevent any fill from leaving the project area and collecting upstream of the restored wetland in the South Fork of East Creek Meadow. The amount of additional runoff caused by the pavement of approximately .20 acres of currently unvegetated roadside would not cause detectable levels of increased water flow or degradation of habitat in adjacent areas. There would be no unacceptable impacts to wetlands from implementation of the proposed project and the proposed actions are consistent with §1.4.7.1 of NPS Management Policies 2006. Because wetland habitat is outside of the project area and conservation measures would be put in place to contain soil erosion at proposed Pullouts #1 (upstream of a restored wet meadow) and #5 (adjacent to wet meadow indicator plants), there would be no unacceptable impacts. Therefore, this topic is dismissed from further analysis in this document.

Indian Trust Resources

Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by the Department of Interior agencies be explicitly addressed in environmental documents. The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native tribes. There are no Indian trust resources at Bryce Canyon National Park. The lands comprising the park are not held in trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians. Because there are no Indian trust resources, this topic is dismissed from further analysis in this document.

Floodplains

Executive Order 11988 (Floodplain Management) requires all federal agencies to avoid construction within the 100-year floodplain unless no other practicable alternative exists. The National Park Service under 2006 Management Policies and Director's Order 77-2 (Floodplain Management) will strive to preserve floodplain values and minimize hazardous floodplain conditions. According to Director's Order 77-2, certain construction within a 100-year floodplain requires preparation of a statement of findings for floodplains.

Flood maps do not exist for the area encompassing the proposed project. Based on computations using Methods for Estimating Magnitude and Frequency of Peak Flows for Natural Streams in Utah (USGS 2008), the proposed project area could receive runoff events of several hundred cubic feet per second, determined by the watershed area and annual precipitation rates. The area adjacent to the main park road along East Creek Meadow may be inundated with standing water on rare (100- or 500-year flood events) occasions, but water velocity during these conditions would be very low due to the flat slopes and the proposed project would not cause measurable disruption of floodplain functions. On rare occasions runoff may overflow the road.

Construction of wildlife viewing pullouts constitutes a minor modification of an existing structure that would not alter existing water control structures, such as culverts or check dams, and would not noticeably affect the movement of water in the area. Impacts to floodplain function would therefore be negligible or nonexistent. There would be no threats to public health and safety or the potential for property damage due to implementation of the proposed project. Because pullouts would be constructed at the grade of the existing road, the same level of threat would exist for visitors using the roadway versus viewing pullouts. Visitors stopped at viewing pullouts could vacate the area during inclement weather, if necessary. A statement of findings for floodplains is not necessary because there would be no unacceptable impacts to floodplains. The proposed actions are consistent with §1.4.7.1 of NPS Management Policies 2006. Because there would be no unacceptable impacts to floodplains, this topic is dismissed from further analysis in this document.

Park Operations

Bryce Canyon is a relatively small national park and employs approximately 55 permanent and term employees year-round with an additional 30 to 40 seasonal employees during the high season months (May to September). The park is organized into 5 divisions including Administration, Maintenance, Visitor Protection/Law Enforcement, Interpretation and Resource Management. Under the No Action Alternative, park operations are not expected to change. The Visitor Protection and Resource Management Divisions are the most affected by activities within East Creek Meadow as visitor use of the area, past park projects and monitoring activities influence management and use of the area by park personnel.

Under either of the action alternatives, park operations would be affected for a short-term period during construction activities (i.e., traffic control, increased visitor contact, etc.). Following construction of viewing pullouts, park operations would be affected minimally. Law Enforcement agents would continue to patrol the area and conduct traffic stops along the roadside but would have more flexibility in pulling vehicles off at established pullouts. Resource Management staff would use the established parking areas during monitoring and vegetation treatment activities. The roadside within East Creek Meadow is currently monitored for invasive species and the addition of pullouts would not alter that practice. Due to the potential of introductions of non-native vegetation in disturbed areas, vegetation monitoring and treatments may be more intensive around pullout areas for several years following construction. However, the increased level of management would be negligible to minor compared with current practices. During winter months, established pullouts may require snow removal, or may be used as areas for accumulated snow deposition. The increased paved surface area along the roadside associated with either of the action alternatives would not noticeably affect maintenance operations and may assist snow plow operations by providing additional plow turnaround locations. Because park operations would be affected in a negligible to minor manner, this topic was dismissed from further consideration in this document.

Environmental Justice

Executive Order 12898 (General Actions to Address Environmental Justice in Minority Populations and Low Income Populations) requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low income populations and communities. Because the wildlife viewing pullouts would be available for use by all park visitors regardless of race or income, and the construction workforces would not be hired based on their race or income, the proposed action would not have disproportionate health or environmental effects on minorities or low-income populations or communities as defined in the Environmental Protection Agency's Environmental Justice Guidance (1998). Therefore, environmental justice was dismissed as an impact topic in this document.

Socioeconomics

The proposed action would neither change local and regional land use nor impact local businesses or other agencies. Implementation of the proposed action could provide a negligible beneficial impact to the economy of Garfield County due to minimal increases in employment opportunities for the construction workforce and revenues for local businesses and governments generated from these additional construction activities and workers. Any increase in workforce and revenue, however, would be temporary and minor, lasting as long as construction. Because the impacts to the socioeconomic environment would be negligible to minor, this topic is dismissed.

ALTERNATIVES CONSIDERED

During several meetings and two site visits in 2008, the Compliance Interdisciplinary Team of Bryce Canyon National Park met for the purpose of developing project alternatives and assessing possible locations for wildlife viewing pullouts. These meetings resulted in the definition of project objectives as described in the Purpose and Need, and a list of alternatives that could potentially meet these objectives. A total of four action alternatives and the no-action alternative were originally identified for this project. Of these, two of the action alternatives were dismissed from further consideration for various reasons, as described later in this chapter. Two action alternatives and the no-action alternative are carried forward for further evaluation in this environmental assessment. A summary table comparing alternative components is presented at the end of this chapter.

Alternatives Carried Forward

Alternative A - No-Action

Under this alternative, no wildlife viewing pullouts would be constructed. Visitors would continue to use unofficial pullouts along the main park road to view wildlife and resource damage would likely continue adjacent to the road in meadow habitat. The No-Action Alternative provides a basis for comparing the management direction and environmental consequences of the proposed action. Should the No-Action Alternative be selected, NPS would respond to future needs and conditions associated with visitor use of the main park road in meadow areas by proposing alternative actions or responding on a case-by-case basis to visitor use and resource management problems. A higher intensity of law enforcement presence as well as placement of temporary signs may reduce the problem of visitor parking along the roadsides. However, due to the limited level of staffing and the need to patrol other areas, damage to roadsides and meadow habitat is anticipated to continue at its current or an accelerated rate. No wayside educational exhibits would be placed along the roadsides as visitor access to panels would not be available.

Alternative B – Construct 5 Wildlife Viewing Pullouts

Under this alternative, five wildlife viewing pullouts would be constructed along the main park road between the Mixing Circle Junction and mile post 5. Two of the viewing pullouts would be constructed in the vicinity (within 350') of colonies of Utah prairie dogs within the park and would allow the public better access to this federally listed threatened species with greater educational opportunities to learn about the species via wayside exhibits. Educational signs/exhibits would be developed at a minimum of three of the pullout locations addressing topics such as the Utah prairie dog, other wildlife species in meadow habitats, the importance of meadows as wildlife feeding and movement corridors and other topics.

Under Alternative B, four viewing pullouts would be developed on the west side of the main park road and one along the east side, with most pullouts developed within East Creek Meadow (Figure 4). The following text further describes the components of Alternative B:

Pullout Designs – Pullouts #1, #2, #3, and #5 would be designed to accommodate approximately 3 vehicles, parked in a parallel manner, along the edge of the roadway. The width of the pullout would be approximately 15' wide from the edge of the road to the edge of the pullout. The length of the pullouts would be approximately 60' long with another 15' of sloping toward the road for ease of pulling vehicles into and out of traffic. All pullouts (except Pullout #4) would be asphalt sealed to prevent further damage to the shoulder and stabilize erosion. Pullout #5 would require the construction of a retaining wall to minimize erosion into surrounding habitat due to the steepness of the incline off the shoulder. Pullout #5 is adjacent to a small colony of Utah prairie dogs in a meadow that is currently demarked using double

rail wooden fencing. The pullout would be constructed adjacent to the fence line to deter visitors from entering the meadow. Signage along the fence line would be placed to discourage visitors from entering the meadow. Pullout #4 would be a constructed vehicle turn-around with a natural island in the center approximately 100' long and 75' wide from the shoulder to the edge of the turn-around. An asphalt approach for approximately 5' would be poured with a natural aggregate base used over the remainder of the turn-around. Several downed ponderosa pine trees in the area, as well as ~5 standing trees (<24" DBH) would be used to line the border of the turn-around. The total project impact area for direct effects is anticipated not to exceed 0.5 acres.

Buffer Zones – In addition to the impact area, a buffer zone of 10 meters was measured around each pullout to account for any resource damage associated with project construction. This area may be impacted by construction vehicle movement and soil disturbance/displacement, but is anticipated to recover within 3 to 5 years of construction. Revegetation of the project area using native seeds collected within or adjacent to BRCA appropriate to high altitude meadow habitat would occur following construction. The total impact from indirect effects of construction in the buffer zone is anticipated not to exceed 0.8 acre.

Wayside Exhibits – Pullouts #1, #3, and #5 would contain educational wayside exhibits related to the importance of meadow habitats for wildlife with different focus themes. Additional funding may also be available to install exhibits at the other pullouts. One exhibit would highlight the importance of the Utah prairie dog as a keystone species within the park and the need to protect this species throughout its range. Another exhibit would focus on the importance of meadows in highland regions with an emphasis on vegetative and animal diversity as well as the function of meadows as water purifiers, wildlife movement corridors and foraging areas. In addition to these wayside exhibits, Pullout #5 (adjacent to the colony of Utah prairie dogs) would have resource protection signs placed along the existing wooden fenceline informing visitors that it is illegal to enter the meadow and disturb the prairie dogs.

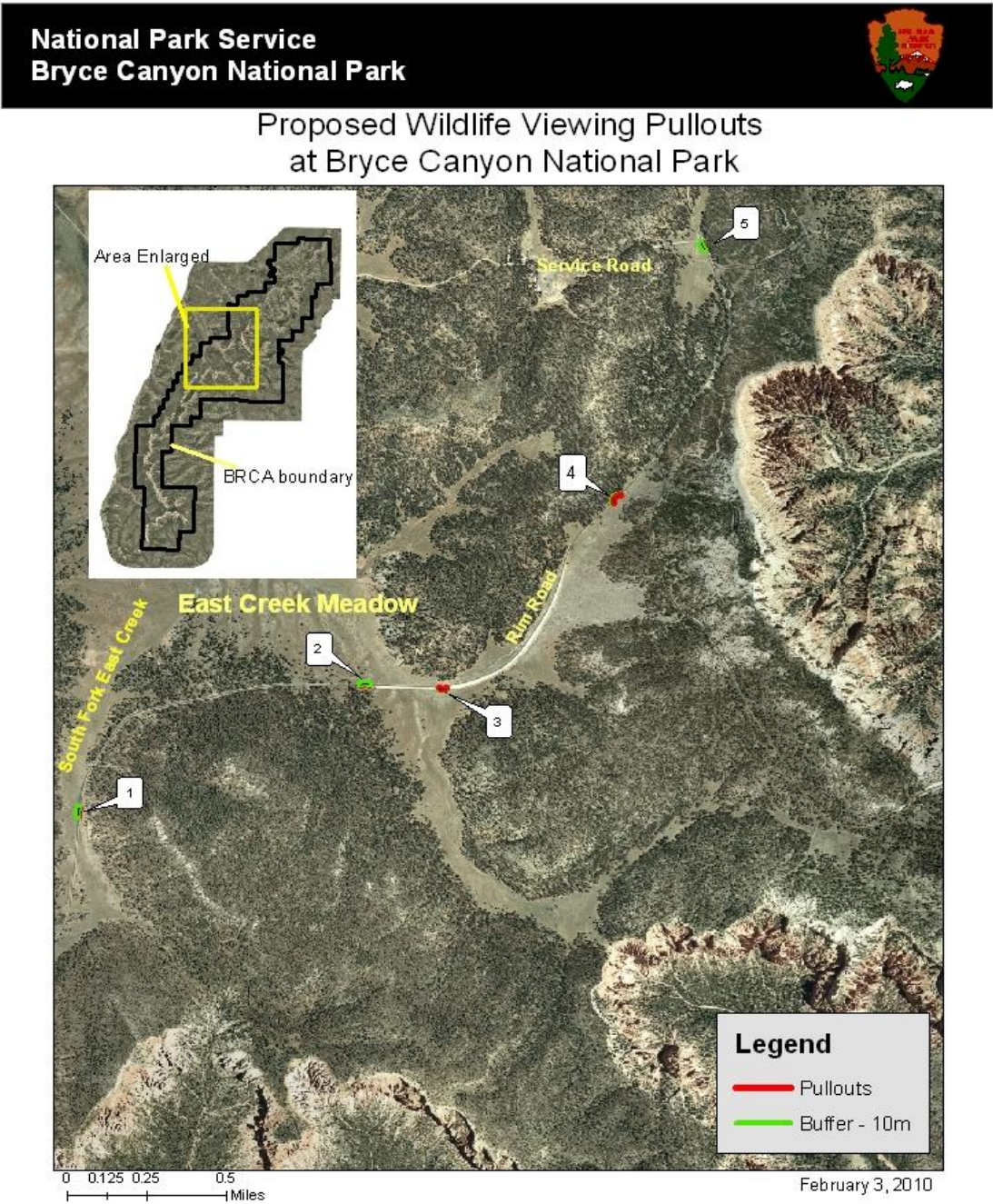
Vegetation Rehabilitation - Areas currently impacted by unauthorized vehicle pullouts would be rehabilitated throughout East Creek Meadow to restore native vegetation and habitat quality. Vegetation surrounding newly constructed pullouts would be monitored to detect and treat the spread of non-native vegetation and would be revegetated with native meadow species as necessary to improve vegetative diversity and health along the meadow.

Alternative C - Construct 3 Wildlife Viewing Pullouts - Avoidance of Utah Prairie Dog Habitat

Alternative

Under this alternative, all wildlife viewing pullouts within 350' of an active Utah prairie dog colony would not be constructed. Pullouts #2 and #5 would not be built under Alternative C as they are within 350' of an active colony. All other construction features as outlined above under Alternative B would be implemented. However, because no pullouts would be in proximity to a prairie dog colony, the wayside exhibit for Pullout #5 would be eliminated. Therefore, Pullouts #1, #3, and #4 would be constructed (as specified in the design features discussed above) with wayside exhibits at Pullouts #1 and #3. Funding for additional waysides may become available in future years. Direct impacts to Utah prairie dog colonies would be reduced under this alternative. However, consultation with the USFWS would still be necessary as the project would occur within .5 mile of active colonies and would result in permanent loss of suitable habitat.

Figure 4: Proposed locations of wildlife viewing pullouts, Alternatives B and C, Wildlife Viewing Pullouts Project, Bryce Canyon National Park, Utah



Alternatives Considered but Dismissed

The following two alternatives were considered for project implementation, but were ultimately dismissed from further analysis. Reasons for their dismissal are provided in the following alternative descriptions:

Development of unpaved pullouts – The Interdisciplinary Team (IDT) discussed constructing unpaved wildlife viewing pullouts on one of the site visits to eliminate permanent pavement of the roadside. However, it was determined that unpaved, gravel surfaces could potentially do more damage to adjacent unpaved surfaces and would require a higher level of maintenance. As one of the main goals of this project was to reduce deterioration of roadside habitat, the IDT determined that permanently paved pullouts would accomplish this goal in the best manner and the development of unpaved pullouts (with the exception of Pullout #4) was dismissed from further consideration.

Development of 7 wildlife pullouts – Locations for an additional 2 pullouts near Dave’s Hollow meadow was proposed during a site visit with the IDT. It was determined that the area already contained several vehicle pullouts and the addition of 2 more may not substantially alter visitor use patterns in the area or protect roadside vegetation. The visual detracting of too many vehicle pullouts in one area along the main park road was also discussed. Additionally, the cost to build 2 additional pullouts was potentially not feasible. The IDT determined that the construction of 5 pullouts in areas where pullouts currently were non-existent or widely spaced met the project purpose and need more effectively.

Mitigation Measures

The following mitigation measures were developed to minimize the degree and/or severity of adverse effects; conservation measures as outlined below would be implemented during construction of the action alternative, as needed:

- To minimize native plant disturbance, areas of existing low vegetation cover and disturbance (resulting from ongoing vehicle impacts) were prioritized as wildlife viewing pullout areas.
- Impact areas and buffer zones would be flagged prior to construction to ensure that resource damage (as determined by the project footprint and buffer zone surrounding the construction area) would not be exceeded during construction.
- Only one wildlife viewing pullout would be constructed at a time to minimize impacts on visitor experience and wildlife; signs would be posted at the Visitor Center to inform visitors of construction activities along the main park road.
- Revegetation and recontouring of disturbed areas in the buffer zone would take place following construction and would be designed to minimize impacts on native vegetation and deter the possible spread of invasive species. Revegetation efforts would strive to reconstruct the natural spacing, abundance and diversity of native plant species found in meadows of the park. All disturbed areas surrounding constructed pullouts would be restored as nearly as possible to pre-construction conditions shortly after construction activities are completed. Weed control methods would be implemented to minimize the introduction of noxious weeds including power-washing of all contractor vehicles brought into the park. Some trees may be removed at Pullout #4, but other existing vegetation (outside the pullout footprint) at each pullout location would not be disturbed to the extent possible.
- To minimize the spread of exotic species, pullouts with the highest current densities of invasive plants will be constructed last to avoid spread into relatively non-affected roadside areas. In general, proposed Pullout #1 has the highest level of exotic species infestation with a consistent gradient of less exotic species (density and diversity) at proposed Pullout #5.

- To reduce the spread of whitetop (*Cardaria draba*), a Utah state listed noxious weed growing in the vicinity of proposed Pullout #1, a pre- and post-construction treatment of the area will be conducted using herbicides targeted for that species (e.g., Telar XP or Escort – EPA Category 3 herbicides).
- Following completion of the project, signs would be erected along the road (on both ends of the project area) directing visitors to "Please Use Established Pullouts."
- Because disturbed soils are susceptible to erosion until revegetation takes place, standard erosion control measures such as silt fences, straw wattles and/or sand bags would be used to minimize any potential soil erosion, especially in pullout areas with a steep incline at the edge, and adjacent to areas upstream of restored wet meadow habitat (proposed Pullout #1) and potential wet meadow habitat (proposed Pullout #5).
- To minimize negative impacts to nesting birds, trees required to form a border at proposed Pullout #4 will not be cut until after July 31st.
- Fugitive dust generated by construction would be controlled by spraying water on the construction site, if necessary.
- To reduce noise and emissions, construction equipment would not be permitted to idle for long periods of time.
- To minimize possible petrochemical leaks from construction equipment, the contractor would regularly monitor and check construction equipment to identify and repair any leaks.
- Should construction unearth previously undiscovered cultural resources, work would be stopped in the area of any discovery and the park would consult with the state historic preservation officer and the Advisory Council on Historic Preservation, as necessary, according to §36 CFR 800.13, Post Review Discoveries. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) would be followed.
- The National Park Service would ensure that all contractors and subcontractors are informed of the penalties for illegally collecting artifacts or intentionally damaging paleontological materials, archeological sites, or historic properties. Contractors and subcontractors would also be instructed on procedures to follow in case previously unknown paleontological or archeological resources are uncovered during construction.
- To the extent possible, the development of the viewing pullouts would emphasize environmental sensitivity in construction, use of nontoxic materials, resource conservation, recycling, and integration of visitors with natural and cultural settings.

The following additional mitigation measures would be used to minimize impacts to Utah prairie dogs:

- Wait to initiate work until June 15, after the pups have emerged. Pullouts will be constructed before August 31st.
- Ensure a biologist from the Bryce Canyon National Park Resources Stewardship and Science Division will be onsite during all excavation activities adjacent to Pullouts #2 and #5.
- Pullout #5 will be fenced and signed to encourage visitors to stay out of the meadow prior to the beginning of construction.

- Construction vehicles will not be allowed to park within meadow habitat.
- Construction work within meadow habitat will be limited to the minimum amount to reduce impacts on active colonies.
- Construction workers and supervisors would be informed about the status of the Utah prairie dog and appropriate activities around active colonies. Contract provisions would require the cessation of construction activities that had a detectably detrimental effect on Utah prairie dogs in the project area, until the park's Division of Resources Stewardship and Science re-evaluates the project and its impact on the prairie dog. This may include modification of the contract for any protection measures determined necessary.

Alternative Summaries

Table 1 summarizes the major components of each Alternative, and compares the ability of these alternatives to meet the project objectives (the objectives for this project are identified in the Purpose and Need chapter). As shown in the following table, Alternative B meets each of the objectives identified for this project, while Alternatives A and C do not address all of the objectives.

Table 1 – Alternatives Summary and Project Objectives

Objective	Alternative A: No-Action	Alternative B – Construct 5 Wildlife Viewing Pullouts	Alternative C - Construct 3 Wildlife Viewing Pullouts - Avoidance of Utah Prairie Dog Habitat Alternative
1. Improve visitor safety while viewing wildlife along the main park road.	Wildlife viewing pullouts would not be constructed and if visitors wanted to view wildlife they would need to stop along the road in potentially unsafe areas.	Wildlife viewing pullouts would be constructed in 5 areas that are currently frequently used as unofficial pullouts. Visitors would be provided with more areas to safely exit the flow of traffic on the main park road.	Three wildlife viewing pullouts would be constructed, outside of (350' away from) active Utah prairie dog colonies, providing visitors with places to safely pull off the main park road; visitors may continue to pull off road near Utah prairie dog colonies in unsafe areas.
2. Enhance visitor knowledge and awareness of park resources and increase visitor satisfaction during their visit to BRCA.	No interpretive panels would be developed for the meadow habitats within the park because there would not be safe access to those panels. Visitor knowledge and awareness would not be improved beyond current interpretive resources and programs.	Interpretive panels would be located at 3 (or more) of the proposed wildlife pullouts to inform park visitors about the importance of meadow habitats, Utah prairie dogs and other wildlife species. If used by visitors, panels could enhance visitor understanding of park resources.	Interpretive panels would be located at 2 (or more) of the proposed wildlife pullouts focused on meadow habitat and wildlife species; no interpretive material would be developed related to Utah prairie dog conservation in the park because the pullouts would not be close enough to this resource to interpret it effectively. If used by visitors, panels could enhance visitor understanding of park resources.
3. Protect sensitive meadow habitat along the main park road.	Meadow habitat would continue to be impacted by unauthorized vehicle pullouts along the main park road onto the unprotected edge; wildlife viewing areas would not be designated.	Meadow habitat would be better protected (compared to current status) as vehicles would have more opportunities to safely pull off the main park road in areas of high concentrations of wildlife. Viewing areas would be designated in 5 locations.	Meadow habitat would be protected in some areas along the main park road; popular areas to view Utah prairie dogs would not be protected as visitors would continue to park in unauthorized areas to view the species. Wildlife viewing areas would be designated in 3 locations.

Objective	Alternative A: No-Action	Alternative B – Construct 5 Wildlife Viewing Pullouts	Alternative C - Construct 3 Wildlife Viewing Pullouts - Avoidance of Utah Prairie Dog Habitat Alternative
Alternatives Meet Objectives?	No. Alternative A does not meet the project purpose and need, as it does not satisfy any project objectives. Visitor knowledge of park resources or protection of sensitive park habitats would not be improved under this alternative.	Yes. Alternative B fully meets all three objectives. Visitors would benefit from safer access to view park resources; visitor knowledge and awareness of park resources would be enhanced via interaction with wayside exhibits; and park sensitive habitat would be protected by reducing unauthorized parking along the main park road.	Alternative C partially meets project objectives. Wildlife pullouts would be selectively developed and avoid areas of active Utah prairie dog colonies; visitor knowledge and awareness may be enhanced by development of 3 pullouts but access to view Utah prairie dog colonies safely would not be allowed; protection of sensitive meadow habitat via controlled visitor use in proximity to Utah prairie dog colonies would not be achieved.

Table 2 summarizes the anticipated environmental impacts for each alternative. Only those impact topics that have been carried forward for further analysis are included in this table. The Environmental Consequences chapter provides a more detailed explanation of these impacts.

Table 2: Environmental Impact Summary by Alternative

<i>Impact Topic</i>	ALTERNATIVE A – NO ACTION	ALTERNATIVE B – CONSTRUCT 5 WILDLIFE VIEWING PULLOUTS	ALTERNATIVE C – CONSTRUCT 3 WILDLIFE VIEWING PULLOUTS - AVOIDANCE OF UTAH PRAIRIE DOG HABITAT
Soils	Long-term, minor to moderate adverse indirect impacts	Short-term minor, adverse direct impacts and long-term minor to moderate, beneficial indirect impacts	Short-term minor, adverse direct impacts and long-term minor, beneficial indirect impacts
Wildlife	Long-term, minor adverse indirect impacts	Short-term minor, adverse direct impacts and long-term minor, beneficial indirect impacts	Short-term minor, adverse direct impacts and long-term minor, beneficial indirect impacts
Special Status Species	Plants: no effect Animals: Long-term, minor to moderate adverse direct and indirect impacts	Plants: no effect Animals: Short-term minor to moderate adverse direct impacts and long-term, minor to moderate beneficial indirect impacts	Plants: no effect Animals: Long-term, minor to moderate adverse direct and indirect impacts
Vegetation	Long-term, minor adverse indirect impacts	Short-term minor, adverse direct impacts and long-term minor, beneficial indirect impacts	Short-term minor, adverse direct impacts and long-term minor, beneficial indirect impacts with localized minor, adverse direct impacts near Pullout #2
Visitor Use & Experience	Long-term, minor adverse indirect impacts	Short-term minor, adverse direct impacts and long-term minor to moderate, beneficial indirect impacts	Short-term minor, adverse direct impacts and long-term minor, beneficial indirect impacts

Identification of the Environmentally Preferred Alternative

The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act of 1969 (NEPA), which guides the Council on Environmental Quality (CEQ). The CEQ provides direction that “[t]he environmentally preferable alternative is the alternative that would promote the national environmental policy as expressed in NEPA’s §101:

- fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;
- attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
- achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life’s amenities; and
- enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources."

Alternative A, No-Action, minimally meets the above six evaluation factors because it does not address the continuing deterioration of the roadside along park meadows or the safety problems with unauthorized vehicle pullouts along the park road. Although it minimizes potential short-term direct impacts to significant park resources such as soils and wildlife, it does not achieve a balance between these resources and the long-term stability and health of meadow habitat along the roadside or allow for a wider range of safe visitor enjoyment opportunities in the park.

Alternative C, Construct 3 Wildlife Viewing Pullouts - Avoidance of Utah Prairie Dog Habitat, partially addresses the six evaluation factors listed above. Through the establishment of 3 wildlife viewing pullouts, the public would have additional opportunities to safely view wildlife in the park's meadows, roadside erosion and negative impacts to native vegetation would be reduced in some areas along the meadow and educational wayside exhibits would be installed to interpret meadow habitat to visitors. Alternative C would decrease general soil erosion along the main park road, reduce vegetation damage and potentially lessen negative impacts on wildlife by creating three permanent locations where tourists can stop along the road. Stress on wildlife habitat and behaviors may be reduced over the long-term by establishing areas of predictable human activity while reducing ad hoc pullout locations over several miles of meadow habitat.

Short-term impacts to Utah prairie dogs would be avoided and there would be no loss of habitat adjacent to colonies. However, by avoiding Utah prairie dog colonies, visitors would continue to impact the species in a negative manner by stopping to view this species in multiple, uncontained areas without the benefit of educational material specific to species conservation, including the potential transmission of plague from prairie dogs to humans. Although this alternative may avoid short-term adverse impacts to the Utah prairie dog, it does not address the long-term, low-grade degradation of colony habitat from visitors entering meadows along the roadside to view the species; nor does it address the requests upon the park to view this resource in a safe manner or the need to provide public education on the conservation status of a federally listed species.

Alternative B, Construct 5 Wildlife Viewing Pullouts, is the environmentally preferred alternative because it best addresses the six evaluation factors listed above. Alternative B would establish five wildlife viewing pullouts in appropriate locations along the main park road that have been assessed for minimal disturbance to

natural and cultural resources, while allowing visitors to experience important park natural resources in a manner that improves public safety and minimizes widespread negative impacts on roadside resources and meadow wildlife. Establishment of wildlife viewing pullout locations would assist with channeling visitors into safe areas to view wildlife and would likely decrease random parking along the roadsides.

Balancing visitor use with protection of park resources is an ongoing challenge for the National Park Service. Consideration of impacts to a federally listed species must be weighed with the overall benefits possible from project implementation. Wayside exhibits would assist visitors with interpreting their surroundings and help to educate the public on the park's federally listed species, the Utah prairie dog, a valuable park resource that visitors frequently want to encounter in their native habitat but have limited viewing opportunities in the park. Through consultation with the U.S. Fish and Wildlife Service, the development of wildlife pullouts in proximity to Utah prairie dog colonies would be executed in a manner that reduces negative impacts on the species. Based on the size of Utah prairie dog colonies adjacent to two of the proposed pullout locations and the level of human habituation displayed by those colonies, the cumulative effect on the park's populations would be minimal with an overall benefit to the species through controlled access and increased educational outreach. Alternative B would also decrease soil erosion along the main park road by concentrating vehicle activity, reduce vegetation damage and potentially lessen negative impacts on wildlife by creating permanent locations where tourists can stop along the road. Stress on wildlife habitat and negative impacts on natural behaviors would likely be reduced over the long-term by establishing areas of predictable human activity while reducing ad hoc pullout locations over several miles of meadow habitat.

Alternative B is the agency (NPS) Preferred Alternative and defines the rationale for the action in terms of resource protection and management, safety, visitor education and appropriate visitor park use. All actions described in the Preferred Alternative are consistent with the approved Bryce Canyon General Management Plan (1987) and related park documents.

No new information came forward from public scoping or consultation with other agencies to necessitate the development of any new alternatives, other than those described and evaluated in this document. Because it meets the purpose and need for the project, the project objectives, and is the environmentally preferred alternative, Alternative B is also recommended as the National Park Service preferred alternative. For the remainder of the document, Alternative B will also be referred to as the Preferred Alternative.

ENVIRONMENTAL CONSEQUENCES

This chapter analyzes the potential environmental consequences, or impacts, that would occur as a result of implementing the proposed project. Topics analyzed in this chapter include soils, wildlife, special status species, vegetation, and visitor use and experience. Direct, indirect, and cumulative effects, as well as impairment are analyzed for each resource topic carried forward. Potential impacts are described in terms of type, context, duration, and intensity. General definitions are defined as follows, while more specific impact thresholds are given for each resource at the beginning of each resource section.

- **Type** describes the classification of the impact as either beneficial or adverse, direct or indirect:
 - Beneficial: A positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.
 - Adverse: A change that moves the resource away from a desired condition or detracts from its appearance or condition.
 - Direct: An effect that is caused by an action and occurs in the same time and place.
 - Indirect: An effect that is caused by an action but is later in time or farther removed in distance, but is still reasonably foreseeable.
- **Context** describes the area or location in which the impact will occur. Are the effects site-specific, local, regional, or even broader?
- **Duration** describes the length of time an effect will occur, either short-term or long-term:
 - Short-term impacts generally last only during construction, and the resources resume their pre-construction conditions following construction.
 - Long-term impacts last beyond the construction period, and the resources may not resume their pre-construction conditions for a longer period of time following construction.
- **Intensity** describes the degree, level, or strength of an impact. For this analysis, intensity has been categorized into negligible, minor, moderate, and major. Because definitions of intensity vary by resource topic, intensity definitions are provided separately for each impact topic analyzed in this environmental assessment.

Cumulative Effects

The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act of 1969 (42 USC 4321 et seq.), require assessment of cumulative impacts in the decision making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts are considered for the no-action and both action alternatives.

Cumulative impacts were determined by combining the impacts of the Preferred Alternative with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects at Bryce Canyon National Park and, if applicable, the surrounding region. The geographic scope for this analysis includes elements mostly within the park's boundaries, while the

temporal scope includes projects within a range of approximately ten years. Given this, the following projects were identified for the purpose of conducting the cumulative effects analysis, listed from past to future:

- Visitor Transportation System, 2000: The park initiated a shuttle system in the early 2000s that primarily services the northern portion of the park within the main Bryce amphitheater. Recent changes to the transportation system have included shuttle service twice daily to the southern portion of the park. The main shuttle route does not go beyond Rainbow Gate or enter into East Creek Meadow. Shuttles do pass by the Mixing Circle junction along their route throughout the day, but do not currently stop at that intersection.
- Rim Road Reconstruction, 2004: The main park road was rerouted and improved in several sections in 2004, including the East Creek meadow area. Reconstruction widened and stabilized the road in several sections and installed erosion control features in areas of high grade.
- Development of Fire Management Plan (FMP), 2005: The park developed a FMP in cooperation with the neighboring Dixie National Forest to implement wildland and prescribed fire to reduce fuel loads, restore native vegetative communities and safeguard human structures (residential areas, historic buildings and maintenance areas) from fire hazards (NPS 2005). The plan also allows for prescribed fire in meadow habitat throughout the park as a means to improve vegetative diversity via the reduction of shrub encroachment.
- Paria View Rehabilitation, 2008: The Paria Viewpoint was reconstructed in 2008 to improve the walkway, fencing and parking area. During construction the viewpoint was closed to visitor use, resulting in heavier pressure on other viewpoints within the park.
- Horse Concession Fence Construction near Mixing Circle Junction, 2008: In cooperation with the horse rides concessioner, the park approved the construction of a single rail fence near the Mixing Circle junction to direct horse/mule traffic more efficiently over the hill between the evening and day corrals. Construction of the fence did not occur within prairie dog habitat or require the closure of any public areas.
- Chip Sealing, 2009: The main park road was chip-sealed during the summer of 2009 from the park monument until the Farview Viewpoint turnoff. The project required road closures and resulted in traffic delays for approximately two weeks. The project area included chip-sealing the road through the entire East Creek meadow area.
- Exotic Vegetation Management, Ongoing: Annual exotic species management occurs throughout the park but is strongly concentrated on the northern portion (surrounding the visitor center) and adjacent to the main park road. Vegetation removal focuses on non-native species along the roadside, including infestations of smooth brome adjacent to the road which resulted from the Rim Road Reconstruction project in 2004. Herbicide and manual pulling of non-natives occurs in portions of East Creek meadow and is anticipated to continue in future years.
- Bike Path Project, Future: The park is in the planning stage of a bike path project that may lead to the construction of several miles of paved biking trails within the park. The trails are proposed mainly for the northern section of the park near the main Bryce amphitheater. However, the addition of bike trails would likely lead to increased visitor use of bikes throughout the park, including the southern portion and through East Creek Meadow.

Soils

Soils in the project area are within meadow habitat of the park and are comprised of sandy-gravelly loam textures. Approximately 0.2 acre of soil would be permanently paved from this project, with an additional 0.8 acre of short-term soil displacement in the 10m buffer area surrounding the pullout.

Impact Threshold Definitions

Impact Intensity	Intensity Definition
Negligible	Soils would not be affected or the effects to soils would be below or at the lower levels of detection. Any effects to soils would be slight and erosion would not be noticeable.
Minor	The effects to soils would be detectable. Effects to soil area, including soil disturbance and erosion, would be small and localized. Minimal soil loss would occur. Mitigation may be needed to offset adverse effects and would be relatively simple to implement and likely be successful.
Moderate	The effect on soils would be readily apparent and result in a change to the soil character over a relatively wide area, soil disturbance over a wide area, or erosion that extends beyond the project site and/or results in some soil loss. Mitigation measures would be necessary to offset adverse effects and likely be successful.
Major	The effect on soils would be readily apparent and substantially change the character of soils over a large area and substantial erosion would occur resulting in a large soil loss. Mitigation measures to offset adverse effects would be needed, would be extensive, and their success could not be guaranteed.

Soil impacts would be considered short-term if the soils recover in less than three years and long-term if the recovery takes longer than three years.

Impacts of Alternative A: No-Action

The No Action Alternative would result in no project-related ground disturbance with the potential to impact soil resources. There would be no change to existing conditions. Existing minor, long-term adverse indirect impacts to soils would continue, and could result in moderate impacts, due to erosion and undercutting of the road adjacent to East Creek Meadow as a result of unauthorized vehicle pullouts. Loss of soil stability in the meadows would continue to be degraded in areas where vehicles pull off the road.

Cumulative Effects: Past projects impacting soils in the area include annual non-native plant control along the roadside and reconstruction of the main park road in 2004. The road reconstruction project had minor impacts to soils in the short-term (during the construction period) and negligible to minor long-term impacts as the old road was reclaimed and rehabilitated. Yearly monitoring and treatment of non-native plants along the roadside has negligible impacts from temporary disturbance of the soil due to staff walking along the roadside and off-road to apply herbicides or manually remove vegetation. Long-term beneficial impacts from non-native vegetation removal occur as soils are not overrun with invasive plant populations and depleted of nutrients. Implementation of the park's FMP may also contribute to cumulative impacts. Impacts to soils from fire use and management would range from negligible to minor and adverse in the short-term, to moderate and beneficial in the long-term.

Conclusion: The No-Action alternative would result in no adverse impacts to soil resources related to construction. Long-term impacts to soils would primarily be minor to moderate adverse because of the continued action of vehicles pulling off the main park road contributing to soil erosion along the roadside throughout East Creek Meadow. Cumulative impacts from Alternative A, considered with other past, present, and reasonably foreseeable future actions would be negative, but negligible to minor, based on the slow rate of soil deterioration.

Impacts of Alternative B: Construct 5 Wildlife Viewing Pullouts

Alternative B would have minor, short-term adverse direct impacts on the soils at the proposed pullout locations along the main park road due to heavy equipment traffic during construction, conversion of soils to paved surfaces as well as restructuring soil around the pullouts for stabilization. Minor negative impacts would be very site-specific and limited to the construction areas. However, minor to moderate long-term beneficial indirect impacts to soils along the road in East Creek Meadow would result from the implementation of Alternative B as unauthorized vehicle pullouts would decrease and vehicle activities could be more easily regulated/directed. Long-term beneficial impacts on soils would affect several miles of meadow habitat due to the reduction in soil erosion from vehicle activities outside of the road corridor as well as revegetation of impacted areas which would promote soil stability.

Cumulative Impacts: Past projects impacting soil resources are the same as those described under Alternative A. The pullouts would serve as additional parking areas, thus eliminating the need to pull off the road into the meadow (and further contributing to soil erosion) during either park-directed activities (i.e., prescribed burns, exotic weed control, road maintenance, etc.) or visitor use activities.

Conclusion: Under the preferred alternative, the construction of five wildlife viewing pullouts would have a long-term minor to moderate beneficial effect on soil resources. Construction activities would have a minor, temporary adverse effect on soil resources as areas are disturbed and reconfigured to create permanent pullout locations. The permanent paving of soil resources in four of the pullout locations would be negative, but contribute an overall benefit to soil resources in the surrounding area because of reduced roadside erosion. Cumulative impacts, considered with other past, present, and reasonably foreseeable future actions would be minor and beneficial to soil resources in the park.

Impacts of Alternative C: Construct 3 Wildlife Viewing Pullouts - Avoidance of Utah Prairie Dog Habitat Alternative

Alternative C would have minor, short-term adverse direct impact on the soils along the main park road due to heavy equipment traffic during construction and restructuring soil around the pullouts for stabilization and soil retention. Minor short-term negative impacts would be very site-specific and limited to the construction areas. Minor, long-term beneficial indirect impacts to soil along the road in East Creek Meadow would result from the implementation of Alternative C as unauthorized vehicle pullouts would decrease in some areas within the meadow and vehicle activities could be more easily regulated/directed. However, because two wildlife viewing pullouts would not be constructed in proximity to a park feature that attracts visitors (i.e., Utah prairie dog colonies), soil erosion near the colonies along the road would continue to degrade and result in a minor, long-term adverse impact to the localized soil resources. Long-term minor beneficial impacts on soils would affect limited areas of meadow habitat due to the reduction in soil erosion from vehicle activities along the road outside of Utah prairie dog habitat.

Cumulative Impacts: Past projects impacting soil resources are the same as those described under Alternative A. Alternative C would contribute minor, short-term adverse impacts and minor long-term beneficial impacts to soils, resulting in overall cumulative impacts of long-term beneficial impacts with minor, long-term adverse impacts of low intensity on soils surrounding Utah prairie dog colonies.

Conclusion: Under Alternative C, the construction of three wildlife viewing pullouts would have a minor beneficial effect on soil resources within East Creek Meadow. Construction activities would have a minor, temporary adverse effect on soil resources as areas are disturbed and reconfigured to create permanent pullout locations. The permanent paving of soil resources in two of the pullout locations would be negative, but contribute an overall benefit to soil resources in the surrounding area because of the benefits of roadside stabilization. This alternative would also have a minor, long-term adverse impacts on soil resources near Utah prairie dog colonies as unauthorized pullouts would continue in those locations. Cumulative impacts, considered with other past, present, and reasonably foreseeable future actions would be minor and beneficial to soil resources in the park with long-term adverse impacts of low intensity on soils surrounding Utah prairie dog colonies.

Wildlife

Wildlife commonly observed within the proposed project area include mule deer, pronghorn, wild turkey, elk, red-tailed hawk, and Utah prairie dog. Meadow habitat within the park is limited and offers wildlife unique foraging opportunities and visual advantages. Several species of wildlife within East Creek Meadow appear to be somewhat habituated to human presence (as demonstrated by a high tolerance for human behavior in close

proximity without exhibiting vigilant or avoidance behavior). Pronghorn and deer are often observed walking on the road, and turkey frequently forage close to the road during the peak of summer visitation.

Impact Threshold Definitions

Impact Intensity	Intensity Definition
Negligible	Wildlife would not be affected or the effects would be at or below the level of detection and the changes would be so slight that they would not be of any measurable or perceptible consequence to the wildlife species' population.
Minor	Effects to wildlife would be detectable, although the effects would be localized, small, and of little consequence to the species' population. Mitigation measures, if needed to offset adverse effects, would be simple and successful.
Moderate	Moderate effects to wildlife would be readily detectable, localized, and with consequences at the population level. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.
Major	Effects to wildlife would be obvious and would have substantial consequences to wildlife populations in the region. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed.

Duration of wildlife impacts is considered short-term if the resource would recover in less than one year and long-term if requires more than one year to recover.

Impacts of Alternative A: No-Action

Under the No Action Alternative there would be no project-related ground disturbance with the potential to impact wildlife or their habitat within the park from construction activities. There would be no change to existing conditions. Existing minor, long-term adverse indirect impacts to wildlife would continue due to unauthorized vehicle pullouts (usually resulting from wildlife sightings) along meadow habitat for several miles within the park.

Cumulative Effects: Past projects impacting wildlife in the area include annual non-native plant control along the roadside, reconstruction of the main park road in 2004, annual wildlife surveys, and road maintenance activities (e.g., chip sealing, snow removal, etc.). The road reconstruction project had minor impacts to wildlife in the short-term (during the construction period) with negligible to minor long-term impacts as the old road was reclaimed and rehabilitated. Yearly monitoring and treatment of non-native plants along the roadside has negligible impacts on wildlife from temporary disturbance of wildlife activities in the meadows due to staff walking along the roadside and off-road to apply herbicides or manually remove vegetation. Implementation of the park's FMP may also contribute to cumulative impacts ranging from negligible to minor and adverse in the short-term, to moderate and beneficial in the long-term as meadow habitat is improved by the removal of an over-abundant shrub layer. Alternative A would result in minor, long-term adverse impacts to wildlife due to continued use of unauthorized wildlife viewing pullouts along the road that disturb roadside wildlife habitat and natural behavior.

Conclusion: The No-Action Alternative would result in minor, long-term adverse effects to wildlife resources because of the continued impacts on habitat and wildlife behavior from use of roadside areas as temporary vehicle pullout locations. Cumulative impacts, considered with other past, present, and reasonably foreseeable future actions would be negative, but negligible to minor, based on the overall level of human activity (from park personnel and visitors) in the meadows.

Impacts of Alternative B: Construct 5 Wildlife Viewing Pullouts

Alternative B would have minor, short-term adverse direct impacts on wildlife during the construction of each viewing pullout and as a result of the loss of some marginal roadside habitat. This alternative would have minor, long-term beneficial indirect impacts on wildlife and their habitat as it would reduce unofficial pullouts along the meadow (thereby reducing broader-scale habitat degradation) and by educating park visitors on the

diversity of wildlife in the park and the importance of conserving wildlife habitat via wayside exhibits. By creating structured areas where visitors can safely interact with resources in the park, more visitors would be able to view and learn about wildlife. Species that inhabit the area would also likely benefit from a predictable location where people would congregate, rather than the existing condition of unofficial pullouts throughout the meadow. Although the proposed viewing areas complement existing patterns of disturbance in the landscape (Romer et al. 1998), the construction of permanent pullouts is anticipated to reduce the overall negative impact along the roadside. Habitat rehabilitation of areas not converted to permanent viewing pullouts would also assist in the recovery of wildlife habitat along the road and further discourage pullouts outside of the established areas.

Cumulative Effects: Past projects impacting wildlife in the area are the same as those described above under Alternative A. Alternative B would result in minor, long-term beneficial impacts to wildlife due to concentrated visitor/staff use along the meadow with rehabilitation of roadside habitat not converted to permanent pullout locations.

Conclusion: Under the Preferred Alternative, the development of five wildlife viewing pullouts would have a minor, long-term beneficial effect on wildlife resources as broader impacts on habitat are reduced and human activity is concentrated. Construction disturbances (noise, dust, human activity) would have a minor, temporary adverse effect on wildlife but would be of short duration. Cumulative impacts, considered with other past, present, and reasonably foreseeable future actions would be minor and beneficial based on the overall effect of human activity (from park personnel and visitors) on wildlife in the meadows and the utility that established pullouts would provide in congregating activity during park-directed projects as well as visitor use.

Impacts of Alternative C: Construct 3 Wildlife Viewing Pullouts - Avoidance of Utah Prairie Dog Habitat Alternative

Alternative C would have similar impacts as those described above under Alternative B. Under this alternative, two fewer pullouts would be constructed to avoid Utah prairie dog habitat in the park. Proposed Pullouts #2 and #5 would not be constructed and visitors would continue to use areas in the vicinity that are not currently official pullout locations. Pullout #2 is the most heavily impacted unofficial pullout in the project area with the least amount of vegetation (Figure 2). The area was previously impacted during the reconstruction of the main park road in 2004 and a substantial amount of non-native vegetation surrounds the area. A small colony of Utah prairie dogs is within 350' of this site. Continued degradation of the roadside area and impacts to habitat along the edge of the pullout is anticipated to continue under Alternative C. Pullout #5 is proposed beside an isolated meadow (outside of East Creek Meadow) that contains a small colony of Utah prairie dogs, and is also used by other species of meadow wildlife (most commonly seen wildlife in the area include deer, pronghorn, badger, and fox). By eliminating the construction of these two pullouts, wildlife would benefit in the short-term from the lack of construction activities and permanent loss of habitat. However, wildlife would likely experience a minor negative long-term impact from the continued use and deterioration of the area surrounding proposed Pullout #2 and the random and widespread use of the roadside surrounding the proposed Pullout #5. Visitors often stop near the proposed Pullout #5 along the main park road, or pull out along a service road leading to a park maintenance area. Visitors are often seen walking along this service road and frequently cross into the meadow and approach wildlife (especially the Utah prairie dogs) for photo opportunities. Harassment of wildlife appears to be fairly frequent in this area as there is no current platform to view wildlife safely and educational material to inform visitors on the appropriate and legal interaction with park resources are absent.

Cumulative Effects: Past projects impacting wildlife in the area are the same as those described above under Alternative A. Alternative C would result in minor, long-term beneficial impacts to wildlife in East Creek Meadow due to some concentrated visitor use along the meadow with rehabilitation of roadside habitat not converted to permanent pullout locations. Areas adjacent to Utah prairie dog colonies would continue to be used as unofficial wildlife viewing pullouts and affects to wildlife in those areas would result in minor, long-term negative impacts on habitat. Impacts to Utah prairie dogs (described in further detail under the "Special-Status

Species" section below) and wildlife using habitat near those colonies would be minor, adverse as no regulation of visitor use would occur in those locations and low-grade wildlife harassment is expected to continue at current levels.

Conclusion: Under Alternative C, the development of three wildlife viewing pullouts would have a minor, long-term beneficial indirect effect on wildlife resources in some areas of East Creek Meadow as broader impacts on habitat are reduced and human activity is concentrated. Construction disturbances (noise, dust, human activity) would have a minor, temporary adverse direct effect on wildlife but would be of short duration. Impacts on wildlife near Utah prairie dog colonies would be minor, long-term adverse as no changes would occur near those locations to control visitor access. Cumulative impacts, considered with other past, present, and reasonably foreseeable future actions would be minor and partially beneficial based on the overall effect of human activity (from park personnel and visitors) on wildlife in the meadows and the utility that three established pullouts would provide in congregating activity during park-directed projects as well as visitor use.

Special-Status Species

This section focuses solely on the occurrence of the Utah prairie dog, a federal listed threatened species within the proposed project area. All other federally listed plant and animal species were determined not to exist within the project area and would not be impacted by implementation of any of the project alternatives. This determination was confirmed in consultation with the USFWS (December 10, 2009). Sensitive plant species within the park are expected to be found outside the project area, primarily along the breaks or on bare, gravelly soils where vegetation is sparse.

Impact Threshold Definitions

Impact Intensity	Intensity Definition
Negligible	No federally listed species or sensitive species would be affected or the alternative would affect an individual of a listed species, its critical habitat or a sensitive species, but the change would be so small that it would not be of any measurable or perceptible consequence to the protected individual or its population.
Minor	The alternative would affect an individual(s) of a listed species, its critical habitat or a sensitive species, but the change would be small.
Moderate	An individual or population of a listed species, its critical habitat, or a sensitive species would be noticeably affected. The effect would have some consequence to the individual, population, or habitat.
Major	An individual or population of a listed species, its critical habitat, or a sensitive species would be noticeably affected with a vital consequence to the individual, population, or habitat.

Special-status species' impacts are considered short-term if the species recovers in less than one year and long-term if it takes longer than one year for the species to recover.

Impacts of Alternative A: No-Action

Under Alternative A, the colonies of Utah prairie dog within the project area would continue to be impacted from visitors stopping to view the animals from various unauthorized parking areas. Deterioration of roadside habitat from vehicle pullouts along the meadow would continue and no rehabilitation of roadside vegetation would occur. Visitors would not be presented with additional opportunities to safely view prairie dog colonies or with educational material (in the form of wayside exhibits) to learn about the species and its conservation. Overall, the No-Action Alternative would have a minor to moderate, long-term adverse indirect and direct impact on the species as habitat degradation continues along meadow roadsides and visitors continue to enter colonies and harass the species.

Cumulative Effects: Past projects impacting Utah prairie dogs in the area include annual non-native plant control along the roadside, reconstruction of the main park road in 2004, annual prairie dog counts, and road maintenance activities (e.g., chip sealing, striping, etc.). The road reconstruction project had minor negative

impacts to prairie dog colonies in the short-term (during the construction period) with minor long-term impacts as the old road was reclaimed and rehabilitated. Yearly monitoring and treatment of non-native plants along the roadside has negligible impacts on prairie dogs as areas with active colonies are currently avoided. Long-term impacts to colonies may be adverse, though minor, as non-native vegetation becomes more dominant in prairie dog foraging areas. Implementation of the park's FMP may also contribute to cumulative impacts ranging from negligible to minor and adverse in the short-term, to moderate and beneficial in the long-term as meadow habitat is improved by the removal of an abundant shrub layer (a detriment to prairie dog colony establishment).

Conclusion: The No-Action Alternative would result in primarily minor to moderate, long-term adverse effects to the Utah prairie dog as unauthorized use continues on roadside areas adjacent to two of the park's active colonies. Regular harassment of the species from visitors would continue as the park is unable to patrol or monitor these areas sufficiently to prevent people from entering meadow habitat. Cumulatively, this alternative would have a minor, long-term adverse impact on Utah prairie dogs when considered with other past, present, and reasonably foreseeable future actions.

Impacts of Alternative B: Construct 5 Wildlife Viewing Pullouts

Under Alternative B, the colonies of Utah prairie dog within the project area would continue to be impacted from visitors stopping to view the colonies, but would benefit from consolidation of the viewing areas and increased control over unauthorized pullouts within Utah prairie dog habitat. Improvement in roadside habitat from reduced vehicle pullouts along the meadow would occur in conjunction with active vegetation rehabilitation of previously disturbed areas. Visitors would be presented with opportunities to safely view prairie dog colonies (removing the threat of transmitting plague to humans) as well as educational material (in the form of wayside exhibits) to learn about the species and its conservation. Placement of simple resource protection signs along the already-established fence line near proposed Pullout #5 would additionally direct visitors to avoid approaching or disturbing prairie dogs. Overall, Alternative B would have a minor to moderate, short-term adverse direct impact on the colonies during project implementation and a minor to moderate, long-term beneficial indirect impact on the species as habitat degradation near colonies is abated, visitors learn about conservation issues specific to this species, and meadow habitat is restored along the roadside to improve overall habitat condition for the colonies.

Cumulative Effects: Past projects impacting Utah prairie dogs in the area are the same as those described under Alternative A.

Conclusion: Under the Preferred Alternative, the development of five wildlife viewing pullouts would have a minor to moderate, long-term beneficial effect on the Utah prairie dog as two of the pullout locations would be adjacent to active colonies and visitation would be concentrated in those areas. Harassment of the species is anticipated to decrease with the establishment of specific areas to view colonies. A wayside exhibit focusing on the conservation status of this species would also provide a greater opportunity for the park to educate visitors on Utah prairie dogs throughout their limited range. Construction disturbances (noise, dust, human activity) would have a minor to moderate, temporary adverse effect on the species but would be of short duration. Based on the importance of educating the public on the status of this listed species as a "keystone species" in the ecosystem, the limited size of the potentially affected colonies, and the high demand of visitors to view this species in the park, the creation of two small wildlife viewing pullouts is considered to be a net benefit to the long-term recovery and conservation of this species. Cumulatively, this alternative would have a minor, long-term beneficial effect on Utah prairie dogs when considered with other past, present, and reasonably foreseeable future actions.

Impacts of Alternative C: Construct 3 Wildlife Viewing Pullouts - Avoidance of Utah Prairie Dog Habitat Alternative

Under Alternative C, the colonies of Utah prairie dog within the project area would continue to be impacted from visitors stopping to view the colonies in unauthorized areas. Deterioration of roadside habitat from vehicle pullouts along the meadow would continue in areas adjacent to prairie dog colonies. Vegetation rehabilitation in some areas may benefit the species, but would be difficult to maintain as unauthorized pullout locations continue to be utilized near colonies. Visitors would not be presented with additional opportunities to safely view prairie dog colonies or with educational material (in the form of wayside exhibits) to learn about the species and its conservation. Overall, Alternative C would have a minor to moderate, adverse long-term direct and indirect impact on the species as habitat degradation continues adjacent to active colonies and visitors continue to enter colonies and harass the species.

Cumulative Effects: Past projects impacting Utah prairie dogs in the area are the same as those described under Alternative A.

Conclusion: Under Alternative C, three wildlife viewing pullouts would be developed and current impacts on Utah prairie dog colonies from uncontrolled visitor activities would continue. No changes in Utah prairie dog viewing opportunities would occur and degradation of roadside habitat near and within active colonies would occur from vehicles as well as human entrance into these areas. Recovery efforts related to educating the public would not be implemented and conservation of the species in the park would continue at current levels. Cumulatively, this alternative would have a minor, long-term adverse effect on Utah prairie dogs when considered with other past, present, and reasonably foreseeable future actions.

Vegetation

The proposed project is located within Bryce Canyon's mountain grassland (meadow) community. Existing native vegetation in the project area primarily consists of grasses, black sagebrush, rabbitbrush, horse rush, and ponderosa pine bordering the meadow habitat. Exotic species in the area include white top, salsify, yellow sweet clover, and smooth brome. Vegetation cover within the proposed pullout locations ranges from approximately 10% cover to 75% cover, with varying degrees of non-native infestations.

Impact Threshold Definitions

Impact Intensity	Intensity Definition
Negligible	No native vegetation would be affected or some individual native plants could be affected as a result of the alternative, but there would be no effect on native plant species' populations. The effects would be on a small scale.
Minor	The alternative would affect some individual plants and would also affect a relatively limited portion of that species' population. Mitigation to offset adverse effects could be required and would be effective.
Moderate	The alternative would affect some individual native plants and would also affect a sizeable segment of the species' population over a relatively large area within the park. Mitigation to offset adverse effects could be extensive, but would likely be successful.
Major	The alternative would have a considerable effect on individual native plants and affect a sizeable segment of the species' populations over a relatively large area in and out of the park. Mitigation measures to offset the adverse effects would be required, extensive, and success of the mitigation measures would not be guaranteed.

Duration of vegetation impacts is considered short-term if vegetation recovers in less than three years and long-term if the vegetation takes longer than three years to recover.

Impacts of Alternative A: No-Action

Under the No-Action Alternative, vegetation along the main park road would continue to be impacted from unauthorized vehicle pullouts, leading to the destruction of native species and the promotion of non-native vegetation from vehicle tires. Disturbed soil resulting from vehicles entering the meadow also negatively affects vegetation and promotes the establishment of non-native vegetation. No vegetation rehabilitation would be conducted under this alternative and native vegetation would continue to degrade along the roadside.

Cumulative Impacts: Any construction activities that require excavation or ground disturbance have the potential to affect vegetation resources. Past projects that have impacted vegetation in the project area include non-native plant control along the roadside, reconstruction of the main park road in 2004, and road maintenance activities (e.g., chip sealing). Implementation of the park's FMP may also contribute to cumulative impacts ranging from negligible to minor and adverse in the short-term, to moderate and beneficial in the long-term as meadow species diversity is restored via the removal of shrubs and non-native species.

Conclusion: The No-Action Alternative would result in minor long-term, adverse indirect effects to vegetation along the road as erosion and vehicle-caused destruction would continue to impact plants along the meadow. Cumulatively, this alternative would have a minor, long-term adverse impact on vegetation resources when considered with other past, present, and reasonably foreseeable future actions.

Impacts of Alternative B: Construct 5 Wildlife Viewing Pullouts

Under the Preferred Alternative, some vegetation along the main park road would be affected by the permanent conversion of vegetation into paved/graveled wildlife pullout areas. However, by providing visitors with safer, defined areas where they can stop to view wildlife, the low-grade, wide-scale disturbance to vegetation along the road would be reduced. Restoration of degraded roadside areas would improve the quality of native vegetation in the project area.

Cumulative Effects: Past and future projects impacting vegetation resources in the area are the same as those described under Alternative A.

Conclusion: Benefits to vegetation resources under the Preferred Alternative include the abatement of damage to roadside plants due to widespread vehicle pullouts along the meadow and the restoration of roadside meadow vegetation from rehabilitation efforts following project completion. This alternative would result in a minor, short-term localized adverse direct impact to vegetation resources during construction with an overall minor, long-term beneficial indirect impact on vegetation resources in the park's meadow habitat. Cumulatively, this alternative would have a minor, long-term beneficial effect on vegetation resources in the park when considered with other past, present, and reasonably foreseeable future actions.

Impacts of Alternative C: Construct 3 Wildlife Viewing Pullouts - Avoidance of Utah Prairie Dog Habitat Alternative

Under the Alternative C, some vegetation along the main park road would be affected by the permanent conversion of vegetation into three paved/graveled wildlife pullout areas. By providing visitors with more defined areas where they can stop to view wildlife, the low-grade, wide-scale disturbance to vegetation along the road would be reduced to some extent. Proposed Pullouts #2 and #5 would not be constructed due to their proximity to active Utah prairie dog colonies. Currently, the ad hoc pullout being used at the proposed Pullout #2 site is degrading every season as it receives more use, and observed damage to the meadow near proposed Pullout #5 is becoming evident. Each year, vehicle activity encroaches into the meadow and native vegetation is damaged in addition to creating disturbed soil that promotes the invasion of non-native species. The elimination of Pullout #2 as an established wildlife viewing pullout would not change the use of this area as a vehicle parking/turn-around location, unless barriers were established to block the area, and negative impacts to

roadside vegetation would continue and expand. However, restoration efforts in areas along the road would provide an overall benefit to vegetation in the East Creek Meadow area.

Cumulative Effects: Past and future projects impacting vegetation resources in the area are the same as those described under Alternative A.

Conclusion: Alternative C would result in the partial improvement of roadside habitat with the reduction of damage to roadside plants due to widespread vehicle pullouts along the meadow and the restoration of roadside meadow vegetation from rehabilitation efforts following project completion. However, the area of heaviest impact (proposed Pullout #2) would continue to receive regular vehicle use and impacts to native vegetation adjacent to this area would continue. This alternative would result in an overall minor, long-term beneficial indirect impact on vegetation resources with a minor, long-term adverse direct impact to vegetation resources in the vicinity of proposed Pullout #2 and #5. Cumulatively, this alternative would have a minor, long-term beneficial effect on vegetation resources in the park when considered with other past, present, and reasonably foreseeable future actions.

Visitor Use and Experience

The methodology used for assessing impacts to visitor use and experience is based on how additional wildlife viewing pullouts would affect the visitor, particularly with regards to the visitors' enjoyment of the park's natural resources. The thresholds for this impact assessment are outlined in the table below:

Impact Intensity	Intensity Definition
Negligible	Visitors would not be affected or changes in visitor use and/or experience would be below or at the level of detection. Any effects would be short-term. The visitor would not likely be aware of the effects associated with the alternative.
Minor	Changes in visitor use and/or experience would be detectable, although the changes would be slight and likely short-term. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.
Moderate	Changes in visitor use and/or experience would be readily apparent and likely long-term. The visitor would be aware of the effects associated with the alternative, and would likely be able to express an opinion about the changes.
Major	Changes in visitor use and/or experience would be readily apparent and have substantial long-term consequences. The visitor would be aware of the effects associated with the alternative, and would likely express a strong opinion about the changes.

Duration of visitor use impacts is considered short-term if delays or interruptions to visitor use and enjoyment of the park occurs over one high use season; long-term impacts are considered to last over more than one high-use season.

Impacts of Alternative A: No-Action

Under the No-Action Alternative, visitors would continue to stop along the road or into the meadow to view wildlife, causing safety hazards for visitors stopping to view wildlife as well as other drivers attempting to pass parked vehicles along the road shoulder. This alternative would have minor, long-term adverse indirect effects on visitor use and enjoyment as the current problem of vehicle traffic control would continue and may worsen as visitation increases, as is predicted based on visitor use trends. Additionally, as resource damage continues in the meadow, wildlife viewing opportunities may become less common as multiple vehicle backups along the road (resulting in use of horns and other human-caused noise) may displace wildlife from the meadow.

Cumulative Effects: Any construction, maintenance, or monitoring activities in the park have the potential to affect visitor use and experience. Projects such as the road reconstruction project in 2004, annual and semi-annual road maintenance, exotic vegetation management, and controlled burns in the meadow have had or could have an adverse effect on visitor use and experience because of the inconvenience of construction noise, dust, vehicle delays, visual intrusions to natural areas and temporary access restrictions. Ultimately, however, these

actions would have or had a beneficial effect on visitor use and experience because of long-term improvements to the visual and natural environment, interpretive opportunities, and functionality of the park. Under this alternative, although visitors may experience some frustration in limited access to viewing areas in the park's meadows, visitor functions in the project area are not expected to change, and past and current use have had beneficial impacts on some visitors (those who illegally pull off of the park road), while generally negatively affecting the majority of visitors (those visitors negotiating illegally parked vehicles).

Conclusion: Under the No-Action Alternative, no wildlife viewing pullouts would be constructed and many visitors would continue to pull off the road to view wildlife in undesignated locations, either on the road shoulder or within the meadow itself. This alternative would have minor, long-term adverse impacts to visitor use and enjoyment as meadow habitat along the road would deteriorate, visitors would continue to experience the meadow without safe areas to view wildlife, and appropriate wayside exhibits to interpret the resource would continue to be absent. Visitor use and experience would not appreciably change when considered with other past, present, and reasonably foreseeable future actions. Alternative A would contribute long-term, negligible to minor adverse impacts to visitor use and experience.

Impacts of Alternative B: Construct 5 Wildlife Viewing Pullouts

Under Alternative B, five additional areas for visitors to view wildlife and/or stop safely along the road adjacent to the park's meadow habitat would be created. Interpretive panels addressing wildlife resources in the park (including the federally-listed Utah prairie dog) as well as wildlife habitat would be installed at three of the viewing pullouts. The addition of pullouts along the road would also assist park law enforcement rangers to more efficiently direct traffic to areas that are safe for visitors in the event that vehicles would be stopped along the road outside of the pullouts. Four of the proposed pullout locations are located in the south-bound lane of traffic, optimizing visitor stopping areas during travel into the park. One pullout is proposed on the north-bound, or exit route, along the road and would allow visitors to stop safely on their way out of the park or on the return trip from viewing the southern portion of the park. The addition of interpretive panels is anticipated to attract visitors to established pullout locations and would assist the park in educating more people on the value of park resources and the importance of preserving wildlife habitat.

During the construction phase of the viewing pullouts, visitors would be subjected to noise and minor inconveniences including vehicle delays due to lane closures. These impacts would be adverse and direct, but short-term and minor in intensity. Overall, Alternative B would result in minor to moderate, long-term beneficial effects on visitor use and experience.

Cumulative Effects: Effects from past projects on visitor use and enjoyment are the same as those discussed above under the No-Action Alternative. Under this alternative, although visitors may experience some frustration during construction due to road closures and delays, visitors would benefit in the long-term from increased safe access to areas along the meadow that are available to stop and view wildlife.

Conclusion: Under Alternative B, five wildlife viewing pullouts would be constructed and visitors would have the opportunity to view wildlife in safer areas along the road as well as being presented with educational material interpreting the park's meadow resources. This alternative would have minor to moderate, long-term beneficial effects on visitor use and enjoyment as meadow habitat along the road would likely improve from rehabilitation and reduction of traffic congestion along the roadside, an increase in opportunities to view/learn about wildlife, and a reduction in visitors being placed in dangerous situations resulting from inappropriately parked vehicles. Alternative B would contribute long-term, negligible to minor beneficial impacts to visitor use and experience when considered with past, present and future activities in the project area.

Impacts of Alternative C: Construct 3 Wildlife Viewing Pullouts - Avoidance of Utah Prairie Dog Habitat Alternative

Under Alternative C, three additional areas for visitors to view wildlife and/or stop safely along the road adjacent to the park's meadow habitat would be created. However, pullouts in proximity to the federally-listed Utah prairie dog would not be created. The addition of three pullouts along the road would assist park law enforcement rangers to more efficiently direct traffic to areas that are safe for visitors in the event that vehicles would be stopped along the road outside of the pullouts. Two of the proposed pullout locations are located in the south-bound lane of traffic, optimizing visitor stopping areas during travel into the park. One pullout is proposed on the north-bound, or exit route, along the road and would allow visitors to stop safely on their way out of the park or on the return trip from viewing the southern portion of the park. The addition of two (or more) interpretive panels is anticipated to attract visitors and would assist the park in educating more people on the value of park resources and the importance of preserving wildlife habitat.

Visitors would not have the opportunity to safely view the Utah prairie dog, as pullouts would not be constructed near any of the park's active colonies. Proposed Pullout #5, where the majority of unauthorized vehicle stops occur to view this species, would continue to be used by visitors. Because of the lack of a safe pullout area near this colony, visitors stop along the main park road or on a maintenance road that is not intended for public use. Visitors would continue to use these areas to park their vehicles and attempt to obtain close-contact photographs of prairie dogs. There would be no installation of an interpretive panel discussing the status or conservation efforts of the Utah prairie dog, as there would be no appropriate location to install the panel.

During the construction phase of the three viewing pullouts, visitors would be subjected to noise and minor inconveniences including vehicle delays due to lane closures. These impacts would be adverse and direct, but short-term and negligible to minor in intensity. Overall, Alternative B would result in minor, long-term beneficial effects to visitor use and experience.

Cumulative Effects: Effects from past projects on visitor use and enjoyment are the same as those discussed above under the No-Action Alternative. Under this alternative, although visitors may experience some frustration during construction due to road closures and delays, visitors would benefit in the long-term from increased safe access to areas along the meadow that are available to stop and view wildlife. Visitors would continue to be denied safe access to view and learn about the park's Utah prairie dog colonies along the main park road, and unauthorized vehicle stops near park colonies is anticipated to continue.

Conclusion: Under Alternative C, three wildlife viewing pullouts would be constructed and visitors would have the opportunity to view wildlife in safer areas along the road as well as being presented with some educational material interpreting the park's meadow resources. Pullouts adjacent to Utah prairie dog colonies would not be constructed and visitors would be restricted in their enjoyment and interaction with this resource. This alternative would have minor, long-term beneficial effects on visitor use and enjoyment as some meadow habitat along the road would likely improve from rehabilitation efforts and the reduction of traffic along the roadside, an increase in wildlife viewing/learning opportunities and a reduction in visitors being placed in as many dangerous situations resulting from inappropriately parked vehicles. Based on previous use of the area, visitors at proposed Pullout #5 would continue to park along the main park road and on the maintenance road to view the Utah prairie dogs, and unauthorized entrance into this meadow (though currently fenced) is anticipated to continue at present, or increasing levels. Alternative C would contribute long-term, negligible to minor beneficial impacts to visitor use and experience when considered with past, present and future activities in the project area.

Unacceptable Impacts

As described in *Purpose and Need*, the NPS must prevent any activities that would impair park resources and values. The impact threshold at which impairment occurs is not always readily apparent. Virtually every form of human activity that takes place within a park has some degree of effect on park resources or values, but that does not mean the impact is unacceptable or that a particular use must be disallowed. Therefore, the Service will apply a standard that offers greater assurance that impairment will not occur. The Service will do this by avoiding impacts that it determines to be unacceptable. These are impacts that fall short of impairment, but are still not acceptable within a particular park's environment. Park managers must not allow uses that would cause unacceptable impacts; they must evaluate existing or proposed uses and determine whether the associated impacts on park resources and values are acceptable.

Virtually every form of human activity that takes place within a park has some degree of effect on park resources or values, but that does not mean the impact is unacceptable or that a particular use must be disallowed. To determine if unacceptable impacts could occur to the resources and values of the parks, the impacts of proposed actions in this environmental assessment were evaluated based on monitoring information, published research, and professional expertise, and compared to the guidance on unacceptable impacts provided in *Management Policies* 1.4.7.1 that defines unacceptable impacts as impacts that, individually or cumulatively, would:

- be inconsistent with a park's purposes or values, or
- impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process, or
- create an unsafe or unhealthful environment for visitors or employees, or
- diminish opportunities for current or future generations to enjoy, learn about, or be inspired by park resources or values, or
- unreasonably interfere with
 - park programs or activities, or
 - an appropriate use, or
 - the atmosphere of peace and tranquility, or the natural soundscape maintained in wilderness and natural, historic, or commemorative locations within the park.
 - NPS concessioner or contractor operations or services (NPS 2006).

By preventing unacceptable impacts, park managers also ensure that the proposed use of park resources will not conflict with the conservation of those resources. In this manner, the park managers ensure compliance with the Organic Act's separate mandate to conserve park resources and values. Using the guidance above (see bullets), the following text analyzes the potential for unacceptable impacts for all alternatives carried forward in this Environmental Assessment.

- All alternatives are consistent with the park's purposes and values. The park was established to protect the fascinating geologic structures known as hoodoos and other natural and cultural resources. If no wildlife pullouts were constructed under Alternative A (No Action), then park operations would continue to operate in their current manner, with a potential strain on Law Enforcement ranger activity due to increased visitation (as predicted) and limited number of areas in the park to stop vehicles safely. Resource protection activities may also become more inefficient over time due to resources being expended for exotic species control and vegetation protection along the roadside; however, these inefficiencies would not impede the park from maintaining its purposes and values as established in the park's enabling legislation. If wildlife viewing pullouts were constructed under either Alternative B (Preferred) or Alternative C, then park operations would be improved, which would be consistent with the park's enabling legislation. No alternatives would interfere with the preservation of the monument's natural and cultural resources.

- No alternative impedes the attainment of the parks' desired future conditions as this project is consistent with previous planning efforts. The park's General Management Plan (GMP) identifies the need to protect park resources and the safety of park visitor, and while Alternative A (No Action) may not contribute to this goal, it could still be considered in the future. Alternative B (Preferred) would construct five wildlife viewing pullouts which is consistent with the GMP's goal to protect park resources and enhance visitor safety. Alternative C would also support this goal, but would not fully meet the project objectives as identified by the park's management team.
- Under Alternative A (No Action), no additional areas for pulling off the main road would be provided to visitors or park employees, which would allow for the continued use of road shoulder areas that are currently not designated as safe pullout areas. This would be a minor to moderate adverse impact to visitors and employee health and safety, but it is not considered unacceptable and is difficult to mitigate under current conditions of the road. Alternative B (Preferred) would create a safer and more healthful environment for park visitors and employees, as the pullouts would allow for five additional locations for vehicles to safely exit the road corridor. Alternative C would also create a safer and more healthful environment for park visitors and employees, but would not fully meet these objectives in two areas of the park where vehicles consistently pull off of the roadside.
- Under any alternative, visitors would continue to have opportunities to enjoy, learn about, or be inspired by park resources and values. No alternative would change the overall opportunities available to visitors including interpretive talks, evening programs, hours of operation, scenic drives, or access to facilities. Alternative A (No Action) would maintain visitor use and experience exactly as it is now. Alternative C would enhance visitor use of the East Creek Meadow area by providing additional space and interpretive materials along three pullouts; Alternative B (Preferred) would likely have the greatest impact on visitor enjoyment of the park as the addition of five wildlife viewing pullouts and associated interpretive panels would improve visitor access to and knowledge of unique park resources.
- All alternatives provide for employee work facilities that do not unreasonably interfere with park programs, an appropriate use, the natural atmosphere, or concessioner activities. Alternative A (No Action) would not involve construction-related activities, thereby maintaining the existing conveniences and current atmosphere. During construction of wildlife viewing pullouts under Alternative B (Preferred) and Alternative C, there would be short-term temporary disturbance to visitors as a result of noise, dust, driving delays and construction equipment; however, these inconveniences would be limited to the construction period only.

Overall, the analysis of effects on resources, park operations, and employee and visitor health and safety indicated that there are no major adverse effects under any alternative; effects were analyzed as negligible to moderate. Based on this, and the above analysis, there would be no unacceptable impacts from Alternative A (No Action), Alternative B (Preferred) or Alternative C.

Impairment

Management Policies 2006 require analysis of potential effects to determine whether or not actions would impair park resources (NPS 2006). The fundamental purpose of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values. However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values.

Although Congress has given the National Park Service the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values. An impact to any park resource or value may constitute an impairment, but an impact would be more likely to constitute an impairment to the extent that it has a major or severe adverse effect upon a resource or value whose conservation is:

1. necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
2. key to the natural or cultural integrity of the park; or
3. identified as a goal in the park's general management plan or other relevant National Park Service planning documents.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. The NPS's threshold for considering whether there could be an impairment is based on whether an action would have major (or significant) effects. This environmental assessment identifies less than major effects for all resource topics. Guided by this analysis and the Superintendent's professional judgment, there would be no impairment of park resources and values from implementation of any alternative.

CONSULTATION and COORDINATION

Internal Scoping

Internal scoping was conducted by the Bryce Canyon National Park Interdisciplinary Compliance Team with consultation from the NPS Intermountain Region Planning & Environmental Quality Office. Interdisciplinary team members met on September 17, 2008, October 15, 2008, November 20, 2008 to discuss the purpose and need for the project, various alternatives, potential environmental impacts, past, present, and reasonably foreseeable projects that may have cumulative effects and possible mitigation measures. Field trips of proposed pullout locations were conducted on September 30, 2008 and October 10, 2008.

External Scoping

External (public) scoping was conducted to inform various agencies and the public about the proposal to construct wildlife viewing pullouts at BRCA, and to generate input on the preparation of this environmental assessment. External scoping was initiated with the distribution of a scoping letter that was mailed in January 2009 to over 200 addressees (see below) including landowners adjacent to the Park, various federal and state agencies, affiliated Native American tribes, local governments, and regional and local news/media organizations. The recipient list has been developed over time and is regularly updated to elicit feedback from a large spectrum of stakeholders, both in the private and public sector, within and outside of Utah. Information on the proposed project and environmental assessment was also posted on the NPS Planning, Environment, and Public Comment website (PEPC) at <http://parkplanning.nps.gov/>. The public was given 30 days to comment on the project ending February 15, 2009. One comment was received during that time expressing interest in being kept informed about the project. No concerns or issues were raised, and no other alternatives were proposed.

Federal Agencies

Advisory Council on Historic Preservation
Army Corps of Engineers
Department of Interior
Fish and Wildlife Service
U.S. Geological Survey
Bureau of Land Management
National Park Service: Multiple parks in the region
Environmental Protection Agency
Forest Service
Kaibab NF
Dixie NF
Natural Resource Conservation Service

Indian Tribes

Aneth Chapter
Chemehuevi Indian Tribe
Dennehotso Chapter
Goshute Indian Tribe
Kaibab Band of Paiute Indians
Las Vegas Paiute Tribe
Moapa Paiute Tribe
Northwestern Band of Shoshone Tribe
Oljato Chapter
Paiute Tribe of Utah
Pueblo of Zuni

Red Mesa Chapter
San Juan Southern Paiute Tribe
Shivwits Paiute Band
Skull Valley Band of Goshute Indians
Teec Nos Pos Chapter
The Hopi Tribe, Cultural Preservation Office
Utah Navajo Trust Fund
Ute Indian Tribe
Ute Mountain Ute Tribe
White Mesa Ute Council

State and Local Agencies

City of Cannonville
City of Cedar City
City of Hatch
City of Panguitch
City of Tropic
City of Kanab
Orderville
Garfield County
Iron County
Kane County
Anasazi Indian Village State Park
Coral Pink Sand Dune State Park
Kodachrome Basin State Park
State Historic Preservation Office
Utah Department of Agriculture and Food
Utah Department of Transportation
Utah Department of Water Resources
Utah Division of Air Quality
Utah Division of Drinking Water
Utah Division of Water Quality
Utah Division of Water Rights
Utah Division of Wildlife Resources
Utah Natural Heritage Program
Utah Office of Planning and Budget
Utah Office of the Governor
Utah State Clearinghouse
Utah State Parks and Recreation

Organizations

Audubon Society
Bryce Valley Business Association
Defenders of Wildlife
Grand Canyon Trust
Grand Canyon Wildlands Council
National Park Foundation
National Parks Conservation Association
National Trust on Historic Preservation
National Wildlife Federation
Partners in Parks
Sierra Club
The Nature Conservancy

The Wilderness Society
Utah Heritage Foundation
Utah Native Plant Society
Utah Wilderness Association
Wilderness Watch
Garfield County Insider
Newspapers: Associated Press, The Spectrum, Las Vegas Sun, Salt Lake Tribune,
Southern Utah News
Radio Stations: KALL, KISN, KSGI, KSVC-AM 980, KTKK

Individuals and Businesses

Over 30 individuals and businesses, mostly in the surrounding communities, received notification of availability of this environmental assessment. The list of individuals and businesses on the mailing list for this environmental assessment is available from Bryce Canyon National Park.

Environmental Assessment Review and List of Recipients

The environmental assessment will be released for public review on April 13, 2010. To inform the public of the availability of the environmental assessment, the NPS will publish and distribute a letter or press release to various agencies, tribes, and members of the public on the Bryce Canyon National Park's mailing list, as well as place an ad in the local newspaper. Copies of the environmental assessment will be available for review at the following locations: Panguitch Library; Salt Lake City Library; Tropic Centennial Hall; Southern Utah University Library, Cedar City; Brigham Young University Library, Provo; University of Utah Library, Salt Lake City; and Utah State University Library, Logan. Copies will be provided to interested individuals upon request. Copies of the document will also be available for review at the Park's visitor center and on the internet at the National Park Service Planning, Environment, and Public Comment website (<http://parkplanning.nps.gov/>).

The environmental assessment is subject to a 30-day public comment period ending May 15, 2010. During this time, the public is encouraged to submit written comments online at the NPS Planning, Environment, and Public Comment website at <http://parkplanning.nps.gov/>. If you are not able to submit comments electronically through this website, then you may also mail comments to: Superintendent Bryce Canyon National Park, P.O. Box 640201, Bryce, UT 84764. Following the close of the comment period, all public comments will be reviewed and analyzed, prior to the release of a decision document. The National Park Service will issue responses to substantive comments received during the public comment period and will make appropriate changes to the environmental assessment, as needed.

List of Preparers

- Jacque Lavelle, Acting Superintendent, Bryce Canyon National Park, Bryce, UT
- Daniel Cloud, Chief of Maintenance Facilities, Bryce Canyon National Park, Bryce, UT
- Sarah Haas, Compliance Biologist, Bryce Canyon National Park, Bryce, UT
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REFERENCES

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