

**FEDERAL HIGHWAY ADMINISTRATION
FINDING OF NO SIGNIFICANT IMPACT (FONSI)
for**

Project SB SD11(01), PCN 03Q7
Bridal Veils Falls
US14A, MRM 16.4 along Spearfish Canyon Scenic Byway
Lawrence County, South Dakota


Project SB SD12(02), PCN 044V
Long Valley Picnic Grounds
US14A, Approximately 13.8 miles South of I-90
Lawrence County, South Dakota

Submitted Pursuant to:

42 USC 4332(2)(c)
and
23 CFR 771.121(c)

by the
U.S. Department of Transportation
Federal Highway Administration
and
South Dakota Department of Transportation


Submitted by:



Tom Lehmkuhl
Environmental Engineer
South Dakota Department of Transportation

10/26/2012
Date

Approved by:



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116 E. Dakota Ave., Suite A
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10/26/2012
Date

Introduction

The United States Department of Agriculture (USDA) Forest Service issued an Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for Alternative 2 (the Modified Proposed Action) to the Spearfish Canyon Recreation Site Improvement Project on July 2 of 2012. There are two sites associated with the EA: Bridal Veil Falls and Long Valley Picnic Grounds.

This FONSI addresses the use of Scenic Byway Grant funds from the U.S. Department of Transportation for the construction of Bridal Veil Falls and Long Valley Picnic Grounds. Since Scenic Byway Grant funds are administered by FHWA and FHWA was not party to the USDA's EA, FHWA must independently evaluate the impacts associated with this realignment and issue a separate decision in accordance with the National Environmental Policy Act (NEPA).

FHWA has reviewed the USDA's EA, the FONSI, and supporting environmental documentation, and has determined that they were prepared in compliance with the NEPA and with other applicable environmental laws, Executive Orders, and related requirements. Furthermore, FHWA has evaluated the social, economic, and environmental studies and analyses contained in the EA and the FONSI and find these studies and analyses were sufficient to independently evaluate the impacts of the improvements to the Spearfish Canyon Recreation Site Improvement Project and issue this FONSI.

Description of the Proposed Project

The Black Hills National Forest developed a proposed action that includes recreation improvements at the Bridal Veil Falls and Long Valley Picnic Ground sites in Spearfish Canyon along the Spearfish Canyon National Scenic Byway. This proposed action is to increase pedestrian safety, enhance recreation opportunities, prevent further erosion of the roadway at the Bridal Veils Falls site, and address resource issues associated with existing uses at Long Valley Picnic Ground.

The proposed actions at the Bridal Veil Falls (BVF) Site are as follows:

- Construction of a pedestrian viewing deck along the Byway to allow people to view and photograph the falls without standing on or near US Highway 14A.
- A barrier, such as concrete bollards, would be added between the highway and deck for added safety.
- Two interpretive signs will be installed on the deck detailing the history of the canyon, fisheries and wildlife resources, and geology of the falls.

The proposed actions at the Long Valley Picnic Ground (LVPG) Site are as follows:

- Reconstruct three existing picnic units, construct four new picnic units, and construct surface trails to connect picnic units to other features.
- Construct boardwalk access to Spearfish Creek along with two fishing platforms and rock steps to shoreline of creek. Erosion protection measures will be incorporated into the design of these items along Spearfish Creek.
- An interpretive sign that interprets the intrinsic values for which the Byway was designated.
- Construction of a parking lot and placing aggregate on the existing road.

Environmental Consequences and Mitigation for the Proposed Project

The social, economic, and environmental impacts associated with the Modified Proposed Action were evaluated in the EA. The project will have no change to the following resources:

- Historical, archaeological, and cultural resources. SHPO concurrence received to a recommendation of *No Historic Properties*, dated 05/22/2012.
- Section 4(f). The proposed facilities will affect approximately 0.15 acres of National Forest System Land. The purpose of this project is to enhance recreational facilities. The project is intended to address a purpose unrelated to the movement of people, goods, or services from one place to another therefore Section 4(f), codified under 23 U.S.C. 138 and 49 U.S.C. 303, does not apply to this assessment.
- Federally listed threatened and endangered species.
- Air quality, environmental justice, farmlands, noise, regulated materials, social environment, and wetlands.

The discussion below identifies the discrete impacts associated with the project.

Botanical, Fisheries, and Wildlife Resources: Minimal disturbances associated with the construction of new facilities to Region 2 Sensitive Species and Black Hills National Forest Species of Local Concern. No further mitigation is required by FHWA.

Water Quality: Potential for short-term impacts to water quality of Spearfish Creek is present during earth disturbing activities associated with construction activities (0.07 acres with BVF site and 0.22 acres at LVPG site). A 404 permit will be applied for with project. No further mitigation is required by FHWA.

Public Safety: Public safety measures will be stipulated during construction activities to ensure the safety of the public. No further mitigation is required by FHWA.

Summary of Federal Highway Administration Mitigation Commitments

The EA identifies the planning, coordination, refinements, and commitments that have resulted in avoidance and minimization of environmental impacts. These actions are summarized in the USDA's EA and FONSI.

FHWA is required to commit to mitigation measures (if any) resulting from the proposed action. The impacts associated with the Scenic Byway Grant funded project at Bridal Veil Falls and the Long Valley Picnic Grounds, as described in the EA, will have no significant impact on the human environment. All mitigation commitments applicable to the Scenic Byway Grant funded portion of the EA will be incorporated into the Modified Proposed Action.

Coordination with Agencies and Organizations

As indicated in the EA and supporting documentation, the USDA Forest Service, Black Hills National Forest has coordinated the Spearfish Canyon Recreation Site Improvement Project with Federal, State, and local agencies, tribes, and non-Forest Service persons during the development of the EA. Opportunity to comment was published in the Rapid City Journal and action was originally listed as a proposal on the Black Hills National Forest Schedule of Proposed Actions.

Finding of No Significant Impact

FHWA has made the following finding for the Alternative 2 (the Modified Proposed Action) for the USDA Forest Service, Black Hills National Forest – Northern Hill Ranger District project:

The FHWA has determined that the Bridal Veil Falls Site and the Long Valley Picnic Grounds components of the Spearfish Canyon Recreation Site Improvement Project will have no significant impact on the human environment. This FONSI is based on the referenced Environmental Assessment (EA) and its supporting documentation, which has been independently evaluated by the FHWA and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project, and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an EIS is not required for this action.

DECISION NOTICE AND FINDING OF NO SIGNIFICANT IMPACT SPEARFISH CANYON RECREATION SITE IMPROVEMENTS PROJECT

USDA Forest Service
Black Hills National Forest
Northern Hills Ranger District
Lawrence County, South Dakota

DECISION AND REASONS FOR THE DECISION

Based upon my review of the Spearfish Canyon Recreation Site Improvements Environmental Assessment (SCRSI EA), I have decided to implement Alternative 2 (the Modified Proposed Action). The sections that follow provide context for my decision, describe my decision, and provide the rationale behind my decision.

Introduction

The Spearfish Canyon Recreation Site Improvements (SCRSI) project was initiated to respond to several recreation related needs identified within the Spearfish Canyon corridor. First, there is a need to take action to increase pedestrian safety and prevent further erosion of the roadway at the Bridal Veil Falls (BVF) site. Visitors to this site need a safe location from which to view and photograph the falls. There is also a need to discourage people from standing along the edge of the road to prevent further erosion of the roadway.

Second, there is both opportunity and need to enhance recreation opportunities, provide accessible recreation opportunities, and address resource issues associated with existing uses at Long Valley Picnic Ground (LVPG). The existing infrastructure at the site is old and need to be repaired. For the most part, the existing facilities at this site do not comply with Architectural Barriers Act (ABA) accessibility standards. Finally, existing recreation uses have led to the creation of social trails leading to Spearfish Creek from the picnic ground. There is a need to facilitate fishing access while minimizing erosion along the shoreline and erosion that has been caused by these trails. In addition to these needs, there is also opportunity to develop additional infrastructure at the site to accommodate and enhance public use.

These needs and opportunities are consistent with the goals, objectives, and standards outlined in the Forest Plan:

- **Goal 4**—Provide for scenic quality, a range of recreational opportunities, and protection of heritage resources in response to the needs of the Black Hills National Forest visitors and local communities.
- **Objective 411**—Correct or minimize potential risks to human lives or property in developed recreation sites.
- **Objective 412**—Eliminate design barriers that prevent some groups such as the elderly and disabled from recreating in the National Forest.

- **Standard 4.2A-5102**—Allow recreation use with emphasis on interpretation and education when it does not threaten the biological values, as well as the scenic values, for which the Scenic Byway was designated.

Decision

Based upon my review of the SCRSI EA, I have decided to implement Alternative 2 (the Modified Proposed Action). This decision includes the following.

Authorized Actions at the Bridal Veil Falls Site

To increase pedestrian safety and prevent further erosion of the roadway at the BVF site, a pedestrian viewing deck will be constructed along the Highway 14A Scenic Byway to allow people to view and photograph the falls without standing on or near the Highway. The deck will be approximately 14' wide and 30' long and will be constructed to the same elevation as the Byway. A barrier, such as concrete bollards, will be added between the highway and deck for added safety. Two signs will be installed on the deck and will interpret the history of the canyon, fisheries and wildlife resources (including local sensitive species), and geology of the falls. All features will be colored and textured in a similar fashion to those at Roughlock Falls (a state-operated facility also within Spearfish Canyon) to blend in with the surroundings and to retain consistency between facilities within the Byway. All construction improvements will meet the accessibility standards for alteration of Forest Service facilities under the ABA.

Authorized Actions at Long Valley Picnic Ground

To enhance recreation opportunities, provide accessible recreation opportunities, and address resource issues associated with existing uses at the LVPG, I am authorizing the following activities:

- reconstruction of three existing picnic units to include timber-edged aggregate surface and accessible furnishings (picnic tables and grills);
- construction of two new picnic units to include timber-edged aggregate surface and accessible furnishings;
- construction of timber-edged aggregate surface trails to connect picnic units to other features;
- construction of a 4' x 50' timber boardwalk to provide access to Spearfish Creek;
- construction of one timber fishing platform;
- installation of rock steps at shoreline of creek;
- placement of large rocks along creek shoreline to protect fishing platforms and boardwalk while preventing erosion;
- installation of at least one sign that interprets the intrinsic values for which the Byway was designated;
- placement of aggregate on the existing road; and
- construction of a parking area.

Forest Plan Amendment

I have also decided to authorize a non-significant, site-specific Forest Plan amendment

(Amendment 12) to allow these activities to occur. Amendment 12 is divided into two separate parts, A and B, which are described below:

Amendment 12, Part A

Forest Plan Standard 3103 is intended to protect habitat for known colonies of snails designated as Region 2 Sensitive Species (SS) or Species of Local Concern (SOLC). The Standard requires resource managers to manage known sensitive species and species of local concern snail colonies to:

- a) Retain overstory sufficient to maintain moisture regimes, ground level temperatures and humidity.
- b) Retain ground litter, especially deciduous litter.
- c) Avoid burning, heavy grazing, off-highway vehicles (OHVs), heavy equipment and other activities that may compact soils or alter vegetation composition and ground cover.
- d) If prescribed burning is unavoidable, burn when snails are hibernating, usually below 50 degrees Fahrenheit, and use fast-moving fires to minimize effects to snails.
- e) Control invasive weeds, but use herbicides when snails are not on the surface, and treat individual plants rather than broadcast application.

Spearfish Canyon provides the majority of the habitat for the Cooper's mountain snail (*Oreohelix strigosa cooperi*), a Region 2 SS, on the Black Hills National Forest. Snail habitat is located at both the BVF and LVPG sites. Proposed activities within these areas (e.g., removal of vegetation and heavy equipment use to accomplish proposed work) would alter snail habitat and be inconsistent with Forest Plan Standard 3103.

I have decided to amend the Forest Plan to allow mechanized equipment in and permanent loss of approximately 0.15 acres of mountain snail habitat (0.07 acres at BVF and 0.08 acres at LVPG). Forest Plan Standard 3103 requires resource managers of the Black Hills National Forest to manage known sensitive species and species of local concern snail colonies to meet the requirements listed above.

The proposed action is not consistent with this standard, as the proposed action would involve use of heavy equipment in mountain snail habitat. In addition, the placement of new facilities at BVF and LVPG are expected to result in a loss of 0.15 acres of snail habitat. Analysis of the effects of the proposed activities on Cooper's mountain snail is found in the Wildlife and Fisheries Biological Evaluation (BE), located in the project file. Based on this analysis, I have determined that the effects of authorizing Part A of Amendment 12 will not be significant, and therefore this is not a significant change to the Forest Plan.

Amendment 12, Part B

Forest Plan Standard 1301 allows only actions that maintain or improve long-term stream health and riparian ecosystem condition to occur in the water influence zone (WIZ) next to perennial and intermittent streams, lakes, and wetlands. The proposed actions at LVPG would require the removal of some riparian vegetation within the WIZ to accommodate the additional recreation facilities in this developed recreation site. The affected footprint of riparian vegetation alteration is expected to be small; however, the action may not be consistent with Forest Plan Standard 1301.

I have decided to amend the Forest Plan to allow alterations at LVPG that affect riparian ecosystem condition. The Forest Plan (Standard 1301) requires resource managers of the Black Hills National Forest to allow only those actions that maintain or improve long-term stream health and riparian ecosystem condition in the water influence zone next to perennial and intermittent streams, lakes, and wetlands.

The proposed action includes alteration of riparian vegetation in the WIZ next to a perennial stream. A portion of the proposed improvements at LVPG fall within the WIZ. Analysis of the impacts of the proposed activities on water resources is found in the Hydrology and Soils Report, located in the project file. Based on this analysis, I have determined that the effects of authorizing Part B of Amendment 12 will not be significant, and therefore this is not a significant change to the Forest Plan.

Rationale

The LVPG is approximately 2 acres in size. Existing facilities along with the social trails and erosion along the stream bank amount to a developed or disturbed area approximately 0.22 acres in size. With the construction of additional facilities identified under this alternative, the total amount of developed land would be approximately 0.3 acres. The total disturbed area at BVF would be approximately 0.07 acres. This area has been previously disturbed by vehicle and foot traffic, although no developed facilities exist.

The actions at LVPG would enhance recreation opportunities by improve existing infrastructure at the site that is in need of repair and providing additional recreational features at the site. They would also bring site facilities in compliance with the ABA accessibility standards. Finally, these actions would facilitate fishing access while minimizing erosion along the shoreline and erosion that has been caused by the creation of social trails at the picnic area.

The activities at BVF are intended to provide a safe location from which people may view and photograph the falls and to discourage people from standing along the edge of the road to prevent further erosion of the roadway.

Two alternatives were considered. Alternative 1 is the no-action alternative and was used as a baseline to assess the effects of taking action versus maintaining the current management situation. Under the no-action alternative, none of the proposed recreation improvement projects would be implemented. Alternative 2 is the modified proposed action. Based on comments

received during the scoping period and meetings with local residents, the original proposal for LVPG was modified to decrease the number of improvements, removing a section of boardwalk, one fishing pier and two additional picnic sites. Under Alternative 2, LVPG would still see the addition of new footpaths, two new picnic sites, a new fishing pier and a new parking area. The proposed improvements at BVF were not changed in the modified proposed action.

The no-action alternative was rejected due to the need to increase public safety at BVF. Under the no-action alternative, none of the proposed activities could occur at the BVF viewing site, which would result in visitors continuing to view the falls from the shoulder of the highway or from the highway itself. In addition, construction of the proposed improvements at both sites would be environmentally beneficial in the long-term by concentrating recreational use onto the constructed facilities.

Alternative 2 was developed in conjunction with landowners with property near LVPG. Those landowners were concerned with the level of recreational activity, both legal and illegal, that currently occurs at LVPG and felt that too great of an expansion of the facility would exacerbate existing problems. After reviewing each of the action alternatives, I felt that Alternative 2 provided the best addresses safety concerns, environmental effects and the concerns of local residents.

The SCRSI EA documents the environmental analysis and conclusions upon which this decision is based.

Public Involvement

A project description was shared with nearly 100 people representing potentially interested individuals and other organizations and agencies for comment on March 5, 2012. A legal notice of the proposed action and opportunity to comment appeared in the newspaper of record, the *Rapid City Journal*, on March 9, 2012. Eleven written comments were received in response to the public outreach efforts described above. The SCRSI EA lists agencies and people consulted in the “Consultation and Coordination” section. This action was originally listed as a proposal on the Black Hills National Forest Schedule of Proposed Actions in April 2012.

An interdisciplinary team of Forest Service resource specialists reviewed the comments from the public, other agencies, tribal representatives, and other interested parties. The purpose of this review was two-fold. First, the review was conducted in order to determine whether any issues had been raised that would merit modification of the proposed action or development of a separate alternative intended to address the purpose of and need for action identified for this project. Second, identification of issues raised in the comments was used to determine the scope of the environmental analysis to be presented in the SCRSI EA. Based on this review, I determined that minor modifications to the initial proposed action were in order to address concerns about the expansion of the LVPG and determined that the EA should address several other concerns that had been raised, including concerns about water quality, fish habitat, habitat for snails, scenic quality, public safety, and the potential for increased flooding as a result of the project.

FINDING OF NO SIGNIFICANT IMPACT

After considering the environmental effects described in the SCRSI EA, I have determined that these actions will not have a significant effect on the quality of the human environment considering the context and intensity of impacts (40 CFR 1508.27). Thus, an environmental impact statement will not be prepared. I base my finding on the following:

1. My finding of no significant environmental effects is not biased by the beneficial effects of the action.
2. There will be no significant effects on public health and safety. In fact, this project is intended to increase public safety by providing an observation deck from which people may view BVF. This portion of the project is intended to give people a place to stand and view the falls other than the road or shoulder of the road.
3. There will be no significant effects on unique characteristics of the area. Forest Plan Amendment 12 allows for site-specific, non-significant changes to Forest Plan Standards 3103 and 1301 for this project only. This amendment affects individuals of the Cooper's mountain snail population by allowing use of mechanized equipment and allowing loss of 0.15 acre of suitable snail habitat (Wildlife and Fisheries BE). The amendment also affects riparian ecosystem habitat by allowing impacts within the WIZ (Hydrology and Soils Report).
4. The effects on the quality of the human environment are not likely to be highly controversial because there is no known scientific controversy over the impacts of the project.
5. We have considerable experience with the types of activities to be implemented. The effects analysis shows the effects are not uncertain, and do not involve unique or unknown risk.
6. The action is not likely to establish a precedent for future actions with significant effects.
7. The cumulative impacts are not significant (SCRSI EA, pages 25-26 (botany), 28 (heritage), 31-45 (wildlife/fisheries), 48-52 (hydrology/soils), and 54-57 (recreation/scenery)).
8. The action will have no significant adverse effect on districts, sites, highways, structure, or objects listed in or eligible for listing in the National Register of Historic Places , because none exist within the project area. The action will not cause loss or destruction of significant scientific, cultural, or historical resources because none exist within the project area (State Historic Preservation Officer concurrence received, May 22, 2012).
9. The action will not adversely affect endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973 because none exist within the project area.
10. The action will not violate Federal, State, or local laws or requirements for the protection of the environment. Applicable laws and regulations were considered in project design and in the development of the Environmental Assessment. With the approval of the two site-specific Forest Plan amendments that were included as part of the Modified Proposed

Action, this decision is consistent with the Black Hills National Forest Land and Resource Management Plan.

FINDINGS REQUIRED BY OTHER LAWS AND REGULATIONS

Forest Plan

This decision is consistent with the Black Hills National Forest's Land and Resource Management Plan (Forest Plan). The project was designed in conformance with the following Forest Plan direction:

- **Goal 4**—Provide for scenic quality, a range of recreational opportunities, and protection of heritage resources in response to the needs of the Black Hills National Forest visitors and local communities.
- **Objective 411**—Correct or minimize potential risks to human lives or property in developed recreation sites.
- **Objective 412**—Eliminate design barriers that prevent some groups such as the elderly and disabled from recreating in the National Forest.
- **Standard 4.2A-5102**—Allow recreation use with emphasis on interpretation and education when it does not threaten the biological values, as well as the scenic values, for which the Scenic Byway was designated.

A Finding of No Significant Impact (FONSI) and EA were considered. I determined these actions will not have a significant effect on the quality of the human environment, and an Environmental Impact Statement (EIS) will not be prepared.

Activities not consistent with the Forest Plan are described previously in this document. These activities would be authorized through the approval of Forest Plan Amendment 12.

Federal Laws

The National Historic Preservation Act of 1966, as amended

All surveyed and inventoried cultural sites considered eligible or potentially eligible for the National Register of Historic Places will be buffered and avoided during resource management activities. New sites discovered during operations will be protected. Any identified Traditional Cultural Properties and sacred areas will be protected. Reference is made to the consultation with the South Dakota State Historical Preservation Officer (SHPO) under State Laws section below.

The National Environmental Policy Act (NEPA), 1969

NEPA establishes the format and content requirements of environmental analysis and documentation. The process of preparing the SCRSI EA and DN/FONSI was completed in accordance with NEPA.

The Endangered Species Act, 1973

A Biological Evaluation (BE) has been prepared to document possible effects of any activities on endangered, threatened, proposed or sensitive species in the project area. A determination was

made that no threatened or endangered species currently exist in the project area nor does the project area contain critical habitat for any listed species. Therefore, the project would have “no effect” on threatened or endangered species and no impact on critical habitat.

Effects of the project on Region 2 Sensitive Species were analyzed and documented in the Wildlife and Fisheries BE and in the Botany BE, which are summarized in Chapter 3 of the SCRSI EA. A determination was made that the proposed activities may adversely impact individuals but are not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing.

The Clean Water Act, 1982

The proposed action will conform to the Clean Water Act as amended in 1982. This act establishes a non-degradation policy for all federally proposed projects. The proposed action is not likely to degrade water quality below standards set by the State of South Dakota. This will be accomplished through planning, application, and monitoring of Best Management Practices and other design criteria of project activities.

The National Forest Management Act (NFMA) 1976, which amends the Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974

The 1982 and 2000 planning rules are no longer in effect. Pursuant to the 2012 planning rule, project decisions must be consistent with the Forest Plan (36 CFR 219.17(c)). The scope of analysis for a Forest Plan’s Management Indicator Species (MIS) is determined by the Forest Plan’s management direction, specifically, its standards and guidelines (Chapter II) and monitoring direction (Chapter IV). The Black Hills National Forest Land and Resource Management Plan (Forest Plan) contains no obligation to conduct project-specific monitoring or surveying for MIS (Phase II ROD, pp. 8, 20; Forest Plan as Amended, p. I-11, Objective 238). The Forest Plan establishes monitoring and evaluation requirements that do not require population monitoring for MIS, but rather employ habitat capability relationships (Phase II ROD, pp. 20; Forest Plan as Amended, p. I-11, Objective 238). The SCRSI Wildlife and Fisheries Report analyzed the following MIS because habitat for these species is available in the project area: song sparrow, beaver, white-tailed deer and mountain sucker.

ADMINISTRATIVE REVIEW (APPEAL) OPPORTUNITIES

This decision is subject to appeal pursuant to 36 CFR 215. A written appeal must be submitted within 45 days following the publication date of the legal notice of this decision in the Rapid City Journal (Rapid City, South Dakota). It is the responsibility of the appellant to ensure their appeal is received in a timely manner. The publication date of the legal notice of the decision in the newspaper of record is the exclusive means for calculating the time to file an appeal. Appellants should not rely on date or timeframe information provided by any other source. Only those organizations or individuals who submitted a comment during the 45-day Notice and Comment are eligible to appeal this decision pursuant to 36 CFR 215.13.

Paper appeals must be submitted to:

USDA Forest Service Region 2
Appeal Deciding Officer
ATTN: John Rupe
740 Simms Street
Golden, CO 80401

Phone: (303) 275-5148
Fax: (303) 275-5134
Email: appeals-rocky-mountain-regional-office@fs.fed.us

Appeals may be hand delivered to the office address above between the hours of 8:00 AM and 4:30 PM, Monday through Friday, excluding federal holidays.

For appeals filed electronically, the name of the project decision being appealed should appear in the subject line. Electronically filed appeals must be readable in Word, Rich Text or pdf formats. When an appeal is electronically mailed, the appellant should normally receive an automated electronic acknowledgement confirming agency receipt. If the appellant does not receive an automated acknowledgement of the receipt of the appeal, it is the appellant's responsibility to ensure timely receipt by other means (§ 215.15(c)(3)).

It is an appellant's responsibility to provide sufficient activity-specific evidence and rationale, focusing on the decision, to show why my decision should be reversed. At a minimum, an appeal must meet the content requirements of 36 CFR §215.14 and include the following information:

1. Appellant's name and address (36 CFR §215.2), with a telephone number, if available;
2. Signature or other verification of authorship upon request (a scanned signature for electronic mail may be filed with the appeal);
3. When multiple names are listed on an appeal, identification of the lead appellant (36 CFR §215.2) and verification of the identity of the lead appellant upon request;
4. The name of the project or activity for which the decision was made, the name and title of the Responsible Official, and the date of the decision;
5. The regulation under which the appeal is being filed, when there is an option to appeal under either this part or part 251, subpart C (36 CFR §215.11(d));
6. Any specific change(s) in the decision that the appellant seeks and rationale for those changes;
7. Any portion(s) of the decision with which the appellant disagrees, and explanation for the disagreement;
8. Why the appellant believes the Responsible Official's decision failed to consider the substantive comments; and
9. How the appellant believes the decision specifically violates law, regulation or policy.

Notices of Appeal that do not meet the requirements of 36 CFR §215.14 will be dismissed.

IMPLEMENTATION DATE

Pursuant to 36 CFR §215.9 (a), if no appeal is filed within the 45-day time period, implementation of this decision may occur on, but not before, the 5th business day following the close of the appeal filing period. If an appeal is received, implementation may occur on, but not before, 15 business days following the date of the appeal disposition (36 CFR §215.9(b)).

CONTACT

For additional information concerning this decision, contact Jeff Goldberg, Acting Natural Resource Planner, or Chris Stores, Assistant NEPA Planner, by phone (605-642-4622) or e-mail (jgoldberg@fs.fed.us or cstores@fs.fed.us) .

/S/ Dennis Jaeger

7/2/12

Dennis Jaeger
Deputy Forest Supervisor

Date

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United States
Department of
Agriculture

Forest
Service

June 2012



Environmental Assessment

Spearfish Canyon Recreation Site Improvements

Northern Hills Ranger District, Black Hills National Forest
Lawrence County, SD



Photo illustrating erosion along the steep slope below U.S. Highway 14A at the Bridal Veil Falls Site

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SUMMARY

The Black Hills National Forest proposes to make improvements at two recreation sites: Bridal Veil Falls and Long Valley Picnic Ground. A pedestrian viewing deck is proposed at the Bridal Veil Falls site to mitigate some of the existing safety concerns associated with use of that site. At Long Valley Picnic Ground, the existing recreation facilities would be improved and expanded within the footprint of the picnic ground to enhance recreation opportunities, provide accessible recreation opportunities, and address resource issues associated with existing use and facilities.

These recreation sites are located on National Forest System lands in Spearfish Canyon along the Spearfish Canyon National Forest Scenic Byway. They are within the Northern Hills Ranger District, Black Hills National Forest, in Lawrence County South Dakota.

In this Environmental Assessment, the Forest Service evaluated two alternatives: the No Action Alternative and a Modified Proposed Action. The No Action Alternative was considered to provide a baseline for assessing the effects of the Modified Proposed Action. The Modified Proposed Action is expected to improve public safety and enhance the recreation experience available at the Bridal Veil Falls site. At the Long Valley Picnic Ground, recreation uses would be enhanced and existing erosion and sedimentation resulting from the creation and use of social trails would be corrected. Implementing these actions is expected to have minimal impacts on other valuable Forest resources. Notable effects of the Modified Proposed Action on other resources include the alteration of a small area of riparian habitat as well as a small area of habitat for Region 2 Sensitive snail species.

Based upon the effects of the alternatives, the Responsible Official will decide whether to authorize installation of the viewing deck at the Bridal Veil Falls site and whether to allow the enhancement of existing recreation facilities and installation of new accessible facilities at the Long Valley Picnic Ground. In addition, the Responsible Official will determine whether to amend the Forest Plan to allow the alteration of riparian and snail habitat in order to implement the Modified Proposed Action.

INTRODUCTION

Document Structure

The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into four parts:

- *Introduction:* The section includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.
- *Comparison of Alternatives, including the Proposed Action:* This section provides a more detailed description of the agency's proposed action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by the public and other agencies. This discussion also includes possible mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.
- *Environmental Consequences:* This section describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resource area. Within each section, the affected environment is described first, followed by the effects of the No Action Alternative that provides a baseline for evaluation and comparison of the other alternatives that follow.
- *Agencies and Persons Consulted:* This section provides a list of preparers and agencies consulted during the development of the environmental assessment.
- *Appendices:* The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Northern Hills Ranger District Office in Spearfish, South Dakota.

Background

Recreation Management in Spearfish Canyon

Spearfish Canyon was designated a Scenic Byway by the Chief of the Forest Service in 1989. The 20-mile drive that stretches from Spearfish, South Dakota in the north to Cheyenne Crossing, South Dakota in the south is popular with the traveling public and allows the public access to numerous outdoor recreational activities. Key to Spearfish Canyon's Scenic Byway designation was the unique and spectacular scenery afforded by the canyon. Narrow canyon walls rise sharply from Spearfish Creek. A forest of white spruce, ponderosa pine, aspen, birch and oak covers the hillsides and parts of the canyon

walls. Above these slopes, the skyline is topped with an extensive ridge of vertical limestone cliffs and rimrock (USDA FS, 2006a).

Since the Byway's designation, several efforts intended to inform management of the byway have occurred. In 1999, the Forest Service, in cooperation with the Corridor Management Plan Task Group (a group that represented a variety of state and local interests), developed and published the Spearfish Canyon Corridor Management Plan (USDA FS, 1999). This plan, though not a binding document, established general, collaboratively developed, strategies for management of Spearfish Canyon for consideration by all land owners within the canyon. This document recognized the need to improve facilities at picnic areas, including Long Valley Picnic Ground, and to address safety issues associated with public use at the Bridal Veil Falls site (USDA FS, 1999).

In 2002, the Northern Hills Ranger District published the Spearfish Canyon Landscape Assessment. This assessment was intended to evaluate management goals for the National Forest within the canyon and to recommend ways to meet those goals. The landscape assessment acknowledged the poor condition of facilities, soil compaction and erosion resulting from public use, and parking needs at Forest Service managed picnic areas within Spearfish Canyon. It also identified construction of an observation deck at Bridal Veil Falls as an action that would help manage current and future public use at the popular waterfall viewing site (USDA FS, 2002).

The 1997 Revised Land and Resource Management Plan for the Black Hills National Forest, As Amended by the Phase II Amendment (USDA FS, 2006a) provides guidance for all resource management activities on the Black Hills National Forest. This document is commonly referred to as the "Forest Plan." In the Forest Plan, Spearfish Canyon is identified as its own special management area and contains management direction specific to National Forest System lands within the canyon. Desired conditions for the Spearfish Canyon Management Area include the provision of day-use facilities such as picnic grounds as well as providing opportunities for scenic photography. As specified in the Forest Plan (USDA FS, 2006a), Standards and Guidelines for managing recreation use within the canyon include:

- allowing recreation use with emphasis on interpretation and education when it does not threaten the biological values, as well as the scenic values, for which the Scenic Byway was designated (Standard 4.2A-5102);
- protecting the area from actual or potential damage due to public use (Standard 4.2A-5103); and
- designing, locating, and managing facilities in compliance with the Scenic Integrity Objectives of the area to enhance the experience and enjoyment of the users (Guideline 4.2A-8401).

In 2008, the Black Hills National Forest completed a Recreation Facility Analysis. That analysis recommended removing all picnic sites along Spearfish Creek with the exception of Long Valley Picnic Ground. Three picnic facilities previously managed by the Forest Service have since been removed. The rationale behind the removal of these sites included concerns about the facilities' poor designs and the impacts to hydrological, botanical, and fisheries resources. Today, Long Valley Picnic Ground is the only picnic

site in Spearfish Canyon that is managed by the Forest Service. The State of South Dakota manages a day-use facility at Roughlock Falls approximately two miles south of the Long Valley Picnic Ground.

Bridal Veil Falls (BVF)

Bridal Veil Falls (BVF), a scenic waterfall site, is located approximately 6.2 miles south of Interstate 90 along the Spearfish Canyon Scenic Byway in Lawrence County, South Dakota. The Byway is the fourth most popular destination in the Black Hills of South Dakota and BVF is one of three premiere falls within the canyon. The popularity of the falls is due its ease of access and location adjacent to the Byway, which provides opportunities for photography and viewing wildlife. A sill of igneous rock surrounded by softer rock creates the dramatic condition for the stream in Rubicon Gulch to “fall” into the main branch of Spearfish Creek.

The current situation at the project site encourages visitors to cross the Byway from the existing parking area to photograph and access the falls, which has created multiple gullies along the shoulder of the road. Throughout time, the gullies have become deeper and are now eroding the gravel base of the shoulder and roadway, causing it to deteriorate. Visitors of all ages and abilities wishing to photograph the falls now have to stand within feet of the active roadway for this opportunity. This has created numerous close calls with vehicles at all times of the year. In addition to the hazards to pedestrian traffic, the road has become undermined due to erosion caused by foot traffic accessing the falls. This has eroded the shoulder of the highway, making it unsafe to motorists and has introduced sediment into Spearfish Creek.

The current situation at the falls encourages visitors to cross the Byway from an existing parking area to photograph and access the falls. This use has created multiple gullies along the shoulder of the road. Throughout time, the gullies have become deeper and are now eroding the gravel base of the shoulder and roadway, causing it to deteriorate. Visitors of all ages and abilities wishing to photograph the falls now have to stand within feet of the active roadway for this opportunity. This has created numerous close calls with vehicles at all times of the year. In addition to the hazards to pedestrian traffic, the road has become undermined due to erosion caused by foot traffic accessing the falls. This has eroded the shoulder of the highway, making it unsafe to motorists and has introduced sediment into Spearfish Creek.

Long Valley Picnic Ground (LVPG)

The Long Valley Picnic Ground (LVPG) is an established recreation site located about 13.8 miles south of Spearfish, South Dakota along US Highway 14A and adjacent to Spearfish Creek. The LVPG facility was built and previously operated by Homestake Mining Company. The Forest Service obtained this facility as a result of a land exchange with the company in 1992. The Forest Service used to provide picnicking opportunities at four picnic grounds within Spearfish Canyon. However, three of those sites have since been decommissioned, leaving LVPG the only picnic ground maintained by the Forest Service in the canyon.

The current infrastructure at LVPG includes three basic picnic units (table, native soil surface, and grills), limited parking at each unit, social trails to Spearfish Creek, and a fully accessible precast concrete toilet (installed in 2009). The toilet is the only feature at this site that currently complies with the Architectural Barriers Act Accessibility Standards (ABBAS). All other features are in need of repair or improvement. Capacity at the site, based on existing facilities, is approximately 15 people at one time.

User-created (or “social”) trails leading from the picnic sites to the creek, as well as recreational fishing along the creek bank, have resulted in erosion and sedimentation to the creek.

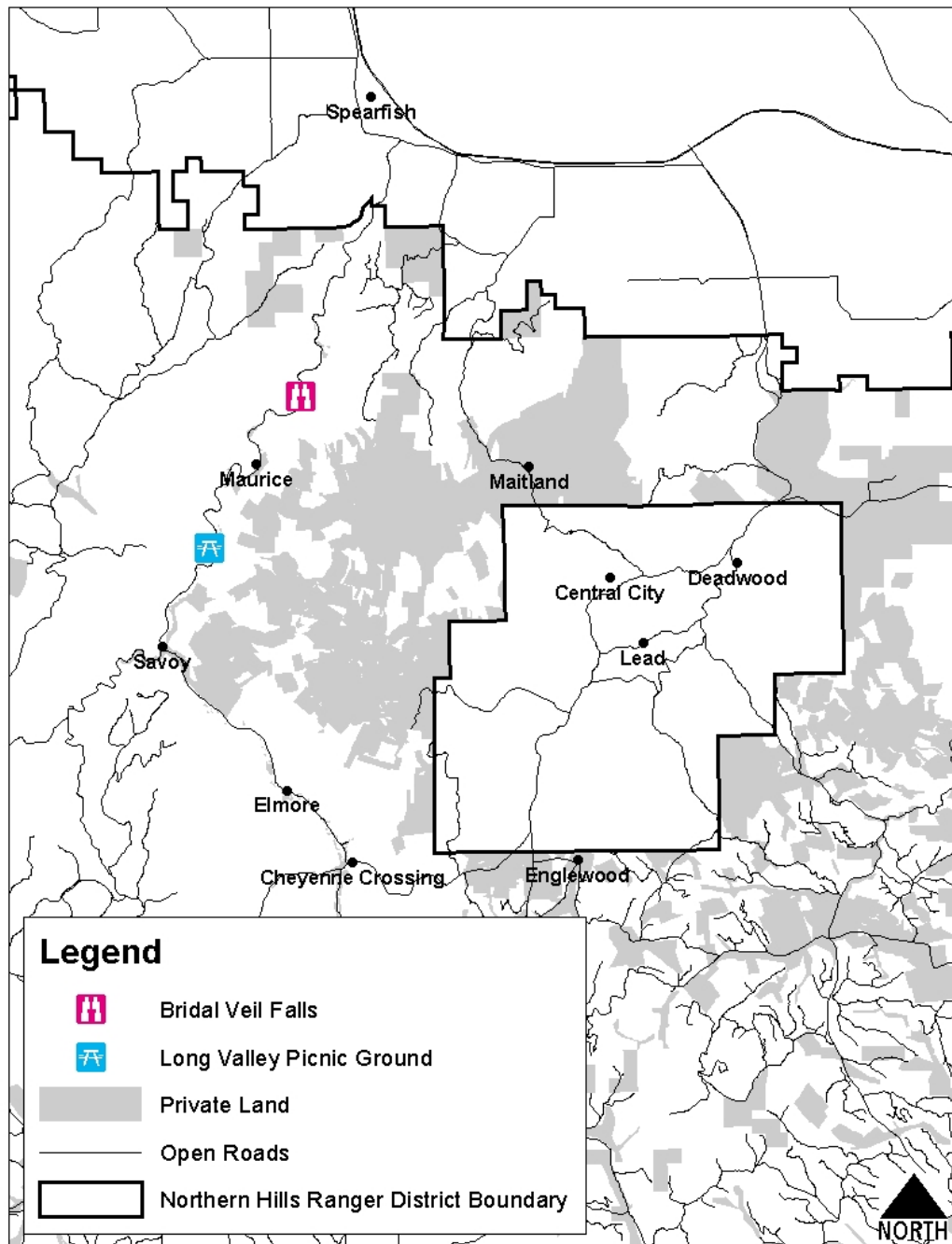


Figure 1. Vicinity Map.

Purpose and Need for Action

The purpose of this project is to increase pedestrian safety and prevent further erosion of the roadway at the Bridal Veil Falls site. There is a need to provide a safe location from which people may view and photograph the falls. There is also a need to discourage

people from standing along the edge of the road to prevent further erosion of the roadway.

The purpose of this project is also to enhance recreation opportunities, provide accessible recreation opportunities, and address resource issues associated with existing uses at Long Valley Picnic Ground. There is a need to improve existing infrastructure at the site that is in need of repair. There is also a need to bring site facilities in compliance with the Architectural Barriers Act Accessibility Standards. Finally, there is a need to facilitate fishing access while minimizing erosion along the shoreline and erosion that has been caused by the creation of social trails at the picnic area. In addition to these needs, there is also opportunity to develop additional infrastructure at the site to accommodate and enhance public use.

These needs are consistent with the goals, objectives, and standards outlined in the Forest Plan:

- **Goal 4**—Provide for scenic quality, a range of recreational opportunities, and protection of heritage resources in response to the needs of the Black Hills National Forest visitors and local communities.
- **Objective 411**—Correct or minimize potential risks to human lives or property in developed recreation sites.
- **Objective 412**—Eliminate design barriers that prevent some groups such as the elderly and disabled from recreating in the National Forest.
- **Standard 4.2A-5102**—Allow recreation use with emphasis on interpretation and education when it does not threaten the biological values, as well as the scenic values, for which the Scenic Byway was designated.

Initial Proposed Action _____

The Black Hills National Forest developed a proposed action to address the purpose and need described above. The proposed action included recreation improvements at the Bridal Veil Falls and Long Valley Picnic Ground sites in Spearfish Canyon along the Spearfish Canyon National Forest Scenic Byway. Details regarding the proposed action follow.

Proposed Actions at the Bridal Veil Falls Site

To mitigate the safety concerns at Bridal Veil Falls, the Forest Service proposed construction of a pedestrian viewing deck along the Byway to allow people to view and photograph the falls without standing on or near the Highway. The proposed deck is approximately 14' wide and 30' long and would be constructed to the same elevation as the Byway. A barrier, such as concrete bollards, would be added between the highway and deck for added safety. Two signs would be installed on the deck and would interpret the history of the canyon, fisheries and wildlife resources (including local sensitive species), and geology of the falls. All features would be colored and textured in a similar fashion to those at Roughlock Falls (a state-operated facility also within Spearfish Canyon) to blend in with the surroundings and to retain consistency between facilities

within the Byway. All construction improvements would meet the accessibility standards for alteration of Forest Service facilities under the ABBAS.

Proposed Actions at the Long Valley Picnic Ground Site

To enhance recreation opportunities, provide accessible recreation opportunities, and address resource issues associated with existing uses at the LVPG, the Forest Service proposed to:

- reconstruct three existing picnic units to include timber-edged aggregate surface and accessible furnishings (picnic tables and grills)
- construct up to four new picnic units to include timber-edged aggregate surface and accessible furnishings
- construct timber-edged aggregate surface trails to connect picnic units to other features
- construct a 4' x 50' timber boardwalk to provide access to Spearfish Creek
- construct two timber fishing platforms
- install rock steps at shoreline of creek
- place large rocks along creek shoreline to protect fishing platforms and boardwalk while preventing erosion
- install at least one sign that interprets the intrinsic values for which the Byway was designated
- place aggregate on the existing road
- construct a parking lot

This proposal was designed to maximize accessibility of recreational facilities along the Byway, while protecting the unique intrinsic qualities for which the Byway was designated. All improvements would be designed to meet the accessibility standards for alteration of Forest Service facilities under the ABBAS.

Proposed Site-Specific Amendments to the Forest Plan

Preliminary review of the proposed action by agency resource specialists indicated that two site-specific amendments to the Forest Plan might be required to allow for the recreation site improvements and safety measures. The proposed amendments are described below.

Amendment A

Forest Plan Standard 3103 is intended to protect habitat for known colonies of snails designated as Region 2 Sensitive Species or Species of Local Concern. Spearfish Canyon provides the majority of the habitat for the Cooper's Mountain Snail, a Region 2 Sensitive Species, on the Black Hills National Forest.

Snail habitat is located at both the Bridal Veil Falls and Long Valley Picnic Ground sites. Proposed activities within these areas (e.g., removal of vegetation and heavy equipment use to accomplish proposed work) would likely alter snail habitat and be inconsistent with Forest Plan Standard 3103.

Amendment B

Forest Plan Standard 1301 allows only actions that maintain or improve long-term stream health and riparian ecosystem condition to occur in the water influence zone next to perennial and intermittent streams, lakes, and wetlands. The proposed actions at LVPG would require the removal of some riparian vegetation within the water influence zone to accommodate the additional recreation facilities in this developed recreation site. The affected footprint of riparian vegetation alteration is expected to be small; however, the action may not be consistent with Forest Plan Standard 1301.

Decision Framework

Given the purpose of and need for this project, the Responsible Official will review the proposed action and any other alternatives considered to make the following decisions:

1. Based upon the anticipated effects of the alternatives and taking into consideration public comments received, the Responsible Official will decide whether to implement the recreation site improvement and safety measures considered in this Environmental Assessment at the BVF and LVPG sites.
2. In addition, the Responsible Official will also decide whether to amend the Forest Plan to allow mechanized equipment in and permanent loss of approximately 0.15 acres of Cooper's Rocky Mountain Snail habitat. Forest Plan Standard 3103 requires resource managers of the Black Hills National Forest to manage known sensitive species and species of local concern snail colonies to:
 - a) Retain overstory sufficient to maintain moisture regimes, ground level temperatures and humidity.
 - b) Retain ground litter, especially deciduous litter.
 - c) Avoid burning, heavy grazing, off-highway vehicles (OHVs), heavy equipment and other activities that may compact soils or alter vegetation composition and ground cover.
 - d) If prescribed burning is unavoidable, burn when snails are hibernating, usually below 50 degrees Fahrenheit, and use fast-moving fires to minimize effects to snails.
 - e) Control invasive weeds, but use herbicides when snails are not on the surface, and treat individual plants rather than broadcast application.

The proposed action is not consistent with this standard, as the proposed action would involve use of heavy equipment in Cooper's Rocky Mountain Snail habitat. In addition, the placement of new facilities at BVF and LVPG are expected to result in a loss of 0.15 acres of snail habitat.

3. The Responsible Official will also decide whether to amend the Forest Plan to allow alterations at LVPG that affect riparian ecosystem condition. The Forest Plan (Standard 1301) requires resource managers of the Black Hills National Forest to allow only those actions that maintain or improve long-term stream health and riparian ecosystem condition in the water influence zone next to perennial and intermittent streams, lakes, and wetlands.

The proposed action includes alteration of riparian vegetation in the Water Influence Zone next to a perennial stream. A portion of the proposed improvements at LVPG fall within the Water Influence Zone.

The Forest Supervisor's decision is expected to be documented and explained in a Decision Notice and Finding of No Significant Impact (FONSI).

Public Involvement

The proposal was listed in the Schedule of Proposed Actions on April 1, 2012. A project description was shared with nearly 100 people representing potentially interested individuals and other organizations and agencies for comment on March 5, 2012. A legal notice of the proposed action and opportunity to comment appeared in the newspaper of record, the *Rapid City Journal*, on March 9, 2012. The section titled "Consultation and Coordination" in this Environmental Assessment includes the names of the individuals, organizations, and agencies that were contacted regarding this proposal. Eleven written comments were received in response to the public outreach efforts described above.

Issues

According to Chapter 10 of Forest Service Handbook 1901.15, "issues serve to highlight effects or unintended consequences that may occur from the proposed action and alternatives, giving opportunities during the analysis to reduce adverse effects and compare trade-offs for the decision-maker and public to understand" (USDA FS, 2011, p. 27). Issues represent claims regarding the anticipated impacts to the human environment as a result of implementing the proposed action.

An interdisciplinary team of Forest Service resource specialists reviewed the comments from the public, other agencies, tribal representatives, and other interested parties. The purpose of this review was two-fold. First, the review was conducted in order to determine whether any issues had been raised that would merit modification of the proposed action or development of a separate alternative intended to address the purpose of and need for action identified for this project. Second, identification of issues raised in the comments was used to determine the scope of the environmental analysis to be presented in this Environmental Assessment.

Based on review of the comments received, a number of issues were identified. These issues are briefly described below.

Decreased Water Quality

One commenter expressed concern about potential impacts to water quality resulting from the use of treated timber to construct the proposed facilities. Another commenter expressed concern about the potential impacts to water quality that might result from poor design of the parking lot (i.e., poor drainage design). The "Environmental Consequences" section of this Environmental Assessment includes consideration of impacts to water quality resulting from implementation of the proposed activities.

Increased Potential for Flooding

Two commenters expressed concern about an increased potential for flooding resulting from the construction of the fishing platforms at the Long Valley Picnic Ground site. The “Environmental Consequences” section of this Environmental Assessment includes consideration of impacts to the floodplain resulting from implementation of the proposed activities.

Decreased Quality of Fish Habitat

One commenter expressed concern about the potential decline in fish habitat resulting from alteration of riparian habitat and increased erosion and sedimentation resulting from implementation of project activities. The “Environmental Consequences” section of this Environmental Assessment includes consideration of the impacts to fish habitat resulting from implementation of the proposed activities.

Decreased Scenic Quality

Two commenters expressed concern about the potential decline in scenic quality resulting from construction of the recreation site facilities. In particular, commenters felt like the project would affect the “natural” appearance of the area. The “Environmental Consequences” section of this Environmental Assessment includes consideration of the impacts to scenery resulting from implementation of the proposed activities.

Impacts to Snails/Loss of Snail Habitat

One commenter expressed concern about the impacts to snails and the loss of snail habitat resulting from construction of the recreation site facilities. The “Environmental Consequences” section of this Environmental Assessment includes consideration of the impacts to snails and snail habitat resulting from implementation of the proposed activities.

Public Safety

A number of commenters expressed concerns about public safety. Several indicated that the Forest Service should conduct additional study of pedestrian and traffic patterns to determine the best way to address safety concerns at the Bridal Veil Falls site and to ensure that the project does not exacerbate public safety issues. Several others indicated that additional safety measures should be instituted at the Bridal Veil Falls site to further mitigate existing hazards. Proposed safety measures included posting “caution” signs to discourage people from attempting to access the falls and moving the roadway and parking area so that the parking area is adjacent to the viewing deck.

The Forest Service shared engineering plans for the Bridal Veil Falls site with South Dakota Department of Transportation engineers during project development. Recommendations to improve safety from the engineers were incorporated into the project plans. Installation of the viewing deck and the associated activities at the Bridal Veil Falls site are expected to address rather than exacerbate existing safety hazards. Currently, people stand in the roadway to view and photograph the falls. The viewing deck would provide pedestrians with a safe place from which to conduct this activity. Regarding the proposal for caution signs, the Forest Service plans to reinstall the existing Spearfish Search and Rescue sign that discourages foot traffic to the creek and the falls.

The proposal to relocate the road and parking lot could further address safety issues; however, the Forest Service does not have the funding to undertake such a project at this time. Furthermore, the steep canyon walls call into question the feasibility of such a project. Implementation of the actions identified for this project would not preclude consideration of such a project at some point in the future.

Several commenters expressed concern that the expansion of the recreational facilities available at the Long Valley Picnic Ground would lead to increased usage of the area that would lead to traffic congestion and increased potential for accidents within Spearfish Canyon. The Forest Service shared engineering plans for the Long Valley Picnic Ground site with South Dakota Department of Transportation engineers during project development. Recommendations to improve safety from the engineers were incorporated into the project plans. The proposed action is not expected to result in a substantial increase in traffic congestion within the Byway. At full capacity, a total of 7 vehicles would be able to use the recreation site. To help mitigate concerns about collisions, Forest Service signs would be installed and would indicate that motorists are approaching the entrance to the picnic site.

ALTERNATIVES

This section describes and compares the alternatives considered in detail for the Spearfish Canyon Recreation Site Improvements project. It includes a description and map of each alternative considered. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public.

Based on review of the comments received, there were no issues identified that merited development of a separate alternative to address concerns about the environmental impacts of the proposed action. However, to address concerns about the addition of new features outside of the existing “footprint” at Long Valley Picnic Ground (e.g., concerns that expanding this picnic area would result in increased usage and traffic congestion at the site), the Responsible Official decided to modify the proposed action to eliminate the addition of features south of the proposed parking area. Those features included a proposed footpath, two walk-in picnic sites, and the southernmost fishing platform.

Alternatives Considered but Eliminated from Detailed Study

During the project scoping period, several commenters proposed alternatives that they felt should be considered during the environmental analysis process. These alternatives, including the rationale for not studying them in detail, are provided below.

Emphasize Natural Appearances at BVF

One commenter suggested that the EA include consideration of an alternative that addressed safety concerns but that included improvements that appeared more natural than the proposed wooden observation deck. Specific actions suggested included fixing

the eroding road, installation of guard rails, and installation of a stone or brick path leading down the hillside to the creek.

This alternative was eliminated from detailed study for a number of reasons. First, without installation of some sort of viewing platform people wishing to view or photograph the falls are likely to continue to stand in the road or on the shoulder of the road. Fixing the road and installing guard rails would not meet one of the stated needs for this component of the project: to provide people a safe place from which to view or photograph the falls. In addition, providing a stone or brick path down the hillside might limit further erosion of the hillside, but the Forest Service does not want to encourage public access to the falls. People have been known to get injured or lost in that area.

Limit Activities at LVPG to Improving Existing Facilities

One commenter suggested that the EA include an alternative that involved only the improvement of existing facilities at the LVPG and no new facilities. Such an alternative was eliminated from detailed study because it is not consistent with the purpose of and need for the project. Such an alternative would neither address the erosion that is resulting from use of the social trails and creek-side fishing. Though this alternative was not considered in detail, the proposed action was modified to limit construction of new features to the existing footprint of the LVPG.

Permanent Closure of LVPG

One commenter suggested that the EA include an alternative that involved permanent closure of the LVPG. This alternative was eliminated from detailed study because it is beyond the scope of the Spearfish Canyon Recreation Site Improvements project. The Forest's 2008 Recreation Facility Analysis expressly identified the retention of the LVPG and called for the closure of three other Forest Service operated day use facilities within Spearfish Canyon.

Alternatives Considered in Detail _____

Alternative 1

No Action

Under the No Action alternative, current management plans would continue to guide management of the project area. None of the activities identified in the proposed action would be implemented to accomplish project goals.

Sightseers stopping to view Bridal Veil Falls would continue to stand on the driving surface of the Byway or alongside it to view or photograph the falls. The existing potential for pedestrian-vehicle collisions would remain the same, and erosion of the road's shoulder would continue.

The existing recreational facilities at the Long Valley Picnic Ground site would continue to deteriorate over time. No measures would be instituted to address accessibility at the site. Public use would remain the same. Recreationists would continue to use the existing social trails, and erosion from such use would continue. Recreationists would also continue using the stream bank, and erosion and sedimentation from such use would continue.

Alternative 2

The Modified Proposed Action

Proposed Actions at the Bridal Veil Falls Site

To increase pedestrian safety and prevent further erosion of the roadway at the Bridal Veil Falls site, a pedestrian viewing deck would be constructed along the Byway to allow people to view and photograph the falls without standing on or near the Highway. The deck would be approximately 14' wide and 30' long and would be constructed to the same elevation as the Byway. A barrier, such as concrete bollards, would be added between the highway and deck for added safety. Two signs would be installed on the deck and would interpret the history of the canyon, fisheries and wildlife resources (including local sensitive species), and geology of the falls. All features would be colored and textured in a similar fashion to those at Roughlock Falls (a state-operated facility also within Spearfish Canyon) to blend in with the surroundings and to retain consistency between facilities within the Byway. All construction improvements would meet the accessibility standards for alteration of Forest Service facilities under the ABBAS. These activities would result in approximately 0.07 acres of land disturbance.

These activities are intended to provide a safe location from which people may view and photograph the falls and to discourage people from standing along the edge of the road to prevent further erosion of the roadway.

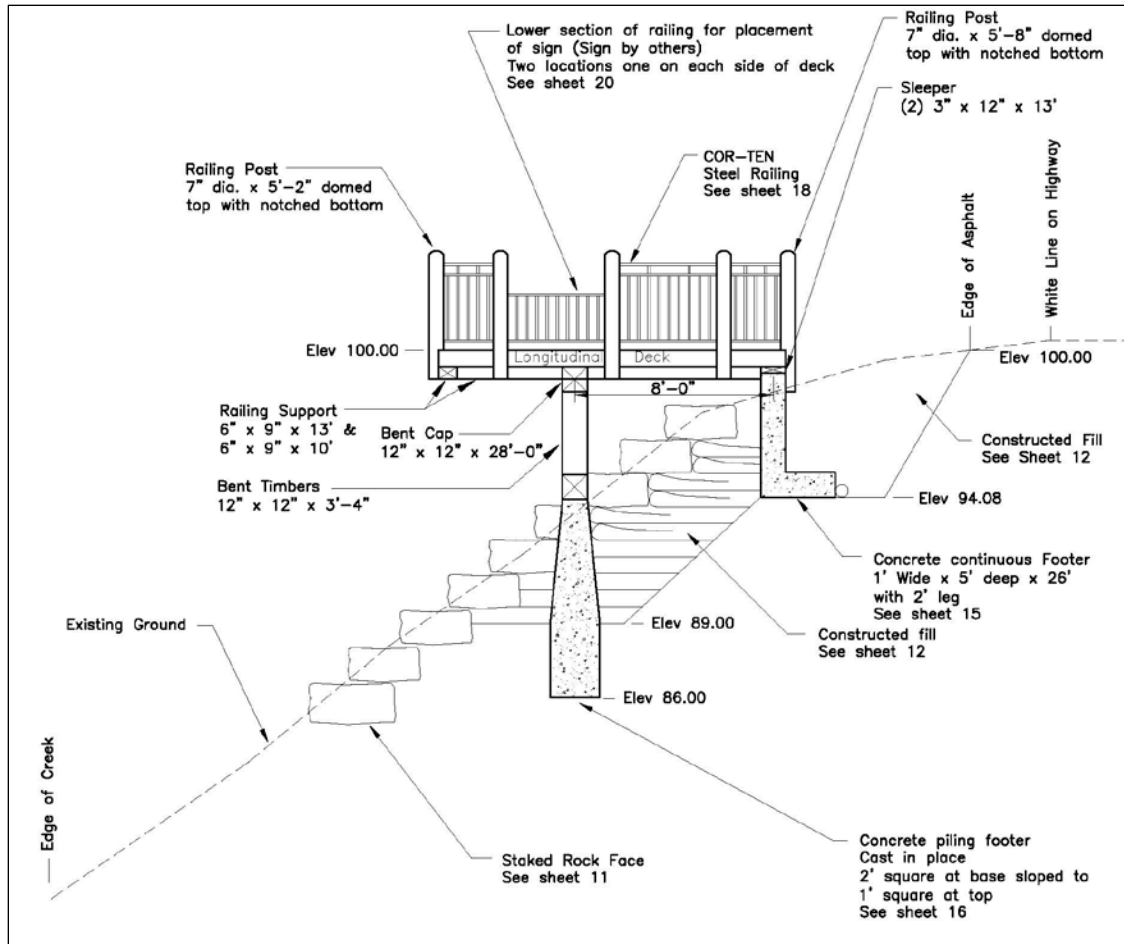


Figure 2. Modified Proposed Action: Bridal Veil Falls.

Proposed Actions at the Long Valley Picnic Ground Site

To enhance recreation opportunities, provide accessible recreation opportunities, and address resource issues associated with existing uses at the Long Valley Picnic Ground, the following activities would occur:

- reconstruct three existing picnic units to include timber-edged aggregate surface and accessible furnishings (picnic tables and grills)
- construct two new picnic units to include timber-edged aggregate surface and accessible furnishings
- construct timber-edged aggregate surface trails to connect picnic units to other features
- construct a 4' x 50' timber boardwalk to provide access to Spearfish Creek
- construct one timber fishing platform
- install rock steps at shoreline of creek
- place large rocks along creek shoreline to protect fishing platforms and boardwalk while preventing erosion

- install at least one sign that interprets the intrinsic values for which the Byway was designated
- place aggregate on the existing road
- construct a parking lot

The LVPG is approximately 2 acres in size. Existing facilities along with the social trails and erosion along the stream bank amount to a developed or disturbed area approximately 0.22 acres in size. With the construction of additional facilities identified under this alternative, the total amount of developed land would be approximately 0.3 acres.

These actions would enhance recreation opportunities by improve existing infrastructure at the site that is in need of repair and providing additional recreational features at the site. They would also bring site facilities in compliance with the Architectural Barriers Act Accessibility Standards. Finally, these actions would facilitate fishing access while minimizing erosion along the shoreline and erosion that has been caused by the creation of social trails at the picnic area.

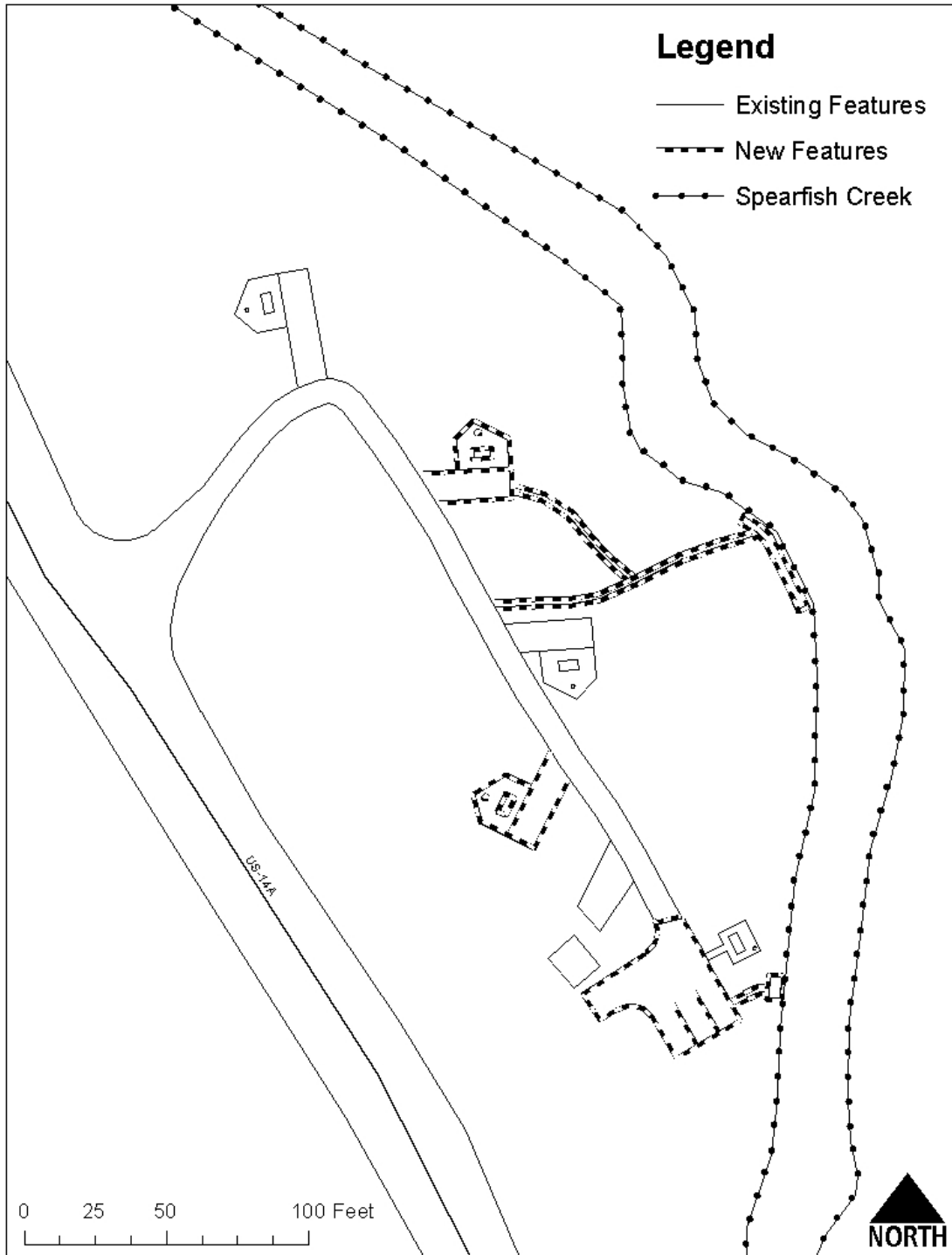


Figure 3. Modified Proposed Action: Long Valley Picnic Ground

Proposed Site-Specific Amendments to the Forest Plan

To implement the safety measures and recreation site improvements for the Bridal Veil Falls and Long Valley Picnic Ground sites, two non-significant, site-specific, project-level amendments to the Forest Plan are proposed. They are described below.

Amendment A

Forest Plan Standard 3103 is intended to protect habitat for known colonies of snails designated as Region 2 Sensitive Species or Species of Local Concern. Spearfish Canyon provides the majority of the habitat for the Cooper's Mountain Snail, a Region 2 Sensitive Species, on the Black Hills National Forest.

Snail habitat is located at both the Bridal Veil Falls and Long Valley Picnic Ground sites. Proposed activities within these areas (e.g., removal of vegetation and heavy equipment use to accomplish proposed work) would alter snail habitat and be inconsistent with Forest Plan Standard 3103.

Amendment B

Forest Plan Standard 1301 allows only actions that maintain or improve long-term stream health and riparian ecosystem condition to occur in the water influence zone next to perennial and intermittent streams, lakes, and wetlands. The proposed actions at LVPG would require the removal of some riparian vegetation within the water influence zone to accommodate the additional recreation facilities in this developed recreation site. The affected footprint of riparian vegetation alteration is expected to be small; however, the action is not consistent with Forest Plan Standard 1301.

Mitigation

In response to public comments on the proposal and review of the project impacts by Forest Service resource specialists, mitigation measures were developed to address some of the potential impacts that could result from implementation of the Modified Proposed Action. This section describes those mitigation measures applicable to the Modified Proposed Action.

Botanical Resources

The following measures have been identified to minimize impacts to potential habitat for and potential occurrences of Region 2 Sensitive Plant Species, Black Hills National Forest Species of Local Concern, and other plant species of conservation value in the state of South Dakota.

- To minimize and/or prevent the spread of noxious weeds and exotic plant populations, treat existing weeds on-site prior to construction. If feasible, ensure construction equipment is cleaned prior to construction to prevent the introduction of weeds into the project areas. Following construction activities, seed any disturbed areas where bare soils are present with a Forest Service approved weed-free seed mixture. Conduct noxious weed/exotic plant monitoring annually until disturbed areas are re-vegetated and treat weeds accordingly.

- To limit the erosion and sedimentation that could result from construction activities, implement all applicable Region 2 Watershed Conservation Practices.
- To limit potential impacts to known occurrences of *Equisetum sylvaticum* (woodland horsetail) and *Juncus articulatus* (jointleaf rush) at the BVF site, Forest Service botany specialists will flag occurrences prior to construction activities so that they may be avoided.

Cultural Resources

No cultural resource sites (i.e., historic properties or traditional cultural properties) are known to occur in the area of potential effect for the BVF or LVPG project sites. The following measure, however, has been identified to minimize impacts to historic properties or traditional properties and to comply with 36 CFR §800.13 in the event that a previously unknown site is uncovered during project implementation.

- If new cultural resources are discovered during project implementation, project activities will cease, and a Forest Service archaeologist will be contacted to determine ways to minimize or mitigate adverse effects to the site. The Forest Service will notify the South Dakota State Historic Preservation Officer and tribal groups that have requested to be on the forest's mailing list within 48 hours of any such discovery.

Fish and Wildlife Resources

- No specific mitigation measures were identified to specifically secure protection of fish and wildlife resources. Mitigation identified under "Hydrology Resources" will help ensure appropriate management of habitat for both aquatic and riparian species.

Hydrology Resources

- Activities should not take place in the stream, nor should sedimentation occur in the creek as a result of construction and maintenance activities during the dates of October 15th to April 1st to protect fish spawning.
- Prevent water contamination from accidental spills of fuels, lubricants, and other harmful materials by servicing or fueling vehicles and equipment at least 150 feet from wetlands and stream channels.
- Construct berms around any service areas to contain spills.
- Minimize reduction of vegetation adjacent to roadways and the parking area at the LVPG to help ensure diffuse dispersion of storm water runoff from these features. Where needed, establish vegetated areas adjacent to these features to minimize runoff.
- For the BVF and LVPG sites, ensure attainment of appropriate permits from the South Dakota Department of Natural Resources regarding storm water discharge prior to construction, and comply with the terms of the permit.
- For the LVPG site, ensure attainment of the Army Corps of Engineers 404 permit regarding stream flow alteration prior to any construction work below the high water line, and comply with the terms of the permit.
- For the LVPG site, coordinate with Lawrence County to ensure compliance with county ordinance for construction within the floodplain.

- Implementation of applicable Region 2 Watershed Conservation Practices (WCP) will ensure compliance with the Clean Water Act. These measures will help prevent the introduction of sediment into Spearfish Creek. Appendix A includes a list of applicable WCPs.

Public Safety

To ensure public safety during construction activities at the BVF site, the following measures will be taken:

- Close the overlook area to public use.
- Post appropriate signs and use barricades to inform/exclude the public from the overlook area.
- Use appropriate detours and temporary traffic control to ensure motor vehicle safe motor vehicle travel near the site.

To ensure public safety during construction activities at the BVF site, the following measures will be taken:

- Close the picnic area to public use.
- Post appropriate signs and use barricades to inform/exclude the public from the picnic area.

Recreation Facilities and Use

- To prevent damage to the existing toilet facility at LVPG, show the facility as a protected feature on contract maps that will be used during the construction phase of the project.
- Monitor the BVF and LVPG sites regularly during the peak visitation season for assess visitor compliance.

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. The first table below describes how the two alternatives considered in this document address the issues raised during the scoping period. The second table describes how the alternatives address (or do not address) the purpose of and need for action identified for this project. The tables summarize key information included in the analysis of effects to a variety of resources included in this Environmental Assessment.

Table 1. Comparison of Alternatives by Issue.

Issue	Alternative 1 (No Action)	Alternative 2 (Modified Proposed Action)
Water Quality	<p>Minor sedimentation will continue to be introduced into Spearfish Creek as a result of continued use of social trails at both the BVF and LVPG sites. The level of sedimentation could increase over time if additional social trails become established. However, the level of sedimentation from existing conditions and the potential increase is minimal and would not affect water quality in a measurable way.</p>	<p>Water quality would be maintained in the short-term and enhanced in the long-term.</p> <p>There is potential for the introduction of sediment into Spearfish Creek during construction activities; however, that potential is minimized through facility design, the application of Watershed Conservation Practices, and compliance with the various local, state, and federal permits required for this project.</p> <p>Over the long-term, reduction in the introduction of sediment to the stream resulting from existing use of social trails and unmanaged fishing access along Spearfish Creek within the confines of the LVPG will likely be attained by providing developed and managed recreation facilities.</p>
Flooding	<p>There would be no change in the likelihood of flooding as a result of taking no action at this time. The floodplain would be unaffected under this alternative.</p>	<p>There is no expected change in the likelihood of flooding as a result of implementing this alternative. The BVF site is outside of the mapped floodplain.</p> <p>The LVPG site is located within the mapped floodplain; however, the proposed improvements are not expected to affect the floodplain.</p> <p>Prior to construction activities at the LVPG site, coordination with Lawrence County would occur to ensure that construction of the proposed facilities adhere to the county's ordinance regarding construction in floodplains.</p>
Fish Habitat	<p>Minor sedimentation will continue to be introduced into Spearfish Creek as a result of continued use of social trails at both the BVF and LVPG sites. The level of sedimentation could increase over time if additional social trails become established. However, the level of sedimentation from existing conditions and the potential increase is minimal and would not affect fish habitat in a measurable way.</p>	<p>Fish habitat would be maintained in the short-term and enhanced in the long-term.</p> <p>There is potential for the introduction of sediment into Spearfish Creek during construction activities; however, that potential is minimized through facility design, the application of Watershed Conservation Practices, and compliance with the various local, state, and federal permits required for this project. Fish habitat is expected to be maintained in the short-term.</p> <p>Over the long-term, reduction in the introduction of sediment to the stream resulting from existing use of social trails and unmanaged fishing access along Spearfish Creek within the confines of the LVPG will likely be attained by providing developed and managed recreation facilities. This is expected to enhance fish habitat.</p>

Issue	Alternative 1 (No Action)	Alternative 2 (Modified Proposed Action)
Scenery	There would be no change in scenic integrity as a result of taking no action at this time.	<p>The proposed facilities will affect approximately 0.15 acres of National Forest System land.</p> <p>The new facilities at LVPG would be constructed in an already developed recreation site and will be constructed of materials that are intended to blend in with the scenery. They should not substantially affect scenery as viewed from the Byway.</p> <p>The observation deck at BVF would slightly alter existing scenery at this site; however, the deck would be visually subordinate to the larger landscape and would not substantially affect scenic integrity within Spearfish Canyon.</p>
Snails and Snail Habitat	<p>There would be no direct affect to snail habitat resulting from taking no action.</p> <p>There is potential for minor indirect impacts to snails and snail habitat if recreationists create additional social trails at the LVPG site.</p>	Up to 0.15 acres of known snail habitat and area that could potentially serve as snail habitat could be affected under this alternative. Individual snails may be directly impacted by construction activities and loss of habitat, but population viability would not be affected.
Public Safety	Concerns about public safety would remain unresolved. People wishing to view Bridal Veil Falls would continue to stand in or alongside US Highway 14A, putting themselves at risk of collision with motor vehicles using the highway.	Concerns about public safety at the BVF site would be partially addressed by installing an observation deck from which people may safely view the falls. While some concerns may persist because pedestrians will still need to cross the road to access the observation deck, this alternative will alleviate at least some of the existing safety concerns.

Table 2. Comparison of Alternatives by Purpose and Need Component.

Purpose & Need Component	Alternative 1 (No Action)	Alternative 2 (Modified Proposed Action)
Increase Pedestrian Safety at BVF	<p>This alternative would not increase pedestrian safety at BVF.</p> <p>Pedestrians wishing to view or photograph the falls would continue standing in or along the edge of the road, putting them in close proximity to motor vehicle traffic.</p>	<p>This alternative would increase public safety at BVF.</p> <p>The observation deck would provide a safe location from which people could view or photograph the falls.</p>
Prevent Further Erosion at BVF	<p>This alternative would not prevent further erosion at BVF.</p> <p>People would continue to stand along the edge of the road to view the falls, and the road's shoulder would continue to erode as a result.</p>	<p>This alternative would respond to the need to prevent further erosion at BVF by providing people with a safe location from which to view and photograph the falls.</p> <p>If an observation deck is constructed, people would be less inclined to stand along the edge of the road. As a result, less erosion of the road's shoulder is anticipated.</p>

Purpose & Need Component	Alternative 1 (No Action)	Alternative 2 (Modified Proposed Action)
Enhance Recreation Opportunities at LVPG	<p>This alternative would not enhance recreation opportunities at LVPG because no improvements or new developments would occur.</p> <p>The site would continue to accommodate 15 people at one time.</p>	<p>This alternative would enhance recreation opportunities by improving existing infrastructure at the site that is in need of repair and by providing additional infrastructure.</p> <p>The site would accommodate 25 people at one time.</p>
Provide Accessible Recreation Opportunities at LVPG	<p>This alternative would not alter existing accessible recreation opportunities at LVPG.</p> <p>The only accessible feature currently at the site is a toilet facility.</p>	<p>This alternative would increase accessible recreation opportunities at LVPG.</p> <p>Existing sites would be repaired and brought into compliance with Architectural Barriers Act Accessibility (ABBA) Standards.</p> <p>New features, including the additional picnic sites, trails, and fishing platform, would be constructed to comply with ABBA Standards.</p>
Address Resource Issues Associated with Existing Uses at LVPG	<p>This alternative would not respond to resource degradation resulting from existing uses at LVPG.</p> <p>The stream bank would continue to erode as fishers fish from the creek.</p> <p>The social trails would continue to erode as people continue to use them. Additional social trails may be created, leading to further potential for erosion.</p>	<p>This alternative would respond to resource degradation resulting from existing uses at LVPG.</p> <p>The fishing platform would draw fishers off the stream bank and onto the platform. As a result, erosion of the streambank would be reduced or eliminated.</p> <p>The proposed aggregate trails would provide recreationists with a clearly defined pathway from sites to the stream and other features at LVPG. These trails should deter recreationists from creating new foot trails. Erosion associated with the social trails should be reduced or eliminated.</p>

ENVIRONMENTAL CONSEQUENCES

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives presented in the chart above.

Botanical Resources

This section describes the botanical resources present at the Bridal Veil Falls and Long Valley Picnic Ground sites and the anticipated impacts of the alternatives on these resources. The information presented here summarizes the Botany Biological Evaluation (USDA FS, 2012d) and the Botany Specialist Report (USDA FS, 2012e) prepared for the Spearfish Canyon Recreation Site Improvements project. These documents are included in the project record and are available upon request.

The focus of this analysis is impacts to occurrences of or habitat for Region 2 Sensitive

Species (SS) and Black Hills National Forest Species of Local Concern (SOLC). SS are those species identified by the Regional Forester for which population viability is a concern, as evidenced by significant current or predicted downward trends in habitat capability. SOLC are species identified by the Black Hills National Forest as either having a declining local population or as being important to the diversity in a local area. The US Fish and Wildlife Service identifies federally threatened, endangered, and proposed species. Management of such species would be subject to the terms of the Endangered Species Act. However, no federally listed or proposed plant species occur in any South Dakota county in the Black Hills National Forest (USDI FWS, 2012).

Affected Environment

The uniquely diverse botanical resources of Spearfish Canyon, including rare and sensitive plant populations and unique plant assemblages, distinguish it from other areas in the Black Hills region. Generally, within Spearfish Canyon some plant communities evidence degradation marked by noxious weed infestation, significant cover of exotic plant species, or conversion of native plant communities (e.g., paved or graveled areas, lawns, trails, etc.). Some of these plant communities may no longer have the capacity to support sensitive plants due to habitat degradation. Other plant communities have retained their integrity over time and may be resilient to the change brought by development if not directly destroyed. These communities are marked by a significant cover of native plant species, and often by rare plants or plants strongly associated with the habitats created by the canyon's substrate, topography, available moisture, and biota. These areas are important as sensitive plant habitat. There is likely a spectrum of habitat quality within Spearfish Canyon.

The two small areas associated with the Spearfish Canyon Recreation Site Improvements Project are not considered high quality sensitive plant habitat. However, due to their location within natural vegetation and the importance of the Spearfish Canyon area in general to SS and SOLC, the project areas will be considered as potential habitat for several plant SS and SOLC for purposes of this analysis.

The list below identifies the SS plant species considered in this analysis. These are SS for which potential habitat exists in the project area. None of these species are known to occur in the project area. The Botany Biological Evaluation contains a complete listing of SS and their habitat requirements, including those for which no habitat exists in the project area.

- *Botrychium campestre* (prairie moonwort, Iowa moonwort)
- *Botrychium lineare* (narrowleaf grapefern, slender moonwort)
- *Carex alopecoidea* (foxtail sedge)
- *Cypripedium parviflorum* (yellow lady's slipper)
- *Lycopodium complanatum* (groundcedar, trailing clubmoss)
- *Platanthera orbiculata* (large round-leaf orchid)
- *Sanguinaria canadensis* (bloodroot)
- *Viburnum opulus* var. *americanum* (highbush cranberry)

The list below identifies the SOLC plant species considered in this analysis. These are SOLC for which potential habitat exists in the project area. None of these species are known to occur in the project area. The Botany Specialist Report contains a complete listing of SOLC and their habitat requirements, including those for which no habitat exists in the project area.

- *Botrychium multifidum* (leathery grapefern)
- *Lycopodium annotinum* (stiff clubmoss)
- *Mitella pentandra* (fivestamen miterwort)
- *Petasites frigidus* var. *sagittatus* (arrowleaf sweet coltsfoot)
- *Polystichum lonchitis* (northern hollyfern)
- *Salix lasiandra* var. *caudate* (greenleaf willow, tail-leaf willow)
- *Salix lucida* (shining willow)

Botanical Resources at Bridal Veil Falls

The Bridal Veil Falls project area consists of a small sloping area on the west side of Spearfish Creek (0.07 acres in size), situated between the creek and US Highway 14A. While the vicinity of the Bridal Veil Falls project area is dominated by paper birch, white spruce, and a diverse hardwood riparian woodland characteristic of the Spearfish Canyon ecosystem, vegetation within the project area itself has been severely degraded by the immediate presence of the highway and public access along the highway shoulder and steep slope above the creek. The degraded area where most project activities would take place consists of bare, exposed soil, large rocks and rip rap, social trails, exotic plant species, and riparian trees and shrubs such as paper birch and Bebb willow.

Botanical Resources at Long Valley Picnic Ground

Vegetation in the vicinity of the Long Valley Picnic Ground site is characterized by a diverse mix of hardwood and conifer trees, with an understory of shrubs and herbaceous plants. Dominant overstory species include paper birch, white spruce, and ponderosa pine. The shrub midstory consists of beaked hazelnut, ironwood, chokecherry, and hawthorn. The herb layer is a diverse mix of high-moisture native plants as well as many exotic plants and weeds. The matrix of vegetation is interspersed with developed picnic sites, vehicle access roads, social trails, and other features which are devoid of vegetation. A variety of exotic plant species and noxious weeds have been documented within and near the picnic ground.

Effects to Botanical Resources

Alternative 1 (No Action)

Under Alternative 1, no project activities would be implemented. Current uses of the BVF and LVPG sites would continue. These sites would face continued degradation of potential SS and SOLC plant habitat due to user created trails and erosion caused from these trails. Continued erosion could lead to increased sediment loads downstream from the BVF and LVPG sites. Individual SS or SOLC occurrences or habitat downstream of these sites could be negatively affected by increased sediment loads, although these effects would be restricted to immediate downstream locations due to the small size of the potential disturbances relative to Spearfish Creek and its flow regime.

The cumulative effects analysis considers the potential cumulative effects of past, present and future foreseeable actions on sensitive plant species and their habitat. The cumulative effects area for SS and SOLC analyzed in this section is potential plant habitat within and up to 0.5 mile downstream of the project area, defined as moist forested and riparian communities. The indirect and cumulative effects analysis for species persistence is bounded in time as the next 50 years, as described in the 2005 Phase II Final Environmental Impact Statement (FEIS) associated with the amendment to the Revised Forest Plan. This temporal scale is based on: a) the planning horizon (usually 50 years for a Forest Plan); b) the biology of the species (e.g., generation time, response time to changed conditions, re-colonization capability); and c) the time needed for the overall ecosystem to respond to proposed management (USDA FS, 2005).

Past, present and reasonably foreseeable activities within the Spearfish Canyon Recreation Site Improvements project areas include past and potential future wildfire; past livestock grazing; past, current, and future road maintenance; past, future, and current noxious weed control; past, future, and current wildlife habitat improvement projects; past mining, and past, future, and current developed and dispersed recreational use on both the public and private land in the area.

Soil disturbance, introduction and spread of invasive species, removal of natural disturbance cycles, private development, and changes in hydrologic regimes have negatively affected sensitive plant species and their habitats in Spearfish Canyon. Historical management in Spearfish Canyon has created changes in moist forested and riparian areas from livestock grazing, road building, fire suppression, recreation, mining activities, water diversion, and near-extirpation of beaver which have likely decreased suitability of many of these habitats for sensitive plant species.

Continued public use of the two project areas with the existing facilities would incrementally add to these effects by contributing to social trailing, small de-vegetated areas in the riparian plant community, exposed and eroding soil, and localized increases in sediment.

Alternative 2 (Modified Proposed Action)

Under Alternative 2, a relatively small area of potential habitat for SS and SOLC plants would be disturbed by the construction of new facilities. Construction equipment could compact soils, destroy existing plants, and expose bare soil which can lead to weed infestation. Recovery to a pre-disturbance plant community at the sites could take years, or in the face of other factors such as the expansion of exotic plant species and climate change, areas disturbed by construction may never return to the pre-disturbance state. The amount of area that could potentially be affected by construction is small relative to the Spearfish Canyon ecosystem. The total Bridal Veil Falls project area is 0.07 acres. While the LVPG project area is 1.93 acres in size, only a small area is expected to be impacted by construction. An area 0.22 acres in size is already disturbed or developed and an additional 0.08 acres would be developed as a result of this alternative.

The construction of new facilities would result in loss of potential habitat for SS and SOLC plants at BVF due to the installation of the viewing platform and at LVPG due to the addition of new picnic areas, trails, and the parking area. These permanently developed areas are estimated to be 0.07 acres at Bridal Veil Falls and 0.3 acres at LVPG.

Stream flows and sediment loads may be altered due to an increased sediment load into Spearfish Creek during construction and by the addition of fishing docks at LVPG. Hydrologic alteration resulting from either construction or the new facilities is expected to be minimal and localized. The effects are likely to be transient as the stream system adjusts to the small amount of development. However, any hydrologic alteration that affects riparian vegetation could have adverse effects on any SS or SOLC occurrences or habitat that might occur within the project areas or downstream from them.

Implementation of Alternative 2 could result in further degradation of habitat by invasion or spread of noxious weeds resulting from adjacent or direct disturbances. Several noxious weeds and exotic plant species have been documented in the vicinity of both project areas and have the potential to spread if prevention and control measures are not taken. The weed *Alliaria petiolata* (garlic mustard) has been found at LVPG and is of particular concern due to its potential to be highly invasive in sensitive plant habitat.

The preceding section (Alternative 1) describes the geographic and temporal bounding for assessing cumulative effects as well as the past, present, and foreseeable future actions to be considered. Removal of vegetation resulting from construction activities, and the permanently disturbed areas totaling 0.37 acres (including 0.22 acres of past disturbance and 0.15 acres of new disturbance) between the two project areas would add incrementally to potential SS and SOLC plant habitat loss in Spearfish Canyon. Other impacts, such as localized sediment input and alteration of stream flow patterns could negatively impact sensitive plants or their habitat within or downstream from the project areas. These effects are likely to be transient as the stream system adjusts to the small amount of development proposed in Alternative B.

Impacts to potential occurrences of and habitat for SS and SOLC resulting from construction activities would be minimized through implementation of the mitigation measures for botanical resources discussed in the “Mitigation” section above. Even without implementation of these measures, the project activities may adversely impact individual SS, but are neither likely to result in a loss of viability in the planning area nor cause a trend toward federal listing.

Cultural Resources

This section describes the cultural resources present at the Bridal Veil Falls and Long Valley Picnic Ground sites and the anticipated impacts of the alternatives on these resources. The information presented here summarizes the Heritage Resource Specialist Report (USDA FS, 2012b) prepared for the Spearfish Canyon Recreation Site Improvements project. This document is included in the project record. The focus of this analysis is impacts to significant cultural resources and any identified traditional cultural properties.

Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) is the foremost legislation that governs the treatment of cultural resources. Implementing regulations that clarify and expand upon the NHPA include 36 CFR §800 (Protection of Historic Properties) and 36 CFR §296 (Protection of Archeological Resources). All federal agencies must consider the potential for adverse effects of their actions on significant cultural resources for all undertakings. Significant cultural resources are archaeological

sites that are considered eligible for listing or are listed on the National Register of Historic Places (NRHP). Those sites are identified as “historic properties” (36 CFR §800). Native American tribes or other groups may identify with a place for its traditional significance. Those properties may be evaluated as traditional cultural properties and are also eligible for listing on the NRHP.

Affected Environment

Historic Properties

Surveys for cultural resources in the immediate vicinity of the BVF and LVPG sites were conducted in 2004 and 2005. Eighteen cultural resource inventories have been conducted within a one-mile radius of these two project area sites. These survey efforts have identified 26 historic or prehistoric sites within a one-mile radius of the BVF and LVPG project sites. Three of the 26 sites have been evaluated and are eligible for listing on the NHRP. Nineteen of the 26 sites have been evaluated and are not eligible for listing on the NHRP. Four of the 26 sites have not been evaluated and are considered potentially eligible for listing on the NHRP. While 26 sites have been identified within a one-mile radius of the BVF and LVPG project sites, none of the cultural resource sites occur within the areas of potential effect identified for the BVF and LVPG sites.

Traditional Cultural Properties

In March 2012, the Forest Service sent a letter regarding the Spearfish Canyon Recreation Site Improvements project to all tribal groups that have requested to be a consulting party for the Black Hills National Forest. The letter provided details about the proposed project and requested comments on the potential effects of the proposed activities on traditional cultural properties or other culturally sensitive areas within the project areas. No comments were received in response to this effort, and no traditional cultural properties are known to occur within or adjacent to the BVF or LVPG sites.

Effects to Heritage Resources

Alternative 1 (No Action)

Under Alternative 1, no project activities would be implemented. Current uses of the BVF and LVPG sites would continue. Previous survey efforts have indicated that there are no cultural resources within the areas of potential effect for the BVF and LVPG sites. Given the absence of known sites, the No Action Alternative would not have a direct, indirect, or cumulative effect on cultural resources.

It is possible that cultural resources may exist in the BVF and LVPG areas but have yet to be discovered. The No Action Alternative would have no direct impact to cultural resources because no activities associated with this project would be implemented. However, ongoing human use at these sites has and is likely to continue to lead to further erosion of the soils. Specific areas where continued erosion is likely include the shoulder of US Highway 14A and the associated hillside at the BVF site as well as along the social trails and shoreline of Spearfish Creek at the LVPG site. This erosion could lead to the inadvertent discovery of previously unknown cultural resources. Unearthed cultural resources could be vandalized or degraded by continued human use and erosion of the site. In such an instance, the integrity of the resource could be affected.

Alternative 2 (Modified Proposed Action)

Previous survey efforts have indicated that there are no cultural resources within the areas of potential effect for the BVF and LVPG sites. Given the absence of known sites, the modified proposed action would not have a direct, indirect, or cumulative effect on cultural resources.

It is possible that cultural resources may exist in the BVF and LVPG areas but have yet to be discovered. Ground disturbing activity associated with the proposed construction at these sites could unearth buried cultural resources. Previously unknown cultural resources could be directly affected by construction activities. However, the modified proposed action includes mitigation measures to limit the effects to cultural resources in the event that they are exposed during project implementation.

Installation of the improvements at the BVF and LVPG sites would likely diminish the potential for new sites to be uncovered by recreationists at these sites. These improvements would discourage development of new user-created trails and decrease the potential for associated erosion at both locations by directing foot traffic to specific developed locations.

Fisheries and Wildlife Resources

This section describes the fisheries and wildlife resources present at the Bridal Veil Falls and Long Valley Picnic Ground sites and the anticipated impacts of the alternatives on these resources. The information presented here summarizes the Biological Evaluation for Wildlife and Fisheries (USDA FS, 2012a) and the Wildlife and Fisheries Specialist Report (USDA FS, 2012g) prepared for the Spearfish Canyon Recreation Site Improvements project. These documents are included in the project record and are available upon request.

The focus of this analysis is impacts to occurrences of or habitat for Region 2 Sensitive Species (SS), Black Hills National Forest Species of Local Concern (SOLC), and Management Indicator Species (MIS). SS are those species identified by the Regional Forester for which population viability is a concern, as evidenced by significant current or predicted downward trends in habitat capability. SOLC are species identified by the Black Hills National Forest as either having a declining local population or as being important to the diversity in a local area. MIS are those species selected during the forest planning process (i.e., development of a Forest Plan) that are used to monitor the effects of planned management activities on populations of other species that have similar habitat requirements.

The US Fish and Wildlife Service identifies federally threatened, endangered, and proposed species. Management of such species would be subject to the terms of the Endangered Species Act. The only listed species that occur in Lawrence County, South Dakota are the whooping crane (*Grus americana*) (a listed endangered species) and Sprague's pipit (*Anthus spragueii*) (a candidate for listing). No known occurrences or suitable habitat for the whooping crane or Sprague's pipit occur within Spearfish Canyon or the Northern Hills Ranger District (USDI FWS, 2012). Since there is no potential to affect either of these species due to the lack of occurrences and habitat in the area, they are not further discussed in this document.

Affected Environment

This section identified the fish and wildlife SS, SOLC, and MIS that occur or have habitat within the project area. For the ease of the reader, a description of species habitat requirements is included in the “Effects to Fisheries and Wildlife Section” that follows.

The list below identifies the SS fish and wildlife species considered in this analysis. These are SS for which potential habitat exists in the project area. While habitat is known to occur in the project area for all of these species, the Cooper’s Rocky Mountain snail (*Orechelix strigosa cooperi*) is the only SS known to occur in the project area. The Biological Evaluation for Wildlife and Fisheries contains a complete listing of SS and their habitat requirements, including those for which no habitat exists in the project area.

- *Myotis thysanodes pahasapensis* (fringed myotis)
- *Plecotus townsendii* (Townsend’s big-eared bat)
- *Lasiurus cinereus* (hoary bat)
- *Storeria occipitomaculata pahasapae* (Black Hills redbelly snake)
- *Rana pipiens* (northern leopard frog)
- *Catostomus platyrhynchus* (mountain sucker)
- *Orechelix strigosa cooperi* (Cooper’s Rocky Mountain snail)

The list below identifies the SOLC fish and wildlife species considered in this analysis. These are SOLC for which potential habitat exists in the project area. Of these 14 species, two are known to occur in the project area: the American dipper and the tawny crescent butterfly. The Wildlife and Fisheries Specialist Report contains a complete listing of SOLC and their habitat requirements, including those for which no habitat exists in the project area.

- *Cinclus mexicanus* (American dipper)
- *Buteo platypterus* (broad-winged hawk)
- *Accipiter cooperii* (Cooper’s hawk)
- *Aegolius acadicus* (Northern saw-whet owl)
- *Myotis evotis* (long-eared myotis)
- *Myotis volans* (long-legged myotis)
- *Zapus hudsonius* (meadow jumping mouse)
- *Myotis septentrionalis* (Northern myotis)
- *Myotis ciliolabrum* (small-footed myotis)
- *Vertigo arthuri* (callused vertigo snail)
- *Catinella gelida* (frigid ambersnail)
- *Vertigo paradoxa* (mystery vertigo snail)
- *Discus shimckii* (striate disc snail)
- *Phycoides batessi* (tawny crescent butterfly)

The list below identifies the MIS fish and wildlife species considered in this analysis. These are MIS for which potential habitat exists in the project area. All of these species are known to occur in the project area. The mountain sucker is an MIS fish species. However, this species is also a Region 2 Sensitive Species. Impacts to mountain suckers

are discussed in the sections of this document concerning SS. The Wildlife and Fisheries Specialist Report contains a complete listing of MIS and their habitat requirements, including those for which no habitat exists in the project area.

- *Melospiza melodia* (song sparrow)
- *Castor Canadensis* (beaver)
- *Odocoileus virginianus* (white-tailed deer)

Effects to Fisheries and Wildlife Resources

The natural history information provided under the species headings below are summaries of data most relevant to Black Hills populations, habitats and activities. More thorough information is provided for these species in the Revised Forest Plan Biological Assessment/Biological Evaluation (BA/BE) (USDA FS 1996, Appendix H) and the Phase II Amendment BA/BE (USDAFS 2005, Appendix C).

This section describes the direct, indirect, and cumulative impacts to fish and wildlife species and their habitats. Cumulative effects are those that result from the incremental impact (direct and indirect effects) associated with the proposed activity when added to past, present and reasonably foreseeable actions. The area considered for cumulative effects is wildlife and fish habitat within Spearfish Canyon. The time period considered is a total of 20 years, from 10 years in the past to 10 years into the future.

Several projects having the capacity to affect fish or wildlife habitat recently occurred or are being planned in Spearfish Canyon. These are described below:

Two fuels reduction projects (Spearfish Canyon Fuels Reduction 1 and 2) were carried out in the early 2000s. These projects created fuel breaks at the mouth of Spearfish Canyon near the city of Spearfish and further up the canyon near Savoy. Fuel breaks were also created along boundaries with private property adjacent to Highway 14A between Savoy and Cheyenne Crossing. These fuel breaks were between 100 and 300 feet in width.

Analysis for the West Rim Forest Management project was completed in 2008. The West Rim project area included Spearfish Canyon, and the decision allowed for fuel reduction within 200 feet of private structures within the canyon. The project was analyzed under an EIS.

The Arnold Powerline project was completed in 2008 and involved the extension of a high voltage transmission line within the U.S. Highway 85 corridor in Spearfish Canyon. The extension was 4,750 feet in length, including 670 feet of underground line. All activities associated with the project occurred within the right-of-ways of existing roads.

The Roughlock Falls project was completed in 2009. Similar to the proposed viewing platform at Bridal Veil Falls, the Roughlock Falls project expanded the parking area and constructed permanent walkways and viewing structures at Roughlock Falls, which is located along Little Spearfish Creek, a tributary of Spearfish Creek. The total area disturbed during project implementation was approximately 0.3 acre.

In 2010, a potential landslide was mitigated near Yates Pond along Highway 14A in Spearfish Canyon. An area 200 feet by 200 feet in size directly above the highway was

stabilized and drainage structures were installed to reduce the potential for future landslides.

The Black Hills National Forest has developed a Draft Environmental Impact Statement for its Mountain Pine Beetle Response Project (MPBR) (USDA FS, 2012h). The goal of MPBR is to provide Forest-level authority to address the ongoing pine beetle infestation in a timely manner. The project includes options for removing beetle infested trees and commercial thinning harvests on up to 105,000 acres the forest. One alternative under consideration in this project includes Spearfish Canyon as a potential treatment area. The proposal includes the possibility of a non-significant Forest Plan amendment to allow timber harvest and associated road work to occur on up to 2/3 of the available habitat for Cooper's Rocky Mountain Snail, a Region 2 Sensitive Species.

The anticipated direct, indirect and cumulative effects for each individual SS, SOLC, and MIS considered in this analysis are discussed below.

Alternative 1—No Action

Under the no action alternative, none of the proposed project activities would occur. Conditions at both project locations would remain the same as the existing condition.

At Bridal Veil Falls, foot traffic would continue to occur along social paths near and across Spearfish Creek. No effort would be made to concentrate visitor use onto constructed facilities. As a result, vegetation near the road and creek would continue to be impacted by foot traffic and soil disturbance would continue to occur in an unpredictable fashion (i.e., wherever visitors choose to walk and create foot paths and stream crossings over time).

At Long Valley, the existing picnic area structures would remain and would likely see a similar level of use into the future. The proposed fishing pier, parking area and walkways would not be constructed. This would result in a continuance of foot traffic along social paths and within the creek.

In general, under the no action alternative, neither the short-term impacts nor the long-term benefits described under each species below would occur. The existing condition would persist into the foreseeable future. As a result, avian species would not likely be negatively impacted, but terrestrial and aquatic species could see a long-term negative impact when compared to the proposed action.

Because no new actions would take place under the no action alternative, cumulative effects with past, ongoing or future projects would not occur.

Alternative 2—Effects to Sensitive Species (SS)

Cooper's Rocky Mountain Snail (Oreohelix strigosa cooperi)

Affected Environment—Cooper's Rocky Mountain snail (*Oreohelix*) is associated with calcareous soils. Most locations are lowland wooded areas and talus slopes generally, but not always, north or east facing. Many colonies are developed in forests in the ponderosa pine community series. Most frequently, these are partially closed canopy forests with a common secondary deciduous tree component. The understory is frequently diverse. White spruce may be locally common at some sites. This species primarily feeds upon

partially decayed tree leaves and degraded herbaceous vegetation (Frest and Johannes 2002). Frest and Johannes also list threats to this species as road construction, grazing, logging, and major forest fires (2002). They state that *Oreohelix* will also avoid dry areas and open ground.

Frest and Johannes conducted limited surveys for *Oreohelix* on the Black Hills National Forest in 2002. This survey resulted in identification of small, discrete snail colonies. However, field reviews conducted for this project, as well as for past projects in or adjacent to Spearfish Canyon, reveal that the population of *Oreohelix* is much larger than indicated by Frest and Johannes. The discrete colonies they identified actually appear to be continuous *Oreohelix* populations that occur throughout lower elevations Spearfish Canyon and several of the adjoining drainages.

The project area includes suitable habitat and documented colonies of *Oreohelix*. Field investigations conducted for this project revealed dead *Oreohelix* shells and live snails at LVPG; only dead shells were documented at BVF. The BVF project area has been disturbed through foot traffic, roadside brushing, and vehicle traffic. While past snail use is evident, the site no longer provides valuable habitat for snails.

Direct and Indirect Effects— Mortality of individual *Oreohelix* would occur as a result of project implementation at both LVPG and BVF. These project areas combined total approximately 2 acres (1.93 acres at BVF and 0.07 acres at LVPG). Existing disturbed or developed areas within the project areas currently account for approximately 0.22 acres. Following project implementation, there would be approximately 0.37 acres of disturbed or developed area. This represents a net increase of 0.15 acres of disturbed or developed land. This figure also represents the amount of snail habitat that would be lost as a result of implementing the Modified Proposed Action.

Some potential exists for indirect effects to *Oreohelix* from chemicals used to treat the timber that would be used in construction of the boardwalks at Long Valley and the viewing platform at Bridal Veil Falls. Treated timber is used because of its increased longevity when exposed to weather conditions. Studies have shown that the chemicals used to treat the timber have some potential to leach into the surrounding soil, although the leaching is believed to be localized and occurs at the highest levels under “worst-case” scenarios (i.e., the study was conducted in a wetland in an area that received over 80 inches of rain annually) (Forest Products Laboratory 2000). A health evaluation by Leech (1999) found that “copper naphthenate is essentially insoluble in water and its leachability from wood is very low.” It is unknown if the leached chemicals would have any negative impacts on snails. The available research did not indicate an impact to invertebrate fauna in the study area, but the study did not include snails. The chemicals used to treat the wood that would be used for this project contains copper, which is present in household compounds meant to keep snails away from gardens. Potentially, the presence of copper could cause snails to avoid the treated timber altogether.

The development of the relatively small project sites would not have a serious, long-term impact on the overall population of *Oreohelix* in Spearfish Canyon, especially considering that some level of disturbance already exists at the project locations. In the long-term, development of these sites could have beneficial effects. Although 0.15 acres of habitat would be disturbed, the development of these recreation sites would also

concentrate use onto those developed acres, reducing the use of social paths and the general dispersed use that presently occurs. Doing so would reduce the impacts to snail habitat in the areas immediately adjacent to the project sites.

Cumulative Effects—Several past projects have affected *Oreohelix* in Spearfish Canyon. Construction of fuel breaks in Spearfish Canyon in the early 2000s likely disturbed *Oreohelix* habitat within the canyon and may have rendered the area affected unsuitable habitat for snails in the short-term due to litter removal and removal of canopy trees. The habitat, however, was not permanently disturbed (i.e., the canopy could re-grow and litter could re-accumulate over time).

The West Rim project allowed for fuel reduction within 200 feet of private structures within the canyon. As with the fuel breaks described above, any fuel reduction treatments conducted as part of West Rim could impact snail habitat by removing ground litter and reducing canopy closure. However, that project included design criteria to avoid all known locations of *Oreohelix* and to identify buffer areas around any newly discovered locations that are discovered during implementation. It was estimated that areas identified for fuel reduction under this project overlapped approximately 13 acres of occupied *Oreohelix* habitat and accounted for about 928 acres of treatment within Spearfish Canyon. The design criteria were a part of the project decision; therefore, existing and newly identified snail habitat under this project should remain unaffected.

The Arnold Transmission Line project disturbed approximately 2.8 acres of suitable snail habitat by installing aboveground and underground transmission lines, which required soil disturbance and brush clearing in snail habitat within the powerline corridor. The disturbance occurred within the right of way of U.S. Highway 85 and along an established unclassified road. Although snail habitat was negatively impacted, the area disturbed is a designated travel right of way as well as a powerline corridor that must be cleared of overstory vegetation levels to meet regulations.

The Roughlock Falls project disturbed approximately 0.3 acres of suitable *Oreohelix* habitat. Expansion of the parking area and foot paths resulted in mortality of individual *Oreohelix* and loss of a relatively small area of suitable habitat.

The Yates Landslide Repair project disturbed a small (approximately one acre) area of suitable *Oreohelix* habitat along Highway 14A in Spearfish Canyon. Heavy machinery was used to stabilize the hillside and install drainage structures to prevent future landslides. These activities resulted in mortality of individual *Oreohelix* and disturbance of a relatively small area of suitable habitat.

The MPBR EIS includes consideration of a Forest Plan amendment to allow commercial timber harvest and road work in snail habitat within Spearfish Canyon. If that activity is authorized, an estimated 2/3 of the available snail habitat within Spearfish Canyon could be affected. Nevertheless, information available in the Mountain Pine Beetle Response Project DEIS suggests that despite this level of activity that snail species are likely to continue to persist on the Forest. There is no indication at this time that this proposed Forest Plan amendment would be authorized. Further, even if authorized, there is no certainty that activities would necessarily occur in the snail habitat within Spearfish Canyon.

The past, present and reasonably foreseeable future actions, in conjunction with the proposed activities at Bridal Veil Falls and Long Valley, have had incremental impacts on *Oreohelix* habitat. These actions have led to direct mortality of individual snails and impacts to snail habitat, but have not and are not expected to result in a loss of viability for the species.

As discussed above, the proposed activities at Bridal Veil Falls and Long Valley would affect approximately 0.15 acres of suitable snail habitat. Cumulatively, the impacts of the past, present and foreseeable future projects are greater than when each is considered individually. However, given the abundance of suitable habitat and the widespread occurrences of *Oreohelix* in Spearfish Canyon, the impact to the entire population within the canyon is not expected to threaten viability of the species on the Forest.

The Phase II Amendment FEIS (USDA FS, 2005) determined that adequate habitat for maintaining a viable population of *Oreohelix* will exist if Forest Plan standards are followed, including Forest Plan standard 3103. This standard requires ground litter retention and avoidance of heavy equipment or other activities that may compact soils or alter vegetation composition and ground cover in areas where SS and SOLC snail colonies are known to exist. Implementation of this project is not consistent with this standard. Consequently, a project-level Forest Plan amendment is required to proceed with this project. However, the proposed recreation improvements on the relatively small areas of land (0.15 acres total) that are already in a partially disturbed state would not have a significant impact on the population of *Oreohelix* that exist in Spearfish Canyon. This project may adversely impact individuals but is not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing or a loss of species viability rangewide. The proposed recreation improvements would adversely impact individual *Oreohelix*, and a small area (0.15 acres) of suitable habitat would be permanently lost, much of which is already in a disturbed state.

Northern Leopard Frog (Rana pipiens)

Affected Environment—Northern leopard frogs are considered common in suitable habitat in the Black Hills and are found at all elevations. The northern leopard frog occurs in a wide variety of habitats including creeks, lakes, ephemeral wetlands, and ponds (Smith 2003). The project area includes suitable habitat, including upland habitat, for northern leopard frogs.

Direct and Indirect Effects—Development of the recreation facilities at both BVF and LVPG would impact northern leopard frogs with a permanent loss of approximately 0.15 acres of suitable upland habitat, much of which is already in a disturbed state due to existing facilities and recreational use. No impacts would occur to the stream. Streamside habitat would potentially be improved by moving recreational activities at both locations away from the existing social paths and on to the proposed developed facilities. The proposed work could result in mortality to individual northern leopard frogs during ground disturbance; however, adult frogs are highly mobile and would likely vacate the area as work begins. Direct and indirect effects could include mortality from equipment during construction as well as maintenance activities in the future or from vehicles using the designated parking areas and driveways. The amount of breeding habitat within the project area would not be impacted by the proposed activities.

Cumulative Effects—All projects conducted in Spearfish Canyon have the potential to result in direct mortality of individual leopard frogs. However, as discussed above, due to the mobility of the species direct mortality is not likely and would not have a significant impact on the population. None of the past or future projects proposed in Spearfish Canyon would negatively impact breeding habitat for the northern leopard frog as none of the projects take place in breeding habitat. All projects are located on terrestrial habitat, outside of the stream channel. All projects have adhered or will adhere to Forest Plan Standards 1113, 1201, 1301 and 3106b. Consequently, no incremental impacts to leopard frog breeding habitat would occur. Recreation improvement projects, such as past facility improvements at Roughlock Falls and the proposed activities at BVF and LVPG, could result in a cumulative benefit to northern leopard frogs by concentrating human use of these areas on the developed sites and reducing the amount of foot traffic on the adjacent undeveloped areas.

This project may adversely impact individuals but is not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing or a loss of species viability rangewide. The project may negatively impact individual northern leopard frogs and a relatively small area (0.15 acres) of suitable upland habitat would be permanently lost. The proposed activities may adversely impact individuals but is not likely to result in a loss of viability nor cause a trend toward federal listing or a loss of species viability rangewide.

Black Hills Redbelly Snake (Storeria occipitomaculata pahasapae)

Affected Environment—Black Hills redbelly snakes are associated with mesic sites with well developed ground litter such as wetlands, riparian areas, and wet meadows. The most serious risk to redbelly snake populations may be the loss of mesic habitats. Suitable environments for redbelly snakes are thought to be abundant and broadly distributed across the Black Hills (Smith and Stephens 2003). Individual snakes have been documented near Little Spearfish Creek but not in the main body of Spearfish Canyon. No hibernacula have been documented in Spearfish Canyon.

Direct and Indirect Effects—The project area includes suitable habitat for the Black Hills redbelly snake; however, no known hibernacula are located within the project area. Implementation of the proposed activities would impact the Black Hills redbelly snake with a permanent loss of approximately 0.015 acres of suitable habitat, some of which is already in a disturbed state from existing facilities and recreation use. The proposed work could result in mortality to individual redbelly snakes during ground disturbance. Individual mortality could also occur from from vehicle traffic during subsequent recreation use. Individual snakes could also be killed by recreationists mistaking them for a venomous species. Additionally, redbelly snakes often feed on the snails that are common in Spearfish Canyon. Impacts to snails would indirectly impact redbelly snakes. Refer to the analysis of Cooper's Rocky Mountain snail.

Cumulative Effects—All projects conducted in Spearfish Canyon have the potential to result in direct mortality of individual redbelly snakes. As discussed above, the potential for direct and indirect impacts exist, but only if redbelly snakes are actually located at the proposed project sites. Because no known hibernacula are located in the project area, the opportunity for incremental impacts to redbelly snakes is minimal. Likewise, the

incremental impacts to suitable snake habitat are small due to the relatively small area affected under each project that has occurred or will occur and the inclusion of design criteria to mitigate resource concerns.

This project may adversely impact individuals but is not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing or a loss of species viability rangewide. The proposed project may negatively impact individual Black Hills redbelly snakes and a small area (0.15 acres) of suitable habitat, some of which is already in a disturbed state, would be permanently lost. The proposed activities may adversely impact individuals, but are not likely to result in a loss of viability nor cause a trend toward federal listing or a loss of species viability rangewide.

Mountain Sucker (Catostomus platyrhynchus)

Affected Environment—The mountain sucker occurs most often in cool, clear mountain streams but has been observed elsewhere in large rivers, lakes and reservoirs (Isaak et al. 2003). Known occurrences of mountain sucker are located in Little Spearfish Creek, a tributary to Spearfish Creek. Mountain sucker have not been documented in Spearfish Creek, likely due to predation by introduced trout species.

Direct and Indirect Effects—The proposed project activities at BVF and LVPG would not directly affect mountain sucker because they are not known to occur in Spearfish Creek.

Construction of the fishing platform at LVPG would include some activity within the creek itself. Support beams for the platform would be placed in the creek bottom, which would cause a short-term increase in sedimentation. In addition, a small potential exists that chemicals used to treat the timber used in construction of the fishing platform could leach into the stream. As discussed previously in the Oreohelix analysis, the level of leaching would likely be relatively minor and any trace amounts of chemicals that were released into the creek would be quickly dissipated by the fast-flowing water. Any leaching that does occur is expected to have a negligible effect on the suitability of the creek as sucker habitat.

At LVPG, the project could have beneficial effects to Spearfish Creek in the long-term by concentrating use on to the established walkways and fishing docks rather than the existing condition (i.e., social paths along the streambank). Streamside and aquatic habitat would not be degraded and surface water runoff into the creek would be reduced.

This project is consistent with Forest Plan standards pertaining to mountain sucker and their habitat. Steps would be taken to keep runoff and sediment out of the stream (Standards 1113 and 3106b). The project would not alter stream patterns and geometry (Standard 1201). While a small area of riparian vegetation could be lost as a result of project implementation, the project is not expected to substantially alter water quality (see the Hydrology section for more information).

Cumulative Effects—None of the past or future actions within Spearfish Canyon have negatively impacted mountain sucker habitat in Spearfish Creek, nor are negative impacts expected under this project. Therefore, no accumulation of impacts would occur. The absence of mountain suckers in Spearfish Creek is attributed to the introduction and stocking of non-native trout rather than impacts from past forest management actions.

Past activities such as the Roughlock Falls project, which occurred along Little Spearfish Creek, have moved recreation activities away from mountain sucker habitat, which is a beneficial effect. The improvements at BVF and LVPG would have similar effects to suitable habitat downstream from Little Spearfish Creek.

This project may adversely impact individuals but is not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing or a loss of species viability rangewide. This project is not expected to negatively impact mountain sucker or its aquatic habitat. The proposed activities may have a beneficial impact by moving recreation activity away from the creek.

Fringed Myotis (Myotis thysanodes pahasapensis) and Townsend's Big-eared Bat (Plecotus townsendii)

Affected Environment—Both of these bat species can be found in a variety of habitats in the Black Hills including grasslands, forested areas, and wet areas. These species roost and hibernate in a variety of structures including caves, mines, tunnels, snags and buildings (Schmidt 2003a, 2003b). Foraging habitat for both bat species exists in the project area. Suitable hibernacula and roost sites in the form of mine shafts, rock fissures and caverns are plentiful in Spearfish Canyon, but no known hibernacula or roost sites are located near the proposed project locations.

Direct and Indirect Effects—Development of the recreation facilities at BVF and LVPG would not directly impact either of these bat species. Individual bats are not likely to be impacted because they are generally active at night and project activities would occur during the day. In addition, individual bats are highly mobile and would likely avoid any equipment working in the area.

Implementation of the project, particularly at LVPG, would include some removal of understory brush and small trees (i.e., less than nine inches diameter at breast height [DBH]). As much as possible, large (greater than nine inches DBH) overstory trees would be retained to maintain shade and aesthetics. Therefore, no significant loss of foraging habitat would occur. The creek would continue to be available as a drinking water source for bats during and after project activities. This project is consistent with Forest Plan standards 3102 and 3207 pertaining to sensitive bats and their habitat.

Cumulative Effects—Because this project would result in only minimal direct or indirect effects to these bat species, there would not be any significant accumulation of effects with past, present or reasonably foreseeable future actions.

This project may adversely impact individuals but is not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing or a loss of species viability rangewide. This project is not expected to negatively impact sensitive bats or their roosting or hibernacula habitat. Furthermore, project activities are not likely to disrupt bat behavior because bats are generally nocturnal.

Hoary Bat (Lasiurus cinereus)

Affected Environment—The hoary bat is a solitary species, roosting primarily among foliage in deciduous and coniferous trees, often along the edges of clearings. They have been observed in a number of forested cover types, including mixed conifer, lodgepole pine, ponderosa pine, pinyon-juniper, and riparian areas with cottonwood and willow.

Hoary bats forage on a wide variety of insects, especially moths (Shump and Shump 1982, Valdez and Cryan 2009). They are long-distance, seasonal migrants (Cryan 2003). The hoary bat is known to occur throughout the Black Hills region. Habitat in the form of mixed spruce-ponderosa pine forest and riparian areas exist in Spearfish Canyon, but the species has not been documented in the project area.

Direct and Indirect Effects—As with the fringed myotis and Townsend’s big-eared bat, no direct or indirect effects would occur to the hoary bat. The proposed project activities would not directly affect individual bats because of their mobility and the fact that bats are generally active during the night; project activities would occur during the day. Also, no indirect effects would occur because the project would not significantly impact foraging habitat and no large diameter trees (potential tree roosts) would be lost

Cumulative Effects—Because this project would not result in any direct or indirect effects to this bat species, no accumulation of effects would occur with past, present or reasonably foreseeable future actions.

This project may adversely impact individuals but is not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing or a loss of species viability rangewide.

Alternative 2—Effects to Species of Local Concern (SOLC)

American Dipper (Cinclus mexicanus)

Affected Environment—The dipper inhabits clear, fast-flowing streams. It feeds primarily on aquatic insects and insect larvae that it catches by diving underwater. Dippers nest within 25 feet of a stream (Anderson 2002) on rocky streamside ledges and cliffs, boulders, behind waterfalls, and under bridges. Spearfish Canyon represents one of the few areas of the Black Hills National Forest with an active dipper population. Multiple nests are located along Spearfish Creek and several of its tributaries. One nest is located adjacent to BVF; no known nests are located at LVPG, likely due to a lack of suitable structures overhanging the creek at that location.

Direct and Indirect Effects—The proposed activities would have little to no effect on dippers. Dippers nest directly above water, often on natural rock faces or under bridges. The nest at BVF is located immediately adjacent to the falls, on the east side of Spearfish Creek (i.e., across the creek from the proposed viewing platform). This nest would not be impacted during implementation activities. No nests are known to exist at LVPG.

Adult dippers forage in Spearfish Creek and are known to forage in the stretch of creek adjacent to both project locations. Activities at LVPG could temporarily disturb dipper foraging during installation of the fishing platform over the edge of the creek. However, dippers are generally tolerable of human activity; the presence of humans at either site, both during and after implementation of the proposed improvements, isn’t likely to permanently disturb foraging behavior.

The proposed improvements may reduce the number of recreationists who enter the creek itself by providing established facilities such as the viewing platform at BVF and the walkways and fishing docks at LVPG. The amount of human recreation that occurs in the creek, and potentially disturbs dipper foraging behavior, would likely be the same or lower post-implementation than it is currently.

Cumulative Effects—Effects to dippers from past projects have been minimal; none of the projects described above have had significant impacts to dipper nesting or foraging habitat as projects that occur in Spearfish Canyon have adhered to Forest Plan direction, Best Management Practices (BMP) and Watershed Conservation Practices (WCP) for maintaining or improving stream conditions and riparian habitat.

Given the lack of direct or indirect effects to dippers or their habitat from the proposed recreation improvements, there would not be any potential for accumulation of impacts with past, present or foreseeable future projects.

Broad-winged Hawk (Buteo platypterus) and Cooper's Hawk (Accipiter cooperii)

Affected Environment—Both of these hawks are known to utilize a mixture of pine and deciduous forest and often forage in riparian areas and forest openings. Specific surveys for these species have not been conducted in the project area, but suitable habitat exists in Spearfish Canyon. No known active or historical nest sites occur within ¼ mile of the project area.

Direct and Indirect Effects—The primary threat to hawks from forest management is the loss of nesting or foraging habitat due to timber management activities. The recreation improvement activities at BVF and LVPG would not have a significant impact on hawk habitat. Direct impacts to hawks are unlikely due to the species' mobility. Understory vegetation would be cleared at the project locations during implementation, but the largest overstory trees would be retained to provide shade. No known raptor nests exist at either location or within ¼ mile of the project area.

Cumulative Effects—Because there would not be any direct or indirect effects as a result of this project, there is no potential for accumulation of effects with past, present or reasonably foreseeable future actions.

Applicable Forest Plan standards and guidelines would be met during this project including Standard 3204. The adaptability of both of these species to forage in a variety of habitat types for a variety of prey species further insures its persistence. Assuming that structural stage objectives are met Forest-wide, and Forest Plan standards and guidelines are met at the project level, these two hawk species would continue to persist on the Forest.

Northern Saw-whet Owl (Aegolius acadicus)

Affected Environment—The northern saw-whet owl is a forest habitat generalist found at lower to middle elevations in forested habitat. The highest densities of this species are found in dense coniferous forests and riparian woodlands (Cannings 1993). Suitable habitat is located in Spearfish Canyon. Documented sightings of northern saw-whet owls are rare, possibly due to their nocturnal nature. Panjabi (2005) believes that the species is fairly common in suitable habitat in the Black Hills.

Direct and Indirect Effects—The biggest risk to northern saw-whet owls from forest management activities is the lost of nest trees during tree felling activities. Overstory trees that could potentially contain owl nests (i.e., mature trees greater than 9 inches dbh) would not be removed as part of the proposed activities at either BVF or LVPG. Only brush and, potentially, sapling pine and spruce trees would be removed. Snags are an

important for nesting habitat. No snags would be removed as a part of this project. Therefore, there would be no effects to northern saw-whet owl nesting habitat.

Direct effects to individual owls are extremely unlikely due to the owls' mobility. Any owls present in or near the project sites could be disturbed by the noise created during project implementation. This disturbance would be relatively short-term in nature. No known nesting sites are located at either project site.

Northern saw-whet owls prey primarily on mice and other small mammals. Project activities could potentially result in mortality of small mammals by machinery working in the area, but do to the mobility of these species, the overall impact would be relatively low. The prey base of northern saw-whet owls would not be significantly impacted by this project.

Cumulative Effects—Past projects in Spearfish Canyon have had similar impacts as those described above. Some overstory trees have been removed as part of past and ongoing projects, but no known northern saw-whet owl nests have been impacted. Each of the past, ongoing or foreseeable future projects have had relatively minor impacts on the species. Cumulatively, these minor impacts are of slightly higher magnitude, but abundant habitat for the species remains in the canyon and Black Hills as a whole.

Applicable Forest Plan standards and guidelines for retention of snags would be met since snags would not be removed during project implementation. Therefore, impacts to northern saw-whet owls, both as a result of this project and in accumulation with other projects, would be minimal. It is likely that this species would continue to persist in suitable habitat within Spearfish Canyon and the Black Hills.

Northern Myotis (Myotis septentrionalis), Small-footed Myotis (Myotis ciliolabrum), Long-eared Myotis (Myotis evotis), and Long-legged Myotis (Myotis volans)

Affected Environment—All four of these bat species utilize similar habitats. In the Black Hills, bats generally roost in caves or abandoned mines and forage for insects in nearby areas. Areas with open water, which tend to attract insects, provide good foraging habitat for bats. Spearfish Canyon contains both suitable roosting habitat and foraging habitat.

Direct and Indirect Effects—Development of the recreation facilities at BVF and LVPG would not directly impact any of these bat species. Individual bats are not likely to be impacted because they are generally active at night and project activities would occur during the day. In addition, individual bats are highly mobile and would likely avoid any equipment working in the area.

Implementation of the project, particularly at Long Valley, would include some removal of understory brush and small trees. As much as possible, large overstory trees would be retained to maintain shade and aesthetics. Therefore, no significant loss of foraging habitat would occur. The creek would continue to be available as a drinking water source for bats during and after project activities. This project is consistent with Forest Plan Standards 3102 and 3207 pertaining to bats and their habitat.

Cumulative Effects—Because this project would result in only minimal direct or indirect effects to these bat species, there would not be any significant accumulation of effects with past, present or reasonably foreseeable future actions.

This project would follow Forest Plan Standards including bat and snag Standards 2301, 3102, and 3207 and is consistent with the intent of Forest Plan Objective 221. All four species of bats are likely to persist on the Forest because caves and mines would be managed to avoid disturbance and riparian areas would be maintained.

Meadow Jumping Mouse (Zapus hudsonius campestris)

Affected Environment—The meadow jumping mouse is commonly found in riparian areas in the Black Hills. This species has not been documented in the project area, but suitable habitat exists in Spearfish Canyon.

Direct and Indirect Effects—Individual meadow jumping mice could be directly impacted during project activities by machinery used during implementation. However, the species is highly mobile and would likely vacate the area when activities are ongoing.

The proposed activities could affect meadow jumping mouse habitat by disrupting continuity of habitat along Spearfish Creek. The level of additional disturbance would be fairly minor, however, because both sites are already disturbed to some degree in that BVF experiences heavy foot traffic and an established picnic ground already exists at LVPG.

Cumulative Effects—Past activities such as the Spearfish Canyon Fuels Reduction, Yates Landslide Repair, Roughlock Falls and West Rim projects have disturbed potential meadow jumping mouse habitat within Spearfish Canyon. Future projects such as MPBR could lead to additional disturbance. However, all of these projects were designed to comply with Forest Plan Standards for protection of riparian habitat through the implementation of design criteria, BMPs and WCPs. Therefore, the overall impact of any single project is fairly small. Additively, the potential impact to habitat is increased, but the amount of habitat for the meadow jumping mouse that is permanently lost is still relatively small in relation to the total amount available in Spearfish Canyon.

Summary—All management activities within riparian areas are mitigated through a variety of Forest Plan Standards and Guidelines, as well as BMPs and watershed influence zone (WIZ) protection measures. Management activities would result in maintenance of riparian habitat within the project area consistent with Objective 221. Assuming that Forest Plan objectives are met at the Forest level, this species would continue to persist on the Forest.

Callused Vertigo (Vertigo arthuri), Frigid Ambersnail (Catinella gelida), Mystery Vertigo (Vertigo paradoxa), and Striate Disc Snail (Discus shemekii)

Affected Environment—These four snail species have similar habitat requirements and are analyzed together. All four species are found in litter on the forest floor, often on limestone based soils. None of the four species have been documented at the project locations, but suitable habitat is present in Spearfish Canyon.

Direct, Indirect, and Cumulative Effects—Because none of these species have been documented in Spearfish Canyon, it is unlikely that individual snails of these species

would be directly affected as a result of project activities. Suitable habitat for these species is present in Spearfish Canyon and is the same as the habitat required by Cooper's Rocky Mountain Snail. Please refer to the Cooper's Rocky Mountain Snail section above in this document for an assessment of anticipated impacts to suitable snail habitat.

The proposed recreation improvements on the relatively small areas of land (0.15 acres) that are already in a partially disturbed state would not have a significant impact on suitable snail habitat. The callused vertigo, frigid ambersnail, mystery vertigo and striate disc snail would continue to persist on the Forest.

Tawny Crescent Butterfly (Phycoides batessi)

Affected Environment—The tawny crescent is found in open meadows, stream bottoms, roads, trails, and riparian woodlands (Stefanich 2001). It is also found in mesic forest corridors across an ecotone between mixed-grass meadows or prairie grasslands to adjacent woodlands (Royer and Marrone 1992). Spearfish Canyon includes a relative abundance of stream bottom and riparian woodland habitat. These habitat types are more prevalent at LVPG than at BVF. Tawny crescent have been observed in Spearfish Canyon near LVPG.

Direct and Indirect Effects—The potential for direct effects to individuals from vehicles and machinery exists especially to butterfly eggs or when individuals are in the larval stage, which comprises most of the species' life cycle. Adult butterflies are highly mobile and the potential for direct effects would consequently be lower.

Indirect effects from disruption of riparian habitat could occur and are more likely at LVPG. However, much of the LVPG area is already in a developed state, so the increase in disturbed area would be relatively small. The tawny crescent is often associated with meadows near woodlands or riparian areas; meadows are not located near either of the project locations.

Cumulative Effects—Past projects conducted in Spearfish Canyon have had effects on tawny crescent similar to those described above. Some past activities that have created open, grassy areas, such as Spearfish Canyon Fuels Reduction and the fuels reduction treatments in West Rim, have potentially benefited tawny crescent by reducing timber cover and increasing grassland habitat, at least temporarily (i.e., until the open areas become repopulated with ponderosa pine or shrubs). The proposed recreation site improvements, along with similar activities at Roughlock Falls and the maintenance activities at Yates Pond and Arnold Powerline, have had minimal to no impact on tawny crescent. The cumulative impact of these activities would not significantly affect tawny crescent or its habitat.

Summary—Applicable Forest Plan Standards and Guidelines would be met during this project. Assuming that Forest-wide objectives are met, the tawny crescent would continue to persist on the Forest.

Alternative 2—Effects to Management Indicator Species (MIS)

Beaver (Castor canadensis)

Affected Environment—Beavers are semi-aquatic and widely distributed in large rivers and lakes with constant water levels, marshes, small lakes, and streams with weak flows adequate for damming. General habitat requirements of beavers include suitable riparian habitat dominated by stands of willow, aspen, or cottonwood (USDA FS, 2005).

Beaver habitat occurs upstream of the project locations, along Little Spearfish Creek, in the form of willows and other deciduous trees along the creek. No beavers are currently active in the immediate vicinity of BVF or LVPG, although evidence of beaver cutting has been documented at LVPG. Recreational use of these areas would likely prevent widespread future use by beavers, but beavers are known to move up and down Spearfish Creek.

Direct and Indirect Effects—Impacts on beaver habitat are expected to be minimal due to the small size of the project. The project would affect some beaver habitat by removing some woody vegetation during implementation of the proposed recreation improvements. There would also be some benefits to beaver habitat as the completed project would move human activity onto the constructed facilities and, therefore, streamside and aquatic habitat would not be degraded and surface water runoff into the creek would be reduced, which would benefit beaver habitat downstream. Since no beavers are located in the project area, no direct impacts are expected to beaver populations.

Cumulative Effects—Fuel treatments conducted in Spearfish Canyon may eventually help restore hardwoods in some areas, which would provide a beneficial impact to beaver habitat. Any fuel reduction treatments carried out under the West Rim project would have similar effects. Similar to the proposed recreation improvement activities at BVF and LVPG, the improvements at Roughlock Falls reduced impacts of recreation on beaver habitat by moving human use away from the creek.

Past, present and foreseeable future actions have all been developed to mitigate impacts on beaver habitat in the project area. While vegetation has been removed under past projects and could be removed in the future under the West Rim or MPBR projects, the vegetation removed is often pine or spruce, which often benefits other species such as aspen and would consequently benefit beaver habitat.

Because of the small size and scale of the proposed recreation improvement projects, it is expected that all populations of beaver would remain stable and would allow for attainment of Forest Plan Objective 238. The proposed project could enhance riparian habitat by moving recreation use away on to developed facilities and away from the stream bank itself. The proposed project is not likely to cause a significant decline in beaver habitat or have negative impacts on beaver populations.

White-tailed Deer (Odocoileus virginianus)

Affected Environment—White-tailed deer occupy a wide range of habitats including riparian habitats. Hardwood stands provide abundant forage combined with screening cover. Riparian areas provide high quality forage and water (USDA FS, 2005). Deer habitat occurs within the project area in the form of willows and other deciduous trees along the creek. The creek itself serves as a source of drinking water. White-tailed deer are common in the project area.

Direct and Indirect Effects—Impacts on deer habitat are expected to be minimal due to the small size of the project. The project would affect deer habitat by removing some woody vegetation to make room for the proposed facility improvements. Since deer can easily avoid the project area by using abundant habitat nearby, impacts on individual deer are expected to be minimal.

The proposed improvements could lead to higher recreational use of the facilities at BVF and LVPG. This could lead to more disruption of deer activity, although the Highway 14A corridor in Spearfish Canyon is already heavily used by recreationists and contains a high number of private land parcels with existing homes. Consequently, deer in the canyon are somewhat habituated to human activity.

Cumulative Effects—The fuel treatments completed in Spearfish Canyon may eventually help restore hardwoods in some areas, which would provide a beneficial impact to white-tailed deer habitat. Any fuel reduction treatments carried out under the West Rim project would have similar effects. These fuel reduction projects would occur outside the watershed influence zone (WIZ) and are not expected to impact riparian willows and other deciduous shrubs and trees along the creek. The Roughlock Falls project disturbed a small area of white-tailed deer habitat, but the area was already heavily used for recreation prior to improvements, so the habitat was likely transitional (i.e., deer moving through occasionally) prior to implementation of the project.

The overall cumulative impact to deer habitat is small. Past, present and reasonably foreseeable future projects have altered vegetation in a relatively small area of Spearfish Canyon, which contains an abundance of deer habitat. The proposed actions at BVF and LVPG would not contribute significantly to alteration of deer habitat in the Canyon.

Because of the small size and scale of this project and the lack of anticipated impacts to white-tailed deer, it is expected that populations of deer on the Forest would remain stable. The project is expected to allow for the attainment of Forest Plan Objective 238. The proposed project could enhance riparian habitat by concentrating recreation use on to the developed facilities and away from the adjacent streamside areas. The proposed project is not likely to cause a significant decline in deer habitat or have negative impacts on deer populations.

Song Sparrow (Melospiza melodia)

Song sparrows are found throughout much of the Black Hills, but they are more common in the northern part of the Forest. In the Black Hills, song sparrows are found in the highest density in riparian habitat (Panjabi 2001, 2003, 2004, 2005, Beason et al. 2006, Hutton et al. 2007, Giroir et al. 2007, White and Giroir 2009, White et al. 2010). Song sparrow habitat is prevalent in Spearfish Canyon and song sparrows are known to occur in the project area.

Direct and Indirect Effects—Direct impacts to songs sparrows are unlikely as the birds themselves are highly mobile and would likely avoid any dangers posed by machinery during project implementation.

The proposed recreation improvement activities at BVF and LVPG have the potential to indirectly impact song sparrows by disturbing nesting and foraging habitat. Vegetation would be disturbed to clear areas for construction of the viewing platform at BVF and the

new picnic sites, boardwalks and fishing docks at LVPG. The activities at BVF are scheduled to be completed in the late summer/early fall of 2012, which is after the song sparrow nesting season. Consequently, it is unlikely that an active song sparrow nest would be destroyed during implementation. It is currently unknown when the LVPG activities would be implemented. If implementation occurs in the spring or early summer, the potential for impacting song sparrow nesting would be higher. Overall, the amount of nesting/foraging habitat that could be disturbed under this project (0.15 acres) is extremely small in relation to the amount of habitat available in Spearfish Canyon and across the Black Hills.

Some beneficial effects could occur as a result of concentrating recreation use on the developed facilities. Doing so could decrease recreation use in the areas immediately adjacent to the established recreation sites, which would reduce impacts to song sparrow habitat.

Cumulative Effects—Past and ongoing projects such as the Spearfish Canyon Fuels Reduction project, Yates Landslide Repair, West Rim and Roughlock Falls have had a similar impact to song sparrow habitat as what is described under the direct and indirect effects above. Song sparrow nesting and foraging habitat has been disturbed in relatively small increments over the past several years and will experience more disturbances in the foreseeable future. However, these relatively small disturbances, even when considered cumulatively, do not have a significant impact upon song sparrows. The species, as well as its habitat, is abundant in Spearfish Canyon and across the northern Black Hills.

The amount and condition of riparian habitat is not expected to change significantly as a result of this project. Some song sparrow individuals may be disturbed, but populations are expected to remain stable in these riparian areas.

Hydrology Resources

This section describes the hydrological resources within the vicinity of the BVF and LVPG sites and includes a discussion of the anticipated impacts on these resources associated with the alternatives.

Affected Environment

Watersheds

The National Hydrology Dataset indicates that the BVF and LVPG sites are located within two watersheds. The BVF site is located in the Lower Spearfish Creek Watershed. This watershed is approximately 18,000 acres in size, and 97 percent of the land base that comprises the watershed is National Forest System land. The LVPG site is located in the Middle Spearfish Creek Watershed. This watershed is nearly 32,000 acres in size, and 72 percent of the land in the watershed is National Forest System land.

Watershed condition is “the state of physical and biological characteristics and processes within a watershed that affect the hydrologic and soil functions supporting aquatic ecosystems” (USDA FS, 2011, p. 2). Both of these watersheds are rated as Condition Class 2, which means that they exhibit “moderate geomorphic, hydrologic, and biotic integrity relative to their national potential condition” (USDA FS, 2011, p. 2). Such

watersheds are said to be functioning but at risk. The BVF and LVPG sites are not identified as part of any municipal watershed. Because they are absent within the project area, impacts to municipal watersheds are not further addressed in this report.

Water Quality

Both the BVF and LVPG sites are located along Spearfish Creek's perennial reach. The BVF site is located near the confluence of Rubicon Gulch and Spearfish Creek. This site is near a transition zone at which Spearfish Creek changes from a perennial to an intermittent stream. The South Dakota Department of Natural Resources has determined that beneficial uses of all streams within the state include irrigation, fish and wildlife propagation, recreation, and stock watering. Other beneficial uses of Spearfish Creek include serving as coldwater permanent fish life propagation waters and limited contact recreation waters (for both the Lower and Middle Spearfish Creek Watersheds) as well as providing domestic water supply, immersion recreation waters, and commerce and industry waters (for the Middle Spearfish Creek Watershed).

Water quality refers to the physical, chemical, and biological composition of a given stream and how these components affect beneficial uses. The existing water quality of the drainages within the project area is a result of the natural characteristics of the watersheds along with the variety of human activities that have occurred there. Water quality parameters that may be affected by forest management activities include sedimentation to stream channels and changes in water temperature. Changes in these parameters can adversely affect the support of beneficial uses if watershed conservation practices are not implemented.

The State of South Dakota Department of Natural Resources has assessed Spearfish Creek in the vicinity of both the BVF and LVPG sites and has determined that in both of these locations the stream is meeting the water quality standards required to provide for the stream's beneficial uses. (South Dakota Legislature, 2012).

Floodplains

Available data from the Federal Emergency Management Agency indicates that the BVF site is located just outside of the floodplain as delineated in its floodplain insurance rate maps. The LVPG site, however, is located within the mapped floodplain (FEMA, 2012).

Wetlands and Riparian Areas

The only identified wetland at the BVF and LVPG sites is Spearfish Creek. Both the BVF and LVPG sites also fall within the Water Influence Zone (WIZ). The WIZ is land next to streams or lakes where vegetation plays a major role in sustaining the long-term integrity of aquatic ecosystems. While the size of these riparian corridors varies, the WIZ is generally defined as the area that is 100 feet from a stream bank. At the BVF site, riparian vegetation is limited because riprap has been used in this area to stabilize US Highway 14A, and people have created social trails down the steep slope separating the road from the stream. In this location, riparian vegetation is restricted to a narrow band at the stream's edge. At LVPG, social trails to and along the stream bank have degraded and/or destroyed riparian vegetation. In addition, some of the existing picnic ground facilities are located within the riparian corridor.

Effects to Hydrology Resources

Alternative 1 (No Action)

This section describes the impacts of the No Action alternative on hydrology resources. Under this alternative, none of the proposed project activities would occur. Conditions and existing uses at both project locations would remain the same as the existing condition.

At the BVF site, foot traffic would continue to occur along social paths near and across Spearfish Creek. No effort would be made to concentrate visitor use onto constructed facilities. As a result, vegetation near the road and creek would continue to be impacted by foot traffic and soil disturbance and erosion would continue to occur in an unpredictable fashion (i.e., wherever visitors choose to walk and create foot paths and stream crossings over time). The potential for sediment to reach Spearfish Creek during storm events would persist. There would continue to be a slight increase in the introduction of sediment into the stream at this site during storm events that would dissipate after the storms and lead to downstream deposition of sediment.

At the LVPG site, the existing picnic area structures would remain and would likely see a similar level of use into the future. The proposed fishing pier, parking area and walkways would not be constructed. This would result in a continuance of foot traffic along social paths and within the creek. The potential for sediment to reach Spearfish Creek during high flow and storm events when water is on these foot paths would persist. There would continue to be a slight increase in the introduction of sediment into the stream at this site during high flow and storm events that would dissipate after the storms and lead to downstream deposition of sediment. The social trails at LVPG have affected riparian vegetation in some areas along Spearfish Creek. In some areas bare soils exist where once there had been vegetation to shade the stream.

Watersheds

The extent of these impacts associated with existing uses is minute in relation to the size of the watersheds in which the impacts occur. Thus, even if no action is taken, the impacts would not lead to a measurable change in watershed condition.

Water Quality

Because they have been and continue to be affected by human use, the BVF and LVPG sites would continue to introduce low levels of sedimentation to Spearfish Creek during high flow and storm events. The lack of streamside vegetation at the LVPG site where people access the stream would continue to result in slight increases in stream temperature at those sites and for a short section downstream.

The extent of these impacts associated with existing uses is minute in relation to the size of the stream reaches in which the impacts occur. Thus, even if no action is taken, the impacts would not lead to a measurable change in water quality. Spearfish Creek continue to provide the beneficial uses that have been assigned to it. Water quality is not expected to change in a measurable way as a result of taking no action.

Floodplains

Activities that result in increases in stream height relative to the stream bank have the capacity to alter floodplains. The BVF site is located outside of the mapped floodplain. Existing conditions and uses at this site do not affect the ability of the existing floodplain to function as such. The LVPG site is located within a mapped floodplain. The mere presence of this site within the floodplain along with the existing condition of and uses at the site do not affect the ability of the floodplain to function as such. The No Action alternative would not increase the height of Spearfish Creek relative to its stream bank; therefore, the No Action alternative would have no direct, indirect, or cumulative impact on the functioning of the floodplain that surrounds Spearfish Creek.

Wetlands and Riparian Areas

Under the No Action alternative, existing conditions and impacts resulting from recreation use at the BVF and LVPG sites described above would continue. These impacts include the use and potential creation of social trails, degradation or removal of vegetation along portions of the stream bank, and localized soil erosion.

The only identified wetland at the BVF and LVPG sites is Spearfish Creek. The No Action alternative is not expected to have any measurable direct, indirect, or cumulative effect on the wetland resource. The WIZ at both the BFR and LVPG sites has been and continues to be affected by human uses. At the BVF site, establishment and maintenance of the highway along with unregulated recreation use has resulted in a loss of riparian vegetation along the stream. Soils have been compacted in locations where people access the stream, preventing the establishment of vegetation. At the LVPG site, there have been minor losses in riparian vegetation resulting from the creation of social trails. These sites vary in the density of riparian vegetation, but in the most visible foot paths the stream bank is denuded of vegetation, with an absence of both shrubs and grasses.

There is potential for further reduction in riparian vegetation at both the BVF and LVPG site as people create new trails to access Spearfish Creek. The expected impact to the riparian areas at these sites resulting from this type of use would be proportional to the loss of riparian vegetation. While there is a possibility that continued uses could result in additional loss of riparian vegetation, the likelihood is small, and any additional loss is likely to be minimal.

Alternative 2 (Modified Proposed Action)

Implementing the proposed action would result in minor levels of disturbance at both the BVF and LVPG sites. Construction of the observation deck at BVF is expected to occur within a 0.07 acre area. Rehabilitation of the existing recreation facilities and construction of new picnic sites, the small parking area, aggregate trails, and the fishing platforms would affect an area about 0.3 acres in size. Project implementation activities would require use of vehicles and heavy equipment and would lead to the loss of a small amount of existing vegetation and soil disturbance within the areas affected. While it is possible that these activities could lead to erosion and sedimentation, measures would be taken to prevent that from happening, and any level of impact is expected to be negligible.

Once the Modified Proposed Action is implemented, recreation use is likely to be altered somewhat. Recreationists at these sites are likely to use the facilities provided to them

and may be less likely to create new social trails to access Spearfish Creek at either the BVF or LVPG sites. This change in use could prevent additional erosion and introduction of sediment into Spearfish Creek. It could also minimize future loss of additional riparian vegetation at both sites.

Watersheds

Neither the potential impacts associated with construction activities nor the potential benefits of focusing recreation use to established facilities described above are expected to have any measurable direct, indirect, or cumulative impact on the condition of the Lower or Middle Spearfish Creek Watersheds. They would continue to be rated as Class 2 watersheds.

Water Quality

Project activities that would have the capacity to affect water quality in Spearfish Creek include the design of facilities in the Water Influence Zone near Spearfish Creek and the use of mechanized equipment near the stream during construction activities.

Poorly designed facilities have the capacity to lead to erosion and sedimentation. Consideration of drainage features during facility design is key in preventing or minimizing the potential for erosion and sedimentation. The Forest Service has implemented Best Management Practices to design the facilities at the BVF and LVPG sites to minimize the possibility of erosion and potential introduction of sediment into Spearfish Creek. The Forest Service would be responsible for maintenance of these sites into the future and would take measures to ensure that the future potential for sedimentation resulting from run-off from the facilities is minimized.

Mechanized equipment will be used to install the observation deck at the BVF site and to improve existing facilities and install new facilities at the LVPG administrative site. Such construction work would result in soil disturbance in a small area (0.07 acres at the BVF site and less than 0.22 acres at the LVPG site). When soils are disturbed, there is increased potential to introduce sediment into nearby water bodies. Soil disturbance and the possibility of sedimentation would be minimized through implementation of Watershed Conservation Practices (WCPs) for all of the construction work at both of these sites. WCPs are measures taken to protect soil, aquatic, and riparian ecosystems and to maintain the physical and chemical integrity of water bodies and watersheds (USDA FS, 2006b). These measures are the primary means by which Forest Service activities are conducted in order to ensure compliance with Section 319 of the Clean Water Act regarding non-point source pollution. In addition, these measures also ensure the Black Hills National Forest's compliance with the State of South Dakota's Best Management Practices which are also intended to address non-point source pollution. The applicable WCPs for this project are specified in Appendix A of this EA. With the implementation of these WCPs, the introduction of sediment into Spearfish Creek as a result of construction activities is not expected to be measurable. In addition, prior to any construction work at the BVF and LVPG sites, contractors would be required to obtain and adhere to the terms of permits relating to storm water discharge from the State of South Dakota Department of Environment and Natural Resources.

One issue raised during the scoping period concerned the potential impacts to water quality resulting from the use of treated timber in facility construction at BVF and LVPG. Treated timber would be used because of its increased longevity when exposed to weather conditions. Studies have shown that the chemicals used to treat the timber have some potential to leach into the surrounding soil, although the leaching is believed to be localized and occurs at the highest levels under “worst-case” scenarios (i.e., the study was conducted in a wetland in an area that received over 80 inches of rain annually) (Forest Products Laboratory 2000). A health evaluation by Leech (1999) found that “copper naphthenate is essentially insoluble in water and its leachability from wood is very low.” The vegetative buffer that would surround many of the proposed facilities would likely diffuse any chemicals released from the timbers, preventing them from reaching the creek. Given the small scale of these facilities and the low likelihood of chemical leaching, the impact of the use of treated timber on the water quality of Spearfish Creek is not likely to be measurable.

Another issue relating to water quality that was raised during the scoping period concerned the potential impacts to water quality resulting from the development of a small, graveled parking area at the LVPG site. The parking area would be designed to ensure diffuse dispersion of rainwater. In addition, to mitigate concerns about runoff from the parking area and roadways within the picnic ground, vegetative buffers would be maintained adjacent to these structures where feasible to ensure adequate diffuse drainage. The proposed location of the parking area is located away from Spearfish Creek and is separated from the creek by ample vegetation. Thus, with design measures in place, the parking area is not expected to contribute additional sediment or chemicals to Spearfish Creek.

As described above, there is low potential for introducing additional sediment into Spearfish Creek. Any increase in sediment is expected to be minimal and short-term. Through implementing the project, there is opportunity to enhance water quality at these sites over the long-term. The observation deck at BVF would discourage pedestrian use of the steep embankment to access or view the falls. Over time, it is possible that vegetation can be reestablished where social trails currently exist. Existing and potential future erosion and sedimentation could be eliminated through project implementation. Likewise, at the LVPG site, providing adequate recreational facilities that include fishing access and transforming user created trails into managed paths would likely prevent further erosion and sedimentation at this site.

Given the low potential for minor, short-term negative impacts to water quality and the potential long-term benefits to water quality resulting from implementation of the Modified Proposed Action, water quality is expected to be maintained and enhanced over time. These impacts will not substantially affect the physical, chemical, or biological composition of Spearfish Creek and will not affect the stream’s ability to continue to provide the beneficial uses to which the stream has been assigned.

Floodplains

Installation of the viewing deck at BVF would disturb an area approximately 0.07 acres in size. The viewing deck, once installed, would occupy an area even smaller in size. Installation of the viewing deck would not affect the ability of the waters of Spearfish

Creek to move during bankfull flood flows. This viewing deck would be installed at the edge of the 100-year floodplain and would not affect flows from lower flood events (less than 100-year flood) and bankfull flow events.

LVPG is located within a mapped floodplain. Because of its location within the floodplain, the site would likely be inundated during a 100-year flood event. The design of the recreation facilities proposed at the LVPG site is expected to allow the facilities to withstand bankfull and lower flood events. The Modified Proposed Action would result in introduction of new materials (e.g., small rocks, picnic site facilities, wooden boards used to create fishing platforms) into the floodplain. While this site would likely be inundated during a 100-year flood event, it is unlikely that the loss of gravels or other materials on-site during such an event would affect the floodplain. The amount of materials from this site alone would not cause increases in stream height relative to the stream bank. A 100-year flood event in Spearfish Canyon would likely introduce a substantial amount of material into the creek that could increase the stream height relative to the stream bank. However, the incremental contribution of the materials from the LVPG site would likely comprise a fraction of a percent of the overall material introduced to the creek during such a catastrophic event.

Measures would be taken to ensure that the construction of new recreational facilities at this site would not directly or indirectly impact the floodplain. Prior to construction at the LVPG site, coordination with Lawrence County, South Dakota would be required to comply with ordinances regarding construction within a mapped floodplain. In addition, an Army Corps of Engineers 404 permit would need to be obtained prior to installation of the fishing platforms at the LVPG site. This Federal permit is intended to regulate stream flow alteration and is required to carry out any construction work that occurs below the high water line.

Wetlands and Riparian Areas

The only wetland resources in the project areas are the areas of riparian vegetation immediately adjacent to Spearfish Creek. Riparian vegetation at the BVF site has already been altered by establishment and maintenance of the highway as well as the creation of social trails by recreationists at the site. While there is a slight potential for additional loss of riparian vegetation at this site during construction activities, the area potentially affected is very small (0.07 acres). Construction activities would comply with agency Watershed Conservation Practices as well as the terms and conditions of the 404 Permit issued by the Army Corps of Engineers. Compliance with these measures would minimize the potential impact to the wetland area at the BVF site. This alternative also has the potential to improve the quality of the small wetland area along Spearfish Creek at the BVF site by discouraging the use of and establishment of new social trails at this site and by discouraging people from descending the steep embankment from the road to access the stream. Over the long term, it is possible that riparian vegetation could be reestablished where social trails currently exist. However, neither the potential impact to the wetland area resulting from project implementation nor the potential benefit is expected to be significant given the small because the area of existing degradation is also small.

At LVPG, there would likely be some short-term loss of vegetation in areas due to the use of heavy equipment during construction activities. Following construction, however, vegetation should be reestablished in non-developed areas of the site. This should improve wetland conditions adjacent to Spearfish Creek. Long-term impacts to the wetland would be limited to the areas where the two fishing access sites are proposed (less than 75 feet along the west bank of Spearfish Creek). While the proposed location of the boardwalk and fishing platform are currently devoid of vegetation, installation of these structures would result in a more permanent loss of vegetation at these sites. The extent of this impact is limited to the small area that is already devoid of vegetation.

Together, these actions could contribute minimally to cumulative impacts to wetlands that have occurred along Spearfish Creek over time from activities such as development of private lands along the creek and recreation use. Given the length of the stream and the overall quality of the condition of the wetlands that border it, the incremental impacts (both beneficial and adverse) would not be significant. No reasonably foreseeable future actions have been identified that would change this determination. Future development of lands not in Federal ownership would have the highest likelihood of affecting wetland quality in the future, but specific plans for development are not known at this time and cannot be well predicted or measured.

Forest Plan Standard 1301 allows only actions that maintain or improve long-term stream health and riparian ecosystem condition to occur in the WIZ next to perennial and intermittent streams, lakes, and wetlands. The proposed actions at LVPG would require the removal of a small amount of riparian vegetation within the WIZ to accommodate the additional recreation facilities in this developed recreation site. The affected footprint of riparian vegetation alteration is expected to be small; however, the action is not consistent with Forest Plan Standard 1301. For this reason, the Modified Proposed Action includes a proposal to amend the Forest Plan with a site-specific amendment to allow removal of a small amount of riparian vegetation at the LVPG site. The area affected is approximately 0.08 acres. The loss of this level of riparian vegetation at the LVPG site is not expected to substantially alter the quality of riparian habitat in the larger riparian ecosystem that surrounds Spearfish Creek.

Recreation Uses and Scenery

This section describes recreational uses of and facilities present at the Bridal Veil Falls and Long Valley Picnic Ground sites as well as discussion of the anticipated impacts associated with the alternatives. It also describes factors associated with scenery management in the project area and discusses anticipated impacts to scenery resources.

Affected Environment

The outstanding scenery of the Black Hills is a major attraction for visitors. The Black Hills National Forest recognizes the importance of maintaining scenic quality, especially within landscapes seen from road corridors and developed recreation sites. A primary recreational use of the Forest is driving for pleasure. One of the more important areas of the Forest for driving for pleasure and viewing scenery is the Spearfish Canyon Scenic

Byway. The geology of the canyon, Spearfish Creek, and diverse vegetation all contribute to the unique and spectacular scenery of the Byway (USDA FS, 2006a).

The Byway is the fourth most popular destination in the Black Hills. Visitation to the Byway is heavy and fluctuates depending on time of year. The peak season of visitation is between July and September. Visitation peaks during August when the Sturgis motorcycle rally occurs. The rally draws nearly half a million visitors to the Black Hills area each year. The Byway is a popular route for motorcyclists. During the rally, several thousand riders could be present at any given time. Visitation peaks again in September as visitors come out to see the fall colors. Department of Transportation estimates indicate that general use of the Byway during the summer months is as high as 3,500 vehicles per day. During the rally, there could be as many as 25,000 vehicles driving the Byway each day.

BVF and LVPG are both located within the Spearfish Canyon along the Byway. For both of these sites, and for the Spearfish Canyon Management Area, in general, the Recreation Opportunity Spectrum (ROS) is “Roaded Natural.” This is defined as an area:

...characterized by predominantly natural appearing environments with moderate evidence of the sights and sounds of people. Such evidence usually harmonizes with the natural environment. Interaction between users may be moderate to high, with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Conventional motorized use is allowed and incorporated into construction standards and design of facilities. (USDA FS, 2006a, p. Glossary-54)

Bridal Veil Falls

Currently, aside from the presence of a parking area along the Byway, there are no recreational facilities at the BVF site. Despite the lack of facilities, many Byway visitors stop at this site to view the falls. As described elsewhere in this document, this project was initiated, in part, to address safety and resource issues associated with use of the BVF site. To get a good look at or picture of the falls, pedestrians must either stand in the road or on the narrow, deteriorating shoulder of the road. This is a safety hazard to both motorists and pedestrians. Motorists approaching the falls from the north are able to see the parking area and any pedestrians as they approach. However, motorists approaching the falls from the south come upon the primary pedestrian crossing and viewing area as they round a curve, leaving them less time to assess the presence of pedestrians standing in or alongside the road. People have scaled the hillside in an effort to make their way to the creek below or to access the falls. This has eroded the shoulder of the road and the hillside. While signs have been installed to discourage climbing in the area of the falls, some amount of such use still occurs.

The Bridal Veil Falls project area where the viewing deck is proposed is located in an area designated as having a moderate Scenic Integrity Objective (SIO). Scenic integrity describes the state of naturalness or the level of disturbance created by human activities or alteration. For landscapes managed to achieve a moderate SIO, the valued landscape character is one that may appear “slightly altered.” Within such landscapes, noticeable deviations are to remain visually subordinate to the landscape character being viewed. (USDA FS, 2006a, p. Glossary-61)

Long Valley Picnic Ground

The LVPG facility was built and previously operated by Homestake Mining Company. The Forest Service obtained this facility as a result of a land exchange with the company in 1992. The current infrastructure at LVPG includes three basic picnic units (table, native soil surface, and grills), limited parking at each unit, social trails to Spearfish Creek, and a fully accessible precast concrete toilet (installed in 2009). The toilet is the only feature at this site that currently complies with the Architectural Barriers Act Accessibility Standards (ABBAS). All other features are in need of repair or improvement. Capacity at the site, based on existing facilities, is approximately 15 people at one time. User-created (or “social”) trails leading from the picnic sites to the creek, as well as recreational fishing along the creek bank, have resulted in erosion and sedimentation to the creek.

People visiting the site do so to picnic, fish, stretch their legs, and look around. Area residents have indicated that some visitors do not comply with the intended uses of the picnic area and often leave trash strewn about. In 2012, the Northern Hills Ranger District established a contract with Northern Hills Training Center to pick up garbage at LVPG. The Northern Hills Ranger District also provides additional garbage pick-up during peak visitation associated with the Sturgis motorcycle rally.

The northern portion of the LVPG site is located in an area designated as having a high SIO, while the southern portion of the area is designated as having a moderate SIO. The discussion of the affected environment for the BVF site above defines SIO and describes the moderate SIO. For landscapes managed to achieve a high SIO, the valued landscape character is one in which “human activities are not visually evident and activities generally repeat attributes of form, line, color, and texture found in the existing landscape character” (USDA FS, 2006a, p. Glossary-61).

Effects to Recreation Uses and Scenery

Alternative 1 (No Action)

Under Alternative 1, no project activities would be implemented. Current uses of the BVF and LVPG sites would continue. The existing facilities at LVPG would continue to degrade over time through human use and as a result of weathering. The recreation experience available at LVPG would likely decline over time as a result of deteriorating facilities. LVPG would continue to accommodate 15 persons at one time.

Public safety concerns at the BVF site would remain unabated. Visitors would continue to stand in the road and alongside it to view and photograph the falls, putting themselves in harm’s way. Some visitors would remain inclined to scale down the steep slope from the road to access Spearfish Creek and the falls.

Both sites would remain consistent with the Roded Natural ROS designation. Scenic integrity would not be altered at either BVF or LVPG.

Alternative 2 (Modified Proposed Action)

Recreation Uses and Quality and Availability of Experience

Implementation of Alternative 2 would not likely change the type of recreation use available at BVF or LVPG. Primary recreation activities at BVF would continue to be

viewing and photographing the falls. Primary recreation activities at LVPG would continue to be picnicking, sightseeing, and fishing.

While the recreation uses at these sites is not likely to change, the quality and quantity of recreation opportunity would be altered. Installation of the observation deck at BVF would provide visitors with a safe place from which to view and photograph the falls. The observation deck would be accessible so that someone in a wheelchair could use it. This feature would enhance the existing recreational opportunity by allowing visitors to focus attention on the scenery rather than being concerned about their safety due to their proximity to motor vehicle traffic. In addition, the interpretive signs that would be installed at the site would further enhance the recreation experience by providing visitors with valuable historic and resource related information about Spearfish Canyon.

At LVPG, the proposed improvements to existing features and additional features would likely enhance the quality of the available recreation experience. Facilities would be reconstructed and brought into compliance with accessibility standards. This would allow people who use wheelchairs to be able to easily access the picnic sites and the creek. The development of a parking area would ensure that enough parking is available to accommodate use at the site. Finally, installation of an interpretive sign would enhance the recreation experience by providing visitors with information about the intrinsic values for which the Byway was designated. With the addition of two picnic sites, LVPG would be able to accommodate 25 persons at one time, a net increase of 10 persons at one time.

Recreation Opportunity Spectrum

The proposed facility construction and improvements at the BVF and LVPG sites would not be incompatible with the Roded Natural ROS designation associated with the Spearfish Canyon Management Area. The Roded Natural ROS designation allows for resource modification and utilization. Such activities may be evident but should attempt to harmonize with the natural environment. The BVF site is predominantly natural appearing. Though the BVF site is along a road where there is a parking area and signs, the vista from the roadside is natural appearing. Because the observation deck associated with the Modified Proposed Action has been designed to blend in with the surroundings, a predominantly natural appearance should remain at the site (see the Figure below for an example of the type of construction materials that would be used). Finally, the Roded Natural ROS designation is characterized by moderate to high interaction between users. Depending on the time of year one visits the falls, the level of interaction with others can range from low to high. This would not change as a result of installation of the observation deck.



Figure 3. Example of Type of Construction Materials Proposed for Use

The activities proposed at LVPG would also be consistent with the Roded Natural ROS designation. Improvements at the site would generally be low to the ground (e.g., the height of a picnic table) and limited to the existing footprint of this developed recreation site. Given the vegetation that would remain at the site, new and improved facilities would not be highly evident from the Byway. There would be a minor increase in capacity at this site, but actual use is not expected to increase substantially, and the ROS designation assumes that interaction between users may be moderate to high.

Scenic Integrity Objectives

The Bridal Veil Falls project area where the viewing deck is proposed is located in an area designated as having a moderate Scenic Integrity Objective (SIO). In such areas landscapes may appear slightly altered, but noticeable deviations are to remain visually subordinate to the landscape character being viewed. Construction of the observation deck may be considered a slight alteration of the landscape. However, the deck itself would remain visually subordinate to the canyon landscape, which includes Bridal Veil Falls. The focal points of the scenery in this location are the creek, the falls, and the rocky canyon walls. The attention of visitors would continue to be drawn to these features rather than to the observation deck. The deck would provide a safe site from which these features may be viewed.

The SIO designations that overlap the Long Valley Picnic Ground developed recreation site are “high” in the northern half and “moderate” in the southern half. In areas designated as having a high SIO, the valued landscape character is one in which human activities are not visually evident and activities generally repeat attributes of form, line, color, and texture found in the existing landscape character. As stated in the above in the “Recreation Opportunity Spectrum” section, improvements at the site would generally be low to the ground (e.g., the height of a picnic table) and limited to the existing footprint of this developed recreation site. Given the vegetation that would remain at the site, new and improved facilities would not be highly evident from the Byway. All new facilities would take place in an already developed area and would not substantially alter the existing scenery. Furthermore, the magnitude of any change in scenery would be minimal. The LVPG is approximately 2 acres in size. Existing facilities along with the social trails and erosion along the stream bank amount to an area approximately 0.22 acres in size. With the construction of additional facilities identified under this alternative, the total amount of developed land would be approximately 0.3 acres (less than one-tenth of an acre affected).

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REFERENCES

- Anderson, T. 2002. Conservation Assessment for the American Dipper in the Black Hills National Forest, South Dakota and Wyoming. US Department of Agriculture-Forest Service, Rocky Mountain Region, Black Hills National Forest. Custer, South Dakota.
- Beason, J.K., Hutton, A. Panjabi, R. Sparks, and D. Hanni. 2006. Monitoring the Birds of the Black Hills: 2005 Field Season Report. Tech. Rep. M-MBBH05-01. Rocky Mountain Bird Observatory, Brighton, Colorado.
- Cannings, R.J. 1993. Northern Saw-whet Owl (*Aegolius acadicus*). In: The Birds of North America, No. 42. A. Poole and F. Gill, eds. The Birds of North America, Inc., Philadelphia.
- Cryan, P. M. 2003. Seasonal Distribution of Migratory Tree Bats (*Lasiurus and Lasionycteris*) in North America. *Journal of Mammalogy* 84:579-593.
- Federal Emergency Management Agency. 2012. Floodplain Insurance Rate Maps. Available on-line at: <https://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1&userType=G>. From the on-line FEMA Map Service Center.
- Forest Products Laboratory. 2000. Res. Pap. FPL-RP-582: Environmental Impact of Preservative Treated Wood in a Wetland Boardwalk. US Department of Agriculture-Forest Service, Forest Products Laboratory. Madison, Wisconsin.
- Frest, T.J. and E.J. Johannes. 2002. Land Snail Survey of the Black Hills National Forest, South Dakota and Wyoming, Summary Report, 1991-2001. Prepared for US Department of Agriculture-Forest Service, Black Hills National Forest.
- Giroir, G., C. White, R. Sparks. 2007. Monitoring the Birds of the Black Hills: 2007 Field Season Report. Tech. Rep. M-MBBH07-01. Rocky Mountain Bird Observatory, Brighton, Colorado.
- Hutton, K., J. Beason, G. Giroir, R. Sparks, and D. Hanni. 2007. Monitoring the Birds of the Black Hills: 2006 Field Season Report. Tech. Rep. M-MBBH06-01. Rocky Mountain Bird Observatory, Brighton, Colorado.
- Isaak, D. J., W. A. Hubert, and C. R. Berry, Jr. 2003. Conservation Assessment for Lake Chub, Mountain Sucker, and Finescale Dace in the Black Hills National Forest, South Dakota and Wyoming. US Department of Agriculture-Forest Service, Black Hills National Forest. Custer, South Dakota.

- Leech, T.J. 1999. Environmental and Health Risk Evaluation of Copper Naphthanate and Copper Naphthenate Treated Wood. E. Roberts Alley & Associates, Inc. Memphis, Tennessee.
- Panjabi, A. 2001. Monitoring the Birds of the Black Hills: Year 1, Final Report. Report submitted to the Black Hills National Forest. Rocky Mountain Bird Observatory. Brighton, Colorado.
- Panjabi, A. 2003. Monitoring the Birds of the Black Hills: Year 2, Final Report. Report submitted to the Black Hills National Forest. Rocky Mountain Bird Observatory. Brighton, Colorado.
- Panjabi, A. 2004. Monitoring the Birds of the Black Hills: Year 3, Final Report. Report submitted to the Black Hills National Forest. Rocky Mountain Bird Observatory. Brighton, Colorado.
- Panjabi, A. 2005. Monitoring the Birds of the Black Hills: Year 4. Annual Report submitted to the Black Hills National Forest. Rocky Mountain Bird Observatory, Brighton, Colorado.
- Royer, R.A. and G.M. Marrone 1992. Conservation Status of the Tawny Crescent (*Phyciodes batesii*) in North and South Dakota. Report to the USDI-Fish and Wildlife Service. Denver, Colorado.
- Schmidt, C.A. 2003a. Conservation Assessment for the Fringed Myotis Bat in the Black Hills National Forest, South Dakota and Wyoming. US Department of Agriculture-Forest Service, Rocky Mountain Region, Black Hills National Forest. Custer, South Dakota.
- Schmidt, C.A. 2003b. Conservation Assessment for the Townsend's Big-eared Bat in the Black Hills National Forest, South Dakota and Wyoming. US Department of Agriculture-Forest Service, Rocky Mountain Region, Black Hills National Forest. Custer, South Dakota.
- Shump Jr., K. A. and A. U. Shump. 1982. *Lasiurus cinereus*. *Mammalian Species* 185:1-5.
- Smith, B.E. 2003. A Conservation Assessment of the Northern Leopard Frog (*Rana pipiens*) in the Black Hills of South Dakota and Wyoming. US Department of Agriculture-Forest Service, Rocky Mountain Region, Black Hills National Forest. Custer, South Dakota.
- Smith B.E. and N.T. Stephens. 2003, Conservation Assessment for the Redbelly Snake in the Black Hills National Forest South Dakota and Wyoming. US Department of Agriculture-Forest Service, Rocky Mountain Region, Black Hills National Forest. Custer, South Dakota.

- South Dakota Legislature. 2012. Administrative Rules: Chapter 74:51:03: Uses Assigned to Streams. Available on-line at: <http://legis.state.sd.us/rules/DisplayRule.aspx?Rule=74:51:03> from the State of South Dakota.
- Stefanich, M.R. 2001. Conservation Assessment for the Tawny Crescent in the Black Hills National Forest of South Dakota and Wyoming. USDA-Forest Service, Rocky Mountain Region, Custer, South Dakota.
- USDA FS. 1996. Final Environmental Impact Statement for the Revised Land and Resource Management Plan for the Black Hills National Forest. US Department of Agriculture-Forest Service, Black Hills National Forest. Custer, South Dakota. December, 1996.
- USDA FS. 1999. Spearfish Canyon Corridor Management Plan. US Department of Agriculture-Forest Service, Black Hills National Forest, Spearfish/Nemo Ranger District. Spearfish, South Dakota. August, 1999.
- USDA FS. 2002. Spearfish Canyon Landscape Assessment. US Department of Agriculture-Forest Service, Black Hills National Forest, Northern Hills Ranger District. Spearfish, South Dakota. September, 2002.
- USDA FS. 2005. Final Environmental Impact Statement for the Phase II Amendment to the 1997 Revised Land and Resource Management Plan for the Black Hills National Forest. US Department of Agriculture-Forest Service, Black Hills National Forest. Custer, South Dakota. October, 2005.
- USDA FS. 2006a. 1997 Revised Land and Resource Management Plan for the Black Hills National Forest, As Amended by the Phase II Amendment. US Department of Agriculture-Forest Service, Black Hills National Forest. Custer, South Dakota. March, 2006.
- USDA FS. 2006b. Forest Service Handbook, Rocky Mountain Region (Region 2), Watershed Conservation Practices Handbook. US Department of Agriculture-Forest Service, Regional Office, Region 2. Denver, Colorado. May, 2006.
- USDA FS. 2011. Watershed Condition Classification Technical Guide. US Department of Agriculture-Forest Service, Black Hills National Forest. Custer, South Dakota. March, 2006.
- USDA FS. 2012a. Biological Evaluation for Wildlife and Fisheries for the Spearfish Canyon Recreation Site Improvements Project. US Department of Agriculture-Forest Service, Washington Office. Washington, D.C. July, 2012.

- USDA FS. 2012b. Heritage Resource Specialist Report for the Spearfish Canyon Recreation Site Improvements Project. US Department of Agriculture-Forest Service, Black Hills National Forest, Northern Hills Ranger District. Spearfish, South Dakota. May, 2012.
- USDA FS. 2012c. Spearfish Canyon Recreation Site Improvement EA: Final Lands & Minerals Resource Report. US Department of Agriculture-Forest Service, Black Hills National Forest, Northern Hills Ranger District. Spearfish, South Dakota. May, 2012.
- USDA FS. 2012d. Spearfish Canyon Recreation Site Improvements Project: Botany Biological Evaluation. US Department of Agriculture-Forest Service, Black Hills National Forest, Northern Hills Ranger District. Spearfish, South Dakota. May, 2012.
- USDA FS. 2012e. Spearfish Canyon Recreation Site Improvements Project: Botany Specialist Report. US Department of Agriculture-Forest Service, Black Hills National Forest, Northern Hills Ranger District. Spearfish, South Dakota. May, 2012.
- USDA FS. 2012f. Spearfish Canyon Recreation Site Improvements Project: Hydrology Report. US Department of Agriculture-Forest Service, Black Hills National Forest, Northern Hills Ranger District. Spearfish, South Dakota. May, 2012.
- USDA FS. 2012g. Wildlife and Fisheries Report for the Spearfish Canyon Recreation Site Improvements Project. US Department of Agriculture-Forest Service, Black Hills National Forest, Northern Hills Ranger District. Spearfish, South Dakota. May, 2012.
- USDA FS. 2012h. Mountain Pine Beetle Response Project Draft Environmental Impact Statement. US Department of Agriculture-Forest Service, Black Hills National Forest. Custer, South Dakota. May, 2012.
- USDI FWS. 2012. South Dakota Listed Species by County List. US Department of Interior-Fish and Wildlife Service, South Dakota Ecological Services Field Office. Pierre, South Dakota. April 2012.
- Valdez, E. W. and P. M. Cryan. 2009. Food Habits of the Hoary Bat (*Lasiurus cinereus*) During Spring Migration Through New Mexico. *Southwestern Naturalist* 54:195-200.
- White, C. and G. Giroir. 2009. Monitoring the Birds of the Black Hills, 2008 Field Season Report. Tech. Rep. M-MBBH-USFS08, SDDGF08. Rocky Mountain Bird Observatory, Brighton, Colorado.

White, C. M., J. A. Blakesley, D. C. Pavlacky, Jr., and D. J. Hanni. 2010. Monitoring the Birds of Black Hills National Forest: 2009 Field Season Report. Tech. Rep. SC-RMRUSFS09-01. Rocky Mountain Bird Observatory, Brighton, Colorado.

APPENDIX A: APPLICABLE WATERSHED CONSERVATION PRACTICES

Management Measure 1

- A. In each watershed containing a third-order and larger stream, limited connected disturbed areas so the total stream network is not expanded by more than 10%. Progress toward zero connected disturbed areas as much as practicable. Where it is impossible or impracticable to disconnect a particular connected disturbed area, minimize the areal extent of the individual connected disturbed area as much as practicable. In watersheds that contain stream reaches in diminished stream health class, allow only those actions that will maintain or reduce watershed-scale Connected Disturbed Area.

Management Measure 2

- A. Maintain organic ground cover of each activity area so that pedestals, rills, and surface runoff from the activity area are not increased. The amount of organic ground cover needed will vary by different ecological types and should be commensurate with the potential of the site.

Management Measure 3

- A. Allow no action that will cause long-term change to a lower stream health class in any stream reach. In degraded systems, progress toward robust stream health within the next plan period.
- B. Allow no action that will cause long-term change away from desired condition in any riparian or wetland vegetation community. Consider management of stream temperature and large woody debris recruitment when determining desired vegetation community. In degraded systems, progress toward desired condition within next plan period.
- C. Keep heavy equipment out of streams, swales, and lakes except to cross at designated points, build crossings, and do restoration work, or if protected by at least one foot of packed snow or two inches of frozen soil. Keep heavy equipment out of streams during fish spawning, incubation, and emergence periods.
- E. Locate new concentrated-use sites outside the WIZ if practicable and outside of riparian areas and wetlands. Armor or reclaim existing sites in the WIZ to prevent detrimental soil and bank erosion.
- L. Adjust management in riparian areas and wetlands to improve detrimental soil compaction whenever it occurs.
- M. Do not excavate earth material from, or store excavated material in any stream, swale, lake, wetland, or WIZ.
- N. Emphasize natural stabilization processes consistent with the stream type and capability when restoring damaged stream banks. Use native vegetation for stream bank stabilization whenever practicable.

Management Measure 5

- A. Add or remove rocks, wood, or other material in stream or lakes only if such action maintains or improves soil and lake health. Leave rocks and portions of

wood that are embedded in beds to banks to prevent channel scour and maintain natural habitat complexity.

Management Measure 6

- A. Keep roads and trails out of wetlands unless there is no other practicable alternative. If roads or trails must enter wetlands, use bridges or raised prisms with diffuse drainage to sustain flow patterns. Set crossing bottoms at natural levels of channel beds and wet meadow surfaces. Avoid actions that may dewater or reduce water budgets in wetlands.
- B. Avoid long-term reduction in organic ground cover and organic soil layers in any wetland.

Management Measure 9

- B. Avoid soil-disturbing actions during periods of heavy rain or wet soils. Apply travel restrictions to protect soil and water.
- C. Install cross drains to disperse runoff into filter strips and minimize connected disturbed areas. Make cuts, fills, and road surfaces strongly resistant to erosion between each stream crossing and at least the nearest cross drain. Revegetate using certified local native plants as practicable; avoid persistent or invasive exotic plants.
- E. Retain stabilizing vegetation on unstable soils. Avoid new roads and heavy equipment use on unstable or highly erodible soils.

Management Measure 10

- B. Use filter strips, and sediment traps if needed, to keep all sand-sized sediment on the land and disconnect disturbed soil from streams, lakes, and wetlands. Disperse runoff into filter strips.
- D. Keep heavy equipment out of filter strips except to do restoration work or build armored stream or lake approaches.

Management Measure 11

- A. Do not encroach fills or introduce soil into streams, swales, lakes, or wetlands.
- B. Properly compact fills and keep woody debris out of them. Revegetate cuts and fills upon final shaping to restore ground cover, using certified local native plants as practicable; avoid persistent or invasive exotic plants. Provide sediment control until erosion control is permanent.

Management Measure 12

- A. Site-prepare, drain, decompact, revegetate, and close temporary and intermittent use roads and other disturbed sites within one year after use ends. Provide stable drainage that disperses runoff into filter strips and maintains stable fills. Do this work concurrently. Stockpile topsoil where practicable to be used in site restoration. Use certified local native plants as practicable; avoid persistent or invasive exotic plants.
- D. Establish effective ground cover on disturbed sites to prevent accelerated on-site soil loss and sediment delivery to streams. Restore ground cover using certified

native plants as practicable to meet revegetation objectives. Avoid persistent or invasive exotic plants.

Management Measure 13

- A. A-Restrict roads, landings, skid trails, concentrated-use sites, and similar soil disturbances to designated sites.
- B. Operate heavy equipment for land treatments only when soil moisture is below the plastic limit, or protected by at least one foot of packed snow or two inches of frozen soil.

Management Measure 15

- A. Locate vehicle service and fuel areas, chemical storage and use areas, and waste dumps and areas on gentle uplands sites. Mix, load, and clean on gentle upland sites. Dispose of chemicals and containers in State-certified disposal areas.

Management Measure 16

- A. Install contour berms and trenches around vehicle service and refueling areas, chemical storage and use areas, and waste dumps to fully contain spills. Use liners as needed to prevent seepage to ground water. Prepare Spill Prevention Control and Countermeasure Plan per the requirement of 40 CFR 112.
- D. Clean wastewater from concrete batching and aggregate operations before returning the water to streams, lakes, or wetlands.
- E. Inspect equipment used for transportation, storage, or application of chemicals daily during uses periods for leaks. If leaks or spills occur, report them and install emergency traps to contain them and clean them up. Refer to FSH 6709.11, chapter 60 for direction on working with hazardous materials.
- F. Report spills and take appropriate clean-up action in accordance with applicable state and federal laws, rules and regulations. Contaminated soil and other material shall be removed from NFS lands and disposed of in a manner according to state and federal laws, rules, and regulations.